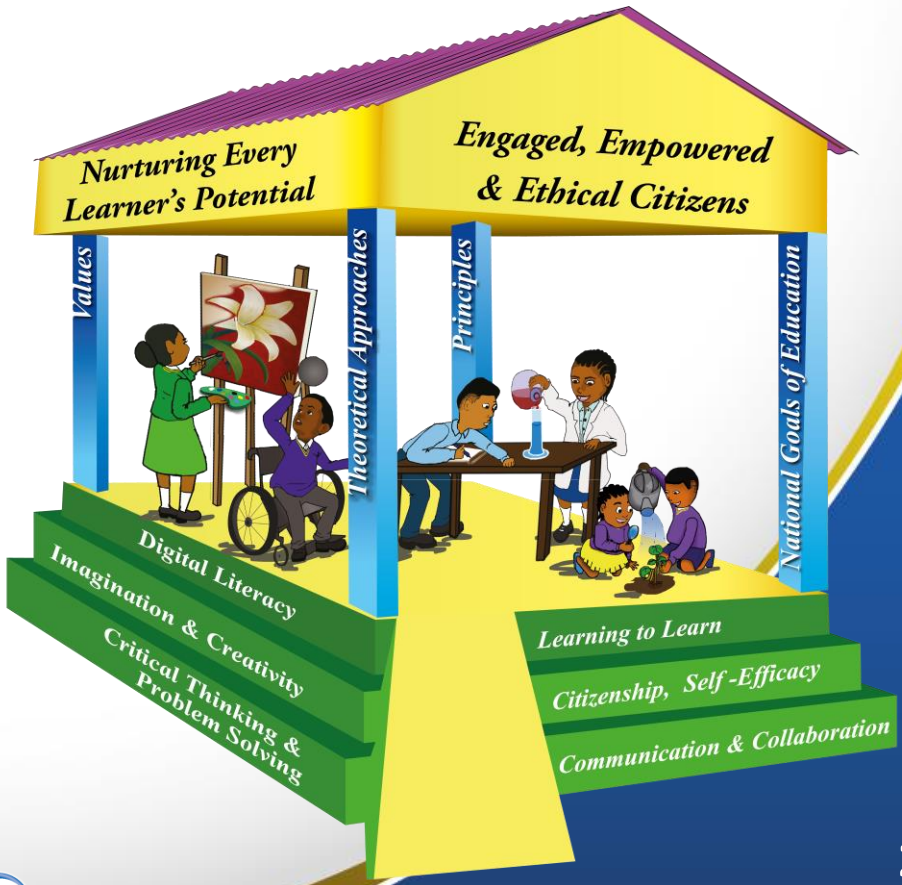
REPUBLIC OF KENYA

Basic Education Curriculum Framework



2017

KENYA INSTITUTE OF CURRICULUM DEVELOPMENT

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Foreword

The Basic Education Curriculum Framework (BECF) is the outcome of extensive stakeholder engagement, a national needs assessment study, deliberations from a national curriculum reform conference and several benchmarking studies. The Framework is aligned to the Constitution of Kenya, Vision 2030, the East African Community Curriculum Harmonization Structures and Framework, and other policy documents that express the aspirations of the country. The BECF is based on pillars which are anchored on values and underpinned by theoretical approaches and guiding principles.

The BECF has been developed to actualise the curriculum reforms. Its purpose is to provide a comprehensive conceptualisation of reforms in basic education; pre-primary education, primary education, secondary education, and inclusive education. The Framework outlines the vision for the curriculum reforms, including the overarching mission, the pillars of the reforms, the organisation of basic education, core competencies to be achieved in basic education, curriculum approaches adopted in the Framework, general learning outcomes, Subjects and subjects, necessary policies that will facilitate implementation of the curriculum reforms, appropriate pedagogical practices, proposed formative and summative assessment approaches, teaching and learning resources, and other critical issues that will contribute to the success of the reforms.

This Framework is expected to catalyse the achievement of the goals of Vision 2030. It is my hope that all educators at all levels of education and training will anchor their provision of basic and teacher education on this Framework.

Dr Fred Matiang'i
Cabinet Secretary
Ministry of Education

Acknowledgements

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I also wish to acknowledge the support of the following organisations for their support during the development of the Framework:

1. Government Ministries, Departments and Agencies
2. Development Partners, including UNICEF and UNESCO
3. Religious organisations, NGOs and Civil Society Organisations
4. The various KICD Subject Panels and the Academic Committee for validation and approval of the Framework
5. Ministry of Education Consultants

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Last, but not least, I acknowledge the support of Ms Debbie Howard and Mr Peter Douglas of the British Council, for editing and copy editing the Framework respectively.

Dr Julius O. Jwan
Director/CEO
Kenya Institute of Curriculum Development

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Acronyms and Abbreviations

AU	African Union
BECF	Basic Education Curriculum Framework
CBC	Competency Based Curriculum
CSL	Community Service Learning
CTS	Career and Technology Studies
ECDE	Early Childhood Development and Education
ESD	Education for Sustainable Development
ET	Engineering Technology
GCED	Global Citizenship Education
ICT	Information and Communication Technology
IEP	Individualized Educational Plan
KIE	Kenya Institute of Education
KICD	Kenya Institute of Curriculum Development
KNEC	Kenya National Examinations Council
KCBC	Kenya Competence Based Curriculum
LSE	Life Skills Education
LSV	Life Skills and Values
PCI	Pertinent and Contemporary Issues
SNE	Special Needs Education
SS	Senior School
STEM	Science, Technology, Engineering and Mathematics
TSC	Teachers' Service Commission
VTC	Vocational Training Centres

Definition of Terms

Activities of Daily Living Skills: This subject is concerned with helping learners with disabilities become as independent as possible in the environment in which they live, so that they can function safely at their highest capacity. It includes skills such as eating, dressing, personal hygiene, mobility, toileting, exploring the environment and behaviour management.

Adaptation of Syllabuses: The adjustment to or modification of the curriculum to accommodate the learning requirements of learners with special educational needs in areas which cannot be accessed despite assistive aids and additional learning materials.

Individualized Educational Plan: An educational plan for each learner who qualifies for special education services based on a personalized evaluation.

Pathway: The career area that a learner selects as he/she prepares to specialize. There are three career areas which the learner shall select from depending on his/ her interest, ability and aptitude.

Sensory Integration: A subject that involves the process of learning the skills of organization, identification, and interpretation of sensory information in order to represent and understand the environment.

Specialist Syllabuses: Syllabuses developed to meet the unique needs of learners with special educational needs.

Subjects: Learning areas, learning activities or courses offered at each level.

Tracks: Cluster of subjects within a pathway.

Background Information

The 8-4-4 system of education was introduced in 1985 following the recommendations of the 1981 'Presidential Working Party on the Establishment of the Second University in Kenya' (Republic of Kenya, 1981). The guiding philosophy of the system was 'education for self-reliance'. Several Task Force reports as well as summative and formative evaluation reports led to curriculum reviews in 1992, 1995 and 2002. However, these reviews only addressed issues of curriculum content, overloads within and across subjects, unnecessary overlaps and emerging issues. The reviews have not adequately addressed fundamental issues that would transform society by enhancing the productivity of every Kenyan citizen and accelerate economic growth.

'The Summative Evaluation of the Curriculum' (KIE, 2009), indicated that the curriculum content and its implementation was academic and examination oriented. In addition to curriculum overload, most schools were not adequately provided with equipped workshops to facilitate the learning of practical skills and teachers were not sufficiently trained. The graduates at secondary school level did not acquire adequate entrepreneurial skills for self-reliance. Apart from the high unemployment arising from this phenomenon, there was also the risk of the emergence of social vices such as increased crime, drug abuse and antisocial behaviour.

Furthermore, the current curriculum does not provide flexible education pathways for identifying and nurturing the talents and interests of learners early enough to prepare them for the world of work, career progression and sustainable development. Assessment, which is crucial for the provision of quality education, has been limited to summative assessment (assessment of learning) whilst the majority of teachers hardly ever use formative assessment (assessment for learning). This has led to a situation where there is fierce competition in learning instead of a focus on the acquisition of requisite knowledge and skills. The curriculum makes little provision for the recognition of the learner's potential, gifts and talents due to an unnecessary focus on examination. This has contributed to increased drop out and wastage rates in the education sector as well as high unemployment.

Based on the 2012 'Report of the Task Force on the Re-alignment of the Education Sector to the Kenya Vision 2030 and Constitution of Kenya 2010' chaired by Professor Odhiambo, the Government developed the Sessional Paper No. 2 of 2015 on 'Reforming Education and Training in Kenya'. The Sessional Paper states that the education sector is guided by the national philosophy, which places education at the centre stage of the country's human and economic development. The Sessional Paper recommends reforming the Education and Training Sector to provide for the development of the individual learner's potential in a holistic and integrated manner, while producing intellectually, emotionally and physically balanced citizens. It further recommends a competency based curriculum; establishment of a national learning assessment system; early identification and nurturing of talents; the introduction of national values and national cohesion and their integration into the curriculum; and the introduction of three learning pathways at senior school level.

Kenya Vision 2030 and Sessional Paper No. 2 of 2015 put a strong emphasis on the importance of science, technology and innovation but the current curriculum does not provide deliberate policies, appropriate pedagogical approaches and sufficient resources to lay a strong foundation for the development of these skills. In addition innovative, vocational and technical skills considered important for meeting the demand for skilled labour and the country's goal of industrialization are not well catered for in the mainstream curriculum.

Curriculum Reforms Vision

The vision of the basic education curriculum reforms is to enable every Kenyan to become an **engaged**, **empowered** and **ethical** citizen. This will be achieved by providing every Kenyan learner with **world class standards** in the skills and knowledge that they deserve, and which they need in order to thrive in the 21st century. This shall be accomplished through the provision of excellent **teaching, school environments and resources** and a **sustainable visionary curriculum** that provides every learner with seamless, competency based high quality learning that values every learner.

In order to do this, highly knowledgeable, reflective, professional teachers that have additional enhanced skills and confidence in a range of modern pedagogical tools such as **coaching, facilitating, and mentoring** shall be developed and supported.

This will enable teachers to act as role models for learners, caring for and inspiring every child to achieve his or her potential. It will also enable teachers to be flexible in adapting this new curriculum to meet the needs, talents and interests of every child, constantly diagnosing the learner's needs and collaborating with other stakeholders that influence the child such as **parents, other professionals and the local and wider community**.

To provide bespoke, differentiated, innovative learning experiences that ensure each and every child can take their place in the world with confidence and pride as 21st century Kenyans. This new curriculum shall ensure that all learning can be made contextually relevant for every learner's holistic growth and development so that they can all become **independent, confident, co-operative, and inspired learners** who love learning and are keen, focused and able to apply their learning in order to make constructive contributions as productive responsible citizens who co-operate with peers around the world in their learning, through enhanced digital literacy and mastery.

In so doing, the reformed curriculum seeks to ensure that the next and future generations of Kenyan citizens shall be both patriotic and global, equipped with the skills, knowledge, attitudes and values to thrive in the modern world, confident about their proud and rich cultural heritage and contributing this heritage to make the world a better place for everyone.

Curriculum Reforms Mission

The mission of the basic education curriculum reforms is '**nurturing every learner's potential'**. The curriculum will be designed to ensure that it provides opportunities to identify the potential that every learner brings to school and nurture this potential through the learning pathways and

tracks that will be provided at Senior School. The mission will ensure that no child is labelled a failure at the end of basic education.

National Goals of Education

The Framework will be anchored on the National Goals of Education.

Education in Kenya should:

1. **Foster nationalism, patriotism, and promote national unity**
   Kenya's people belong to different communities, races and religions and should be able to live and interact as one people. Education should enable the learner acquire a sense of nationhood and patriotism. It should also promote peace and harmonious co-existence.

2. **Promote social, economic, technological and industrial needs for national development**
   Education should prepare the learner to play an effective and productive role in the nation.

   a) **Social Needs**
   Education should instil social and adaptive skills in the learner for effective participation in the family, community, national, regional and international development.

   b) **Economic Needs**
   Education should prepare a learner with requisite competences that support a modern and independent growing economy. This should translate into high standards of living for every individual.

   c) **Technological and Industrial Needs**
   Education should develop in the learner necessary competences for technological and industrial development for the nation in tandem with global trends.

3. **Promote individual development and self-fulfilment**
   Education should provide opportunities for the learner to develop to the fullest potential. This includes development of one's interests, talents and character for positive contribution to the society.

4 **Promote sound moral and religious values**
   Education should promote acquisition of national values as enshrined in the Kenya Constitution. It should be geared towards developing a self-disciplined and ethical citizen with sound moral and religious values.

5. **Promote social equity and responsibility**

Education should promote social equity and responsibility. It should provide inclusive and equitable access to quality and differentiated education; including for learners with special educational needs and disabilities. Education should also provide the learner with opportunities to develop and practice shared responsibility and accountability through community service learning.

6. **Promote respect for and development of Kenya's rich and varied cultures**
   Education should instil in the learner appreciation of Kenya's rich and diverse cultural heritage. The learner should value own and respect other people's culture as well as embrace positive cultural practices in a dynamic society.

7. **Promote international consciousness and foster positive attitudes towards other nations**
   Kenya is part of the interdependent network of diverse peoples and nations. Education should empower the learner to respect, appreciate and participate in the opportunities within the international community. Education should also enable the learner to operate within the international community with full knowledge of the obligations, responsibilities, rights and benefits that this membership entails.

8. **Promote positive attitudes towards good health and environmental protection**
   Education should inculcate in the learner the value of physical and psycho-social well-being for self and others. It should promote environmental preservation and conservation, including animal welfare, for sustainable development.

Basic Education Curriculum Framework Pillars

The basic education curriculum framework vision and mission are supported by three important pillars; values, theoretical approaches and guiding principles.

Figure 1: Pillars of the Basic Education Curriculum Framework

Values

Values are defined as standards that guide an individual on how to respond or behave in a given circumstance. Our values influence how we feel, act and make choices in life. Internationally, there has been a rise in the challenges and issues related with cultural integration, as well as ethnic and religious diversity. In Sub-Saharan Africa, scholars have argued that the way ethnic groups interact has been responsible for Africa's low economic growth, political instability and conflict, high inequality, and low provision of public goods and services.

The teaching of **values** will facilitate the achievement of the curriculum reforms' vision, particularly with respect to developing **ethical citizens.** The thrust of this will be to nurture learners who do the right thing because it is the right thing to do. Students will be guided to learn

about and appreciate the effort and sacrifice that built the country and to see beyond their self-interests to the needs of the community. As a result, they will be provided with opportunities to **contribute** fully to the world around them – economically, culturally, socially and politically. Basic education will build capacities in learners that will enable them to be **stewards of the earth,** and to minimize negative environmental impacts. It will also nurture them to **build relationships** through humility, fairness and open-mindedness, and with **teamwork** and communication. The teaching and learning of values will also enable them to **value diversity** in all people, and to demonstrate respect, **empathy** and compassion for all people.

In Kenya, there is a noticeable values and behavioural crisis among the general population and young people in particular (Pernell, 1990). Many youngsters are growing up without the desired values, positive attitudes and psychosocial competencies needed to function as responsible citizens. The primary responsibility for inculcating values rests with parents and the community, but education too has an important role to play in this regard. The Framework recognises that values are important to the socio-economic development and stability of the country, in the same way that competencies in academics are important.

The Framework will take advantage of the fact that learners spend most of their formative years in school, which presents opportunities for the curriculum to mould and reinforce values upon which the learner's character is formed. The Framework will adopt a values based approach to education that will create learning opportunities within the formal, non-formal and informal curriculum dimensions to inculcate the desired values in all learners.

According to the **Constitution of Kenya, 2010** it is imperative that the State Department responsible for education develops and incorporates values in to the curricula at all levels of education. The values stated in the Constitution include **responsibility, respect, excellence, care and compassion, understanding and tolerance, honesty and trustworthiness, trust, and being ethical.** The Framework will incorporate these and other important values that may emerge in the subject of time.

Theoretical Approaches

A theory is an abstract general explanation of observations or a subject under study that can be relied upon to provide guidance for practice. It attempts to predict behaviour or reach a reasonable and general set of explanations for an underlying issue. The Basic Education Curriculum Framework is underpinned by several theories.

Instructional Design Theory

This theory offers explicit guidance towards a new curriculum that explains how to help students learn and develop in the wake of emerging globalization. Perkins, (1992) describes the instructional design theory which offers guidance for fostering cognitive learning as "Clear information, in terms of goals, knowledge needed and performance expected; Thoughtful practice, in terms of opportunities for learners to engage in learning actively and reflectively; Informative feedback, in terms of clear and thorough counsel to learners, and; Strong intrinsic or extrinsic motivation."

Instructional design theory is design-oriented because it focuses on the means to attain given goals for learning and offers guidelines on methods to use in different situations in curriculum

implementation. Values play an important role in instructional design theory. They underlie both the goals the curriculum pursues and the methods it offers to attain the goals. All these will be articulated in this BECF which takes cognizance of the place of values as an anchor for the pillars of the curriculum. The BECF also provides a vision for the reforms and engages critical stakeholders and policy makers to identify with it. This will provide a strong momentum for change in achieving the reforms' vision.

Visible Learning Theory

John Hattie (2012) observes that globally, fundamental changes in education systems have important implications for curriculum reform. Learners need to be able to think about and solve problems, work in teams, communicate through discussions, take initiatives and bring diverse perspectives to their learning. In addition, students need to learn more, yet they have little time available to learn it (Lee and Zemke, 1995). Learners also need to demonstrate the impact of the achievement of national goals of education.

Visible learning means an enhanced role for teachers as they become evaluators of their own teaching. Hattie asserts that visible learning and teaching occurs when teachers see learning through the eyes of students and help them become their own teachers. It entails making student *learning* visible to teachers so that they can know whether they are having an impact on this learning, this is an important component of becoming a lifelong learner. This resonates with the Sustainable Development Goals. The 'learning' part of visible learning is the need to think of teaching with *learning* in the forefront and with the idea that we should consider teaching primarily in terms of its *impact on student learning.*

When the *teaching is visible* the student knows what to do and how to do it. When the *learning is visible* the teacher knows if learning is occurring or not. Teaching and learning are *visible* when the learning goal is not only challenging but is *explicit*. Furthermore, both the teacher and the student work *together* to attain the goal, provide feedback, and ascertain whether the student has attained the goal. Evidence shows that the greatest effects on student learning come when not only the students become their own teachers (through self-monitoring, and self-assessment), but when the teachers become learners of their own teaching. In successful classrooms, both the teaching and learning are visible. This theory is important in designing a competency based curriculum. It provides directions on the nature of engagement in the learning process between the teacher, the learner and the environment. It also provides a basis for designing a formative and criterion referenced assessment, which is the bedrock of a competency-based curriculum.

Constructivism Theories

Different proponents of the constructivist theory have opined that human beings construct all knowledge while participating in different mental and physical experiences. In constructivism, the learner builds a personal interpretation of the world based on experiences and interactions and learning is a process of constructing knowledge rather than acquiring or communicating it. Among its proponents are Dewey, Vygotsky, Piaget, Brunner, and more recently Gardner and Hattie.

i. Dewey's Social Constructivism

Dewey felt that the curriculum should ultimately produce students who would be able to deal effectively with the modern world. Therefore, curricula should not be presented as finished abstractions, but should include the child's preconceptions and should incorporate how the child views his or her own world. Dewey uses four instincts, or impulses, to describe how to characterize children's behaviour. The four instincts according to Dewey are social, constructive, expressive, and artistic. Curricula should build an orderly sense of the world where the child lives. He hoped to use occupations to connect miniature versions of fundamental activities of life with classroom activities. The way Dewey hoped to accomplish this goal was to combine subject areas and materials. By doing this, he made connections between subjects and the child's life. According to Dewey, education is growth and not an end in itself, and thus the curriculum should arise from students' interests and should be hands-on and experience based rather than abstract. This theory underscores the emphasis of continuous, participatory and experiential learning. This is an emphasis of the practical aspect of the basic education curriculum in the curriculum reforms.

ii. Vygotsky's Social-Cultural Development Theory

Vygotsky's social-cultural theory emphasized that teaching and learning are highly social activities and that interactions with teachers, peers and instructional materials influence the cognitive and affective developments of learners (Kim and Baylor, 2006). The theory argues that learning takes place when learners interact with each other, or have other social contact. Learners negotiate meanings with people in the environment, and they achieve goals through interacting, both explicitly and implicitly, with the teacher, peers, materials, and atmosphere embedded in the context. This theory underpins the basic education curriculum framework in terms of conceptualising and designing the necessary paradigm shifts that will facilitate creating rich learning environments which will stimulate all learners and help them to fulfil their potential.

Vygotsky's theory emphasizes that while adults may learn independently, children require mediation from others before they can learn on their own. He called this process of moving from being mediated by others to learning independently *scaffolding*. Within *scaffolding*, he identified an optimal point where learning takes place and called this the Zone of Proximal Development (ZPD). The concepts of scaffolding and ZPD will be useful in designing the pedagogical shifts that teachers will be trained in to facilitate adoption of a competency based curriculum in basic education. Activities in the classroom will include journaling, experiential activities, and collaborative and co-operative learning.

iii. Gardner's Multiple Intelligence Theory

Gardner's theory grew out of constructivism. It states that learners possess different kinds of minds and therefore learn, remember, perform, and understand in different ways. He argues that we are all able to know the world through language, logical-mathematical analysis, spatial representation, musical thinking, use of the body to solve problems or to make things, an understanding of other individuals, and an understanding of ourselves. Recognising this enables learners to leverage their strengths and purposively target and

develop their weaknesses. Pedagogical approaches under this theory emphasize the importance of a learner centred classroom, self-directed learning and delivery of instruction via multiple mediums.

Where individuals differ is in the strength of these intelligences – the so-called profile of intelligences – and in the ways in which such intelligences are invoked and combined to carry out different tasks, solve diverse problems, and progress in various domains. Gardner says that these differences challenge an educational system which assumes that everyone can learn the same materials in the same way and that a uniform, universal measure suffices to test student learning. Indeed, as currently constituted, our educational system is heavily biased toward linguistic modes of instruction and assessment and, to a somewhat lesser degree, toward logical-quantitative modes as well. Given the need to identify, develop and nurture the talents of learners in the reformed curriculum, Gardner's argument that learners can leverage their strengths is more likely to be educationally effective since learners learn in ways that are identifiably distinctive. The broad spectrum of learners – and perhaps society as a whole – would be better served if disciplines could be presented in a number of ways and learning could be assessed through a variety of means. Criterion referenced assessment that is aligned to a learner's competencies can be situated within Gardner's multiple intelligences theory. This type of assessment is emphasized in the BECF.

iv. Piaget's Cognitive Development Theory

Piaget's theory deals with how humans gradually come to acquire, construct, and use knowledge. He looked at the impact a person's childhood had on their development, and the ways in which maturation affect a child's increasing capacity to understand their world. Piaget asserted that children cannot undertake certain tasks until they are psychologically mature enough to do so. According to this theory, there is progressive reorganization of mental processes resulting from biological maturation and environmental experience. It is important to note that children's thinking does not develop entirely smoothly, instead, there are certain points at which it "takes off" and moves into completely new areas and capabilities. These points are in four stages of cognitive development: sensory motor (0-2 years), language development and conceptual thought (2-7 years), concrete operations (7-11 years) and formal operations (11 years and above). This has been taken to mean that before these ages children are not capable (no matter how bright) of understanding things in certain ways, and has been used as the basis for scheduling the school curriculum. Parents are encouraged to provide a rich, supportive environment for their child's natural propensity to grow and learn. Parent involvement in learning is an active element in reforming the basic education curriculum.

v. Bruner's Cognitive Development Theory

Bruner's constructionist theoretical framework is based on the theme that learners construct new ideas or concepts based upon existing knowledge. According to Brunner (1976) the facets of the learning process include selection and transformation of information, decision making, generating hypotheses, and making meaning from information and experiences. The theory emphasizes the significance of categorization in learning as "to perceive, to conceptualize, to learn, to make decisions." Interpreting

information and experiences by similarities and differences is a key concept. The theory identifies four key themes:

a) The role of structure in learning and how it may be made central in teaching. Structure refers to relationships among factual elements and techniques.
b) Readiness for learning and spiral curriculum. Bruner believed that any subject could be taught at any stage of development in a way that fit the child's cognitive abilities. Spiral curriculum refers to the idea of revisiting basic ideas over and over, building upon them and elaborating to the level of full understanding and mastery.
c) Intuitive and analytical thinking should both be encouraged and rewarded. He believed the intuitive skills were under-emphasized and he reflected on the ability of experts in every field to make intuitive leaps.
d) Motivation for learning. He felt that ideally, interest in the subject matter is the best stimulus for learning. Bruner was against external competitive goals such as grades or class ranking.

Just like the other constructivists, Bruner placed emphasis on learning instruction that allows learners to discover principles for themselves and knowledge being structured in a way that is readily grasped by learners.

vi. Erik Erikson's Theory of Psychosocial Development

This theory attempts to describe personality development throughout the entire lifespan of an individual in eight distinct stages. Erikson proposed a lifespan model of development that entails five stages in childhood (from birth to the age of 18 years) and three stages in adulthood. According to Erikson, there is plenty of room for continued growth and development throughout one's life. The theory is underpinned by the epigenic principle which presupposes that personality develops in a predetermined order, and builds upon each previous stage. Reference to this theory will be made to minimize frustration and ensure that education tasks given to the child are in alignment with their stage of development.

Erikson assumes that a crisis occurs at each stage of development. These crises are of a psychosocial nature because they involve the psychological needs of the individual (i.e. psycho) conflicting with the needs of society (i.e. social). Successful negotiation of each stage results in a healthy personality and the acquisition of basic virtues. Failure to successfully complete a stage can result in a reduced ability to complete further stages and therefore a more unhealthy personality and sense of self. To help each learner achieve the expected learning outcomes, a competence based curriculum will ensure that outcomes are commensurate with the learner's stage of development.

The following table gives a summary of the tasks or crises a human being is expected to negotiate in order to move to the next stage of development.

Stage	Psychosocial Crisis	Basic Virtue	Age
1	Trust vs. mistrust	Hope	Infancy (o to1 ½)
2	Autonomy vs. shame	Will	Early Childhood (1 ½ to3)
3	Initiative vs. guilt	Purpose	Play Age (3 to 5)
4	Industry vs. inferiority	Competency	School Age (5 to 12)
5	Ego identity vs. Role Confusion	Fidelity	Adolescence (12 to 18)
6	Intimacy vs. isolation	Love	Young Adult (18 to 40)
7	Generativity vs. stagnation	Care	Adult hood(40 to 65)
8	Ego integrity vs. despair	Wisdom	Maturity (65+)

(McLeod 2016)

According to Erikson the curriculum aims at fostering both lower and high level skills concurrently where the teacher remains a guide or facilitator while the learner constructs their own knowledge through exploration and experiential learning. Learners as they grow are active participants in the learning process through collaborating with others in group projects, hands-on exploration, and aiming at authentic tasks and product development. Learning goals are stated in terms of growth and increased ability to work independently and collaboratively. Pedagogy and assessment therefore as discussed in these theories are inclined towards the 21st century skills and competencies which the basic education curriculum aspires to achieve in the curriculum reforms.

Guiding Principles

The Framework is based on the following guiding principles:

1. Opportunity

In order to achieve the reforms' vision and mission, the curriculum provides learners with a variety of opportunities to enable them to identify their needs, talents and potential. This will enable them to participate in the world of work and the development of the nation. The emphasis will be on equal access to education for all. This will enable learners to enjoy learning and reduce wastage in terms of learners leaving school because the curriculum is not relevant to their needs.

2. Excellence

Every learner will be nurtured to excel in their areas of greatest interest and ability. The Framework values excellence and competitiveness rather than raw competition for examination grades. This will play a role in helping to reduce the challenge of malpractice in examinations because each learner will be guided to excel in their area of interest and ability.

3. Diversity and Inclusion

There are two dimensions in the guiding principle of diversity and inclusion. First, the Framework will guide learners to appreciate Kenya's diversity in terms of race, ethnicity, gender, language, culture, and religion. The second dimension relates to the fact that learners are different in terms of their learning needs and abilities and these differences need to be respected and valued within an inclusive learning environment. Inclusion will entail ensuring that all learning institutions accommodate all learners regardless of their physical, emotional, intellectual, or any other need. It involves provision of reasonable accommodation characterized by flexibility, responsiveness and support. The Framework recognises that not all learners are academically gifted but considers every learner's social and cognitive capabilities, their needs and desires, and respects the differences in the way children learn. The ultimate aim is to guarantee basic education for every learner according to their abilities and needs.

The curriculum reforms should address the needs of children and youth who are out of school, and adults, to increase their access to and participation in education, and hence, raise their literacy levels for personal and national social economic development.

4. *Differentiated Curriculum and Learning*

Differentiated curriculum and learning builds on the principle of diversity and inclusion. It ensures that the curriculum content and instructional approaches are appropriate for each learner. It provides space for teachers to adapt the curriculum to suit the learner. It does not demand that every learner learn the same content in the same way, in the same number of hours and at the same time.

5. *Parental Empowerment and Engagement*

Parents play a very important role in determining the success of a child's education. They have a shared responsibility with schools to provide an enabling environment that is conducive to learning and which motivates the child to achieve their full potential. The Framework will provide opportunities for schools to empower parents to contribute to the learning outcomes for their children and to be engaged at all tiers and levels of basic education.

6. *Community Service Learning*

Involving students in community service is a form of experiential education that enables students to apply their knowledge and skills in a different setting. Teachers then support students to analyse what they have learned by taking part in this activity and how it might be applied to their academic and personal development.

Community service learning entails a balanced emphasis on both students' learning and addressing real needs in the community. Learning outcomes are linked to meaningful human, safety, educational, and environmental needs that are co-determined with community partners and service recipients. The service experience is brought back to the classroom to enhance learning. Learners work on real problems that make academic learning relevant while simultaneously enhancing their social skills, analytical ability, civic and ethical responsibility, self-efficacy, and career development.

Core Competencies for Basic Education

Sessional Paper No. 2 of 2015 on 'Reforming Education and Training in Kenya' recommends a reformed curriculum that adopts a competency based approach. This is also recommended by the EAC Curriculum Harmonization Structures and Framework. A competency based approach enables meaningful connections within and between subject areas through a focus on competencies. Subjects and Subjects will continue to be taught and will be the vehicles through which the core competencies are developed over time. In view of the different interpretations of the meaning of a competency based curriculum, and specifically for basic education, the Framework provides clarity on the concept itself and also how the curriculum will be designed, implemented and assessed.

In the context of the Kenyan Competency Based Curriculum (KCBC), competency will be understood as 'the ability to apply appropriate knowledge and skills to successfully perform a function'. Within this context, the curriculum will be designed to emphasize the importance of not only developing skills and knowledge but also applying these to real life situations. The integration of **pertinent and contemporary issues** and **service learning** into the framework will provide the opportunity for learners to develop and apply their skills and knowledge, or in other words, their competencies.

Based on the Needs Assessment Study carried out by KICD, and the vision and mission of the BECF, the seven core competencies to be achieved by every learner in basic education are:

1. Communication and Collaboration
2. Self-efficacy
3. Critical Thinking and Problem Solving
4. Creativity and Imagination
5. Citizenship
6. Digital Literacy
7. Learning to Learn

The Framework seeks to develop these competencies so that all Kenyans can thrive in the 21st century.

Communication and Collaboration

Communication is the act of transferring information from one place to another, whether vocally, visually, or non-verbally. The discipline of communication focuses on how people use messages to generate meanings within and across various contexts, cultures, channels, and media. The discipline promotes the effective and ethical practice of human communication.

Spitzberg (1988) defines communication competence as the ability to interact well with others in terms of accuracy, clarity, comprehensibility, coherence, expertise, effectiveness and appropriateness. On the other hand Friedrich (1994) suggests that communication competence is best understood as "a situational ability to set realistic and appropriate goals and to maximize their achievement by using knowledge of self, other, context, and communication theory to generate adaptive communication performances."

In this respect, it can be argued that being able to communicate effectively as intended is the most important of all life skills. How well information can be transmitted and received is a measure of how good our communication skills are. Developing communication skills helps in all aspects of an individual's life.

Parks (1985) maintains that communicative competence can effectively be measured by determining if, and to what degree, the goals of interaction are achieved. He emphasizes three interdependent themes: control, responsibility, and foresight; and argues that to be competent, learners must not only 'know' and 'know how,' but rather they must also 'do' and 'know that we did'. He defines communicative competence as the degree to which individuals perceive they have satisfied their goals in a given social context without jeopardizing their ability or opportunity to pursue their other subjectively more important goals.

A useful framework for understanding communication competence was designed by Spitzberg and Cupach (1984). They propose a model that can be used to understand communication referred to as the component model of competence. The model asserts that communication competence is mutually defined by the interdependency of the cognitive component (concerned with knowledge and understanding), the behavioural component (concerned with behavioural skills), and the affective component (concerned with attitudes and feelings about the knowledge and behaviours) by interactions in an interpersonal encounter within a specific context.

This then implies that education at each level should endeavour to enhance the learner's acquisition of effective communication skills through which they can interact and express themselves during the learning process. In this respect, it would be prudent to be cautious when deciding on the language to be used as a medium of instruction at the early year's education level. It is also important to take cognizance of appropriate modes of communication for learners with special educational needs.

Collaboration is the process of two or more people or organizations working together to realize shared goals. Collaboration may require leadership, although this can be social within decentralized or egalitarian groups or teams that work collaboratively in relation to gaining greater resources, recognition and motivation. Strategies for effective communication enhance the attainment of greater collaboration among groups that ultimately increase the success of teams as they engage in collaborative problem solving. Collaboration is also present in opposing goals exhibiting the notion of adversarial collaboration, though this is not a common case for using the word. Collaborative learning is a system in which two or more people co-operate in a learning experience to share and contribute to each member's understanding of a topic and to complete a given task. Collaborative learning is designed to help learners learn from each other and can be an important aspect of the school curriculum. Lesson plans for collaborative learning may vary greatly. Sometimes teachers will build a lesson designed specifically to teach collaborative learning and teamwork. There are many team building games and activities that can be done in a classroom that force learners to work together to complete a task. Other collaborative learning exercises are designed around a particular school subject. For instance, in a speech class, a teacher might put learners up into teams and have them work together to make a presentation on a subject together. In this scenario, learners can learn just as much as if they were

developing a presentation on their own, but they get the added benefit of learning how to collaborate.

Self-efficacy

Self-efficacy is a person's belief about his or her capabilities to perform tasks or assignments that can change and transform his or her life. It determines how the person feels, thinks, behaves and motivates themselves. Self-efficacy has the potential to determine four major processes namely cognitive, motivational, affective and selection processes.

