REPUBLIC OF KENYA

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Basic Education Curriculum Framework

ISBN 978-9966-31-489-5

Published and printed by Kenya Institute of Curriculum Development

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 2010, Vision 2030, the East African Community Curriculum Harmonisation Structures and Framework, and other policy documents that express the aspirations of the country. The BECF articulates National Goals of Education, values, guiding principles and theoretical approaches that underpin the conceptualisation of basic education.

The BECF actualises the curriculum reforms. Its purpose is to provide a comprehensive conceptualisation of reforms in basic education: pre-primary education, primary education and secondary education. The Framework outlines the curriculum reforms vision, the overarching mission, the pillars of the reforms and, the organisation of basic education. In addition, it includes core competencies to be achieved in basic education, curriculum approaches adopted in the Framework, general learning outcomes, learning areas and necessary policies facilitating implementation of the curriculum reforms. Further, appropriate pedagogical practices, formative and summative assessment approaches, teaching and learning resources, and other critical issues that will contribute to the success of the reforms are addressed.

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 provision of basic and teacher education on this Framework.

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Acknowledgements

I wish to acknowledge the invaluable contribution of the various individuals and organisations in the development of the Basic Education Curriculum Framework.

KICD wishes to express gratitude to the National Steering Committee, chaired by the then Cabinet Secretary, Dr Fred Matiang'i, for providing leadership to the entire process. The Institute is also grateful to the current Cabinet Secretary, Amb. (Dr.) Amina Mohamed, the Principal Secretary, Dr Belio Kipsang, and other senior Ministry of Education Officials who were quite instrumental in providing important insights in critical policy issues that gave shape to the Framework.

I wish to thank both the National Assembly and the Senate, and specifically the members of the Education Committee, for taking time to share their thoughts on important legislative issues that required consideration in the Framework.

The Institute is indebted to Mr Peter Hall Jones through the British Council for providing technical support to conceptualisation, design and development of the Framework. I applaud members of the KICD Curriculum Reforms Technical Committee and curriculum developers for their tireless efforts to develop this Framework (Appendix II).

I also wish to acknowledge the support of the following organisations and persons 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, Course Panel and the Academic Committee for validation and approval of the Framework
5. Ministry of Education Consultants

I also extend my gratitude to the stakeholders who attended the many forums, including the National Conference and discussed the Framework extensively.

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.

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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
EARC	Educational Assessment and Resource Center
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 Programme
KCBC	Kenya Competence Based Curriculum
LSE	Life Skills Education
KICD	Kenya Institute of Curriculum Development
KIE	Kenya Institute of Education
KNEC	Kenya National Examinations Council
LSV	Life Skills and Values
NGO	Non-Governmental Organisation
PCI	Pertinent and Contemporary Issue
SNE	Special Needs Education
SS	Senior School
STEM	Science, Technology, Engineering and Mathematics
TSC	Teachers Service Commission
UNESCO	United Nations Educational, Scientific and Cultural Organization
UNICEF	United Nations International Children's Emergency Fund
VTC	Vocational Training Centres

Definition of Terms

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

Functional Assessment: Refers to type of sensory, developmental, physical, cognitive or academic evaluation that helps identify the ability, level of support, supervision and resources an individual with disabilities need.

Individualised Educational Programme: An educational plan for each learner who qualifies for special education services based on a personalised evaluation.

Pathway: It refers to a learning route that a learner selects as he/she prepares to specialise. The Framework provides for three options from which the learner shall select one depending on personal interests, ability, and aptitude.

Specialised curriculum: Curriculum developed to meet the unique needs of learners with special educational needs.

Tracks: A combination of subjects that a learner takes to specialize within the pathway that he/she has selected.

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, unnecessary overlaps and emerging issues. The reviews did not adequately address 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 curriculum did 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, was limited to summative assessment (assessment of learning) whilst the majority of teachers hardly ever used formative assessment (assessment for learning). This led to a situation where there was fierce competition in learning instead of a focus on the acquisition of requisite knowledge and skills. The curriculum made little provision for the recognition of the learner's potential, gifts and talents due to an unnecessary focus on examination. This 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 secondary 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 8-4-4 curriculum did not provide deliberate policies, appropriate pedagogical approaches and sufficient resources to lay a strong foundation for the development of these skills.

Curriculum Vision

The vision of the basic education curriculum is to enable every Kenyan to become an **engaged**, **empowered** and **ethical** citizen. This is 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 is accomplished through the provision of high quality **instruction, school environments and resources** and a **sustainable visionary curriculum** that is seamless, competency based that values every learner.

It is therefore necessary that teachers are highly knowledgeable, reflective professionals that have additional enhanced skills and confidence in a range of modern pedagogical tools. This may include **coaching, facilitating, and mentoring**.

Teachers are role models for learners, caring for and inspiring every child to achieve his or her potential. Teachers are also flexible in adapting to the requirements of the 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, local and wider community**.

It implies provision of differentiated, innovative learning experiences that ensures each child can take their place in the world with confidence and pride as 21st century Kenyans. The new curriculum ensures 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.** The ultimate aim is to nurture learners who love learning, are keen, focused and able to apply what is learnt in order to make constructive contributions as productive, responsible citizens as well as cooperatively with other peers around the world through enhanced digital literacy and mastery.

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

Curriculum Mission

The mission of the basic education curriculum is '**nurturing every learner's potential'**. The curriculum design provides opportunities to identify the potential that every learner brings to school and nurture the potential through the provision of learning pathways and tracks at Senior School. The mission ensures that no child is said to be a failure at the end of basic education.

National Goals of Education

The Framework is anchored on the National Goals of Education. Thus, 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 competencies 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 competencies 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 Constitution of Kenya. 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 practise 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 culture while at the same time respect other people's cultures. In this way, the learner will 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

In addition to National Goals of Education, 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 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, 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.

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.

According to the **Constitution of Kenya,** it is imperative that the State Department responsible for education develops and incorporates values into 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 incorporates these and other important values that may emerge with time.

The Framework takes 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 adopts a values based approach to education that creates learning opportunities within the formal, non-formal and informal curriculum dimensions to inculcate the desired values in all learners.

The teaching of **values** facilitates the achievement of the curriculum reform vision, particularly with respect to developing **ethical citizens.** The thrust of this is to nurture learners who do the right thing because it is the right thing to do. Learners are 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 are provided with opportunities to **contribute** fully to the world around them – economically, culturally, socially and politically. Basic education builds capacities in learners that enables them to be **stewards of the earth,** and to minimise negative environmental impacts. It also nurtures them to **build relationships** through humility, fairness and open-mindedness, and with **teamwork** and communication. The teaching and learning of values also enables them to **value** diversity, and to demonstrate respect, **empathy** and compassion for all people.

Theoretical Approaches

A theory is an abstract general explanation of observations or a subject under study that can provide guidance for practice. It attempts to predict behaviour or reach a reasonable and general set of explanations for an underlying issue. Several theories underpin the Basic Education Curriculum Framework. These are:

a) Instructional Design Theory

This theory offers explicit guidance towards a new curriculum that explains how to help learners learn and develop in the wake of emerging globalisation. 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 are articulated in 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 reform and engages critical stakeholders and policy makers to identify with it. This provides a strong momentum for change in achieving the reform vision.

b) 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, learners 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 learners and help them become their own teachers. It entails making the learner's *learning* visible to teachers so that they can know whether they are having an impact on learning; 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 learner learning.*

When the *teaching is visible,* the learner 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 learner work *together* to attain the goal, provide feedback, and ascertain whether the learner has attained the goal. Evidence shows that the greatest effects on learner learning come when not only the learners 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.

c) 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 argued that the curriculum should ultimately produce learners 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. Therefore, the curriculum should arise from learners' interests, be hands-on and experience based rather than abstract. The theory underscores the need for continuous, participatory and experiential learning, with an emphasis on the practical aspect of the basic education curriculum.

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. The theory underpins the basic education curriculum framework in terms of conceptualising and designing the necessary paradigm shifts that facilitates creating rich learning environments which stimulates 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 as *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 can be trained on to facilitate adoption of a competency based curriculum in basic education. Activities in the classroom includes journaling, experiential activities, 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 media.

Individuals differ in the strength of intelligences (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 distinct. 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 emphasises the significance of categorisation 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 epigenetic principle that presupposes that personality develops in a predetermined order, and builds upon each previous stage. Application of this theory serves to ensure that education tasks given to the child are in alignment with their stage of development thereby minimising learner frustration.

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 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 (0 to1 ½)
2.	Autonomy vs Shame	Will	Early Childhood (1 ½ to 3)
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	Adulthood (40 to 65)
8.	Ego Integrity vs Despair	Widsom	Maturity (65+)

According to Erikson (Mcheod, 2016), the curriculum aims at fostering both lower and high level skills concurrently where the teacher remains a guide or facilitator while learners construct their own knowledge through exploration and experiential learning. Learners are active participants in the learning process through collaborating with others through hands-on exploration and group projects. Learning goals are stated in terms of growth and increased ability to work independently and collaboratively. Pedagogy and assessment therefore as

discussed in this theory 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 reform vision and mission, the curriculum provides learners with a variety of opportunities to enable them to identify their needs, talents and potential. This enables them to participate in the world of work and the development of the nation. The emphasis is on equal access to education for all that enables learners to enjoy learning and reduce wastage in terms of dropping out of school because the curriculum is not relevant to their needs.

2. Excellence

Learners are nurtured to excel in their areas of greatest interest and ability. The Framework values excellence and competitiveness rather than raw competition for examination grades, thereby reducing the challenge of malpractice in examinations because learners are guided to excel in their areas of interest and ability.

3. Diversity and Inclusion

There are two dimensions in the guiding principle of diversity and inclusion. The first dimension offers learners the opportunity 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 entails ensuring that all learning institutions accommodate all learners regardless of their physical, emotional, intellectual, or any other need. It involves provision of reasonable accommodation characterised by flexibility, responsiveness and support. The Framework recognises that not all learners are academically gifted but considers every learner's social and cognitive capabilities, his/her 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 his/her abilities and needs.

The curriculum reform addresses the needs of children, youth and adults who are out of school, 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 learns 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 children to achieve their full potential. The Framework provides 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 learners in community service is a form of experiential education that enables learners to apply their knowledge and skills in a different setting. Teachers then support learners 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 learners' 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. The EAC Curriculum Harmonisation Structures and Framework also recommends the same approach. A competency based approach enables meaningful connections within and between learning areas through a focus on competencies. The learning areas serve as 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 is designed, implemented and assessed.

In the context of the Kenyan Competency Based Curriculum (KCBC), a competency is understood as 'the ability to apply appropriate knowledge, skills, attitudes and values to successfully perform a function'. Within this context, the curriculum is designed to emphasise 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 provides 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.

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 competency can effectively be measured by determining if, and to what degree, the goals of interaction are achieved. He emphasises 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 competency 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 goals.

A useful framework for understanding communication competence was designed by Spitzberg and Cupach (1984). They proposed a model that can be used to understand communication referred to as the component model of competency. The model asserts that communication competency 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).

The foregoing assertions then imply 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, caution and care prevailed upon the decision 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 realise shared goals. Collaboration may require leadership, although this can be social within decentralised 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 and ultimately increases the success of teams as they engage in collaborative problem solving.

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. 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. Lesson plans for collaborative learning may vary greatly. Sometimes teachers can develop a lesson designed specifically to teach collaborative learning and teamwork.

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 competency enables learners to develop and nurture intra-personal skills and values such as self-awareness, self-esteem, confidence and personal integrity. These competencies 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 is courageous and bold enough to set and pursue personal educational, family, community, entrepreneurial, professional, and career goals in all forms of employment that leads to personal accomplishment (British Council, 2016). An efficacious learner is aware of the resources at their disposal and takes personal responsibility for the use, care, management, protection and preservation of these resources.

A learner with strong self-efficacy is internally motivated to establish and maintain healthy interpersonal relationships. They 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 in the acquisition of self-efficacy. The school provides 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. 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 exercise flexibility and open-mindedness to opinions that may sometimes conflict with their own beliefs and positions. Critical thinking and problem solving are useful for learners of all ages and in all the learning areas 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 ultimately helps them to fulfil their potential, which is the vision for the basic education curriculum. This contributes to addressing the unemployment challenge in Kenya.

One way of developing critical thinking and problem solving is through provision of age appropriate activities and implementation of suitable 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 therefore, endeavours to inspire learners' imagination by presenting knowledge in ways that encourage learners to think as individuals. It creates scenarios that help learners to engage in imagination and encourage them to develop creations steered by the imagination. Their ability to imagine is stretched through exposure to challenging situations that help to expand their thinking and creativity skills. The curriculum also creates 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. A world 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 minimizes 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 together.

Strengths of CBC

A competency based curriculum has the following strengths:

1. Learner-focused

There is less focus on the school and the system and more focus on education and the learner. The curriculum is responsive and relevant to learner's needs. It enables teachers - who are designers of learning opportunities- to meet the diverse needs of learners.

2. Focus on Competencies

There is less focus on content since the goal is appropriate application of knowledge and not just acquisition. A curriculum that focuses on competencies enables the creation of meaningful connections within and among learning areas and disciplines.

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

Prescriptive curricular offer limited flexibility. The goal of CBC is to enable greater flexibility at the local level. Content delivery is flexible and exploratory. Teachers have the autonomy to implement the curriculum while teaching.

4. Balance Between Formative and Summative Assessment

CBC offers a range of assessments that focuses on varied assessment of student learning outcomes and cross -curricular experiences.

5. Digitally Based

The design of the curriculum within a collaborative digital application enables continuous improvement 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 is the norm and co-creation of the curriculum with partners and stakeholders taps into local expertise to enhance the design development.

7. Synchronous Development

Synchronous development replaces sequential development.

Learning Areas

These are the subjects taught at various levels of education such as English, Mathematics, Science and Technology. They are the means through which the key competencies, values and knowledge are taught and attitudes instilled across all levels of learning. However, they are not static and may change to address the ever-changing needs of society.

