Ministry of Education

Republic of Ghana

NATIONAL PRE-TERTIARY EDUCATION CURRICULUM FRAMEWORK

National Pre-tertiary Education Curriculum Framework for developing subject curricula

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Foreword

The curriculum framework for pre-tertiary education provision in Ghana and the curriculum that it has guided to be developed, are critical in defining the future prospects of Ghana's young people. Through the education that Ghana's young people receive, the Ministry of Education expects that Ghana's young people will be nurtured into honest, creative and responsible citizens, making meaningful contribution to society. Learners from the pre-tertiary education system are expected to be fluent in **R**eading, w**R**iting, a**R**ithmetic and c**R**eativity, in addition to being developed into lifelong learners, who are digitally fluent. The learning outcomes of learners in schools across Ghana must be improved, because appropriate policy measures, including the use of standards-based curriculum in the schools have been implemented and they are working.

This requires that our approach to teaching and learning needs to change and our intended outcomes must contribute to the achievement of national development priorities and global sustainable development goals. The development of this framework through an extensive national consultation with stakeholders, will inform the production of the **National Curriculum**. This is an essential step in ensuring that all learners in our schools receive high-quality education aimed at ensuring that each learner reaches his or her full potential. As a result, the National Pre-tertiary Education Curriculum Framework:

- sets out the conception of standards and the learning outcomes to be captured in the subject curricula that are to be achieved by all learners. There is a focus on performance standards rather than objectives.
- articulates the core and global competences that learners are expected to demonstrate as a result of the education they have received.
- provides the basis for consistent and on-going review of the curriculum development and implementation. Hence, the key factors for success have been clearly stipulated.
- focuses on learning and learning progression for all learners, underpinned by pedagogical considerations of differentiation, inclusion and information communication and technology use as a tool for enhancing the learning experience of all learners.
- closely aligns with the intent, content and policy expectations within the National Teacher Education Curriculum Framework. This is to ensure that teachers prepared in the teacher education institutions are ready to effectively facilitate learning in our schools.

The National Pre-tertiary Education Curriculum Framework is the policy guideline against which the school curriculum will be reviewed and revised. The school curriculum is then positioned to develop graduates who are problem solvers, have the ability to think creatively and have both the confidence and competence to participate fully in the Ghanaian society as responsible local and global citizens.

Within the vision of the Ministry of Education to provide high-quality education to all of Ghana's children and young people, it is expected that education stakeholders will ensure that the framework is effectively implemented for their benefit.

Dr. Matthew Opoku Prempeh
Hon. Minister of Education

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1.0 Introduction

Ghana is keen to accelerate the improvement in educational provisions, with a particular emphasis on *quality education for all.* This document therefore sets out the framework for the *national curriculum.* As a policy document, this framework draws together and articulates the vision, philosophy, goals, learning experiences, instructional resources and assessment systems that will guide the development of the school curriculum. It articulates the ambitions and aspirations of Ghana with regard to what learners should know and be able to do to both realise their potentials and contribute to the development of the country. This national pre-tertiary education curriculum framework also provides the basis for consistent and on-going curriculum development, implementation and periodic curriculum review and revision.

The ambitions and aspirations of Ghana for the national curriculum include:

- a particular focus on the **4Rs**: **R**eading, w**R**iting, a**R**ithmetic and c**R**eativity as a catalyst for achieving rapid sustainable developmental changes.
- a focus on the essential knowledge, skills and competences that Ghana's young people need to become educated citizens.
- a focus on mathematics and science as the fundamental building blocks for success in the era of technological advancement and
- ensuring that basic school lays the solid foundation necessary for tertiary education as well preparations for early entry into the work place.

The intention of the government to prioritise the fundamental building blocks for success at the basic school level is in line with the global thinking regarding quality education, socio-economic development, the skills requirement and the focus of the Africa Union. Ghana's entrepreneurial sector is a key target for development, while the government is simultaneously embarking on the most comprehensive industrial transformation programmes in the country. This requires policies necessary to promote better cognitive skills development for all, addressing the fact that scientific literacy and entrepreneurial knowledge and skills development is in urgent need of attention in Ghana.

This framework therefore has at its heart educational strategies that ensure that all learners leave school as scientifically-literate citizens. Good foundations must be laid in mathematics and the other STEM subjects – especially in the early years of schooling. It is therefore crucial that the country is transformed into a mathematics friendly one in which Science, Technology, Engineering and Mathematics (STEM) education is at the fore.

Teachers will be expected to use every relevant subject to develop pupils' mathematical and scientific literacy. Confidence in numeracy and other scientific skills is a precondition of success across the national curriculum, as is literacy in language - particularly the playground language in the early years and the English language in later years. The *national curriculum* will outline the core Standards which schools and teachers can use to develop this foundational knowledge and skills in their learners. It is expected that learners, through the overall education they receive, will be nurtured into honest, creative and responsible citizens.

The framework also recognises that the national curriculum will be just one element in the education of every Ghanaian child and therefore proposes the creation of room in the school calendar to provide learning opportunities for pupils beyond the specifications of the national curriculum. *Learning* is a central consideration within this framework and requires that curriculum developers focus on the need for the teacher to develop and teach exciting and stimulating lessons that support the enrichment of learners' knowledge, understanding and skills and the provision of the opportunity to 'do' what has been learnt. Teachers are to

adopt a dialogic approach to teaching within learning-centred classrooms via a deliberate focus on the creation of learner-centred classrooms and teacher-centred schools. Teacher-centred schools see continuing professional development (CPD) of teachers as a critical and necessary condition to realise quality educational provision and must ensure that CPD is an embedded practice.

The framework also identifies the use of Information Communication Technologies (ICTs) as a tool for a dialogic approach to teaching within learning-centred classrooms. ICT integration in subject teaching as a core proposition is in line with Ghana's STEM agenda. The 'whys', 'the hows' and the 'whats' of integrating ICTs into subject teaching has been highlighted by the framework. The implication for CPD for teachers is the recognition that ICTs are not ends in themselves but a means to an end, for which teachers must take ownership and be in a position to effectively select the appropriate ICT at the right time and place.

Critically and within the context of globalisation, the framework identifies the need to close the trans-generational gap in the development of the Ghanaian child by introducing the study of History of Ghana into the national curriculum. The study of the History of Ghana, will enable learners to reconnect to the past, appreciate Ghana's heritage and values and develop into responsible citizens. The study of French will also be popularised and learners will be encouraged to take up its study and become fluent French speakers as global citizens.

Finally, the framework presents a paradigm shift from an objective-based curriculum to a standards-based curriculum, which is in line with global curriculum reform trend. Assessment reforms within the learning philosophy of the curriculum are an essential requirement.

1.1 Conceptual Framework

The concept for the National Pre-tertiary Education Curriculum Framework is presented in Figure 1. It summarises the key elements of the framework and provides an overview of the key elements for curriculum developers.

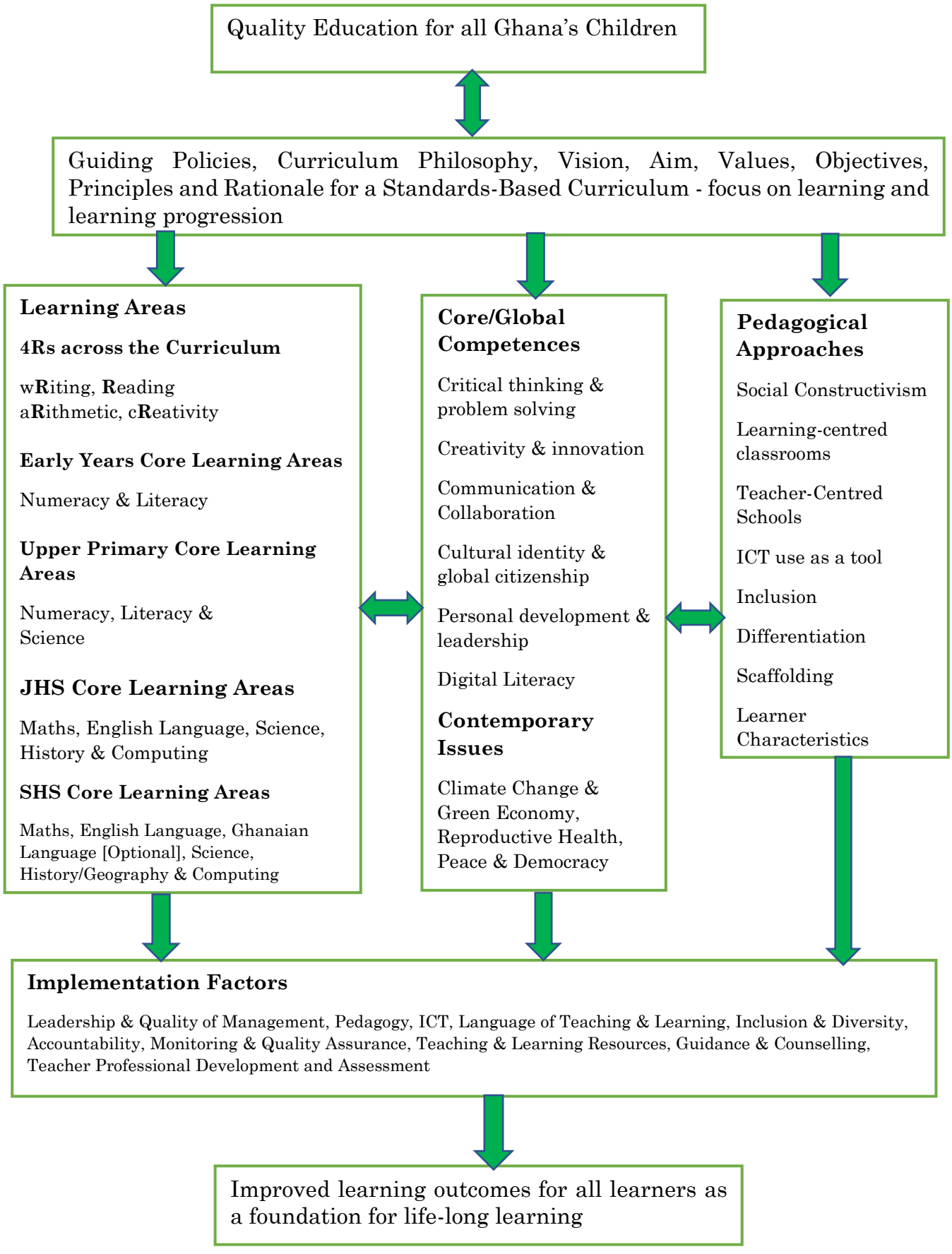

Figure 1 Concept Frame for the Curriculum Framework

2.0 The Context of the Pre-tertiary Education Curriculum

The context of the pre-tertiary education curriculum is centred around the socio-economic development of Ghana.

2.1 The Social Economic Context of the Curriculum in Ghana

Since returning to civilian rule in 1992, Ghana has made economic progress, anchored largely on fiscal discipline and macroeconomic stability. For instance, economic growth, which was in the 4 – 6% range in the early 2000s, accelerated in the wake of the oil discovery, peaking at 14% in 2011. In 2014, the economy was dominated by the services sector, contributing 50% of economic output followed by industry at 29% and agriculture at 21%, a trend that has barely changed over the past 6 years (Ghana Statistical Service, 2014)1. After years of sustained economic growth and based on a 2010 Gross National Income (GNI) per capita of US $1,240, Ghana was classified as a lower-middle-income country and identified as having a rapidly expanding middle class in 2011 (Darvas, & Balwanz, 2014). Per capita income at constant prices nearly doubled between 2000 and 2016,2 reaching GHS 6,068 in 2016 (IMF, 2017). In addition, the proportion of persons living below the national poverty line (i.e. poverty incidence) decreased from 43.9% in 1999 to 24.2% in 2013 (Cooke et al., 2016).

Despite these achievements, there are worrying trends in disparities across regions and socioeconomic groups in terms of poverty incidence and the depth of poverty. Indeed, all indicators of income inequality increased rapidly during the 1990s and 2000s, before stabilising in the early 2010s at very high levels. For example, there is evidence (e.g. Cooke et al., 2016) of a widened gap between the rich and the poor in the country. Wealth is unequally distributed, depending on where people live (rural or urban). Two major factors have been identified to explain this.

First, it is largely a rural phenomenon: 37.9% of the rural population were poor in 2013, compared with 10.6% of the urban population; rural areas accounted for 50% of the total population but 78% of the poor in the same year. Second, poverty reflects Ghana's regional divides: the major divide between the north and the south of the country; the secondary divide within the southern part of Ghana between coastal and Western Regions and Central and Eastern Regions; and the divide between Greater Accra, the capital region, and the rest of the country. More recently, the Demographic Health Survey of 2014 shows disparities in wealth distribution across the five wealth quintiles according to residence and geographical area. A large majority of the urban population (71%) is in the highest two wealth quintiles, while a much lower proportion of rural residents (10%) fall into this category. By region, the data show that Greater Accra is the richest region, with 52% of the population in the highest wealth quintile, compared with only 2% each of the population in the Northern and Upper East regions. More than 7 in 10 people in the Northern and Upper East regions (72% and 79%, respectively) and 6 in 10 in the Upper West region (60%) are in the lowest wealth quintile (GDHS, 2014).

These developments have serious implications for Ghana's education system and the kind of curriculum pupils experience in school, as well as related learning outcomes. For instance, the 2016 National Education Assessment results indicate that only 37% of primary school class 4 (P4) pupils showed proficiency in literacy while 22% showed proficiency in numeracy. The results also show that after six years of primary schooling, only 36% of our children met grade level expectation in literacy while only 25% met grade level expectation in numeracy. Learners in private schools continue to perform better than those in public schools. The school experiences of rural communities appear to be substantially distinct and unequal to their counterparts in the urban communities. However, all learners irrespective of their

[1] MoFEP and GSS. See page 12 of the 2015 Budget Statement at http://www.mofep.gov.gh/sites/default/files/budget/Budget-Statement-2015_0.pdf

[2] It increased by 75%.

background and ability are expected to write national examinations which are undifferentiated - e.g. the Basic Education Certificate Examination (BECE) and West African Senior School Certificate Examination (WASSCE).

Evidence from national assessments in literacy and numeracy suggest that children from underserved communities lag behind those from affluent backgrounds, and the gap has widened in recent years. The underachievement of learners from a lower social background also significantly influences their participation in education as lifelong learners and acts as an impediment to the development of the human capital requisite for citizens' socio-economic success. An effective and skilled human resource is a catalyst for reducing ignorance and superstition and for raising income levels of individuals and their families. The expectation is that through this review, inclusive education practices will be put in place to ensure equity in educational provisions in the next 10 to 20 years, with a clear focus on learning, as Ghana becomes a mathematics friendly country with a clear culture of STEM education.

2.2 The Structure of Pre-tertiary Education in Ghana

Until recently, formal Basic Education was for all Ghanaian pupils from KG to JHS 3 (Grade 9), after which learners could progress to formal Senior High education, vocational education and training, direct entry to employment or distance learning. However, in the current education reforms, Basic Education has been redefined as a concept to include Senior High School, and the system sub-divided into five key phases as follows:

- Key Phase 1 [Foundation level comprising Kindergarten 1 & 2],
- Key Phase 2 [Lower primary level made up of B1 to B3],
- Key Phase 3 [Upper primary level of B4 to B6],
- Key Phase 4 [Junior high school level of B7 to B9], and
- Key Phase 5 [Senior high school level comprising SHS1- SHS3].

Key Phases 1 and 2 constitute Early Years.

Figure 2 illustrates the structure of pre-tertiary education in Ghana.

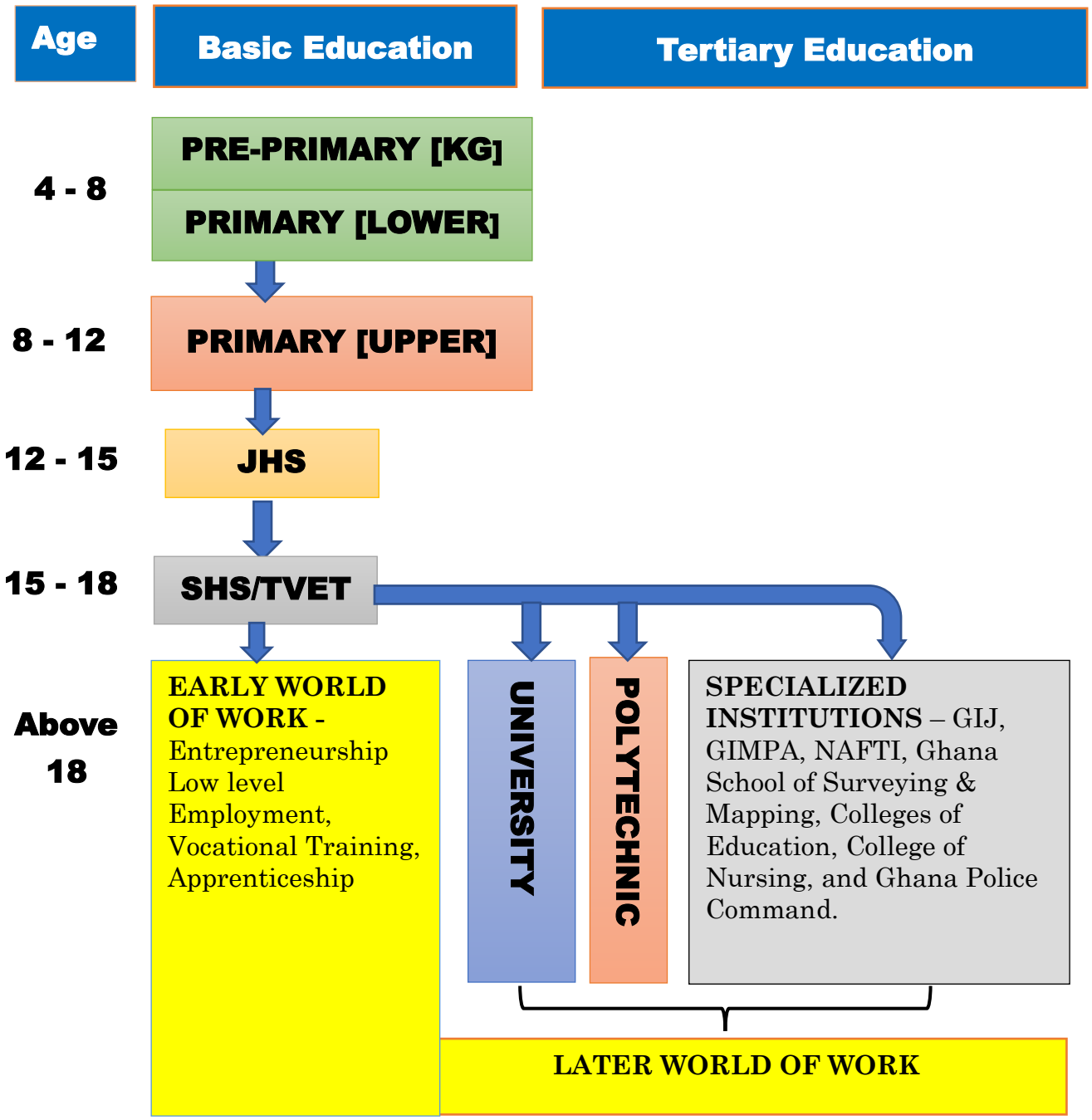

Figure 2 The structure of pre-tertiary education in Ghana

2.2.1 Structure of Pre-tertiary Education Explained

Education at Key Phase 1 begins at age 4 with Kindergarten (KG) education and connects with Lower Primary education up to age 8. KG education pre-disposes children to conditions of formal schooling, imbuing in them the desire for learning during future years. The second, or Upper Primary phase, seeks to lay a strong foundation for inquiry, creativity and innovation, and lifelong learning in general, and to provide building blocks for higher levels of education (Anamuah-Mensah Report, 2002). The third phase of basic education is the three-year Junior High School or JHS (age 12-15 years) which is lower secondary education and provides the opportunity for pupils to discover their interests, abilities, aptitudes and

other potential. The final phase of basic education is the three-year SHS (age 15-18 years), which is upper Secondary education and allows learners to specialise in any one of the following programmes: Science, General Arts, Technical and Vocational, Business, and a not less than one-year appropriate apprenticeship training programme. The SHS education is the platform that delivers an extensive gamut of academic knowledge and skills required for entry into further education and training in the tertiary institutions of Ghana and elsewhere. In this context, after sitting and passing the West Africa Secondary School Certificate Examination (WASSCE) conducted by the West African Examination Council (WAEC), SHS graduates may gain admission into the Universities, Polytechnics and such specialised institutions as Nursing Training Colleges, Colleges of Education and Ghana Police Command.