A strong sense of self-efficacy enhances a learner's accomplishment and personal well-being in many ways. Learners with high assurance in their capabilities approach difficult tasks as challenges to be mastered, rather than as threats to be avoided. Self-efficacy fosters intrinsic interest and deep engrossment in activities. Learners set themselves challenging goals and maintain a strong commitment to them.

Self-efficacy as a competence will enable learners to develop and nurture intra-personal skills and values such as self-awareness, self-esteem, confidence and personal integrity. These competencies will enhance the learner's ability to heighten and sustain efforts in the face of failure and effectively manage stressful situations. A learner with a strong sense of self-efficacy will be courageous and bold enough to set and pursue personal educational, family, community, entrepreneurial, professional, and career goals in all forms of employment that will lead to personal accomplishment (British Council, 2016). An efficacious learner will be aware of the resources at their disposal and will take personal responsibility for the use, care, management, protection and preservation of these resources.

A learner with strong self-efficacy will be internally motivated to establish and maintain healthy interpersonal relationships. They will demonstrate interpersonal relationship skills such as assertiveness, empathy, effective communication, negotiation skills, non-violent conflict resolution skills and peer pressure resistance skills. Creative and critical thinking that leads to effective decision making and problem solving is based on a strong sense of self-efficacy (British Council, 2016). Capacity building of teachers and parental engagement are two crucial factors that would determine acquisition of self-efficacy. The school will be expected to provide opportunities for parents to be empowered and engaged in the affairs and welfare of their children's education.

Critical Thinking and Problem Solving

An important outcome of quality education is teaching learners how to think critically. The British Council (2015) identifies three types of thinking: reasoning, making judgements, and problem solving. It is possible for learners to reason in an uncritical way. When learners are empowered with critical thinking, they avoid being subjective, and use logic and evidence to arrive at conclusions. Critical thinking also facilitates exploring new ways of doing things and learner autonomy. Learners learn that for every issue there are multiple perspectives that they can explore, rather than a rigid recall and regurgitation of information.

Critical thinking is important for lifelong learning. It helps learners to have an open mind and be ready to listen and appreciate information and opinions that may sometimes conflict with their earlier held beliefs and positions. Critical thinking and problem solving are useful for learners of all ages and in all the subjects and disciplines offered in the basic education curriculum. For example, in the sciences learners need to think critically about observations and patterns to develop ideas on how to solve problems. These competencies are also important for solving problems in their lives and communities, and will ultimately help them to fulfil their potential, which is the vision for the basic education curriculum. This will contribute to addressing the unemployment challenge in Kenya.

Critical thinking and problem solving will be developed through age appropriate activities and programmes in the school curriculum. For example, at pre-primary school level learners can be asked to come up with the best ways of using and keeping their books, stationery and other personal items safe. At the other end of the basic education spectrum, learners can be asked to come up with the best ways of addressing the challenge of scarce resources such as water in the school and community.

Creativity and Imagination

Creativity and imagination refers to the ability to form new images and sensations in the mind, and to turn them into reality (British Council, 2016). It is the ability to imagine things that are not real, to form pictures in the mind of things that one has not seen or experienced, and turn those pictures into real things. It also refers to the act or power of forming mental images of things that are not present to the senses, or that are never wholly perceived in reality, and creating physical representations of those images. Imagination only exists or happens in the mind, and it remains in the mind. Creativity and imagination on the other hand, is characterized by the ability to perceive the world in new ways, to find hidden patterns, to make connections between seemingly unrelated phenomena, and to generate solutions. It is a phenomenon whereby something new and valuable is formed.

In educational terms, creativity and imagination refers to the ability of learners and their teachers to form images and ideas in their minds, and turn them into real, visible creations. Learners who are imaginative and creative are able to make life interesting for themselves and others around them. They are able to use the knowledge, skills and values acquired in the learning process to create new ideas that result in products that add value to their lives and to the lives of others around them. The competence based curriculum recognizes this hidden ability in learners. It will therefore, inspire learners' imagination by presenting knowledge in ways that encourage learners to think as individuals. It will create scenarios that help learners to engage in imagination and encourage them to develop creations steered by the imagination. Their ability to imagine will be stretched through exposure to challenging situations that help to expand their thinking and creativity skills. The curriculum will also create room for innovative ways of teaching as well as creating an environment conducive to learning that offers all learners opportunities to explore their full potential in and through creativity and imagination.

Citizenship

Historically, human beings have always formed communities based on a shared identity. Such identities are forged in response to a variety of human needs, which might be economic, political, religious or social. As group identities grow stronger, those who hold them in commonality with others organize themselves into communities, articulate their shared values, and build governance structures to support their beliefs. The individuals in these communities identify themselves as citizens.

Citizenship is the state of being vested with the rights, privileges, and duties of a citizen. It creates a sense of belonging and attachment to one's nation. A sense of citizenship helps to equip young people to deal with situations of conflict and controversy knowledgeably and tolerantly. They are able to understand the consequences of their actions, and those of the adults around them.

Global citizenship is a way of living which recognizes that our world is an increasingly complex web of connections and interdependencies. One in which our choices and actions may have repercussions for people and communities locally, nationally or internationally. It nurtures personal respect and respect for others, wherever they live. It encourages individuals to think deeply and critically about what is equitable and just, and what will minimize harm to our planet.

Digital Literacy

Digital literacy can be described as having the knowledge, skills and behaviours which are necessary to effectively and safely use a wide range of digital content and devices. Such devices include mobile phones, smart phones, tablets, laptops and desktops among others. All these fall within the category of network enabled devices. Digital literacy focuses mainly on network enabled devices and should not be confused with computer literacy skills. However, traditional forms of literacy and computer literacy are enhancers in the acquisition of digital literacy skills.

Individuals are presumed to be digitally literate if they possess a broad range of digital skills and knowledge, and have a basic understanding of the potential uses of computing devices. Digital literacy skills also include being able to use computer communication networks, being able to engage in online communication and social networks, being aware of and adhering to ethical behaviour protocols, being aware of societal issues raised through digital media, and being able to search, evaluate and use information channelled through digital platforms. Furthermore, the digital literate individual should also have the ability to safely and securely use technology while being able to assess the nature of the information acquired in order to support and enhance the environment (British Council, 2015). Digital literacy as a competence therefore encompasses knowledge and skills concerning the appropriate application of a variety of hardware platforms such as computers, tablets and mobile devices, and their software including but not limited to web search or internet application software. Digital literacy is a dynamic competence due to the fast-changing world of information communication technology and the ongoing development of technological devices as well as their related software. This is an area in which there is constant innovation and development as the industry attempts to keep up with a globally increasing demand for efficient and effective communication technologies.. Currently, digital literacy is considered as one of the main core competencies for learning and life in the 21st century. It

challenges existing thinking and practice while leading to a more innovative, creative and often transformational learning.

Learning to Learn

Learning is a continuous process that begins at birth and continues until death; it is the process through which we use our experience to deal with new situations and to develop relationships. As a concept, it involves far more than thinking as it incorporates the whole personality – senses, feelings, intuition, beliefs, values and will. If we do not have the will to learn, we will not learn and if we have learned, we are actually changed in some way. If the learning makes no difference it can have very little significance beyond being random ideas that float through our consciousness.

Learning to learn is the ability to pursue and persist in learning, to organise one's own learning by the effective management of time and information, both individually and in groups. This competence includes awareness of one's learning process and needs, identifying available opportunities, and the ability to overcome obstacles in order to learn successfully. This competence means gaining, processing and assimilating new knowledge and skills as well as seeking and making use of guidance. Learning to learn helps learners to build on prior learning and life experiences in order to use and apply knowledge and skills in a variety of contexts. There are four pillars of learning: Learning to know, learning to do, learning to be and learning to live to live together.

A competency based curriculum has the following strengths:

1. Learner-focused

The focus should be less on the school and the system and more on the education and the learner. The curriculum should be responsive and relevant to learners and enable flexibility for teachers – who are designers of learning opportunities – to enable them to meet the diverse needs of the students.

2. Focus on Competencies

More focus should be directed to competencies and less on content. The goal should be the appropriate application of knowledge, and not necessarily just its acquisition. This kind of curriculum enables the creation of meaningful connections within and among subject areas by focusing on competencies. Subjects/subjects/disciplines will continue to be taught and will be the vehicle through which literacy, numeracy and other competencies are developed over time.

3. Opportunities for Local Decision Making and Greater Depth of Study

Prescriptive curricula with limited flexibility should be avoided, as should programs that have fewer learning outcomes. The goal is to enable greater flexibility at the local level. Teachers will have autonomy in implementing the curriculum while teaching.

4. Balance Between Formative and Summative Assessment

Too much focus on summative assessment should be avoided. A range of assessment that focuses on the development of student learning outcomes, cross-curricular competencies, and literacy and numeracy should be adopted.

5. Digitally Based

The design of the curriculum within a collaborative digital application enables it to be improved continuously and supports learning with flexible timing and pacing through a range of learning environments.

6. Collaborative and Co-development Models

Collaboration by all stakeholders in the curriculum design should be the norm. Co-creation of the curriculum with partners and stakeholders taps into local expertise to enhance its design and development. Content delivery will be flexible and exploratory.

7. Synchronous Development

Sequential development needs to be replaced with synchronous development. An integrated approach to develop programmes of study, assessments, and learning and teaching resources supports a common approach that encourages interdisciplinary learning.

Subjects

These are the subjects taught at various levels of the education. For example, English, Mathematics, Science and Technology. Subjects are the means through which the key competencies, values and knowledge will be taught across all levels of learning. However, they are not static and may change to address the ever changing needs of society.

Organization of Basic Education

Basic Education will be organized into three (3) levels: Early Years Education, Middle School Education and Senior School. Figure 2 presents a summary of the structural model.

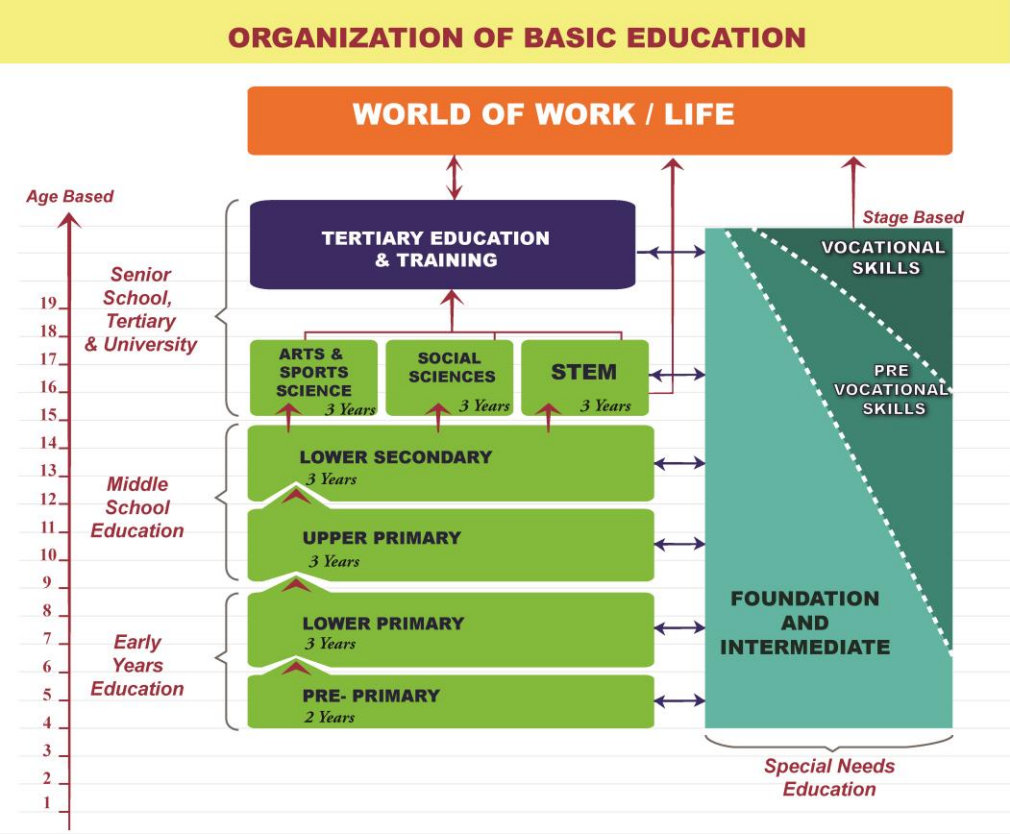

Figure 2: Basic Education Structural Model

Early Years Education

This shall comprise two years of pre-primary and three years of lower primary school education.

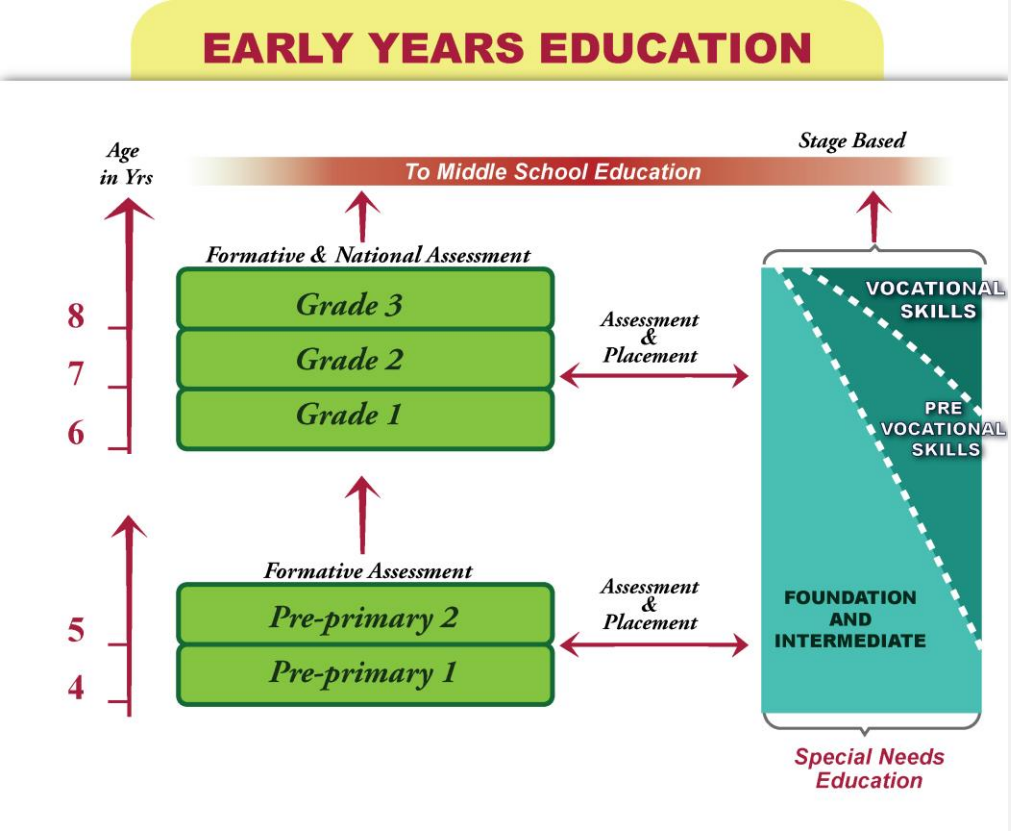

Figure 3: Early Years Education Structural Model

Learning Outcomes for Early Years Education

By the end of early years' education, the learner should be able to:

1. Demonstrate basic literacy and numeracy skills for learning.
2. Communicate appropriately using verbal and/or non-verbal modes in a variety of contexts.
3. Demonstrate appropriate etiquette in social relationships.
4. Apply creativity and critical thinking skills in problem solving.
5. Explore the immediate environment for learning and enjoyment.
6. Practice hygiene, nutrition, sanitation, safety skills to promote health and wellbeing.
7. Demonstrate the acquisition of emotional, physical, spiritual, aesthetic and moral development for balanced living.
8. Demonstrate appreciation of the country's rich and diverse cultural heritage for harmonious co-existence.
9. Apply digital literacy skills for learning and enjoyment.

Pre-primary Education

All learners are expected to begin their education at this level. It is a two year programme.

Subjects for Pre-primary (Two Years)

1. Language Activities
2. Mathematical Activities
3. Environmental Activities
4. Psychomotor and Creative Activities
5. Religious Education Activities

NB: Digital literacy and pertinent and contemporary issues will be integrated across all Subjects.

Essence Statements for the Pre-primary Curriculum

Language Activities

Language is an important tool for facilitating learning as children use it to interact with their immediate environment. It is a medium of communication and a critical component of socialization as it equips learners with skills that are necessary for listening and speaking as well as developing literacy skills. Language acquisition at the formative level of human development is based on several theoretical frameworks attributed to a number of early childhood specialists and theorists such as Tricia (2004).

The essence of this activity area is to develop oral, reading readiness and writing readiness competencies in order to lay the foundation for language acquisition. In pre-primary education, the medium of instruction is the language of the catchment area. The aim of teaching language activities at pre-primary school level is to enable learners to express themselves fluently and to assist them to improve the listening ability, concentration, understanding and memory.

Mathematical Activities

Mathematical activities are important for laying a firm foundation for logical thinking and problem solving. Learning mathematics at pre-primary level empowers children to engage in basic analysis of problems and development of appropriate solutions in day to day life. It enhances logical and critical thinking, accuracy and problem solving. During the early childhood stage of development, learners are more engaged when using manipulative (carbonneau et al, 201; Cocket and Kilgour, 2015). Similarly, Piaget and Bruner attest that children at this level use hands-on manipulation to physically arrive at a mathematical solution.

Pre-primary mathematics curricula should therefore comprise learning basic mathematical concepts through manipulation of concrete objects and not abstract knowledge. Activities at this level form a firm foundation for the acquisition of competencies in classification, number and measurement skills.

Environmental Activities

Environmental activities entail the relationship between human beings and their environment. These activities enable the child to develop positive relationships, appreciate the surrounding environment and cultural heritage, develop observation and discovery skills, and acquire life skills required to ensure safety in their environment. The curriculum must therefore offer opportunities for the children to explore the environment around them in order to acquire knowledge and skills that form the foundation for further learning. Exploration of the environment allows unlimited opportunities for children to learn and satisfy their curiosity and makes learning more fun for them.

The essence of environmental activities at the pre-primary level is to develop social, experimentation and discovery, personal hygiene and safety skills among the children. Nature study activities are best learnt through the inquiry method which includes simple experimentation and observation. Social activities deal with acquisition of values and attitudes which aid in the holistic development of an individual, while safety activities mainly deal with life skills that ensure children remain safe and are not exposed to risks that may endanger their lives.

Psychomotor and Creative Activities

Psychomotor and creative activities at pre-primary level enable learners to develop both fine and gross motor skills which are necessary for the control and co-ordination of different parts of the body. These activities enhance exploration and development of personal talents and skills as well as appreciation of their cultural heritage.

Pre-primary physical and creative curriculum comprises play and learning activities through which children exercise their bodies thereby facilitating blood and oxygen circulation for healthy and strong growth and development as well creative activities through which children develop their fine motor skills, imagination and creativity thereby developing their talents.

Religious Activities

Children need to participate in activities that integrate religion and moral values. Teachers should help children to appreciate people of different religious backgrounds and to differentiate right and wrong at an early age so they can grow up as upright members of the society. Children need to be introduced to such values at an early age. Youniss et al (1999) found that the importance of religion was consistently and positively associated with engaging in service activities. It is therefore important to emphasize religious education in schools in order to instil acceptable religious and moral values in young children.

Religious Education Activities at pre-primary level comprise learning about the supernatural being (God). The aim of moral and religious activities at pre-school level is to develop awareness and appreciation of the generosity, love and care of God in all He has created, and to enable children to acquire the qualities of sharing, respect, kindness, getting along with others.

Lower Primary

The learners from pre-primary 2 will join lower primary in grade 1 at about 6 years of age and spend 3 years in this part of Early Years Education before exiting to middle school at the end of grade 3.

Subjects

The following will be the Subjects in lower primary

1. Literacy
2. Kiswahili Language Activities/Kenya Sign Language for learners who are deaf
3. English Language Activities
4. Indigenous Language Activities
5. Mathematical Activities
6. Environmental Activities
7. Hygiene and Nutrition Activities
8. Religious Education Activities
9. Movement and Creative Activities

NB:

- ICT will be a learning tool in all areas.
- Pertinent and contemporary issues will be mainstreamed in all Subjects.

Essence Statements for Lower Primary

Literacy

Literacy is the ability to read, write and use language proficiently. According to UNESCO, literacy is a basic human right. Literacy as a subject addresses the ability of the learner to make meaning of letters and sounds thus making sense of written codes. It shall be taught in the first language of the learner. At this foundational level, literacy aims at equipping the learner with basic skills in reading and writing to aid in all other Subjects. It will assist the learner to communicate with others as well as promote learning to learn.

Indigenous Language Activities

Kenya is a multi-ethnic community where people speak various languages and dialects. These languages and dialects communicate valuable cultural values and norms that need to be transmitted across successive generations. Indigenous language activities will therefore be carried out in the language of the catchment area. Such activities will include listening, speaking, pre-reading and pre-writing. This will enhance the acquisition of language and relevant vocabulary as well as the acquisition of foundational skills and knowledge in speaking, reading and writing in indigenous languages. In addition, it will enable the learner to be actively involved in the learning process as emphasized by social constructivism, which states that the responsibility of learning should reside increasingly in the learner (Glasersfeld, 1989). Learning in a language the learners are familiar with will make it easier for them to construct their own understanding and look for meaning in their daily experiences, thus reinforcing their unique strengths.

Concrete activities designed to help learners develop their strengths can also trigger their confidence to develop areas in which they are not as strong, which resonates with the theory of multiple intelligences (Gardner, 1983). All learning experiences, as Gardner emphasizes, do not have to relate to a person's strongest area of intelligence. These experiences will prepare the learner for careers where indigenous languages are required such as in media houses, translation services and other public speaking fora. It is expected that learners will gradually acquire, construct, and use knowledge through the different learning levels. The skills and knowledge gained at this level will be a stepping stone to the next level of learning.

Kiswahili Language Activities or KSL for Learners Who Are Deaf

Kiswahili is the national language and one of the two official languages of communication in the country. Learners should be exposed to the language at the earliest possible time in their schooling. Kenya Sign Language (KSL) will be the alternative language for learners who are deaf.

English Language Activities

English is one of the official languages of communication in country. It is also the second highest spoken language globally. Learners should be taught the foundational skills of reading and writing the English language at the earliest opportune time.

Mathematical Activities

Numeracy is a foundational skill that prepares the learner for number work and mathematics in higher levels of schooling. Numeracy activities involve identification and value placement of mathematical numerals as well as basic mathematical operations such as addition, subtraction and multiplication.

Environmental Activities

This is an integrated subject comprising science, social and agriculture activities. The learner shall be equipped with basic knowledge and skills for the exploration of the immediate environment as well as learning and enjoyment. This will lay a foundation for sustainable development concepts that will be learned at a higher level of learning.

Hygiene and Nutrition Activities

Hygiene and nutrition activities equip learners with the basic knowledge, skills and attitudes that promote a healthy lifestyle. The learner is given the ability to take care of their own wellbeing as well as that of others. The learner shall be engaged in practical activities that promote healthy eating and hygiene practices that contribute to healthier lifestyles. Other topics to be covered will include regular monitoring of growth, oral and dental health, immunization and de-worming.

Religious Education Activities

Kenyan society celebrates various religious faiths. The constitution advocates for the development of values, and religious education is one of the channels through which the requisite values are inculcated in learners. This subject aims at equipping the learner with knowledge, skills, values and psychosocial competencies that assist them to grow up as socially, emotionally and spiritually balanced individuals. Moral, religious and life skills activities will enhance the learner's skills of knowing and living with oneself and others. In line with constructivist theory the teaching and learning of religious education has essential principles

which include making links between learners own experiences, needs, interests and beliefs, and the content being studied, while engaging in collaborative and co-operative problem solving.

Movement and Creative Activities
This subject encompasses art, craft and physical education. The learner will be equipped with basic knowledge, skills and attitudes that will enable them to express themselves in creative and healthy ways. This is anchored in Dewey's social constructivism theory which posits that learning should be experiential, participatory and arise from the learner's interests. The activity based approach advocated in this subject aims at giving the learner an opportunity to think for themselves and articulate their thoughts through creativity and collaboration. This helps the learner to think for themselves and develop critical reflection skills.

Middle School Education

This shall comprise three years of upper primary and three years of lower secondary education. This is illustrated in Figure 4.

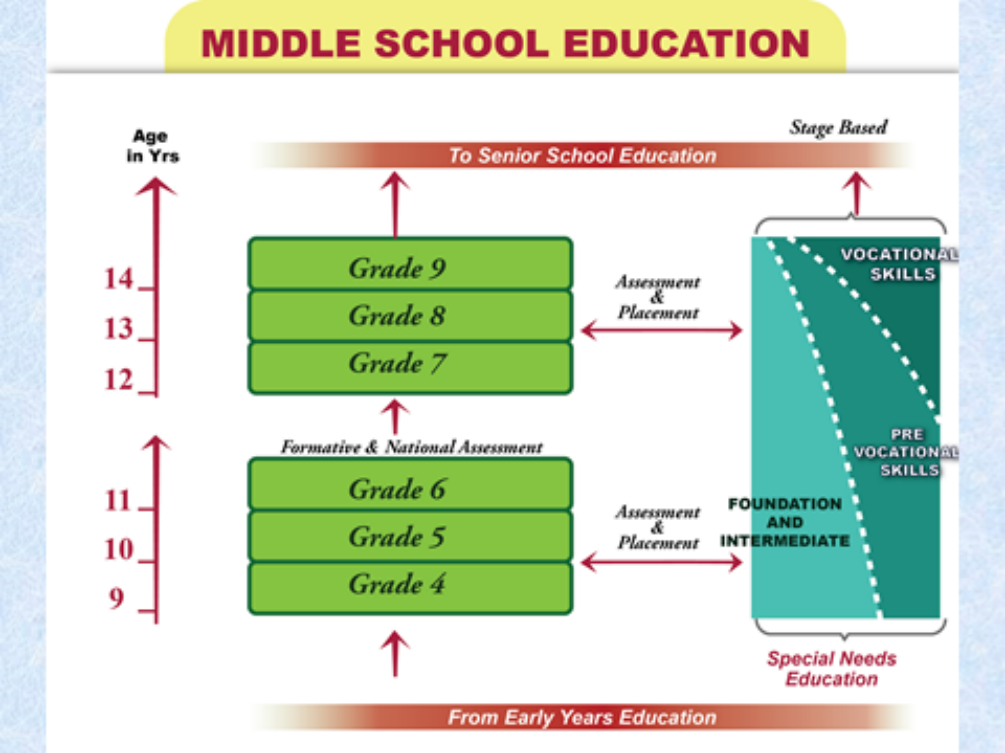

Figure 4: Structure of the Middle School Comprising Upper Primary and Lower Secondary

Learning Outcomes for Middle School

By end of middle school, the learner should be able to:

1. Apply literacy, numeracy skills and logical thinking appropriately in self-expression.
2. Communicate effectively in diverse contexts.
3. Demonstrate social skills, and spiritual and moral values for peaceful co-existence.
4. Explore, manipulate, manage and conserve the environment effectively for learning and sustainable development.
5. Practice hygiene, appropriate sanitation and nutrition to promote health.
6. Demonstrate ethical behaviour and exhibit good citizenship as a civic responsibility.
7. Demonstrate appreciation of the country's rich and diverse cultural heritage for harmonious co-existence.
8. Manage pertinent and contemporary issues in society effectively.
9. Apply digital literacy skills appropriately for communication and learning.

Upper Primary

Upper primary is part of middle school (Figure 5). It is a three year programme where learners are exposed to a broad curriculum and given an opportunity for exploration and experimentation.

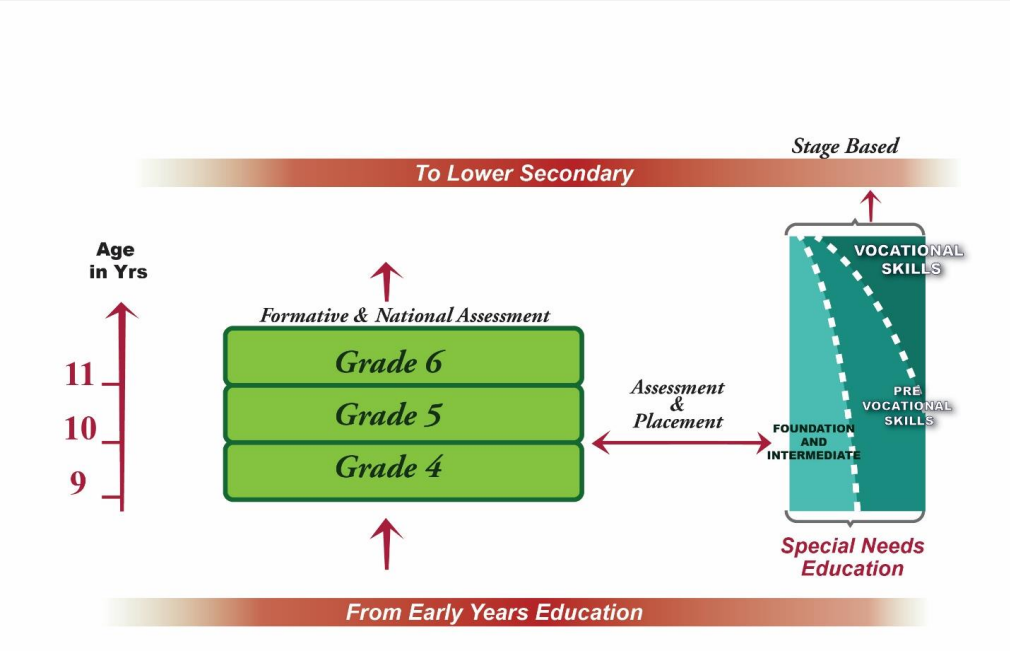

Figure 5: Part of Middle School: Upper Primary

Subjects for Upper Primary

1. English
2. Kiswahili or Kenya Sign Language (for learners who are deaf)
3. Home Science
4. Agriculture
5. Science and Technology
6. Mathematics
7. Religious Education (CRE/IRE/HRE)
8. Creative Arts
9. Physical and Health Education
10. Social Studies

Optional:

11. Foreign Languages (Arabic, French, German, Mandarin)

NB:

- ICT will be cross cutting in all subjects.
- Pertinent and contemporary issues and life skills will be mainstreamed in all Subjects.
- A pastoral program of instruction will be conducted once a week.

Essence Statements for Upper Primary School

Kiswahili or Kenyan Sign Language for Learners Who Are Deaf
The learning of Kiswahili and Kenyan Sign Language as national languages is a continuation of the same from lower primary. The grammar in these languages will further be developed so that reading and writing skills will be enhanced so that by the end of the level the learners are quite proficient in these languages. They should be able to write and communicate effectively in these languages.

English Language
After their first exposure to reading and writing at lower primary level, learners at upper primary level will be exposed to higher order knowledge, skills and attitudes on language development. This will enhance their reading and writing skills and be able to communicate effectively in English.

Indigenous Languages
This subject will further develop the language skills acquired in lower primary as well as positive attitudes and behaviours towards learning. Having been exposed to concrete language activities and basic reading and writing skills in lower primary, learners' thought processes will be more mature and according to Piaget they will be capable of solving problems in a more logical manner at this level. Learners will therefore be provided with a rich and supportive environment to enhance the development of their potential in indigenous language learning.

Learners will also be equipped with language skills to enable them to acquire a second language more proficiently and achieve more academic success. In addition, learning in a language they are already familiar with will give learners the required confidence to participate more actively in the learning process and think critically as well as imaginatively. Learners at this level will be equipped with the necessary skills to enable them interact with peers, teachers and instructional materials to enhance their cognitive and affective development. This is with regard to Vygotsky's social-cultural development theory that asserts that learning is highly a social activity. Moreover, the subject will provide the opportunity to nurture acceptance and appreciation for cultural diversity. The knowledge and skills acquired at this level will support further cognitive and learning development at lower secondary level.

Learners will be expected to advance their learning in the mother tongue in order to become linguists and specialise in such areas as the development of orthographies.

Home Science
This is a multi-disciplinary area of study that encompasses foods and nutrition, meal management, home management, clothing and textiles. At this level, the learner will be exposed

to basic knowledge, skills and attitudes on planning, preparing and cooking healthy foods in order to prevent and manage illnesses. Other components will include First Aid, aspects of personal hygiene and good grooming, managing adolescence, and needlework among others. Emphasis will be on practical aspects in order to develop good personal habits. The subject will build on the knowledge, skills and attitudes that were introduced in lower primary under the subjects of hygiene and nutrition and environmental activities. Home science will also strengthen the foundation for development of higher competencies in lower secondary home science and health education.

Agriculture

Kenya requires competent manpower for its agro-based economy. Agriculture should be taught from the earliest levels of education. In upper primary, the agriculture subject will build on competencies introduced in lower primary under the subject of environment activities. It will also enhance the learner's competencies in participation in sustainable development. Learners will be taught how to maximise the use of available spaces and resources in order to practice agricultural skills. Learners will be involved in the practical activities of producing both indigenous and exotic foods to enable them contribute to enhancing food security in the country. These skills will also enhance the competencies of agriculture in lower secondary.

Science and Technology

Science is the practice of engaging with the human pursuit of knowledge in order to understand relationships within the living and non-living universe. Science is the mother of invention. Since Kenya's Vision 2030 envisages an industrialized and knowledge based economy, then science must be taught in primary education. Science, Technology and Innovation (STI) are identified in both Vision 2030 and the Constitution as key drivers of the economy in the 21st century. Technology, which basically refers to use of tools will be introduced in science at this level. This will enable learners to prepare for Science, Technology, Engineering and Mathematics (STEM) in subsequent levels of the education cycle. This subject will build on the competencies introduced at lower primary level under the subject of environment. Inquiry based learning approaches will be employed throughout the learning experiences in this area as advocated by John Dewey's social constructivist theory which emphasizes that the learner should be given the opportunity to learn through participation in hands-on activities.

Mathematics

We live in a world of mathematics whereby we count, add, subtract or divide throughout our social interaction. Mathematics involves understanding numbers and the numerical operations used to develop strategies for mental mathematics, estimation and computational fluency. It is impossible to think of a world without mathematics. It is applied in the business, scientific, social, religious and political worlds. It is therefore imperative that children are taught mathematics from pre-primary age. At this level mathematics will build on the competencies acquired by the learner in the area of mathematical activities at lower primary. It will also enhance the learner's competencies in numeracy as a foundation for STEM in higher levels of the education cycle.