Organisation of Basic Education

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

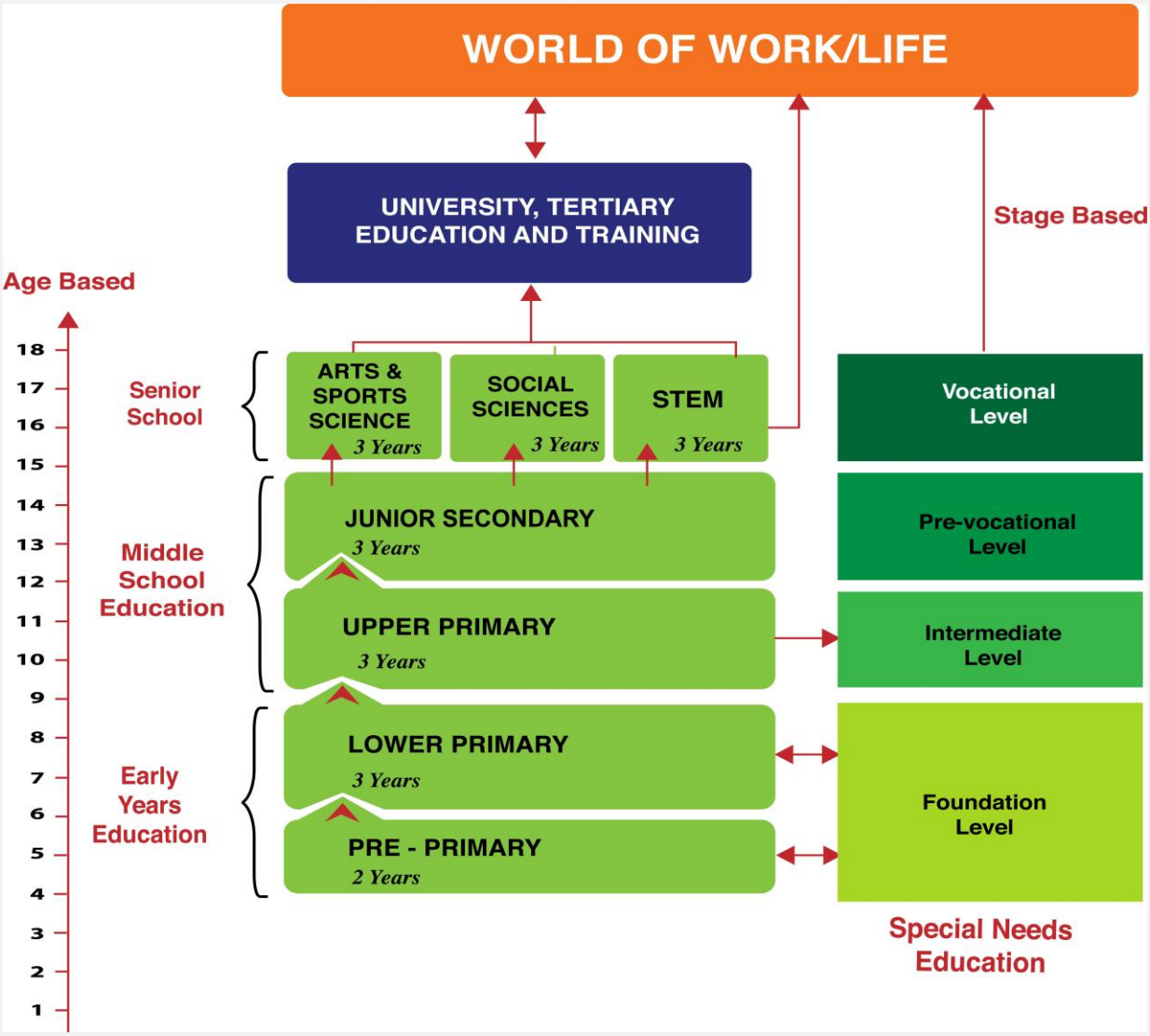

Figure 2: Basic Education Structural Model

Early Years Education

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

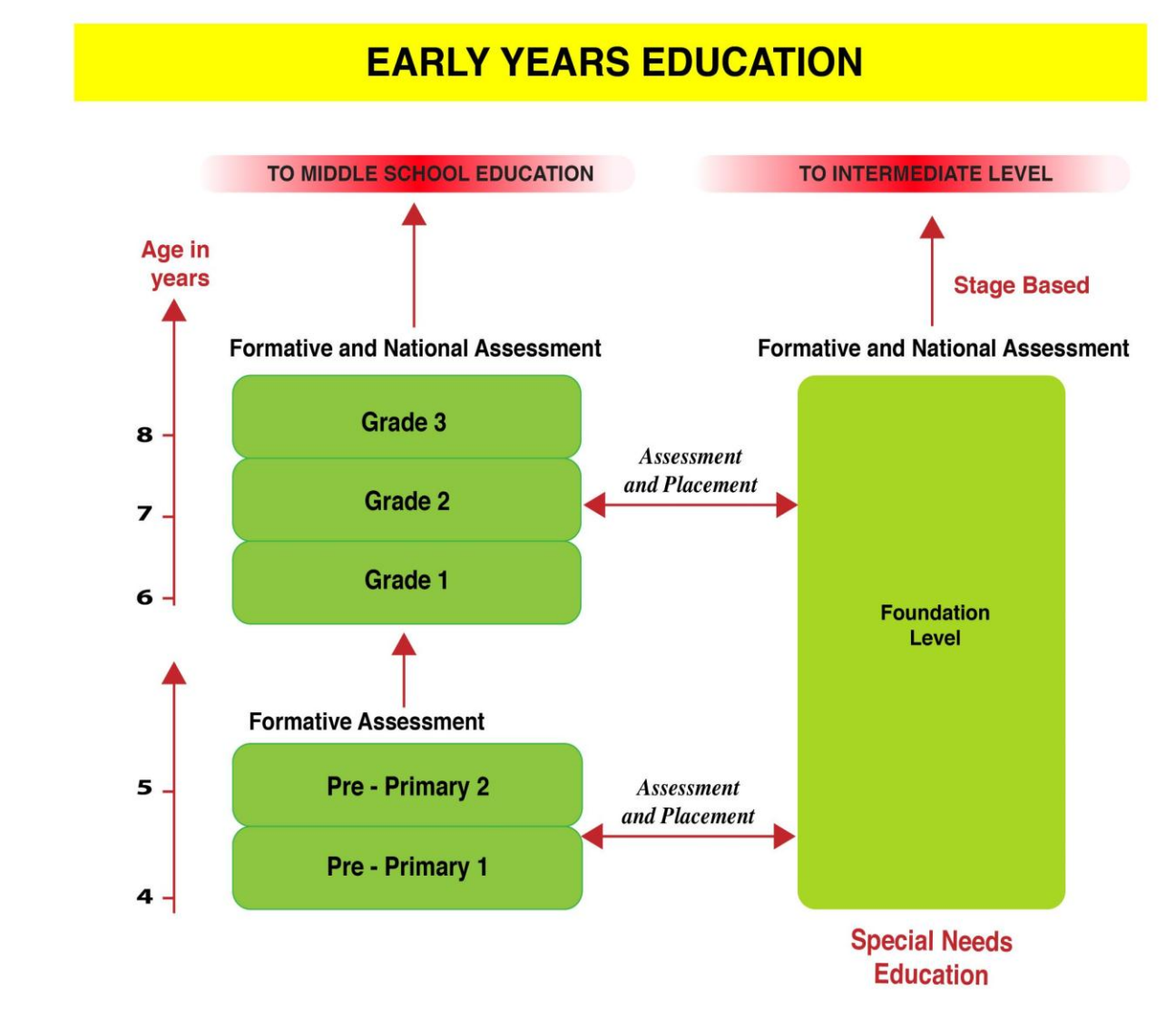

Figure 3: Early Years Education Structural Model

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 and safety skills to promote health and wellbeing.

7. Develop emotionally, physically, spiritually, morally and aesthetically for balanced living.
8. Appreciate 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.

Learning areas for Pre-primary

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

NB: Digital literacy and pertinent and contemporary issues are integrated across all learning areas.

Essence Statements for Pre-primary

Language Activities

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. A language is an essential 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).

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 skills.

During the early childhood stage of development, learners are more engaged when using manipulative concrete objects (Carbonneau et al, 201; Cocket and Kilgour, 2015). Similarly, Piaget and Bruner attest that children at this level use hands-on manipulation to arrive at a mathematical solution physically. 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, numbers and measurement skills.

Environmental Activities

Environmental activities are about 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 therefore offers 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 for 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, hygiene and safety skills among the children. Environmental activities are best learnt through the inquiry method which includes simple experimentation and observation. Social activities deal with the 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 coordination of different parts of the body. These activities enhance exploration and development of personal talents and skills as well as an appreciation of their cultural heritage.

The 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 growth and development. The creative activities assist children in developing their fine motor skills, imagination and creativity thereby developing their talents.

Religious Education Activities

Christian Religious Education (CRE) activities at the pre-primary level focuses on holistic development of the learner through use of life approach. The curriculum inculcates values and attitudes which the learner needs to uphold in daily life based on the teachings of the Holy Bible.

These values include love, peace, obedience, sharing, responsibility, integrity, unity and respect among others. Instilling such values helps the learner acquire basic principles for Christian living. The activities in CRE are geared towards the continuous moral and spiritual development of the learner.
These are guided by the greatest commandment which states "Love the Lord your God with all your heart, with all your soul and with your mind, love your neighbour as yourself". Teachers should help the learner to appreciate people of different religions for peaceful coexistence.

Christian Religious Education is concerned with both the academic and moral development of the individual learner. The teaching of CRE therefore cannot be separated from daily life situations which affect the physical, moral, emotional and spiritual growth of the learner. In the present society the learner is faced with various challenges in life. The CRE curriculum aims at equipping the learner with spiritual, intellectual and moral development to be able to deal with these challenges.

Hindu Religious Education

Hindu Religious Education (HRE) offers an opportunity to learn the Hindu religion and its aspects. Hindu Religion is a way of life and its teaching starts in early childhood.

HRE in the schools is a continuation of the knowledge acquired at home in early childhood. HRE is an integration of four faiths: Hinduism, Sikhism, Buddhism and Jainism.

The teaching of HRE aims at nurturing faith in Paramatma and recognising self-awareness and understanding social obligations and responsibility to the immediate environment. HRE thus, enables learners to enjoy learning and living through play. It provides an opportunity to instil in children good social habits and moral values for effective living as righteous individuals and useful members of the community, nation and as responsible global citizens. The HRE curriculum, therefore, provides avenues for holistic physical mental, emotional and spiritual growth for learners. It enables them to develop personal beliefs while appreciating the beliefs of others. HRE also covers pertinent and contemporary issues in society such as children's rights, life skills and community service.

The learners acquire requisite competencies such as Communication and Collaboration, Imagination and Creativity, Digital Literacy, Critical Thinking and Problem solving, Learning to Learn and Self-efficacy.

Pre Braille Activities

Essence statement

Pre Braille activities are intended to promote prerequisite skills for beginners to develop the tactile sense which lay the foundation for formal instruction for Braille code. The skills are needed in order to effectively read and write Braille.

Lower Primary

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

Learning areas for Lower Primary

The learning areas in lower primary are:

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

Note

- ICT serves as a learning tool in all areas.
- Pertinent and contemporary issues are mainstreamed in all learning areas.

Essence Statements for Lower Primary

Literacy Activities

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 is 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 learning areas. It assists the learner to communicate with others as well as promote learning to learn.

Braille Literacy Activities

Braille is a system of reading and writing using raised dots to convey meaning. Letters and words are represented through a tactile code. Braille is not a separate language. This system was

an invention for persons with blindness to use as a medium of learning and communication through touch. Braille is taught to learners who are blind and those with severe low vision.

Kiswahili Language Activities or Kenya Sign Language (KSL)

Kiswahili is the national language and one of the two official languages of communication in the country. Learners are exposed to the language at the earliest possible time in their schooling. Kenya Sign Language (KSL) is the alternative language for learners who are deaf. Additionally, KSL can be learned by learners who are not deaf.

English Language Activities

English is one of the official languages of communication in the country. It is also the second highest spoken language globally. Learners are taught the foundational skills of reading and writing the English language at the earliest opportune time. Multilingualism is encouraged as learners can live anywhere on the planet.

Mathematical Activities

Numeracy is a foundational skill that prepares the learner for number work and mathematics at 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 learning area comprising science, social and agriculture activities. The learner is equipped with basic knowledge and skills for the exploration of the immediate environment as well as learning and enjoyment.

The environment comprises of both living and non –living organisms. It contains natural resources that sustain lives. Learners should be able to explore the environment safely and also protect it for reasons of sustainability thereby laying a foundation for sustainable development concepts that will be learned at subsequent levels 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 understands how to take care of self and others for reasons of good health and wellbeing. Illnesses caused by infections can be greatly minimised by adopting appropriate hygiene and sanitation practices.

Some non-communicable illnesses can also be managed by good nutrition practices. The learner is engaged in practical activities that promote healthy eating and hygiene practices that contribute to healthier lifestyles.

Other issues to be addressed are growth monitoring of children, oral and dental health, immunization and de-worming.

Religious Education Activities

Kenya as a 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 learning area aims at equipping the learner with knowledge, skills, attitudes, values and psychosocial competencies that assist them to grow up as socially, emotionally and spiritually balanced individuals.

In line with the constructivist theory, the teaching and learning of religious education links learners' own experiences, needs, interests and beliefs, and the content being studied, in a collaborative and co-operative problem solving learning environment.

Christian Religious Education

This learning area builds on the competencies introduced at pre-primary level concerning God's self-revelation to man through Jesus Christ. The learners will be equipped with moral values, life skills and attitudes that assist them to live with self and others peacefully. This will be guided by the greatest commandment which states, 'Love the Lord your God with all your heart, with all your soul and with all your mind, Love your neighbor as yourself''.

The learner will also acquire basic principles for Christian living through the Holy Bible. In line with constructivist theory some of the essential principles include making links between learners' own experiences, needs, interests, questions and beliefs by engaging in collaborative and co-operative problem solving activities. The curriculum will therefore, inculcate values and attitudes which the learner needs to uphold in daily life based on the teachings of the Holy Bible. These values include obedience, sharing, responsibility honesty and respect for self and others to mention but a few. These values will foster harmonious living and formation of healthy relationships amongst the learners and their communities.

Islamic Religious Education

Kenya is a state where people subscribe to various religions. The constitution advocates for development of values. Religious Education is one of the ways to inculcate these values in learners.

Islamic Religious education activities aim at equipping the learner with knowledge, skills, values and psychosocial competences that assist them grow up socially, emotionally and spiritually as balanced persons. It helps the learner acquire the values of sharing, caring, respecting, loving, obeying, empathizing, kindness, being considerate, being social, helping those in need and the ability to distinguish between right and wrong.

Hindu Religious Education

HRE offers an opportunity to learn main four religions from India. HRE in the Lower Primary level is a continuation of the knowledge acquired at Early Years of Education. HRE is an integration of four faiths: Hinduism (Sanatan/Vedic), Sikhism, Buddhism and Jainism.

The teaching of HRE in **Lower Primary** level aims to continue nurturing faith in Paramatma and recognising self-awareness and understanding social obligations and responsibility to the immediate environment, community, nation and the world. HRE enables learners to enjoy learning by doing and living through practising the values taught.

The Competency Based Curriculum for HRE provides avenues for holistic physical mental, emotional and spiritual growth for learners. It enables them to develop personal beliefs while appreciating the beliefs of others. HRE also covers pertinent and contemporary issues in society such as children's rights, life skills and community service.

HRE is anchored on collaborative learning, according to ***Vygotsky's*** *social cultural development theory,* ***Gardner's*** *Multiple Intelligence theory,* ***Piaget's*** *Cognitive Development Theory.*

HRE provides an opportunity to enhance spiritual and social growth along with acquiring requisite competencies in line with the Competency Based Curriculum.

Movement and Creative Activities

This learning area encompasses art, craft, music and physical education activities. The learner is equipped with basic knowledge, skills and attitudes that will enable him or her to express self 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 learning area aims at giving the learner an opportunity to think for oneself and articulate his or her thoughts through creativity and collaboration. This helps the learner to think for oneself and develop critical reflection skills.

Middle School Education

This level comprises three years of upper primary and three years junior secondary education as illustrated in Figure 4.

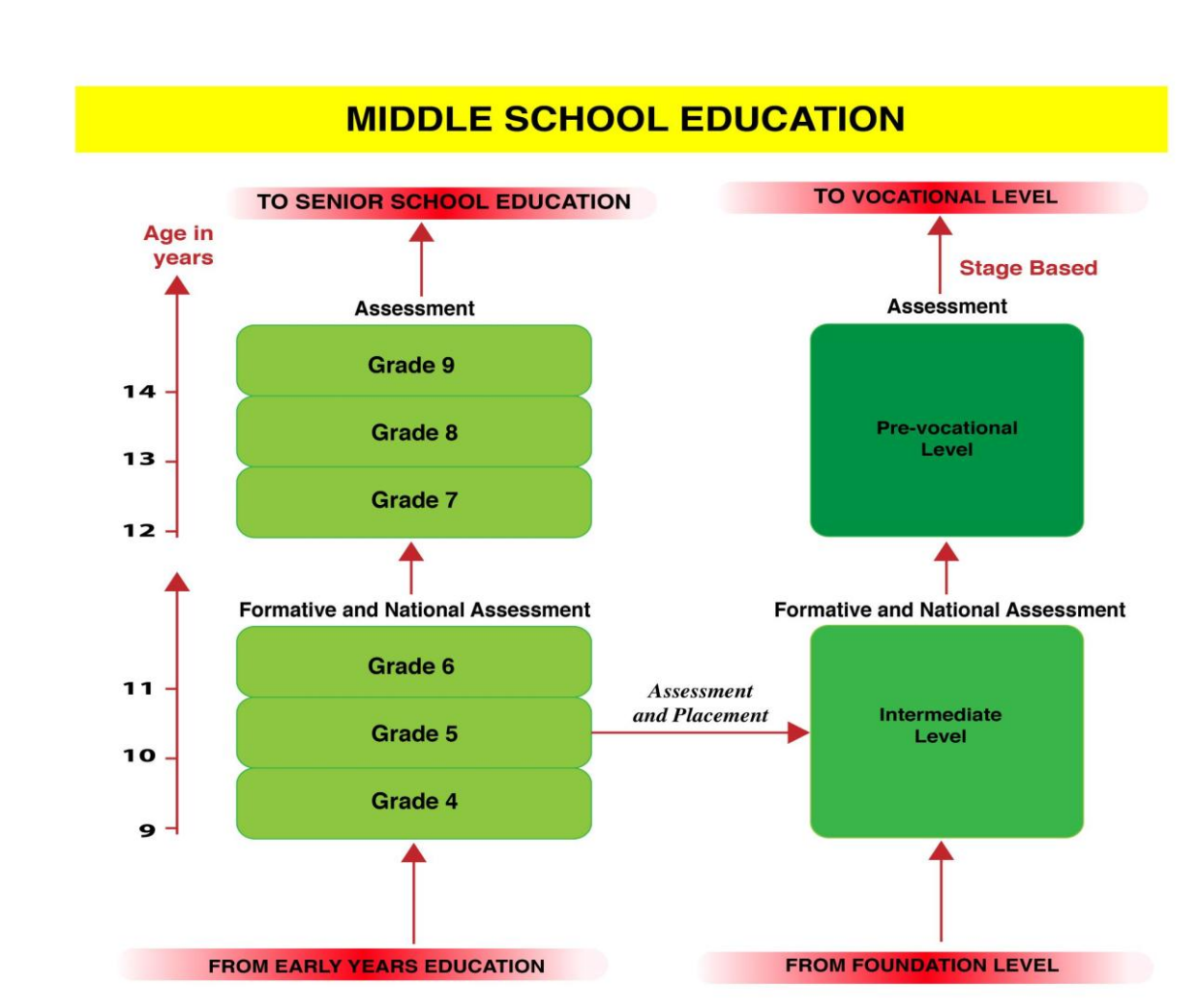

Figure 4: Middle School Education Structural Model

Learning Outcomes for Middle School

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

1. Apply literacy, numeracy and logical thinking skills for appropriate self-expression.
2. Communicate effectively, verbally and non-verbally, in diverse contexts.
3. Demonstrate social skills, spiritual and moral values for peaceful co-existence.
4. Explore, manipulate, manage and conserve the environment effectively for learning and sustainable development.
5. Practice relevant hygiene, sanitation and nutrition skills to promote health.
6. Demonstrate ethical behaviour and exhibit good citizenship as a civic responsibility.

7. Appreciate 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 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.