2.3 Ghana's Development Agenda and Education Sector Priorities

The vision of Ghana is to transform its economy and society into a stable, united, inclusive and prosperous country with opportunities for all (Government of Ghana - GoG, 2014a). Under this vision, average national income is expected to move from a lower middle-income level to an upper middle-income level by 2030. The nation's planners, the National Development Planning Commission (NDPC), envisage that there will be increased access to quality education and health services at all levels; and that science, technology and innovation (STI) will drive education and national development (GoG, 2014b).

Building on the rapid economic growth of the last decade, Ghana aims to graduate from a lower middle-income level to an upper middle-income status in the next decade. To achieve this aim, growth will have to accelerate and productivity will have to rise. In the terminology of the NDPC, the country is ready to move from the economics of reconstruction and rehabilitation to the economics of accelerated growth, which implies diversification away from the cocoa-gold-timber structure and towards industrialisation, technology and higher productivity.

Achieving these ambitious goals will necessarily involve, among other things, a more effective application of STI in the economy in order to drive productivity growth and diversification in production. Recognising the important role that STI must play in transforming the economy and reducing poverty, the GoG has placed its development high on its list of priorities. This is reflected in the various political and policy statements of successive governments, including Vision 2020, the Growth and Poverty Reduction Strategy II and the Coordinated Programme of Economic and Social Development Policies (2014-2020): An Agenda for Transformation (GoG, 2014b). However, the GoG (2014a) has observed that, to date, the role played by STI in Ghana's development has been limited. This National Curriculum framework has therefore been developed as a response to the country's desire to rapidly change the education system into one driven by inclusivity, globalisation, ICT development, competitive socio-economic development, and a shift from traditional approaches to new paradigms. Thus, in the medium to long term, Ghana's education system should produce graduates with the relevant knowledge and skills to enhance its national socio-economic development.

2.4 Education Strategic Plan 2018 - 2030

The Education Strategic Plan 2018-2030 highlights three key priority areas for improving our education system which have been adopted under this framework. These are:

Priority 1: Improved equitable access to and participation in inclusive quality education at all levels

The economic and social costs of school failure and dropout are high, whereas successful completion of secondary education and subsequent completion of higher education gives

individuals better employment and healthier lifestyle prospects, resulting in greater contributions to public budgets and investment. More educated people contribute to more democratic societies and sustainable economies and are less likely to be dependent on public aid. Societies with skilled individuals are best prepared to respond to potential economic and social crises. Therefore, investing in early primary and secondary education for all, and in further education - in particular for children from disadvantaged backgrounds - is both fair and economically efficient.

Priority 2: Improved quality of teaching and learning and STEM at all levels

Ensure the highest quality of teaching through building a set of activities and events that communicate the influence and impact of teaching and learning and STEM activities, especially research, selection and the use of appropriate teaching and learning resources including ICTs and laboratories. To further develop a research and investment strategy that concentrates areas of research and teaching excellence and establishes external partnerships with high profile research organisations that are affiliated with schools.

Priority 3: Sustainable and efficient management, financing and accountability of education service delivery

In the context of Education 2030, an international benchmark is that 4-6% of GDP and/or 15-20% of the government budget should be allocated for education. Many countries have achieved or even surpassed these levels, but education expenditure in relation to total government expenditure has varied considerably year to year. The differing results in academic performance may be affected by other factors, such as the efficiency and equity of the school finance system. UNESCO recommends that 6% of a country's GDP should be spent on education, while the Education Commission recommends that 20% of the Government's budget should be devoted towards education. Ghana exceeds these international benchmarks in both cases: Education expenditure as a proportion of GDP has ranged between 6-8% between 2011 and 2015, while education expenditure as a proportion of government expenditure was between 22-27%. The World Bank (World Bank, 2017) has also found that Ghana spends a higher proportion of its total budget and GDP on education than any of the other 13 countries in the Economic Community of West African States.

It is expected that these priority areas will guide our education system to produce confident individuals, engaged citizens, successful literates and critical thinkers. Hence, the following broad objectives have implications for curriculum development:

- Ensure the provision of life skills training and management for the areas of personal hygiene, fire safety, environment, sanitation and climate change
- Improve pedagogy with a special emphasis on learning
- Promote the Learning of STEM subjects at all levels

Drawing from the above stated provisions of the Education Sector Plan, Curriculum Development should focus on equipping the child to improve upon him or herself, society and the environment.

3.0 Guiding Policies for Curriculum Development

Education is defined and regulated by a series of Acts, Legislative Instruments and Administrative Directives based on the laws on education as contained in the Constitution of Ghana. Articles 25 and 38 of the 1992 constitution provide the direction of education in the country.

3.1 1992 Constitution of Ghana

The 1992 Constitution of Ghana defines Basic Education as the Minimal Formal Education with which every Ghanaian child is entitled to be equipped as a right, in order to function effectively in society. That is, Basic Education connotes the provision of opportunities that will provide graduates with the 21st Century attributes of well-rounded and engaged citizens. Currently, this constitutes the foundation of the structure of pre-tertiary education in Ghana (i.e. Kindergarten, Lower Primary, Upper Primary, Junior High School and Senior High School).

Specifically, Article 25 states that:

- Basic Education is free, compulsory and available to all
- Secondary Education including TVET is to be generally available and accessible and will be progressively made free (in this reform, Basic Education is used as a concept that includes secondary education)

Article 38, on the other hand, requires the implementation of Free Compulsory Universal Basic Education (FCUBE) beginning from 1995. It also makes provision for the development of and access to second cycle education (with the emphasis on science and technology); free adult literacy; and free training, rehabilitation and resettlement of the disabled. The Article further provides for life-long education within the constraints of available resources.

3.2 Education Act 778 of 2008

The provisions of the Education Act, 1961, Act 87 have been supplemented by the Education Act 2008, Act 778. Indeed, as stated in the President's Committee on Review of Education Reforms in Ghana – October 2002, 'the philosophy underlining the educational system in Ghana should be the creation of well-balanced (intellectually, spiritually, emotionally and physically) individuals with the requisite knowledge, skills, values and aptitudes for self-actualisation and for the socio-economic and political transformation of the nation'.

In this regard, the curriculum framework is geared towards achieving the national development goals of Poverty Alleviation and Wealth Creation.

3.3 UN Sustainable Development Goals

The United Nations Sustainable Development Goal (UNDG) 4 focuses on ensuring inclusive quality education for all and promoting lifelong learning. Therefore, obtaining quality education should be seen as the foundation to improving pupils' lives and ensuring sustainable development.

Relevant Targets:

- Ensure that all boys and girls have access to quality early childhood development
- Ensure that all boys and girls complete free and equitable primary and secondary education
- Ensure that all learners acquire the knowledge and skills needed to promote sustainable development

3.4 UNESCO Education 2030 Framework for Action

The Framework is positioned within the UN SDG 4 to 'Ensure inclusive and equitable quality education and promote lifelong learning opportunities for all'. The Framework for Action is the roadmap to guide the international community and national governments until 2030 in their efforts to achieve UN SDG4.

The following are the key indicative strategies of the Framework:

- By 2030, 'ensure that all girls and boys complete free, equitable and quality primary and secondary education leading to relevant and effective learning outcomes'.
- By 2030, 'ensure that all girls and boys have access to quality early childhood development, care and pre-primary education so that they are ready for primary education'.
- By 2030, 'ensure equal access for all women and men to affordable and quality technical, vocational and tertiary education, including university'.
- By 2030, 'substantially increase the number of youth and adults who have relevant skills, including technical and vocational skills, for employment, decent work and entrepreneurship'.
- By 2030, 'eliminate gender disparities in education and ensure equal access to all levels of education and vocational training for the vulnerable, including persons with disabilities, indigenous peoples and children in vulnerable situations'.
- By 2030, 'ensure that all youth and a substantial proportion of adults, both men and women, achieve literacy and numeracy'.
- By 2030, 'ensure that all learners acquire knowledge and skills needed to promote sustainable development, including, among others, through education for sustainable development and sustainable lifestyles, human rights, gender equality, promotion of a culture of peace and non-violence, global citizenship and appreciation of cultural diversity and of culture's contribution to sustainable development'.

3.5 National Teachers' Standards

Teachers play such a critical role in inspiring and challenging learners to achieve their potential that their training and subsequent development require the highest possible standards in knowledge, conduct and practice in the workplace.

The National Teachers' Standards (NTS) set out the minimum levels of practice that all trained teachers must reach by the end of their pre-service teacher education course in order to play such a critical role. The minimum levels of practice are described as Standards that beginner teachers must meet under the following three categories:

Professional Values: According to the NTS Guidelines, teachers should be guided by legal and ethical teacher codes of conduct in their development as professional teachers.

Professional practice: The teacher should employ a repertoire of learning strategies in order to meet the learning needs of all children through the application of relevant resources.

Professional knowledge: The teacher should understand how children develop and learn in diverse contexts (cultural, linguistic, socio-economic and educational backgrounds) and apply this in their teaching.

3.6 National Teacher Education Curriculum Framework

The Curriculum Framework is a document against which all future teacher education curricula would be assessed. It concentrates on the essential elements a pre-service teacher education curriculum needs to focus on to produce the best teachers, and against which all Teacher Education Curricula, including the DBE, can be reviewed.

Under this framework, fully prepared student-teachers would be enabled to teach the Basic School Curriculum, in particular, Ghanaian languages and English, mathematics and science, concentrating on relevant subject and pedagogic knowledge.

The keys to success in Teacher Education depend on the following:

1. Four Pillars of Education
    - Subject and Curriculum knowledge
    - Pedagogic Knowledge
    - Literacy Studies (Ghanaian languages and English)
    - Supported Teaching in Schools

2. Cross-Cutting Issues
    - Equity and Inclusivity
    - Core and Transferable Skills
    - Assessing Pupils' Learning and Progress
    - Professional Values

3.7 ICT for Accelerated Development (ICT4AD) Policy Framework

The main mission: to transform Ghana into an information-rich, knowledge-based and technology-driven high-income economy and society.

3.8 ICT in Education Policy

The Education Reform of 2007 advocates for the integration of ICT in education to facilitate effective learning and management through the provision of computer labs, internet and network productivity, the supply of school laptops to teachers and learners, and the capacity development of teachers. The Curriculum proposes ICT use as a pedagogical tool.

3.9 Adolescent Reproductive Health Development

The main objective of Adolescent Reproductive Health Development (ARHD) is to ensure that the development of policies, guidelines and curricula is based on the growing body of evidence that documents the characteristics of a successful comprehensive Sexual Reproductive Health programme and the positive impact it can have on adolescents when designed and delivered appropriately.

The programme must ensure that learners receive important age-appropriate information and skills prior to becoming sexually active. This has implications for the School Curricula, i.e. sexual and reproductive health should be integrated into subjects such as Social Studies, Home Economics, Science, Citizenship Education, etc. In addition, space should be made on the school calendar and school timetable for extra-curriculum reproductive health related projects to be undertaken by learners with the support of teachers and resource persons.

3.10 Ghana Reading Action Plan

One main objective of the Ghana Reading Action Plan (G-RAP) is to improve the school curriculum in order to enhance knowledge, skills and competences for all children in Ghana as a necessary step to building the necessary human capital for the transformation of the country. This shall include such priority areas as aligning the syllabi for English and Ghanaian languages to achieve global reading standards and milestones and reviewing the syllabi for appropriate content and sequencing of content.

This Curriculum aligns to the requirements of an effective Literacy and Numeracy Programme.

3.11 National Science, Technology and Innovation Policy

Ghana, as a typical developing country, grapples with many development challenges. In agriculture, industry, health, environment and all other sectors, there are obstacles in the quest to improve society and the quality of life for all Ghanaians. However, attaining the development vision is not impossible. The first and foremost step is to harness Science, Technology and Innovation (STI) to address the development challenges. To enable a constructive and structured harnessing of STI, the National Science, Technology and Innovation policy has been formulated to consider the social and economic context and the imperatives for Ghana's development. The policy applies to the period 2017 to 2020.

Indeed, Ghana must build national capacities for utilising science, technology and innovation to facilitate growth in all aspects of social and economic life. The National Science, Technology and Innovation Policy provides the framework to create the institutions and develop the human resource base. The Policy also makes the appropriate financial arrangements to harness the available science, technology and innovation capacity for sustainable socio-economic development. The policy aims to achieve the national objectives for wealth creation, poverty reduction, enterprise competitiveness, sustainable environmental management and industrial growth.

The objectives of the policy as stated have implications for curriculum development:

- Facilitate the mastering of scientific and technological capabilities by a critical mass of the products of all institutions;
- Provide the framework for inter-institutional efforts in developing STI and programmes in all sectors of the economy to provide the basic needs of the society;
- Create the conditions for the improvement of scientific and technological infrastructure for research and development and innovation;
- Ensure that STI supports Ghana's trade and export drive for greater competitiveness; and
- Promote a science and technology culture in society.

Additionally, the following constitute relevant planned programmes to drive STI in Ghana that have implications for curriculum development:

- Ensuring that by the year 2030, 60% of all learners in the public universities and 80% of those in the polytechnics and vocational institutions are registered in science and science related disciplines;
- Promoting post-graduate education in scientific disciplines, targeting 10% of the student population in tertiary educational institutions enrolling at the post-graduate level;
- Creating special incentives for learners and graduates of STEM subjects;

- Improving science education at all levels and in all aspects of the education system, especially at the basic and secondary levels, with an emphasis on creativity and innovation;
- Promoting technical and vocational education and training to enhance middle level management in science and technology delivery to all sectors;
- Promoting science and technology innovativeness within the educational system;
- Increasing the country's capacity to train personnel in emerging technologies such as biotechnology, nanotechnology and material science and engineering;
- Using the mass media to popularise STI;
- Enhancing the collaboration between research institutions and universities to produce high-level scientific manpower;
- Ensuring that adult literacy classes include studies into cause and effect relations and how things work;
- Facilitating a regular review to identify skill gaps in STI (new emerging technologies);
- Revamping the practice of industrial attachments for technical and vocational education as well as science, technology and engineering learners;
- Devising ICT-driven education and training programmes in science and mathematics in basic and second cycle education; and
- Reviving the National Science and Technology Museum project, which began as far back as 1965, to use it as a major instrument to promote science acculturation nationally. Regional Science and Technology Museums should be built nationally as part of a major project to promote science and technology education.

4.0 Rationale for Reviewing the Curriculum

Fundamentally, the review of the curriculum is to respond to a national priority of shifting the structure and content of the education system from merely passing examinations to building character, nurturing values, and raising literate, confident, and engaged citizens who can think critically. And as an outcome, to raise the quality of education at the pre-tertiary level, with emphasis on science and mathematics as fundamental building blocks for success in either tertiary education or early entry into the work place.

The review of the curriculum is to address the inherent challenges in the existing curriculum and ensure that the content of the national curriculum can be internationally benchmarked.

4.1 Overview of the Current Curriculum

The current pre-tertiary education curriculum:

- follows the objective-based curriculum design model and is officially defined by subject syllabuses. The subjects covered by the pre-tertiary school curriculum are presented in Table 1.
- emphasises the use of official syllabuses, textbooks and teacher's handbooks, which are the only curriculum materials available to teachers and classroom activities are generally textbooks based, even though there are not enough textbooks for all school learners.
- emphasises an activity-based approach which involves inquiry, creativity, manipulation, collaboration and social interaction but upon implementation, the learning and teaching activities in classrooms tend to favour an expository or didactic teaching approach which is largely teacher-centred.
- made provision for the use of Ghanaian languages as the medium of instruction for kindergarten and the first three years of primary school through which leaners are to learn the mechanics of reading and writing in their local Ghanaian language, as a necessary prerequisite for introducing learners to a foreign language.
- made use of School-Based Assessment (SBA) with a focus on Class Assessment Tasks (CATs) as a replacement for continuous assessment in order to make assessment more comprehensive (i.e. to cover more applications and affective qualities).

Table 1 Subjects offered at each level of basic education

Level	Number of subjects offered by student	Subjects/Programmes[3] of study
(KG)	7	Language and Literacy, Environmental Studies, Mathematics/Science and Technology, Creative Activities (Music and Dance and Art), Music Dance and Drama, Physical Development, Psychomotor Skills, (cuts across all areas)
Lower Primary (P1 – P3)	8	Literacy (English Language), Mathematics, Ghanaian Language, Creative Arts, Information and Communication Technology (ICT), Religious and Moral Education, Physical Education, Natural Sciences
Upper Primary (P4-P6)	9	Mathematics, English Language, Integrated Science, Ghanaian Language, Creative Arts, Citizenship Education, Information and Communication Technology (ICT), Religious and Moral Education, Physical Education
JHS 1 - 3	11	Mathematics, Ghanaian Language, English, Integrated Science, Social Studies, French, Information and Communication Technology (ICT), Religious and Moral Education, Music and Dance, Basic Design and Technology, Physical Education
SHS 1-3 Core	5	Mathematics, English Language, Integrated Science, Social Studies, Information and Communication Technology (ICT). Physical Education
SHS 1-3 Programmes	3	Science, General Arts, Business Education, Agricultural Science, Home Economics, Technical and Vocational Education,

4.2 Challenges with the Current Curriculum

Even though the Ministry of Education expects a five-year curriculum revision cycle, this has not been the case in the last two decades. For instance, the kindergarten curriculum that is currently in use was developed in 2006; the basic school curriculum (P1-JHS3) developed in 2007 saw, in 2012, the revision of only four subjects – English Language, Mathematics, Integrated Science and Ghanaian Languages and Culture; and the curriculum at the SHS level was reviewed in 2010. In these reviews, attempts were made to address issues of curriculum content overload within and across subjects and emerging issues. The reviews of 2006, 2007, 2010 and 2012, however, have not been able to address the fundamental concerns and challenges that inhibit learners' opportunities to experience the education programmes and practices that will enable them to contribute to the transformation of the Ghanaian society. Some of these concerns are:

- The absence of clearly defined philosophies, goals and aspirations to guide the educational system, though there were subject specific rationale.
- The lack of performance standards to guide the teaching, learning, assessment and grading of learners.
- The lack of minimum national standards (i.e. the key/core knowledge, attitudes and skills that are considered for the national education entitlement of all learners for the end of each cycle).

In addition, the following challenges have been identified with the current curriculum:

[3] At the SHS, learners study subjects categorised into programmes. Appendix 1 shows the subjects offered in SHS programmes.