Religious Education

At upper primary level, religious education (CRE/IRE/HRE) serves to impart morals, ethics and values at a deeper level. This subject builds on the competencies introduced in lower primary in the integrated subject of moral, religious and life skills activities. The knowledge, skills and attitudes fostered here will help the learner to cope with the challenges of life. Emphasis should be on aspects of religion that help learners appreciate their own and other's religious beliefs and values. This is in line with constructivist theory as advanced by Vygotsky and Dewey to teaching and learning religious education studies**.** The essential principles involve making links between the learner's own experiences, needs, interests and beliefs, and the content, while engaging in collaborative and co-operative problem solving. This method also enhances inquiry and reflection which encourages the interaction of thought and experience by reflecting critically on their knowledge, beliefs and values of the learner.

a. IRE

Islamic Religious Education (IRE) at upper primary level serves to impart morals, ethics and values at a deeper level. The subject builds on the competencies introduced in lower primary in the integrated subject of moral, religious and life skills activities. The knowledge, skills and attitudes acquired are expected to help the learner to cope with the challenges of life. Emphasis should be on aspects of religion that help learners appreciate their own and other's religious beliefs and values.

b. CRE

Christian Religious Education (CRE) at upper primary level serves to impart moral and ethical values at a deeper level. This subject builds on the competencies introduced in lower primary which focus on God's self-revelation through Jesus Christ. The knowledge, skills and attitudes learned and fostered here will help the learner to think critically and make appropriate decisions. This is in line with Vygotsky's socio-cultural theory which emphasizes logical thinking and self-expression among other competencies.

CRE will help the learner understand the Bible more, as the main source of Christian knowledge. Learners will develop personal beliefs and also appreciate the beliefs of others for harmonious living.

c. HRE

Hindu Religious Education will also be an option in upper primary. The subject allows the learner to explore the history and development of the Hindu philosophy and religion. It encourages pupils to develop their sense of identity and belonging. It enables them to flourish individually within their communities and as citizens in a pluralistic society and global community.

Creative Arts

This is a multi-disciplinary area of study that encompasses art, craft and music. It involves acquiring and applying discipline-specific concepts, techniques and related vocabulary to increase capacity for the effective pursuit of artistic goals. At this level the learner will be exposed to deeper knowledge, skills and attitudes on the three disciplines in order to build on the competencies introduced in lower primary in the integrated subject of movement and creative

activities (art, craft, music and physical education). In line with Dewey's social constructivism theory, emphasis will be on an experiential, participatory approach that will give the learner an opportunity to articulate their thoughts through creativity and collaboration. This will prepare the learner to transit to lower secondary level.

Physical and Health Education

This subject is not integrated in another subject at upper primary level. Physical and health education aims at helping the learner to acquire the relevant knowledge, skills and attitudes related to sports, games, physical fitness and health as related to fitness. The learner will practice skills that promote lifelong health and fitness.

Social Studies

The National Council for the Social Studies defines social studies as the integrated study of the social sciences and humanities to promote civic competence. Social studies as a discipline derives its content from various sources (Marlow 1996). These are: history, geography, civics, religious education, language, mathematics, natural sciences, music dance and drama, law, economics, psychology and philosophy. The primary purpose of social studies is to help young people make informed and reasoned decisions for the public good as citizens of a culturally diverse, democratic society in an interdependent world.

Social studies provide opportunities for the learner to develop an understanding of the environment and participate effectively in its activities. The learner will have the opportunity to appreciate the changing environment and gain a realization of his or her place, privileges, rights and responsibilities as a citizen. The knowledge gained exposes the learner to a variety of opinions and lifestyles. The aim of social studies is also to provide the learner with sustainable skills and the ability to face challenges in life. Social studies are essential to understanding the complexity of the world.

Foreign Languages

Kenya is part of the larger international community and therefore learners shall be given the opportunity to learn other languages apart from the national, official and the indigenous languages learned in lower primary. These languages will be learned as academic disciplines that will form a spring board for future advancement. The foreign languages include Arabic, French, German and Mandarin.

Secondary Education

Secondary education is organised into two levels namely, lower secondary (Grades 7, 8 and 9) and senior school (Grades 10, 11 and 12).

Lower Secondary

Graduates of primary school Grade 6 shall join lower secondary at Grade 7. Lower secondary will expose the learner to a broad based curriculum to enable them to explore their own abilities,

personality and potential as a basis for choosing subjects according to career paths of interest at the senior school. At Grade 4 learners will be introduced to the optional subjects offered at upper primary so as to make informed choices at Grade 7. Learners in lower secondary will undergo a rigorous career guidance programme and be exposed to the related subjects to enable them to make informed choices as they transit to senior school.

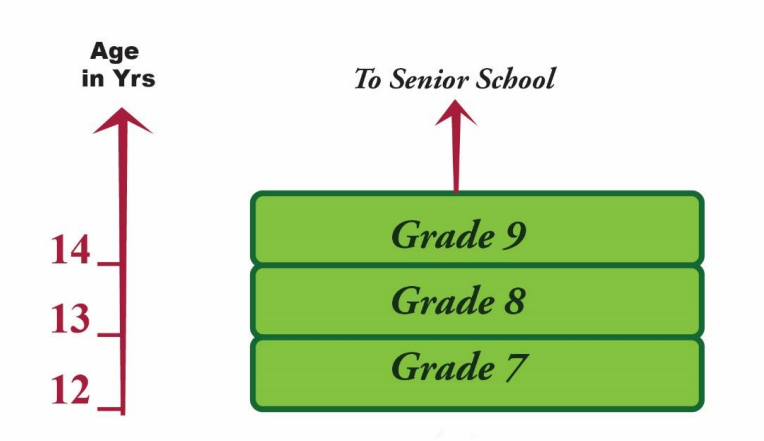

Figure 6: Structure of Lower Secondary

Subjects for Lower Secondary School

The Subjects are in two categories; core and optional subjects. At this level, a broad based curriculum is offered to enable the learner to explore their own interests and potential as a basis for choosing subjects according to career paths of interest at senior level.

Core Subjects

Learners will be required to take the 12 core subjects provided.

1. English
2. Kiswahili or Kenyan Sign Language for learners who are deaf
3. Mathematics
4. Integrated Science
5. Health Education
6. Pre-Technical and Pre-Career Education
7. Social Studies
8. Religious Education – learners choose one of the following:
   i. Christian Religious Education
   ii. Islamic Religious Education
   iii. Hindu Religious Education

9. Business Studies
10. Agriculture
11. Life Skills Education
12. Sports and Physical Education

NB: ICT will be a delivery tool for all Subjects.

Optional Subjects
Learners are provided with an opportunity to choose a minimum of **one** and a maximum of **two** subjects according to personality, abilities, interests and career choices from the list provided.

1. Visual Arts
2. Performing Arts
3. Home Science
4. Computer Science
5. Foreign Languages:
   i. German
   ii. French
   iii. Mandarin
   iv. Arabic
6. Kenyan Sign Language
7. Indigenous Languages

Essence Statements for Lower Secondary School

The following are statements that give the rationale for inclusion of the subjects in lower secondary. The statements also provide a brief overview of the subject and the subject expectations.

English
The Constitution of Kenya 2010, accords English the status of one of the official languages while according to the language policy of 1976, it is the language of instruction from Grade four onwards, including colleges and universities. In addition, English is a language of communication at both local and international levels. Those who master English reap many academic, social and professional benefits. In the school setting, success in education will largely depend on an individual's proficiency in English. The English subject at lower secondary level will expose learners to both knowledge and use of English language, and literary appreciation skills through the study of literature in English. It will build on the competencies acquired at upper primary level in listening, speaking, reading, writing and grammar.

By the end of lower secondary level, learners will be expected to have acquired proficiency in English language so as to be able to use it in the study of other subjects and also prepare them for more advanced study of English language and literature at senior school. They will be provided with varied experiences in listening, speaking, reading, writing and grammar so as to develop communicative competence. They will also be expected to interact with language and literary material both in and outside the classroom.

The subject will lay a firm foundation for the learners' efficient and effective use of the English language, both as a communication tool and also as the medium of instruction at senior school. In addition, it will be a stepping stone for the further study of English and/or literature in English.

Kiswahili

Kiswahili is both a national language and one of official languages of the republic of Kenya (Constitution of Kenya, 2010). Because different communities across Kenya use different languages, there is a need for a unifying language. Kiswahili is this language, and should be learned by all citizens. This need was observed as early as 1965 when the Ominde Commission proposed that Kiswahili be taught as a compulsory subject at both primary and secondary school levels. The language has been recognized as the unifying language in the East African community making it the lingua franca of the region. The language is also one of the official languages of the African Union (AU).

At lower secondary level, both grammar (lugha) and literature (fasihi) will be offered as a single subject. The subject will build on what learners have learned at primary level and lay a sound foundation for the future pursuit of both grammar (lugha ya Kiswahili) and literature (fasihi ya Kiswahili). The subject will give the learner an opportunity to further practice language skills of listening, speaking, reading and writing together with the grammar already acquired at primary level. In addition, the subject will also expose the learner to basic literary appreciation skills in Kiswahili borrowing from a variety of genres.

The subject will prepare the learner for further study in communication in Kiswahili at senior school.

Kenyan Sign Language

Kenyan Sign Language is an official language as acknowledged by the Constitution of Kenya. Kenyan Sign language is used as a means of communication by persons who are deaf. Signs are used to facilitate the transfer of words from an oral and aural language to a visual language. Signed Exact English on the other hand is used in teaching English concepts and is the language of instruction in schools, colleges and universities for learners who are deaf. In the school setting, success in Kenyan Sign Language will largely depend on an individual's proficiency in the signs. This subject will expose learners to both knowledge and skills in the use of Kenyan Sign Language. At the end of the subject, the learner will be expected to have acquired proficiency in Kenyan Sign Language so as to be able to use it for purposes of communication and advanced studies.

Learners will be provided with opportunities to develop communicative competence in Kenyan Sign Language by having varied experiences in observing, signing, reading, writing and grammar. They will be expected to interact with language and materials both in the classroom and other settings through field visits, interaction during school clubs and societies, excursions, drama festivals, and through computer aided language learning. Learners will also be expected develop a culture of reading, critical, imaginative and creative thinking skills through exposure to various genres of literature. The study of Kenyan Sign Language will therefore not only

prepare learners who are deaf for communication but also for the world of work and for further study in the language.

Mathematics

Mathematics is always around us in our everyday life. It is recognized as a very important subject since it plays a key role in what we learn (Wadsworth, 1996). It deals with skills areas such as shapes, quantities and arrangements as well as money. At this level mathematics will equip learners with computation and problem solving skills as they build on competencies acquired at upper primary level. This is mathematics that is applicable to real life situations and everyday use. Useful mathematics includes all forms of numerical and physical measurements such as counting, length, mass, capacity and time. More importantly mathematics will assist learners to develop logical reasoning to enable them make rational decisions. As a subject mathematics supports other subjects such as the sciences, computing, business studies, accounting, and geography. As such mathematics will equip learners with the prerequisite knowledge, skills and attitudes to specialize in the science, technology, engineering and mathematics (STEM) pathway at senior school.

Integrated Science

Integrated science is a subject that combines concepts of physics, chemistry, biology and environmental studies. This subject provides the learner with an opportunity to gauge his or her ability in science in preparation for studying the same at higher levels and even choosing it as a career. This is in tandem with the dictates of Kenya Vision 2030 that emphasize Science, Technology and Innovation (STI) as one of the key drivers of the economy towards industrialisation of the country by the year 2030. It is also in tandem with the aspirations of the country's constitution that emphasizes the promotion of science and indigenous technology and innovation.

Concepts will be presented as units within which will be specific topics which build on the competencies acquired in science and technology at upper primary level. This provides the learner with the requisite skills, knowledge and attitudes necessary for specialization in applied sciences, as well as pure sciences (physics, chemistry and biology), and Careers and Technology Studies (CTS) offered in the STEM pathway at senior school level.

The area will be taught through inquiry based learning approaches with the emphasis on hands-on teaching and learning activities. The content for this area will be hinged on social constructivism as well as Piaget's cognitive development theories.

Health Education

The Government of Kenya is committed to the improvement of the health and welfare of its citizens. Several government documents such as The Kenya Demographic Health Survey, 2014 and the Kenya National Bureau of Statistics Report, 2014 have indicated the need for equipping Kenyans with information and instilling positive attitudes towards the promotion of health and prevention of illnesses to enable them to contribute to and participate in nation building. The introduction of health education in the curriculum was also highlighted by many respondents as indicated in the Needs Assessment Survey (KICD, 2016). Health education will therefore focus on promoting healthy living practices and preventing diseases and disorders.

As a discipline at lower secondary level, health education covers personal and environmental hygiene, food and drink choices, food safety, communicable and non-communicable diseases, nutritional and lifestyle diseases and disorders, drug and substance use and abuse, laundry work including the simple repair and maintenance of clothes and household articles, care of the home including basic furniture, equipment and materials. Learners will also be equipped with basic first aid knowledge to enable them to handle common accidents.

The learning of health education shall adopt the constructivist theory of learning where learners will be given opportunities to construct knowledge through discovery, research and free exploration. Through inquiry based learning approaches learners will be exposed to hands-on teaching and learning activities to enable them practice the principles of good health.

Pre-Technical and Pre-Career Education

Pre-technical and pre-career education is a subject that introduces the learner to the technical, engineering and career and technology studies (CTS) that are tracks within the science, technology, engineering and mathematics (STEM) pathway. It builds on the competencies acquired in science and technology at upper primary school. The subject equips the learner with foundational knowledge, skills, attitudes and values that are a prerequisite for the learner to specialize in engineering and technical and career studies at senior school level. The subject offers skill areas such as metalwork, woodwork, electricity, aviation technology, building construction, drawing and design, power mechanics, leatherwork, culinary arts, hair-dressing and beauty therapy, marine and fisheries, manufacturing, and media technology. The curriculum equips the learner with exploration, imagination, creativity and innovation skills through projects and practical activities. Learners also acquire hands-on skills as they are exposed to attachment programs in industries that the school collaborates with. After completing lower secondary school, learners can select either the technical and engineering or CTS track in the STEM pathway at senior school. In making this choice, the learner's interests and abilities will be considered. Other considerations will include the choice of career path, the personality and the level of performance of the learner.

Social Studies

The social studies subject will prepare the learner to be an active, informed and responsible citizen; a citizen who is willing and able to take responsibility for himself or herself and fully engage in governance processes. The subject will also provide the learner with opportunities to be aware of his or her rights and responsibilities as a citizen, to be concerned about the welfare of others, protective of the environment and active at community, national and global levels.

Social studies, therefore, provide learners with opportunities to develop collaboration, critical thinking and problem solving, imagination, citizenship, learning to learn and self-efficacy competencies. Social studies will prepare the learner for the social science pathway in senior school. The subject will provide the foundation for the learner to pursue further education in education, law, social work, sociology, psychology, political science, and geography and also prepare the learner to further his or her career in fields such as community development, diplomacy, local and international NGOs, regional and international organizations, anthropology, archaeology, and geology.

Christian Religious Education

At lower secondary level, this subject builds on the competencies introduced at upper primary which focus on God's self-revelation through Jesus Christ. Moral and ethical values are taught in a more detailed way. Learners will be provided with opportunities to practice their faith by applying Biblical principles to daily living, such as love for God, self and others. The knowledge, skills and attitudes gained here will help the learner to cope with the challenges of life. Emphasis will be put on aspects of religion that help learners appreciate their own beliefs and also appreciate other's. CRE aims at enabling the learner to act effectively and responsibly at local, national and global levels for a peaceful and sustainable world.

Hindu Religious Education

At lower secondary level, HRE serves to impart morals, ethics and values at a deeper level, thus enabling the learner to act effectively and responsibly at local, national and global levels for a more peaceful and sustainable world. This subject builds on the competencies introduced in lower primary and upper primary in the integrated subject of moral, religious and life skills activities. Learners will be provided with opportunities to practice the four types of fundamental qualities – spiritual, moral, mental and social. The knowledge, skills and attitudes gained here will help learners to cope with the challenges of life. Emphasizing aspects of religion that help learners appreciate self and other's religious beliefs and values is in line with Vygotsky's socio-cultural theory which suggests that the development of a person depends on their interaction with people and with the tools that a culture provides to help form their own view of the world. Everyone lives as part of social groups, which influence and are influenced by their members Therefore, HRE will provide opportunities for logical thinking and self-expression among other competencies and lay a firm foundation for senior school.

Islamic Religious Education

The teaching of Islamic Religious Education (IRE) is aimed at enabling the learner to acquire Islamic knowledge, moral values and life skills, and think critically to make appropriate decisions in life in accordance with Islamic principles and teachings. The main themes include selected chapters from the Quran, Muamalat (relationships), Akhlaq (morality), Hadith (Sayings of the Prophet), and History of Islam. The religious values imparted through IRE will have an impact on the actual behaviour of the learner. He or she should likewise develop him or herself, and the community and live a happy and successful life in this world and the hereafter. The learner is expected to be able to participate with confidence and satisfaction in religious functions and develop his or her consciousness to Allah and obedience to His commands. IRE content is expected to produce a learner who is at peace with his or her Creator Allah and themselves, and appreciative of the beliefs of others.

Business Studies

Business studies at lower secondary level will be offered as an integrated subject laying emphasis on entrepreneurship, financial education, record keeping in business and ICT in business. This will equip the learner with the communication, critical thinking, problem solving

and creativity competencies considered necessary for their personal life and business in general. The subject is critical at this level of education, evidenced by the KICD Needs Assessment Report and the Kenya Vision 2030. The study of business studies at lower secondary level will be underpinned by theories such as instructional design theory, Vygotsky's social-cultural theory, Gardner's multiple intelligences theory, Piaget's theory of cognitive development, descriptive accounting theory, normative accounting theory, and Schumpeter's innovation theory.

Agriculture

Kenya requires a competent workforce with the requisite knowledge, skills and attitudes to engage in its agro-based economy. The country envisages growing and developing the economy through agro-based industrial development (Kenya Vision 2030). Agriculture is an applied science focusing on crop production and livestock production, as well as entrepreneurial components and related agricultural production technologies. The learner will develop competencies in communication and collaboration, critical thinking and problem solving, creativity and imagination, learning to learn and self-efficacy. The curriculum will prepare the learner for the immediate application of agricultural skills to solve contemporary food security challenges and will also help to develop the appropriate attitudes towards farming which are applicable in their social contexts. The subject forms foundational competencies that are applicable in contemporary life and are a basis upon which to conceptualize a career in agriculture.

Life Skills Education

Teaching of Life Skills Education at lower secondary of education is aimed at enhancing; the knowledge on and appreciation of oneself as well as the need to value and promote good interpersonal skills. The need for possession and application of LSE is theoretically supported by Vygotsky's Social-cultural development Theory that presupposes that learning takes place when learners interact with each other. Learners negotiate meanings with people in the environment, and they achieve goals through interacting, both explicitly and implicitly, with the teacher, peers, materials, and atmosphere embedded in the context. These interactions with teachers, peers and instructional materials influence the cognitive and affective developments of learners (Kim and Baylor, 2006). Teaching of life skills will also equip the learner with psychosocial competencies and interpersonal skills that would help him or her make informed decisions, solve problems, think creatively and critically, communicate effectively, build healthy relationships, empathize with others and manage his or her life in a healthy and productive manner. The subject moves beyond providing information to the development of the whole individual. One of the benefits of life skills education is that the topics are adaptable to many different contexts and can be used to meet different psychosocial needs. The life skills that will be taught in Lower school are similar with those that were taught in Upper primary however spiral approach will be adopted to ensure relevance, age appropriateness and increase in complexity of the concepts and the skills from the upper primary to lower school.

Sports and Physical Education

This subject is known as health and physical education at upper primary level. At this level it is called sports and physical education. Sports and physical education at this level will use some of the experiences gained in upper primary and also bring in new knowledge such as human physiology and functional anatomy to prepare the learner for transition to senior school. Participation in sports encourages the learner to relate positively to others and engage in

movement experiences that promote and support the development of social skills. It fosters critical thinking, decision-making and problem solving and enables the learner to understand the role and the significance that sport plays in promoting a fair and just society. This is strongly supported by the social constructivist theory of Vygotsky that highlights the fundamental role of social interaction in learning.

Visual Art

Visual art refers to two or three-dimensional art that appeals primarily to visual sensory perception. The subject aims at enabling the learner to develop a deeper understanding and appreciation of artistic and cultural expression through two or three-dimensional artworks. In relation to Dewey's social constructivism theory emphasis will be laid on an experiential, participatory approach that will give the learner an opportunity to articulate their thoughts. Through creativity and collaboration the learner will be equipped with knowledge, skills and attitudes that will help them create artworks both for aesthetic and functional purposes. This subject will lay a foundation for visual art at senior school.

Performing Arts

Performing arts will offer the learner a platform to use musical instruments, voice and movement for artistic expression. The curriculum will integrate key subject matter in music, dance and drama in order to allow the learner to explore and discover their own abilities and interests. This is in line with the multiple intelligence theory of Dr. Howard Gardner which indicates that learners possess different kinds of minds and therefore learn, remember, perform, and understand in different ways.

The curriculum in this area is aimed at enabling the learner to develop an understanding and appreciation of artistic and cultural expression through music, bodily movement, choreography, acting, improvisation, interpretation of contextual drama, scripting, elements of stage techniques, creative writing, and public speaking, whilst also using a variety of texts and contexts. Through performing arts, the learner will develop the ability to express ideas and feelings artistically.

Learners should be allowed opportunities **t**o watch plays, visit the national theatre or any other drama activities in the neighbourhood, engage in the National Drama Festival or be allowed to hold a school or interschool drama festival. The curriculum will lay a foundation for the learner who would wish to pursue drama or music and dance in the talent pathway at senior school.

Home Science

Home science is an applied and integrated science that aims at improving the quality of life for the individual, the family and the community. According to the Needs Assessment Survey 2016, respondents indicated that home science should be emphasized in the reformed curriculum and made compulsory (KICD, 2016). The National Education Sector Plan (NESP) 2015 has shown that the learning activities that best expose a learner's abilities included home science. Home science has therefore been included in the lower secondary curriculum.

Home science as a discipline covers aspects of caring for self and the family, foods, nutrition, textiles, clothing, housing the family, home care, laundry work, maternal health-care and consumer education. It forms the foundation for learners who want to pursue health education,

foods and nutrition, home management, costume and fashion design or culinary arts as subjects at senior school and their related careers at tertiary level. Learners who would want to pursue foods and nutrition, home management, fashion and interior design are encouraged to opt for the subject at lower secondary level.

Computer Science

Computer science is the study of computers and algorithmic processes, including their principles, their hardware and software designs, their applications, and their impact on society. This discipline is deeply concerned with how computers and computer systems work, and how they are designed and programmed. Learners studying computing gain insight into computational systems of all kinds, whether or not they include computers. Computational thinking influences fields such as biology, chemistry, linguistics, psychology, economics and statistics. It allows us to solve problems, design systems and understand the power and limits of human and machine intelligence. It is a skill that empowers, and one that all learners should be aware of and have some competence in. Furthermore, learners who can think computationally are better able to conceptualise and understand computer based technology, and so are better equipped to function in modern society. Computer science is a practical subject, where invention and resourcefulness are encouraged. Learners are expected to apply the academic principles they have learned to the understanding of real world systems, and to the creation of purposeful artefacts. This combination of principles, practice, and invention makes it an extraordinarily useful and intensely creative subject, suffused with excitement, both visceral ("it works!") and intellectual ("that is so beautiful!"). There is therefore a need for the early introduction of learners to this subject.

Foreign Languages

The business world of tomorrow needs individuals with the requisite skills in a foreign language and who can work in a culturally diverse environment. Building a learner's foreign language competency is one of the ways of ensuring they are competitive on a global scale.

Foreign language at lower secondary will build on the linguistic competencies developed at upper primary. Language instruction at this level will focus on further development of the four basic language skills; listening, speaking, reading and writing. Applied grammar, culture and contextual topical content will be the vehicle through which the four skills will be developed. The learner will be expected to listen to and respond appropriately to varied materials, read and write a variety of texts, and demonstrate functional writing.

The foreign language curriculum will progressively develop in the learner the ability to communicate in the target language in defined contexts. Emphasis will be on the functional use of language. It is envisaged that this will enable the learner to acquire the necessary oral and written communication skills to operate in diverse situations.

Learners will be provided with opportunities to develop public speaking and creative writing skills through collaborative activities designed to elicit critical thinking as well as sharpen creative abilities. Such an approach combines what is advocated by proponents of visible learning theory and social constructivist theory. Oral and written work will provide the evidence

that learning is taking place while collaboration ensures that learning takes place in a participatory manner.

Through research on a variety of topics learners will develop awareness, understanding and appreciation of other cultures and an affinity for self-directed learning, an attribute that Gardner's multiple intelligence theory lays emphasis on. Application of this theory will enable learners to capitalise on their strengths and purposively work to minimise their weaknesses.

Instances for practicing skills will be provided in the form of engagement in music and drama festivals, exchange or twinning programmes, club activities, school based and international language cultural days, writing and other language activities and competitions, and language based group and individual projects. Learners are expected to attain the intermediate level of proficiency in order to transit to senior school.

Indigenous Languages

The Constitution of Kenya, Chapter 2, Article 7 (3) commits the Government to promote and protect the diversity of languages of the people of Kenya and promote the development and use of the indigenous languages. In addition, a people's culture is best passed on through their language. This is supported by the Constitution in Article 11 that provides for the promotion of all forms of cultural expression through literature, the arts, traditional celebrations, science, communication, information mass media, publications, libraries and other cultural heritage. In addition, mother tongue, like any other language, is central to the success or failure of education and development programmes.

According to Piaget, learners at this age develop the ability to think about abstract concepts. The subject in indigenous languages will therefore expose the learner to abstract ideas and appropriate hypothetical and deductive reasoning. It will also focus on developing further the language skills and competencies acquired in lower levels of education. The confidence gained will motivate the learner to engage in the active process of learning to discover principles, concepts and facts for themselves, as suggested by social constructivist scholars. In addition, the potential for the learner to become proficient in the language of their choice, and ensure effective communication and educational progress will be enhanced.

Learners will be exposed to various forms of cultural expression such as literature, arts, traditional celebrations, information mass media and publications. This will be through field trips to places rich with appropriate resources and activities such as the Bomas of Kenya. Learners will also be provided with opportunities to participate in programmes and visits to vernacular radio and television stations to help them gain confidence and expose them to possible future careers. It is expected that this exposure will motivate the learners to develop a reading culture, not only to gain knowledge but also to make themselves eligible for exciting academic and job opportunities. A reasonable proficiency in mother tongue at this level will be a prerequisite for a mother tongue subject at senior school.

ICT

Information Communication Technology (ICT) deals with the purposeful application of computer systems to solve real-world problems, including issues such as the identification of

business needs, the specification and installation of hardware and software, and the evaluation of usability. It is the productive, creative and explorative use of technology. The learner should be able to understand and play an active role in the digital world that surrounds them, not to be passive consumers of an opaque and mysterious technology. A sound understanding of computing concepts will help them see how to get the best from the systems they use, and how to solve problems when things go wrong. Moreover, learners will be able to think in computational terms and will be able to understand and rationally argue about issues involving computation, such as software patents, identity theft, genetic engineering, electronic voting systems for elections, online shopping and so on. In a world suffused by computation, every school-leaver should have an understanding of computing.

Senior School

Senior School comprises three years of education targeted at learners in the age bracket of 15 to 17 years and lays the foundation for further education and training at the tertiary level and the world of work. It marks the end of Basic Education as defined in the Education Act, 2013. Learners exiting this level are expected to be "**empowered, engaged and ethical citizens**" ready to participate in the socio-economic development of the nation.

The learner entering this level shall have had opportunities at lower secondary to explore their own potential, interests and personality and is therefore ready to begin specialisation in a career path of choice. The specialisation entails choosing to pursue studies in one of the three pathways available in senior school. He or she can choose the Arts and Sports Science, Social Sciences or Science Technical Engineering and Mathematics (STEM) pathway.

Schools will be specialised institutions that will provide opportunities for learners to focus in a field of their choice as well as form a foundation for further education and training and gaining employable skills. Senior schools will be required to therefore organise open days to enable learners and parents to glean the information necessary for effective decision-making. Additionally, a robust parental empowerment and engagement programme will be necessary to strengthen the involvement of parents in this process.

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Learning Outcomes for Senior School

By the end of senior school, the learner should be able to:

1. Communicate effectively and utilise information and communication technology across varied contexts.
2. Apply mathematical, logical and critical thinking skills for problem solving.
3. Apply basic research and scientific skills to manipulate the environment and solve problems.
4. Exploit individual talents for leisure, self-fulfilment, career growth, further education and training.
5. Uphold national, moral and religious values and apply them in day to day life.
6. Apply and promote health care strategies in day to day life.
7. Protect, preserve and improve the environment for sustainability.
8. Demonstrate active local and global citizenship for harmonious co-existence.
9. Demonstrate appreciation of diversity in people and cultures.
10. Manage pertinent and contemporary issues responsibly.

Pathways

The provision of pathways at senior school is based on the aspiration that all learners can be successful in life. Success comes in many forms and there are various pathways that lead to it (NESP 2, 2015). It is therefore imperative for the senior school structure to facilitate learners to pursue their own interests and fulfil their potential in line with the curriculum reforms' mission of '**nurturing every learner's potential**'.

The Basic Education Act, 2013 (54(b)) states that all children who have undertaken a full subject of primary education shall be eligible for admission to a secondary school regardless of their scores. Despite this requirement, many learners drop out of the education system. The Economic Survey 2014 indicates that the highest dropout rate (about 50%) is between standard six (6) and form one (1). Among many, the rigidity of the secondary education curriculum has been cited as one of the causes for this dropout rate.

Various government documents have recommended the introduction of pathways at secondary level. The Task Force on the Re-alignment of the Education Sector to the Constitution of Kenya, 2010, popularly known as the Odhiambo Report, proposed a change in the structure to introduce technical, vocational, talent and general academic curriculum pathways in secondary education, to enable the achievement of the human resource aspirations of Vision 2030 (Task Force Report,

2012). Access to quality and relevant education is guaranteed in the Constitution. Providing learners with an education that is relevant will require the provision of a broad based curriculum and pathways that allow individual learners to pursue careers that are relevant. This will facilitate individual development and self-fulfilment as learners shall be equipped with practical skills that make them employable or facilitate self-employment. The National Education Sector Plan 2015 (NESP 1, 2015) recognises that learners have unique competencies and a range of skills, interests, experiences and aspirations that can only be harnessed by providing learning pathways. One of the goals of the plan is to provide an education system that addresses the individual's needs and academic, professional and technical aspirations across a range of learning pathways, as well as supporting national social and economic goals (NESP 2, 2015).

The introduction of pathways in secondary education is not unique to Kenya. In Canada, for example, the introduction of pathways at secondary level has helped young people graduate from high school and successfully transition into post-secondary education, training, or employment. Pathways have addressed the barriers that stand in the way of high school graduation and the potential for a brighter future by providing leadership, expertise, and a community-based program lowering dropout rates (Pathways to Education, Canada, 2014). The Malaysian education system offers four options for upper secondary education. These are: academic secondary education, technical secondary education, vocational education, and religious secondary education. Sweden has upper secondary programmes that are either vocational programmes, or programmes preparatory for higher education. Upper secondary education in India is dual track, academic and vocational/professional, with the academic stream specializing in science, business and humanities. New Zealand also have a vocational pathway where students develop skills and knowledge in areas that employers value. The pathways also contain a great deal of shared content, like literacy and numeracy, and identify the skills that employers in any sector value. According to the New Zealand Education Gazette, one of the main reasons some young people lose interest in education is because they cannot see the relevance of their learning. The vocational pathways show students how and where their learning will be valued out in the real world, and how their strengths and interests relate to possibilities in further education and the workplace (Ministry of Education, New Zealand, May 2016).

German secondary education includes the Gymnasium is designed to prepare pupils for higher education; the Realschule has a broader range of emphasis for intermediate pupils, and the Hauptschule prepares pupils for vocational education. The Hauptschulabschluss and the Realschulabschluss are at the end of Grade 9 and Grade 10 respectively. In Finland, vocational education belongs to secondary education and students choose to go to either a lukio (high school), which is an institution preparing students for tertiary education, or to a vocational school. Both forms of secondary education last three years, and give a formal qualification to join the university.

As can be seen from these examples it is evident that for any education system to meet the basic requirements of nurturing learners and making learning meaningful, pathways must play a critical role. In these curriculum reforms, the conceptualisation of the pathways identified is informed by the Needs Assessment Survey of 2016 and benchmarking with countries whose education systems are classified as progressive.

In Kenya, each senior school is expected to make informed decisions with regards to the pathway of choice based on the requisite infrastructure that would ensure development of the competencies identified in that pathway. The three pathways are: (1) Arts and Sports Science (2) Social Sciences (3) Science, Technology, Engineering and Mathematics (STEM) as illustrated in Figure 8.

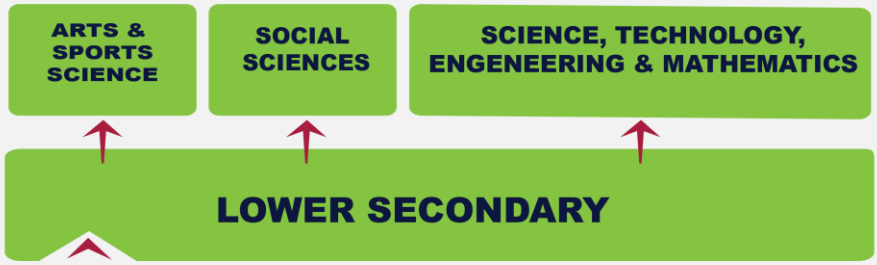

Figure 7: Pathways after Lower Secondary

Within the three pathways there are various tracks. Schools can also decide to offer one or more track in the pathway depending on the ability to acquire the infrastructure necessary for acquisition of the identified competencies. The tracks are shown in Figure 9.