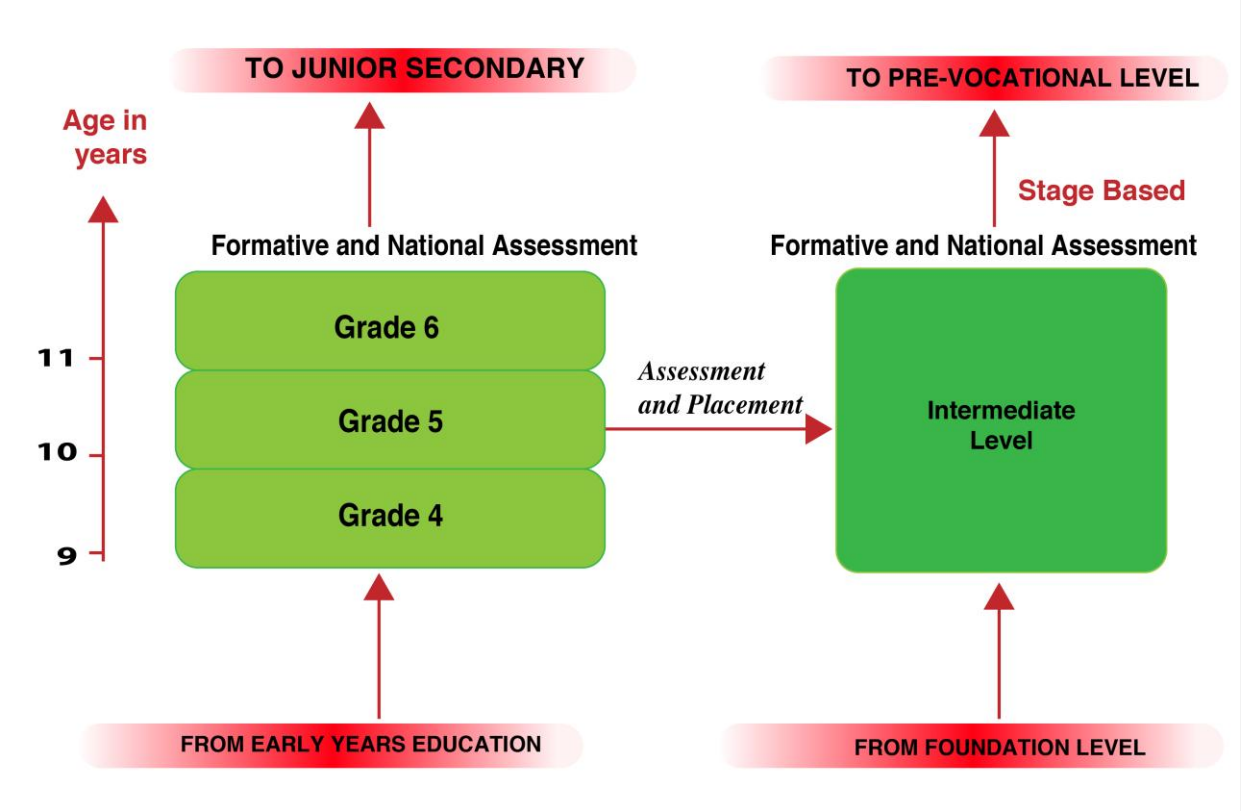

Figure 5: Upper Primary Structural Model

Learning areas for Upper Primary

1. English
2. Kiswahili or Kenya Sign Language
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)
12. Indigenous languages
13. Kenyan Sign Language
14. Braille literacy

NB

- ICT is cross cutting in all learning areas.
- Pertinent and contemporary issues and life skills are mainstreamed in all learning areas.
- A pastoral program of instruction is conducted once a week.

Essence Statements for Upper Primary School

Kiswahili or Kenyan Sign Language

The learning of Kiswahili or Kenyan Sign Language is a continuation from lower primary. The grammar component in these languages is further developed so that reading and writing skills are enhanced. By the end of the level, the learners are expected to be 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 are exposed to higher order knowledge, skills and attitudes on language development. They are given opportunity to enhance their reading and writing skills to enable them communicate effectively in English.

English is the main language of education, information, trade, diplomacy and social networking. It is an official language in Kenya but most importantly, the medium of instruction in schools from Grade Four. English is the key to the realisation of the National Goals of Education, the link to the global community and the door to the worldwide information network. Therefore, the Kenyan education system should inculcate, in the learner, proficiency in English through the curriculum.

During upper primary, English is learnt as a second language. Learners are engaged in tasks that enhance the acquisition and progressive application of English language skills. Emphasis in the presentation of the four language skills and grammar is to ensure they are functional. The learner also experiences the interdependence of the competences across the four language skills, and

finds the relevance of what they learn in their day-to-day contexts. Varied English language activities in Grades 4, 5, and 6 enrich learning and empower learners to apply acquired language competences at the national and global levels. This foundation enhances learning in junior secondary school.

Indigenous Languages

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. The language skills acquired in lower primary as well as positive attitudes and behaviours towards learning are further developed. Having been exposed to concrete language activities and basic reading and writing skills in lower primary, learners' thought processes are more mature. According to Piaget they are capable of solving problems in a more logical manner at this level. Provision of a rich and supportive environment further enhances the development of their potential in indigenous language learning.

In addition, learning in a language they are already familiar with gives learners the required confidence to participate more actively in the learning process and think critically as well as imaginatively. The knowledge and skills acquired at this level support further cognitive and learning development at junior secondary level, where learners are expected to advance their learning in the indigenous language. It lays a foundation for specialisation 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 and, clothing and textiles. At this level, the learner is exposed to basic knowledge, skills and attitudes on planning, preparing and cooking healthy foods in order to prevent and manage illnesses. Other components include First Aid, aspects of personal hygiene and good grooming, managing adolescence, and needlework among others. Emphasis is put on practical aspects in order to develop good personal habits. The subject builds on the knowledge, skills and attitudes that were introduced in lower primary under hygiene and nutrition and environmental activities. Home science also forms the foundation for development of higher competencies in junior secondary subjects of home science and health education.

Agriculture

Kenya requires competent work force for its agro-based economy. Agriculture as a learning area builds on competencies introduced in lower primary Early Years Education under environmental activities in an effort to contribute to human capacity development. The learning experiences involve active learner participation conducted through practical and experiential learning activities to develop applicable competencies for sustainable agriculture. The curriculum focuses on developing skills for production of indigenous and exotic crops and domestic animals through innovative agricultural practices and use of limited resources to enhance food security. The acquired knowledge, skills and attitudes form a foundation for development of agricultural competencies for junior secondary and beyond.

Science and Technology

Science is a study of the natural world; it is the mother of invention. Kenya's Vision 2030 envisages an industrialized and knowledge based economy and therefore science is 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 is introduced in science at this level. This enables learners to prepare for Science, Technology, Engineering and Mathematics (STEM) in subsequent levels of the education cycle. This subject builds on the competencies introduced at lower primary level in the environment activities. The learning experiences adopt an inquiry based learning approaches 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.

In upper primary, mathematics builds on the competencies acquired by the learner in the area of mathematical activities at lower primary. It enhances the learner's competencies in numeracy as a foundation for STEM in higher levels of the education cycle.

Religious Education

In upper primary level, religious education (CRE/IRE/HRE) serves to impart morals, ethics and values at a deeper level. This builds on the competencies introduced in lower primary in the integrated subject of religious, moral and life skills activities. The knowledge, skills and attitudes fostered here help the learner to cope with the challenges of life. Emphasis is 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 for 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 the knowledge, beliefs and values of the learner.

a) Islamic Religious Education

Islamic Religious Education aims at fulfilling the constitutional requirement of providing an enabling environment for learners to grow spiritually and morally. This learning area provides competencies (skills, attitudes and knowledge) drawn from seven broad areas namely Qur'an, Hadith/Sunnah, Pillars of *Iman* (Faith), Devotional Acts, *Muamalaat* (Social relations), *Akhlaq* (Moral values) and History of Islam. It prepares learners to grow as responsible citizens who are at peace with Allah (S.W.T), self, others, and the environment. Learners interested in this learning area may aspire career paths as scholars of Islamic studies, judicial officials (*Kadhi*s), and spiritual leaders. The Qur'an and the *Sunnah* (practices of Prophet Muhammad (S.A.W.) form one of the key frameworks in facilitating learning in this area, in addition to the Vygotsky's Social Cultural Theory which finds parallels with the prophetic concept of *fitra* (pure state of being).

b) Christian Religious Education

This learning area builds on the competences introduced in early years of Education. It enhances the learner's understanding and belief in God Almighty as the creator of the universe through His revelation to mankind and salvation through Jesus Christ His Son. Further, the learner is firmly grounded in the Christian faith by reading the Holy Bible and practising its teachings through the guidance of the Holy Spirit. The life approach method is used, this implies that the teacher begins the lesson by exploring the experiences of the learner and guiding him or her to discover the religious significance of those experiences in relation to the Christian faith. The knowledge, skills, attitudes, moral and ethical values acquired will help the learner to cope with day to day challenges in his/her life.

This is in line with constructivist theory and it involves making links between learner's own experiences, needs, interests, questions and beliefs by engaging in collaborative and co-operative problem-solving activities. Hence this learning area, endeavours to develop a God fearing, responsible, assertive, honest and obedient Christian learner. Additionally, the learner will be able to make sound day-to-day choices and to develop harmonious relationships by practising the teachings of Jesus Christ.

c) Hindu Religious Education

Hindu Religious Education (HRE) is a study of four faiths, Hinduism (Sanatan/Vedic), Sikhism, Jainism and Buddhism.

The teaching of Hindu Religious Education (HRE) in middle years aims at nurturing faith in Paramatma, developing family values and holistic wellness. Enhancing belief systems, religious tolerance, virtues, observance of civic laws and development of global citizenship.

HRE is anchored on collaborative learning, according to ***Vygotsky's*** *social cultural development theory,* ***Gardner's*** *Multiple Intelligence theory,* ***Piaget's*** *Cognitive Development Theory.*

HRE provides an opportunity to enhance spiritual growth along with acquiring requisite competencies in line with the Competency Based Curriculum.

Creative Arts

Creative arts 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 active pursuit of artistic goals. At this level, the learner is exposed to more in-depth 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 is on an experiential, participatory approach that gives learners an opportunity to articulate their thoughts through creativity and collaboration. The learner is thus adequately prepared to transit to junior secondary level.

Music

Music learning promotes the transmission of diverse cultural knowledge and expressions in both formal and non-formal settings in education. Dewey's social constructivism theory backs this learning area and it posits that learning should be experiential, participatory and arise from the learners' interests.

The learning area is organized in three strands namely: Performing, Composing/Creating, Listening, Responding and Appreciating. These are the fundamental music processes that humans engage in. Since music learning is cumulative in nature, the spiral approach will be used where progressions of learning opportunities in all the three strands will be achieved by building on the learning experiences from previous levels.

Learning experiences are structured to develop learners' creativity and to nurture their functional aesthetic sensitivity. Music offers learners enjoyable and purposeful experiences through singing, playing instruments, moving to and creating music which will enable the learner to acquire musical skills as well as cultural knowledge. Music literacy (learning to read and write music) will equip the learner with skills to explore music independently and with others.

It is expected that music knowledge skills, values and attitudes will help the learner to develop the core competencies in basic education in order to produce an engaged, empowered and ethical citizen.

In line with emerging trends in learning, appropriate technologies will be integrated to enhance the learning experience. Overall, the learner will be equipped with prerequisite music knowledge skills and attitudes to achieve their potential and fully participate in a diverse and global society.

Physical and Health Education

Physical and Health Education (PHE) aims at enabling the learner to acquire relevant practical knowledge, skills, values and attitudes for functional life. PHE is in tandem with the Visible Learning Theory where learners need to think about and solve problems, work in teams, communicate through discussions, take initiatives and bring diverse perspectives to their learning. It also takes cognizance of Vygotsky's social construction theory, which postulates that learning takes place within the social environment. In it the learner negotiates meanings through interacting, both explicitly and implicitly, with the teacher, peers and materials embedded in the context (BECF 2017). This learning area provides developmentally appropriate activities that promote health and movement skills which enable the learner to apply their mental, emotional and social skills. Thereafter, the learner is prepared for participation in specific games and sport as well as pursuing a healthy lifestyle.

The learning area is further designed to develop the learner's creativity and nurture sports talent in the achievement of full potential. Through PHE the learner is empowered to acquire values and core competencies embed in CBC, thus becoming an engaged, empowered and ethical Kenyan citizen.

Social Studies

The National Council for 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 subject provides opportunities for the learner to develop an understanding of the environment and participate effectively in its activities. The learner appreciates the changing environment and gains 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. The subject is 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. Foreign language learning is a dynamic, developmental process which engages learners' minds and emotions. Thus, from the early stages of learning, it requires them to reflect on their heritage as they explore languages and develop personal ways of responding to linguistic and cultural differences. At the same time, learners begin to develop a

range of skills for making meaning from situations, texts and technologies. They learn new forms and patterns of language and discover new ways in which sounds, symbols, non-verbal cues and meanings are linked and organised. Foreign language learning therefore enables learners to engage with new ways of thinking, questioning and interpreting the world.

Braille Literacy

Braille is the main medium of reading and writing for learners with blindness. It provides opportunities for the learners to access abstract information through touch. Braille reading and writing skills are important for learning and development of competences and allow learners to learn the other subjects offered at this level of learning. The use of assistive devices and technologies has been included to enhance learning through braille.

Secondary Education

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

Junior Secondary

Graduates of primary school Grade 6 shall join junior secondary at Grade 7. Junior secondary exposes learners 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 are introduced to the optional subjects offered at upper primary so as to make informed choices at Grade 7. Learners in junior er secondary undergo a rigorous career guidance programme and are exposed to the related learning areas to enable them make informed choices as they transit to senior school.

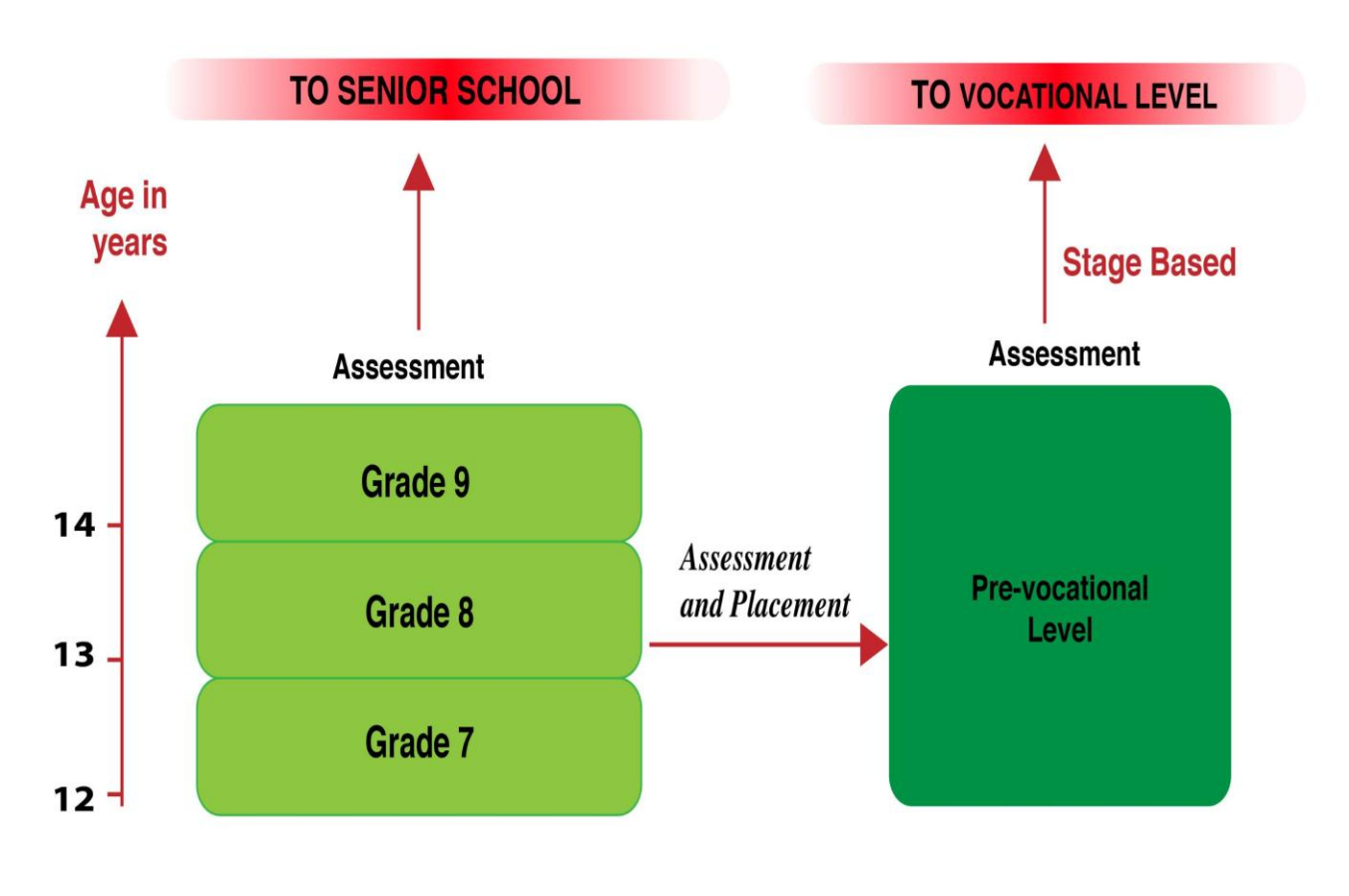

***Figure 6: Structure* of** Junior **Secondary**

Subjects for Junior Secondary School

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

Core Subjects

Learners are required to take the 12 core subjects provided:

1. English
2. Kiswahili or Kenyan Sign Language
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
12. Sports and Physical Education

NB: ICT is 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 Junior Secondary School

The following are statements that give the rationale for inclusion of the subjects in junior 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 junior 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 builds on the competencies acquired at upper primary level in listening, speaking, reading, writing and grammar.