- The pre-tertiary curriculum in Ghana is objectives-based (designed to deliver a focus on knowledge) rather than measurable standards (emphasising competency and driven by reasoning and application);
- The structure and content of the curriculum have not been consistently evaluated and strategically reviewed to enable it to support the development of the type of human resource that the country needs.
- The assessment system does not provide effective examinations outcomes data for evaluating teaching and learning in order to improve the quality of pre-tertiary education;
- The assessment system is fraught with challenges; its content and its implementation are academic and examination driven. The World Bank's (2013) 'Systems Approach for Better Education Results (SABER)' study also posits that classroom assessment practices in Ghana are generally weak and the formal mechanisms that are in place to monitor their quality are limited;
- There is poor implementation of the medium (language) of instruction policy (language in education policy) in the early years;
- Ghanaian children appear to place little value on learning the country's history;
- The curriculum is still loaded - there is curriculum overload/overlap caused by an imbalance of depth and breadth. There are too many subjects in the school curriculum – 7 in KG and 8 in lower primary;
- The current curriculum does not provide flexible education pathways for identifying and nurturing the talents and interests of learners early enough to prepare them for the world of work, career progression and sustainable development; and
- A significant number of graduates from the basic and senior high schools are functionally illiterate, and ill-prepared for further education, training and job placement.
- SHS education in Ghana is highly selective. Learners are admitted based on selection criteria, with some senior high schools not taking learners of all abilities because the SHS education system is highly selective which has been criticised for two reasons.
    - The first regards the problematic nature of the stanine grading system used in the BECE. It is questionable whether BECE grades provide an adequate basis for dividing children according to their abilities for placement into programmes.
    - The second concerns how the selection based on ability has reinforced a social system of no parity of esteem.

It has ensured that many parents send their children to the higher social status (or well endowed) SHSs which have better career prospects. That is, the selection of SHSs has reinforced social divisions in society; working-class children are much less likely than middle-class children to go to the high social status (or well endowed) SHSs because of the high fees and additional costs imposed by such schools.

4.3 Rationale for Curriculum Review

The Ghanaian Pre-tertiary Education Curriculum, which is officially defined by the subject syllabuses, is based largely on the *objective model of curriculum development* which was used in many developed countries in the last half of the 20th Century. The use of the objective model of the curriculum led to an over-emphasis on the products of learning; that is, knowing basic facts, principles, skills and procedures at the expense of the processes of learning which involve higher cognitive competences such as applying, thinking critically, creatively and

practically; and the personal qualities and social skills necessary to become competent, engaging and contributing citizens.

A comparison of the Ghanaian pre-tertiary education curriculum with other countries' (e.g. Singapore, Malaysia and South Korea) indicates that objectives-based curriculum design is no longer favoured in modern educational practice. Furthermore, the aforementioned countries' practice of consistently evaluating the curriculum to put in place auxiliary interventional modules that support the national and global developmental agenda through the necessary human resources, is currently not being observed in Ghana.

The world in which schools operate has undergone major changes since the beginning of the millennium as a result of the increasing impact of globalisation and the challenges of a sustainable future. These developments have made the competences necessary in society and working life to be changing and requiring skills for building a sustainable future. However, in Ghana, the education system implemented a curriculum that is still elitist (or bookish) and narrowly focused on the subject content, with little emphasis on the cross-cutting essential learnings that can develop the knowledge and skills required to promote sustainable development. The movement towards a standards-based curriculum aims to ensure that schools are reformed, to ensure the development of these competences.

The government has redefined basic education to include senior secondary education and as of September 2017, all JHS learners now proceed to SHS with placement not based solely on BECE results. This move demonstrates the government's commitment to SDG4[4], which ensures that all learners from diverse backgrounds will have access to high-quality education. The calibre of Ghana's primary school and JHS products and the nature of teachers' classroom practices and learners' learning experiences in our schools, as well as the extended basic education reform, require an overhaul of the current curriculum if llearners are to receive the education they will need to succeed in the 21st century. There is a pressing need for a standards-based curriculum to meet the demands of the inclusive education system introduced in order to reform curriculum content, implementation and learning outcomes.

The adoption of a standards-based curriculum grew out of a dual demand for increased educational accountability and rigour. Stakeholders wanted assurances and evidence that learners were learning, and whether they were learning to satisfactory levels. The introduction of standards, including performance standards that provide clear reference points for measuring the extent to which learners are performing at minimally acceptable levels, will allow the system to respond to this dual demand.

In addition, the key philosophies and goals underpinning the curriculum, as well as the knowledge, attitudes and skills that are considered the national education entitlement of all learners, are not clearly defined and articulated in a single document. Even though there are several policy documents that guide the education system (e.g. Education Service Act 2008 [i.e. Act 778], 1992 Constitution, 2004 Government White Paper, ESP 2010, Teaching Syllabuses), policies in these documents have not been harnessed into a simple framework document that can serve as a reference for information on the goals, design and implementation of the curriculum as well as actions and benchmarks for the implementation, monitoring and evaluation of the education system. There is a need for such a document to enable our education system to respond to the changing demands of individuals and society, as well as the rapid changes in our schools driven by globalisation, ICT development, competition, shift of traditional values and new paradigms. This *National Pre-tertiary Education Curriculum Framework* becomes one of the main pre-requisites for the Ministry of Education to fulfil its assigned roles.

[4] UNESCO (2015). *Education 2030 Incheon Declaration Towards inclusive and equitable quality education and lifelong learning for all.* Paris: UNESCO

5.0 The Role, Purpose, Vision and Philosophy of the Pre-tertiary Education Curriculum

Ghana has undertaken a series of curriculum reforms based on the objective model of curriculum development. Such curricula in part contributed to poor learning outcomes for learners. The emphasis of this reform is the introduction of a standards-based curriculum – the new direction for pre-tertiary education curriculum in Ghana. The set of standards are broad statements that define the content to be learned in terms of clear definable outcomes of what learners at the pre-tertiary education level should know and be able to do.

5.1 Role and Purpose of the Framework

Prior to this review, the curricula used in pre-tertiary educational institutions in Ghana had been structured mostly on the behavioural view of learning to the neglect of cognitive learning theories, and the constructivist approach to knowledge acquisition. Consequently, the content matter of the curriculum was pre-determined and specific approaches to teaching were suggested. In addition, the assessment of student learning was based on testing learners on an accumulation of isolated facts and skills. This led to rigid prescriptions of textbooks that were aligned to the various subject syllabuses. This also limited the ingenuity of the teacher. Standards-based reforms do not necessary conform to the strict adherence to the behavioural view of learning.

The role of this Framework is to emphasise the construction, application and use of knowledge in our schools by setting national standards. These national standards in turn can provide opportunities for directing learning and instruction. Furthermore, it allows for the appropriate management of assessment, since learning outcomes can be measured against comparable standards. As such, learning outcomes can be appropriately measured as indicators of the quality of the educational system.

In general, standards help teachers to design a curriculum, instruction and assessment on the basis of what is appropriate, relevant and important to learn (i.e. teachers will be provided with ideas about what to teach and the flexibility to design instructions from multiple perspectives to ensure and enhance learning). This flexibility will enable teachers to make learning expectations clear to all learners and enhance teachers' ability to consider the diverse needs, previous experiences, interests and personal characteristics of all learners within the framework of inclusivity. Consequently, all learners will be given the chance to be part of the shared learning experiences of the classroom, regardless of their differences.

5.2 The Vision

The 21st Century world is changing at a fast pace and this change is greatly influenced by rapid developments in technology, engineering and other related fields. These changes come with both challenges and opportunities, to which Ghana is responding through various reforms, one of which is this curriculum reform. A number of issues confront Ghana's national development efforts in this globalised and technological world.

Globalisation has modified the way Ghana relates to other nations in the West African sub-region and across the world. In addition, Ghanaian culture, values and national identity have all been impacted. Consequently, there is a need to confront these challenges by providing learning experiences that enable learners to appreciate Ghanaian culture and develop passion for STEM related subjects as dynamic tools for development. It is also important to ensure that Ghana's children have the same opportunities or better learning opportunities as children in other parts of the world and become global citizens as a result.

Essentially, the educational experiences provided to Ghana's learners should inspire them to know about and value the history and traditions of their family, community and nation, as well provide them with the opportunity to critically examine the history and culture of other

communities, and of other countries and peoples. That way, the Ghanaian child will not lose his or her identity as a result of the experiences provided through the educational system.

Furthermore, new technologies have shaped and continue to shape how we learn and work. New learning standards should reflect the realities of this new digital era, where learners are not just *consumers* of knowledge, but *creators* of knowledge. Consequently, this reform is aimed at raising the quality of education at the pre-tertiary level, which emphasises science and mathematics as fundamental building blocks for accelerated national development in this age of technology.

Our vision, therefore, is of a curriculum which:

- Gives all Ghanaian children of school going age the chance to benefit from quality basic education;
- Transforms our schools into student-friendly, stimulating and engaging environments for learners to learn and fulfil their individual potential;
- Inspires learners to know about and value the history of Ghana;
- Transforms Ghana into a mathematics friendly nation within an environment of science and technology; and
- Produces graduates who can engage in life-long learning and can apply the knowledge innovatively.

5.3 Philosophy of the Curriculum

Underpinning the National Curriculum embodied in this Framework is a philosophy of learning and teaching that responds to the opportunities and challenges facing Ghana currently and in the future. Essentially, the philosophy requires the harmonious development of the physical, mental and spiritual capabilities of learners who undergo studies based on the National Curriculum. In this way, Ghana's educational system will epitomise 'the creation of well-balanced (intellectually, spiritually, emotionally, and physically) individuals with the requisite knowledge, skills, values and aptitudes for self-actualisation and for the socio-economic and political transformation of the nation' (see Anamuah-Mensah Committee Report, 2002). The education system will produce honest, creative and responsible citizens for both Ghana and the world.

Within the philosophy of the harmonious development of the individual is the belief that, irrespective of the diverse needs of learners in Ghana's classrooms, every student should be supported and given the opportunity to achieve their full potential and become a productive citizen. This philosophy requires that:

- The educational system is flexible and encourages teachers to engage in innovative teaching to meet the unique needs of learners;
- Classrooms should be learner-centred where learners are actively engaged in the learning process as a result of teachers adopting appropriate approaches to planning and classroom practice;
- Teaching and learning approaches and programmes are appropriately differentiated to meet the needs of learners;
- Schools shift from an emphasis on summative assessment to the formative, a philosophy that espouses the need to employ multiple sources of evidence about learning, which will guide instructional decisions and support each learner's learning trajectory;
- Schools should be teacher-centred with its related practices (teacher self-evaluation, performance appraisal/professional review, effective use of

assessment data, strong curriculum subject knowledge, use of appropriate pedagogy, accountability, continuing professional development, work-life balance and well-being) adopted so that a culture of high challenge, high trust and high performance in a professional environment is established – from which every student benefits (see Sherrington, 2016);
- Appropriate pedagogies are employed in the curriculum delivery. Because schools are teacher-centred, teachers are able to use pedagogies, equipment, and materials of instruction that transform classrooms from the traditional teacher-centred classrooms to environments that provide opportunities for the use of dialogic learning and teaching approaches – the use of inquiry-oriented learning approaches, thematic teaching, independent projects, computer simulations and technological devices such as phones, cameras, tablets and computers.

All education stakeholders, particularly, subject curriculum developers and teachers, should understand this philosophy and apply it consistently in their work.

5.4 The Aims and Objectives

Aims and Objectives are very traditional components of any well-developed Curriculum Framework. This Curriculum Framework defines the aims and objectives for all parts of the curriculum included within its scope.

The Aim

The Aim of the *National Pre-tertiary Education Curriculum* of Ghana is to turn out graduates who are good problem solvers, have the ability to think creatively and have both the confidence and competence to participate fully in the Ghanaian society as responsible local and global citizens.

Objectives

The Curriculum Framework has been formulated with the following broad objectives in mind, which will form the basis of all teaching and learning programmes and classroom activities at the basic education level. The objectives are as follows:

- Provide learners with broad up-to-date knowledge, skills, values and attitudes in both existing and new subject disciplines and in a range of foundational literacies;
- Develop in learners the ability to apply what they have learned with confidence and competence in the world of work;
- Instil in learners an understanding of Ghana's history, culture and traditions and of their rights and responsibilities as citizens;
- Encourage learners to fully participate in the learning process and to promote learning as a lifelong endeavour;
- Encourage and support teachers to engage in creative and dialogic instructional practices;
- Promote an inclusive educational system where individual strengths and potentials are valued and maximised, regardless of ethnicity, religion, gender, geographical location or disability;
- Encourage learners to learn mathematics as a foundational building block to learning other subjects;
- Instil in learners the importance of making responsible choices regarding the environment and climate;

- Promote financial literacy to include the development of entrepreneurial skills for all learners; and
- Encourage learners to learn a Ghanaian language and a modern foreign language as part of becoming a global citizen.

5.5 Values

Ghana has a rich, proud history which underpins the people's way of life. Ghanaian traditions include values such as honesty, respect, and tolerance that are cherished by the society at large and must be expressed within the educational context. There is, therefore, the need to preserve and pass on these values to the younger generation in order to prepare them to participate in and contribute meaningfully to the culture, society, and economy of the country as knowledgeable and active citizens. This will guarantee and secure the character of Ghana and her people. This Curriculum Framework reflects and promotes the values which are important to Ghanaian societies. Every part of the curriculum, including the related pedagogy, should be consistent with the set of values contained in the Framework.

The National Pre-Tertiary Education Curriculum Framework captures the following core values:

Respect: This includes respect for the nation of Ghana, its institutions and laws, and the culture and respect among its citizens and friends of Ghana.

Diversity: Ghana is a multicultural society in which every citizen enjoys fundamental rights and responsibilities. Learners must be taught to respect the views of all persons and to see national diversity as a powerful force for nation development. The curriculum promotes social cohesion.

Equity: The socio-economic development across the country is uneven. Consequently, it is necessary to ensure an equitable distribution of resources based on the unique needs of learners and schools. Ghana's learners are from diverse backgrounds, which requires the provision of equal opportunities to all, and that all strive to care for each other both personally and professionally.

Commitment to achieving excellence: Ghana's learners must be taught to appreciate the opportunities provided through the curriculum and persist in doing their best in whatever field of endeavour as global citizens. The curriculum encourages innovativeness through creative and critical thinking and the use of contemporary technology. Ghana will instil the value of excellent service above self.

Teamwork/Collaboration: Ghana's schools are to be dedicated to a constructive and team-oriented working and learning environment. This also means that learners should live peacefully with all persons with an attitude of tolerance and collaboration.

Truth and Integrity: The curriculum aims to develop Ghana's learners into individuals who: will consistently tell the truth irrespective of the consequences, be morally upright with the attitude of doing the right thing even when no one is watching, be true to themselves and lawful beliefs, and be willing to live the values of honesty and compassion. Equally important, the ethos of the work place, including integrity and grit, must underpin the learning processes to allow learners to see and apply academic skills and competences in the world of work.

6.0 Principles of the Curriculum

There are general principles, curriculum implementation principles and subject specific cross-cutting issues that curriculum developers must consider when developing the pre-tertiary education curriculum. These are discussed below:

6.1 General Principles

Ghana envisages a standards-based curriculum that is relevant, coherent, balanced, consistent and flexible and responds to changing circumstances and contexts and will engender adaptability in Ghana's youth so that they are prepared for an uncertain future in the national, regional and global contexts.

The curriculum principles guide the way the curriculum is constructed but they go beyond this and have an impact on teaching and learning, on the way progress is assessed, on the way teachers are trained, and on the way schools are led and managed (see Rwanda Education Board/Ministry of Education – Rwanda, 2015).

A standards-based curriculum is designed using a Learning Outcomes. The Learning Outcome comprises a series of curriculum outcomes statements describing what knowledge, skills and attitudes learners are expected to demonstrate as a result of their cumulative learning experiences in school. To write the standards-based curriculum for the various subjects, curriculum panels need to understand the following key general principles:

Cross-Cutting Essential Learnings

The first step in the design of a standards-based curriculum is to focus on a small number of cross-cutting essential learnings (or cross-curricular essential learnings or transversal skills). That is, what is most important for children to learn - to learn how to do or to learn how to be. Generally, these are defined as the higher order intellectual, personal and social skills necessary for the children to succeed in education, as members of society and as individuals with the capacity to contribute to their communities and continue learning throughout their lives. These learnings/skills include communication, critical, reflective and creative thinking skills, social responsibility, personal responsibility, etc. Essential learnings apply equally to all learning levels and disciplines and are expected to be woven into daily teachings.

General Curriculum Outcomes

The second step in the design of a standards-based curriculum for a subject is to identify, conceptualise and state the *general curriculum outcomes (or domain, or content domain, or content standards).* The general curriculum outcomes can also be conceived as the '*critical topics'* or 'critical essential learnings within a group of topics' and its associated learners' basic-school level strands, which are learning outcomes. The basic-school level standards and their indicators describe the specific understandings or skills learners should be able to demonstrate at each basic-school level. Earlier standards-based designs used the term 'domain' in the curriculum to refer to the *general curriculum outcome*. In a standards-based curriculum, these are also referred to as standards.

Specific curriculum outcomes

The third step is to state the *specific curriculum outcomes (or student learning outcomes)* for each of the general curriculum outcomes. These are statements that identify what learners are expected to know and be able to do at a particular grade level on the general curriculum outcomes.

Key Phase curriculum outcomes

Key Phase curriculum outcomes are statements that identify what learners are expected to know and be able to do by the end of Key Phases 1, 2, 3 and 4 as a result of their cumulative learning experiences in a curriculum area.

Performance standards and benchmarks

Performance standards and benchmarks describe the minimal levels of competency (i.e. understandings and/or skills) that learners must be able to demonstrate on a standard, by the end of the school year, if they are to be successful in the next basic-school level. Performance standards are used to set performance benchmarks, that is, indicate the minimal levels of competency required to be successful in subsequent basic-school levels. The benchmarks allow key stakeholders (district officials, head teachers, teachers and parents) to determine whether learners at a given basic-school level are progressing as expected.

Generally, the National Pre-Tertiary Education Curriculum will:

- Provide a balance of knowledge, skills and attitudes within the expected level of learning and performance standards;
- Ensure coherence within subjects and across subjects, years and phases;
- Provide learner-centred, active and participative learning experiences for all learners in the learning process across subjects, years and phases;
- Ensure inclusiveness so that every individual is valued and there are high expectations of every learner;
- Effectively address issues of relevance, scope, sequencing, overlaps, overloads, repetitions and disconnect between initial teacher training curricula;
- Provide content and guidance that allow teachers to differentiate and tailor learning to meet individual and national needs and aspirations;
- Encourage flexibility so that it can evolve in response to changing circumstances and contexts and engender adaptability in young people so that they are prepared for an uncertain future;
- Provide learning which is relevant to young people – addressing their individual needs, situations, interests and abilities;
- Facilitate smooth transitions between phases of schooling and into higher education and employment;
- Focus on young people's roles in, and responsibilities to, their families, community and society;
- Encourage the use of ICTs as a teaching and learning tool;
- Engage with the world of work and with employers;
- Provide an adequate preparation for Lifelong Learning; and
- Provide learning that encourages active girls' participation and progress throughout the stages of education in Ghana.