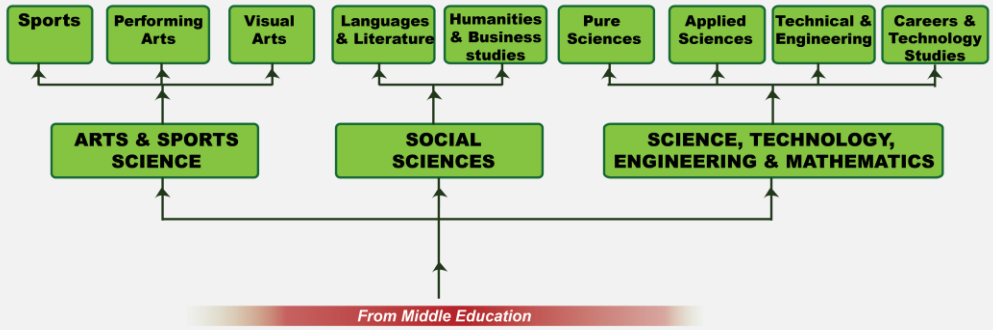

Figure 8: Tracks within the Pathways

Learners will be expected to carry out community based projects in all subjects in senior school. The projects will form part of the formative evaluation and shall be carried out throughout the subject.

Arts and Sports Science Pathway

The Arts and Sports Science pathway provides opportunities for self-realisation and expression as well as individual development and fulfilment. It is envisaged that 15% of learners in senior school will take up this pathway (Appendix 1). The learners will build on the skills already acquired at lower secondary. This is based on Bruner's constructionist theory that learners construct new ideas or concepts based upon existing knowledge. The learning environment will be experiential and participatory giving learners the opportunity to think critically and articulate their thoughts through creativity and collaboration. This is anchored in Dewey's social constructivism theory that states that a curriculum should arise from students' interests and should be hands-on and experienced based.

Arts and Sports Science will enable the learner to participate in the economic development of the country through utilisation of their own talents, thus contributing to cultural preservation, sustenance and development in arts and sports. Students graduating from this track shall join middle level colleges or universities to pursue careers in the visual or performing arts, and the sports industry. They shall also be able to join the world of work.

In both the Arts and Sports Science tracks, the learner will be expected to learn some core subjects as well as choose options. Life Skills in this pathway as provided for under community and service learning will be adapted to suit the specific issues in each learning area.

In all three of the Arts and Sports Science tracks, the learner will be expected to learn some core subjects as well as choose options. Life skills in this pathway as provided for under community and service learning will be adapted to suit the specific issues in each learning area.

1. Arts

Arts will provide opportunities for the learner to choose a career path in an area of interest, personality, and ability in either performing or visual arts. The arts provide a natural vehicle for self-expression and exploration as well as interpretation of the world around the learner. Study of the arts contributes to development of motivation and confidence, imagination and innovation and the use of creative and dynamic ways of thinking and knowledge construction. These skills will enable the learner to gain insights into the world around them and to represent their understanding in varied ways. This is corroborated by research that shows that the intellectual and emotional development of children is enhanced through the study of the arts (Presidential Committee on the Arts and Humanities in America, 2011).

The learner choosing this pathway will be expected to take the following core subjects:

1. Legal and ethical issues in arts
2. Communication skills

1) Performing Arts Track

The performing arts track in senior school includes music, dance, and theatre and elocution and is envisaged to have 5% of the learners at this level (see Appendix 1). The learners will be engaged in performance in one of the mentioned areas, depending on the area of choice. This

pathway is conceptualized to allow learners to specialize in an area of interest, ability and career choice.

Theatre and elocution is the branch of performing arts concerned with acting using a combination of speech, gesture, music, dance, sound and spectacle. Theatre takes such forms as plays, musicals, illusion, mime, improvisational theatre, stand-up comedy, pantomime, and public speaking.

Dance generally refers to human movement, typically rhythmic and to music, used as a form of audience entertainment in a performance setting. Definitions of what constitutes dance are dependent on social, cultural, aesthetic, artistic and moral interpretations and range from functional movement to codified techniques. Therefore it will involve choreography as well.

Music on the other hand is an art form that combines pitch, rhythm, and dynamics in order to create sound. It can be performed using a variety of instruments and styles and is divided into genres.

b) Visual and Applied Arts Track

The visual and applied arts track refers to two or three dimensional art that appeals primarily to visual and audio sensory perception. It is expected that 5% of learners will take up this track. The subject aims at enabling the learner to develop a deeper understanding and appreciation of artistic and cultural expression through two or three dimensional artworks. In relation to Dewey's social constructivism theory emphasis will be laid on an experiential, participatory approach that will give the learner an opportunity to articulate their thoughts through creativity and collaboration. Overall, the learner will be equipped with knowledge, skills and attitudes that will help them create artworks both for aesthetic and functional purposes. Ultimately, the learner will gain competencies to undertake visual and applied arts at the tertiary level.

2. Sports Science Track

Sports science as a subject in this level will use some of the knowledge gained from lower secondary school. It is expected that 5% of learners in senior school will take subjects in this track (see Appendix1). It aims at offering learners an opportunity to actualize their talents in specific Subjects of their choice. This will enable the learner to pursue a career path depending on their interests, abilities and personality type. Sports at this level draws from Howard Gardner's multiple intelligence theory which states that learners possess different kinds of minds and therefore learn, remember, perform, and understand in different ways. In sports learning does occur with the use of the body to solve problems and it enables understanding of oneself and other people. This permits learners to leverage their strengths and develop their weaknesses.

In the advanced physical education subject area, the learner opting to take mathematics will take the same mathematics as those in pure sciences (See Essence Statement for Mathematics in the Pure Sciences).

The career openings for the sports track include self-employment and employment opportunities connected to sports, such as instructor, physiotherapy, sports coach, sports nutritionist, sports massage therapist, personal trainer, gym attendant, fitness program co-ordinator, swimming pool attendant, coaching, lifesaving, researcher, physical therapy, refereeing, athletic trainer, stadia management, sports nutrition, sports masseur, teaching, aerobics and anaerobic trainer, sports journalism, and public relations officer.

Social Sciences Pathway

Social sciences is a branch of science that studies society and the relationships of individuals within a society. Social sciences involve the study of society and the manner in which people behave and relate with others and influence the world around them. Social science tells us about the world beyond our immediate experience, and can help explain how our own society works. Preparing learners for the 21st century cannot be accomplished without a strong and sustaining emphasis on social sciences.

The critical role of social sciences cannot be overemphasized in preparing future generations to be creative and responsible global citizens. The Social Sciences pathway provides the cornerstone skills that are the key to a competitive workforce and responsible citizenry. Learners use critical thinking, creativity, problem solving, citizenship, collaboration and digital literacy skills to make connections in new and innovative ways as they progress through the Social Sciences pathway. These skills enable learners to develop the ability to make informed and reasoned decisions for the public good as citizens of a culturally varied, democratic society in an interdependent world.

Social sciences provide learners with skills for productive problem solving, decision making, creative thinking, critical thinking and making balanced value judgements which are necessary in preparing them to live appropriately in physical and social environments. They enable the learner to develop spiritually and morally so that he or she is at peace with himself or herself, at community, national and global levels. The Social Sciences pathway provides opportunities for learners to develop an understanding of the environment and participate effectively in its activities. The learner will have the opportunity to appreciate the changing environment and gain a realization of his or her place, privileges, rights and responsibilities as a citizen in respecting other people's rights and environmental requirements.

The pathway aims at enabling the learner to act effectively and responsibly at local, national and global levels for a more peaceful and sustainable world. The pathway builds on the knowledge, skills and attitudes that a learner needs to be able to contribute to a more inclusive, just and peaceful world. Social sciences help learners in identifying their own values and recognizing the values of others. The pathway equips learners with skills in acquiring information and thinking about social affairs. Young people need skills to make their knowledge and values active and as they continue in the lifelong process of learning, so they acquire the competence of learning to learn. Social sciences also promote social participation. Everyone lives as part of social groups, which influence and are influenced by their members. This is in line with the Basic Education Curriculum Reforms vision of an engaged, empowered and ethical citizen.

Vygotsky suggests that social interaction leads to continuous step-by-step changes in children's thoughts and behaviour that can vary greatly from culture to culture. Vygotsky's theory suggests that a person's development depends on interaction with other people and the tools that a culture provides to help form their own view of the world. The Social Sciences pathway enables the learner to acquire communication and collaboration, creativity and imagination, critical thinking and problem solving, citizenship, learning to learn and self-efficacy competencies. The Social Sciences pathway provides the learner with opportunities to begin specialisation in an area suited to their personality, interests, abilities and career choice. The Social Sciences pathway has the Languages and Humanities Tracks.

1. Humanities

Humanities are often defined as a group of academic disciplines. According to this definition, which was used by the U.S. Congress when the National Endowment for the Humanities was established in 1964, the humanities include, but are not limited to, history; literature; philosophy and ethics; foreign languages and cultures; linguistics; jurisprudence or philosophy of law; archaeology; comparative religion; the history, theory, and criticism of the arts; and those aspects of the social sciences (anthropology, sociology, psychology, political science, government, and economics) that use historical and interpretive rather than quantitative methods.

Scholars of Humanities are keen to observe the way that human beings behave differently even when put in the same social situations. Vygotsky's socio-cultural theory suggests that social interaction leads to continuous step-by-step changes in children's thought and behaviour that can vary greatly from culture to culture (Woolfolk, 1998). The theory suggests that a person's development depends on interaction with other people and the tools that a culture provides to help form their own view of the world.

Humanities build a learner's competencies in understanding human societies as well as the behaviour of people in different social environments. We are prompted to study humanities therefore due to the following reasons:

1. To gain expertise in understanding groups, communities and societies where we live.
2. To build capacities in understanding and predicting human behaviour.
3. To gain skills and knowledge that can be practically applied to solve specific problems in our society.
4. To harness knowledge of human behaviour and human societies that can be applied to improve the quality of life of humanity.

It is estimated that this track shall enrol 8% of the students entering senior school (see Appendix The humanities track will provide a variety of disciplines that will enable the learner to choose a career path in an area of their interests and abilities. The learner is expected to choose a combination of subjects in line with their career choices. The learner will choose a minimum of **three** subjects and a maximum of **five**.

The humanities track consists of seven subjects:

1. History and Citizenship

2. Geography
3. Christian Religious Education
4. Islamic Religious Education
5. Hindu Religious Education
6. Business Studies
7. Mathematics

NB: Learners who opt to take mathematics in this track will learn the same mathematics as those taking pure sciences (see essence statement for mathematics in the pure sciences).

2. Business Studies

The proposed Business Studies subject will be offered as an integrated discipline aimed at exposing the learners at lower secondary and senior school with the necessary competencies and abilities in areas of Entrepreneurship, Financial education, Commerce, Accounting and Economics. The curriculum will provide learners with opportunities for further education and training in business subjects at advanced levels. It will also equip them with desirable competencies so as to be self-reliant and able to partake national development through self-employment.

Business studies at secondary level will equip the learner with the five key competencies deemed critical for the subject globally. These include:

- Business skills; Knowledge and skills necessary for success in business.
- Communication in a business environment; Methods, technology, and standards involved in communication within and between businesses
- Digital literacy; the ability to use digital technology, communications tools, and/or networks to access, understand, manage, integrate, evaluate, and create information.
- Financial literacy; the ability to read, analyse, manage, and communicate financial information for personal and professional purposes.
- Ethical, moral, and legal considerations in business; the understanding and/or determination of social and environmental consequences

3. Languages and Literature

The importance of language and literature learning cannot be overemphasized and the curriculum will lay great emphasis on the learning of both areas. Language enables individuals to engage daily, initially within the family and later in the larger society as they create relationships and networks. This helps them to create a sense of belonging and to enhance general well-being. This is supported by Gardner's multiple intelligence theory, which argues that we are all able to know the world through language. The theory puts a strong emphasis on learner centred classrooms, self-directed learning and delivery of instruction via multiple mediums. Thus the teaching of languages and literature will be participatory and activity based.

The languages and literature subjects will also be anchored in Vygotsky's social-cultural development theory which posits that learners negotiate meanings with people in the environment, and they achieve goals through interacting, both explicitly and implicitly, with teachers, peers, materials, and the atmosphere embedded in the context. The integration of

language and literature at the lower secondary level will provide the necessary contexts for learning purposes. Another theory that will greatly inform the study of both language and literature is John Hattie's visible learning theory that affirms that learners need to be able to think about and solve problems, work in teams, communicate through discussions, take initiatives and bring diverse perspectives to their learning. The study of languages and literature will be geared to achieving the aforementioned competencies.

Science, Technology, Engineering and Mathematics (STEM)

The achievement of Vision 2030 greatly depends on science, technology and innovation. Sessional Paper No.1 of 2005 highlights that for a breakthrough towards industrialisation and achievement of the desired economic growth targets and social development, a high priority needs to be placed on the development of human capital through education and training by promoting technical and vocational training, as well as the teaching of sciences and information technology. This is also highlighted in the Sessional Paper No.14 of 2012 which states that in order to achieve the desired economic growth, social development and political maturity, high priority will be placed on the development of human capital through education and training by promoting and sustaining basic and higher education, and technical and vocational training with an emphasis on Science, Technology and Innovation (ST&I).

In 2010, the transition from secondary to university education was 6.5% meaning that not all learners who leave secondary education move on to middle level colleges or universities. Furthermore, many learners leave secondary education with poor grades that do not allow them entry to higher education and training. It is therefore important to ensure that all learners leaving secondary education have the prerequisite skills that will enable them join the world of work, self-employment or further education.

The Commission of Inquiry on Public Service Structure and Remuneration Commission (1970-71), also known as the Ndegwa Report recommended diversification of the curriculum to allow more secondary schools to offer technical and vocational subjects. This was meant to enable secondary education to meet the manpower needs of the country. However, the commission noted that there was a mismatch between technical and vocational education and the requirements of job market. It recommended the reviewing of the curriculum in liaison with commercial and industrial organisations to offer relevant education. The National Committee on Educational Objectives and Policies of 1976 popularly known as the Gachathi Report also called for the diversification of the school curriculum to include pre-vocational subjects. The report noted that although agriculture and technical subjects were introduced in secondary schools, the expected result of making school leavers more employable had not materialized because the programmes were mainly academic. The report therefore advocated a stronger practical orientation even at examination level. Vocational education was thereafter institutionalized in the curriculum with the introduction of the 8-4-4 system of education. Several pre-vocational subjects were introduced in primary schools and a number of vocational and pre-technical subjects were introduced in secondary schools. However, its implementation across the board faced a lot of challenges including the cost of implementation and the lack of adequately trained teachers. Subsequently, most schools dropped the vocational subjects.

The STEM pathway aims at developing the individual learner's innovativeness and promoting the use of technology to develop a labour force that will drive the Kenyan economy. This pathway shall offer some specialization in various areas or fields. In addition, elements of the core curricula such as moral and attitudinal skills, language skills, and communication skills shall be included.

Theoretical Framework Underpinning the STEM Pathway

A learning theory is a conceptual framework describing how information is absorbed, processed and retained during learning (Illeris and Knud, 2004). The development of the STEM curriculum shall be based on the constructivism theory of learning.

Constructivism is a philosophy of learning which was founded by Jean Piaget and it emphasizes the importance of the active involvement of learners in constructing knowledge for themselves. Students are thought to use background knowledge and concepts to assist them in their acquisition of information. To design effective teaching environments, constructivists believe one needs a good understanding of what children already know when they come into the classroom. The curriculum should be designed in a way that builds on the pupil's background knowledge and is allowed to develop with them (Bodner et al, 2001). The teacher begins with complex problems and teaches basic skills while solving these problems. The learning theories of Dewey, Montessori and Kolb serve as the foundation of the application of constructivist learning theory in the classroom.

Constructivism has many varieties such as active learning, inquiry based learning, problem based learning, project based learning, discovery learning, socio-scientific issues based instruction and knowledge building, but all versions promote a student's free exploration within a given framework or structure in order to meet the challenges of 21st century learning. The inquiry-based approach exposes learners to experiences that provoke them to question, collaborate, think critically, conduct research, solve problems, communicate and discover new knowledge. Problem based learning on the other hand, is a learner centred approach which directs the focus of education to empowering learners to engage in self-directed learning through engagement in a real problem solving situation. This situation encourages the learners to develop problem solving skills thereby enhancing their motivation to learn. Project based learning is a structured approach which adopts the use of projects with concrete outputs as a strategy for the learners to learn through real life elements. Projects encourage the students to investigate using experiential, team work and hands-on activities to respond to complex challenges. Socio-scientific issues based learning is closely related to problem based learning. It focuses on the use of authentic, real life issues to engage students in learning through discussions and debates. Students interrogate a wide range of issues through exploration, inquiry and the integration of multiple disciplines to explain science, society, politics, economics and any other issues that affect the everyday life of the learner.

The teacher acts as a facilitator who encourages students to discover principles for themselves and to construct knowledge by working, answering open-ended questions and solving real world problems. To do this, a teacher should encourage curiosity and discussion among his or her students as well as promoting their autonomy. In scientific areas in the classroom such as STEM, constructivist teachers provide raw data and physical materials for the students to work with and

analyse (Devries and Zan, 2003). Therefore since STEM subjects are mainly practical in nature, constructivist theory shall be used to develop a curriculum which is competency based, one which promotes exploration in learners and inculcates critical thinking, innovation and problem solving skills.

Subjects in the STEM pathway

1. Pure Science

Students in this track shall be expected to join a university or other middle level college to pursue careers in area such as education, medicine, pharmacy, science (BSc), industrial science and actuarial science. Some will be able to join the world of work under experienced persons and later undergo further training and apprenticeships to advance their skills.

This track shall be offered in 8% of all senior schools (see Appendix 1). This percentage is based on Kenya's workforce projections in science careers. Session Paper No. 10 of 2012 reports that during the periods 1999/2000 and 2005/2006, students who graduated from our universities with science related degrees, were 20% of the total number of graduates. This means that enrolment into pure science related subjects is not as bad compared to other STEM areas, hence this has influenced the decision to assign 8% enrolment into this track.

The track provides a specialization opportunity for learners who have demonstrated the interest, abilities and aptitude to pursue a career in pure sciences. The track builds on the competencies acquired at lower secondary in the areas of mathematics and integrated science. It equips learners with the knowledge, skills and attitudes necessary for advanced careers in pure sciences offered in middle level colleges and universities.

2. Applied Sciences

This track shall be offered by 12% of all senior schools (see Appendix 1). This percentage was based on the desire to fill up the gaps that still exist in agricultural, entrepreneurial, innovation, creativity and ICT skills in Kenya according to the 2009 Education Evaluation Report. Agriculture remains a key pillar of the Kenyan economy contributing about 25% of the GDP. However, the sector possesses additional opportunities to unlock the potential of Kenya's economy hence there is a strong need for reforms. Education and training plays a key role in unlocking this potential.

The Applied science track provides a specialization opportunity for learners who have demonstrated the interest, abilities and aptitude to pursue a career in applied sciences. The track builds on the competencies acquired at lower secondary in the areas of mathematics and integrated science. It equips learners with the knowledge, skills and attitudes necessary for advanced careers in applied sciences offered in middle level colleges and universities

Students graduating from this track shall be expected to join middle level colleges or universities to pursue careers in areas such as agricultural engineering, computer engineering, foods science and technology, business and hospitality and home economics. They shall also be able to join the world of work where they shall work under the guidance of a specialist as they advance their skills on the job, through apprenticeships or further training.

The pure and applied sciences curriculum shall prepare learners to graduate with a senior school national certificate that will open the following career opportunities for them:

- Enrol directly into a university for a degree in science related subjects.
- Enrol into middle level colleges for a diploma in science related fields.
- Join the world of work to work under skilled personnel.

3. Technical and Engineering

Technical Education has been described as 'general instruction in the sciences, the principles of which are applicable to various specified employments of life' (Musgrave, 1964). Technical secondary or high schools are not a new phenomenon in Kenya nor internationally. In Malaysia and Russia there are numerous technical schools (high schools) offering technical education in areas such as geology, mining, power engineering, metallurgy, machine building, instrumentation, radio electronics, timber engineering, chemical engineering, engineering in the area of the production of foodstuffs and consumer goods, construction, geodesy, hydrometeorology, transportation, and communications.

Technical and engineering schools will major in technical subjects leading to technological degree subjects, while vocational schools will major in trade subjects leading to the world of work or further education including degree programmes (Odhiambo Report, 2012). Schools will be expected to bring employers to contribute to learning and offer real life work experiences to the learners as recommended in the Ndegwa Report (1971). This will enable the teaching of a quality curriculum that is relevant and enjoyable to the learner.

The schools shall prepare learners with foundational skills in applied sciences and modern technology. Emphasis shall be on the understanding and practical application of basic principles of science and mathematics in various fields such as engineering, design, agriculture, business, computers and data processing, environmental and resource management and health.
This track shall be offered in 15% of all senior schools. The percentage by enrolment is based on Kenya's need for a more hands-on technical and engineering workforce to propel the industrial sector. For example, statistics show that technology, engineering and architecture students who graduated from Kenya's public universities in 1999/2000 and 2005/2006 were 6% of all those who graduated during that period (Session Paper No. 10 of 2012). This is a reflection of a general shortage of the specific workforce that is supposed to drive the manufacturing sector of the economy, hence the need for increased enrolment of learners into this track at senior school.

The track provides a specialization opportunity for learners who have demonstrated the interest, abilities and aptitude to pursue a career in technical and engineering subjects. The track builds on the competencies acquired in pre-technical and pre-career education at lower secondary. It equips learners with the knowledge, skills and attitudes necessary for advanced careers in technical and engineering subjects offered in technical training colleges and universities.
Students graduating from this track at senior school shall have acquired skills that qualify them either to join the industrial sector and work under experienced personnel or join a technical training institution or university to pursue further subjects in engineering and technology.

4. Career and Technology Studies (CTS)

Career and Technology Studies (CTS) schools shall provide learners with the opportunity to acquire workplace skills and knowledge. A learner who joins the CTS track shall be equipped with competencies that are required to perform effectively in the workplace and the training shall reflect specific industry competencies and standards. It therefore helps learners to see how their strengths, interests and achievements relate to future education and training options and job and self-employment opportunities. Learning shall include access to experiential learning in the workplace. This will enable learners explore the world of work, identify career options, and plan their tertiary education and training options. Collaboration between schools, industry and other training institutions is key for the success of this pathway.

In Netherlands 50% of the learners entering upper secondary education follow one of four vocational programmes; technology, economics, agricultural, and personal/social services and health care. Vocational education in South Korea is in vocational high schools which offer programmes in five fields; agriculture, technology/engineering, commerce/business, maritime/fishery, and home economics. In some programmes, students may participate in workplace training through co-operation between schools and local employers (UNESCO IBE, 2014). In Malaysia, there are numerous vocational education centres including vocational schools (high schools) to train skilled students (The Malaysian Education System, 2015). In Switzerland nearly two thirds of those entering upper secondary education enter the vocational education and training system. Students spend some of their time in a vocational school, some of their time doing an apprenticeship at a host company, and for most programmes, students attend industry subjects at an industry training centre to develop complementary practical skills relating to the occupation at hand. The development of STEM education shall be accomplished alongside the industries with which learners will be expected to engage.

The CTS pathway shall be offered in 25% of all senior schools (see Appendix 1). This percentage is based on Kenya's need for a skilled middle level workforce in specific trades, crafts and careers at various levels. This includes tradesmen, craftsmen, technicians, and high professional practitioner positions in careers such as engineering, accountancy, nursing, medicine and architecture. This pathway will also provide skilled career opportunities for some learners with special needs and some of the marginalised and vulnerable members of society. It provides a specialization opportunity for learners who have demonstrated the interest, abilities and aptitude to pursue a career in CTS. It also builds on the competencies acquired in pre-technical and pre-career studies at lower secondary. It equips learners with the knowledge, skills and attitudes necessary for advanced careers in CTS offered in Vocational Training Centres (VTC) and technical training colleges after which they may join a university.

The graduates of the CTS track shall be awarded dual certification, i.e. a KNEC Certificate and an Artisan Level Certificate and shall therefore be eligible to join industries to work under the guidance of experienced persons to acquire on the job skills that could be further improved through apprenticeships. They will also be eligible to pursue further training in middle level colleges as a prerequisite to joining a university later. Career opportunities include areas such as beauticians, plumbers, welders, tailors, chefs, electricians, caterers, mechanics, fire fighters and tour guides.

Dual Certification

A dual certification programme for the Career and Technology Studies (CTS) track shall be developed to enhance career opportunities for students who join it. This will be done through establishing community partnerships between schools, tertiary institutions and business/industry/employers. The objectives of this programme are:

- To increase learner retention and completion rates of school programs.
- To increase participation of young adults in post-secondary programs.
- To assist young adults in making meaningful connections to current and emerging labour markets.
- To expand local partnerships to offer dual certification programs and internships.

Justification for Career and Technology Studies (CTS)

The career and technology field is a new and underutilized learning pathway in Kenya. It is intended to help to increase the educational engagement, achievement and attainment of students who are not excelling in more traditional academic programmes. The practical learning experiences that are often provided in CTS programmes appeal to many students since they focus on critical thinking, new technologies, real world settings, hands-on activities, and the application of learning to practical problems. For example, they are aligned with a growing emphasis on 21st century skills which are relevant to all academic subject areas and which can be applied in educational, career, and civic contexts throughout a student's life (Alberta Government, 2013). One advocate of CTS argues that career and technical education programs are an antidote to some of the weaknesses of traditional academic programs. For example, rather than learning from books, taking tests, and discussing abstract concepts in classrooms, CTS students gain practical, relevant, marketable skills that will make them more employable adults after graduation (Petrilli, 2016).

The increasing sophistication of modern careers that are demanding higher levels of education, training and skill from the workforce has led to increased expectations for CTS. In Kenya, the government has to invest in CTS through funding of training organizations and subsidizing apprenticeship or traineeship initiatives in industry. This will strengthen the relationship between schools and industry and encourage the industry to be actively involved in the building of skills in CTS and other STEM areas.

The CTS curriculum shall prepare learners to graduate with artisan level qualifications at senior school that will enable them to make any of the following career choices:

- Enrol into a Vocational Training Centre (VTC) for a craft subject in their areas of specialization which will qualify them for a diploma in the same subject and later join a university for a degree subject.
- Enrol into a middle level training college, e.g. Technical Training Institute for a Diploma programme in their areas of specialisation which will qualify them to join a university for a degree in the same subject.
- Join the world of work (industry) where they will practice under the supervision of skilled and experienced personnel. They could also pursue further training to acquire craft, diploma and degree certificates respectively as they work.

The development of STEM education shall be accomplished alongside the industries with which learners will be expected to engage. Furthermore, STEM schools shall establish a close working relationship with industry so that learners can get opportunities to acquire hands-on experience through attachments and apprenticeship programmes.

Subjects in Senior School

Core Subjects
It is expected that the learner takes the two core subjects provided, irrespective of the pathway identified:

i. Community Service Learning
ii. Physical Education

1. Arts and Sports Science Pathway
In both the Arts and Sports tracks, the learner will be expected to learn core subjects as well as choose options. Life skills in this learning pathway will be adapted to suit the specific issues in each learning area.

a. The Arts
Core subjects

i. Legal and Ethical issues in Arts
ii. Communication Skills

Optional Subjects
The learner will be required to take one of the following subjects:

i. Performing Arts
   1) Music
   2) Dance
   3) Theatre and Elocution

ii. Visual and Applied Arts
   1) Fine Art
   2) Applied Art
   3) Time Based Media
   4) Crafts

b. Sports Science

Core subjects

i. Human Physiology, Anatomy and Nutrition
ii. Sports Ethics

Optional Subjects
The learner shall choose a minimum of one and a maximum of two of the following subjects according to the learner's personality, interests, ability and career choices:

i. Ball Games
ii. Athletics
iii. Indoor Games
iv. Gymnastics
v. Water Sports
vi. Boxing
vii. Martial Arts
viii. Outdoor Pursuits
ix. Advanced Physical Education

2. The Social Sciences Pathway
The Social Sciences pathway will provide a variety of disciplines that will enable the learner to choose a career path in an area of interest and ability. Schools offering this pathway can offer all or any of the subjects in the three tracks. The learner is expected to choose a combination of subjects in line with their career choices. The learner will choose a minimum of three and a maximum of five subjects.

a. Humanities
i. History and Citizenship
ii. Geography
iii. Christian Religious Education
iv. Islamic Religious Education
v. Hindu Religious Education
vi. Business Studies
vii. Mathematics

b. Languages
i. English Language
ii. Literature in English
iii. Lugha ya Kiswahili
iv. Fasihi ya Kiswahili
v. Kenyan Sign Language
vi. Indigenous Languages
vii. Arabic
viii. French
ix. German
x. Mandarin

c. Business Studies

3. The Science, Technology, Engineering and Mathematics Pathway

The Science, Technology, Engineering and Mathematics **(**STEM) pathway shall be offered in 60% of senior schools. It will therefore take 60% of the students entering senior school from lower secondary and it shall comprise four career tracks (see Appendix 1).

a) Pure Sciences

Core subjects

- Community Service Learning
- Physical Education
- ICT

Optional

The learner will select **a** minimum of three of the following subjects:

- Mathematics
- Physics
- Chemistry
- Biology

b) Applied Sciences

Core Subjects

- Community Service Learning
- Physical Education
- ICT

Optional

The learner shall in addition select one of the following subjects:

- Agriculture
- Computer Science
- Foods and Nutrition
- Home Management

c) Technical and Engineering

Core Subjects

- Community Service Learning
- Physical Education
- ICT
- Mathematics
- Physics/Physical Sciences
- Chemistry/Biology/Biological Sciences

Optional

The learner shall in addition select one of the following subjects:

- Agricultural Technology
- Geosciences Technology
- Marine and Fisheries Technology
- Aviation Technology
- Wood Technology
- Electrical Technology
- Metal Technology
- Power Mechanics
- Clothing Technology
- Construction Technology
- Media Technology
- Electronics Technology
- Manufacturing Technology
- Mechatronics

d) Career and Technology Studies (CTS)

Core Subjects

- Community Service Learning
- Physical Education
- ICT

Optional

The learner shall in addition **select one** of the following subjects:

- Garment Making and Interior Design
- Leather Work
- Culinary Arts
- Hair Dressing and Beauty Therapy
- Plumbing and Ceramics
- Welding and Fabrication
- Tourism and Travel
- Air Conditioning and Refrigeration
- Animal Keeping
- Exterior Design and Landscaping
- Building Construction
- Photography
- Graphic Designing and Animation
- Food and Beverage
- Motor Vehicle Mechanics
- Carpentry and Joinery
- Fire Fighting

- Metalwork
- Electricity
- Land Surveying
- Science Laboratory Technology
- Electronics
- Printing Technology
- Crop Production

Essence Statements for Senior School

The following are statements that give the rationale for inclusion of the subjects at senior school. The statements also provide a brief overview of the subject and the subject expectations.

Community Service Learning

Kenya Vision 2030 places great emphasis on the link between education and the labour market, the need to create entrepreneurial skills and competencies, and the need to strengthen partnerships with the private sector. The curriculum is expected to empower the citizens with the necessary knowledge and competencies to realize the national developmental goals (NESP 2015). Further societal aspirations can only be realized through the implementation of a well-designed dynamic and responsive or relevant curriculum (NESP, 2015).The Task Force Report, 2012 suggests the inclusion of community service programmes in the school curriculum to help channel knowledge on contemporary issues to the wider Kenyan community. The reformed curriculum has consequently introduced Community Service Learning as a subject that will be compulsory to all learners.

Community Service Learning (CSL) is an experiential learning strategy that integrates classroom learning and community service to enable learners to reflect, experience and learn from the community. It is "a form of experiential education where learning occurs through a cycle of action and reflection as students... seek to achieve real objectives for the community and deeper understanding and skills for themselves. In the process, students link personal and social development with academic and cognitive development... experience enhances understanding; understanding leads to more effective action." (Eyler & Giles, 1999)

Community Service Learning will create opportunities for learners to apply the knowledge and skills acquired through the formal dimension of their education in their community while at the same time providing age-appropriate and relevant services. It will also enable the learner to interact with their community in order to learn from it. This will not only develop in the learner employability skills but will also promote personal growth by forging strong and productive relationships with the community. CSL will also provide learners with opportunities to develop and apply acquired knowledge, personal management skills, and positive attitudes and behaviours including responsibility, flexibility and continuous learning through reflection.

Community Service Learning covers aspects of citizenship, entrepreneurship, financial literacy, life skills, communication skills and research. Citizenship will equip learners with information on the Constitution of Kenya and enable them to participate responsibly in communities and wider society as informed and responsible citizens who appreciate diversity and relate positively with others. Entrepreneurship will provide the learner with competencies required for

developing, organizing and managing a business venture while financial literacy will equip them with competencies for saving, investing and insuring resources. Life skills education will focus on developing values such as respect, responsibility, fairness and justice, caring, honesty, courage, diligence and integrity. Topical issues will be skewed towards the learners' areas of study, for example, learners in the Talent Pathway will concentrate on the life skills required for related careers. Communication skills is one of the core competencies of the curriculum and will be contextualised to the Subjects. The learner will be required to carry out a research related project in an area of specialisation and interest based on all the mentioned aspects. The projects will form part of formative evaluation and shall be carried out throughout the subject.

Learners will also be expected to carry out at least 135 hours of community service throughout their three years in senior school, outside of classroom time. Learners will be provided with a log book designed by KICD where members of the community overseeing the community service will sign against the hours served. This log book will form part of the summative assessment grade.

Physical Education

Physical Education is anchored in the International Charter of Physical Education, Physical Activity and Sport which is a rights-based document that was adopted by member states of the United Nations Educational, Scientific and Cultural Organization (UNESCO), on November 18, 2015 during the 38th session of the UNESCO General Conference. It declares that "every human being has a fundamental right of access to physical education and sport, which are essential for the full development of his/her personality." (UNESCO, 2015)

Thus, physical education in schools aims to develop a student's physical competence, movement knowledge, safety, and the capacity to use these to perform in a wide range of activities as well as promote health wellbeing and fitness. It also targets the development of core skills, especially those of collaboration and communication, creativity and imagination, citizenship, critical thinking and problem solving, leadership and personal development and aesthetic appreciation. There is also the nurturing of positive values and attitudes which are expected to provide a good foundation for the significant role that sports plays in promoting a fair and just society. This is strongly supported by the social constructivist theory of Vygotsky which highlights the fundamental role of social interaction in learning (Kim and Baylor, 2006).

Music

Music as a subject will build on the knowledge, values, skills and attitudes that learners have already acquired in the performing arts subject at lower secondary level and also explore new avenues. This is based on Bruner's constructionist theoretical framework based on the thesis that learners construct new ideas or concepts based upon existing knowledge. The subject at this level will provide the learner with opportunities to advance three key competencies in creating, performing and appreciating musical works in a participatory and experiential environment. This is based on Dewey's social constructivism theory that states that a curriculum should arise from students' interests and should be hands-on and experienced based. Music at this level encourages students to develop their autonomy, creative potential, artistic sensibility and performing and listening skills, as well as their ability to express themselves and communicate through music. This will result in the development of capacities in learners such as critical thinking, problem

solving, decision making, rational and intuitive thinking and aesthetic sensitivity. It is envisaged that learners will develop creativity, self-awareness, high self-esteem confidence, self-control, reliability, hard work, endurance and management skills as they engage in creative and collaborative activities in music.