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

The subject lays a firm foundation for the learners' efficient and effective use of the English language, both as a communication tool and as the medium of instruction at senior school. It is a stepping-stone for further study of English and/or literature in English.

Kiswahili

Kiswahili is both a national language and one of the official languages of the Republic of Kenya (Constitution of Kenya, 2010). Different communities across Kenya use different languages. There is a need for a unifying language and Kiswahili is this language. All citizens should learn it. 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 junior secondary level, both grammar and literature are offered as a single subject. The subject builds on what learners have learned at primary level and forms a sound foundation for the future pursuit of both grammar (lugha ya Kiswahili) and literature (fasihi ya Kiswahili). The subject gives 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, borrowing from a variety of genres, the subject exposes the learner to basic literary appreciation skills in Kiswahili thus preparing the learner for further study in Kiswahili at senior school.

Kenyan Sign Language

Kenyan Sign Language is an official language as acknowledged by the Constitution of Kenya. It 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 largely depends on an individual's proficiency in the signs. This subject exposes the learner to both knowledge and skills in the use of Kenyan Sign Language. At the end of this level, the learner is 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 get opportunities to develop communicative competence in Kenyan Sign Language by having varied experiences in observing, signing, reading, writing and grammar. They are expected to interact with language and materials in both the classroom and other settings through field visits, interaction during school clubs and societies, excursions, drama festivals, and through computer aided language learning. Learners are also expected to develop a culture of reading, critical, imaginative and creative thinking skills through exposure to various genres of literature. The study of Kenyan Sign Language, therefore, not only prepares learners who are deaf for communication but also for the world of work and for further study in the language.

Mathematics

We apply Mathematical concepts 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, learning mathematics equips learners with computation and problem solving skills as they build on competencies acquired at upper primary level. Useful mathematics includes all forms of numerical and physical measurements such as counting, length, mass, capacity and time. More importantly, mathematics assists learners to develop logical reasoning to enable them make rational decisions. 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 sciences, 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, indigenous technology and innovation.

Concepts are presented as units within which there are specific topics that 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.

Integrated science is taught through inquiry based learning approaches with emphasis on hands-on teaching and learning activities. The content for this area is 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. Many respondents, as indicated in the Needs Assessment Survey (KICD, 2016), also highlighted the introduction of health education in the curriculum. Health education therefore focuses on promoting healthy living practices and preventing diseases and disorders.

As a discipline at junior 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 are equipped with basic first aid knowledge to enable them to handle common accidents.

The learning of health education adopts the constructivist theory of learning approach where learners are given opportunities to construct knowledge through discovery, research and free exploration. Through inquiry based learning learners are 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 in order to specialize in engineering, 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, hairdressing 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 junior 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 are 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 prepares 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 also provides 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, provides learners with opportunities to develop collaboration, critical thinking and problem solving, imagination, citizenship, learning to learn and self-efficacy competencies. It prepares the learner for the social science pathway in senior school. The subject provides the foundation for the learner to pursue further education in education, law, social work, sociology, psychology, political science, geography and prepares the learner to further his or her career in fields such as community development, diplomacy, work in local and international NGOs, regional and international organizations, anthropology, archaeology, and geology.

Christian Religious Education (CRE)

At junior 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 also incorporated. Learners are 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 help the learner to cope with the challenges of life. Emphasis is put on aspects of religion that help learners appreciate their own and other's beliefs. 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 (HRE)

At junior 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 are provided with opportunities to practice the four types of fundamental qualities – spiritual, moral, mental and social. The knowledge, skills and attitudes gained 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. HRE

provides opportunities for logical thinking and self-expression among other competencies laying a firm foundation for senior school.

Islamic Religious Education (IRE)

The teaching of IRE aims 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 is expected to have an impact on the actual behaviour of the learner. He or she should likewise develop himself or herself, and the community and live a happy and successful life in this world and the hereafter. The learner is also 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

At junior secondary business studies is offered as an integrated subject laying emphasis on entrepreneurship, financial education, record keeping in business and ICT in business. It equips 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 junior secondary level is 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. By learning Agriculture, the learner develops competencies in communication and collaboration, critical thinking and problem solving, creativity and imagination, learning to learn and self-efficacy.

The curriculum prepares the learner for the immediate application of agricultural skills to solve contemporary food security challenges and develop 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

Life Skills aims 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 Life Skills 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). Life skills also equips the learner with psychosocial competencies and interpersonal skills that are expected to enable 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.

Sports and Physical Education

Sports and physical education incorporates some of the experiences gained in upper primary but also brings in new knowledge and information 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 with 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 is laid on an experiential, participatory approach that will give the learner an opportunity to articulate their thoughts. Through creativity and collaboration, the learner is equipped with knowledge, skills and attitudes that help him or her create artworks both for aesthetic and functional purposes. This subject lays a foundation for visual art at senior school.

Performing Arts

Performing arts offer the learner a platform to use musical instruments, voice and movement for artistic expression. The curriculum integrates 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 intelligences 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 is expected to develop the ability to express ideas and feelings artistically.

Learners should be allowed opportunities to 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 lays 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 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 include home science. Home science has therefore been included in the junior 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 junior secondary level.

Computer Science

Computer science is the study of computers and algorithmic processes, including their principles, hardware and software designs, 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, filled 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.

Braille Literacy

Braille is the main medium of reading and writing for learners with blindness. It provides opportunities for the learners to access abstract information through touch. Braille reading and writing skills are important for learning and development of competences and allow learners to learn the other subjects offered at this level of learning. The use of assistive devices and technologies are included to enhance learning through braille.

Foreign Languages

The business world needs individuals with requisite skills in a foreign language 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 learning at junior secondary builds on the linguistic competencies developed at upper primary. Language instruction at this level focuses on further development of the four basic language skills; listening, speaking, reading and writing. Applied grammar, culture and contextual topical content are the vehicles through which the four skills are developed. The learner is expected to listen and respond appropriately to varied materials, read and write a variety of texts, and demonstrate functional writing skills.

The foreign language curriculum progressively develops in the learner the ability to communicate in the target language in defined contexts. Emphasis is on the functional use of language as well as acquisition of the necessary oral and written communication skills to operate in diverse situations.

Learners have opportunities to develop public speaking and creative writing skills through collaborative activities designed to elicit critical thinking as well as sharpen creative abilities. Oral and written work 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 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.

Other instances for practicing the foreign language skills come in the form of engagement in music and drama festivals, exchange or twinning programmes, club activities, school based and international language cultural days, writing 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.

Indigenous languages are optional. Learners are exposed to various forms of cultural expression such as literature, arts, traditional celebrations, information mass media and publications. This is through field trips to places rich with appropriate resources and activities. Learners are also provided with opportunities to participate in programmes and visits to radio and television stations (using indigenous languages) 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 at this level is a prerequisite for learning in indigenous language at senior school.

Information Communication Technology

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. Learners 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 helps them see how to get the best from the systems they use, and how to solve problems when things go wrong. Moreover, learners are able to think in computational terms, 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 filled by computation, every school-leaver should have an understanding of computing.

Senior School

Senior school comprises three years of education for learners in the age bracket of 16 to 18 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 "**engaged, empowered and ethical citizens**" ready to participate in the socio-economic development of the nation.

At this level, learners are ready to specialise in a career path of choice since they have had opportunities to explore their own potential, interests and personality. The specialisation entails choosing to pursue studies in one of the three pathways available in senior school namely:

1. Arts and Sports Science Pathway
2. Social Sciences Pathways
3. Science Technology Engineering and Mathematics (STEM) Pathway

Senior schools are institutions of specialisation that provide opportunities for learners to focus in a field of their choice to form a foundation for further education and training and/or gain employable skills. The schools should 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 is necessary to strengthen the involvement of parents in this process.

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. 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.

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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 mission of '**nurturing every learner's potential**'.

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 requires the provision of a broad based curriculum and pathways that allow individual learners to pursue careers that are relevant. This facilitates individual development and self-fulfilment as learners are equipped with practical skills that make them employable or facilitate self-employment. The National Education Sector Plan (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 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 learners 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 learners 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 and is designed to prepare learners 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 learners choose to go to either a lukio (high school), which is an institution preparing learners 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.

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 the curriculum reform, 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 7.

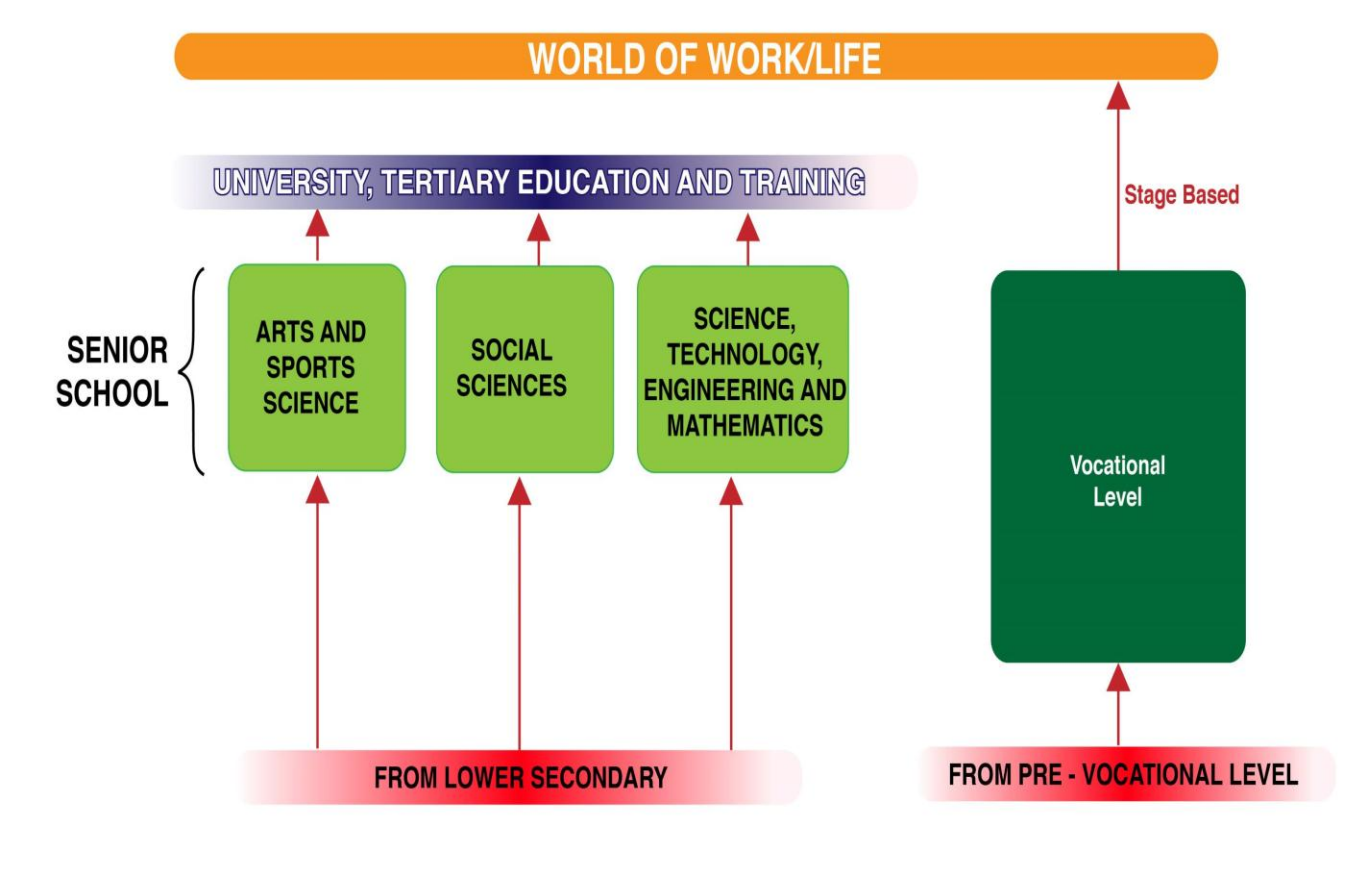

Figure 7: Pathways for Senior School

In each pathway there are various tracks as shown in figure 8. Schools can also decide to offer one or more tracks in the pathway depending on the ability to acquire the infrastructure necessary for acquisition of the identified competencies.

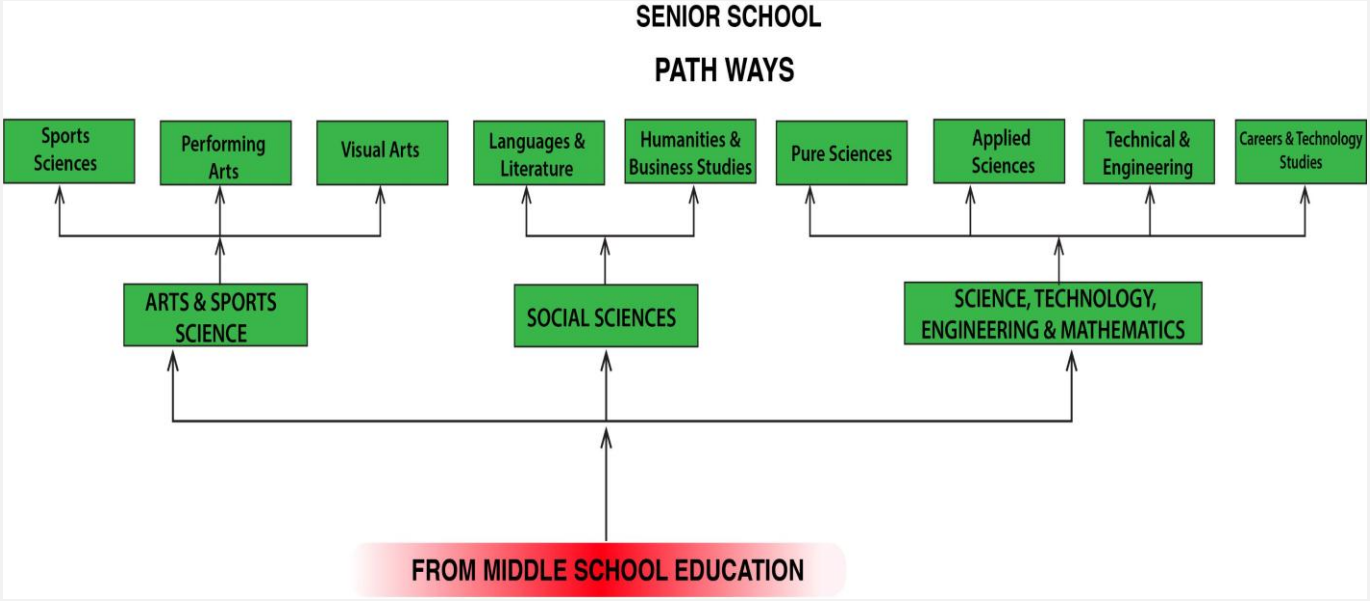

Figure 8: Tracks in the Pathways

Learners are expected to carry out community based projects in all subjects at senior school. The project is part of the formative evaluation.

Arts and Sports Science Pathway

The Arts and Sports Science pathway provides opportunities for self-realisation and expression as well as for individual development and fulfilment. It is envisaged that about 15% of learners in senior school will take up this pathway (Appendix 1). Learners will build on the skills already acquired at junior secondary. This is based on Bruner's constructionist theory that learners construct new ideas or concepts based upon existing knowledge. The learning environment should 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 learners' interests and should be hands-on and experience based.

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

Arts provides opportunities for a learner to choose a career 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. The study of arts contributes to the development of motivation and confidence, imagination and innovation and the use of creative and dynamic ways of thinking and knowledge construction. These skills enable the learners 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 is 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. It is envisaged to have about 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. It also involves choreography.

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 about 5% of learners will take up this track. The track 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 is laid on an experiential, participatory approach that gives learners an opportunity to articulate their thoughts through creativity and collaboration. Overall, the learner is equipped with knowledge, skills and attitudes to create artworks both for aesthetic and functional purposes. Ultimately, the learner gains competencies to undertake visual and applied arts at the tertiary level.

1. Sports Science Track

Sports science uses some of the knowledge gained from junior secondary school. It is expected that about 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 enables learners 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. Advanced physical education can be taken in combination with Mathematics that is in Pure Sciences.

The career openings in the sports science track are in self-employment and employment. These include instructor, physiotherapy, sports coach, sports nutritionist, sports massage therapist, personal trainer, gym attendant, fitness program co-ordinator, swimming pool attendant, coaching, lifesaver, researcher, physical therapist, referee, athletic trainer, stadia manager, sports nutritionist, sports masseur, teacher, aerobics and anaerobic trainer, sports journalist, 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 has 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 vision of an 'engaged, empowered and ethical citizen'.

Vygotsky suggests that social interaction leads to continuous systematic 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 learners 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 Literature, Humanities and Business Studies Tracks.

1. Languages and Literature

The importance of language and literature learning cannot be overemphasized and the curriculum lays great emphasis on learning 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 is participatory and activity-based.

The languages and literature subjects are anchored in Vygotsky's social-cultural development theory, which posits that learners negotiate meanings with people in the environment. They achieve goals through interacting with teachers, peers, materials, either explicitly or implicitly in any given context. Another theory that greatly informs 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 is geared towards achieving the aforementioned competencies.