6.2 Curriculum Implementation Principles

The general principles guiding the implementation of the Curriculum Framework will also be the key reference points in designing the LOF for the various subject areas. The following are some of the key principles underpinning the development and implementation of standards-based curricula:

Inclusion

This principle refers to the right of every child to have equal access to quality education. All learners are entitled to a broad and balanced curriculum in every school in Ghana. The daily learning activities to which learners are exposed will ensure that the learners' right to equal access to quality education is being met. The national pre-tertiary education curriculum framework suggests a variety of approaches that address learners' diversity and their special needs in the learning process, which when effectively used in lessons will contribute to the

full development of the learning potential of every learner. Learners have individual needs and different learning styles, learning experiences and different levels of motivation for learning. Planning, delivery and reflection on daily learning episodes should take these differences into consideration. The curriculum therefore promotes:

- learning that is linked to the learner's background and to their prior experiences, interests, potential and capacities;
- learning that is meaningful because it aligns with learners' ability (e.g. learning that is oriented towards developing general capabilities and solving the practical problems of everyday life); and
- The active involvement of the learners in the selection and organisation of learning experiences, making them aware of their importance and also enabling them to assess their own learning outcomes.

Development of key competences

The curriculum framework will clearly define the **key/core knowledge, skills, attitudes and values** that are considered by the Ghanaian society and educational professionals as the national education entitlement for all citizens. The key competences envisaged are reflected through learning outcomes that are expected to be achieved progressively and in a continuous manner by all learners upon completion of Key Phase 4 (JHS) education. The key competences will be reflected through a system of Essential Learning Outcomes (ELOs), which should be achieved by all learners throughout the curriculum stages, as established by the framework.

The definition of key competences, expressed through ELOs, to be achieved by all learners at various curriculum stages during their schooling, as well as the definition of the criteria for assessing learners' level of achievement, will ensure:

- equal learning opportunities for all learners;
- fair assessment of learners' levels of achievement;
- accurate evaluation of the quality of education at national, metropolitan municipal, district assembly (MMDA) and school levels; and
- appropriate transition of learners from one curriculum phase to another, from one school to another or from one type of school to another.

The definition of the ELOs that should be achieved by all learners during different curriculum phases of schooling enables the simultaneous accreditation of other educational programmes that may be provided through non-formal education. This ensures the mobility of learners between formal and non-formal education, and the recognition of prior learning experiences that will benefit adult education and other forms of non-formal education.

Integrated and coherent teaching and learning

The Curriculum Framework will promote comprehensive learning that reflects the interconnections and interdependencies of the natural and man-made world, using the knowledge and information we have about them. To promote such an approach, the Curriculum Framework envisages:

- a good balance between the development of academic skills and the transversal competences that support identity development and the ability to live in a sustainable way;
- the use of an open and flexible scheme of work that allows for different learning styles and content that makes the curriculum relevant to learners and society;

- localisation of the curriculum to provide greater flexibility to allow teaching and learning to be adapted to the local community's materials, values, and social and entrepreneurial activities;
- integration into the curriculum of emerging areas, which reflect new developments in society, the economy, culture or science; and
- a lifelong perspective, meaning that the curriculum will prepare learners to deal successfully with the challenges of their daily lives, and the constant challenges and opportunities presented by a learning and knowledge society. Such a perspective will pay particular attention to creative competences, i.e. learning to learn, competences to evaluate and process information effectively and responsibly, and digital competences.

Responsibility and accountability

Along with school level autonomy and flexibility, the Curriculum Framework envisages the building of a clear responsibility and accountability mechanism for the entire hierarchy of the education system. Responsibility and accountability refer, firstly, to the implementation process of the Curriculum Framework and, secondly, to the education system as a whole. During the implementation process of the curriculum, special attention will be paid to the creation of an ongoing evaluation culture, ensuring that monitoring the progress of curriculum implementation requirements becomes a normal part of school activities. As part of this process, teaching staff, school management staff and district educational authorities (education officers and Association) will be involved in an ongoing process of data collection and analysis, and the documentation of challenges and solutions to ensure the successful implementation of curriculum requirements and the enhancement of the quality of education.

In this context, the implementation of the national curriculum at school level envisages:

- Active engagement on the part of schools in an ongoing process to improve teaching and learning experiences for the enhancement of student attainment;
- Active engagement on the part of schools and MMDAs in an ongoing process of data collection and analysis, and the documentation of challenges and solutions for implementing the requirements of the national curriculum; and
- A clear line of support, reporting and accountability concerning curriculum implementation.

School-level autonomy and flexibility

The Curriculum Framework is designed as a curriculum system that clearly regulates the norms of school autonomy and flexibility. It is intended that schools will have the flexibility to implement the curriculum within the context of local conditions without deviating from the aims, the vision and philosophy. The framework provides the opportunity and responsibility to the school to; for instance, draft its annual teaching plans (scheme of work) and use school time in a way that allows for interactive teaching and learning.

Also, school-level autonomy and flexibility that the framework provides, will enable schools to plan and use the curriculum without restrict, including the possibility of:

- increasing the time allocation within certain learning areas;
- developing and implementing additional curriculum elements to meet learners' special needs, as well as reflecting the circumstances under which the school operates.

6.3 Subject Specific cross-cutting issues

Cr*oss-cutting essential learnings* also referred to as transversal skills competences (or pillars of the educational system) are the higher order intellectual, personal and social skills necessary for the learners to succeed in education, as members of society, and as individuals with the capacity to contribute to their communities and continue learning throughout their lives. The *cross-cutting issues* therefore relate to how the cross-cutting essential learnings are integrated and interconnected in the various subjects.

The first step in the design of a standards-based curriculum is to focus on the cross-cutting issues. The subject panels have to identify the set of knowledge, skills, behaviours and dispositions that apply across their subject area so they can ensure cross-cutting issues are integrated when stating their learning outcomes.

For instance, '*literacy*' or '*communication competences*' is not supposed to be taught in languages only, but also in all other subjects/curriculum-content areas. Figure 3 is an excerpt from the standards-based mathematics curriculum designed by the Learning Project group.

1.6 Demonstrate an understanding of how place value determines the relative size of numbers (up to 100) by:

- Describing the relative size of two numbers (i.e., **saying** whether one number is a little or a lot bigger or smaller than another and justifying the answer)
- Identifying which of two given numbers is bigger (or smaller), **explaining** why and representing the relationship using the symbols < and >;
- putting a small group of numbers in increasing or decreasing order and **justifying** the order;
- Identifying the missing numbers in a section of number line from 1 to 100 or in a hundred chart and **justifying** the answer using place value.
- Solving word problems that involve comparing quantities up to 100 (i.e., Ahmed has 23 chickens. Amina has 46. **What can you say?**)

Figure 3 Extract from USAID Learning Project Mathematics Curriculum

As shown in Fig. 3, the highlighted words indicate how the mathematics curriculum writers emphasise communication and the expression of competences in their indicators. Therefore, the cross-cutting competences are important in ensuring the design of rich teaching-learning activities that integrate several transversal competences into the standards, to ensure that learners acquire the general capabilities necessary for success in the 21st Century.

There are contemporary and topical cutting issues across the curriculum as:

- Climate change and green economy
- Energy use and conservation
- Reproductive Health and sanitation
- Learning how to learn.

Provision will be made for these cross-cutting and topical issues to be studied in schools during the school day.

7.0 Competences and Standards in the Curriculum

7.1 General Competences Envisioned (transversal/essential soft skills)

General competences are combinations of attitudes, skills and knowledge that enhance learners' ability to draw upon and build on what they know, how they think and what they can do in school, for lifelong learning, living and working. Ghana's curriculum promotes the development of the following competences:

Critical thinking and Problem solving: Developing learners' cognitive and reasoning abilities to enable them to analyse issues and situations, leading to the resolution of problems. This skill enables learners to draw on and demonstrate what they have learned and from their own experiences to analyse situations and choose the most appropriate out of a number of possible solutions. It requires that learners embrace the problem at hand, persevere and take responsibility for their own learning.

Creativity and innovation: Promoting in learners, entrepreneurial skills through their ability to think of new ways of solving problems and developing technologies for addressing the problem at hand. It requires ingenuity of ideas, arts, technology and enterprise. Learners that possess this competency are also able to think independently and creatively.

Communication and collaboration: Promoting in learners the ability to make use of languages, symbols and texts to exchange information about themselves and their lived experiences. Learners actively participate in sharing their ideas and engage in dialogue with others by listening to and learning from others in ways that respect and value the multiple perspectives of all persons involved.

Cultural identity and global citizenship: Developing learners who put country and service as foremost through an understanding of what it means to be active citizens, by inculcating in them a strong sense of environmental, social, and economic awareness. Learners make use of the knowledge, skills, attitudes acquired to contribute effectively towards the socioeconomic development of the country and on the global stage. They build skills to critically analyse cultural trends, identify and contribute to the global world community.

Personal development and leadership: Improving self-awareness, self-knowledge, skills, health; building and renewing self-esteem; identifying and developing talents, fulfilling dreams and aspirations and developing other people or meeting other people's needs. It involves recognising the importance of values such as honesty and empathy; seeking the well-being of others; distinguishing between right and wrong; fostering perseverance, resilience and self-confidence; exploring leadership, self-regulation and responsibility, and developing a love for lifelong learning.

Digital literacy: Developing learners to discover, acquire skills in and communicate through ICT to support their learning and make use of digital media responsibly.

7.2 Phase Specific Competences

Table 2 Link between Core Competences and Phase Specific Competences

Core Competences	Early years (KG 1-B3)	Upper Primary (B4-B6)	Junior High School (B7-B9)	Senior High School (SHS1-3)
Personal development and leadership	Ability to distinguish right from wrong Have a lively curiosity about things	Have care and concern for others Have the ability to identify and develop their potential, as well as aim to achieve precision in what they do	Have moral integrity Strive for excellence and have a sense of self-regulation and social responsibility	Are able to analyse issues and situations leading to the resolution of problems Self-confident and develop a love for lifelong learning
Critical thinking and problem solving	Have learnt to share and put others first	Believe in their potential	Persevere and take responsibility for their own learning	Are able to think independently and creatively
Communication and collaboration	Are able to build friendships with others	Are able to work in teams and value every contribution	Able to participate in sharing their ideas with colleagues	Are able to engage in dialogue with others, and respect and value the multiple perspectives of all persons involved.
Creativity and innovation	Take pride in their work	Are resilient, resolute and understand what it takes to inspire and motivate others	Are enterprising and innovative	Have an entrepreneurial and creative spirit
Digital literacy	Are able to think for and express themselves	Use ICT to support their learning	Use ICT and other technologies to support their learning	Use ICT and other technologies to support learning and the responsible use of digital media
Cultural identity and global citizenship	Have cultivated healthy habits and love Ghana	Know and believe in Ghana Have a sense of environmental awareness and responsibility	Possess a good foundation for further education and possible career trajectories Have a strong sense of their cultural identity and environment	Use the knowledge, skills, attitudes acquired to contribute towards the socioeconomic development of the country Put country and service first and have a strong sense of environmental, social, and economic awareness

7.3 Standards-Based Curriculum

> *According to* Collins Cobuild dictionary, *'a standard is a level of quality or achievement, especially a level that is thought to be acceptable. It is something used to measure or estimate the quality or degree of something, for example, how good a piece of work is' (p. 1421).*

In the field of education, similar definitions have been given by several educational bodies, projects and agencies. For instance, in Israel, the term, 'standards' has been defined as a ***cumulative body of knowledge and set of competences that is the basis for quality education. They express what all pupils should know and be able to do, but do not dictate pedagogy*** (see Ministry of Education, 1998; Ravitch, 1996).

In the USA, the Quality in Undergraduate Education (QUE) project, a national project of faculty at selected four-year public institutions and their partner two-year Colleges, has defined standards or learning outcomes as ***clearly articulated statements and/or illustrations of what learners are expected to know and be able to do at particular points in their education***.

In other words, academic standards are statements that identify specific skills and levels of competency that learners must possess at particular points in the school system in order to move through the educational system. It is believed that by setting higher academic expectations in the standards, schools, teachers and learners become more responsible, and as a result, the higher the achievement that can be achieved.

A standards-based curriculum refers to a curriculum which has standards to be achieved across the educational system by identifying the knowledge, skills and dispositions that learners should know and be able to demonstrate. It also specifies activities leading to the attainment of specified standards.

7.3.1 Key Terms to consider

Content Standards: statements that define what learners should know and be able to do in various disciplinary areas: knowledge (facts, concepts, principles) and skills (processes, strategies, methods).

Content Indicators: smaller, more specific statements derived from a Content Standard.

Performance Standards: statements and illustrations that detail the levels of performance expected of learners, based on what is set out in the content standards. In other words, performance standards are statements that rate how well learners have learnt what is set out in the content standards. Levels such as *Advanced*, *Proficient*, *Acceptable*, *Novice* and *Beginner* could be established as the expected Performance Levels.

Performance Indicators: measures of performance against a set of learning targets which help to track and monitor the progress of learners.

Benchmarks: a reference point or standard against which performance or achievements can be assessed (OECD, 2002). It refers to key content and performance standards expected of learners at the end of particular points/levels in the educational system. Setting clear

benchmarks at regular intervals allows the educational system to check for student progress while still honouring variability in student development.

Benchmark test / diagnostic assessment: a test / assessment tool designed to measure student achievement and the mastery of predetermined curriculum standards. Its main purpose is to provide information that can be used to guide the teaching and learning process, as well as to determine placement levels before commencing intervention.

7.4 Achieving a Standards-Based Curriculum

Implementation of a standards-based curriculum can be achieved through the following steps**:**

- Establish a coherent national philosophy to guide education;
- Use evidence to guide research on learning and teaching;
- Align the basic school curriculum by:
    - Identifying the standards in the current curriculum
    - Comparing established practices to the developed standards
    - Recognising curriculum deficiencies;
- Use the curriculum framework as a model to develop activities related to content standards;
- Implement the standards;
- Align both teaching and assessment with the standards; and
- Provide ongoing professional development

(*Adapted from the New Jersey Science Curriculum Framework*)

The following are some characteristics of a standards-based classroom:

- Classroom climate is characterised by respectful behaviours, routines and discourse;
- Classroom practices and instructions honour the diversity of interests, needs and strengths of all learners;
- The teacher ensures that all components of the lesson (e.g. learning activities, assessment, homework) contribute to the lesson objectives and to the student mastery of the standard(s);
- Learning time is maximised for all learners;
- Instruction activates learners' prior knowledge and experience, and supplies background knowledge; and
- Learners respond to opportunities provided by the teacher to make connections between the lesson and personal experience (*Adopted from M'barek El-farhaoui, n.d).*

8.0 Assessment

Assessment in education generally refers to a process for obtaining and interpreting information that is used for making decisions about learners, curricula, programmes and educational policy. A number of decisions made about learners' competence are informed by information derived from assessment data. Therefore, assessing a learner's competence, entails collecting information from the learner regarding their progress towards attaining the necessary knowledge, skills, attitudes, or behaviours, which is useful in deciding the degree to which the learner has achieved the performance standards.

Assessment within the *National Pre-Tertiary Education Curriculum* is a coordinated plan for monitoring the academic achievement of learners from Kindergarten through to Senior High Schools in Ghana.

8.1 Principles of Assessment

Assessment plays a critical role in the successful implementation of the curriculum which requires that the assessment in place is effective as a form of communication. The understanding of assessment as a form of communication is made to a variety of sources - to the learner (feedback on their learning), to the teacher (feedback on their teaching), to the curriculum designer (feedback on the curriculum) and to district, regional and national education directorates (feedback on the use of resources).

Assessments provide a basis for planning, developing and implementing a variety of school programmes and classroom activities, and for evaluation. The primary aims of assessment are to collect and interpret information on achievements and progress that learners are making and to make decisions about how to improve outcomes by constantly adjusting the teaching and learning environment. Assessment needs the following principles to guide it:

i. ***Test developer must be clear about the performance indicators to be assessed.*** This involves clearly specifying the intended learning goals and selecting the appropriate assessment technique, which should be clear, explicit and accessible to all stakeholders, including learners.

ii. ***The assessment technique selected must match the performance indicators.*** The main criterion is whether the procedure is the most effective in measuring learning within the performance indicators. Assessment tasks should primarily reflect the nature of the discipline or subject but should also ensure that learners have the opportunity to develop a range of generic skills and capabilities.

iii. ***Assessment techniques must serve the needs of the learners.*** They should provide meaningful feedback to the learners about how closely they are meeting the demands of the performance indicators. Timely feedback promotes learning and facilitates improvement and should be an integral part of the assessment process.

iv. ***Assessment is a goal-oriented process.*** The assessment task should match the purpose of the subject being assessed. It works best when the programme being assessed has a clear, explicitly stated purpose.

v. ***Good assessments use multiple methods***. Multiple indicators of performance provide a better assessment of the extent to which a learner has attained a given learning target. Assessment needs to be comprehensive. Formative and

summative assessment should be incorporated into the programmes to ensure that the purposes of assessment are adequately addressed.

vi. ***Assessment is inherently a process of professional judgment***. Proper use of assessment procedures requires that the user is aware of the limitations of each technique. In interpreting the results of the assessment, these limitations must be considered. Therefore, all those involved in the assessment of learners must be competent to undertake their roles and responsibilities.

vii. ***Assessment is a means to an end.*** It is not an end in itself but a vehicle for educational improvement. Assessment influences learners' motivation for learning. The nature of assessment influences what is learned and the degree of meaningful engagement by learners in the learning process. Learners are, therefore, entitled to feedback on submitted formative assessment tasks and on summative tasks, where appropriate. The nature, extent and timing of feedback for each assessment task should be clear to learners in advance.

viii. ***Assessment should be valid and reliable.*** Evidence needs to be provided that the interpretations and use of learners' assessment results are appropriate and reliable. For assessment to be reliable, it requires clear and consistent processes for setting, marking, grading and moderating assignments/tests.

ix. ***Assessment decision-making is influenced by a series of tensions.*** Competing purposes, uses and pressures result in tension for teachers and administrators as they make assessment-related decisions. For example, good teaching is characterised by assessments that motivate and engage learners in ways that are consistent with their philosophies of teaching and learning and with theories of development, learning and motivation. Most teachers want to use constructed-response assessments because they believe this kind of testing is best for ascertaining student understanding. On the other hand, factors external to the classroom, such as mandated large-scale testing, promote different assessment strategies, such as using selected-response tests and providing practice in objective test-taking (McMillan & Nash, 2000).

x. ***Good assessment appropriately incorporates technology.*** As technology advances and teachers become more proficient in the use of technology, there will be increased opportunities for teachers and district and regional education directorates to use computer-based techniques (e.g. item banks, electronic grading, computer-adapted testing and computer-based simulations), Internet resources, and more complex, detailed ways of reporting results. There is, however, a danger that technology will contribute to the mindless use of new resources, such as using items online developed by some companies without adequate evidence of their reliability, validity and fairness, and crunching numbers with software programmes without giving sufficient thought to their weighting, error and averaging.

xi. ***Good assessment is fair and ethical.*** Usually, four views of fairness are presented by the Assessment Standards as i) absence of bias (e.g. offensiveness and unfair penalisation), ii) equitable treatment, iii) equality in outcomes, and iv) opportunity to learn. In assessing learners, the rights and responsibilities of test takers, testing individuals of diverse linguistic backgrounds, and testing individuals with disabilities or special needs should be considered. Student knowledge of learning targets and the nature of the assessments prior to

instruction (e.g. knowing what will be tested, how it will be graded, scoring criteria, anchors, exemplars and examples of performance) is also necessary. In short, good assessment should be inclusive and promote equity principles. It should ensure that tasks and procedures do not disadvantage any group or individual. Sound ethical principles should lead to the recognition of learners as individuals who develop at different paces. Every opportunity must be given to learners to demonstrate achievement.