This subject will enable the learner to pursue further education at tertiary level, prepare them for self-employment and employment and also for lifelong enjoyment of and participation in music. Graduates of music can pursue careers such as composer, recording studio technician, singer, accompanist , cultural activities organizer, adjudicator, arranger, artist manager/director, music producer and editor, music therapist, band director, clinician, choral director, composer, film scoring, educator, music web producer, music publisher, columnist, concert promoter, choreographer, music teacher and rehearsal director.

Dance

Dance is an art that uses the body as an instrument for non-verbal communication and expression. It is also a physical exercise of the body. It fosters students' intellectual, social and moral development and contributes to the learners' artistic, aesthetic and cultural education.

Gardner's multiple intelligence theory states that learners possess different kinds of minds and therefore learn, remember, perform, and understand in different ways. Based on this theory, dance will be offered as an area of specialization in order to nurture a learner's talent in dance under the talent pathway.

According to Bruner's cognitive development theory curricula should be organized in a spiral manner so that the learner continually builds upon what they have already learned. Based on this, the learner will be provided with opportunities to build on the skills acquired from lower secondary in performing arts related to dance. The learner will be provided with opportunities to develop competencies in choreography, performance, appreciation and dance etiquette through an experiential and collaborative process. This will enable the learner to develop the ability to communicate and express ideas and feelings effectively through dance.

The subject will enable the learner to develop self-confidence, social skills and creativity, enhance physical well-being and develop an appreciation of artistic forms of dance as they engage in creative and collaborative processes.

The subject will prepare learners for further learning at tertiary level, enjoyment and will serve as an opportunity for learners to nurture and develop their talents. It will also prepare them for self-employment or employment and contribution towards the creative economy. Learners that study dance can pursue careers such as artistic director, choreographer, dance therapist, physical therapist, rehearsal director, dancer, composer/musician, and dance teacher.

Theatre and Elocution

Theatre and elocution at senior school will focus on building on the competencies already developed in lower secondary school. The learner will have opportunities to refine their own creative and aesthetic sensibilities through acting, voice and speech, dramatic literature, play

production, stage techniques, theatre management, correct articulation, tone, accent, grammar, diction, the art of public speaking, creative writing and speech writing. The curriculum will focus on expressing the human experience through role, action and tension, played out in time and space. Learners will be provided with opportunities to develop competencies in the use of body language, movement, and space in performance, in response to different forms of drama.

This subject will offer learners a platform to develop self-confidence, creativity and innovation, and problem solving as well as communication skills. This will be done with the intent of preparing them to pursue professional subjects at the higher level and/or for self-employment and enjoyment. These include roles such as actor/actress, stage manager, arts administrator, drama teacher, drama therapist, television production assistant, radio presenter, thespian, and theatre director.

Learners can engage in activities either within the school or in the neighbourhood to express their artistic skills such as school drama festivals, county drug awareness days and religious meetings where they can present plays/skits/narratives etc.

Fine Art

Fine art refers to art created primarily for aesthetic reasons (art for art's sake) rather than for commercial or functional use, and where the artist's self-expression is limitless. As such, fine art provides intellectual stimulation to the viewer through its uplifting, life-enhancing qualities. This subject renders itself well to Dewey's social constructivism theory that advocates experiential and participatory learning that arises from the learner's interests. The learner will be equipped with knowledge, skills and attitudes that will help them create artworks through creative self-expression. The learner will acquire competencies that will prepare them for specialization at the tertiary level. Graduates of fine art can pursue careers related to illustration, fabric decoration, ceramics, sculpting, print making and so on.

Applied Art

This subject encompasses artistic activities that involve the application of aesthetic designs to everyday utilitarian items using aesthetic principles in their design. This subject will equip the learner with knowledge, skills and attitudes that will help them design everyday utilitarian items using aesthetic principles. The experiential and participatory learning approaches that will be adopted will be in line with Dewey's social constructivism theory. The learner will acquire competencies that will prepare them for specialization at tertiary level. Graduates of applied arts can pursue careers related to interior design, landscaping, flower arrangement and graphic design among others.

Time-Based Media

Time-based media refers to a variety of multi-media presentations transmitted to an audience utilizing a particular audio-visual technology over a time period set by the work's creator. Time-based media relies on technology and is experienced in specific time periods thus making each presentation of the work uniquely associated with a specific location. Some of the Subjects under time based media will include film, video and radio production. In essence, time-based media is reliant on technology, time, and place. This subject will equip the learner with knowledge, skills and attitudes that will help them create multi-media presentations. A practical oriented approach in line with Dewey's social constructivism theory will be adopted in order for the learner to

acquire competencies that will prepare them for specialization at tertiary level. Graduates of this track can pursue careers related to media such as film, video or radio production.

Crafts

Crafts refer to art skilfully done by hand often in a traditional way. In doing this, the learner will source ideas from material culture peculiar to Kenya and the East African region. However, in line with growing trends, the learner will be introduced to digital crafts as a way of enhancing the quality of the finished products in line with the crafts industry. This subject will equip the learner with knowledge, skills and attitudes that will help them create artworks inspired by indigenous artistic techniques. In so doing the learner will employ research skills to investigate the material culture of Kenyan communities. As such, experiential and participatory learning approaches will be adopted in line with Dewey's social constructivism theory. The learner will acquire competencies that will prepare them for specialization at the tertiary level. Graduates of crafts can engage in careers such as those related to pottery making, stained glass, jewellery making and weaving.

Ball Games

The curriculum focuses on various ball games such as handball, football, hockey and netball among others. The skills to be learned include advanced drills, techniques and strategies of the game, rules and regulations of the game, facilities and equipment management, coaching, refereeing, and first aid. Involvement in ball games will develop in the learner social skills such as reliability, conflict resolution, confidence, positive self-image, hardwork, dedication to task, self-control, and teamwork. These skills and more will be developed and strengthened as the learner solves problems, interacts with others and accomplishes set goals.

Boxing

The boxing discipline is being introduced at the senior school for the first time. It is an individual sport that requires perseverance, speed, agility, power, endurance, and decisive mental toughness. The boxing curriculum will focus on basic, intermediate and advanced skills such as stance, punch, defence, boxing styles, and head movement. The sport develops social skills such as reliability, conflict resolution, positive self-image, time management, hard work, discipline, dedication to task, independence, self-control, confidence, and teamwork. These skills and more will be developed and strengthened as the learner solves problems, interacts with others and accomplishes set goals.

Gymnastics

Gymnastics is a largely individual sport that requires flexibility, strength, power, mental focus, discipline, balance, dedication and endurance. The curriculum will involve vaulting, bars routines, beam routines and floor works among others. Involvement in gymnastics will develop in the learner social skills such as time management, reliability, conflict resolution, confidence, positive self-image, hard work, dedication, consistency, self-control and determination**.** These skills and more will be developed and strengthened as the learner solves problems, interacts with others and accomplishes set goals.

Water Sports

The curriculum in water sports will focus on areas such as competitive swimming, water entry and diving, synchronized swimming, survival and water safety, lifesaving, and facilities and equipment management. Involvement in water sports will develop in the learner social skills such as positive self-image, self-control, reliability, conflict resolution, confidence, hard work, dedication, consistency, and determination. These skills and more will be developed and strengthened as the learner solves problems, interacts with others and accomplishes set goals.

Indoor Games

Indoor Games will involve various games such as table tennis, badminton, bowling, chess, and squash. The skills to be learned include advanced drills, techniques and strategies of the game, rules and regulations of the game, facilities and equipment management, coaching, refereeing, and first aid. Involvement in indoor games will build those social skills in the learner associated with team sports such as reliability, conflict resolution, confidence and positive self-image, hard work, dedication to task, self-control, and teamwork. These skills and more will be developed and strengthened as the learner solves problems, interacts with others and accomplishes set goals.

Martial Arts

The curriculum in martial arts will offer different types of martial arts such as karate, judo, taekwondo, and kickboxing as well as associated competencies such as first aid and knowledge of the history of martial arts. The curriculum will focus on basic, intermediate and advanced skills in martial arts. Martial arts will develop in the learner the ability to remain focused and pay attention to detail, as well as discipline, determination and respect for authority and one's opponent. Involvement in martial arts will develop in the learner social skills such as self-control, confidence, reliability, conflict resolution, positive self-image, hard work and dedication to task. These skills and more will be developed and strengthened as the learner solves problems, interacts with others and accomplishes set goals.

Outdoor Pursuits Education

The curriculum in outdoor pursuits education will focus on areas such as organization of outdoor expeditions, low and high challenge activities, outdoor safety, environmental awareness, orienteering, first aid, rope skills, mountain climbing, rock climbing and construction of outdoor shelters. Involvement in outdoor pursuits education develops in the learner social skills such as resilience, hard work, self-control, reliability, conflict resolution, confidence, positive self-image, dedication, consistency, and determination. These skills and more will be developed and strengthened as the learner solves problems, interacts with others and accomplishes set goals.

Advanced Physical Education

The curriculum in advanced physical education will focus on areas such as historical development of sports, exercise and sports physiology, sports and society, scientific principles of physical education, sports psychology, skills performance and research. Involvement in advanced physical education will develop in the learner social skills such as confidence, time management, positive self-image, dedication, and determination. These skills and more will be developed and strengthened as the learner solves problems, interacts with others and accomplishes set goals.

Athletics

The curriculum in athletics will focus on areas such as track and field events, horizontal and vertical jumps, and cross-country running. This subjectwill focus on techniques and strategies used in athletics, advanced drills, coaching, refereeing, facilities and equipment management, and first aid, among others. Involvement in athletics will develop in the learner a sense of hard work, discipline, dedication to task, independence, self-control, time management, confidence, positive self-image, and teamwork. These skills and more will be developed and strengthened as the learner solves problems, interacts with others and accomplishes set goals.

History and Citizenship

History and citizenship is an integrated learning area that combines aspects of history and citizenship. It will build on the history and citizenship skills acquired at lower secondary. History as a discipline enables the learner to understand the development of the modern world and how it came to be through the progression of the past. Citizenship at this level focuses on the world beyond the learner's immediate experience.

History and citizenship enables the learner to acquire knowledge, understanding and critical thinking about global, regional, national and local issues and the interconnectedness and interdependency of different countries and populations. It contributes to the strengthening of loyalties and enables the learner to identify with their rich historical background. The skills cultivated in the study of history and citizenship include the ability to assess evidence and conflicting interpretations, experience in assessing past examples of change, developing broad perspectives and flexibility, reflection, critical inquiry, critical thinking, problem solving, negotiation, peace building, social responsibility, enhancing research skills and basic writing and speaking skills.

It will provide opportunities for learners to make a positive contribution by developing the expertise and experience needed to claim their rights and understand their responsibilities as well as prepare them for the challenges and opportunities of adulthood and working life.

Geography

Geography is the study of the Earth, its people and the inter-relationships between them in the context of place, space, environment and time. It is an essential component in preparing the learner for life in the twenty-first century. With dynamic changes and challenges in society, the understanding of Geography is more vital than ever. Geography is an informing and stimulating subject at all levels of education. Geography is delineated at the Lower and Senior School. Geography at the Senior School will build on competences acquired at Lower Secondary level.

Geography draws upon a wide range of disciplines such as Art, Mathematics, Geology, Chemistry and Biology and Social Sciences such as History, Civics, Economics and Sociology. The content is organized around the themes of location, place, movement, environment, regions and spatial interactions. Pertinent and contemporary issues such as HIV and Aids, gender and substance abuse and environmental sustainability are infused and integrated to enrich the content. There are two main branches of Geography namely; Physical and Human Geography.

The Practical components of Fieldwork, Photograph work and Statistics and cut across both Physical and Human Geography.

Geography incorporates distinctive knowledge that allows the learner to develop requisite competences of communication, digital literacy, creativity, problem solving, decision making and efficacy. Geography also covers key values, such as honesty, respect, responsibility, integrity, tolerance, equity; justice, orderliness and inclusion which are embedded in the subject. The competences are intended to enable the leaner to address societal issues at community, regional and global levels.

Geography is based on the belief that all learners can learn which ultimately contributes to lifelong enjoyment and understanding of the world. This belief is guided by David Kolb's learning styles model that describes learning as the process whereby knowledge is created through the transformation of experience.

-For effective learning, instruction in Geography should be practical and culturally responsive to the natural and human phenomenon; local and extended environments; the development of geographic concepts and fostering of positive attitudes. This is supported by conclusions made by Boucher, M. (1998) on John Dewey: Democracy and Education that "Students must be engaged in meaningful and relevant activities which allow them to apply the concepts they are endeavouring to learn". This gives the learner personal autonomy in the learning process.

Christian Religious Education (CRE)

CRE serves to impart moral and ethical values that will enhance peaceful and harmonious co-existence. This will build upon the competencies introduced in lower secondary level. Learners will be provided with opportunities to think critically and creatively, and make appropriate decisions that are based on Christian principles. Christian principles are derived from the Bible which is the main resource in the teaching and learning of CRE. These principles include, but are not limited to love for God, self and others, respect, integrity, concern for others and sharing among others.

Non-formal programmes that will support learning in this area include Community Service Learning, participating in religious festivities, reciting Bible verses, visits to church, reciting prayers, singing Christian songs and dancing.

Islamic Religious Education (IRE)

The teaching of Islamic Religious Education (IRE) is aimed at enabling the learner to acquire Islamic knowledge and morality and inculcate values that will enable him or her to make appropriate decisions in life in accordance with Islamic principles and obligation. He or she should likewise develop him or herself and the community and live a happy and successful life in this world and the hereafter. The main themes include selected chapters and verses from the Qur'an, Hadith, devotional acts, Pillars of Iman (faith), Akhlaq (morals), Muamalat (relationships) History of Islam and Muslim scholars. It is expected that the learner will be able to participate with confidence and satisfaction in religious functions and develop his or her consciousness to Allah and obedience to His commands. A complete person is who is at peace with his or her Creator Allah, self, and others.

IRE is concerned with the development of personal beliefs and appreciating the beliefs of others by developing positive attitudes and skills.

Hindu Religious Education (HRE)

At senior school level, HRE serves to impart morals, ethics and values at a deeper level. It will build upon the competencies introduced in lower secondary level. Learners will be provided with opportunities to practice the four types of fundamental qualities – spiritual, moral, mental and social. The knowledge, skills and attitudes will help the learner to cope with the challenges of life. Emphasis will be on aspects of religion that help learners appreciate self and others, including other's religious beliefs and values. Non-formal programmes that will support learning in this area include visiting worship places, participating in religious festivities and community service.

Hindu Religious Education prepares learners for further education and careers in areas such as theology, faith based organizations, humanitarian organizations, and guidance and counselling.

English Language

Language is invaluable for our existence as it is an important tool for communication and socialization. This subject will build on the language skills that learners have already acquired in the English language subject at lower secondary with the aim of imparting in learners knowledge, skills and attitudes that will enable them to improve their communicative competence and give them the confidence to communicate in varied contexts. The subject will expose learners to various forms of language use in the areas of listening, speaking, reading and writing, and grammar. Learners will be provided with opportunities to interact with language using non-formal contexts such as drama and music festivals, debates, public speaking, use of school clubs and societies and interacting with resources persons.

At the end of the subject, learners will be expected to have attained a high proficiency in the use of the English language. This will prepare them for the world of work and also for further training in English. Graduates of English can pursue careers in areas such as law, journalism, marketing, advertising, public relations, editing, research, linguistics, teaching, and lexicography.

Literature in English

The study of literature provides learners with opportunities to appreciate and enjoy literary texts with the aim of enhancing students' awareness of the relationship between literature and society. This subject will introduce learners to in-depth literary appreciation through exposure to varied literary works from different regions of the world. The subject will build on literary appreciation competencies acquired at lower secondary.

At the end of the subject learners will be expected to appreciate and enjoy selected literary texts, with the aim of achieving learning outcomes which include development of the capacity for critical thinking, personal growth and empathy, enhanced appreciation of diversity in human nature and culture, constructing and conveying meaning clearly and coherently in written and spoken language, improved general cultural awareness, exploring issues of human concern

thereby leading to greater understanding of self and society, stimulating students' creative and literary imagination and development of the appreciation of literature.

Learners will engage in non-formal activities to enhance learning which include, but are not limited to, relating their personal experiences to the text being studied, watching live performances of plays in the theatre, staging performances of the texts being studied to ensure that the skills of literary appreciation are nurtured in an exciting and memorable manner, and participating in drama festivals, debates and writing competitions. Ultimately, this subject will prepare learners for the world of work and also for a career path in fields such as publishing, journalism, teaching, marketing, advertising and public speaking.

Lugha ya Kiswahili

This subject will build on Kiswahili offered at lower secondary. The subject will be aimed at producing experts in the Kiswahili language. It will expose the learner to in-depth language learning for communication in Kiswahili and the world of work. According to Frank Kweronda (2014), Kiswahili is very important in East Africa with more than 100 million people using it in the region. This has made it one of the fastest growing languages worldwide as focus shifts to Africa for business. There will therefore be a continuous demand for teachers, journalists, translators and researchers in the language.

The learner will be exposed to communication in different contexts, different forms of writing, and reading and analysing comprehensions. They will also learn more on different aspects of grammar, in addition to basic translation.

The learner will be prepared for the use of Kiswahili in communication in the world of work especially in entertainment, authoring, translation and public speaking. In addition, the subject will prepare them for further training in fields such as journalism, authoring, teaching, language, translation and public speaking.

Fasihi ya Kiswahili

This subject will build on aspects of Fasihi taught as part of Kiswahili at lower secondary. According to Sell (2005), literature written in the target language or translated into the target language may give learners insight into other non-target language cultures, thus preparing them to act competently and appropriately in future dealings with representatives from those cultures.

Fasihi will comprise both oral and written aspects of literature and will promote unity among people from different cultures thereby contributing to national cohesion and integration. The subject exposes the learner to various genres in both oral and written literature in Kiswahili. Through the analysis of various genres based on aspects such as characterization, themes, plot, setting, and stylistic devices, learners will have an opportunity to see the world differently and develop an interest in authoring works of literature. The market for such work is very big, with the East African community recognising Kiswahili as the language of the region.

Learners will be given the opportunity to watch dramatized works on the literary texts, watch discussions on written works, be involved in music and drama festivals, carry out research and projects on oral literature and participate in interschool debates on selected texts. This subject

prepares the learner for further training at tertiary level in addition to developing skills appropriate for journalism, authorship and the entertainment industry.

Kenyan Sign Language

Kenyan Sign Language is invaluable for our existence as it is an important tool for communication and socialization. This subject will build on the Kenyan Sign Language skills that learners have already acquired in the Kenyan Sign Language subjectat lower secondary with the aim of imparting in learners the knowledge, skills and attitudes that will enable them to use language efficiently and effectively, and to communicate confidently both locally and internationally. The subject is to be introduced to hearing learners who may show interest in the language. The subject will expose learners to various forms of language use in the areas of observing, signing, reading, writing, and grammar. Learners will be provided with opportunities to interact with language using contexts such as drama, computer aided language learning, field visits and use of school clubs and societies.

At the end of the subject learners will be expected to have attained high proficiency in the use of Kenyan Sign Language. This will not only prepare them for the world of work as sign language interpreters but also for further training and a career path in the field of Kenyan Sign Language.

Foreign Languages

Foreign languages include Arabic, Mandarine, French and German, however, this selection may increase depending on the needs of the country. In senior school the foreign language subject will further build on the linguistic competencies developed at lower secondary. Emphasis will be on general competencies in the target language that the learner will mobilise to accomplish tasks in defined contexts and for the purposes specified.

The learner will be exposed to a wide variety of listening and reading material, both literary and non-literary to further develop their linguistic abilities. Through research learners will explore and develop deeper awareness, understanding and appreciation of other cultures. Self-directed learning will be encouraged with a view to creating peer learning circles. All these activities aim at making learning visible as proposed in John Hattie's visible learning theory.

These being foreign languages, it will be important for the learner to access opportunities to use the acquired linguistic competencies, these might include exchange programmes, participation in Kenyan music and drama festivals, and participation in specific country of origin cultural events such as German/French/Mandarin cultural festivals. Learning of foreign languages will develop communicative competencies, oral and written proficiency, international consciousness, and creative and critical thinking skills.

Knowledge of one or more foreign languages can be useful in a wide range of careers. Language skills are one of the main requirements for some jobs, such as translating, interpreting and language teaching. For other jobs a combination of language skills and other qualifications may be needed. For example, people destined to work in IT, law, finance or sales sectors and who are multilingual are much sought-after.

Indigenous Language

Language and communication play a fundamental role in the construction of knowledge both socially and culturally. As Vygotsky points out, the most significant moment in the subject of intellectual development occurs when speech and practical activity converge. This is when meaningful learning is achieved (Vygotsky and Cole, 1978). Learners will therefore be equipped with the requisite language skills to participate in various social activities, and interact with each other and with the environment in which they live. In addition, the subject will strengthen positive attitudes and behaviour towards extensive and intensive reading in indigenous languages in anticipation of the successful discovery of information. The learner will also be exposed to multiple ways to access information in order to improve learning.

This will inspire the learner to embrace effective learning strategies such as carrying out oral literature projects and participating in mother tongue based programmes in and out of school. The ability to learn and communicate effectively in their mother tongue will therefore be an added advantage to the learner.

At the end of the subject, the learner will be expected to have attained high proficiency in the use of their mother tongue. This will open career opportunities in vernacular radio, television and journalism. They will also be able to pursue careers in publishing houses, research organisations, law, herbal medicine, educational institutions, indigenous science and technologies, and public relations. Learners will also be expected to advance their learning in their mother tongue in order to become linguists and specialize in such areas as the development of orthographies.

ICT

Information Communication Technology (ICT) deals with the purposeful application of computer systems to solve real-world problems, including issues such as the identification of business needs, the specification and installation of hardware and software, and the evaluation of usability. It is the productive, creative and explorative use of technology. The learner should be able to understand and play an active role in the digital world that surrounds them, not to be passive consumers of an opaque and mysterious technology. A sound understanding of computing concepts will help them see how to get the best from the systems they use, and how to solve problems when things go wrong. Moreover, learners who are able to think in computational terms will be able to understand and rationally argue about issues involving computation, such as software patents, identity theft, genetic engineering, electronic voting systems for elections, online shopping and so on. In a world suffused by computation, every school leaver should have an understanding of computing.

Mathematics

Mathematics is a subject that supports other subjects and is therefore tailored for students who intend to specialize in advanced sciences, and technical and engineering subjects in tertiary institutions and university. Notably modern science, medicine, architecture, social sciences, engineering and all branches of technology use mathematics to express the physical and social economic laws (Kingoriah, 2013). This subject will therefore, provide the learner with a firm foundation to pursue subjects in STEM related areas. Furthermore the subject will enable the learner to develop problem solving skills in day to day life. The wider use of mathematics has made it a tool for everyday use by virtually everyone in a variety of fields and endeavours. It is

therefore advisable for one to understand mathematics so as to analyze everyday problems in an accurate and rigorous manner (Kingoriah, 2013).

Physics

The physics curriculum presents physics as a body of knowledge on the physical environment. It is also applied in exploring the laws and rules that govern all natural phenomena observed in the universe.

It employs a scientific methodology of study to arouse learners' ways of reasoning and create positive attitudes. It emphasizes not only the understanding of fundamental scientific concepts and principles, but also the experimental approach to investigation. Physics knowledge and skills are acquired through the scientific processes where the learner is required to come up with a hypothesis, test the validity of the hypothesis through experiments or projects, and make conclusions based on the results obtained. This process requires the student to be precise and accurate. The insights acquired by the learner during the process of learning physics is the key to many aspects of life.

Learning physics is thus a critical and valuable undertaking which all secondary school level learners should be encouraged to experience in order for them to appreciate the relevance of physics in expanding their knowledge and values, and the application of the required scientific knowledge in solving problems encountered in their day to day experiences. The learner will be provided with opportunities to develop competencies by empowering them to be creative and innovative, leading to independent approaches to problem solving and management of their environment. It also equips learners with knowledge and thinking strategies that could provide answers to problems faced by society, such as global warming and how to safely use modern discoveries such as nuclear energy.

It also prepares students for further training in the real world of work by providing career pathways in mechanical engineering, construction engineering, and other related fields.

Chemistry

Chemistry is the scientific study of the structure of substances and how they react with each other. This subject equips the learner with foundational competencies that prepare them for advanced sciences, and technical and engineering subjects at tertiary level. Inquiry based learning approaches will be employed throughout the learning experiences in this area as advocated by John Dewey's social constructivist theory which emphasizes that the learner should be given an opportunity to learn through hands-on activities.

Biology

This subject deals with the study of living things and their interrelationships in their environments. Biology is key to careers in health such as medicine, dentistry, surgery and pharmacy. It is also a foundational subject for careers in agriculture, livestock and poultry rearing, marine science, anthropology, environmental studies and related fields.

This subject will provide the learner with knowledge, skills and attitudes in biology necessary for application in daily life. Learners will therefore study content related to themselves as living things, plants and animals as well as the environment in which they live.

They will also build relevant knowledge, skills and attitudes necessary for further education and training in related careers. The learner will therefore be provided with opportunities to develop competencies to apply knowledge and skills gained to maintain the health of themselves, their family, their community and their environment for sustainable development.

Computer Science

In school the learner should be in a position to use ICT in his or her daily activities because in the world today digital literacy is vitally important. Those who opt for the Academic Pathway will have to take computer science as a subject and will be taken through more detailed applications and other areas of the subject. ICT skills acquired in lower secondary will enable all learners to carry out their academic activities. Learners who opt for other Pathways will also need ICT skills in order to function effectively in the world of work and their daily lives. The importance of computer science as a subject both in lower and senior school cannot be over emphasized, as some form of ICT is used in nearly every aspect of our lives.

Foods and Nutrition

Foods and nutrition aims at equipping learners with skills to use modern principles of science and efficiency in food production and safety in order to meet this basic human need. Foods as a discipline equips learners with the hands-on skills of planning, preparing and presenting nutritious meals for self, family, various groups of people and for various occasions, while nutrition as a discipline is the scientific study of food.

Learners who pursue this subject will be equipped with competencies in meal planning, management and service, nutrition and dietetics, nutrition in the life cycle, nutrition care process, nutrition anthropology, nutrition for vulnerable groups, nutrition in emergency, food groups and classification, food science, and food hygiene and safety. Aspects of diet therapy, nutrition surveillance and primary health care will also be covered.

The subject lays a foundation for further education and training in fields such as nutrition and dietetics, food science and technology, and social work.

Home Management

Home management is an integrated and applied science that aims at improving the quality of life in the home. It is concerned with helping homemakers to make the best use of limited financial resources. The subject will provide information on budgeting and spending to help learners and their families to make good decisions for comfortable home living and meeting everyday challenges. Home management is also concerned with the impact of environmental factors on human well-being, and the physical and emotional development of children with the goal of promoting optimal adjustment in the face of often harsh economic and social realities. As a result, those taking the subject will be engaged in various forms of advocacy, education, and research.

Home management integrates areas such as meal planning and management, housing the family, furnishing the home, maternal and child health care, laundrywork, sanitation and environmental hygiene, care of various surfaces in the home, flower arrangement, safety in the home, care of the sick at home and consumer education.

The subject will enable the learner to pursue further education and training in careers such as institutional management, home economics, the entertainment and hospitality industry, and education.

Schools offering home management will be expected to form collaborations and partnerships with homes and institutions such as hotels and hospitals within their community where learners can visit regularly to learn and offer services that will form part of their community service learning.

Agriculture

Kenya requires a large, competent workforce not only for its agro-based economy, but also to achieve the goal of moving towards the realization of plans for agro-based industrial development (Kenya Vision 2030, GoK). This capacity development could effectively be realized through streamlining agriculture related competencies with the implementation and use of basic education. Agriculture at senior school will build on the knowledge, skills and attitudes developed at lower secondary level. The learner will further develop competencies in communication and collaboration, critical thinking and problem solving, creativity and imagination, learning to learn and self-efficacy. The subject will focus on crop and livestock production, fisheries, values addition and entrepreneurship. The curriculum will prepare the learner for the immediate application of agricultural skills to solve contemporary food security challenges and will develop appropriate attitudes towards farming applicable in their social contexts. The subject will instil and enhance foundational competencies applicable in contemporary life and will form a basis for conceptualizing a career in agriculture.

Agricultural Technology

Agriculture Technology is a technical and engineering subject focusing on crop and livestock production, their entrepreneurial components and related agricultural production technologies. The subject will provide the learner with the opportunity to develop critical thinking, problem solving, creativity and imagination, learning to learn and self-efficacy competencies. The subject shall cover agricultural principles and practices, entrepreneurial farming skills and related environmental care. It will prepare the learner for immediate and direct application of the attained skills, knowledge and attitudes in their contemporary contextual living for self and socio-economic improvement to uplift standards of living. It will further prepare the learners for further education, training and employment in agriculture related fields.

Learners will be provided with opportunities to assess agricultural methods in their community and identify ways of improving them. They will also be expected to carry out individual projects in an area of interest that will form part of their formative assessment.

Schools offering agricultural technology will be expected to form collaborations and partnerships will established farms within the community where the learners can visit regularly to learn and offer services that will form part of their community service learning.

Geosciences Technology

Geosciences or Earth science is an all-encompassing term that refers to the fields of science dealing with planet Earth. It can be considered to be a branch of planetary science, but with a

much older history. The formal discipline of Earth sciences may include the study of the atmosphere, hydrosphere, lithosphere, and biosphere. Typically, Earth scientists will use tools from physics, chemistry, biology, chronology, and mathematics to build a quantitative understanding of how the Earth's systems work, and how it evolved to its current state.

Geosciences technology is a subject concerned with the use of scientific knowledge to explore, extract and refine raw minerals from the Earth. It includes studying minerals, rocks, fossils, soils, surface and groundwater, and the atmosphere, through fieldwork, laboratory analysis, computer modelling and geospatial analysis. Kenya has a huge reservoir of resources below the ground but this potential is largely unexploited partly because the country doesn't have the appropriately skilled workforce and capacity to explore and tap this resource. This subject will be the starting point in developing the skilled personnel who will in future explore and tap these resources. It is a specialization subject in senior school and it builds on the competencies acquired in pre-technical and pre-career education in lower secondary. It equips learners with knowledge, skills, attitudes and values which are prerequisites for the learner to either pursue further training in middle level colleges and universities or to join the world of work.

A certificate in geosciences will prepare graduates to work as geosciences specialists, able to apply their technical knowledge to a variety of geological issues including core description and analysis, geologic software applications, mineral and rock identification, subsurface mapping, the use of GIS and map interpretation, and field methodologies.

The subject also prepares the learner to pursue careers in advanced geosciences technology, and civil and environmental engineering. Students who select this subject will develop their careers to become oil field data technicians, wire line technicians, mud loggers, associate geologists, geosciences technicians, geology lab technicians, mineral exploration technologists, and geology assistants.

Marine and Fisheries Technology

Fisheries science is the academic discipline of managing and understanding fisheries. It is a multidisciplinary science, which draws on the disciplines of limnology, oceanography, freshwater biology, marine biology, conservation, ecology, population dynamics, economics and management to attempt to provide an integrated picture of fisheries (Hart et al, 2002). Marine technology is defined as technologies for the safe use, exploitation, protection of, and intervention in, the marine environment. Marine technology programmes focus on constructing, maintaining and repairing water vessels. Students learn about marine equipment, systems and controls through classroom instruction and laboratory work and also by working with oceanographers during field experiences aboard water vessels.

Marine and fisheries technology is a subject that deals with things relating to the sea, rivers, lakes and ships and this subject equips learners with skills in these areas. It is a specialization subject in senior school and it builds on the competencies acquired in pre-technical and pre-career education in lower secondary. It equips learners with knowledge, skills, attitudes and values which are a prerequisite for the learner to either pursue further training in middle level colleges and universities or to join the world of work.

Aviation Technology

Aviation is the practical aspect or art of aeronautics, being the design, development, production, operation and use of aircraft, especially heavier than air aircraft. Aviation technology is a specialization subject in senior school and it builds on the competencies acquired in pre-technical and pre-career education in lower secondary. It equips the learners with knowledge, skills, attitudes and values which are a prerequisite for the learner to either pursue further training in middle level colleges and universities or to join the world of work.

The air transport industry is very important with regards to globalization, and it is essential for Kenya to be part of the global village and to participate in all global activities through business, partnerships, communication and tourism. This subject is a means through which school students can learn to appreciate and embrace globalization. The subject prepares the learner to acquire competencies in the operation and production of all types of aircraft and the making of flying prototypes of aircraft powered by alternative fuels, such as ethanol, electricity, and even solar energy. It also provides a foundation for the learner to pursue an advanced career in the aviation industry. Schools offering this subject shall establish a strong relationship with Kenya's aviation industry to enable learners to acquire hands-on experience through programmes such as field trips and attachments.

Wood Technology

Wood technology is a subject that trains learners to process timber to make products that are useful to society. It is a specialization subject that builds on the competencies acquired in pre-technical and pre-career studies in lower secondary. It equips learners with knowledge, skills, attitudes and values which are a prerequisite for the learner to either pursue further training in middle level colleges and universities or to join the world of work. The curriculum will provide a critical link between school and employment or post-secondary education by integrate knowledge and skills in the wood technology that are relevant to wood technology.

The wood technology curriculum will provide standards based competencies that the learner will achieve. It will incorporate industry and common core standards and competencies thus increasing the student's qualifications and opportunities for successful employment. Alignment of the curriculum with nationally recognized industry standards and the common core standards provides optimal preparation for students to acquire an industry recognized certification.

The learner is prepared to pursue related careers such as wood science technology, carpentry and joinery, building construction, and manufacturing. The learner shall also be skilled enough to initiate self-employment projects.

Electrical Technology

Electrical technology deals with all machines, tools, devices, and systems in which a current or a flow of electrons takes place through conductors and metals. It involves the design and development of high-voltage systems and components such as motors, generators, heaters, electrical power transmission and distribution systems, radio wave and optical systems, converters, and control systems for operating light and heavy machinery. Almost all of our low or high-tech gadgets today involve the use of electrical current to operate, making electrical energy the main and possibly the only factor in defining what electrical technology is.