2. Humanities

Humanities are a group of academic disciplines. They 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 systematic 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. It is important to study humanities for 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 will enrol about 8% of the learners entering senior school (see Appendix 1). The humanities track provides a variety of disciplines that enables learners to choose a career path in areas of their interests and abilities. Learners are expected to choose a combination of subjects in line with their career choices.

a. Business Studies

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

Business studies at senior school level equips the learner with critical competencies that are globally accepted for the subject. These include:

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

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. In order to achieve the desired economic growth, social development and political maturity, high priority is placed on the development of human capital through education and training in Science, Technology and Innovation (ST&I) related areas.

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 enable them join the world of work, self-employment or further education and training.

The Commission of Inquiry on Public Service Structure and Remuneration (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 for 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 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 is based on the constructivism theory of learning.

Constructivism is a philosophy of learning that was founded by Jean Piaget and it emphasizes the importance of the active involvement of learners in constructing knowledge for themselves. Learners are thought to use background knowledge and concepts to assist them in their acquisition of information. To design effective teaching environments, constructivists believe that 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 for 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 learners to investigate using experiential, teamwork 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 learners in learning through discussions and debates. Learners 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 learners 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 learners 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 learners to work with and analyse (Devries and Zan, 2003). Therefore, since STEM subjects are mainly practical in nature, constructivist theory is used to develop a curriculum which is competency based, one which promotes exploration in learners and inculcates critical thinking, innovation and problem solving skills.

Tracks in the STEM pathway

1. Pure Science

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

This track is offered in about 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, learners 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 junior 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 is offered in about 12% of all senior schools (see Appendix 1). This percentage is 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 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 junior secondary in the areas of mathematics and integrated science as well as agriculture, health education and home science. It equips learners with the knowledge, skills and attitudes necessary for advanced careers in applied sciences offered in middle level colleges and universities.

Learners graduating from this track are 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 may also be able to join the world of work where they can 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 prepares learners to graduate with a senior school national certificate that will open the following career opportunities for them:

1. Enrol directly into a university for a degree in science related courses.
2. Enrol into middle level colleges for a diploma in science related fields.
3. Join the world of work through apprenticeship.

3. Technical and Engineering

Technical and Engineering 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 are expected to collaborate with employers who 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 are to prepare learners with foundational skills in applied sciences and modern technology. Emphasis is 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 is offered in about 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 learners 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 workforce to drive 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 junior 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.
Learners graduating from this track at senior school will have acquired skills that qualify them to either join the industrial sector and work under experienced personnel or join a technical training institution or university to pursue courses in engineering and technology.

4. Career and Technology Studies (CTS)

Career and Technology Studies (CTS) provides learners with the opportunity to acquire workplace skills and knowledge. A learner who joins the CTS track is 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 employment opportunities. CTS equips learners with knowledge, skills, attitudes and competencies that are a prerequisite for the learner either to join

the world of work or pursue further training in tertiary institutions. 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, learners 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 learners (The Malaysian Education System, 2015). In Switzerland nearly two thirds of those entering upper secondary education enter the vocational education and training system. Learners spend some of their time in a vocational school, some of their time doing an apprenticeship at a host company, and for most programmes, learners go to industry training centres to develop complementary practical skills relating to the occupation at hand.

The CTS pathway is offered in about 25% of all senior schools (see Appendix 1). This percentage is based on the 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. 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 junior 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.

A graduate of the CTS track is awarded dual certification, that is, a Certificate for completion of grade 12 and an Artisan equivalent Certificate. Graduates are therefore eligible to join industries to work under the guidance of experienced persons to acquire on the job skills. They are also eligible to pursue further training in middle level colleges as a prerequisite to joining university. Career opportunities include areas such as beauticians, plumbers, welders, tailors, chefs, electricians, caterers, mechanics, fire fighters and tour guides.

The objectives of the CTS programme are:

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

Justification for CTS

The field of CTS is new and an underutilized learning pathway in Kenya. The practical learning experiences provided in CTS programmes appeal to many learners 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).

Modern careers are increasingly demanding higher levels of education, training and skills from the workforce and this has led to increased expectations for CTS. In Kenya, the government is investing in CTS through funding of training organizations and subsidizing apprenticeship or traineeship initiatives in industry. This strengthens 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 prepares learners to graduate with Artisan equivalent qualifications at senior school that will enable them to make any of the following career choices:

1. Enrol into a Vocational Training Centre (VTC) for a craft course in their areas of specialization which will qualify them for a diploma in the same area and later they can join a university for a degree.
2. 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 course.
3. 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 or later on at a time of their choice.

The STEM curriculum is developed together with the industries with which learners are expected to engage. Furthermore, STEM schools will 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

The learner takes two core subjects provided, irrespective of the pathway identified:

i) Community Service Learning

ii) Physical Education

1. Arts and Sports Science Pathway

The Arts and Sports Science Pathway has three tracks; Visual Arts, Performing Arts and Sport Science. In all the tracks, the learner is expected to learn core subjects as well as choose options.

a) The Arts

Core subjects

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

Optional Subjects

The learner is required to take one of the following subjects:

i) Performing Arts
- Music
- Dance
- Theatre and Elocution

ii) Visual and Applied Arts
- Fine Art
- Applied Art
- Time Based Media
- Crafts

b) Sports Science

Core subjects

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

Optional Subjects

The learner is required to take 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 provides a variety of disciplines that 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 is required to 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

NB: Mathematics offered in this track is the same as that of pure sciences track.

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 (STEM)

The STEM pathway is offered in 60% of senior schools. It therefore takes about 60% of the learners entering senior school from junior secondary. The pathway has four tracks: pure sciences, applied sciences, technical and engineering and Career in Technology Studies (CTS).

a) Pure Sciences

Core subjects

- Community Service Learning
- Physical Education
- ICT

Optional

The learner is required to select a minimum of three from the following subjects:

- Mathematics
- Physics
- Chemistry
- Biology

b) Applied Sciences

Core Subjects

- Community Service Learning
- Physical Education
- ICT

Optional

The learner is required to 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
- Chemistry/Biological Sciences
- Physics/Biology/Physical Sciences

Optional

The learner is required to 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 is required to **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

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

Community Service Learning (CSL)

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 CSL as a compulsory subject to all learners.

Community Service Learning is "a form of experiential education where learning occurs through a cycle of action and reflection as learners... seek to achieve real objectives for the community and deeper understanding and skills for themselves. In the process, learners 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 creates 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 also enables the learner to interact with their community in order to learn from it. This not only develops in the learner employability skills but also promotes personal growth by forging strong and productive relationships with the community. CSL also provides 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. The community also benefits from the learners' participation in community work.

Community Service Learning covers aspects of citizenship, entrepreneurship, financial literacy, life skills, communication skills and research. Citizenship equips 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 provides the learner with competencies required for developing, organizing and managing a business venture while financial literacy equips them with competencies for saving, investing and insuring resources. Life skills education focuses on developing values such as respect, responsibility, fairness and justice, caring, honesty, courage, diligence and integrity. Topical issues are skewed towards the learners' areas of study, for example, learners in the Talent Pathway concentrate on the life skills required for related careers. Communication skills is emphasized through the different subjects learnt. The learner is required to carry out a research related project in an area of specialisation and interest based on all the mentioned aspects. The project forms part of formative evaluation and is carried out throughout the subject.

Learners are also expected to carry out 135 hours of community service throughout their three years in senior school, outside of classroom time. Learners are provided with a logbook designed by KICD where members of the community overseeing the community service sign against the hours served. This logbook forms 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 builds on the knowledge, values, skills and attitudes that learners have already acquired in the performing arts subject at junior secondary level. Learners explore new avenues in music. 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 provides 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 learners' interests and should be hands-on and experience based. Music at this level encourages learners 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 results 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, self-control, reliability, hard work, endurance and management skills as they engage in creative and collaborative activities in music.

This subject enables learner to pursue further education at tertiary level, prepare them for employment and lifelong enjoyment of and participation in music. Graduates of music can work as composers, recording studio technicians, singers, accompanists , cultural activities organizers, adjudicators, arrangers, artist managers/directors, music producers and editors, music therapists, band directors, clinicians, choral directors, composers, film scorers, educators, music web producers, music publishers, columnists, concert promoters, choreographers, music teachers and rehearsal directors.

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 learners' 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 is offered as an area of specialization in order to nurture a learner's talent in dance under the Arts and Sports Science 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 is provided with opportunities to build on the skills acquired from junior secondary in performing arts related to dance. The learner is provided with opportunities to develop competencies in choreography, performance, appreciation and dance etiquette through an experiential and collaborative process. This enables the learner to develop the ability to communicate and express ideas and feelings effectively through dance.

The subject enables 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 prepares learners for further learning at tertiary level, enjoyment and serves as an opportunity for learners to nurture and develop their talents. It also prepares them for employment and contribution towards the creative economy. Learners that study dance can work as artistic directors, choreographers, dance therapists, physical therapists, rehearsal directors, dancers, composers/musicians, and dance teachers.

Theatre and Elocution

Theatre and elocution at senior school focuses on building the competencies already developed in performing arts subject at junior secondary school. The learner has 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 focuses on expressing the human experience through role, action and tension, played out in time and space. Learners are 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 offers learner a platform to develop self-confidence, creativity and innovation, and problem solving as well as communication skills. This is done with the intent of preparing them to pursue professional subjects at the higher level and/or for 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 in areas such as school drama festivals, county substance abuse awareness days and religious meetings.

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 for experiential and participatory learning that arises from the learners' interests. They are equipped with knowledge, skills and attitudes that help them create artworks through creative self-expression. Learners acquire competencies that prepares them for specialization at the tertiary level. Graduates of fine art can pursue careers related to illustration, fabric decoration, ceramics, sculpting and print making.

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 equips the learner with knowledge, skills and attitudes that help them design everyday utilitarian items using aesthetic principles. The experiential and participatory learning approaches that are adopted are in line with Dewey's social constructivism theory. Learners acquire competencies that prepare them for specialization at tertiary level. Graduates of applied arts can pursue careers related to interior design, landscaping, flower arrangement and graphic design.

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 include film, video and radio production. This subject equips learners 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 is adopted in order for learners to acquire competencies that prepare them for specialization at tertiary level.

Crafts

Crafts refer to art skilfully done by hand often in a traditional way. In doing this, learners source ideas from material culture peculiar to Kenya and the East African region. However, in line with growing trends, learners are introduced to digital crafts as a way of enhancing the quality of the finished products in line with the crafts industry. This subject equips learners with knowledge, skills and attitudes that help them create artworks inspired by indigenous artistic techniques using locally available materials. In so doing learners employ research skills to investigate the material culture of Kenyan communities. As such, experiential and participatory learning approaches are adopted in line with Dewey's social constructivism theory. Learners acquire competencies that 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. 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 develops learners' social skills such as reliability, conflict resolution, confidence, positive self-image, hardwork, dedication to task, self-control, and teamwork. These skills and more are developed and strengthened as learners solves problems, interact with others and accomplish set goals.

Boxing

The boxing discipline is introduced at the senior school. As an individual sport, boxing requires perseverance, speed, agility, power, endurance, and decisive mental toughness. The boxing curriculum focuses 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 are developed and strengthened as learners solve problems, interact with others and accomplish set goals.

Gymnastics

Gymnastics is a largely individual sport that requires flexibility, strength, power, mental focus, discipline, balance, dedication and endurance. Learners are exposed to vaulting, bars routines, beam routines and floor works among others. Involvement in gymnastics develops learners social skills such as time management, reliability, conflict resolution, confidence, positive self-image, hard work, dedication, consistency, self-control and determination**.** The skills developed are also strengthened as learners solve problems, interact with others and accomplish set goals.

Water Sports

The water sports curriculum focuses 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 develops learners' social skills such as positive self-image, self-control, reliability, conflict resolution, confidence, hard work, dedication, consistency, and determination. These skills are developed and strengthened as learners solve problems, interact with others and accomplish set goals.

Indoor Games

Indoor games curriculum focuses on various games such as table tennis, badminton, bowling, chess, and squash. The skills 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 builds social skills 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 are developed and strengthened as learners solve problems, interact with others and accomplish set goals.

Martial Arts

The curriculum focuses on 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 focuses on basic, intermediate and advanced skills in martial arts. Martial arts subject develops in learners the ability to remain focused, discipline, determination and respect for authority and one's opponent. Learners improve their social skills such as self-

control, confidence, reliability, conflict resolution, positive self-image, hard work and dedication to task. These skills are developed and strengthened as learners solve problems, interact with others and accomplish set goals.

Outdoor Pursuits Education

The curriculum in outdoor pursuits education focuses 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. Outdoor pursuits education develops in learners social skills such as resilience, hard work, self-control, reliability, conflict resolution, confidence, positive self-image, dedication, consistency, and determination. These skills are developed and strengthened as learners solve problems, interact with others and accomplish set goals.

Advanced Physical Education

The curriculum in advanced physical education focuses 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. Advanced physical education develops in learners social skills such as confidence, time management, positive self-image, dedication, and determination. These skills are developed and strengthened as learners solve problems, interact with others and accomplish set goals.

Athletics

The curriculum in athletics focuses on areas such as track and field events, horizontal and vertical jumps, and cross-country running. It emphasizes on techniques and strategies used in athletics, advanced drills, coaching, refereeing, facilities and equipment management, and first aid, among others. Athletics develops in learners a sense of hard work, discipline, dedication to task, independence, self-control, time management, confidence, positive self-image, and teamwork. These skills are developed and strengthened as learners solve problems, interact with others and accomplish set goals.

History and Citizenship

History and citizenship is an integrated learning area that combines aspects of history and citizenship. History as a discipline enables learners to understand the development of the modern world. Citizenship at this level focuses on the world beyond the learner's immediate experience.

It enables learners 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 learners 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 provides 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 at the Senior School will build on competences acquired at junior 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 use 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 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 is practical and culturally responsive to the natural and human phenomena; 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 "Learners 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 enhances peaceful and harmonious co-existence. Learners are 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 support learning in this area include participating in religious festivities, reciting Bible verses, visits to church, reciting prayers, singing Christian songs and dancing.

Islamic Religious Education (IRE)

The teaching of IRE aims at enabling learners to acquire Islamic knowledge and morality and inculcate values that enables them to make appropriate decisions in life in accordance with Islamic principles and obligations. They develop themselves, 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) and History of Islam and Muslim scholars. It is expected that learners are able to participate with confidence and satisfaction in religious functions and develop their 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)

HRE serves to impart morals, ethics and values at a deeper level. Learners are provided with opportunities to practice the four types of fundamental qualities: spiritual, moral, mental and social. The knowledge, skills and attitudes helps learners to cope with the challenges of life. Emphasis is on aspects of religion that help learners appreciate themselves and others, including others' religious beliefs and values. Non-formal programmes that support learning in this area include visiting worship places, participating in religious festivities and community service. HRE 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. The subject exposes learners to various forms of language use in the areas of listening, speaking, reading and writing, and grammar. Learners are 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 resource persons.

At the end of the subject, learners are expected to have attained a high proficiency in the use of the English language. This prepares 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 learners' awareness of the relationship between literature and society. This subject introduces learners to in-depth literary appreciation through exposure to varied literary works from different regions of the world. Learners are 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 meanings 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 learners' creative and literary imagination and development of the appreciation of literature.

Learners engage in non-formal activities to enhance learning that 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 prepares learners for the world of work and for a career path in fields such as publishing, journalism, teaching, marketing, advertising and public speaking.

Lugha ya Kiswahili

Lugha ya Kiswahili aims at producing experts in the Kiswahili language. It exposes learners 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 is therefore a continuous demand for teachers, journalists, translators and researchers in the language.

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

Learners are prepared to use of Kiswahili in communication in the world of work especially in entertainment, authoring, translation and public speaking. In addition, the subject prepares them for further training in fields such as journalism, authoring, teaching, language, translation and public speaking.

Fasihi ya Kiswahili

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 comprises both oral and written aspects of literature and promotes unity among people from different cultures; thereby contributing to national cohesion and integration. The subject exposes learners 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 have an opportunity to see the world differently and develop an interest in authoring works of literature. The market for such works is huge, with the East African community recognising Kiswahili as the language of the region.

Learners are given an 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 learners 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 (KSL) is invaluable for our existence as it is an important tool for communication and socialization. The aim is to impart in learners the knowledge, skills and attitudes that enables them to use KSL efficiently and effectively, and to communicate confidently both locally and internationally. The subject is introduced to learners who are not deaf that have interest in the language. KSL exposes learners to various forms of language use in the areas of observing, signing, reading, writing, and grammar. Learners are 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 are expected to have attained high proficiency in the use of KSL. This not only prepares them for the world of work, for example 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, Mandarin, French and German, however, this selection may increase depending on the needs of the country. Emphasis is on general competencies in the target language that learners accomplish tasks in defined contexts and for the purposes specified.

The learner is exposed to a wide variety of listening and reading material, both literary and non-literary to further develop their linguistic abilities. Through research learners explore and develop deeper awareness, understanding and appreciation of other cultures. Self-directed learning is 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 is 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 develops 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 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 intellectual development occurs when speech and practical activity converge; when meaningful learning is achieved (Vygotsky & Cole, 1978). Learners therefore are 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 strengthens positive attitudes and behaviour towards extensive and intensive reading in indigenous languages in anticipation of the successful discovery of information. The learner is also exposed to multiple ways to access information in order to improve learning.

This inspires 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 therefore is added advantage to the learner.

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

Mathematics

Mathematics is a subject that supports other subjects and is therefore tailored for learners who intend to specialize in advanced sciences, technical and engineering subjects in tertiary institutions. 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 therefore, provides the learner with a firm foundation to pursue subjects in STEM related areas. Furthermore, the subject enables 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

Physics is applied in exploring the laws and rules that govern all natural and physical 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 learner 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 in expanding learners' knowledge and values, and their ability to apply the required scientific skills in solving problems encountered in their day to day experiences. The learner is 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 learners for further training in the real world of work by providing career opportunities in various engineering 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 are 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.