8.2 Principles of Fair Assessment

The Principles for Fair Student Assessment Practices for Education in Ghana contains a set of principles and related guidelines generally accepted by professional organisations as indicative of fair assessment practice within the Ghanaian educational context. Assessments depend on professional judgment; the principles and related guidelines presented in this framework identify the issues to consider when exercising this professional judgment and in striving for the fair and equitable assessment of all learners.

The principles of fair assessment are organised around the following themes:

- Developing and Choosing Methods for Assessment
- Collecting Assessment Information
- Judging and Scoring Student Performance
- Summarising and Interpreting Results
- Reporting Assessment Findings

Developing and Choosing Methods for Assessment. Assessment methods (strategies and techniques) should be appropriate for and compatible with the purpose and context of the assessment.

Collecting Assessment Information. Learners should be provided with sufficient opportunity to demonstrate the knowledge, skills, attitudes or behaviours being assessed. Assessment information can be collected in a variety of ways (observations, oral questioning, interviews, oral and written reports, paper-and-pencil tests).

Judging and Scoring Student Performance. Procedures for judging or scoring student performance should be appropriate for the assessment method used and be consistently applied and monitored. Judging and scoring refers to the process of determining the quality of a learner's performance, the appropriateness of an attitude or behaviour, or the correctness of an answer. Results derived from judging and scoring may be expressed as written or oral comments, ratings, categorisations, letters, numbers, or as some combination of these forms.

Summarising and Interpreting Results. Procedures for summarising and interpreting assessment results should yield accurate and informative representations of a learner's performance in relation to the goals and objectives of instruction for the reporting period. Summarising and interpreting results refer to the procedures used to combine assessment results in the form of summary comments and grades which indicate both a learner's level of performance and the valuation of that performance. Interpretations of assessment results should be made with due regard for the limitations of the assessment methods used, and limitations in the basis used for interpretation. Interpretations of results should also consider the learners' backgrounds and learning experiences.

Reporting Assessment Findings. Assessment reports should be clear, accurate, and of practical value to the audiences for whom they are intended. Reports should be comprehensive in their descriptions of strengths and weaknesses of learners, so that strengths can be built upon and weaknesses addressed.

8.3 Types of Assessment

Assessment types are varied. They are diagnostic assessment, formative assessment and summative assessment.

8.3.1 Diagnostic assessment

Diagnostic Assessment is useful in identifying learners' current knowledge and skills and ability and helps to clarify misconceptions prior to introducing learners to a new learning area. The information gathered from a diagnostic assessment is essential for better planning of what is to be taught and how to teach it. Diagnostic assessment may take the form of pre-test of learners' knowledge and ability in a given content standards and performance indicator. It can also take the form of self-assessment against core competences for the purposes of identifying areas of strengths and weaknesses. Use of short interviews of 10 minutes or less is another way to undertake a diagnostic assessment.

8.3.2 Formative assessment

Formative assessment provides feedback and information during a teaching and learning process, while teaching is taking place, and while learning is occurring. Formative assessment measures learners' progress and in a way assesses the teachers' own progress of delivering the content in a manner that ensures learning is taking place. Primarily, formative assessment focuses on identifying areas of learning that may need improvement. In order for it to serve this purpose, formative assessments are not normally graded and instead feedback is provided to enable the learner know their learning progression and to determine the effectiveness of lesson delivery by the teacher – whether the methods and activities being used are appropriate. So, the purpose of formative assessment in Ghana's schools is to improve learning and to shape and direct the teaching-learning process. School teachers in Ghana are to make effective use of feedback in this regard as effective feedback is central to formative assessment of learning. In Ghanaian classrooms, it is expected that when teachers can use formative assessment, they should be able to indicate what is good about a piece of work and why it is good; also indicate what is not good and how the work could be improved. Effective formative feedback will affect what the student and the teacher do next in the teaching and learning process.

Formative assessment in Ghana's classrooms should include:

- Observations during in-class activities
- Homework exercises as review of class discussions and signal for future teaching and learning activities.
- Reflections journals that are reviewed periodically during the term
- Question and answer sessions, both formal (planned) and informal (spontaneous)
- Progress review meetings between the teacher and student at various points in the term
- In-class activities where learners informally present their results.

8.3.2.1 Assessment for Learning

The use of formative assessment in Ghanaian classrooms should be understood as *Assessment for Learning* (AfL), an assessment practice that describes approaches within the formative purposes of assessment. AfL is the process of seeking and interpreting evidence for use by learners and their teachers to decide where the learner is in their learning, where they need to be (the desired goal), and how best to get there. AfL is one of the powerful methods for improving learning and raising standards (Black and William, 1998).

Assessment for Learning also refers to 'all those activities undertaken by teachers and/or by their learners, which provide information to be used as feedback to modify the teaching and learning activities in which they are engaged' (Black and William, 1998). AfL can be achieved through processes such as sharing criteria with learners, effective questioning, and feedback.

Within the context of education in Ghana, AfL:

- comprises two phases - initial or diagnostic assessment and formative assessment;
- can be based on a variety of information sources (e.g. portfolios, works in progress, teacher observation, conversation);
- involves giving verbal or written feedback that is primarily descriptive and emphasises strengths, identifies challenges, and points student to the next steps;
- demands of teachers to check on learners' understanding, and adjust their instruction to keep them on track;
- involves giving no grades or scores and record-keeping that is primarily anecdotal and descriptive; and
- occurs throughout the learning process, from the outset of the course of study to the time of summative assessment.

8.3.3 Summative assessment

Summative assessment is an assessment made normally but not always at the end of the school year based on the accumulation of the progress and achievements of the learner throughout the year in a given subject, together with any end-of-year tests or examinations. Summative assessment demonstrates the extent of a learner's success in meeting the assessment criteria used to gauge the intended learning outcomes and which contributes to the final mark given for the learning area within the content standards. The result of summative assessment is a single end-of-year promotion grade. Summative assessment captures a record of learning at the end of a period of study. However, formative and summative assessments are not in opposition; they are interrelated and complementary. The information from formative assessment, supplemented by class tests or tasks, helps to ensure dependable summative assessment.

Summative assessment is used to quantify achievement, to reward achievement, to provide data for selection to the next stage in education or employment. For all these reasons the validity and reliability of summative assessment are of the greatest importance. Summative assessment can provide information that has formative/diagnostic value.

Summative assessment in Ghana's schools should take the form of:

- Examinations (end of term)
- Final examination (end of studying a programme; this is truly summative assessment)
- Projects (project phases submitted at various completion points could be formatively assessed)
- Portfolios (could also be assessed during its development as a formative assessment)

8.3.3.1 Assessment of Learning

Assessment of Learning (AoL) is carried out purposely for grading and reporting. AoL involves decisions about the merit of learner performance in relation to standards of performance. It is designed to measure student achievement and gauge what they have learned. AoL takes place at a point in time for summarising the status of student achievement. It occurs at the end of the learning unit. AoL has well established guidelines that include:

- a number or letter grade (summative).
- comparing a learner's achievement with the standards.
- communicating results to learner and parents, where necessary.

8.4 Purposes of Assessment

Assessment is the process of gathering information for decision making about learners, curricula, programmes and educational policies. The enterprise of education in general needs planning and decision making. For example, teachers need information on pupils to be able to meaningfully plan for their instruction. Without relevant information we may not be able to meet the needs of our pupils. The question then is what are the specific purposes and functions of educational measurement or assessment? Four specific purposes of assessment (Kelly, 2009) are as identified as follows:

Formative, so that the positive achievements of a pupil may be recognised and discussed and the appropriate next steps may be planned
Diagnostic, through which learning difficulties may be scrutinised and classified so that appropriate remedial help and guidance can be provided
Summative, for the recording of the overall achievement of a pupil in a systematic way
Evaluative, by means of which some aspects of the work of a school or discrete part of the educational service can be assessed and/or reported upon

The practical ways of achieving these purposes are presented below:

Planning and Organisation of Instruction (diagnostic). Educational assessment helps a teacher to plan and organise their teaching activities. Before any meaningful teaching, it is necessary to have a clear idea of the entry behaviour of the pupils. The entry behaviour is what the pupils know and what they can do as well as what they cannot do. This also includes their abilities, interests and deficiencies. Understanding the entry behaviour will assist in determining what pupils should be taught. It is through assessment that we will get to know the entry behaviour of pupils to enable the effective planning of instructional activities.

Assessment can take the form of informal discussions with pupils, testing them, quizzing them and observing them, as the case may be.

Instructional Management Decision Making (formative). School assessment is necessary for instructional decision making. It is not sufficient merely to plan, organise and deliver instruction; it is also necessary to consider how to help learners to improve as well as ensure the teachers improve upon their instruction. The purpose of assessment with regard to instructional decision-making has several aspects. One aspect of the instructional management decision making is feedback to teachers. Teachers need to diagnose their instruction and remediate the aspect(s) which have not been very effective. Effectiveness of instruction is partly determined by student responses to questions posed to them. When the assessment of pupils' understanding does not provide the expected answer(s), that is an indication that the instruction has not been very effective.

Learners also need information on how well they have been doing in relation to the set of instructional objectives and standards. Learners need feedback on their performance. Unless they are assessed in some form, teachers will not be able to provide the necessary feedback to individual learners. Thus, one purpose of assessing learners is to provide feedback to them to facilitate their learning. It is, however, important to note that for the feedback to the learners to be effective, the learner should not be given only a mark but shown where they have gone right or wrong. The learner should be helped to correct their errors before going on to new material or learning area.

Grading Learners (summative and evaluative). Teachers are expected to assign scores or grades to their pupils based on how good their performance or achievement is, considering the objectives and standards. Although teachers continually assess pupils' progress in many ways, it is necessary to formally evaluate pupils' learning by using grades. The marks or grades that are assigned to pupils represent the evaluations of the quality or worth of achievement of the important learning objectives.

Guiding Pupils (formative/ diagnostic). Assessment has an important role to play in the guidance of pupils. Guidance is one of the pupil personnel services provided in a non-instructional setting to cater for the needs of the pupil including their educational, emotional and moral adjustment needs. Guidance is a form of systematic assistance separate from regular instruction that helps them to assess their abilities and capabilities and use that information effectively in daily life.

To be able to provide effective guidance to the pupil, it is necessary to obtain the necessary and relevant information on the pupil to aid the guidance system. Learners need guidance from both teachers and relevant stakeholders, particularly where they will be making choices of subjects.

Certification Decisions (summative). One other purpose of assessment is for making certification decisions. Certification decisions are concerned with ensuring that a student has attained certain standards of learning. Student certification may be done by an examining agency such as the West Africa Examinations Council (WAEC). In Ghana, with the introduction of the practice of continuous assessment, teachers' assessment scores contribute to the certification of their learners. The continuous assessment component forms 30% of the final grading for Junior and Senior High School graduation.

Thus, assessment exists for varied purposes, ranging from planning and organisation through to instructional management decision-making, learners' motivation, grading and offering guidance to pupils for certification.

8.5 Assessment Forms

Assessment in Ghana's schools should take the following forms:

8.5.1 Continuous assessment

In order to capture the full range and levels of competence, a variety of formal and informal continuous assessment situations are necessary to provide a complete picture of the learner's progress and achievements in all subjects. Continuous assessment must be clear, simple and manageable, and explicitly anchored in learner-centred principles and practice. Teachers must elicit reliable and valid information of the learner's performance in the basic competences. The information gathered about the learners' progress and achievements should be used to give feedback to the learners about their strong and weak points, where they are doing well and why, and where they need to improve, how, and why. The parents should be regularly informed about the progress of their child in all subjects, be encouraged to reward achievements, and given suggestions on how they can support their learning activities.
The learner's progress and achievements in all subjects must be reported to parents in the school report.

8.5.2 School Based Assessment

School Based Assessment (SBA), also referred to as Continuous Assessment, which is used in Ghana as part of the Educational Reforms that began in September 2008, is recommended for use. SBA is a very effective system for teaching and learning if carried out properly. The new SBA system is designed to provide schools with an internal assessment system that will help them to achieve the following purposes:

- Standardise the practice of internal school-based assessment in all schools in the country.
- Provide reduced assessment tasks for each of the primary school subjects.
- Provide teachers with guidelines for constructing assessment items/questions and other assessment tasks.
- Introduce standards of achievement in each subject and in each class of the school system.
- Provide guidance in marking and grading of test items/questions and other assessment tasks.
- Introduce a system of moderation that will ensure the accuracy and reliability of teachers' marks.
- Provide teachers with advice on how to conduct remedial instruction on difficult areas of the syllabus to improve pupil performance.

The marks for SBA should together constitute the SBA component that is marked out of 60%. The emphasis is on improving learners' learning by encouraging them to perform at a higher level. The SBA will hence consist of:

- End-of-month/Strand tests
- Homework assignments (specially designed for SBA)
- Project

The SBA system will consist of 12 assessments a year instead of the 33 assessments in the previous continuous assessment system. This will mean a reduction by 64% of the work load compared to the previous continuous assessment system.

Apart from the SBA, teachers are expected to use class exercises and home work as processes for continually evaluating pupils' class performance, and as a means for encouraging improvements in learning performance.

8.5.3 End-of-Term Examination

The end-of-term examination is a summative assessment system and should consist of a sample of the knowledge and skills pupils have acquired in the term. The end-of-term test for Term 3 should be composed of items/questions based on the specific objectives studied over the three terms, using a different weighting system so as to reflect the importance of the work done in each term in appropriate proportions.

8.5.4 Combining SBA marks and End-of-Term Examination Marks

The new SBA system is important for raising pupils' school performance. For this reason, the 60 marks for the SBA will be scaled to 50 in schools. The total marks for the end of term test will also be scaled to 50 before adding the SBA marks and end-of-term examination marks to determine pupils' end of term results.

8.5.4.1 Grading Procedure

To improve assessment and grading and also introduce uniformity in schools, it is recommended that schools adopt the following grade boundaries for assigning grades:

Grade A:	80 - 100%	-	Excellent
Grade B:	70 - 79%	-	Very Good
Grade C:	60 - 69%	-	Good
Grade D:	45 - 59%	-	Credit (Satisfactory)
Grade E:	35 - 44%	-	Pass
Grade U	≤ 34%	-	Fail

The grading system presented, shows the letter grade system and equivalent grade boundaries. In assigning grades to pupils' test results, or any form of evaluation, the above grade boundaries and the descriptors may be applied. The descriptors (Excellent, Very Good, etc.) indicate the meaning of each grade.

8.5.5 Informal and formal methods

The teacher must assess how well each learner masters the basic competences described in the subject syllabuses and from this gain a picture of the all-round progress of the learner. To a large extent, this can be done in an informal way through a structured observation of each learner's progress in learning and practice situations while they are investigating things,

interpreting phenomena and data, applying knowledge, communicating, making value judgments, and in their participation in general.

In the Pre-Primary phase, all assessment is observational and aims to identify if a child has special needs and how to mobilise the resources to meet them. There are no end-of-term oral or written tests or examinations. In the Lower Primary phase and in non-promotion subjects in Years 4-12, only informal continuous assessment is used. It is done in less structured and more structured settings.

When it is necessary to structure assessment more formally in the other phases, the teacher should as far as possible use the same sort of situation as ordinary learning and practice situations to assess the competency of the learner. The use of formal written and oral tests can only assess a limited range of competences and therefore should not take up a great deal of time. Short tests in any subject should be limited to part of a lesson and only use up a whole lesson in exceptional cases. End-of-term tests should only be written in the first lesson of the day, so that teaching and learning can continue normally for the rest of the time.

In Years 10 (SHS 1) and 12 (SHS 2), mock examinations may be held to learn examination skills and to identify areas of the syllabus which may need extra attention[5]. Mock examinations only serve a useful purpose if they are used as a learning experience in how to organise oneself, how to read the paper, how to interpret and answer examination-type questions, and how to allocate time in an examination. This involves the teacher going through the paper systematically with the class when their answers are returned.

8.5.6 Authentic Assessment/ Alternative Assessment

Authentic assessment or alternative assessment can be defined as:

A variety of performance assessments that require learners to generate rather than choose a response. Authentic assessment is a method that emphasises learning and thinking, especially higher order thinking such as problem-solving strategies rather than just lower order thinking. In doing such assessment, the child/student uses all his/her cognitive, aesthetic, physical and social potential. Examples of Authentic assessment or alternative assessment include:

8.5.6.1 Child Observation

Teacher observation: Carefully observing young children offers a wealth of information about them. Teachers observe learners' actions, attention, responses to instructional materials or interactions with other learners. Early childhood educators must focus on the whole child; their physical, psycho-motor, emotional, cognitive and social development. They must carefully and objectively record what they see, hear and what the child says or does.

8.5.6.2 Anecdotal Records

Anecdotal Records consist of brief notes written down shortly after a learner's observation. Formal anecdotal records are written accounts of a learner's behaviour documented in the

5 The mock examination in Grade 12 is also the final opportunity to decide which level of the final examination the learner should be entered for, in borderline cases.

context of a particular event and written in very objective language. Collected over time, AR can be a rich source of information about children.

8.5.6.3 Checklists

A checklist is a list of behaviours in a developmental area for which the children or the teacher can tick 'Yes' or 'No' to indicate whether a child exhibits those behaviours. Completing a checklist may help teachers to identify certain behaviours. Checklists do not report or show how well a child performs a task.

8.5.6.4 Oral Interview

Interviews with children provide great insight into how they perceive their world. An interview can be formal or informal. A teacher asks questions about a children's personal background, activities, writing samples, drawing, reading and interests. They record the observations in an interview guide.

8.5.6.5. Portfolio

A Portfolio is a purposeful and focused collection of learners' work to show their progress over time. It integrates information from several sources. It gives an overall picture of a learner's performance and learning, strengthens the learner's involvement and commitment.

The teacher may select a bag, box or any container in which to put the learner's work. The portfolio may include samples of a learner's work, usually selected by the student, or by the student and the teacher to represent learning based on instruction. During Open Days or conference time with the parents, the student can share their work with the parents.

8.6 Evaluation

Information from informal and formal continuous assessment is to be used by the teacher to establish when it is necessary to adapt methods and materials to the individual progress and needs of each learner. At the end of each main unit of teaching, and at the end of each term, the teacher together with the learners should evaluate the process in terms of tasks completed, participation, what the learners have learnt, and what can be done to improve the working atmosphere and achievements of the class.

8.6.1 Criterion-referenced grades

When grades are awarded in continuous assessment, it is essential that they reflect the learner's actual level of achievement in the Basic Competences and are not related to how well other learners are achieving or to the idea that a fixed percentage of the learners must always be awarded a Grade A, B, C, and so on (norm-referencing). In criterion-referenced assessment, each letter grade must have a descriptor for what the learner must demonstrate in order to be awarded the grade. Grade descriptors must be developed for each subject for each year. It is important that teachers in each department/school work together to have a shared understanding of what the grade descriptors mean, and how to apply them in continuous assessment, so that grades are awarded correctly and consistently across subjects. Only then will the assessment results be reliable.

8.7 Grade descriptors

8.7.1 Key phase 2 (for National Standards Assessment Test, this refers only to Basic Year 2)

The learner's summative achievement in the basic competences in each subject will be shown by letter grades A-E, where A is the highest and E the lowest grade. As far as possible, a letter grade should be used directly as the marks. The relationship between the letter grades and basic competences is shown in Table 3:

Table 3 Relationship between letter grades and basic competences at lower primary

Grades	Mark Range	Grade descriptor
A	80+%	Achieved Basic Competences exceptionally well. The learner is outstanding in all areas of competency.
B	65-79%	Achieved Basic Competences well. The learner is highly proficient in most areas of competency, e.g. demonstrating rapid mastery of some competences, or being able to apply competences to unknown situations or contexts or demonstrating new insight.
C	45-64%	Achieved Basic Competences. The learner has mastered the competences satisfactorily in known situations and contexts.
D	30-44%	Achieved the minimum number of Basic Competences to be considered competent. The learner may not have achieved all the competences, or may sometimes need help, but has sufficient competency to go on to the next grade.
E	0-29%	Not achieved majority of the Basic Competences. The learner has not been able to reach a minimum level of competency, even with extensive help from the teacher, and needs learning support.