Electrical technology involves the design and production of all the electrical systems mentioned, and also the installation, testing and maintenance of these systems. This subject equips the learner with competencies of diagnosis, installing and repairing electrical equipment. It is intended to provide the learner with knowledge, practical skills, attitudes and values to enable the learner to handle and use electricity and electrical appliances competently. It is a specialization subject in senior school and it builds on the competencies acquired in pre-technical and pre-career education in lower secondary. It equips the learners with knowledge, skills, attitudes and values which are a prerequisite for the learner to either pursue further training in middle level colleges and universities or to join the world of work.

Since every part of Kenya is now getting electricity through the Rural Electrification Authority (REA) program, opportunities for employment and business are increasing and this justifies the need to offer this subject in schools to develop a workforce more skilled in electrical technology. The curriculum is intended to promote career pathways for those just entering the industry, as well as industry professionals looking to stay on. There are certificates and degree options and interrelated disciplines at the universities and technical training institutions that have articulation agreements with various post-secondary institutions. Industries shall offer pre-apprenticeship career pathway opportunities into registered apprenticeship programs to secondary students. This is a business and industry driven program to create a pipeline for students to enter post-secondary apprenticeship training. Students who successfully complete this program may seek entry level employment as an electrician's assistant, industrial electrician's assistant, and residential electrician among others.

Metal Technology

Metal technology is the scientific subject where learners learn to make objects out of metal in a skilful way. The subject equips learners with machine operation competencies that enable them to manipulate metals in order to make useful items. It is a specialization subject in senior school and it builds on the competencies acquired in pre-technical and pre-career education in lower secondary. It equips learners with knowledge, skills, attitudes and values which are a prerequisite for the learner to either pursue further training in middle level colleges and universities or to join the world of work.

Metal technology is one of the subjects that equips learners with skills needed in the manufacturing sector which currently contributes 10% to Kenya's GDP (Vision 2030). In order to expand the manufacturing sector, there is a need to offer this subject in schools so as to produce a larger and more skilled workforce for this sector. The metal technology curriculum is composed of standards based competencies. The program incorporates industry and common core standards thus increasing the student's qualifications and opportunities for successful employment and/or self-employment. Alignment of the curriculum with nationally recognized industry standards and the common core standards provides optimal preparation for students to acquire an industrial certification. This preparation provides better career opportunities for students and goes some way to meeting the demand for a relevant 21st century workforce. This subject lays the foundation for careers in mechanical engineering and the manufacturing sector.

Power Mechanics

Power mechanics combines global technologies and regional expertise to fulfil a country's developmental needs and this justifies the subject being offered in the Kenyan school curriculum. Power mechanics involves the use of energy to move machines and engines so that work can be done. It is a subject in senior school that builds on the competencies acquired in pre-technical and pre-career studies in lower secondary. It equips learners with knowledge, skills, attitudes and values which are a prerequisite for the learner to either pursue further training in middle level colleges and universities or to join the world of work. The curriculum covers construction details of machines and their principles of operation, fundamentals of transmission, service and repair procedures. It also provides instruction in service, maintenance, tune-up, and major overhaul of automotive engines. It also includes small engine repair on such portable power equipment as lawn and garden machinery, chainsaws, outboard and inboard engines, and motorcycles. Further emphasis is placed on automotive brake systems, suspension, and alignment. Students in this field shall be detail oriented, enjoy working in hands-on environments and will be able to troubleshoot complex mechanical problems. Some of the areas to be learned include shop orientation, engine systems, fuel systems, ignition systems, lubrication systems, cooling systems, engine performance, troubleshooting, service and maintenance, engine service and engine applications.

The three-year curriculum is designed for the student seeking future employment in the repair of gasoline combustion engines and automotive repair. The subject also prepares the learner to pursue careers in automotive and mechanical engineering.

Clothing Technology

Clothing technology involves the manufacturing processes, materials, and design innovations that are used in the production of clothing. The timeline of clothing and textiles technology includes major changes in the manufacture and distribution of clothing. The clothing and fashion industry itself continues to be an extremely dynamic and important sector of the Kenyan economy, providing enormous scope for well-qualified graduates to earn their living. Clothing and many related materials such as textiles and leather meet basic human needs, and are essential for the adequate performance of everyday roles, and feelings of well-being in both the physical sense (e.g. for protection and warmth) and the social sense (e.g. belonging to a group). Clothing also plays an important role in non-verbal communication, indicating many personal and social characteristics of the wearer.

Students taking clothing technology shall acquire comprehensive insights and skills in all fields of clothing construction, such as prototype pattern design, stenciling, style construction and correct fit. Content based on ergonomics, with a particular focus on the special features of the clothing industry, will prepare students ideally for executive management positions in the fields of pattern construction and product management. The clothing technology curriculum trains learners in the highly diverse and versatile range of technical and business administration tasks in the clothing industry. It also focuses on specialized fields of clothing manufacturing production techniques and processes. This knowledge is complemented by offering extended studies in fields of business administration and ergonomics. Knowledge of quality management, cost accounting and ICT also promote the students' skills and competencies.

Today's textile and clothing industry offers exciting and rewarding career opportunities with ever increasing demands for skilled professionals. Some clothing designers have become television

and media personalities. In recent years fashion and design has also been the subject of television shows. Students who choose clothing technology as their field of study can specialize either in the core study area of product development or in clothing management.

Construction Technology

Construction technology is the use of scientific knowledge to build things such as buildings, roads, machines and bridges. The subject is practical and therefore it provides the learner with opportunities to learn about the tools, equipment and materials used in the construction industry. Infrastructural development is one of the major target projects that the Kenyan Government is investing heavily in, so as to achieve Vision 2030 aspirations. This justifies the introduction of this subject in senior school so as to develop human capacity in construction technology. It is a specialization subject in senior school and it builds on the competencies acquired in pre-technical and pre-career studies in lower secondary. It equips learners with knowledge, skills, attitudes and values which are a prerequisite for the learner to either pursue further training in middle level colleges and universities or to join the world of work.

The curriculum will prepare students for work in the construction industry. Career pathways are built with comprehensive content, projects and practice ranging from entry level at senior school through to levels of national certification in future careers in areas such as civil engineering, architecture and building construction. Students will learn at school environment workshops and on real jobsites. Current and traditional building practices are included, while updated and advanced framing techniques, energy efficiency, health and safety, and sustainability methods are emphasized in the curriculum.

Construction pre-apprenticeship subjects are included that focus on new construction, carpentry, and other building trades. Students learn about the tools and techniques used in the construction industries. Students shall gain relevant skills in air conditioning technology, building and apartment maintenance, carpentry, electrical technology, heavy equipment sciences, masonry and plumbing. Students will be introduced to building methods and materials. The curriculum is intended to promote career ladders for all post-secondary opportunities. Each student must pass both a technical knowledge and a technical performance assessment as proof that they have the skills required by industry.

Media Technology

Media technology is a subject that deals with television, radio, newspapers and magazines. This subject prepares the learner with competencies needed to perform duties in the media industry. It is a specialization subject in senior school and it builds on the competencies acquired in pre-technical and pre-career studies in lower secondary. It equips learners with knowledge, skills, attitudes and values which are a prerequisite for the learner to either pursue further training in middle level colleges and universities or to join the world of work.

Media technology is a new area of study in Kenyan schools and this subject constitutes a major revision of the existing content to align it with the current industry practice. Media arts began early in the 1970s, the growing interest and use of technology in classroom instruction has gained even more momentum as a wide spectrum of creative activity in media arts has taken the education scene by storm. While general instructional technology continues at all levels of public education, there are increasingly new and vigorous experiences in media arts that include

cinema, animation, sound imaging design, virtual design, interactive design, as well as multimedia and inter-media. This content may be unfamiliar to the general public, but practitioners are already involved in its instruction and students should now be engaged by it.

Learners will develop a comprehensive media technology portfolio to show their progress through the pathway. This subject prepares the learner to pursue advanced careers in the media industry.

Electronics Technology

Electronics deals with electrical circuits that involve active electrical components such as vacuum tubes, transistors, diodes and integrated circuits, and associated passive electrical components and interconnection technologies. Commonly, electronic devices contain circuitry consisting primarily or exclusively of active semiconductors supplemented with passive elements; such a circuit is described as an electric circuit. The new demands of the 21st century are characterized by knowledge and technologically driven skills (OECD, 2010). Electricity and electronics are crucial skills for the 21st century and therefore Kenya has to introduce these subjects at the basic education level.

Electronics Technology is an engineering field that implements and applies the principles of electrical engineering. Like electrical engineering, Electronics Technology deals with the design, application, installation, manufacturing, operation and/or maintenance of electrical/electronic(s) systems. It is a specialization subject in senior school and it builds on the competencies acquired in pre-technical and pre-career studies in lower secondary. It equips learners with knowledge, skills, attitudes and values which are a prerequisite for the learner to either pursue further training in middle level colleges and universities or to join the world of work.

However, ET is a specialized discipline that has more focus on application, theory, applied design, and implementation, while electrical engineering may put more of a generalized emphasis on theory and conceptual design. Electronic engineering technology is the largest branch of engineering technology and includes a diverse range of sub-disciplines, such as applied design, electronics, embedded systems, control systems, instrumentation, telecommunications, and power systems. The subject prepares the learner to seek further training in electronics engineering.

Manufacturing Technology

Manufacturing technology is the use of scientific knowledge to make goods in large quantities to sell. In Kenya, the manufacturing sector generates about 10% to the GDP (Vision 2030). This means that the existing potential in manufacturing has not been well exploited. Lack of skilled manpower has partly contributed to this and therefore there is a need to include this subject in the curriculum.

The manufacturing technology curriculum, through the application of new technologies shall enhance the future of each student by providing them with competencies that are nationally recognized by industry. It is a specialization subject in senior school and it builds on the competencies acquired in pre-technical and pre-career studies in lower secondary. It equips learners with knowledge, skills, attitudes and values which are a prerequisite for the learner to

either pursue further training in middle level colleges and universities or to join the world of work.

Manufacturing technology teaches students the specialized skills needed in industry to design, create, and deliver the products we use every day. Classroom instruction, laboratory/workshop experiences and work based learning programs provide real life experiences for the development of problem solving and critical thinking skills. The following career pathways are offered through manufacturing technology: computer aided drafting, computerized manufacturing and machining, industrial maintenance technology, metal fabrication technology, welding technology and wood manufacturing technology.

Emphasis is placed on employability through practical and occupational skills enabling a smooth transition to the workplace or post-secondary education. The manufacturing technology curriculum shall give students the technical aptitude to become highly productive and to grow both personally and professionally. The manufacturing technology programme shall offer industry recognized artisan certification. Each student must pass both a technical knowledge and a technical performance assessment as proof that they have the skills required by industry. It equips the learner with skills to become manufacturers and/or to be employed in large-scale manufacturing industries. The learner will also be prepared to pursue advanced careers in the manufacturing industry.

Mechatronics

Mechatronics is a multidisciplinary field of engineering that includes a combination of systems engineering, mechanical engineering, electrical engineering, telecommunications engineering, control engineering and computer engineering (Bradley et al,1991). As technology advances, the subfields of engineering multiply and adapt. Mechatronics' aim is a design process that unifies these subfields. Originally, mechatronics just included the combination of mechanics and electronics, hence the word is a combination of **mecha**nics and elec**tronics**; however, as technical systems have become more and more complex the definition has been broadened to include more technical areas. It is an approach aiming at the synergistic integration of mechanics, electronics, control theory, and computer science within product design and manufacturing, in order to improve and/or optimize its functionality. Mechatronics is a new field in Kenyan secondary level education and it is one of the subjects that will promote industrialization in line with the aspirations of Vision 2030.

Mechatronic students shall take subjects in various fields including mechanical engineering and materials science, electrical engineering, computer engineering (software and hardware engineering), computer science, systems and control engineering and optical engineering.

Garment Making and Interior Design

Fashion and interior design is an exciting and creative applied art that will enable the learner to gain hands-on real life experience in fashion and interior designing and construction. Learners will be able to provide clothing for themselves and their families in efficient and economical ways and also be equipped to begin entrepreneurial activities in this area.

The subject shall cover aspects of design, pattern drafting, fabric composition, clothing selection for different groups of people, clothing design and production, soft furnishing, interior design

and colour. It will also look at business aspects of the textiles, clothing and interior design industries and address varied cultures and changing global trends. The curriculum shall stimulate creative expression in all aspects of fashion and interior design, including sketching, creative design, computer applications, draping, and pattern drafting. Included in fashion design will be the creation of original clothing, accessories, and footwear.

The subject will enable the learner to pursue further education and training in careers in fashion and interior designs and also enable them to be self-employed. Learners will be involved in designing garments needed in their own school and the surrounding primary and secondary schools for activities such as drama and music festivals. Learners will also participate in community activities that involve the promotion of culture.

Leather Work

Leather work deals with the synthesis, production and refining of leather to make commercial goods like footwear, clothing, gloves, belts, wallets, luggage, bags, upholstery (including automobile upholstery) and sports goods. It is a niche branch of engineering which deals with leather and its by-products. It is a Career and Technology Studies (CTS) subject in senior school and it builds on the competencies acquired in pre-technical and pre-career education in lower secondary. It equips learners with knowledge, skills, attitudes and values that are a prerequisite for the learner to either join the world of work or pursue further training in middle level colleges before joining university. Leather is a durable and flexible material created by the tanning of animal rawhide and skin. The process of manufacturing ranges from cottage industries to heavy industries. The leatherwork subject gives students an introduction to the three stages of synthesizing raw leather into finished products. These three stages are preparatory stages, tanning and crusting.

The largest sub-section of this industry is still footwear, despite growing competition from materials like synthetics and fabric. The increasing use of leather products all over the world make this sector popular and hence young people with the competencies of innovation and creativity like to take this as their career option. In Kenya, the leather industry is largely unexploited despite the large quantities of skins and hides available in the country from both domestic and wild animals. These are mainly exported raw to other countries. There was no learning subject on leatherwork at secondary school level and very little is being done at the tertiary level. Consequently, there is no adequately skilled manpower to work in this industry.

The leather industry is set to boom with bright career opportunities in both technical and designing areas. As a career option, learners can either take up designing or may get into the technical side of production depending upon interests and aptitude. Regarding product design, designers and fashion houses across the world use leather in their products. After successful completion of the subject students can find excellent placements in garment, leather and jewelry industries as merchandising executives, fashion designers, illustrators and fashion coordinators.

Leather work builds competencies such as creativity and imagination, and critical thinking and problem solving. Coming up with fresh ideas, concepts and designs are some of the key characteristics required in a leather designer. Leather technologists can get jobs in chemical and

engineering industries involved in the manufacturing of items such as bags, suitcases, upholstery, footballs and cricket balls, and car and aircraft seats.

Culinary Arts

Culinary arts is focused on the art of preparing, cooking and presenting food items. It equips learners with creativity and imagination, critical thinking, problem solving and self-efficacy competencies. The subject shall equip learners with skills relevant to the planning, preparing and presenting of meals for various occasions and in settings such as hotels, restaurants and institutions. It is a Career and Technology Studies (CTS) subject in senior school and it builds on the competencies acquired in pre-technical and pre-career studies in lower secondary. It equips learners with knowledge, skills, attitudes and values which are a prerequisite for the learner to either join the world of work or pursue further training in middle level colleges before joining university.

Also included are skills such as cake making and decoration, biscuit and cookie making, and pastry and bread making. The subject prepares the learner to venture into self-employment and to further their career in advanced culinary skills, within the hospitality, food and beverage industries.

Schools offering culinary arts will be expected to form collaborations and partnerships with hotels within their community where the learners can visit regularly to learn and participate in related activities.

Hair Dressing and Beauty Therapy

Hair and beauty therapy is a subject that deals with cosmetic treatments for men and women. This treatment is done in beauty parlours, salons, beauty shops, hair salons and spas. It also deals with generalized studies related to skin health, facial aesthetic, foot care, nail manicures, aromatherapy, meditation, oxygen therapy, mud baths, and many other services.

The hair and beauty subject is made up of practical and theoretical components relevant to the hair and beauty industry, preparing students for employment or further study. The curriculum is structured to provide a solid grounding of specialist skills based learning alongside practical experience of working in a salon or similar environment. Students will also have the opportunity to attend trips to industry exhibitions and enter competitions to develop their creativity. All hair and beauty subjects will include an element of work experience and project work within relevant local industries. Hair and beauty therapy is a Career and Technology Studies (CTS) subject in senior school and it builds on the competencies acquired in pre-technical and pre-career studies in lower secondary. It equips learners with knowledge, skills, attitudes and values which are a prerequisite for the learner to either join the world of work or pursue further training in middle level colleges before joining university.

Students will learn in public and private salons during their work experience. They will not only be practicing their skills on models, they will have the opportunity to refine their techniques on actual paying customers, thereby building their confidence and gaining experience in a commercial environment. This is in addition to gaining valuable hands-on skills and work experience.

After completing the subject, learners will be in a prime position for a wide range of opportunities in the booming hairdressing and beauty therapy industry. Typical roles include stylist, assistant hair stylist, salon receptionist, lower beauty therapist, makeup artist, masseur/masseuse, salon manager or spa manager, barber, hair colourist and nail technician. They can work closely with other professionals in salons and photography studios, and with theatres and television companies. As the industry develops, they can work closely with nutrition and medical experts to progress in their careers.

Plumbing and Ceramics

Infrastructural development is one of the Vision 2030 projects. Any infrastructural project requires the services of a plumber. Plumbing is a subject which deals with the systems of conveying water from one point to the next for a wide range of applications. Heating and cooling, waste removal, and portable water delivery are among the most common uses for plumbing, but plumbing is not limited to these applications. Plumbing utilizes pipes, valves, plumbing fixtures, tanks, and other apparatuses to convey fluids. Trades that work with plumbing such as boilermakers, plumbers, and pipefitters are referred to as the plumbing trade.

Ceramics deal with inorganic non-metallic materials that are used to make household items such as utensils, crockery and toilet appliances. Plumbing and ceramics is a Career and Technology Studies (CTS) subject in senior school and it builds on the competencies acquired in pre-technical and pre-career studies in lower secondary. It equips learners with knowledge, skills, attitudes and values which are a prerequisite for the learner to either join the world of work or pursue further training in middle level colleges before joining university. Some of the career opportunities available after this subject include plumbers and ceramic technicians. Further training opportunities include, ceramics engineering.

Welding and Fabrication

Welding and fabrication is a subject within the construction industry. It deals with the building of metal structures by the use of cutting, bending and assembling processes. It is a value added process that involves the construction of machines and structures from various raw materials. Kenya has a very high rate of infrastructural development. Unfortunately Kenya's major infrastructural projects are done by companies from outside Kenya who bring with them their own imported labour due to the fact that Kenya lacks an adequately skilled workforce in areas such as welding and fabrication. The introduction of this subject at secondary school level will address this shortage. This subject is a Career and Technology Studies (CTS) subject in senior school and it builds on the competencies acquired in Pre-technical and Pre-career Studies in lower secondary. It equips learners with knowledge, skills, attitudes and values which are a prerequisite for the learner to either join the world of work or pursue further training in middle level colleges before joining university. Careers in this area include welders and fabricators. Future career progression could be in the field of mechanical engineering and other related subjects.

Tourism and Travel

Tourism and travel is a subject which deals with the movement of people from one part of the world to the other for relaxation or for sightseeing. It also includes visits to new places with the aim of interacting with unique sites, features, experiences, cultures and animals. Tourism and

travel is very important for globalization, interaction of people, building of world economies and cultural cohesion. Tourism is a major contributor to Kenya's GDP and Kenya has invested heavily in this sector and updated and improved its tourist destinations to make the country more attractive to both local and foreign visitors. Tourism and travel in Kenya is growing and it still has a lot of potential for growth. However, training in tourism subjects currently is done at the tertiary level, hence the decision to start offering these subjects at senior school level, which will open up more opportunities for young people and expand the tourism and travel sector, bringing in more income and creating wealth for the country.

Tourism and travel is a Career and Technology Studies (CTS) subject in senior school and it builds on the competencies acquired in pre-technical and pre-career studies in lower secondary. It equips learners with knowledge, skills, attitudes and values that are a prerequisite for the learner to either join the world of work or pursue further training in middle level colleges before joining university.

Learners in the tourism and travel will prepare for an exciting career that provides an opportunity for employment within various sectors of the tourism industry. Students will network with industry partners and benefit from guest speakers, trade shows, conferences, and careers fairs. The tourism and travel curriculum also prepares the learner for a variety of exciting roles in the fast-growing tourism and travel industry by blending classroom theory with on the job training as well as an industry field placement.

Air Conditioning and Refrigeration

Most factories, plants, buildings and vehicles are fitted with air conditioners or refrigerators. With the expanding infrastructural sector in Kenya, these items are in high demand. It is therefore important that Kenya starts developing a workforce skilled in air conditioning and refrigeration from the senior school level. Air conditioning is the process of altering the properties of air (primarily, temperature and humidity) to improve environmental conditions, typically by distributing the conditioned air to an occupied space such as a building or vehicle to improve thermal comfort and indoor air quality. In common use, an air conditioner is a device that removes heat from the air inside a building or vehicle, thus lowering the air temperature. The cooling is typically achieved through a refrigeration cycle but sometimes evaporation or free cooling is used.

It is a Career and Technology Studies (CTS) subject in senior school and it builds on the competencies acquired in pre-technical and pre-career studies in lower secondary. It equips learners with knowledge, skills, attitudes and values that are a prerequisite for the learner to either join the world of work or pursue further training in middle level colleges before joining university. The curriculum shall include areas such as installation and maintenance, design principles, refrigeration gas, pipe work and brazing and essential refrigeration electrics. The learners shall acquire hands on operations, repair and assembly of air conditioning and refrigeration plants in the industry that will prepare them for employment and /or for further studies.

Animal keeping

Animal keeping is a subject that deals with the raising and keeping of animals and the areas in which domestic, farm and exotic animals are kept on private property, under specified

circumstances. Animal keeping has become one of the most profitable agricultural activities in Kenya. A lot of industries produce animal products such as milk, eggs, meat and skins, and all of these have monetary value. It is a field that has a lot of potential, hence the need to expose it more to learners at secondary school level. The students in this area will acquire hands on skills that will open up employment opportunities for them in the industry and also prepare them for self-employment activities in animal keeping.

It is a Career and Technology Studies (CTS) subject in senior school and it builds on the competencies acquired in pre-technical and pre-career studies in lower secondary. It equips learners with knowledge, skills, attitudes and values that are a prerequisite for the learner to either join the world of work or pursue further training in middle level colleges before joining university. Some of future career opportunities in this field include animal husbandry, veterinary medicine, and agricultural engineering.

Exterior Design and Landscaping

Landscaping refers to any activity that modifies the visible features of an area of land, including: living elements, such as flora or fauna; or what is commonly called gardening, the art and craft of growing plants with a goal of creating a beautiful environment within the landscape; natural elements such as landforms, terrain shape and elevation, or bodies of water and abstract elements such as the weather and lighting conditions.

Landscaping requires expertise in horticulture and artistic design and varies according to different regions. Therefore, normally local natural experts are recommended if it is done for the first time. Understanding of the site is one of the chief essentials for successful landscaping. Different natural features like terrain, topography, soil qualities, prevailing winds, depth of the frost line, and the system of native flora and fauna must be taken into account. Sometimes the land is not fit for landscaping and in order to landscape it, the land must be reshaped. This reshaping of land is called grading.

Exterior design is the process of designing the exterior of a building. This includes the facade, "skin", roof, and foundational elements. While exterior design can be just as creative and artistic as interior design, a knowledge of structural engineering is necessary. Exterior design is usually performed by an architect with the help of civil and structural engineers.

Exterior design and landscaping is a Career and Technology Studies (CTS) subject in senior school and it builds on the competencies acquired in pre-technical and pre-career studies in lower secondary. It equips learners with knowledge, skills, attitudes and values which are a prerequisite for the learner to either join the world of work or pursue further training in middle level colleges before joining university.

Building Construction

Construction is the process of constructing a building or infrastructure. Construction differs from manufacturing in that manufacturing typically involves mass production of similar items without a designated purchaser, while construction typically takes place on location for a known client. Construction starts with planning, design, and financing; and continues until the project is built and ready for use. It is a Career and Technology Studies (CTS) subject in senior school and it

builds on the competencies acquired in pre-technical and pre-career studies in lower secondary. It equips learners with knowledge, skills, attitudes and values which are a prerequisite for the learner to either join the world of work or pursue further training in middle level colleges before joining university.

Large-scale construction requires collaboration across multiple disciplines. An architect normally manages the job, and a construction manager, design engineer, construction engineer or project manager supervises it. For the successful execution of a project, effective planning is essential.

Photography

Photography is the science, art and practice of creating durable images by recording light or other electromagnetic radiation, either electronically by means of an image sensor, or chemically by means of a light-sensitive material such as photographic film. Photography is employed in many fields of science, manufacturing (e.g., photolithography) and business, as well as its more direct uses for art, film and video production, recreational purposes, hobby, and mass communication. It is a Career and Technology Studies (CTS) subject in senior school and it builds on the competencies acquired in pre-technical and pre-career studies in lower secondary. It equips learners with knowledge, skills, attitudes and values that are a prerequisite for the learner to either join the world of work or pursue further training in middle level colleges before joining university.

Graphic Designing and Animation

Graphic design is the process of visual communication and problem-solving through the use of typography, space, image and colour. The field is considered a subset of visual communication and communication design, but sometimes the term "graphic design" is used interchangeably with these due to the overlapping skills involved.

Graphic designers use various methods to create and combine words, symbols, and images to create a visual representation of ideas and messages. A graphic designer may use a combination of typography, visual arts, and page layout techniques to produce a final result. Graphic design often refers to both the process (designing) by which the communication is created and the products (designs) which are generated.

Common uses of graphic design include identity (logos and branding), publications (magazines, newspapers and books), print advertisements, posters, billboards, website graphics and elements, organized text and pure design elements such as images, shapes and colour which unify the piece. Composition is one of the most important features of graphic design, especially when using pre-existing materials or diverse elements.

Animation is the process of making the illusion of motion and change by means of the rapid display of a sequence of static images that minimally differ from each other. The illusion – as in motion pictures in general – is thought to rely on the phi phenomenon. Animators are artists who specialize in the creation of animation.

Graphic design and animation is a Career and Technology Studies (CTS) subject in senior school and it builds on the competencies acquired in pre-technical and pre-career studies in lower

secondary. It equips learners with knowledge, skills, attitudes and values that are a prerequisite for the learner to either join the world of work or pursue further training in middle level colleges before joining university.

Food and Beverage

Food and beverage is a dynamic industry covering a wide range of job roles. It deals with a wide range of foods, cuisines, deserts, refreshments and drinks from different cultures all over the world. It prepares learners to work in hotels and other hospitality establishments including taking care of people who are in transit from one part of the world to the other. Food and beverage is a very important subject for promoting globalization and it is a career with many opportunities for development. It is a Career and Technology Studies (CTS) subject in senior school and it builds on the competencies acquired in pre-technical and pre-career education in lower secondary. It equips learners with knowledge, skills, attitudes and values that are a prerequisite for the learner to either join the world of work or pursue further training in middle level colleges before joining university.

Carpentry and Joinery

Carpentry and joinery as a subject will involve the cutting, shaping, installation and joining of pieces of wood and other building materials during the construction of, for example buildings, ships, timber bridges, furniture, concrete formwork, including light and more ornamental work.

Joiners work in a workshop, because the formation of various joints is made easier by the use of non-portable, powered machinery, or sometimes on the job site itself. A joiner usually produces items such as interior and exterior doors, windows, stairs, tables, bookshelves, cabinets, and furniture. In shipbuilding a marine joiner may work with materials other than wood such as linoleum, fiberglass, hardware, and gaskets.

Carpentry and joinery is a Career and Technology Studies (CTS) subject in senior school and it builds on the competencies acquired in pre-technical and pre-career studies in lower secondary. It equips learners with knowledge, skills, attitudes and values which are a prerequisite for the learner to either join the world of work or pursue further training in middle level colleges before joining university.

Some of the career opportunities in carpentry and joinery include carpenters, furniture and cabinet makers, boat builders (woodworking skills), joiners, shop fitters, structural post and beam carpenters (timber framing), heavy wheelwrights, wood carvers, wood turners, and jointers.

Fire Fighting

A fire fighter suppresses and extinguishes fires to protect lives and to prevent the destruction of property and of the environment. Fire fighters may provide other valuable services to their communities, including emergency medical service. A fire fighter (also known as a fireman) is a rescuer extensively trained in fire fighting, primarily to extinguish hazardous fires that threaten property and civilian or natural populations, and to rescue people from dangerous situations, like collapsed or burning buildings or crashed vehicles.

Fire fighting demands a professional approach. Many fire fighters achieve a high degree of technical skill as a result of years of training in both general fire fighting techniques and developing specialist expertise in particular fire and rescue operations such as aircraft/airport rescue, wilderness fire suppression, and search and rescue. Fire Fighting is a Career and Technology Studies (CTS) subject in senior school and it builds on the competencies acquired in pre-technical and pre-career studies in lower secondary. It equips learners with knowledge, skills, attitudes and values that are a prerequisite for the learner to either join the world of work or pursue further training in middle level colleges before joining university.

Metalwork

Metalwork is a science, art, hobby, industry and trade. It is the process of working with metals to create individual parts, assemblies, or large-scale structures and includes working with a wide range of tools that requires skills.

It is a Career and Technology Studies (CTS) subject in senior school and it builds on the competencies acquired in pre-technical and pre-career studies in lower secondary. It equips learners with knowledge, skills, attitudes and values that are a prerequisite for the learner to either join the world of work or pursue further training in middle level colleges before joining university.

Land Surveying

Land surveying is a Career and Technology Studies (CTS) subject in senior school and it builds on the competencies acquired in pre-technical and pre-career studies in lower secondary. It equips learners with knowledge, skills, attitudes and values that will enable them work with elements of geometry, trigonometry, regression analysis, physics, engineering, metrology, programming languages and the law. They use equipment like total stations, robotic total stations, GPS receivers, retro reflectors, 3D scanners, radios, handheld tablets, digital levels, drones, GIS and surveying software.

Comment [PH1]: that

The planning and execution of most forms of construction require surveying. It is also used in transport, communications, mapping, and the definition of legal boundaries for land ownership. It is an important tool for research in many other scientific disciplines.

Electricity

Electricity involves the use of scientific knowledge to design, construct and maintain electrical devices. This subject equips the learner with competencies of diagnosis, installing and repairing of electrical equipment. It is intended to provide the learner with knowledge, practical skills and attitudes to enable the learner handle and use electricity and electrical appliances competently. It is a Career and Technology Studies (CTS) subject in senior school and it builds on the competencies acquired in pre-technical and pre-career studies in lower secondary. It equips learners with knowledge, skills, attitudes and values which are a prerequisite for the learner to either join the world of work or pursue further training in middle level colleges before joining university. It also prepares the learner to pursue careers in electrical engineering and provides skills useful in self-employment.

Science Laboratory Technology

The science laboratory technology subject focuses on the fundamental principles of the biological and physical sciences and emphasizes analytical laboratory techniques and applications, specifically in the realms of chemistry and biology. It is a Career and Technology Studies (CTS) subject in senior school and it builds on the competencies acquired in pre-technical and pre-career studies in lower secondary. It equips learners with knowledge, skills, attitudes and values that are a prerequisite for the learner to either join the world of work or pursue further training in middle level colleges before joining university.

The curriculum provides learners with the necessary skills and techniques for standard, everyday science laboratory work. It also enables the student to explore a variety of laboratory testing techniques and to prepare and operate various types of tools and electronic analysis equipment.

Laboratory technicians may carry out sampling, testing, measuring, recording and analysing of results as part of a scientific team. They provide all the required technical support to enable the laboratory to function effectively, while adhering to correct procedures and health and safety guidelines. They also play an important role in the foundation stages of research and development (R and D) and in scientific analysis and investigation.

The science laboratory technology program prepares graduates for employment in chemical, biological, and associated science laboratories in educational institutions, where they support science teachers, lecturers and students. They are also employed within industry, in government departments and research organisations.

The science laboratory technology fields of opportunity include chemical, biological, agricultural and food science, environmental science and prevention, forensic, forest and conservation, geological, and energy technology.

Electronics

Electronics deals with electric circuits that use electrical components such as transistors, diodes and integrated circuits. These are circuits that are used in electronic gadgets such as electronic watches, radios, televisions, mobile phones and computers. The subject will equip the learners with knowledge and entrepreneurial skills for electronic technician work. It is a Career and Technology Studies (CTS) subject in senior school and it builds on the competencies acquired in pre-technical and pre-career studies in lower secondary. It equips learners with knowledge, skills, attitudes and values that are a prerequisite for the learner to either join the world of work or pursue further training in middle level colleges before joining university.

Electronics has various branches and associated employment fields including working with digital electronics, analogue electronics, micro-electronics, nano-electronics, optoelectronics, integrated circuits and semiconductor devices.

Printing Technology

Printing is a process for reproducing text and images using a master form or template. Modern large-scale printing is typically done using a printing press, while small-scale printing is done free-form with a digital printer. Though paper is the most common material, it is also frequently

done on metals, plastics, cloth and composite materials. On paper it is often carried out as a large-scale industrial process and is an essential part of publishing and transaction printing.

Digital printing refers to methods of printing from a digital-based image directly to a variety of media. It usually refers to professional printing where small-run jobs from desktop publishing and other digital sources are printed using large-format and/or high-volume laser or inkjet printers.

Printing technology is a Career and Technology Studies (CTS) subject in senior school and it builds on the competencies acquired in pre-technical and pre-career studies in lower secondary. It equips learners with knowledge, skills, attitudes and values that are a prerequisite for the learner to either join the world of work or pursue further training in middle level colleges before joining university.

The printing technology curriculum requires the school to partner with relevant employers. The content involves practical hands on activities and classroom work. Learners will learn to operate digital printing machines and perform printing works. They will also learn to create and print digital graphics using modern printing technology. The learners will also be exposed to advance printing techniques such as flexography and screen-printing. Graduates of this subject can advance their skill in the areas of print technology, press technology or print engineering.

Crop Production

Crop production is a branch of agriculture that deals with growing crops for use as food and fibre. Crop production includes grains, cotton, tobacco, fruits, vegetables, nuts and plants. It is a Career and Technology Studies (CTS) subject in senior school and it builds on the competencies acquired in pre-technical and pre-career studies in lower secondary. It equips learners with knowledge, skills, attitudes and values that are a prerequisite for the learner to either join the world of work or pursue further training in middle level colleges before joining university.

Studying crop production prepares students for careers in farming, farm management and agriculture.