The subject provides the learner with knowledge, skills and attitudes in biology necessary for application in daily life. Learners therefore, study content related to themselves as living things, plants and animals as well as the environment in which they live. They also build relevant knowledge, skills and attitudes necessary for further education and training in related careers. The learner is therefore provided with opportunities to develop competencies to apply and maintain their health, their family, their community and their environment for sustainable development.

Information Communication Technology (ICT)

Information Communication Technology (ICT) deals with the purposeful application of computer systems to solve real-world problems particularly in daily activities. The learner should be able to understand and play an active role in the digital world that surrounds them. Learners also enjoy the use of ICT and therefore should be given an opportunity to use it in learning. ICT is also used as a tool for learning in other subjects. This is in line with the core competency of digital literacy.

Computer Science

Computer Science is the productive, creative and explorative use of technology which deals with specification and installation of hardware and software, and the evaluation of their usability. A sound understanding of computing concepts helps the learners 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 are 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.

Foods and Nutrition

Foods and nutrition aims at equipping learners with skills to use modern principles of science in food production and safety. Foods and Nutrition as a subject 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.

Learners who pursue this subject are 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 are also 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 provides 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 are 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, laundry work, 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.

Schools offering home management are 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 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 as outlined in Kenya Vision 2030. The subject focuses on crop and livestock production, fisheries, value addition and entrepreneurship. The subject prepares the learner for immediate application of agricultural skills to solve contemporary food security challenges and develop appropriate attitudes towards farming. The subject also forms a basis for conceptualizing a career in agricultural related fields.

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 covers agricultural principles and practices, entrepreneurial farming skills and related environmental care. It prepares 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 also prepares the learners for further education, training and employment in agriculture related fields.

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

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

Geosciences Technology

Geosciences technology is 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 is 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 junior 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.

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

Marine and Fisheries Technology

Marine and fisheries technology deals with things relating to the sea, rivers, lakes and ships and this subject equips learners with skills in these areas. 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. Learners 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.

It equips learners with knowledge, skills, attitudes and values which are a pre-requisite to pursuing further training and careers in marine and fisheries related fields.

Aviation Technology

Aviation Technology is the practical aspect of aeronautics, being the design, development, production, operation and use of aircrafts. 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 needs to 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. The subject equips learners with knowledge, skills, attitudes and values which are a prerequisite for pursuing further training in tertiary institutions or join the world of work through apprenticeship. The learner is prepared to pursue related careers such as wood science technology, carpentry and joinery, building construction, and manufacturing. The learner is also 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 devices involve the use of electrical current to operate, making electrical energy the main factor in defining electrical technology.

Electrical technology involves the design and production of electrical systems, as well as installation, testing and maintenance of these systems. This subject equips the learners with competencies of diagnosis, installing and repairing electrical equipment. It provides the learners with knowledge, practical skills, attitudes and values to enable them handle and use electricity and electrical appliances competently.

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. Learners who successfully complete this programme 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 study of making 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 equips learners with knowledge, skills, attitudes and values which are a prerequisite for the learner to either pursue further training in tertiary institutions or the world of work through apprenticeship.

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 programme incorporates industry and common core standards thus increasing the learner's qualifications and opportunities for successful employment. This subject lays the foundation for careers in mechanical engineering and the manufacturing sector.

Power Mechanics

Power mechanics involves the use of energy to move machines and engines so that work can be done. The subject 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. Learners in this field are details oriented, enjoy working in hands-on environments and are 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 learner can seek 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.

Learners taking clothing technology acquire comprehensive insights and skills in 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 learners ideally for executive management positions in the fields of pattern construction and product management. The clothing technology subject trains learners in the highly diverse and versatile range of technical and business administration tasks in the clothing industry.

The 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. Learners 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 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 subject prepares learners 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. Learners 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. Learners learn about the tools and techniques used in the construction industries. Learners gain relevant skills in air conditioning technology, building and apartment maintenance, carpentry, electrical technology, heavy equipment sciences, masonry and plumbing. Learners are introduced to building methods and materials.

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 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.

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 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 the need to introduce this subject 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.
Electronics Technology is a specialized area that has more focus on application, theory, applied design, and implementation, while electrical engineering may put more emphasis on theory and conceptual design. Electronic engineering technology is the largest branch of engineering technology and includes 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 or join the world of work through apprenticeship.

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 study, through the application of new technologies enhances the future of learners by providing them with competencies that are nationally recognized by industry. Manufacturing technology teaches learners 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 opportunities 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 study gives learners the technical aptitude to become highly productive and to grow both personally and professionally. The manufacturing technology programme offers industry recognized artisan

certification. Each learner must pass both a technical knowledge and a technical performance assessment as proof that they have the skills required by 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 mechanics and electronics; 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 secondary level education and is one of the subjects that promotes industrialization in line with Vision 2030.

Mechatronic learners can 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 enables the learner to gain hands-on real life experience in fashion and interior designing and construction. Learners are 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 covers 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 also looks at business aspects of the textiles, clothing and interior design industries and address varied cultures and changing global trends. The study area stimulates creative expression in all aspects of fashion and interior design, including sketching, creative design, computer applications, draping, and pattern drafting. Included in fashion design is the creation of original clothing, accessories, and footwear.

The subject enables the learner to pursue further education and training in careers in fashion and interior designs and also enables them to be employed. Learners are 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 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. 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 learners an introduction to the three stages of synthesizing raw leather into finished products. These are preparatory, tanning and crusting stages.

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 can 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 as raw materials to other countries.

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 learners can find excellent placements in garment, leather and jewelry industries as merchandising executives, fashion designers, illustrators and fashion coordinators.

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 equips learners with skills relevant to the planning, preparing and presenting of meals for various occasions and in settings such as hotels, restaurants and institutions.

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 are 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 dressing 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.

This subject is made up of practical and theoretical components relevant to the hair and beauty industry, preparing learners for employment or further study. The subject is structured to provide a solid grounding of specialist skills based learning alongside practical experience of working in a salon or similar environment. Learners have the opportunity to attend trips to industry exhibitions and enter competitions to develop their creativity. The subject includes an element of work experience and project work within relevant local industries.

Learners learn in public and private salons during their work experience. They not only practice their skills on models, they also 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 are 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.

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. Some of the career opportunities available 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 addresses this shortage. 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 that involves movement of people from one place to another 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 opens up more opportunities for young people and expand the tourism and travel sector, bringing in more income and creating wealth for the country.

Learners who study tourism and travel prepare for an exciting career that provides an opportunity for employment within various sectors of the tourism industry. Learners network with industry partners and benefit from guest speakers, trade shows, conferences, and career fairs. The tourism and travel study 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.

The study includes areas such as installation and maintenance, design principles, refrigeration gas, pipe work and brazing and essential refrigeration electrics. The learners 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 conditions. 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 learners in this area acquire hands on skills that open up employment opportunities for them in the industry and also prepare them for employment activities in animal keeping. Some of the 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 like lighting conditions are also modified.

Landscaping requires expertise in horticulture and artistic design and varies according to different regions. Therefore, local nature 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 art and practice of transforming the outdoor space to carter for different lifestyles and individual tastes. 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.

Building Construction

Construction is the process of putting up 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.

Large-scale construction requires collaboration across multiple disciplines. An architect normally manages the project, 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 used 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.

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.

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.

Carpentry and Joinery

Carpentry and joinery as a subject involves 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.

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 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.

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.

Land Surveying

Land surveying equips learners with knowledge, skills, attitudes and values that enables them to 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.

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 the learner with knowledge, practical skills and attitudes to enable the learner handle and use electricity and electrical appliances competently. It also prepares the learner to pursue careers in electrical engineering and provides skills useful in 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

The curriculum provides learners with the necessary skills and techniques for standard, everyday science laboratory work. It also enables the learner 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 subject prepares learners for employment in chemical, biological, and associated science laboratories in educational institutions, where they support

science teachers, lecturers and learners. 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 equips the learners with knowledge and entrepreneurial skills for electronic technician work.

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 a method 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.

The printing technology curriculum requires the school to partner with relevant industries. The content involves practical hands on activities and classroom work. Learners learn to operate digital printing machines and perform printing works. They also learn to create and print digital graphics using modern printing technology. The learners are also 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. Studying crop production prepares learners 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.

Opportunities for work are available 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 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.

Competency-Based Curriculum for Learners with Special Needs

The Basic Education Curriculum Framework gives provision for an inclusive competency-based curriculum that is responsive to the needs of all learners. This is in line with the principle of differentiated learning and flexible curriculum which gives learners with special needs the opportunity to achieve their fullest potential at their own pace based on their ability.

The special needs education curriculum model illustrated below indicates curriculum provision for learners with special needs.

Special Needs Education Curriculum Model

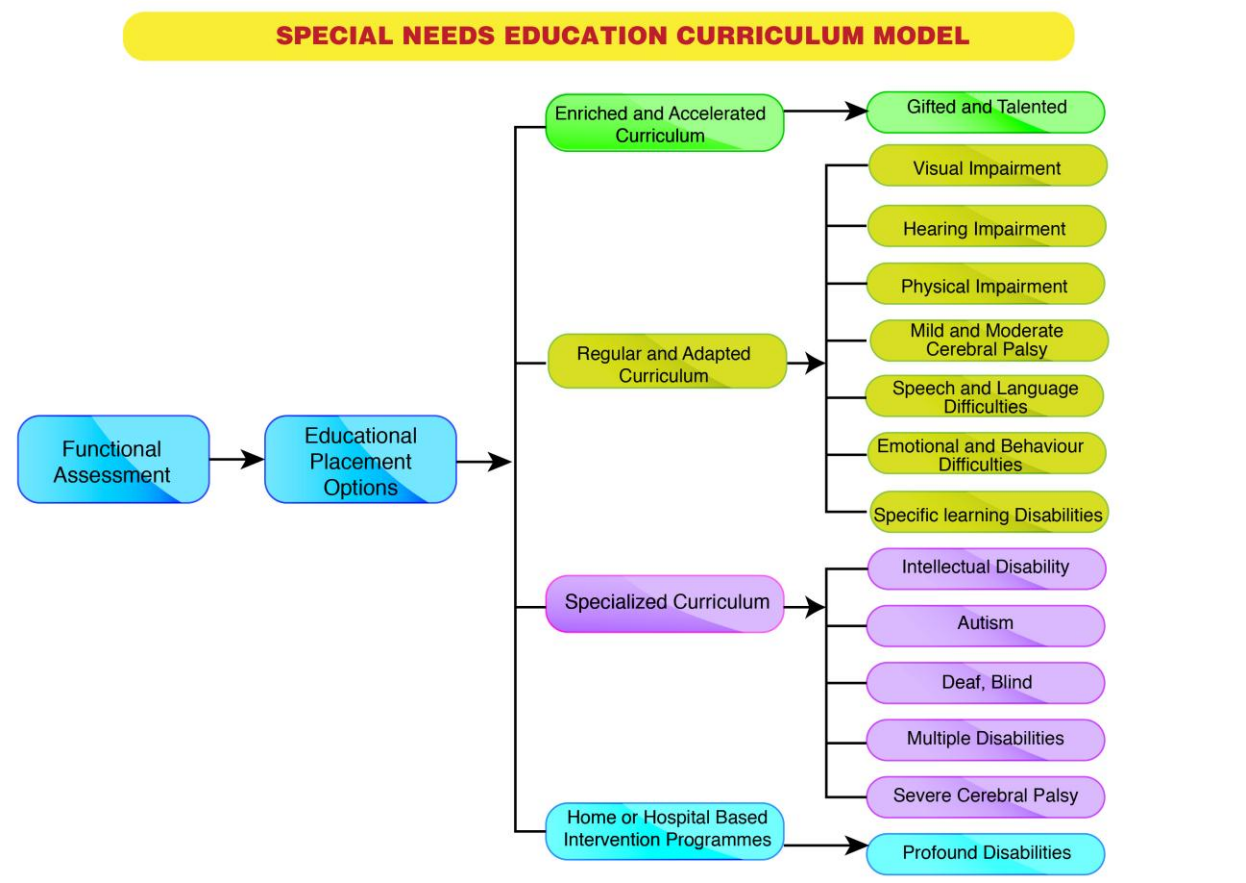

Figure 9: Special needs curriculum model

Curriculum Provisions for Learners with Special Needs

The Education Sector Policy for Learners and Trainees with Disabilities (2018) recognizes Inclusive Education as an overarching principle that advocates for the rights of every child with Disability to be enrolled in regular classroom with necessary support. The Policy also recognizes the important role of other placement options such as Special Schools and Units or Home and Hospital Based Programmes. Hence after functional assessment, learners with special needs may be placed in the regular schools, special schools, special units, home-based or hospital-based programmes.

Figure 10 shows the Curriculum provisions for learners with special needs in the Competence Based Curriculum.

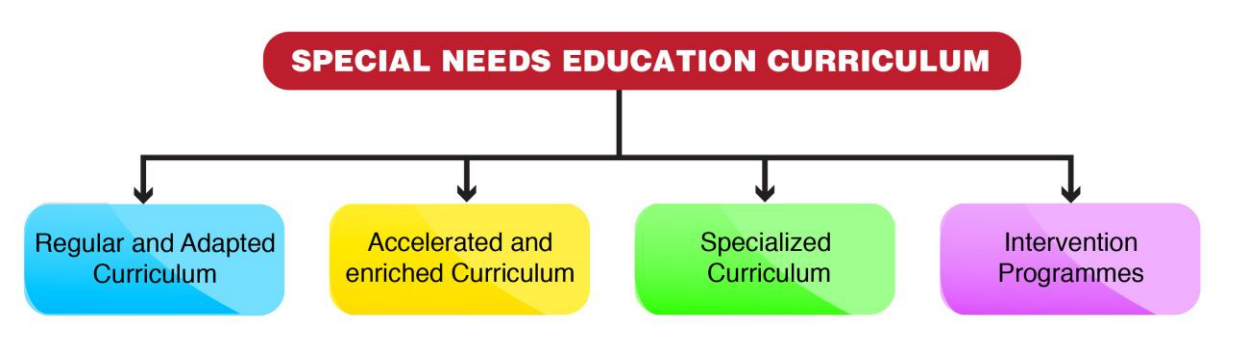

Figure 10: Curriculum provisions for learners with special needs (to be reviewed)

Differentiated Competency-based Curriculum will be provided to learners with special needs in the following modalities.

1. Regular Curriculum with adaptations

Curriculum adaptation is the process of adjusting the existing curriculum to meet the diverse needs of learners with special needs. Some learners with special needs may follow the regular curriculum with little or no modification at all. However, for some of the learners to access the regular curriculum, adaptation may be necessary. Adaptations may include the modification or substitution of curriculum content, removal of some content area, and the adaptation of learning outcomes, strategies, resources and assessment.

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

i. Visual Impairment
ii. Hearing Impairment
iii. Physical Impairment
iv. Mild and Moderate Cerebral Palsy
v. Specific Learning Disabilities
vi. Emotional and Behavioural Difficulties
vii. Language and Speech Difficulties

2. Accelerated and enriched curriculum

The curriculum reform recognizes differentiated learning as one of the key guiding principles. The competence-based curriculum provides opportunities for learners who are gifted and talented to realize their full potential by providing educational programmes that are responsive to their needs, abilities and interests. Differentiation of curriculum for learners who are gifted and talented involves enrichment of content by providing additional or advanced content, resources and assessment. Acceleration on the other hand is a strategy that allows a learner who is gifted and talented to progress through school at a faster than usual rate and/or younger than typical

age. Forms of acceleration include subject acceleration, grade skipping, early entry, telescoping and radical acceleration

3. Specialized curriculum

Learners with special needs who may not follow the regular curriculum include those with intellectual disability, deafblindness, autism, severe cerebral palsy, multiple and profound disabilities. The purpose of education for these learners is mainly to enable them acquire daily living skills, basic academic and work related skills for independent living. The Basic Education Curriculum Model provides a different pathway for these learners which is stage-based rather than age-based. Their curriculum is organised into 4 levels namely Foundation, Intermediate, Pre-vocational and Vocational levels. Transition from one level to another should depend on demonstration of outcomes at a given level.

4. Intervention Programmes

Learners with profound disabilities are usually homebound, bed-ridden or hospitalized. They are often looked after by unqualified caregivers or unskilled parents. Intervention programmes are developed to guide the teachers, parents and caregivers in providing appropriate training and care for these learners.

A. Foundation Level

This is the entry level for learners with special needs who follow the specialized curriculum. After functional assessment and placement, education intervention begins at this level.

Learning Outcomes for the Foundation Level

By the end of the Foundation Level, the learner should be able to:

a) demonstrate basic literacy and numeracy skills for learning;
b) communicate appropriately using verbal and or non-verbal modes in varied contexts;
c) demonstrate appropriate etiquette in social relations;
d) apply basic creativity and critical thinking skills in problem solving;
e) explore the immediate environment for learning and enjoyment;
f) practice hygiene, nutrition and sanitation to promote health and wellbeing;
g) demonstrate the acquisition of emotional, physical, spiritual aesthetic and moral development for balanced living;
h) demonstrate appreciation of the country's rich and diverse cultural heritage for harmonious co-existence;

Learning Areas for the Foundation Level

The following learning areas will be offered at the foundation level:

1. Communication, Social and Pre-Literacy Skills
2. Activities of Daily Living Skills and Religious Education

3. Sensory Motor and Creative Activities
4. Orientation and Mobility
5. Pre-Numeracy Activities

Essence Statements for Foundation Level

Communication, Social and Pre-Literacy Skills

Communication, social and pre-literacy skills play an integral role in acquisition of knowledge, skills and attitudes in all learning areas. Communication skills enhance social interaction and also provide a foundation for pre-literacy skills. A deliberate initiative should thus be applied through a multi-sensory approach to enhance verbal and or non-verbal communication.