8.7.2 Key Phase 3 (Basic Year 4 to 6) and Phase 4 (Basic Year 7 to 9)

The learner's summative achievement in the basic competences in each subject will be shown in letter grades A-E, where A is the highest, and E, the lowest grade. The relationship between the letter grades and basic competences is shown in Table 4. As far as possible, a letter grade should be used directly as the mark.

Table 4 Relationship between letter grades and basic competences at upper primary and JHS

Grades	Mark range	Grade descriptor
A	80+%	Achieved Basic Competences exceptionally well. The learner is outstanding in all areas of competency.
B	65-79%	Achieved Basic Competences well. The learner is highly proficient in most areas of competency, e.g. demonstrating rapid mastery of some competences, or being able to apply competences to unknown situations or contexts or demonstrating new insight.
C	45-64%	Achieved Basic Competences. The learner has mastered the competences satisfactorily in known situations and contexts.
D	30-44%	Achieved the minimum number of Basic Competences to be considered competent. The learner may not have achieved all the competences, or may sometimes need help, but has sufficient competency to go on to the next grade.
E	0-29%	Not achieved majority of the Basic Competences. The learner has not been able to reach a minimum level of competency, even with extensive help from the teacher, and needs learning support

8.7.3 Key Phase 5 (Basic Year 10 – 12: SHS1 – SHS3)

In the Senior High School phase (Grade 10 - 12), a scale of A-G is used for the WASSCE, with Ungraded (U) being used, where A is the highest level.

Table 5 Relationship between letter grades and basic competences at SHS

Grades	Mark range	Grade descriptor
A	80%+	Achieved Basic Competences exceptionally well. The learner is outstanding in all areas of competency.
B	70-79%	Achieved Basic Competences very well. The learner is highly proficient in most areas of competency.
C	60-69%	Achieved Basic Competences well.
D	50-59%	Achieved Basic Competences satisfactorily.
E	40-49%	Achieved a sufficient number of Basic Competences to exceed the minimum competency level.
F	30-39%	Achieved the Basic Competences needed to be considered competent. The learner needs learning support.
G	20-29%	Achieved the minimum number of Basic Competences worthy of a grade. The learner needs learning support
U	0-19%	Did not achieve the minimum level of competence. The learner needs learning support

8.8 Conducting and recording assessment

Continuous assessment should be planned and programmed at the beginning of the year and kept as simple as possible. Marks given for class work, practical activities, project work, assignments, homework, and short tests on completion of a content standard may be recorded for continuous assessment. Non-promotional subjects in the Upper Primary and Junior and Senior High grades should be assessed through informal continuous assessment methods and letter grades awarded directly. These grades must be reported to the parents on the termly school report but will not count for promotion purposes.

8.8.1 Key Phase 1

Only informal continuous assessment is used in KG1- 2. No end-of-term tests will be written. Five or six informal more structured assessments should be done (twice per term). These assessments must be carefully planned and conducted according to the criterion-based descriptors on the 5-point grading scale. No percentage marks will be used for assessment in the Kindergarten phase. At the end of each term, the average grade for the less and the more structured continuous assessments will be calculated. The summative assessment grade for each term will be the average of these two, and the promotion grade for the end of the year will be the summative grades of the third term only.

8.8.2 Key Phase 2 & 3

Six formal continuous assessment activities per term should be selected, graded and recorded. Assessment through topic tests should not be more than two per term. These continuous assessments must be carefully planned and marked according to a marking scheme, marking criteria or memorandum. The criteria used to assess activities other than tests should be given to the learner before the assessment activity. Evidence of the work produced by good, average and low-achieving candidates, as well as the written assignment and marking scheme, have to be kept at school until the end of the next year. Teachers can choose to grade and/or record more than the required continuous assessments if it is necessary for formative purposes. An end-of-year summative grade will be based only on the assessment tasks described in the syllabus. End-of-term tests should not contribute more than 30% towards the total mark for the term. Not more than 40% of the summative grade may be based on tests, which include topic tests, and end-of-term tests.

Internal end-of-year examinations should be given in the Upper Primary examination subjects, as specified in the subject syllabuses. The purpose of these examinations is to focus on how well learners can demonstrate their thinking, communication, and problem-solving skills relevant to the areas of the syllabus which are most essential for continuing to the next grade. Preparing for and conducting these examinations should not take up more than two weeks altogether, right at the end of the year. The purpose of the examination is to assess how far each learner can demonstrate their achievement in reaching the competences.

A promotion mark will be awarded at the end of each year based on the average of the continuous assessment mark and the mark obtained in the examination. As a transition from the Lower Primary Phase to Basic 4, continuous assessment may count for either 65% of the summative grade in content subjects, or 50% in skills-based subjects. In Basic 5 and 6, continuous assessment counts for 50% of the summative grade in all subjects. The weighting of continuous assessment and examination is specified in each subject syllabus as shown in Table 6.

Table 6 Continuous assessment and examination weighting upper primary

Subjects	Basic Year 4		Basic Years 5 and 6	
	CA	Examination	CA	Examination
Skills-based subjects (Languages)	50%	50%	50%	50%
Content-based subjects (All other subjects)	65%	35%	50%	50%

Learner achievement in selected subject areas will be monitored nationally in Basic Years 4 and 6. The purpose of the standards achievement test is to evaluate the extent to which the system is enabling learners to achieve optimally.

8.8.3 Key Phase 4

Continuous assessment at Junior High level also consists of informal and more formal assessment. The subject curricula specify how many more formal assessments are required for assignments and projects, and shorter tests, to give an overall picture of the learner's knowledge and skills.

In Basic 7 and 8, there will be internal end-of-year tests in the examination subjects. As indicated previously, the purpose of these examinations is to focus on how well learners can demonstrate their thinking, communication, and problem-solving skills relevant to the areas of the curriculum, which are most essential for continuing to the next grade. Preparing for and conducting these tests should not take up more than two weeks altogether, right at the end of the year.

There will be an external examination in all examination subjects at the end of Basic 9. The purpose of the examination is to assess how far each learner can demonstrate their achievement in reaching the competences as preparation for everyday life and for further studies or training, and to what extent the system is enabling learners to achieve optimally.

In Basic 7-9, continuous assessment may count for either 35% of the summative grade in content-based subjects, or 50% in skills-based subjects. The weighting of continuous assessment and examination is specified in each subject syllabus as shown in Table 7.

Table 7 Continuous assessment and examination weighting at JHS

Subjects	CA	Years 7-9
		Examination
Skills-based subjects (Languages, Pre-Vocational subjects)	50%	50%
Content-based subjects (All other subjects)	35%	65%

8.8.4. Key Phase 5

The same overall principles of assessment apply at the Senior High School (SHS) level but with differences in application. Results from SHS1 will determine which options should be available to the learner in terms of subject selection for SHS2 and SHS3. Continuous assessment results during SHS2 and SHS3 should be used to determine if a learner needs compensatory/remedial provisions or not, and in which learning areas are such provisions needed.

In some subjects, course work is compulsory and part of the final grade; in others, it is optional and can be used as part of the final grade[6]; and in some subjects, it is not available. Where it is not possible to conduct the required course work as part of the examination, an alternative paper will be given in the examination.

A formal school-based examination must be given at the end of SHS2 and will be internally assessed. The purpose of this examination is to review essential areas and skills in the topics learnt during the year, and for learners to become familiar with the examination format and procedures for the WASSCE. This must also be a learning experience in how to use time in an examination, and how to interpret and answer questions so that learners become confident in an examination situation. A mock examination will be written in August of the SHS3 year to further prepare for the external examination, and to give preliminary information for applications for work, bursaries or further studies.

8.9 Learning Progressions

At the heart of the national curriculum is the learning progression and improvement of learning outcomes for Ghana's young people with a focus on the 4Rs – Reading, wRiting, aRithmetic and cReativity. It is expected that at each curriculum phase, learners would be offered the essential learning experiences to progress seamlessly to the next phase. Where there are indications that a learner is not sufficiently ready for the next phase a compensatory provision through differentiation should be provided to ensure that such a learner is ready to progress with his/her cohort. The progression phases are: pre-primary (KG1 – 2), primary (B1 – B3 and B4 to B6), junior high (B7 – B9) and senior high (SHS1 – SHS3).

8.9.1 Pre-Primary phase

Learners will normally be ready to commence with formal teaching and learning in Year 1 after completion of the school readiness programme in the Pre-Primary school year. It is expected that learners from this phase will be ready by the end of KG2 and progress to the second phase (B1 – B3) of the Early Years programme.

8.9.2 Primary phases and Junior Secondary phase

Learners will normally progress through Basic 1-9 without repetition. As is the case with the phases, parents/guardians must be kept fully informed of the progress that their wards are making and where applicable agree a suitable level of intervention to ensure that they achieve the necessary competences by the end of the phase. Such interventions should include counselling to help the learner understand their situation and must receive learning support focused on the competences which they did not yet achieve. No learner should repeat in any

6 Schools must be approved by the Directorate of National Examinations and Assessment to do so.

phase because of not meeting all performance standards, but the school should ensure that compensatory provisions are robust enough to enable the learner progress.

In exceptional cases such as illness where the learner has missed out on significant aspect of the curriculum during the year, it may be in the interest of the learner to repeat the year. Such a decision to repeat the year, should be taken in consultation with the parent/guardian and approved by the school management committee and district education directorate. This is applicable to all phases.

8.9.3 Senior Secondary phase

Learners whose attendance, application to school work during the year, and SHS1 examination results are satisfactory progress into the second year of the SHS programme in SHS2 and then to SHS3. It is expected that because of the compensatory provisions and other interventions such as guidance and counselling are in place, learners will make the expected progress and continue to the next year of study. However, learners who show unacceptable patterns of behaviour (including unacceptable levels of absenteeism) and/or lack of commitment to their studies and make limited progress, may be supported to participate in alternative options of education that include vocational training and non-formal education.

8.10 National Examinations

National Assessment shall be conducted at each phase of the curriculum. This will provide a means of evaluating the extent to which learners are meeting the expectations enshrined in the performance indicators, to help make decisions on the progression of learners to the next phase, and to ensure learners receive compensatory provision where applicable. The national assessment shall include examinations taken at the end of Senior High School, and phase-specific national standards assessments.

8.10.1 Examinations

The West African Senior Secondary Certificate Examination (WASSCE) is the existing final examination available to learners at the pre-tertiary education level. The WASSCE is taken at the end of senior high school and was first administered in December 1993. Regular funding has been allocated to the West African Examinations Council, which oversees the examination. The funding covers all core examination activities as well as research and development, long- and medium-term planning of programme milestones, and staff training. It is expected that learners are adequately prepared by their teachers for the examinations. Comprehensive materials needed to prepare for this examination are available, and widely accessible to all learners in a variety of learning contexts.

It is expected that, in line with the implementation of the Ministry of Education's Inclusive Education Policy, a differentiated examination shall be introduced as part a National School Assessment Policy. The differentiated examination to be introduced at the SHS level will largely assess the nationally expected minimum competencies, knowledge and skills that learners need to demonstrate as lifelong learners.

8.10.2 National Large-Scale Assessment

The National Standards Assessment Test (NSAT) shall be introduced in place of the existing National Education Assessment (NEA), the National Early Grade Reading Assessment (EGRA) and the National Early Grade Mathematics Assessment (EGMA). The aim of the NSAT is to

collect data at the national level on how well learners in Ghana's schools are meeting the expectations of the curriculum, and identify what the learning gaps are that need to be addressed. It will also provide information to aid resource allocation and provision of targeted intervention – which schools and districts need specific intervention and what the intended outcomes will be for such schools and districts. The NSAT shall be taken by learners at each curriculum phase. At the Early Years phase, the NSAT shall be taken at the end of Basic 2 with compensatory provision made in Basic 3 for learners who underperformed in meeting the phase-specific performance standards. In Upper Primary, learners shall take NSAT at the end of Basic Years 4 and 6. The data for Basic Year 6 assessment will be useful for ensuring that learners benefit from appropriate transition support in Basic 7 (JHS 1). Stakeholders will also find such data useful for making policy decisions.

Assessment at Early Years shall focus on Literacy and Numeracy, and at Upper Primary, it shall consist of Literacy, Numeracy and Science. At Basic 8, NSAT shall cover Upper Primary subjects in addition to History, Geography, Computing and Languages. Creative Arts shall be assessed through a rigorous and robust moderation system and at SHS 1, it shall include the common core subjects of English Language, Mathematics, Ghanaian Languages (optional core), History, Geography, Computing (with emphasis on Application). It is expected that learners' demonstration of what they know, understand and be able to do after studying the various learning areas of each subject shall be assessed to enable the learners to know the progress they are making or have made. The test should aim to motivate the learner to aspire for more knowledge and skills in the learning area, and build in the learner the attitude for lifelong learning. Data on learners' competency and proficiency in the 4Rs through the NSAT shall be valuable in national education sector review and planning.

Within the framework of decentralisation, the NSAT will be led by the district assemblies and shall serve as quality monitoring mechanism for the districts. At the district level therefore, the SAT will aim to serve two purposes:

- It is an assessment intended for school-level diagnostic use. Designed as a multiple choice and constructed-response exam, the assessment measures how well learners can complete core standards within the subjects.
- It is an accountability tool developed for use by District Education Directorates. In this way, it is a tool designed to enable districts to improve teaching and learning in schools by providing rapid and actionable information to guide institute interventions, and for collecting information about school and learner performance. NSAT is to be used routinely to monitor schools in the districts and as a reliable source of collecting progress data on learners in the districts.

8.10.3 National High School Online Examination as a Plan for the Future

With the changing face of education and increased enrolment in senior high schools, it has become necessary to adopt an assessment strategy that will inform school and policy makers of the progress learners are making or the challenges they face, especially at the entry point, so the appropriate measures can be taken.

An online assessment has been found to be the ideal method. An online examination system is an application that allows an institution to conduct examination via the Internet (or intranet). It is a structured learning activity that utilises technology with internet-based tools and resources as the delivery method for assessment and communication. This method is quicker, easier and convenient for examiners to conduct exams and collate results. It eliminates the

bottlenecks associated with pen and paper type of examination. The application provides the facility to conduct an online examination anywhere, anytime.

The purpose of the online assessment is to:

- Identify learners at the beginning of the year who may be 'at risk' or who may need extra instruction or intensive interventions if they are to move towards grade-level standards by the end of the year;
- Monitor all learners' progress during the year, to determine whether 'at risk' learners are making adequate progress, and to identify any learners who may be falling behind;
- To collect information about learners that will be helpful in planning instruction to meet their most critical learning needs;
- To assess whether the instruction provided is sufficient to help learners achieve the standards by the end of each year.

This assessment will be in the core subjects of Mathematics, English Language, Ghanaian Languages (in schools where they are offered), Science, History, Geography and Our World and Our People. Each paper will contain 20 items with ten parallel forms. It will take learners 15 minutes to complete a test. Each school will be given a code to access the examination on the internet. The procedure for taking the test will be made very simple to quicken the process.

A sample activity diagram for taking the test is shown in the Figure 4.

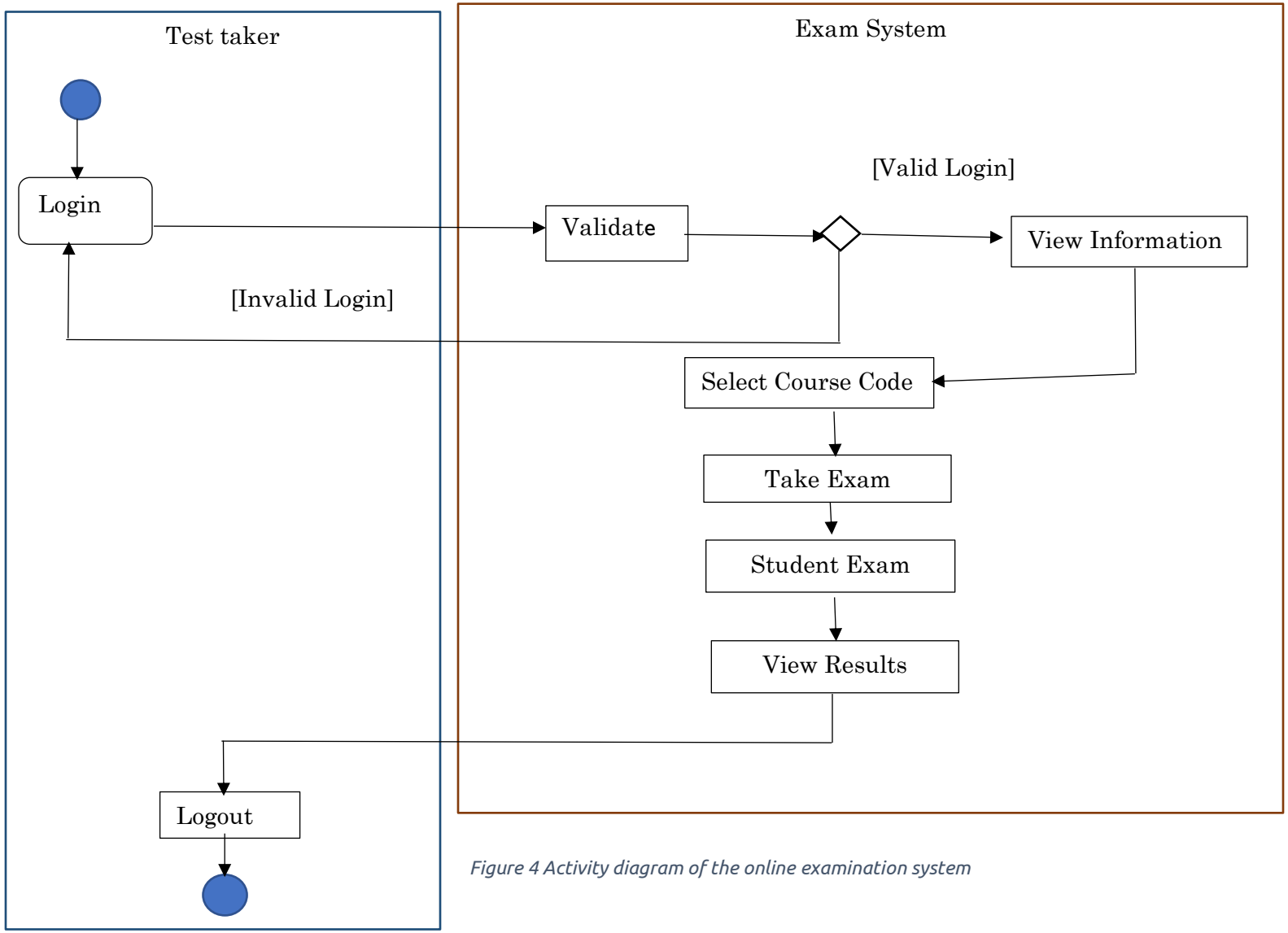

Figure 4 Activity diagram of the online examination system

Both learners and teachers will have access to the results of the examination at the end of the examination. It is expected that the teacher will have a feedback session for each learner based on the examination results and where applicable, the appropriate compensatory actions is put place immediately.