Motor Vehicle Mechanics

Motor vehicle mechanics is the study of the mechanical parts of motor vehicles, including the engine, transmission and suspension systems. It involves fixing, maintaining, reassembling, restoring and overhauling these components. The common tasks include the testing and repairing of electrical lighting systems, the replacement of damaged parts in the engine, or the inspection of vehicles in order to render them safe for the road. Motor vehicle mechanics is a Career and Technology Studies (CTS) subject in senior school and it builds on the competencies acquired in pre-technical and pre-career studies in lower secondary. It equips learners with knowledge, skills, attitudes and values which are a prerequisite for the learner to either join the world of work or pursue further training in middle level colleges before joining university.

The curriculum shall teach motor vehicle maintenance and repair in large workshops. It will give the relevant skills to start a motor vehicle apprenticeship or begin work in the industry. Mechanics work right across the country, in service stations, vehicle dealerships, for public

authorities such as local governments or defence, transport firms, organisations with fleets of vehicles that need to be maintained and for themselves in their own businesses. With the rapid advancement in technology, the mechanic's job has evolved from purely mechanical, to include electronic technology. Because vehicles today possess complex computer and electronic systems, mechanics need to have a broader base of knowledge than in the past. Future career opportunities are in automotive engineering and mechanical engineering among others.

Education for Learners with Special Educational Needs

Learners with special educational needs, like any other learner, have potential that needs to be nurtured. The special needs education curriculum model illustrated below indicates curriculum provision for learners with special needs.

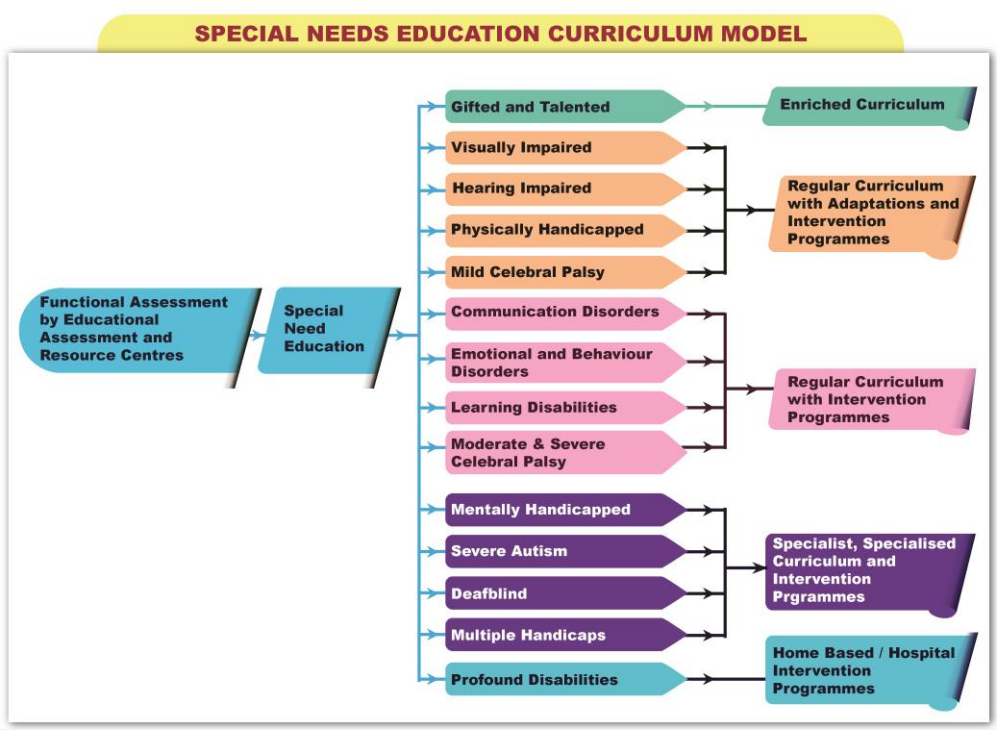

Figure 9: Special needs curriculum model

The special needs education curriculum framework illustrated above shows that education of these learners starts with functional assessment. Functional assessment determines the placement of the child and the kind of intervention measures that would best meet the child's needs and abilities. The child may be placed in a special school, special unit, regular school with support or home and hospital based programme.

The model shows that there are learners with special needs who may follow the regular curriculum with adaptations and or with enrichment and intervention programmes. There are other learners with special educational needs who may not follow the regular curriculum and therefore, will follow the specialist, specialised syllabuses and intervention programmes including home and hospital based programmes.

Curriculum Provisions for Learners with Special Needs
Curriculum provisions for learners with special needs shall be in two (2) modalities as illustrated below:

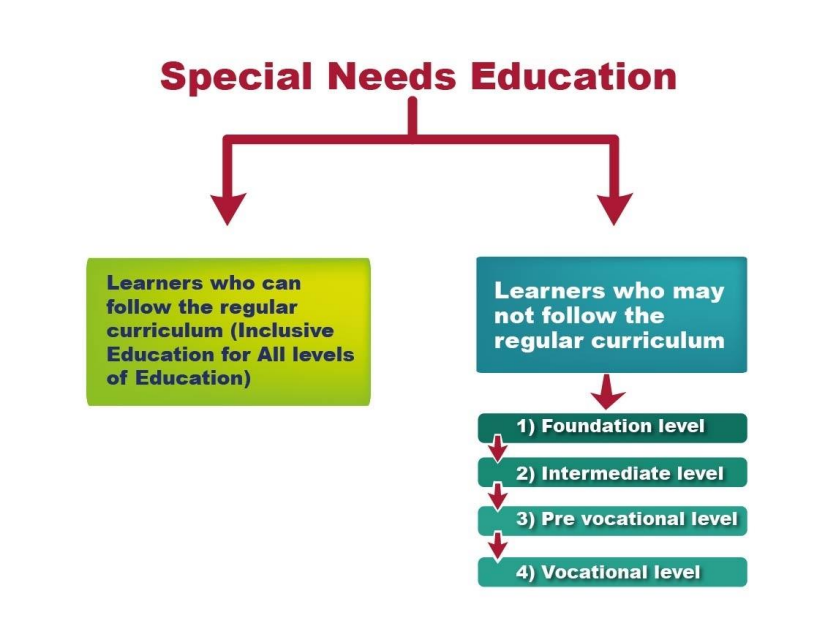

Figure 10: Special needs Education Modalities

1. Learners with Special Needs Who Follow the Regular Curriculum

Some learners with special needs may follow the same curriculum as learners without identified special needs. However, for some of these learners to access the regular curriculum, adaptation and modification may be necessary. Adaptations may include the substitution of curriculum content, removal of some content area, and the adaptation of teaching and learning strategies, resources and assessment. The curriculum may also be enriched in content for learners who are Gifted and Talented. This may be done by providing additional and advanced content, methodology, resources, time and assessment.

Learners with special educational needs who may follow the regular curriculum may include those with:

i. Visual Impairment
ii. Hearing Impairment
iii. Physical Handicap
iv. Mild Cerebral Palsy
v. Learning Disabilities
vi. Autism
vii. Emotional and Behavioural Difficulties
viii. Communication Disorders and the
ix. Gifted and Talented

2. Learners with Special Needs Who May Not have their needs met from just following the Regular Curriculum

Learners with special needs who may not have their needs met from just following the regular curriculum may include those with:

i. Mental Handicap
ii. Deaf blindness
iii. Severe Autism
iv. Severe Cerebral Palsy
v. Multiple Handicaps
vi. Profound Disabilities

The purpose of education for these learners is mainly to enable them acquire skills that may not be taught in the regular education curriculum to enable the learners become independent individuals. In order to facilitate this independence, the learners shall follow different levels of education. Their curriculum for these levels shall be stage based rather than age based. These categories of learners require individualized learning. Teachers are expected to develop Individualized Educational Programme (IEP) for each learner. Transition from one level to another should depend on demonstration of outcomes at a given level.

The levels of education for these learners are as follows:

A. Foundation Level

After a child is assessed and found to have a special educational need and he or she is of school age (or at times over age), education intervention measures start at the foundation level. The following are the learning outcomes for this level:

By the end of the foundation level, the learner should be able to:

1. Communicate appropriately using verbal and/or non-verbal modes in a variety of contexts.
2. Demonstrate basic literacy and numeracy skills for learning.
3. Demonstrate appropriate etiquette in social relationships.
4. Explore the immediate environment for learning and enjoyment.
5. Practice hygiene, nutrition, sanitation, safety skills to promote health and wellbeing.
6. Demonstrate the acquisition of emotional, physical, spiritual, aesthetic and moral development for balanced living.
7. Apply digital literacy skills for learning and enjoyment.

To demonstrate the stated outcomes, the following subjects shall be introduced to these learners:

i. Communication and Social Skills

Learners with special needs may not always communicate using speech. These learners may require skills in use of non-verbal communication such as computerized systems, symbols, sign language, gestures and eye movements.

ii. Activities of Daily Living Skills

This subject provides learners with skills in feeding, dressing, personal hygiene, mobility, toileting, exploring of the environment, religious values and behaviour management.

iii. Sensory Integration

This learning area involves skills of organization, identification, and interpretation of sensory information in order to represent and understand the environment.

iv. Pre-Numeracy and Pre-Literacy

Pre-numeracy and pre-literacy skills shall involve skills in sorting, matching, grouping, rote counting, scribing, and colouring.

v. Psychomotor and Creative Arts

Psychomotor learning is demonstrated by physical skills such as movement, dance, music and movement, co-ordination, manipulation, dexterity, grace, strength and speed; actions which demonstrate the fine and gross motor skills. Creative Arts shall involve painting, printing modelling, and colouring.

vi. Orientation and Mobility

This involves the development of the skills and concepts needed to move safely and independently.

vii. Digital Literacy

Computer technology skills shall enable the learner to communicate and enjoy learning.

B. Intermediate Level

After a learner demonstrates outcomes at the foundation level they transit to the intermediate level. The following are the learning outcomes for this level.

By the end of intermediate level, the learner should be able to:

1. Communicate appropriately using verbal and/or non-verbal modes in a variety of contexts.
2. Demonstrate literacy and numeracy skills for learning.
3. Demonstrate appropriate etiquette in social relationships.
4. Apply creativity and critical thinking skills in problem solving.
5. Explore the immediate environment for learning and enjoyment.
6. Practice hygiene, nutrition, sanitation, safety skills to promote health and wellbeing.
7. Demonstrate the acquisition of emotional, physical, spiritual, aesthetic and moral development for balanced living.
8. Demonstrate appreciation of the country's rich and diverse cultural heritage for harmonious co-existence.
9. Apply digital literacy skills for learning and enjoyment.

Subjects at the intermediate level include:

i. Communication and Social Skills

Learners with special needs may not always communicate using speech. These learners may require skills in the use of non-verbal communication such as computerized systems, symbols, sign language, gestures and eye movements.

ii. Numeracy and Literacy skills

Numeracy and literacy skills shall involve skills in sorting, matching, grouping, colouring, recognition of shapes, recognition and writing of numbers, counting objects, basic arithmetic, recognition and writing letters of the alphabet, and reading simple words.

iii. Activities of Daily Living Skills

This learning area provides learners with skills in feeding, dressing, personal hygiene, mobility, toileting, exploring of the environment for learning, religious values and behaviour management.

iv. Sensory Integration

This learning area involves skills of organization, identification, and interpretation of sensory information in order to represent and understand the environment. It will include visual, auditory, tactile, olfactory and gustatory perceptions as well as eye hand co-ordination, spatial relationships, perceptual integration, balance and posture.

v. Psychomotor and Creative Arts

Psychomotor learning is demonstrated by physical skills such as movement, dance, music and movement, co-ordination, manipulation, dexterity, grace, strength and speed; actions which demonstrate fine and gross motor skills. Creative arts shall involve drawing, painting, printing, modelling, colouring, weaving, bead work, paper craft, and picture making.

vi. Orientation and Mobility

This involves the development of the skills and concepts needed to move safely and independently.

vii. Digital literacy

Computer technology skills shall be integrated in all the learning areas.

NB: Learners with special needs who are exceptionally talented in specific areas may require a syllabus that is geared towards nurturing and developing such talents.

C. Pre-Vocational Level

Work gives us a sense of self-worth and everyone wants to be valued, regardless of age or developmental level. Preparing learners with disabilities for basic work-oriented skills is an important role for schools. At the pre-vocational level, learners are introduced to the preliminaries of many skills based fields. The learning areas enable learners identify their abilities and interests in a given field.

Learning outcomes for pre vocational skills.

By the end of pre vocational level, the learner should be able to:

1) Communicate appropriately using verbal and/or non-verbal modes in a variety of contexts.
2) Demonstrate basic literacy and numeracy skills for learning.
3) Demonstrate appropriate etiquette in social relationships.
4) Apply creativity and critical thinking skills in problem solving.

5) Explore the immediate environment for learning and enjoyment.
6) Practice hygiene, nutrition, sanitation, safety skills to promote health and wellbeing.
7) Demonstrate the acquisition of emotional, physical, spiritual, aesthetic and moral development for balanced living.
8) Demonstrate appreciation of the country's rich and diverse cultural heritage for harmonious co-existence.
9) Apply digital literacy skills for learning and enjoyment.
10) Practice different work related skills in readiness for vocational skills.

Learning areas for this level are as follows:

i. Basics skills in weaving, animal husbandry, cookery, hair dressing and beauty therapy, ornamental and beadwork, modelling, dress making, tailoring and knitting, carpentry and carving, metalwork, leatherwork, building construction, horticultural farming, paper technology, and printing.
ii. Home making skills.
iii. Digital literacy shall be integrated in all learning areas.

Support areas:

- Communication and social skills
- Activities of daily living skills
- Mathematics
- Music and movement
- Religious education
- Physical education
- Health and safety
- Entrepreneurship

D. Vocational Level

After the learner's abilities and interests are identified at the pre-vocational level, the learner is placed in given field.

The outcomes for this level are:

1) Demonstrate skills related to a specific vocational area in readiness to the field of work.
2) Demonstrate hygiene and safety skills to promote health and wellbeing.
3) Apply digital literacy skills for communication, learning and enjoyment.

The subjects for this level include any one of the following:

i. Weaving and animal husbandry
ii. Cookery
iii. Hair dressing and beauty therapy
iv. Ornament making and beadwork
v. Garment making (dress making, tailoring, knitting, crocheting and embroidery)
vi. Carpentry and carving
vii. Metalwork
viii. Leatherwork and shoe polishing

ix. Building construction
x. Horticultural farming
xi. Home making skills (laundry, detergent making, candle making)
xii. Paper technology

Support areas:
- Communication and social skills
- Entrepreneurial skills
- Mathematics
- Religious education
- Physical education
- Health and safety
- Entrepreneurship

Digital literacy should be integrated in all subjects

Talent areas for learners with special needs may include:
- Playing musical instruments
- Printing
- Drawing and painting

Home and Hospital Based Programme
This programme targets learners with profound disabilities or severe health conditions and are presently likely to be at home or in hospital and may benefit from services of Educational Assessment and Resource Centres officers and other auxiliary services.

The programme shall include:
- Basic skills in self care
- Hygiene
- Communication
- Social skills
- Sensory integration skills
- Therapy
- Mobility and motor skill
- Sensitization of parents and guardians
- Advocacy

Time Allocation
For learners with special educational needs learning is individualised and therefore time allocation is dependent on completion and mastery of specific tasks. Therefore, it is difficult to allocate a fixed time. However, the suggested time per lesson should be a guide.

Pertinent and Contemporary Issues in the Curriculum

The Kenya Competence Based Curriculum (KCBC) will ensure that Pertinent and Contemporary Issues (PCIs) facing society are included in the curriculum and the curriculum support materials. Identification and consideration of PCIs for incorporation into the curriculum will be based on the Monitoring Report on the Implementation of Life Skills Education in Learning Institutions (2012), recommendations from the Report on the National Conference on Emerging Issues (2013), The Assessment Report on the Role of Curriculum in Enhancing National Social Cohesion (2013), Situational Analysis on the Implementation of Emerging Issues in Learning Institutions (2014), Content Analysis Report on the Current Curriculum on Emerging Issues, recommendations from the Curriculum Reform Needs Assessment Survey (2016), Report of the Assessment on the Status of the HIV and AIDS Education in Learning Institutions (2016), and desk review reports on other relevant national and international documents and practices on PCIs.

Currently there are six broad areas of pertinent and contemporary issues as follows:

Broad Area	**Pertinent and Contemporary Issue**
1. Global Citizenship	Peace education, integrity, ethnic and racial relations, social cohesion, patriotism and good governance, human rights and responsibilities, child's rights, child care and protection, gender issues in education.
2. Health Education	HIV and AIDS Education, alcohol and drug abuse prevention, life style diseases, and personal hygiene, and preventive health, common communicable and chronic diseases.
3. Life Skills and Values Education	Life skills, values, moral education and human sexuality, etiquette.
4. Education for Sustainable Development (ECD)	Environmental education, disaster risk reduction, safety and security education (small arms, human trafficking), financial literacy, poverty eradication, countering terrorism, extreme violence and radicalization, gender issues and animal welfare.
5. Learner support programmes	Guidance services, career guidance, counselling services, peer education, mentorship, learning to live together, clubs and societies, sports and games.
6. Community Service Learning and Parental Engagement	Service learning and community involvement, parental empowerment and engagement.

Six panels will be constituted and charged with the responsibility of developing matrixes on PCIs. A matrix is a framework that provides guidance on the logical sequencing and the scope of concepts to be mainstreamed in subjects and subjects. Each matrix will outline/give a synopsis of the PCI. The matrix will have the following elements:

- Strand
- Class
- Concept/competence
- Formal dimension (subject/subject)
- Non-formal programmes/activities
- Informal programmes/activities
- Expected learning outcomes
- Assessment

Matrixes will be submitted to subject panels during design and development, the panels will provide guidance on the concepts and competencies to be included in the subjects.

According to the KICD Act of 2013, the Institute is expected to develop, review and evaluate non-formal programmes in learning institutions. The Institute will carry out a situational analysis of the existing non-formal and informal programmes in learning institutions. Findings will inform development of appropriate interventions by the Learner Support programmes panel. Approval or disapproval of the existing programmes will be informed by the study findings and the recommendations.

Mainstreaming PCI in formal, non-formal and informal programmes will provide an opportunity for learners to acquire knowledge, skills and values that which will enable them address salient issues in their lives and in the community.

Learning will be experiential, with an inquiry based approach and anchored on values to enhance character formation. Acquisition of values and psychosocial competencies it is intended to avert the behavioural and values crisis in the country.

To enhance acquisition of core competencies such as communication and collaboration, critical thinking and problem solving, creativity and imagination, citizenship, learning to learn and self-efficacy, learners will also engage in non-formal and informal activities in school and in the community. The non-formal and the informal programme activities will complement and enhance the knowledge, attitudes, values and skills acquired through the formal curriculum.

To translate learning experiences into real life situations, learners will undertake guided age appropriate projects and action research. They will identify real challenges in the community and apply what they have learned to address them. The PCI panels will provide guidance on how schools, parents and the community will be involved in providing opportunities for learners to engage in various activities in the community. This is the essence and rationale for introducing service learning and parental empowerment and engagement as salient issues to be addressed in the reformed curriculum.

Before Early Childhood Education

Parents will be sensitized on the following points:

- Parental roles and responsibilities according to the constitution and other national and international legal instruments. It is important that the child is given proper care and protection to experience normal patterns of growth and development. Basic provisions include tender loving care, nutrition, clothing, shelter and access to good health.
- The role of other state and non-state agencies involved in the welfare of children such as the police, probation officers, social workers and religious institutions
- Early identification of special educational needs and prompt referral for prompt intervention to mitigate the disability to avoid further delay or distorted development.
- Providing a safe, healthy environment to enable a child to be creative and innovative thus enhancing the child's stimulation and ability to manipulate the environment.
- The importance of creating a positive family culture that supports the national values where values systems and social skills are upheld (communication, care, kindness and empathy).
- The need to equip children with basic self-help skills such as toilet training, eating and table manners/etiquette, washing and dressing.
- The fact that children need to develop fine motor skills so they can do activities such as writing, doing up buttons and cutting with scissors.
- Preparing children for pre-school psychologically, provision of resources such as school uniforms, bags and toys.
- Reading to children starts them on the road to developing literacy skills, comprehension and early reading techniques. It can also be an enjoyable bonding experience.
- The importance of seeking information from the nearest education office and schools themselves about the formal, informal and non-formal aspects of the child's potential school.

Middle Level

For effective parental engagement in learning, parents should be engaged with MoE, KICD and the school. Parents should be aware of the following points:

- Parents should be encouraged to continue engaging in their children's general wellbeing and education as stipulated in the earlier level of education.
- Appreciate that children are natural explorers, and hence help them to develop a life-long love of STEM (Science, Technology, Engineering, and Mathematics) simply by encouraging their curiosity and having fun together investigating the world around them.
- A child might be interested in some out of school activities, such as sport, music and various clubs – these extracurricular activities can enrich their learning within school hours.
- Encourage children to engage in organized school activities such as camping. This will enhance a child's social skills, such as teamwork, sharing and peer interaction. This being an exploration stage the parents will be encouraged to identify their children's talents. Art for example teaches children how to view their world from different perspectives. Exploration of what they can do and what they like will enhance self-expression and creativity and imagination. This will reinforce the acquisition of the expected competencies for the level.
- Encourage children to keep a diary or journal to capture their feelings, thoughts and experiences in and out of school.
- Develop and constantly communicate their high but realistic expectations of their children. This can enhance a child's self-esteem and achievement as children will tend to strive to reach these expectations.

Parental Engagement in Senior School

Parents will need to be engaged in the following strategies and activities:

- Helping young people to think about their future educational and career pathways, do they want to initially pursue a vocational pathway or head to university?
- Establishing which particular careers or pursuits they are passionate about and whether their choice is in tandem with their personality, abilities, traits and if not seek and receive support to better develop these skills and refocus on allied more appropriate career choices.
- Nurturing their children's informed self-esteem. This will help teenagers develop the confidence and resilience they need to succeed at school.
- Encouraging young people to attend school, since participating in school every day gives teenagers the best chance of achieving their goals. A student's level of school attendance is a major influence on their achievement.
- Connecting with teachers to have a better understanding of the work the teenager does at school and what is expected of them. It will also help teachers to get to know the teenager better and to see things from the parent's perspective.
- Encouraging their children to develop realistic, but high expectations of all their areas of possible achievement. Talking positively about it with them and helping them know their parents believe in their capability. Parental expectation of teens is linked to academic achievement.
- Helping young people to appreciate the need to have a mentor. A mentor is a positive role model who can help guide a student through school and provide great support for their learning.
- The Institute will ensure that parental empowerment and engagement in learning is given the emphasis it deserves. A national panel will be established to provide guidance and develop strategies on how parents and guardians can be actively involved in the learning of their children.

Careers advisers and class teachers will use this information to develop a portfolio, which the learner will take with them as they leave one learning level and move to the next.

Assessment

The Basic Education Curriculum Framework recognises the importance of assessment, both as a tool of learning and as a means of establishing the extent to which the desired learning outcomes have been developed. The Framework provides an opportunity to redesign assessment to ensure that it plays its rightful role in education.

"An assessment is a machine for reasoning about what students know, can do or have accomplished based on a handful of things they say, do or make in particular settings." (Mislevy et al, 2003)

In assessing achievement, the "machine for reasoning" includes assessment tasks, responses, rubrics, scores and statistics; "about what students know, can do or have accomplished" refers to the expected learning outcomes and objectives that are assessed; the "handful of things they say, do or make" concern the evidence of achievement; and the "particular settings" include classroom interactions, quizzes, tests and examinations.

Education assessment is the process of determining the extent to which learners have acquired specified knowledge, skills, values, attitudes, abilities and competencies. The term "specified" means that they has been pre-determined before the subject begins. Assessment includes methods that teachers use to determine what learners know and what they can do. Assessment is not just designing an assessment task and producing an assessment score. A good assessment also defines the size and nature of the learning gap. At best, this suggests and directs the teacher and learners' attention to necessary next steps for progress.

Purposes of Assessment

The aim of assessment is to establish the extent to which the learner has acquired the expected competencies with a view to informing interventions for further acquisition and mastery of expected competencies. Assessment helps to diagnose and monitor the progress of a learner, and provides feedback to learners, parents, teachers and curriculum designers and implementers. This helps them plan learning in terms of what the learner needs in order to continue advancing and fill gaps in understanding or performance. It also provides guidance on the selection of future subjects, certification and promotion to the next progression level.

In every curriculum implementation, assessment is expected to assess the extent to which learning objectives have been achieved. The assessment provides the basis for advising teachers on pedagogical methods and deliberate intervention.

Assessment focuses on the extent to which competency (the ability to carry out a certain task) has been acquired as opposed to laying emphasis on the acquisition of knowledge of the concepts. In most cases assessment is organised in a national or classroom level. The assessment needs to use a variety of ways to collect information about a learner's learning and progress in all subjects. The collection of a learner's information should be a continuous process and should be recorded efficiently and effectively. The teacher should give importance to each learner's way of responding and learning and the span of time he or she takes to do so. The teacher should provide timely and effective feedback that will lead to positive action and help the learner. When a teacher is providing reports on a continuous basis he or she should be sensitive to every learner's response.

All over the world, educators have taken notice of the fact that assessment is often overlooked when planning and implementing curriculum change.

Competency Based Assessment

Competency based assessment can be described as determining the capability to apply a set of related knowledge, skills and abilities required to successfully perform critical work functions or tasks in a defined setting.

Competency based assessment is a process whereby the learner is given an opportunity to put into practice what they have learned. It is a collection of evidence demonstrating how a learner can perform or behave according to a specific standard. The learner can be provided with a challenge and then be allowed to show how to resolve the problem.

Competency based assessment is based on the principle of assessing people as they use their knowledge and skills in a given situation. The strategy aims at providing a way of building the skills and knowledge that learners require to perform identified tasks after going through a learning experience. It is a key element of the on-going process of continually building knowledge and skills that provides a roadmap for developing learners of their future roles based on their acquired and developed knowledge and skills.

The centre of focus in competency based assessment is that it is based on actual skills and knowledge that a person can practically demonstrate. The process starts with a personal assessment against a set of competencies. It is the responsibility of the assessor to determine what and how much evidence is required to judge the assessment. Evidence is used by assessors to make a judgment about whether an individual is competent. Evidence collected may be immediate and direct such as observation of performance and also indirect in terms of formal testing and supplementary including testimonies from others. The assessor reviews this evidence and verifies it with the person performing the skill. The assessment must be valid, reliable, flexible and fair.

Assessment of competencies is criterion referenced, as compared to assessment of an objective based curriculum Bill Huitt differentiates between criterion and norm referenced assessment based on purpose, content, item characteristics and score interpretations (Huitt, 1996). Whereas criterion referenced assessment focuses on determining whether each learner has achieved specific skills or concepts, norm referenced assessment focuses on ranking learners with respect to the achievement of others in broad areas of knowledge. Comparative judgement theory espouses the need to create a forum for teachers to develop specimens that represent the assessment standards for competencies.

Assessing competency in a learning situation is necessary to ensure that learners are both confident and competent in their learning process. Individuals are considered competent when they are able to consistently apply their knowledge and skills to the standard of performance required in the school. In mathematical literacy for instance, the focus is generally on the learner's capacity to identify and understand the role that mathematics plays in the world, to make well-founded mathematical judgements and to engage in mathematics in ways that meet the needs of that individual's current and future life as a constructive, concerned and reflective citizen. The learner's capacity to analyse, reason, and communicate ideas effectively by posing, formulating and solving mathematical problems in a variety of domains and situations is paramount.

Under the current curriculum reforms, competency based assessment is a key reformation which will facilitate the adoption of formative assessment practices that promote diagnostic approaches which will in turn enhance learning and improve learning outcomes. This is a departure from current assessment practices that seek to compare learners with each other (assessment with reference to a normal distribution, or norm referenced) and is a shift towards assessment practices that seek to collect evidence and make judgments on the extent and nature of progress towards a learner's achievement.

Competency based assessment provides a framework of knowledge and capabilities seen as appropriate to a particular level.

Guiding Principles of Competency Based Assessment

The principles guiding for competency-based assessment are explained below:

a) Validity
This is the degree to which evidence and theory support the interpretation of assessment scores entailed by the proposed uses of assessment. It is important to ensure that the scores obtained from assessments are used according to the intended purpose of the assessment. Evidence should be collected in a variety of contexts and on a number of occasions and the assessment process and materials should assess everything they claim to. The assessment score must reflect the learner's actual ability in the assessed criteria.

b) Reliability
This refers to the consistency of the interpretation of evidence and results of the assessment. The assessment tasks used should be of similar demands and provide similar opportunities to exhibit all the intended competencies being assessed. The instrument used for administering and scoring should be interpreted in the same way by the assessors. The Institute will explore the possibility of using the pilot schools working in clusters to moderate assessments and for these to be used during national roll out.

c) Fairness
This refers to how the assessment conditions are applied to all those being assessed. It aims at ensuring that the assessment process does not disadvantage any learner and learning outcomes can be achieved through a range of strategies. Assessment should reflect an inclusive view of society and respect for diversity. Assessment tasks should have a balance in relation to gender, faith, cultural and socio-economic factors.

d) Flexibility
This is the process of ensuring the skills, knowledge, abilities and values can be demonstrated in a variety of ways that are suitable to the school.

e) Access
This refers to the provision of assessment for learners with disabilities by making arrangements for them to demonstrate their competency levels.

Formative Assessment (Assessment for Learning)

This provides information that will help to guide a student's development towards a certain desired outcome stated in the formal or non-formal curriculum. It is carried out during the learning process to provide immediate feedback to both the learner and the teacher. In the classroom, the assessment should help the students to learn and should result in actions that are successful in closing the gap between the current and desired achievement levels. All students come to class with some learning gap – some have few while others have many – and the teacher adds value to the students when they leave the class with fewer gaps than when they entered.

Formative assessment uses both formal and informal methods to check whether learning is taking place. This is carried out on a continuous basis to monitor the learner's progress and to collect information on learners' ability to demonstrate the required competencies in carrying out tasks.

Formative assessment is used for the diagnosis of learning gaps, for corrective measures, retesting, feedback of evidence to teachers, and learners' self-evaluation. The assessment should focus also on abilities, attitudes and aptitudes that do not manifest themselves in the form of the written word. This aims at assessing a learner's development in all areas of learning.

In this scenario, the goal of formative assessment is to monitor student learning to provide ongoing feedback that can be used by teachers to improve pedagogical strategies and by students for improvement in their learning.

The assessments should be made on recorded evidence based on anecdotal records to be maintained by the class teacher or subject teacher.

The overall assessment should be followed by descriptive remarks by the class teacher or the teacher responsible for the subject about positive and significant achievements, avoiding negative assessment even by implication. Formative assessment can be carried out using multiple modes of assessment.

Summative Assessment (Assessment of Learning)
Summative assessment takes place after the learning has been completed and provides information and feedback that sums up the teaching and learning process. Summative assessments should be the synoptic assessment of learning outcomes.

Synoptic assessment encourages students to show their ability to integrate and apply their skills, knowledge and understanding across the breadth and depth of the subject. It assesses the student's capability of applying the knowledge and skills gained in one part of the subject to other parts of the subject, or across the subject as a whole. Synoptic assessment therefore enhances the links between different parts of a syllabus and reduces compartmentalized learning. It seeks to develop critical and inventive thinking in students. This competency constitutes the abilities of sound reasoning, decision making, reflective thinking, curiosity and creativity, and managing complexities and ambiguities. This holistic learning experience is more meaningful to a learner as they appreciate that knowledge and skills in various parts of a subject or across subjects are not entirely independent of each other. This enhances the utilization of competencies acquired through the formal and non-formal curriculum.

Purpose of Summative Assessment
Summative assessments are used to evaluate student learning, skill acquisition, and academic achievement at the conclusion of a defined instructional period – typically at the end of a learning cycle – by comparing it against some standard or benchmark. In Kenya, summative assessment will be at the end of upper primary education, lower secondary education and senior school.

Summative assessment is used for placement and certification. It is used to record a judgment of the competency or performance of a learner. The results are also used for the ranking or grading of learners and for deciding on progression into the next level of education. It should have an integrative aspect whereby a learner must be able to show mastery of all competencies.

Assessment as or for Learning

This uses assessment as a process of developing and supporting metacognition for students. It focuses on the role of the students as the critical connector between assessment and learning. The emphasis and focus is to foster skills and habits such as self-assessment, self-monitoring, and self-correction among students. Teachers may refer students to their personal goals or external standards as references for self-assessment. They may also facilitate self-assessment among students by introducing the use of self-reflection questions and exemplary work for students' consideration. It fosters self-assessment among students and promotes self-awareness of strengths and weaknesses in their learning.

Assessment Instruments for Formative Assessment

Observation

The teacher and other persons involved in learning are required to observe behaviour and listen carefully to learners as they go about their daily activities in a real life environment. As this happens teachers should note whatever is useful, important or unusual and draw conclusions from it. Peer observation could be encouraged. The teacher should then identify the competency the learner might have acquired and those that are yet to be acquired. A checklist or an observation schedule could be used as demonstrated below.

	Communication		**Problem Solving**		**Self-Efficacy**		**Citizenship**		**Remarks**
	Mastered	Not Mastered Yet	Mastered	Not Mastered Yet	Mastered	Not Mastered Yet	Mastered	Not Mastered Yet	
Patel		√	√		√		√		
Jane	√			√	√		√		
Ali	√		√		√		√		

The teacher, parents, peers and other persons who interact with the learner will tick the competency observed for the individuals in the grid. This will give the level of competency development for each individual between one and five. The total of the marks will be recorded and comments made on the remarks column. The remarks should be based on the exhibited and observed behaviour relating to a certain competency.

The observer should watch and listen carefully to learners during lessons or as they go about their day to day activities. Peer observation should also be supported

Observation schedule

This is a guide outlining characteristics and behaviour that learners manifest at various points in time or during the performance of specific activities individually or as a group. The teacher records observations made on the behaviour of the learner.

Observation record sheet

Name of learner	Activities	Behaviour to be observed	Observations made
Anna	Group discussion	✓ Preparation ✓ Willingness to contribute ✓ Attitude ✓ Expression	✓ Displayed in adequate preparations in terms of the content ✓ Contributed willingly ✓ Positive attitude ✓ Audible but disorderly

Information obtained from such observations could be used as a basis for personal educational guidance.

Checklists, Rating Scales and Rubrics

These are tools that state specific criteria and allow teachers and students to gather information and to make judgments about what students know and can do in relation to the required outcomes. They offer a simple and systematic way of determining specific behaviours, knowledge and skills during the lesson.

Checklists

Checklists contain a list of attributes of an individual's behaviour and require the teacher to carefully observe and tick whatever behaviour is portrayed, at the end of the lesson the teacher makes a summary and draws a conclusion.