Activities of Daily Living Skills and Religious Education

Activities of daily living skills enable the learner to develop personal care skills for independent living, explore the environment and manage behaviour. Additionally, religious education activities enable the learner to acquire knowledge of God, appreciate God's creation and develop desired values.

Sensory Motor and Creative Activities

This learning area involves sensory integration skills, psychomotor and creative activities. Sensory integration equips the learner with skills of identification, organization and interpretation of sensory information. Psychomotor activities help the learner to develop gross and fine motor abilities while creative activities develop learner's skills of self-expression, imagination and creativity.

Orientation and Mobility

Orientation and mobility skills enable the learner to move independently and safely within the environment. The learner is equipped with skills to use various parts of the body in exploring the environment; use assistive and corrective devices appropriately and attain body posture.

Pre - Numeracy Activities

Pre-numeracy refers to early development of numeracy concept to learners. It helps in developing a positive attitude about numeracy at an early age. Learners with special educational needs require numeracy skills for day to day functioning and problem solving. Pre- numeracy skills shall provide learners with basic numeracy concepts as a pre-requisite to acquisition of functional arithmetic skills and problem solving.

B. Intermediate Level

After a learner demonstrates outcomes at the foundation level, they transit to the intermediate level.

Learning Outcomes for The Intermediate Level

By the end of the Intermediate Level, the learner should be able to:

a) communicate appropriately using verbal and/or non-verbal modes in a variety of contexts;
b) demonstrate literacy and numeracy skills for learning;
c) demonstrate appropriate etiquette in social relationships;
d) apply creativity and critical thinking skills in problem solving;
e) explore the immediate environment for learning and enjoyment;
f) practice hygiene, nutrition, sanitation, safety skills to promote health and wellbeing;
g) demonstrate the acquisition of emotional, physical, spiritual, aesthetic and moral development for balanced living;
h) demonstrate appreciation of the country's rich and diverse cultural heritage for harmonious co-existence;
i) apply digital literacy skills for learning and enjoyment.

Learning Areas for the Intermediate Level

The Intermediate Level Curriculum covers the following learning areas:

1) Communication, Social and Literacy Skills
2) Daily Living Skills and Religious Education
3) Sensory Motor Integration
4) Environmental Activities
5) Numeracy Activities
6) Creative Activities
7) Psychomotor Activities

Essence Statement for Foundation Level

Communication, Social and Literacy Skills

Communication skills play an integral role in the acquisition of knowledge, skills and attitudes in all learning areas. Learners with special needs may require techniques that supplement or take the place of speech that is non-functional. Reading and writing skills have far reaching implications on the learner's functional ability for independent living and learning while interpersonal and intrapersonal skills are important for sound social interaction.

Daily Living Skills and Religious Education

Daily Living Skills (DLS) are a series of basic activities performed by individuals on a daily basis necessary for self-care and independent living at home or in the community. Common DLS include feeding, bathing, dressing, grooming, toileting, home care, and leisure. Daily living skills enable the learner to develop personal care abilities and acquire skills to explore the immediate

environment for independent living. It also enables the learner acquire religious values to acknowledge and appreciate God as the creator.

Sensory Motor Integration

Sensory motor integration refers to the relationship between the sensory and the motor system and how they communicate and coordinate with each other. This learning area provides the learner with skills of identification, organization, interpretation, coordination and execution of information. It includes skills necessary for sensing body position in space and the use of two or more sensory modalities to perceive and react to stimuli in the environment.

Environmental Activities

Environmental activities learning area entails the study of human interaction with his physical and social surroundings. The learning area is designed to equip the learner with competencies to live and participate effectively at home, in the school environment and the community. It enables the learner to care for, explore and move about in the environment while observing safety.

Numeracy Skills

Numeracy is the ability to reason and apply simple number concepts. It nurtures the power of reasoning, creativity, problem solving and builds confidence through which the learner realizes their full potential in personal and social life. Numeracy skills will enable learners with special needs at intermediate level to acquire the concepts and skills in numbers, measurement and geometry.

Creative Activities

Creative activities learning area comprises art, craft and music. This area enables the learner to acquire knowledge and skills to express talents, enhance creativity, flexibility and acquisition of expressive skills. It also strengthens speech and language development, thereby making learning more enjoyable. The competences acquired lay a foundation for development of pre-vocational skills.

Psychomotor Activities

This learning area involves locomotor, non-locomotor activities, manipulative skills, games and sports. Psychomotor activities enable the learner to develop talents, spirit of sport and its values, fine and gross motor abilities for physical fitness, health and recreation.

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. The specialized curriculum at the pre-vocational level, which is predominantly skill-based prepares learners with disabilities for basic work skills. At this level, learners are introduced to the pre-requisite skills in various vocational areas to enable them identify their abilities and interests in a given field.

Learning Outcomes for Pre-Vocational Level

By the end of Pre-Vocational Level, the learner should be able to:

a) demonstrate basic pre-vocational skills using local materials;
b) express himself/herself through manipulation of varied materials;
c) transform raw materials into functional and aesthetic form;
d) handle safely varied materials and tools/equipment in production of articles of aesthetic and functional value;
e) develop creative ability to enhance productivity;
f) appreciate the use of raw materials in production of functional items for economic development:

Learning Areas for the Pre-Vocational Level

Learning areas for this level are as follows:

1. Pre-vocational skills
2. Communication and social skills
3. Daily living skills
4. Mathematics Activities
5. Music and movement
6. Religious education
7. Physical education
8. Hygiene, nutrition and safety
9. Entrepreneurship

D. Vocational Level

After the learner's interest and aptitude in specific skill areas have been identified at the Pre-Vocational Level, the learner is placed appropriately at the Vocational Level where they are introduced to various vocational skills. Vocational skills are geared towards helping individuals to acquire competencies that are required for entry into an occupation.

Learning Outcomes for Vocational Level

By the end of Vocational Level, the learner should be able to:

a) demonstrate appropriate work habits for optimum productivity:
b) apply vocational skills to daily life;
c) acquire adequate life skills to cope with challenges of life;

d) apply entrepreneurial skills and technological innovations in varied contexts;
e) communicate effectively using verbal or/and non-verbal modes:
f) Observe personal hygiene and safety in the work environment;

Learning Areas for the Vocational Level

Organization of the Vocational Curriculum

The vocational skills curriculum comprises curriculum designs in various vocational areas. The course will constitute five core learning areas and one elective vocational area.

The following are the core learning areas:

1. Health and safety
2. Mathematical activities
3. Entrepreneurial skills
4. Communication, social and literacy skills
5. Religious education
6. Physical education

The elective areas include:

1. Dress making
2. Tailoring
3. Embroidery
4. Knitting
5. Crocheting
6. Horticultural farming
7. Ornaments and modelling
8. Animal husbandry
9. Hair dressing and beauty therapy
10. Weaving
11. Leather work
12. Carpentry and carving
13. Building and construction
14. Food preparation
15. Care of the home
16. Candle making
17. Soap making
18. Paper craft
19. Metal work

Digital literacy should be integrated in all learning areas.

Note: Some learners may be exceptionally talented in only one specific skill area. Curriculum provision for these learners should mainly focus on developing the identified skills.

Talent areas for learners with special needs who are exceptionally talented may include:

1. Performing Arts
2. Visual Arts
3. Sports

Home and Hospital Based Programme

This programme targets learners with profound disabilities or severe health conditions. These learners may benefit from specialized intervention programmes which should be implemented by parents or care givers with the support of EARC officers or special education teachers.

The programme shall include:

1. Basic skills in self-care
2. Hygiene
3. Communication
4. Social skills
5. Sensory integration skills
6. Therapy
7. Mobility and motor skills
8. Role of parents and guardians
9. Advocacy

Time Allocation

For learners with special needs who follow the specialized curriculum, 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

Pertinent and Contemporary Issues (PCIs) facing the society are included in the curriculum and the curriculum support materials. Identification and consideration of PCIs for incorporation into the curriculum is based on the following:

a) The Summative Evaluation of the Curriculum (KIE, 2009);
b) Situational Analysis on the level and application of Life Skills among learners in primary and secondary schools in Kenya (2007)
c) Monitoring Report on the Implementation of Life Skills Education in Learning Institutions (2012);

d) 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);
e) Situational Analysis on the Implementation of Emerging Issues in Learning Institutions (2014),
f) Content Analysis Report on the Current Curriculum on Emerging Issues (2015);
g) Recommendations from the Curriculum Reform Needs Assessment Survey (2016);
h) Report of the Assessment on the Status of the HIV and AIDS Education in Learning Institutions (2016);
i) Desk review reports on other relevant national and international documents and practices on PCIs.

Pertinent and Contemporary Issues (PCIs) have been classified into three broad areas as follows:

No.	Broad area	Pertinent and Contemporary Issues
1.	Health Related Issues	HIV and AIDS, alcohol and drug abuse prevention and lifestyle diseases
2.	Life Skills and values Issues	Life skills, Values and human sexuality
3.	Social Economic Issues	Environmental, disaster risk reduction, safety and security, countering terrorism, violent extremism and radicalization, poverty eradication, gender and animal welfare

PCIs are not taught in isolation but are mainstreamed in the three dimensions of the curriculum: the formal, non-formal and informal. Inclusion of PCIs in the curriculum gives learners opportunities to acquire knowledge, skills and values that enable them to address salient and challenging issues in their lives and communities.

Matrices on PCIs are developed to provide guidance on the logical sequencing and the scope of concepts and competencies to be mainstreamed in each learning area and other non-formal programmes. Learning ought to be experiential, with an inquiry based approach and anchored on values and psychosocial competencies for character formation.

Learner Support Programmes

In order to achieve the aspiration of the Basic Education Curriculum and support learning, a number of programmes have been developed. These programmes include Non-Formal Programmes, Values-based Education, Parental Empowerment and Engagement and Citizenship.

Non-Formal Programmes

Non- formal programmes are any organised, structured and systematic learning activities and essential services which support acquisition of the academic curriculum, values and promotion of psychosocial wellbeing. According to the KICD Act of 2013, the Institute is expected to develop, review and evaluate non-formal programmes in learning institutions. Non-formal Programmes are meant to supplement the formal dimension of the curriculum. These programmes entails Guidance services, Career Guidance, Counselling, Clubs and Societies, sports and games, mentorship and peer education, discipline for positive behaviour change, children's government, students' government and chaplaincy services. The programmes equip learners with knowledge, skills, attitudes and values necessary for creating a knowledgeable, responsible, adaptive, motivated, creative and innovative individual.

Values based Education (VbE)

The term value can be defined as standards that guide an individual on how to respond or behave in a given circumstance. They influence how we feel, act and make choices in life. The term is often used interchangeably with principles, ethics, moral code, morals, standards, code of behaviour. Values shape one's feelings and the way decisions are made. Teaching values will facilitate the achievement of the curriculum reforms, vision, particularly with respect to moulding ethical citizens.

In Kenya today, there is ample evidence of a values and behavioural crisis. This crisis cuts across all age groups. Thus, young people are growing up without role models possessing the desired values, positive attitudes and psychosocial competencies in order to emulate and become socially functional. Values are critical in the country's socio-economic development in the same way as learned competencies. Parents and teachers have a collective responsibility in teaching and nurturing values in children. It will also enable learners to value diversity in all people.

Article 10 of the Kenya Constitution (2010) offers a basis for the country's national values. The supreme document provides for 17 national values and principles of governance. These are patriotism, national unity, sharing and devolution of power, rule of law, democracy and participation of the people, human dignity, equity, social justice, inclusiveness, equality, human rights, non-discrimination, protection of the marginalized, good governance, integrity, transparency and accountability and sustainable development. According to the Constitution, it is imperative that the State Department responsible for education develops and incorporates

values into the curricula at all levels of education. The BECF recognizes values as a strong pillar and underscores the need of integrating them in the CBC at all levels.

The BECF (2017) adopted 13 core living values to be mainstreamed in the reformed curriculum. These core living values were love, cooperation, unity, peace, simplicity, humility, honesty, responsibility, respect, tolerance, integrity, happiness, and freedom. Again in the year 2017, KICD working with other stakeholders through a consultative forum reviewed the Institute's core values. This saw the reduction of the number of core values from 13 to 8. The 8 adopted core values are love, responsibility, respect, unity, peace, patriotism, social justice and integrity. The overarching goal of teaching values through values based education (VbE) is "to nurture values in learners to become empowered, engaged and ethical citizens for positive and holistic transformation of society". VbE thus develops learners with a secure sense of self-understanding and identity. The gains of a VbE programme would truly be realized by adopting the following guiding principles: Whole School Approach (WSA), holistic approach to learner development, appropriate learning environment, capacity building for implementers, relevance to local and global contexts; evident transformative leadership and a continuous monitoring, evaluation, research and learning for enrichment & improvement.

The development of values should be situated in the prevailing social, cultural experiences and conditions. VbE requires the involvement of the local school community in the development and nurturing of values, drawing on the shared values of the school and the national goals. For this to be effective, schools should apply values within the schools' policies, structures and procedures especially in the decision making processes. Through a consultative and collaborative process, a school should be able to articulate values in their vision and mission and relate it to the values within the community and its partners. To ensure values are acquired and lived by the communities, schools should engage their respective communities throughout the development process, with a view to embed values in the design, implementation, and evaluation of school programs to create a continuum of sustained values systems.

Parental Empowerment and Engagement (PE&E)

Parental Empowerment and Engagement.

Parents are expected to not only safeguard the welfare of their children, but also get involved in their learning at all levels. They have a shared responsibility with schools to provide an enabling environment that is conducive to learning and which motivates children to achieve their full potential. Parents play an important role in determining the success of a child's education. Parental Empowerment and Engagement Guidelines have been developed for use in learning institutions.

The term empowerment denotes increasing changes in the behaviour and actions as a result of acquiring the desired knowledge, skills, attitudes, values, resources, authority as well as the drive

to achieve the intended outcomes. As such, empowerment occurs as a continuous process with opportunities to utilize acquired competencies in a supportive environment. Parental empowerment follows the same principle. Meeting the family's and children's needs is one of the outcomes of parental empowerment.

Parents are an integral part of their children's growth and development at all stages of life. A parent represents the first line of authority that a child identifies and interacts with at home. Education is also important in imparting relevant knowledge, skills, attitudes and values; through the work of teachers in a learning institution. Character building at home complements this process. Empowerment and engagement of parents to skilfully identify a child's gift and potential, creates an enabling environment for the school to build on. Additionally, parents will be able to foster a peaceful home environment by identifying and handling their shortfalls.

The Kenya Institute of Curriculum Development (KICD) in collaboration with stakeholders has developed guidelines on Parental Empowerment and Engagement (PE&E). The guidelines provide suggested strategies on how schools can empower and engage parents. Consequently, empowered parents cooperatively engage with all members of the school community with the object of supporting the implementation and achievement of CBC ideals.

Citizenship

Citizenship education programme as designed is intended to develop ideas, habits, behaviours and useful attitudes in an individual to enable him or her to be a responsible and useful member of the society. It is aimed at producing competent, reflective and moral citizens ready to contribute to the development of the community and the country in the spirit of patriotism, peaceful co-existence and democracy. Through this programme, learners are empowered with requisite knowledge, skills, attitudes and values that enable them to become responsible, ethical and patriotic citizens. The programme addresses such issues as ethnic and racial relations, social cohesion, good governance, child and/or human rights and responsibilities as well as child care and protection.

Community Service Learning (CSL)

The 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 programme of Community Service Learning (CSL) which is also referred to as community-based learning extends learning beyond the traditional boundaries. CSL provides experiential learning opportunities that enable learners to apply the acquired knowledge, skills, attitudes and values in different contexts while also providing something good for the community. It provides room for reflection in order to enrich the learning experiences, enhance civic consciousness, engage communities and ultimately strengthen school-community relationships. After undergoing the CSL experiences, a learner becomes competent in people and survival skills, finds relevance of the different disciplines being studied as well as the necessary and age-appropriate application of the knowledge, skills, attitudes and values acquired in the larger community. Through this, there is increased understanding of complex issues, ability to solve problems, think creatively and critically as well as being in a position to perceive connections between theory and practice.

Learners are expected to undertake guided age appropriate projects and action research in order to translate learning experiences into real life situations. They are also expected to identify real challenges in the community and apply what they have learnt to address them.

Digital Literacy

Digital Literacy (DL) is one of the core competencies in the Competency Based Curriculum. A digitally literate individual should have the ability to use technology safely and securely. Recognizing the central role digital literacy skills play in enhancing transformational learning, the Government of Kenya implemented the Digital Literacy Programme (DLP) in 2015, in all the public primary schools in the country. In addition, this was to accommodate the diversity in technology being introduced in education. The Laptop Project introduced in 2013 is a precursor to DLP.

DLP emphasises integration of ICT in teaching and learning. The objective of the program is to ensure that the learners graduate from education institutions with 21st century skills that include

critical thinking, collaborative learning, creativity, communication and innovation. These skills are the backbone of the competency-based curriculum.