8.10.4 International Large-Scale Assessment (ILSA)

Ghana has participated in the Trends in Mathematics and Science Study (TIMSS) 2003, 2007 and 2011. Whilst there may be good reasons for Ghana to participate in such international large-scale assessments (ILSAs) during the life span of the *National Curriculum*, the intention is to focus on improving the learning outcomes of boys and girls in Ghana's schools and ensure that nationally, learners are making good progress against performance standards. There is no policy document that addresses the country's participation in ILSAs and until such time that an appropriate policy is put in place, it makes sense for policy makers to focus on consolidating any gain(s) that came with the implementation of the revised curriculum – *National Curriculum.*

9.0 Phases and Learner Characteristics/Attributes

This section of the Curriculum Framework examines the characteristics of learners at the various stages of their development. It also looks at the definitions of concepts such as learner characteristics, physical development, cognitive characteristic and social and emotional characteristics and the profiling of such characteristics. However, social and emotional attributes are discussed together because social development conflicts result in emotional conflicts. In this framework, language and communication, which is normally discussed under cognitive characteristics, has been pulled out as a strand and discussed in detail because of its centrality in learning. The following are the explanations of the main concepts used:

9.1 Definition of concepts

- Learner Characteristics: these refer to the profile of a target group of learners in terms of their physical, social, emotional and cognitive characteristics.
- Physical Characteristics: these refer to the demographic information about learners such as age, gender, physical structure, language etc. It deals with the body increasing in size and performance which includes gross motor development (very large muscles) and fine motor development.
- Cognitive Characteristics: these involve brain development, the processing of information, mode of thinking/reasoning, perceiving, remembering or solving individual problems.
- Social Characteristics: these deal with the learning of the norms, knowledge, values and skills needed for learners to play their roles in the family, school and community effectively.
- Emotional Characteristics: these deal with feelings that an individual experiences and expresses to understand the how and why of things, which results from social experiences/interactions with the environment.
- Language Characteristics: these deal with how language development and use occur in learners at the various stages and how these influence their cognitive development.

9.2 Characteristics of Early Years Learners (KG1 – B3)

The entire discussion is structured around the following:

- Characteristics of Early Years learners (KG1 –B3)
- Characteristics of Upper Primary learners (B4 – B6)
- Characteristics of Junior High School learners (B7 – B9)
- Characteristics of Senior High School learners (SHS1-3)

The Ghanaian child is expected to commence school in KG1 by age 4 years and complete basic education at SHS3 by age 18. However, not all learners will be at the exact age at any particular phase so it can be assumed that some learners might be a year below or above a given stage. It must also be noted that there is systematicity and variability in the development of the child; this implies that all learners go through all characteristics at the various phases but may progress through the phases at a different pace. Additionally, these phases are not discrete but overlap at some points. The curriculum should emphasise the various characteristics (physical, social, emotional, and cognitive) equally.

9.2.1 Characteristics of Learners at every phase

The following are the various stages and the learner characteristics at each stage:

9.2.1.1 Characteristics of Early Years learners (KG1 –B3)

Physical Characteristics - Learners at this stage possess the following characteristics:

- Rapid physical growth and development of large and small and fine motor skills
- Are generally healthy and vigorous
- Can have long periods of uncontrolled play
- Eye-hand coordination is being developed
- Enjoy small-group games in a cooperative manner
- Eager to write and copy letters
- Passionate about games
- Display high energy levels
- Interested in bright colours
- Able to control pencils, draw and give details of their drawings
- Cannot walk backwards on a line

Cognitive Characteristics - Learners at this stage:

- Think in images and symbols
- Have a short attention span and are easily distracted
- Exhibit a sense of humour
- Are eager to learn
- Are very curious and conduct much interrogation
- Learn through exploration and experimentation with the world around them
- Live in the world of fantasy
- Are interested in the present
- Are unable to use existing schema to determine a missing piece or solve a problem
- Are unable to mentally reverse a sequence of events (irreversibility)

Socio-Emotional Characteristics - Learners at this stage exhibit the following:

- Want reward as motivation
- Know and can identify their sex
- Eager to be engaged in new activities
- Like to identify with others
- Enthusiastic to explore new things
- Detest isolation
- Prefer to play in small groups
- Learn to work with others but sometimes display selfishness
- Egocentric (self-centred)
- Not capable of understanding another person's perspective or emotions
- Assign roles to each other
- Show a sense of growing initiative and self-reliance
- Enthusiastic about exploring the environment
- Have fleeting emotional changes

- Display self-conscious emotions, especially when embarrassed

Language and communication characteristics - Learners at this stage:

- Understand receptive language more than productive language
- Are developing language complexities
- Learn language very easily
- Differ in their language experience
- Can learn any number of languages exposed to them

9.2.1.2 Characteristics of Upper Primary Learners (B3 – B6)

Physical Characteristics - Learners at this stage:

- Are enthusiastic about games
- Experience an improvement in both gross and fine motor skills
- Possess a high activity level
- Enjoy games that allow for a comparison of skills
- Enjoy games that allow for self-improvement
- May become careless about their clothes, room and body cleanliness
- May, if a girl, have sudden growth spurt and beginning sign of puberty
- Enjoy physical activities that master specific skills
- Enjoy competitive games

Cognitive Characteristics - Learners at this stage:

- Have quite a long attention span
- Use logical thinking but with a very limited ability to extend logic to abstract concepts
- Possess general knowledge but cannot apply it to new task/new learning
- Have an interest in learning life skills from adults at home and elsewhere
- Develop a sense of time
- Are aware of the community and world
- Enjoy creating and inventing things by collecting things from the environment
- Enjoy problem solving
- Can plan and carry out projects with adults
- Become self-directed in activities
- Can understand and appreciate differences in opinion
- Ask probing questions and want thoughtful answers
- Live in the world of games, rituals and humour inhabited only by children
- Are interested in conclusions and logical ends

Socio-emotional Characteristics - Learners of this stage:

- Have a strong drive towards independence
- Develop a strong sense of loyalty to friends
- Need to belong to a group
- Play with and are friends with the same-sex peers
- Like to take on responsibility
- Like to have a best friend
- Have a rigid sense of right and wrong

- Need help accepting peers who are different or left out of a group
- Have difficulties knowing which group to associate with
- Can express subtle emotions and experience moments of anger or frustration
- May be sensitive and overly dramatic
- Can become discouraged, which may lead to being shy in public performances
- Become sensitive to what others think of them and to adult approval
- Become critical of their own performance and begin to evaluate themselves
- Are worried that school can be difficult

Language and Communication Characteristics - Learners of this stage:

- Like to talk; use language to express feelings/tell stories
- Begin to relate concepts to general ideas through use of complex connectors
- Can use tense and aspects of grammar
- Use an extended/expanded vocabulary

9.2.1.3 Characteristics of Junior High School Learners (B7 - B9)

Physical Characteristics - Learners of this stage:

- Experience rapid physical changes on their bodies
- Become more concerned about their bodies
- Are physically active
- Easily experience mood swings because of hormonal and biological changes

Social / Emotional Characteristics - Learners at this stage:

- Learn more from their peers and are sensitive to remarks from others, especially adults
- Begin to reject adult values and ideas
- Begin to experiment with adult behaviours and roles
- Are more interested in their peers
- Become more concerned with their bodies
- Are torn apart by watching the double standards of adults.
- Develop an interest in sex due to puberty, and feel the desire to know more about this
- Begin to keep things to themselves (they are secretive)
- Become anxious about more challenging school work
- Become less affective and sometimes become moody, rude and short-tempered
- Have a stronger sense of what is right and wrong

Cognitive/ Intellectual Characteristics - Learners at this stage:

- Can think and learn abstractly
- Can be imaginative and think like adults
- Question many of the social norms, cultures and traditions
- Can express their feelings
- Learn from each other
- Are eager to learn new things

Language Characteristics - Learners at this stage:

- Use longer sentences in their speeches and writings
- Are able to change topics well in conversations
- Use and understand idioms and idiomatic expressions
- Know what they talk about
- Invent their own language
- Understand and follow complicated instruction

9.2.1.4 Characteristics of Senior High School Learners (SHS1 – 3):

Physical Characteristics - Learners at this stage:

- Are still developing physically
- Develop unique personality characteristics
- Sometimes look physically older than their age
- Need a lot of rest

Socio-emotional Characteristics - Learners at this stage:

- Have a deeper capacity for sharing and caring
- Are concerned about relationship issues
- Are better positioned to give reasons for their choices including what is right and wrong
- Are prone to frustration sometimes leading to depression, which may lead to poor grades in school
- Are physically attracted to the opposite sex
- Experiment with risky behaviours such as drugs, alcohol and sexual activities
- Experience conflict with teenagers and their parents/teachers
- Want to be independent from parents
- Spend less time with parents and more time with friends
- Seek counselling from peers and adults when they are engaged in novel situation
- Are influenced by friends when it comes fashion
- Look for information outside their parents

Cognitive Characteristics: Learners at this stage:

- Think and do things in the abstract
- Reason from the known to the unknown
- Think critically before making choices
- Become aware of the effect of their actions
- Think more about the future
- Are open to multiple perspective on some issues
- Engage in intellectual discussion with their teachers, parents and peers

Language and communication characteristics - Learners at this stage:

- Communicate as adults
- Comprehend abstract language such as idioms, figurative expressions, metaphors, etc.
- Are able to relate text and abstract meanings and relate the meaning in context
- Ask probing-questions which need elaborate answers

9.3 Implications

The implications of these categorisations and characterisations in designing the curriculum framework are shown as:

- **Content:** Helps the curriculum designers to plan systematically and progressively by suggesting age/phase appropriate content (learning material) for learners.
- **Approaches to behaviour modification**: Equip the curriculum designers with the knowledge to recommend appropriate approaches to handling the behaviour of learners at the various age categories effectively in the classrooms.
- **Teaching/learning strategies:** Equip the curriculum designers with the knowledge to select age appropriate teaching strategies/methods, techniques and activities to be embedded in the curriculum.
- **Teacher-learners' interaction:** Equips the curriculum developers with the knowledge to embed in the curriculum how teachers should interact with their learners in the classroom.
- **Outcomes:** Help the curriculum developers to write achievable learning outcomes for learners at the appropriate levels.
- **Continuity in learning:** Helps the curriculum designers to ensure continuity and integration in the presentation of the content.

10.0 Curriculum Subjects and Learning Areas

The national curriculum aims to address the challenge of subject and content overload associated with its predecessor. In doing so, curriculum developers must focus on the essential knowledge and skills that learners need to acquire during each curriculum phase. Fundamentally, all learners must become fluent in the 4Rs and must demonstrate the global competences stipulated by this Framework. The subjects to be studied during each phase are as follows:

10.1 Early Years

KG1 - KG2

1. Language and Literacy (using dual immersion approaches)
2. Numeracy
3. Creative Arts
4. Our World & Our People (Integrated Themes: History, Religion and Moral Education, Geography, Science, Physical Education [PE])

Lower Primary [B1 -B3]

1. Language and Literacy (using dual immersion approaches)
2. Numeracy
3. Creative Arts (Visual, Performing Arts & Life Skills)
4. History
5. Science
6. Our World & Our People (Integrated Themes: *Religion and Moral Education, Agriculture, Geography, PE and Computing)

10.2 Upper Primary [B4 -B6]

1. Literacy (with Ghanaian Languages as subject and English Language as both medium of instruction and subject and French as a subject)
2. Mathematics
3. Science
4. Creative Arts (Integrated Themes: Music, Arts, Financial Literacy, Dance, Drama, Visual Arts)
5. History
6. Our World & Our People (Integrated Themes: *Religion and Moral Education, Agriculture, Geography, Civics),
7. Computing (with emphasis on Application) 8. Physical Education

10.3 Junior High School [B7 -B9]

1. Literacy [Gh. Lang, Eng. Lang Arts., French or Arabic]
2. Mathematics
3. Science
4. History
5. Geography
6. Our World & Our People (*Religion and Moral Education, Civics, Agriculture and Geography)
7. Creative Design and Technology (Visual Arts, Home Economics, Pre-Tech)

8. Computing (with emphasis on Application) 9. Physical Education

10.4 Senior High School [SHS1-3]

Core Subjects for Science and Technical Programmes

1. English Language
2. Mathematics
3. Ghanaian Language (Optional)
4. History
5. Geography
6. Computing (with emphasis on Application)

Core Subjects for Language Arts, Humanities, Business, Vocational Programmes

1. English Language
2. Mathematics
3. Ghanaian Languages (Optional)
4. History/Geography
5. Science including Agriculture
6. Computing (with emphasis on Application)

A student at SHS is to select at least four and at most five subjects from not less than two groups as Electives for the final years in SHS.

Table 8 Senior High School Electives

Sciences	Humanities	Technical and Vocational	Languages Arts	Businesses
Advanced Mathematics	Economics	Agriculture	Literature in English	Accounting
Biology	Geography	Home Economics	Ghanaian Language	Business Management
Chemistry	Government	Performing Arts	French	Business Mathematics
Computer Science	History	Technical	Arabic	
Physics	Religion and Moral Education	Visual Arts		

NB: Non-Science learners at SHS will have the choice of taking either Agricultural Science or Science as Core. **Physical Education** and ***Religion and Moral Education** will be Timetable activities through all the phases [**KG to SHS 3**].

10.5 Time Allocation

The *National Curriculum* requires that enough time resource is made available to schools to adequately cover the learning areas therein. Time will be proportionately allocated to all subjects and learning areas to ensure that every aspect of the school curriculum is sufficiently delivered and learning outcomes are achieved by all learners at age appropriate levels. In allocating time to learning areas, age and developmental needs of learners will be essential considerations. The time allocation will also aim at ensuring that during a school day, learners receive a balance education, preparing them into honest, creative and responsible citizens. Aside time allocation for the core learning areas, provision will be made for extra-curricular activities. These extra-curricular activities will be age appropriate and organised as part of the formal education provisions within the school day.

Length of instructional time needs to reflect the demands of the curriculum. Evidence across the country and international comparisons show that Ghana has one of the shortest instructional contact time. The length of school day and contact time needed as a minimum to deliver the new curriculum is 7 hours a day at Primary School and 8 – 9 hours at Secondary School, of which one hour is to be allocated to extra-curricular activities at primary school level and cross-curriculum activities in later years. The length of school day for Kindergarten shall however be 6 hours with an hour break. Table 8 shows the minimum length of instructional time for each key curriculum phase.

Table 9 Phase specific instructional time duration

Curriculum Phase	Duration of Instruction Time
KG1 – 2	30 minutes lesson period
B1 – B3 [Lower Primary]	30 minutes lesson period
B4 – B6 [Upper Primary]	30 minutes lesson period
B7 – B9 [Junior High School]	40 minutes lesson period
SHS1-SHS3 [School High School]	60 minutes lesson period

In addition, the number of school days needed in the year that is sufficient for the implementation of the curriculum is about 200 – 220 days.

Below are the specific time budgets for each curriculum phase:

Kindergarten

The School Day

Domain	Time
Length of School Day	6 Hours
Duration of a period of instruction	30 Minutes
Total number of periods per day (Time on task)	10 Periods
Break	60 Minutes
Total number of periods per week	50 Periods

Primary

Time budget for Basic Years 1 to 6 [B1 – 6]

Overview of Primary School Time Budget

Subject	Frequency	Total Minutes	Total Hours
Time on Task/ Contact hours	10	300 minutes	5 hours
Break Time	2	60 minutes	1 hour
Extra-Curricular Activities	2	60 minutes	1 hour
Length of School Day	---	420 minutes	7 hours

The School Day

Domain	Time
Length of School Day	7 Hours
Duration of a period of instruction	30 Minutes
Total number of periods per day (Time on task)	10 Periods
Break	60 Minutes
Extra-curricular activities	60 Minutes
Total number of periods per week	50 Periods

Examples of Extra Curricular Activities

- Life and Psychosocial Skills to be led by Clubs and NGOs
- Research, Science & Community Projects
- Entrepreneurship skills development., Guidance and Counselling.
- Library activities, Sustainable Learning and Study Skills
- Agriculture and Gardening Project

Suggested Models for School Day

Model	Lessons Start at	Lessons Close at
1	7.00 am	2.00 pm
2	7.30 am	2.30 pm
3	8.00 am	3.00 pm

Period Allocation

Subjects/Learning Areas	No. of Periods (B1 - B3	No. of Periods (B4 – B6)
Mathematics	10	10
Lang & Literacy (2 periods reversed for Library Reading)	17	16
Creative Arts	5	4
Science	4	4
History	3	3
RME (1 period reserved for Worship)	3	3
OWOP *(Computing, Geography, Civics, Agriculture)*	6	6
Physical Education	2	2
French	---	2
TOTAL	**50**	**50**

Junior High School

Time budget for Basic Years 7 to 9 [B7 – B9]

Overview of Junior High School Time Budget

Subject	Frequency	Total Minutes	Total Hours
Time on Task/ Contact hours	9	360 Minutes	6 hours
Break Time	2	60 minutes	1 hour
Extra-Curricular Activities	2	60 minutes	1 hour
Length of School Day	---	480 minutes	8 hours

The School Day

Domain	Time
Length of School Day	8 Hours [480 Minutes]
Duration of a period of instruction	40 Minutes
Total number of periods per day (Time on task)	9 Periods [360 Minutes]
Break	60 Minutes
Extra-curricular activities	60 Minutes
Total number of periods per week	45 Periods

Examples of Extra-Curricular Activities

- Life and Psychosocial Skills to be led by Clubs and NGOs
- Research, Science & Community Projects
- Entrepreneurship skills development., Guidance and Counselling.
- Library activities, Sustainable Learning and Study Skills
- Agriculture and Gardening Project

Suggested Models for School Day

Model	Lessons Start at	Lessons Close at
1	7.00 am	3.00 pm
2	7.30 am	3.30 pm
3	8.00 am	4.00 pm

Period Allocation

Subject	No. Periods
Mathematics	8
English Language (1 Period reserved for Library Reading)	8
Ghanaian Language	3
French	2
Arabic (Optional)	(1)
Science	6
Creative Design and Technology	4
History	4
OWOP	5
RME (1 period reserved for Worship)	2
Computing	2
Physical Education	1
Total	**45**

Senior High School

The School Day

1. Time on Task (Contact Hours) = 7-8 Periods
2. Duration of a period = (60 minutes) 1 Hour.
3. Break Time = 60 minutes (1 Hour)
4. **Length of school day:**
   - Minimum: 8 hours (7hrs of Instructional Time and 1 hr Break)
   - Maximum: 9 hours (8hrs of Instructional Time and 1 hr Break)
5. Total number of periods per week = 35 (7x5); 40 (8x5)

NB: The last periods of each day should be devoted to practical lifelong and career building skills i.e. Co-curricular and Extra-curricular Activities

Suggested Models for Instructional Time

Model	Lessons Start at	Lessons Close at
1	7.00 am	3.00 pm
2	7.30 am	3.30 pm
3	8.00 am	4.00 pm

Core Subjects for Science and Technical Programmes

S/No	Subject	No of Periods/Hours
1	English Language	5
2	Mathematics	5
3	Ghanaian Language/MFL (Optional)	1
4	History	2
5	Geography	2
6	Computing (emphasis on Application)	1
	TOTAL	**16**

Core Subjects for Language Arts, Humanities, Business and Vocational Programmes

S/No	Subject	No of Periods/Hours
1	English Language	5
2	Mathematics	5
3	Ghanaian Language/MFL (Optional)	1
4	History/Geography	1
5	Science including Agriculture	3
6	Computing (emphasis on Application)	1
	TOTAL	**16**

Elective Subjects

S/No	Subjects	No of Periods/Hours
1	Elective 1	4
2	Elective 2	4
3	Elective 3	4
4	Elective 4	4
	TOTAL	**16**

Extra-Curricular

S/No.	Subject/Activity	No. of Periods /Hours
1	P E	1
2	Music/Worship	1
3	Library Work (Reading and Research)	1
	TOTAL	**3**

11.0 Philosophy and Rationale for Curriculum Subjects

The philosophy and rationale underpinning the curriculum at the Early Years Subjects, Upper Primary and Junior High Subjects and Senior High Subjects reflect the overall philosophy and rationale for *The National Curriculum.* Each subject curriculum shall have a learning philosophy and a teaching philosophy which are consistent with the overall philosophical provision and rationale as contained in the framework and are common to all subjects. The summary of the Early Years, Upper Primary, Junior High and Senior High subject philosophies and rationales are as follows:

11.1 Early Years Subjects

Early Years curriculum covers subjects at Kindergarten and Basic 1 - 3.