The learners too can be helped to develop and use their own tools to monitor their progress especially on self-efficacy (such as personal, social and decision making) skills. For example, the following characteristics can form items in a check list in the case of effective communication skills.

Observable behaviour	**Score**
Is confident	√
High self esteem	X
Is enterprising	√
Problem solving	√
Critical thinking	X
Creative and imaginative thinking	√
Cares for him/herself	√

Teachers and other observers' remarks could be "The learner above has acquired some competencies in creativity and problem solving. However, they need to work on their attitudes towards others, take more responsibility, and be interested in their work."

Checklists assist the teacher to determine areas to focus on in order to enable the learner to develop relevant knowledge and skills.

Rating Scales

These allow teachers to indicate the degree or frequency of the behaviours, skills and strategies displayed by the learner. Rating scales state the criteria and provide three or four response selections to describe the quality or frequency of student work.

Use of descriptive words, such as always, usually, sometimes and never helps to pinpoint specific strengths and needs. In a rating scale, the descriptive word is more important than the related number. The more precise and descriptive the words for each scale point, the more reliable the tool.

Rubrics

Rubrics use a set of criteria to evaluate a student's performance. They consist of a fixed measurement scale and detailed description of the characteristics for each level of performance. These descriptions focus on the quality of the performance and not the quantity; for example they do not focus on the number of paragraphs, examples to support an idea, or spelling errors. Rubrics are commonly used to evaluate student performance with the intention of including the result in a grade for reporting purposes and teacher accountability measures. Rubrics use a set of specific criteria to evaluate student performance. They may be used to assess individuals or groups and, as with rating scales, may be compared over time.

Questionnaires

A questionnaire is a list of questions on various aspects of a person's situation or issue. It requires the respondent to give honest opinions or views. This helps the teacher to have an insight into the situation at a hand and prepare appropriate programmes and materials.

Questionnaires can be used before teaching to find out the needs, characteristics, experiences and knowledge levels of learners. During teaching, questionnaires enable the teacher to find out how various learners are progressing and responding to the learning activities.

Questionnaires can be given to learners to gather feedback on how they are applying their learned competencies to challenging or difficult situations they are encountering in and out of school. This helps the teacher take appropriate action.

Project Method

A project is a set of activities implemented within a set timeframe with a clear start and end time. It should have a clearly stated purpose and set of objectives. Learners will be encouraged to initiate either alone or with others a project that may earn them income.

The project will give an opportunity to learners to apply their acquired knowledge and transferable skills to a real life situation, especially with regard to pertinent and contemporary issues in society. Learners could be challenged to identify a need in their community where they can provide services based on what they have learned. The project will encourage learners to learn through their own investigations rather than through passive absorption of the teacher's words.

The success of a project depends on the learner's effort but they also require a lot of supervision from the teacher. Learners should be assigned work as individuals or as groups. They should be given adequate information with regard to the scope of the project and the mode of reporting the findings, which are generally presented as a report, a portfolio or a presentation.

Assessment of a project should be done at inception and midway through the project life. A final assessment should be made when the project is fully established and running. It is at this point that the final marking or score should be obtained and communicated to the learner or group.
It is advisable that individual learners or groups do not engage in more than one project at a time.

Journaling
This entails the learner keeping a record of their personal feelings, thoughts and experiences on a daily basis. A journal shows the activities carried out in a day by a learner.

Assessing the learner through journals and diaries should be a joint venture between the learner and the teacher. Based on the learner's performance, the teacher can provide either support or challenge or both.

Portfolio
A portfolio is a purposeful collection of student work samples, student self-assessments and goal statements that reflect a student's progress. It is a collection of evidence assembled by learners to demonstrate competency. The portfolio file contains all the major learning activities, assessment projects and documents. Students generally choose the work samples to place in the portfolio, but the teacher may also recommend that specific work samples be included. The teacher and learner from time to time reviews how learners are organizing and maintaining their portfolios.

Portfolios are powerful tools that allow students to see their academic progress. For example if there are ten competencies to be taught in a term/month in any level, the learner with the support of the teacher should be able to develop a personal portfolio showing their performance.

Question and Answer
Questioning serves as assessment when it is related to outcomes. Teachers use questioning (usually oral) to discover what students know and can do. Strategies for effective question and answer assessment include:

a) Apply a wait time or 'no hands-up rule' to provide students with time to think after a question before they are called upon randomly to respond.
b) Ask a variety of questions, including open-ended questions and those that require more than a right or wrong answer.
c) Use Bloom's Taxonomy when developing questions to promote higher-order thinking.

Teachers can record the results of question and answer sessions in anecdotal notes or include them as part of their planning to improve student learning. Through debating and reflecting, the teachers and learners build consensus on the appropriate responses.

Profiling

In this method, the teacher constructs a record of each learner using information obtained from the teacher's observation checklist, learner's journal, checklist, portfolio and involvement in projects. A learner's profile in this case will be a summary of the teacher's opinion on mastery of competencies acquired in a level.

A profiling assessment tool would have the following features:

Name of school..... Name of the pupil..... Class..... Date of assessment..... Name of assessor.....			
Competency	Comment/ evidence	Maximum score	Actual score

Assessment should be based on the mastery of competencies of an individual learner against the expected competencies and not other learners. This method of assessment enables the teacher to gain a better understanding of which aspects of the topics are well understood and which ones require attention. The knowledge, attitude, and skill levels can be assessed by peers, other learners, teachers, parents, and other community members. Assessment of competencies can be through formative evaluation. This type of assessment is known as a continuous assessment test. It is used to gauge the progress of the learner periodically. The teacher should therefore use their own judgment and other ways of assessing and monitoring the learner's behaviour over a period of time.

Anecdotal Records

An anecdote is an account of an event in a child's day. The record of this event can be detailed or brief. These short reports, photos and drawings describe, in a factual way, the incident, its context, and what was said or done by the participant(s). In most cases, anecdotes focus on very simple, everyday interactions among children, children and adults as well as children and materials in the environment.

Anecdotal notes are used to record specific observations of individual student's behaviours, skills and attitudes as they relate to their learning. Such notes provide cumulative information on student learning and direction for further instruction. Anecdotal notes are often written as the result of on-going observations during lessons but may also be written in response to a product or performance the student has completed. They are brief, objective and focused on specific outcomes. Behaviour change can be tracked and documented, and placed in the child's portfolio resulting in suggestions for future observations, curriculum planning and student or parent conferences.

Ideally, the anecdotal record should be recorded as it unfolds or immediately after. However, anecdotal records usually have to be written later or at the end of the day. Notes taken during or immediately following an activity are generally the most accurate. Anecdotal notes for a particular learner can be periodically shared with them or with learners and parents at student or parent meetings.

Written Continuous Assessment Tests
These are tests that are designed according to pre-determined criteria that measure competencies in specific subjects. The tasks should be so designed to elicit evidence from the learner on their acquisition of competencies such as creative thinking, problem solving, and communication. They should take the form of synoptic assessments.

Homework
Assigning homework enables a teacher to gather evidence of a learner's progress towards a target. It provides opportunities for the extension and application of skills taught in class to new situations. This enhances parental engagement as they guide and supervise the homework.

Progress Report Card
Doug Reeves opined that "by comparing one child's performance to a clear standard, parents, teachers and children all know precisely what is expected, the performance is compared to the standard not to other learners performances." (Reeves, 2004)

Test scores are the not the only outcome of a test. More information can be provided to turn a teacher's evaluation of a learner's test performances into information that can help learners achieve more by reporting the learner's progress towards meeting a standard based learning target. These details allow parents to support their children in the specific areas of need. According to Hattie (2008), reports should include effective feedback that addresses issues such as feed up (where the learner is going), feedback (how the learner is going) and feed forward (where to next). Qualitative statements are crucial in reports as they give descriptions of the abilities of the learner.

Competencies to be Assessed

a) Knowledge and understanding: Does the child demonstrate an understanding of the subject? Has the child mastered the key subject concepts?
b) Practical skills: How does the child perform on aptitude and practical situations?
c) Attitude and values: How does the child respond to a task or a situation? What is the child's behaviour like in a range of situations and contexts?
d) Generic competencies: What are the steps taken to perform a given task? What is the reasoning behind them? How does the child overcome each challenge?

Performance Indicators

A performance indicator or key performance indicator is a type of performance measurement.
The focus of assessment should be on knowledge and understanding, aptitude and practical tests, attitudes and values (behaviour) and generic competencies guided by specific indicators. The following indicators will be used in assessment:

a) Knowledge and understanding will have indicators such as correctness of answers, coherence of ideas, and logical reasoning.
b) Practical skills will have indicators such as accuracy, using appropriate methods, quality product, speed and efficiency, and coherence.

c) Attitude and values will have indicators such as approach to a situation, appreciation of the task given, impression of a situation, manipulation, reasoning, persistence, and tolerance.
d) Generic competencies will have indicators such as reasoning, manipulating, presenting, value judgment, and applying knowledge.

Teacher Capacity for Formative Assessment

In order to develop ever more effective and efficient ways of assessing and diagnosing the learning needs of individual learners it is important to develop the skills of teachers in formative and continuous assessment.

The competency based curriculum will focus on the development of the learner as a customer – not on the teacher or the syllabus or the text book. As such there is a need to re-orientate and develop teachers to focus on the learner and what has been learned as opposed to the teacher and what has been taught. Teaching only occurs when the learner has learned. Without professionally informed, intuitive and empirical evidence of learner-need the teacher is at risk of talking not teaching.

The curriculum will afford teachers with the freedom and the responsibility to use such diagnostic assessments to design and adapt bespoke lessons and learning in order to ensure that every learner's learning needs and talents are met, matched and appropriately challenged in order to further ensure that all learners achieve their potential.

KICD and other stakeholders shall lead the development of robust, statistically sound, and secure competency judgments, and through professional development ensure that learners' competencies are assessed and developed and that these assessed levels of competency have a local, national and international outlook.

Empowering Teachers on Assessment for CBE

All teachers should be trained in the approved methods of collecting, recording, compiling and interpreting evidence of learners' growth and progress. There is a need to understand and own the paradigm shift in authentic assessment where the teacher's involvement is crucial. They must embrace assessment of cognitive, psychomotor and affective domains and be well grounded in the principles of assessment such as validity, reliability, fairness, accessibility and flexibility.

Grading of Competency Based Assessment

The transition from through basic education levels should be seamless. The first summative assessment will be done at the end of upper primary, the second at end of lower secondary and the third at the end of secondary education. The final grade will be achieved by adding the cumulative scores from formative assessments at each stage and the score from the national assessment body.

Proposed Grading System

Mark Range	Grade	Quality of Grade	Competency
80% and above	A	Excellent	Competent
60-79%	B	Very Good	
50-59%	C	Good	Fairly

40-49%	D	Sufficient/Pass	Competent
Below 40%	E	Not Sufficient/Fail	Not Yet Competent

Excellent
This is a standard of excellence level. Descriptions should indicate that all aspects of competencies exceed grade level expectations and show exemplary performance or in-depth understanding. Learning goals are met in a comprehensive way.

Very Good
This is approaching the standard of excellence level. Descriptions should indicate some aspects of work that exceed grade level expectations and demonstrate solid performance or understanding. Learning goals are met in a practical and thorough way.

Good
This meets acceptable standards. This level should indicate minimal competencies acceptable to meet grade level expectations. Learning goals are met in an appropriate and reasonable way.

Sufficient
Performance and understanding are emerging or developing but there are some errors and mastery is not thorough.

Not sufficient
This does not yet meet acceptable standards**.** This level indicates what is not adequate for grade level expectations and indicates that the student has serious errors, omissions or misconceptions. The teacher needs to make decisions about appropriate interventions to help the student improve.

Assessment at Different Education Levels

Early Years Education
The Early Years Education curriculum is intended to enhance learners' holistic development which entails physical, cognitive, language, socio-emotional, creative, aesthetic, life skills, spiritual and moral aspects. Achievement of optimum child development in these aspects requires regular assessment of each individual learner's progress through a reliable and valid procedure. A standardized assessment tool is therefore crucial for evaluating the learner's progress. The tool should be suitable for assessment of competencies achieved by learners at the EYE level. The tool should also help to identify children with specific developmental challenges that will assist the teacher to put in place the necessary intervention measures. Its intended purpose would be to provide feedback to teachers and parents/guardians and to ensure that by the end of the EYE period, the learner will be ready for formal primary school instruction.

It is important for the teacher in this case to understand that assessment is a continuous process and not a one-off procedure. The teacher should continuously gather information about the learner using various methods including the learner's portfolio progress records, observations of the learner's abilities (in both planned and unplanned indoor and outdoor activities) and

competencies in various activities. At the pre-primary level the teacher should desist from exposing learners to written formal tests. They should also realize that the learner's performance in the progress record is not supposed to and should not be scored for purposes of comparing him or her with others. Information thus obtained is expected to be used to plan experiences to enhance the development of skills and the acquisition of concepts by the individual child.

The progressive assessment should be developed using well guided criteria according to the child's aspects of growth and development and should be based on the national objectives of the early years education program and research based child development milestones. At the pre-primary level of early learning, assessment will focus on the acquisition of competencies in relation to cognitive, psychomotor and affective domains. The purpose of which will be to ascertain attainment of learning outcomes at the end of each level as defined by the curriculum. The competencies to be addressed at this level will be in the areas of basic numeracy, basic literacy, creativity, psychomotor skills and environmental skills (social, nature, life skills and science).

Middle School

Assessment in middle school plays a critical role in the learning process. Since middle school offers a broad-based curriculum whose purpose is to provide opportunities for learners to explore own abilities, assessment should be designed to provide feedback to the learners on areas of interests and progress made. Assessment will also be used as a tool that leads learners to develop autonomous learning. Support from teachers will be necessary to enable learners learn independently, determine how best they learn and at what pace. Of greatest importance, will also be the assessment tools teachers will use to improve learner achievements. Therefore, teachers are encouraged to use a variety of assessment tools that will provide critical information with regards to the acquisition of knowledge, skills, attitudes acquired by learners as well as the where the individual learners need support to improve learning achievements. The learners should also be gradually empowered to develop own assessment tools depending on own needs. These tools may include portfolios, observation schedules, checklists, journaling and projects.

Senior School

At senior school, formative, synoptic and summative assessment will be at three levels; skills, knowledge and competency.

Synoptic Assessment of Skills

Learners will be given opportunities through practical experiences to show their ability to perform and apply what they have learned in a real life situation. Through observation and use of a checklist the teacher shall assess the learner's progress towards the achievement of the desired skill.

Formative and Summative Assessment of Knowledge

Bloom's Taxonomy on educational objectives hall provide a way to express learning outcomes in a way that reflects the cognitive skills that can be assessed. The six levels for assessment are:

a) Knowledge – what the learner can remember
b) Comprehension – what the learner understands

c) Application – how the learner applies information
d) Analysis – the learner's ability to analyse information
e) Evaluation – the learner's ability to evaluate information and situations
f) Synthesis – the learner's ability to put information together to create something new

Formative and Synoptic Assessment of Competencies
Competencies shall be assessed over a period of time using projects, journaling, profiles and portfolios. The teacher shall document the learner's achievement that shall show the progress towards the achievement of the learning outcomes identified in the subjects using a rating scale. The teacher and other observers shall be trained on how to create criteria for the assessment of competencies. The assessment shall involve teachers, parents and other stakeholders who shall look for opportunities where the learners can apply the competency in all areas of their life.

Transition from lower Secondary to Senior School
The learners shall be assessed on their ability to apply the skills developed and knowledge acquired to address or manage in a contemporary society. Development of portfolios and continuous assessment grades at lower secondary will contribute in determining their choice of pathway at senior school.

Competency Assessment for Learners with Special Educational Needs

The overall goal of inclusive assessment is that all assessment policies and procedures should support and enhance the successful inclusion and participation of all learners vulnerable to exclusion, including those with special educational needs. Inclusive assessment is based on the general principle of celebrating diversity by identifying and valuing all pupils' progress and achievements in inclusive settings. It involves legislative measures that take into account the needs of learners with special educational needs, ensuring that all learners are entitled to take part in the assessment procedures.

One important feature of inclusive assessment is the assessment accommodation. Assessment accommodation involves the modification of existing standardized or summative assessment procedures, tools and methods in order that they are able to meet the needs of learners with special educational needs. An assessment accommodation is an alteration in the way a test is administered. Accommodations can be in terms of setting, presentation, timing, response, scheduling and other methods.

Setting
a) Administer the test to a small group in a separate location
b) Administer the test individually in a separate location
c) Provide special lighting
d) Provide adaptive or special furniture
e) Provide special acoustics
f) Administer the test in a location with minimal distractions

Presentation
a) Provide the test on audio tape

b) Increase spacing between items or reduce items per page or line
c) Increase the size of the answer space
d) Provide reading passages with one complete sentence per line
e) Highlight key words or phrases in directions
f) Provide cues such as arrows and stop signs on the answer form

Timing
a) Allow a flexible schedule
b) Extend the time allotted to complete the test
c) Allow frequent breaks during testing
d) Provide frequent breaks on one subtest but not another

Response
a) Allow the marking of answers in a booklet
b) Tape record responses for later verbatim translation
c) Allow the use of a scribe
d) Provide copying assistance between drafts

Scheduling
a) Administer the test in several sessions, specifying the duration of each session
b) Administer the test over several days, specifying the duration for each day's session
c) Allow subtests to be taken in a different order
d) Administer the test in the afternoon rather than in the morning, or vice versa

Others
a) Special test preparation
b) On-task or focusing prompts
c) Any accommodation that a student needs that does not fit under the existing categories

Decisions about assessment accommodations should be based on what the learner needs in order to be provided with an equal opportunity to show what they know whilst making accommodations which are appropriate to take account of their disability and mitigate the impact of that disability on their ability to perform at their best in the test, but not in such a way as to give him or her an advantage. It is important that accommodations do not compromise what the assessment is measuring. However, accommodations should be provided for the assessment when they are routinely provided during classroom instruction.

Capacity Building Framework for a Competency Based Curriculum

Provision of quality education is to a large extent determined by the capacity of teachers to interpret and implement the curriculum. This entails structuring the learning environment in accordance to the prevailing trends in education and learners' needs. The curriculum reforms will adopt a competency based curriculum approach and call for a comprehensive capacity building for curriculum implementers. The training will empower them with the necessary skills and capacities to embrace and implement change.

Enhancing Skills for Implementing a Competency Based Curriculum

In line with the basic education curriculum reforms' mission of 'nurturing every learner's potential', there is a need to provide every learner with world class standards in the skills and knowledge that they deserve and need in order to thrive in the 21st century and beyond. For this to happen, we shall support and develop highly knowledgeable, reflective and professional teachers who have additional enhanced skills and confidence in a range of modern pedagogical tools such as coaching, facilitating and mentoring. These tools will allow teachers to act as role models for learners, caring for and inspiring every child to achieve their potential. Flexibility in adapting to the reformed curriculum will require diagnosing the learner's needs and collaborating with all other stakeholders.

Mandate of the KICD in Capacity Building

The Kenya Institute of Curriculum Development is charged with the preparation of teachers for the implementation of the curriculum. One of the functions of the Institute as stipulated under the Kenya Institute of Curriculum Development (KICD) Act No. 4 of 2013 is to collaborate with other individuals and institutions in organizing and conducting professional development programmes for teachers, teacher trainers, quality assurance and standards officers, and other officers involved in education and training on curriculum, programmes and materials. Preparation of teachers for curriculum implementation is a stage to aid effective implementation.

Teacher Capacities Required for a Competence Based Curriculum

For the effective delivery of a competency based curriculum teachers should have the following skills, attitudes and capacities:

- Know how learners develop and learn, and address each learner's background and unique learning needs to reflect diversity and equity.
- Respond appropriately to diversity within groups of learners such as socio-economic, racial, cultural, linguistic, physical, mental, intellectual, and gender and orientation differences.
- Seek information from unique multiple sources, about learners' backgrounds, cultures, skills, language proficiency, interests, attitudes, and individual needs.
- Utilize knowledge about understanding of the students to plan instruction, set goals, select resources and design learning and assessment tasks.
- Be committed to establishing and sustaining positive and supportive learning environments.
- Be committed to establishing and maintaining authentic, effective, respectful and caring relationships with their learners.
- Value the experiences the student brings to class and allow these experiences to be recognized in the classroom and further each student's development.
- Value the input and contributions of families, colleagues and other professionals in understanding and supporting each learner's development.
- Have in-depth content and pedagogical knowledge and use this knowledge effectively to provide learning experiences to improve learner's achievement.
- Stimulate learner reflection on prior content knowledge, link new concepts to familiar concepts and make connections to student's experiences.
- Use a broad range of strategies to assist students to be successful.

- Evaluate and modify instructional resources and curriculum materials for their comprehensiveness, accuracy for representing particular concepts and subjects, and appropriateness for success.
- Use additional resources and or technologies effectively to ensure accessibility and relevance for all learners.
- Have a deep knowledge of competence based learning outcomes and supporting resources as well as an understanding of the progression of learning outcomes in relevant disciplines.
- Realize that content knowledge is not a fixed body of facts but is complex, culturally situated and ever evolving and therefore keep abreast of new ideas and understandings in relevant context areas.
- Value learner diversity.

Learning Outcomes for Capacity Building of Curriculum Implementers

Training and capacity building sessions will be delivered for teachers to enable them to effectively implement the new curriculum. By the end of the capacity building session, participants should be able to:

i. Acquire the knowledge, skills and attitudes necessary for curriculum reform.
ii. Portray competence and positive attitudes.
iii. Apply innovative pedagogical approaches and models.
iv. Participate in service learning.
v. Demonstrate competencies in assessment.
vi. Conceptualise parental empowerment and engagement.
vii. Establish communities for learning best practice.
viii. Be self- reflective, self-improving and supportive learners themselves.

Training manuals will be developed to cover the following areas:

Appropriate Pedagogy and Approaches

Learner centred teachers teach learners how to think, solve problems, evaluate evidence, analyse arguments, and generate hypotheses – all those learning skills essential to mastering material in a discipline. They do not assume that students pick up these skills on their own, automatically. Research consistently confirms that learning skills develop faster if they are taught explicitly along with the content.

Assessment Methods

This training manual will cover the following areas:

- Teacher's preparedness in assessment development.
- The need to understand and own the paradigm shift in authentic assessment of formative assessments where teacher involvement is crucial.
- The need to embrace assessment of cognitive, psychomotor and affective domains.
- Validity and reliability of formative assessments.
- Fairness in assessment.
- Accountability of the learner's progress report.

Pertinent and Contemporary Issues

Mainstreaming pertinent and contemporary issues requires experiential learning founded on an inquiry based approach and anchored on values to enhance character formation. The acquisition of values and psychosocial competencies will avert the behavioural and values crisis in the country.

To enhance the acquisition of core competencies, learners will engage in non-formal and informal activities in school and in the community. The guidance of teachers will be needed to do this. Teachers will also help learners turn learning experiences into real life situations, and undertake guided age appropriate projects and action research.

Inclusiveness

There is a move towards inclusive education practice and wide agreement on the key principles first encompassed in the 1994 UNESCO Salamanca Statement. These principles have been reinforced by many conventions, declarations and recommendations at global, regional and local levels, including the UN Convention on the Rights of Persons with Disabilities (2006) that makes explicit reference to the importance of ensuring inclusive systems of education. The UNESCO Policy Guidelines on Inclusion in Education (2009) set out justifications for working towards inclusive practices and educating all children together.

Inclusiveness will be achieved by training teachers to acknowledge each learner's abilities and needs, and meet them. Teachers will use teaching methods that encourage all children to participate actively in the learning process, irrespective of their gender, disability, physical appearance, levels of performance, or social or economic background. Learning will be contextualized to give it meaning, and to instil in students an interest in learning that will contribute to them being lifelong learners.

Inclusive education also helps to ensure the optimal development of children with special educational needs by giving them a vital space which provides opportunities for child focused learning, play, participation, peer interaction and the development of friendships. Creating the conditions required for the successful inclusion of learners with special needs in inclusive settings benefits all learners.

The need for high-quality teachers who are equipped to meet the needs of all learners is essential in order to provide not only equal opportunities for all, but also education for an inclusive society. Reynolds (2009) says that it is the knowledge, beliefs and values of the teacher that are brought to bear in creating an effective learning environment for learners, making the teacher a critical influence in education for inclusion and the development of the inclusive school.

The reformed teacher education curriculum will provide the best means of creating a new generation of world class teachers who will ensure the successful implementation of inclusive policies and practices. This reform should prepare teachers to engage with learner diversity arising from age, gender, ethnic, cultural or religious background, socio-economic status, disability or special educational need. It will also impart knowledge about alternative learning styles and instructional strategies that are inclusive of all learners.

Curriculum reform will lead to a teacher education curriculum which produces teachers who understand and promote inclusivity, and who are endowed with the following capacities:

a. Identify learners who may be having learning challenges and address their challenge in a timely fashion or make a request for further assessment and support.
b. Develop ways of teaching that respond to individual differences and benefit all children.
c. Teach competencies and effectively teach classes with heterogeneous learners.
d. Become agents of change towards diversity and form the basis for a just, non-discriminatory society.
e. To establish and maintain schools that educate all children together rather than set up a complex system of different schools 'specializing' in different groups of children.

Community Service Learning

Community service learning is a teaching and learning strategy that integrates meaningful community service with instruction and reflection to enrich the learning experience, teach civic responsibility and strengthen community participation. It is a process of involving students in community service activities combined with facilitated means for applying the experience to their academic and personal development. Teachers should understand the concept and be equipped with innovative approaches towards implementing it.

Parental Empowerment and Engagement

Children start learning even before they start school. Parents, family and care-givers are a child's first and most important educator and can be a positive influence and help their child do well at school. Before children start formal learning, parents require education and useful information to assist them to better engage with their child's learning. Parents also require empowerment and opportunities to get involved in their child's learning throughout schooling, especially at the basic level of education. When parents are involved in their children's learning, it can have very positive impact on education outcomes. Teachers should have the skills required for creating strong partnerships with parents.

Differentiated Learning

Differentiating learning means that the teacher observes and understands the differences and similarities among students and uses this information to plan learning. Listed below are of some key principles that form the foundation of differentiating instruction (Robb, 2013).

Ongoing, formative assessment: Teachers continually assess to identify students' strengths and areas of need so they can meet students where they are and help them move forward.

Recognition of diverse learners: Students have diverse levels of expertise and experience with reading, writing, thinking, problem solving, and speaking. Ongoing assessments enable teachers to develop differentiated lessons that meet every student's needs.

Group Work: Students collaborate in pairs and small groups whose membership changes as needed. Learning in groups enables students to engage in meaningful discussions and to observe and learn from one another.

Problem Solving: The focus in classrooms that differentiate learning is on issues and concepts rather than "the book" or the chapter. This encourages all students to explore local national and global issues and expand their understanding of key concepts.

Choice: Teachers offer students choice in their reading and writing experiences and in the tasks and projects they complete. By negotiating with students, teachers can create motivating assignments that meet students' diverse needs and varied interests.

Communities of Practice

Teachers as members of a community of practice will be guided to interact regularly and build relationships that enable them to learn from each other. They should exhibit the following behaviours:

- Engage in joint activities and discussions and help each other, sharing not only information but also transparent and consistent values and aims in a supportive school culture.
- Develop a shared repertoire of resources including experiences, stories, tools, and ways of addressing recurring problems.
- Aim at generating and sustaining professional development and interaction, so that teaching becomes less of an isolated and isolating experience, this can be aided by getting students to talk openly about their own learning.

Use of ICT in Learning

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Due to the added value of ICT in learning, all teachers and students should use ICT to support and enrich their teaching and learning activities. ICT is a way of life in the knowledge society and digital era. Education content design, development and delivery should utilize ICT to ensure relevance and synchronized to people's life style. Using ICT as a tool in teaching and learning enhances the empowerment of teachers and students to fit in the current world of work. ICT can be used as a research tool, problem-solving, creative and teaching and learning tool. ICTs have the potential to enhance teaching and learning through:

- Enriching the subject matter,
- Improving delivery, extending methods of presenting information as a teaching aid,
- Overcome teacher isolation, by connecting them to colleagues, mentors, curriculum experts, and the global teacher's community.
- Providing teachers the opportunity to disseminate and share good practice via communities of practice, the internet, access reliable facilities, resources and support on pedagogical issues and the latest curriculum developments.
- Offering opportunities for quick, easy and near real time reports and communication to and from the different sectors is possible through various ICTs.

For the integration of ICTs in teaching and learning to be successful the tools and resources of the internet, internet of things, multimedia, and related technologies, there is need to utilize ICT as integrally connected with literacy learning in the wider sense of learning as a matter of accessing information, communicating, and applying knowledge.

In this regard, the digital literacy basics are critical for every citizen. These competences and skills are necessary in life and in every industry. The teaching and learning ICTs is mandatory for national growth, regional integration and global citizenship.

Sustainability of Continuous Professional Development

The proposed modes of professional development to ensure sustainability include the following:

- **School based capacity building** will adopt mixed method approaches such as peer training, mentorship and coaching. These could be organized centrally, through county, regional and school initiatives.
- **Use of social media** in collaborative learning could be used to exchange and share information and experiences on the reformed curriculum.
- **Online training** will adopt some of the existing online platforms including *elimika* among others.
- **Use of mass media** including TV, online and radio programmes.
- **A digital literacy platform** will support teachers in uploading their material.
- **Offline resources** will be uploaded and used by teachers.
- **A teachers' support network** will be established in every school to provide collegial assistance on a continuing basis.
- **Building a community of practice** will help sustain the change process by helping reduce teacher isolation and facilitating the process of adoption of or adaptation to curriculum change.

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APPENDIX 1: Rational for Distribution of learner's in the Pathways at Senior School

The Senior Secondary Education has proposed that 60% of the secondary schools should offer the STEM subjects. This will enable Kenya meet the human capital required to meet the needs of Vision 2030 Kenya's blue print for national development. The Talents Pathway is proposed to take 15% of the schools while the Social Science will be offered in 25% of the schools. In order to reach to these ratios a policy needs to be developed to inform how soon these ratios can be realized.

The table below shows the current Gross Domestic Product (GDP) for Kenya that demonstrates Kenya's income from various activities. The table also shows the national development agenda for the next 14 years as indicated in Vision 2030.

	Activity	**Economic Survey 2016 (2015)** **Table 2.2: Gross Domestic Product by Activity** **% Percentage Contribution to GDP**	**Vision 2030, 2007**
1.	Agriculture, forestry and fishing	30%	Raising incomes in agriculture, livestock and fisheries
2.	Manufacturing	10.3**%**	Projected growth 15%
3.	Telecommunications	8.5**%**	Expanding infrastructure including telecommunication
4.	Transport and storage	8.4**%**	Developing and maintaining an integrated, safe and efficient transport network;
5.	Real estate	7.6%	See construction
6.	Wholesale and retail trade; repairs	7.5%	• Projected growth 30% by 2012 • Modernization of new retail markets • Poverty reduction and reduced income disparities:
7.	Information and communication	7.3%	Integrating information and communication technologies
8.	Financial activities	6.9%	• Projected growth 30% • a more efficient and competitive

			financial system to drive savings and investments for sustainable broad-based economic growth. • increased access to financial services and products • strengthen the stability of the financial system;
9.	Construction	4.8%	• adequate and decent housing
10.	Human health and social work activities	1.7%	• Promote health education • Improving the urban environment and reduction in health problems • improved health services • to improve access to vital services (e.g. education, health, water and sanitation)
11.	Electricity supply	1.0%	
12.	Mining and quarrying	0.9%	
13.	Publishing, broadcasting, other IT and information activities	0.9%	Included under manufacture
14.	Professional, scientific and technical activities	0.9%	• Raise levels of entrepreneurial, technical, managerial, creativity, leadership and life skills by 70% • increase numbers of youth in positions of responsibility by 50%; • Reduce youth unemployment from 75% to 35%
15.	Water supply; sewerage, waste management	0.8 %	• Applying modern technologies to water extraction and delivery • Inculcating a national culture of basic hygiene and responsible water usage;
16.	Accommodation and food services	0.8%	• Increasing hotel/bed capacity: • Increased investment and quality in accommodation.

Situational Analysis

Using the KCSE 2015 candidature at the various subjects the following table attempts to identify gaps and portray the need to change the percentage of schools offering the various subjects.

	Pathway	**Track**	**Suggested Percentage of Schools offering**	**2015 KCSE candidature for the sampled subjects in the pathway**	
1.	Talent	Visual Arts	5%	Art and Design	0.22%
		Performing Arts	5%	Music	0.24%
2.	Social Sciences	Languages	8%	English	100%
				Kiswahili	99.9%
				French	0.57%
		Humanities	8%	History and Government	69%
				Geography	25.6%
				CRE	77.1%
		Business Studies	9%	Business studies	44.9%
3.	STEM	Pure Sciences	8%	Physics	26.2%
				Chemistry	99%
				Biology	89.2%
		Applied Sciences	12%	Agriculture	39.8%
				Home Science	2.57%
				Computer Studies	2.26%
		Technical and Engineering	15%	Electricity	0.037%
				Metalwork	0.023%

				Drawing and Design	0.11%
		Career and Technology Studies (CTS)	25%	Building Construction	0.04%
				Woodwork	0.05%
				Power Mechanics	0.03%

Observations from the Tables

1. Currently most of the learners are pursuing the social science subjects. The majority are taking English and Kiswahili in the languages and CRE in the humanities.
2. Currently very few learners are pursuing the STEM subjects, those pursing the subjects the majority are taking Chemistry and Biology.
3. In order to reach the Vision 2030 of increasing manufacturing from 10.3% to 15% there is need to increase the Technical and Engineering pathway from an average of 0.05% to 15%
4. According the Economic Survey Report 2016, wholesale and retail trade is currently at 7.5% against Vision 2030 projected growth for 2012 that is 30% in order to meet the manpower needs for this sector STEM pathway needs to be given a higher percentage as well as Business Studies in the Social Science pathway.
5. Less than 1% of the leaners were pursuing technical and engineering and CTS pathway subjects.

In order for Kenya to meet the manpower needs of the Vision 2030 senior secondary needs to purposely distribute the learners in the relevant pathways. The following table shows the proposed distribution of learners and schools to enable Kenya achieve the Vision.

Distribution of the Pathways

	Pathway	**Track**	**% of Learner in the pathway**	**Track percentage**
1.	Arts and Sports Science Pathway	Sports Science	15%	5%
		Visual Arts		5%
		Performing Arts		5%
2.	Social Sciences	Languages	25%	8%
		Humanities		8%
		Business Studies		9%
3.	STEM Pathway	Pure Sciences	60%	8%
		Applied Sciences		12%
		Engineering		15%
		Career and Technology Studies		25%