The programme has equipped public Primary schools with the necessary ICT infrastructure as well as digital instructional materials. The teacher digital devices (TDD), are mainly used by the teachers to integrate ICT into their lessons. The TDDs are also used for administrative purposes. The learner devices are synchronized with the teacher devices so that learning is smooth during the lesson, since all the devices can be on the same 'page'. Kenya Institute of Curriculum Development (KICD) provides the digital content used in the devices. This includes content for learners with special needs.

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 learners know, can do or have accomplished based on a handful of things they say, do or make in particular settings." (Mislevy et al, 2003).

Educational 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 have 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 the 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 developers and implementers. This helps them plan learning in terms of what the learner needs in order to continue advancing and fill gaps in understanding of 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 ascertain the extent to which specific learning outcomes have been achieved. The assessment provides the basis for advising teachers on pedagogical methods and deliberate intervention.

Assessment focuses on the extent to which a competency 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 attention 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. 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.

Competency based assessment is based on the principle of assessing a learner 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 for 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 learner 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. It can also be viewed as 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 mathematics is also required, 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 change that is expected which will facilitate the adoption of formative assessment practices that promote diagnostic approaches envisaged to enhance learning and improve learning outcomes. Competency based assessment provides a framework of knowledge and capabilities seen as appropriate to a particular level.

Guiding Principles for Competency Based Assessment

The guiding principles 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

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 learner'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 learners 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 gaps, some have few while others have many. 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 learners 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 learners to show their ability to integrate and apply their skills, knowledge and understanding across the breadth and depth of the subject. It assesses the learner'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. 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

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 where a learner is provided the opportunity to demonstrate mastery of all competencies.

Assessment as Learning

This uses assessment as a process of developing and supporting metacognition for learners. It focuses on the role of the learners 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 learners. Teachers may refer learners to their personal goals or external standards as references for self-assessment. They may also facilitate self-assessment among learners by introducing the use of self-reflection questions and exemplary work for learners' consideration. It fosters self-assessment among learners and promotes self-awareness of strengths and weaknesses in their learning.

Instruments for Formative Assessment

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.

Checklists, Rating Scales and Rubrics

These are tools that state specific criteria and allow teachers and learners to gather information and to make judgments about what learners 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.

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 learner's 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 learner'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 learner 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 learner 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 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 individual or group 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 review 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) Include questions that 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 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.

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 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 learner's behaviours, skills and attitudes as they relate to their learning and the environment. 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 learner 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 learner 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 after an activity are generally the most accurate. Anecdotal notes for a particular learner can be periodically shared with the learners and parents at meetings.

Continuous Assessment Tests

These are tests that are designed according to pre-determined criteria that measure competencies in specific subjects. The tasks should be 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

Test scores are 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? Are there values that guide their response or action in a given situation?
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 a learner it is important to develop teachers' skills in formative assessment.

The competency based curriculum will focus on the development of the learner. 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 give 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.

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.

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 programme 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.

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.

Formative and Summative Assessment of Knowledge

Formative 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.

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 so that they can 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 with the prevailing trends in education and learners' needs. The curriculum reforms adopted a competency based approach and therefore calls, for a comprehensive capacity building for curriculum implementers. The training aims at empowering 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 need to support and develop highly knowledgeable, reflective and professional teachers who have enhanced skills and are confident in applying a range of modern pedagogical tools such as coaching, facilitating and mentoring. These tools 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 vital stage and aids 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 learners 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 learners to be successful.
- Evaluate curriculum materials for their comprehensiveness, accuracy for representing particular concepts and subjects, and appropriateness for success and make modifications on instructional resources where necessary.
- 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 enable teachers to effectively implement the new curriculum. By the end of the capacity building session, participants should be able to:

i. demonstrate acquisition of knowledge, skills and attitudes necessary for curriculum implementation
ii. portray competences and positive attitudes for curriculum implementation
iii. demonstrate capacity to use innovative pedagogical approaches and models to facilitate learning
iv. participate in service learning to enrich the learning experiences
v. demonstrate competencies in assessment of learning outcomes
vi. conceptualise parental empowerment and engagement as a vital component of curriculum implementation
vii. establish communities for learning best practices
viii. do self-reflection for self-improvement and supporting learners

The capacity building training manual covers 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 learners 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

The training manual covers 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.

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.

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

Inclusive education also helps to ensure the optimal development of learners 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 thus making the teacher a critical influence in education for inclusion and the development of the inclusive school.
The reformed teacher education curriculum provides the best means of creating a new generation of world class teachers who ensure the successful implementation of inclusive policies and practices. This reform prepares teachers to engage with learner diversity arising from age, gender, ethnic, cultural or religious background, socio-economic status, disability or special educational needs. It also imparts knowledge about alternative learning styles and instructional strategies that are inclusive of all learners.

The reformed teacher education curriculum produces teachers who understand and promote inclusivity, and who are endowed with capacities to:

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 learners.
c. Develop competencies in the learner and effectively teach classes with heterogeneous learners.
d. Become agents of change towards diversity and form the basis for a just and non-discriminatory society.
e. Establish and maintain schools that educate all learners together rather than set up a complex system of different schools 'specializing' in different groups.

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 learners 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 engage fully 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 a

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 learners and uses this information to plan learning. Listed below are of some key principles that form the foundation of differentiated instruction (Robb, 2013).

Ongoing, formative assessment: Teachers continually assess to identify learners' strengths and areas of need in order to help them move forward.

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

Group Work: Learners collaborate in pairs and small groups whose membership changes as needed. Learning in groups enables learners 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 learners to explore local, national and global issues and expand their understanding of key concepts.

Choice: Teachers offer learners choice in their reading and writing experiences and in the tasks and projects they complete. By negotiating with learners, teachers can create motivating assignments that meet learners' 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 by 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 learners to talk openly about their own learning.

Use of ICT in Learning

Due to the added value of ICT in learning, all teachers and learners 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 learners to fit in the current world of work. ICT can be used as a research, problem-solving, creative and, teaching and learning tool. ICTs have the potential to enhance teaching and learning through:

- Enriching the subject matter
- Improving delivery and extending methods of presenting information as a teaching aid
- Overcoming teacher isolation by connecting them to colleagues, mentors, curriculum experts, and the global teachers' community.
- Providing teachers the opportunity to disseminate and share good practice via communities of practice and the internet; access reliable facilities and resources, and receive 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.

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 of 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** which adopts 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.

References

Alberta Government (2013). *Provincial Dual Credit Strategy, Call for Action* Alberta

Asia Pacific Center of Education for International Understanding (2016). 1st Global Capacity-Building workshop on global citizenship Education

Bodner, G., Klobuchar, M. and Geelan, D. (2001). The Many Forms of Constructivism. *J. Chem. Educ.*, 78(8), p.1107.

Bradley, D. (1991). *Mechatronics, Electronics in Products and Processes*, London: Chapman and Hall Verlag

Boon 2015, Secretariat of the Standing Conference of Ministers of Education and Cultural Affairs of the Lander

Brooks, J. and Brooks, M. (1999). *In search of understanding*. 1st ed. Alexandria, Va.: Association for Supervision and Curriculum Development.

Bruner, J. (1977). The process of education. Cambridge, MA: Harvard University Press. (Original work published in 1960),

Craft, A. (2006). Fostering creativity with wisdom. *Cambridge Journal of Education*, 36(3), pp.337-350. Devries, B. and Zan, B. (2003). When children make rules. *Educational Leadership* 61 (1).

Dewey, John, 1966: The Child and the Curriculum (28th impression; Chicago et al.: University of Chicago Press.

Edgazette.govt.nz. (2016). *Building strong foundations, clear pathways, successful transitions*. [online] Available at: http://www.edgazette.govt.nz/Articles/Article.aspx?ArticleId=8790 [Accessed 24 Nov. 2016].

Eland, A. (2004). *Art Education as Imaginative Cogntion* pp 691-700 in Eisner, E. and Day, M. (2004). *Handbook of research and policy in art education*. 1st ed. Mahwah, N.J.: National Art Education Association.

Eyler, J., & D.E. Giles, J. (1999). *Where's the Learning in Service-Learning?* San Francisco: Jossey-Bass.

Hart, P. and Reynolds, J. (2002). *Handbook of fish biology and fisheries*. 1st ed. Malden, MA: Blackwell Pub.

Hattie, J. A (2012). Visible Learning for Teachers. Maximizing Impact on Learning. London. UK. Routledge.

Illeris, K. (2004). *The Three Dimensions Of Learning.* Malabar, Fla: Krieger Pub. Co.

Kamau et al (2008). *Unlocking the future potential of Kenya*, Vision 2030 Government Press: Nairobi

Kenya National Bureau of Statistics (KNBS) (2014). *Demographic and Health Survey, Key Indicators*, Nairobi: Government Press

Kenya Bureau of Standards (2016) *National Economic Survey* Nairobi: Government Press

Kim, Y. and Baylor, A.L. (2006). Pedagogical Agents as Learning Companions; the role of agent competency and type of Interaction. Educational Technology Research and Development. 54 (03).

Kingoriah, G. K. (2013). *Principles of Calculus*. Jomo Kenyatta Foundation: Nairobi.

Kolb, D. A. (1984). *Experiential learning: Experience as the source of learning and development* (Vol. 1). Englewood Cliffs, NJ: Prentice-Hall.

Kweronda, F. (2014).*Kiswahili is Important for Integration* in Daily Monitor, April 10 2014 Available online at http://www.monitor.co.ug/OpEd/Commentary/Kiswahili-is-important-for-integration/689364-2272920-aj00ka/index.html

Lee,C. and Zemke, R.(1995). No Time to train. Training 1995. ERIC
Perkins, D.N. (1992). Smart Schools: From Education Memories to educating Minds. NY. Free Press

Marlow, E. (1996). Trends and Issues in Teaching Elementary Social Studies, *College Student Journal*, Vol.32.issue 3. USA.

Mezirow, J. (1997). *Transformative Learning: Theory to Practice. New Directions for Adult and Continuing Education*. Jossey-bass. pp. 5–12.

Mislevy Robert, Russel Almond, Janice Lukas (2003). *A brief Introduction to Evidence Centred Design.* Educational Testing Services, Research and Development Division. Princeton.

McLeod, (2016). *Erik Erikson Psychosocial Stages Simply Psychology*. [online] Simplypsychology.org. Available at: http://www.simplypsychology.org/Erik-Erikson.html [Accessed 17 Nov. 2016].

MoEST (2012). Sessional Paper No 2 of 2015: *Reforming the Education and Training Sector in Kenya* Government Press: Nairobi

Musgrave, P.W. (1964). The definition of technical education: 1860–1910, *The Vocational Aspect of Education*, 16:34, 105-111.

O'Brien, J. (1997). Curriculum Standards for Social Studies: Expectations of Excellence (Washington, D.C.: National Council for the Social Studies, 1994). *OAH Magazine of History*, 11(3), pp.53-54. OECD (2010). *Nature of Learning*, Department of Education and Training, Paris

Pathways to Education. (2016). *Program Results*. [online] Available at: https://www.pathwaystoeducation.ca/program-results [Accessed 24 Nov. 2016].

Pernell H. C. (1990). Chapter 5, pp. 98-107 in *Understanding Society: An Introduction to Sociology*. Becoming a Member of Society through Socialization 3rd ed. New York, NY: Harper & Row, Publishers, Inc.

Petrilli, M.J, (2016). *Education for Upward Mobility*, California: Thomas B. Fordham Institute

Piaget, J. (1926). *The language and thought of the child.* New York: Harcourt, Brace and World

Piaget, J. (1958). The growth of logical thinking from childhood to adolescence. AMC, 10, 12.

Piaget, J. (1973). The child and reality.

President's Committee on the Arts and Humanities, Reinvesting in Education: Winning Americas Future through Creative Schools, Washington, DC, May 2011.

Reynolds, R. (2009). *Teaching Studies of Society and Environment in the Primary School.* Melbourne, Australia: Oxford University Press.

Republic of Kenya (2007). *Kenya Vision 2010*. Ministry of Planning and National Development and the National Economic and Social Council (NESC). Office of the President: Nairobi

Republic of Kenya (2009). *National Youth Situation Analysis Report*. Nairobi: Government Press

Republic of Kenya (2010). *The Constitution of Kenya*. Nairobi: Government Press

Republic of Kenya (2010). Session Paper No. 10 (2010). *Kenya Vision 2030* Nairobi: Government Press

Republic of Kenya (2012). Session Paper No. 14 (2012). *Reforming Education and Training in Kenya* Nairobi: Government Press

Republic of Kenya (2010). *Task force report on the re-alignment of the education sector to the constitution of Kenya 2010: towards a globally competitive quality education for sustainable development* Nairobi: Government Press

Republic of Kenya (2010). *Summative Evaluation of the Secondary School Education Curriculum*. Government Press: Nairobi.

Republic of Kenya (2015). Ministry of Education, NESP 2, 2015. Nairobi: Government Press

Republic of Kenya (2012). Ministry of Public Health and Sanitation, National Nutrition Action Plan 2012-2017, Republic of Kenya

Republic of Kenya (2007). *Government of Kenya, Vision 2030*. Nairobi: Government Press

Republic of Kenya (2009). *National Youth Situation Analysis Report*. Nairobi: Government Press

Republic of Kenya (2010). *The Constitution of Kenya*. Nairobi: Government Press

Republic of Kenya (2010). Session Paper No. 10 (2010). *Kenya Vision 2030* Nairobi: Government Press

Republic of Kenya (2012). Session Paper No. 14 (2012). *Reforming Education and Training in Kenya* Nairobi: Government Press

Republic of Kenya (2010). *Task force report on the re-alignment of the education sector to the constitution of Kenya 2010: towards a globally competitive quality education for sustainable development* Nairobi: Government Press

Robb, Laura (2013) *New Angles on Differentiating Reading Instruction: Five Best Practices That Deserve a New Chapter in the Common Core Era N*ew England Reading Association Journal

Salvia, J. & Ysseldyke, J. (1995). *Assessment* (6th Ed.). Boston, MA: Houghton Mifflin.

Sell, J. P. (2005).Why teach literature in the foreign language classroom? in *Encuentro* (15), 2005 Available at http://encuentrojournal.org/textos/11_Sell.pdf
Singapore Examinations and Assessment Board, (2014).*Assessment in Singapore - Perspectives for classroom practice* SEAB: Singapore

Smith, M. K. (2002). Jerome S. Bruner and the process of education. In *The Encyclopaedia Of Informal Education.* [online] Available at: http://infed.org/mobi/jerome-bruner-and-the-process-of-education/ [Accessed 24 Nov. 2016]. The World Bank (2005). *Expanding opportunities and Building competencies for young people. A new agenda for secondary education.* Washington DC: World Bank

StudyMalaysia.com (2016). *A Glance At The Malaysian Education System - StudyMalaysia.com*. [online] StudyMalaysia.com. Available at: https://studymalaysia.com/international/the-national-education-system/a-glance-at-the-malaysian-education-system [Accessed 24 Nov. 2016].

The World Bank (2005). *Expanding opportunities and Building competencies for young people. A new agenda for secondary education.* Washington DC: World Bank

UNESCO IBE (2014) *Competency-based curriculum and curriculum autonomy in the Republic of Korea by Keunho Lee, Working Papers on Curriculum Issues Nº 12* Geneva: UNESCO

UNESCO (2015). *The curriculum in debates and in educational reforms to 2030: for a curriculum agenda of 21st century. IBE No. 15.* Geneva. UNESCO

UNESCO (2015). *Repositioning and reconceptualising the curriculum for the effective realization of sustainable development goal four, for holistic development and sustainable ways of living. IBE: repositioning curriculum in education quality and development, relevance.* Geneva: UNESCO

UNESCO (2015). *World Education Forum 2015: Incheon declaration, Education 2030: Towards inclusive and equitable quality Education and lifelong learning for all.* Geneva: UNESCO

UNESCO (2014). *Global Education For All Meeting: UNESCO, Muscat Oman 12-14 may 2014. 2014 GEM final statement: The Muscat Agreement.* Geneva: UNESCO

Von Glasersfeld, E. (1989). Facts and the self from a constructivist point of view. Poetics, 18(4–5),

Vygotsky, L. and Cole, M. (1978). *Mind in society*. 1st ed. Cambridge: Harvard University Press.

Vygotsky, L. (1978). Mind in society: The development of higher psychological processes. Cambridge, MA: Harvard University Press.

Wadsworth, B. J. (1996). *Piaget's theory of cognitive and affective development: Foundations of constructivism* (5th ed). London: Longman

Wilson, B. G., and Myers, K. M. (2000). Situated cognition in theoretical and practical context. In D. H. Jonassen & S. M. Land (Eds.), *Theoretical foundations of learning environments* (pp. 57-88). Mahwah NJ: Erlbaum.

Woolfolk , A. E., & Hoy, W.K. (1990). Prospective teachers' sense of efficacy and beliefs about control. Journal of Educational Psychology, 82–91.

Woolfolk , A. E., & Hoy, W.K. (1998)Teacher Efficacy: Its Meaning and Measure Review of Educational Research Summer 1998 68: 202-248,

World Bank Report 2016, International Labour Organization, Key Indicators of the Labour Market database World Bank Group .

Youniss J., McLellan J. A., and Yates M. Religion, community service, and identity in American youth (1999) Journal of Adolescence, 22, 243–253

Yount, W. R. (1996). *Created to Learn*. Nashville: Broadman and Holman.

https://www.learningpotential.gov.au Judging a book by its cover what to look for in children's books

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	0.11%

				Design	
		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		8%

		Humanities	25%	8%
		Business Studies		9%
3.	STEM Pathway	Pure Sciences	60%	8%
		Applied Sciences		12%
		Engineering		15%
		Career and Technology Studies		25%

Appendix II: Technical Committee

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