Learning Philosophy

The Early Years learning curriculum is informed by three main philosophical ideas, namely the brain research, Developmental theory and the Social Constructivism.

Firstly, current international research on brain and neurological development of children affirms that the early years' period ranges from birth up to 8 years. It is the time of maximum brain development. During this developmental period, the young child's brain is extraordinary active, and developing very fast; this is the optimal time for learning and development for life. These early years are critical and very important because the early experiences that the learner encounters have a decisive impact on the development of connections in the brain. It is during these critical and "sensitive period" of the early years that learners develop language and literacy skills, physical, psycho motor, cognitive, emotional control and interpersonal social skills. To build a strong foundation for the future of every growing learner, it is important that the learner is exposed to learning experiences that are positive, developmentally appropriate and holistic instead of being fragmented and compartmentalized.

Secondly, developmental theories affirm that learners go through distinct and unique stages in their development as they move through their early years. Every learner is very unique and develops at their own pace. In language and literacy development as well as other cognitive skills, learners go through different stages that are unique. This curriculum identifies the individual differences and variability in learners' development and affirms that the differences would not be seen as deficits and weaknesses. Rather, developmentally appropriate and rich experiences must be created for learners to help them bridge home and school experiences. The curriculum will ensure that classroom experiences are made rich and activities are developmentally appropriate to enable our children blossom and become successful

Thirdly, the Early Years as curriculum believes in social constructivist philosophical notions which emphasize that learners learn better when they are actively involved in their own learning: learning is a social and an interactive process, and learners learn better when they interact and share ideas with adults and other knowledgeable peers around them. The typical characteristics of the learner at the early years is that they are active, explorers, builders, extremely curious, and thus learn best when they are involved actively in their own learning process. For such learners, learning and play are inextricably linked and as the learner plays and interacts with their peers, they learn better.

Therefore, to promote high quality learning that is functional, meaningful, and authentic, the growing child needs a safe, warm, nurturing, and welcoming physical, social, emotional and psychological environment. This is vital because research affirms that the type of environment created for the child is key to their successful development and opportunity for a brighter future.

Teaching Philosophy

The implication of curriculum developers' belief about how children learn is that during the early years of learning, rigidly structured methods of teaching should be avoided. Participatory, activity and play-based child-centred experiences must be paramount in the early years' classroom to enable children reflect on their experiences, collaborate and interact with other peers and adults, engage actively and connect things they are learning to their lives. This means learning must be made functional by using real life experiences to help the child to apply lessons learned to the reality of their present and future lives.

Play methods, and integrated approaches orchestrated with inquiry and discovery methods of delivering the curriculum will be paramount in delivering the early childhood curriculum. Through play, children make sense of the world around them and develop an internal process of inquiry that allows them to think critically and creatively about their environment and what they are learning. Play is critical for developing children's core skills, which are not only foundational for healthy child development, but are also building blocks for success in school, especially in the areas of literacy, numeracy and science.

Children learn better in an integrated and holistic manner because research evidence makes it clear that a child's brain is not compartmentalized. To avoid the compartmentalised and fragmented presentation of children's learning during the early years, an integrated/thematic approach will be used to integrate the various subjects and experiences that will be provided to these young ones. Experiential teaching and learning methodology will therefore be used to engage children actively in their learning processes. To promote critical and creative thinking, inquiry and discovery approaches will be used to enable these young learners solve social problems.

Since language development is crucial at this period, literacy skills will be integrated across the curriculum. A rich, literate environment will be created in each classroom to encourage the young learners to reflect, think, create, find out things for themselves, satisfy their curiosity; ask questions, criticize, solve problems; observe, view information critically, and assimilate new knowledge. In addition, children will be provided with materials and opportunities at different learning centres/corners in the classroom to afford them opportunity to explore and independently carry out activities that will help them to achieve the curriculum objectives in all areas. Children, at Primary levels will be encouraged to develop knowledge, attitudes, and language and numeracy skills across the curriculum.

Above all, inclusive and differentiated learning strategies will be used to relate learning to the abilities and special needs of learners. Interesting and child-friendly digital and ICT programs and software will be integrated in the learning process to give a hands-on practice to the children to experience the use of technologies.

Rationale

All over the world, Early Childhood researchers attest that the first eight years of children's development are the most vital years in their life and the sort of physical and psychological environments that adults create, the interactions adults have with children, and the experiences adults provide influence them, and have lasting effects on their future lives. At this stage the child requires basic needs like nutrition, warmth, health, security, interaction and stimulation for social, emotional psychological, physical and cognitive development. It is during this stage that the child establishes learning patterns, attitudes, personality and a sense of being.

Children go through physical, physiological, cognitive and emotional development during this period. Children generally learn by doing and this is done naturally and best through

play. They are very active, curious, and explorative and enjoy listening to stories. This natural tendency should form the basis for designing teaching and learning programmes for young learners.

During the Early Years, learners learn better in positive learning environments where they feel emotionally and physically safe and enjoy learning. Because play-based learning is fun and engaging, young learners are motivated to attend and stay in school, and therefore perform better academically. Using an integrated, inquiry and discovery-based approach to teaching and learning will foster caring, supportive and committed relationships between teachers and learners, as well as between learners and their peers. Teachers become more confident in their practice, feel trusted by learners, and can develop better classroom management and positive discipline practices.

Play-based learning further helps to develop the inherent potentials of learners, including critical thinking and imagination. The learners' ability to make, re-create, and acquire knowledge and meaning develops in them a spirit of innovation, creativity and resourcefulness alongside practical skills and more complex ways of thinking.

11.2 Upper Primary and High School Subjects

The Upper Primary curriculum covers subjects for Basic 4 to 6, whilst the High School curriculum is divided into Junior High School (Basic 7 to 9) and Senior High School (SHS 1 to 3).

Learning Philosophy

As with the Early Years' curriculum, two theories underpin the subject philosophies at the Upper Primary and High School levels within the pre-tertiary education structure. These are learner development and social constructivism. As learners grow and transit from one-year group to the other and learn various subjects, they do so at their own pace. Learners interact with the social environment which is an enabler for good learning and personal development. Therefore, each subject will ensure that learners are provided with a good social environment where they can accelerate development in the subject learning.

Learners are to engage in constructing knowledge and make meaning of the social environment provided them so that they are able to reconstruct the past by describing, analysing and evaluating past events. Learners would be able to critically trace patterns of human behaviour and communicate their views on how the past could influence the present from an informed position. In essence, learners would understand that present events have historical parallels from which useful lessons could be drawn. Such level of knowledge creation and meaning making should empower all learners (irrespective of location, (dis)ability, religion, gender, language, etc.) to think critically and be problem solvers; creative and innovative individuals; become culturally sensitive and global citizens; communicate and collaborate with others; develop personal competences and leadership skills, and digital literates who use technologies to support their learning.

Therefore, a participatory and where applicable (especially at the Upper Primary level), thematic approaches should be emphasized. This will help the children to connect learning across the various subject areas in the classroom to solving real world problems in their environment, and the world around them. The use of ICT provides opportunity for learners to apply foundational learning in the 4Rs of Reading, wRiting, aRithmetic and cReativity.

Teaching Philosophy

Within the philosophy of knowledge creation and meaning making, it is expected that the teacher adopts the learning centred approach in the day-to-day delivery of learning episodes (lessons). Learning centred approach implies the careful balance between the use of teacher-centred and learner-centred approaches.

It is expected that the teacher in a learner-centred classroom, the teacher would introduce and model the learning area for the day's episode for example, and assist learners to describe and analyse issues therein, trace patterns of societal and human behaviour, and where necessary, give their views on current events based on previous learning episodes. When the teacher is intentional to promote interaction between teacher and learner(s), and between learners, it is expected that learners will become active in their own learning, and at the end, take ownership of the learning outcomes. Differences in learners' ability and the progress they are making should be seen by the teacher to ensure there is effective differentiation during the learning process, and scaffolding is well embedded.

Therefore, all learners need to be the focus of all teaching processes, which demands a move away from constantly testing to find the best learner to using such test results to inform the selection of appropriate pedagogical approaches (creative approaches such as role play, inquiry and investigation, storytelling, games and talk for learning) to subject teaching. Every teaching episode would be used to develop every learner and not only those who are already doing well. The teacher should make effective use of ICT in the learning process to ensure that all learners are performing at ability-appropriate levels. Learners should be taught complex ways of thinking and doing things, which are then aligned with the inculcation of core and global competences into learners, which makes the teacher a facilitator of learning.

Rationale

The learning areas at the Upper Primary School level demonstrate progression from the Lower Primary School level and those at the High School level ensure that subjects and learning areas to which learners have been exposed are consolidated and enhanced. New learning areas are added to build on what learners already know, understand and are able to do and new subjects are introduced. Further development of learners' knowledge and skills in the 4Rs - Reading, wRiting, aRithmetic and cReativity – is to ensure that the 4Rs are means of communication and a library through which elements of Ghanaian culture and heritage are transmitted from generation to generation.

The rationale for each school Subject of study at these levels within the pre-tertiary education structure, shall centre around the overall curriculum learning outcomes where:

1. Learners are fluent in the **4Rs** – **R**eading, w**R**iting, a**R**ithmetic and c**R**eativity
2. Learners have a broad up-to-date knowledge, skills, values and attitudes in subject disciplines and in a range of foundational literacies – scientific, mathematical, financial, digital and entrepreneurship
3. Learners are developed with the ability to apply what they have learned with confidence and competence in future learning and in the world of work
4. Learner have understanding of Ghana's history, culture and traditions and of their rights and responsibilities as citizens
5. Learners have understanding of learning as a lifelong endeavour through opportunities provided them to fully participate in the learning process
6. Learners have appreciation of equality, equity and unity in diversity because they have experienced an inclusive educational system where individual strengths and potentials are valued and maximized, regardless of ethnicity, religion, gender, or geographical location

7. Learners are enthused to learn mathematics as a foundational building block to learning other subjects
8. Learners have the sense of making responsible choices regarding the environment and climate
9. Learners learn a Ghanaian language and a modern foreign language as part of becoming global citizens
10. It is expected that: All learners will have access to quality core competences education provision in all subjects at every level. Learners will be enthused about the value and importance of core competences as a lifelong endeavour and are empowered to be global citizens.

In this regard, learners shall have the opportunity to study their physical and social environment with a focus on enhancing their understanding of the process of societal development, creating in learners the awareness and appreciation for personal and societal values as responsible and productive citizens. Such an awareness shall include comprehensive sexuality behaviour and life skills of financial literacy and entrepreneurship. Opportunity should be created to build on the use of learner's first language and culture as an approach to equipping learners with effective communication skills that will inculcate in them appreciation of the values embodied in their language and culture. Leaners are to become multilingual through the study of Modern Foreign languages – French and Arabic.

In this way, the learning episodes provided at these levels within the structure will foster in learners the capacity to construct arguments and ability to draw conclusions from such arguments, whilst being aware of unity in diversity and respect for other learners' opinions. Subjects studied shall instil and inspire in learners the ability to be curious for knowledge, and ability to analyse past, present and future issues constructively. The rationale also includes exposing all learners to the history of Ghana, nurturing all learners to become honest, creative and responsible citizens. And as global citizens, learners need to be guided to understand the importance of sustainable development and be able to use the knowledge and skills imparted to them through the various learning episodes, to promote peace, and protect the environment from further degradation.

The rationale for learning at this level shall enable learners to appreciate their belief systems and others'; contributing to their moral and spiritual development. Learners must be developed into individuals who are systematic, creative, have self-confidence, skills and attributes, and positive attitudes towards science, mathematics and technology that are needed to succeed in life as Ghanaians and global citizens. This kind of learning will empower Ghanaian children to become lifelong learners.

11.3 Profile Dimensions

Profile dimensions are central to subject learning, teaching philosophies and rationales. The concept of profile dimensions that should be the basis for the teaching and learning process, which includes assessment, is meant to enable learners develop crucial learning competences. A 'dimension' is a psychological construct that describes a particular learning construct. More than one dimension constitutes a profile of dimensions.

Profile dimensions are derived from the cognitive, affective and psychomotor domains of educational objectives. From the cognitive domain, two profile dimensions are developed; namely Knowledge and Understanding (KU), and Application of Knowledge (AK). The affective domain covers beliefs, attitudes and values. The psychomotor domain covers physical and combined skills that are normally referred to as Process Skills or Practical Skills. Specific philosophies, rationales, aims and content standards used in developing each subject curriculum should describe behaviours to be exhibited by learners after going

through a learning process. Specific content standards should represent attributes of learning from one or more of the domains of educational objectives.

Knowledge and Application are dimensions that should be the prime focus of teaching and learning in schools. As much as possible, the teaching and learning process that learners are exposed to should emphasise and stress more on acquisition of higher-level profile dimensions than knowledge acquisition.

It is expected that learners acquire sufficient knowledge and understanding from all learning areas to which they are exposed so that they are able to apply them in different context and situations. The three dimension that should guide curriculum developers are thus: *knowledge, understanding and application (doing).*

12.0 Implementation of the Curriculum

The successful implementation of The National Curriculum depends on many interrelated and dependent factors. These factors include:

1. Leadership and Quality of Management
2. Pedagogy - Teaching and Learning
3. Information Communication Technologies
4. Language of Teaching and Learning
5. Inclusion and Diversity
6. Accountability and Quality Assurance
7. Teaching and Learning Resources
8. Guidance and Counselling
9. Teacher Professional Development

12.1 Leadership and quality of management

Effective curriculum leadership and quality management are requirements for effective implementation of the curriculum. The National Curriculum encourages the creation of teacher-centred schools where learning and learning progress are evident because teachers have opportunity to: develop their subject knowledge and associated pedagogy; engage with the latest research; absorb information about their learners' learning needs and prior attainment, while recognising the complexity of synthesising all of this into a knowledge-base that informs the delivery of effective lessons. The creation of learning centred classrooms and teacher-centred schools is only possible because the leadership of the school has the appetite, the motivation and the know-how to make it happen. Quality management in Ghana's schools in this context requires that the professional practices of teachers are adequately supported by the school leadership through such management practices as regular monitoring and evaluation of learning episodes, provision of quality teaching and learning materials and creation of quality assurance systems for learning and assessment.

The primary role of the school leader therefore involves maintaining a clear focus on learning as an activity. This demands that the leader creates conducive and favourable conditions for learning – an enabling environment that: encourages dialogue about learning, promotes the development of a shared sense of leadership throughout the school, and enhances a shared sense of accountability. In effect, the school leaders in Ghana must be champions of *leadership for learning* and use this to create a learning culture with clearly accepted and understood objectives as well as high expectations for both teachers and learners. Leaders have the responsibility of building school capacity in a way that creates the conditions necessary for teachers' potentials to be fully realised. At least, some of the senior administrators in the curriculum should be actively involved with teachers, observing teaching and learning, and engaging in professional discussions with teachers about what happens in the classrooms. This professional link can become a very powerful motivational force for teaching professionals and is also a critical for senior administrators in developing a deep appreciation of what is actually happening in the school.

The learner's voice is also very important in understanding their perspective on the curriculum and the quality of its implementation. The Student Representative Councils should be used for learning dialogue in Ghana's schools. Gathering the views of learners

about their experiences as they progress from one phase of learning to the other is an important function of school leadership.

School level administrators need to support teachers so they can concentrate on student learning and planning for teaching. The right structure and appropriate resources, including the number of staff needed to successfully implement the curriculum, should be provided. Roles and responsibilities need to be well defined and clearly communicated. Ideally, planning time should be built into teachers' schedules so they can work collaboratively in teams (in academic departments or year groups) on developing learning activities. Where possible and practical, teachers should be encouraged to visit each other's classroom and provide peer support to their colleagues. This is particularly important in developing less experienced teachers; it is also a very cost-effective form of professional development.

Teachers play a leadership role because they are involved in creating, implementing, monitoring, reviewing and refining educational practices and systems so that student learning improves. Nurturing and using teacher talent in this way creates a virtuous circle of motivation, the desire to learn more, commitment and enhanced practice. Working collaboratively to resolve common challenges can also create a shared sense of purpose and is a powerful instrument of change.

Curriculum leadership nationally requires a new vision, a significant long-term agenda, and considerable deep thinking and experimentation, and requires questioning the current enterprise of curriculum writing and creating something that is far more effective. Curriculum management obligations ensure that the curriculum gets revised or at least, examined in cycles—for example, every five years. Leadership and Quality of management ensure that the curriculum is consistent. The process of quality management has four main components:

- quality planning,
- quality assurance,
- quality control and
- quality improvement.

The quality of management focuses both on the curriculum quality and the means to achieve it. Curriculum leadership at the national level has the obligation to ensure that the curriculum gets revised or at least, reviewed in cycles (e.g. every five years) on a staggered calendar. The curriculum leader should ensure that time, money and other needed resources are set aside for the curriculum revision. Using a grassroots approach will ensure that schools take ownership of the curriculum from the outset.

12.2 Pedagogy - Teaching and Learning

Pedagogy refers to the interactions between teachers, learners, and the learning environment and learning tasks. This broad term includes how teachers and learners relate to each other as well as the instructional approaches implemented in the classroom. Pedagogical approaches are often placed on a spectrum from teacher-centred to learner-centred pedagogy. These two approaches can often complement each other in the realisation of educational goals. For example, a teacher-centred approach may be useful to introduce a new theme, while a learner-centred approach may be necessary to allow learners to explore ideas and develop a deeper understanding.

Effective teachers must carefully plan and implement appropriate pedagogies because student learning is dependent on the pedagogical approaches teachers use in the classroom. A variety of pedagogical approaches are common in schools, but some strategies

are more effective and appropriate than others. The effectiveness of pedagogy often depends on the particular subject matter to be taught. On understanding the diverse needs of different learners, and on adapting to the reality in the classroom and the surrounding context, differentiation should be a common practice during implementation of the curriculum. In general, the best teachers believe in the capacity of their learners to learn, and carefully utilise a range of pedagogical approaches to ensure that learning occurs.

- *Teacher-Centred Pedagogy:* Teacher-centred pedagogy positions the teacher at the centre of the learning process and typically relies on methods such as whole-class lecture, rote memorisation and chorus answers (i.e. call-and-response). This approach is often criticised, especially when learners complete only lower-order tasks and are afraid of the teacher. However, whole-class teaching can be effective when teachers frequently ask learners to explain and elaborate key ideas, rather than merely lecture.
- *Learner-Centred Pedagogy:* This pedagogical approach has many associated terms (e.g. constructivist, student-centred, participatory, active), but draws on learning theories, suggesting learners should play an active role in the learning process. Learners, therefore, use prior knowledge and new experiences to create knowledge. The teacher facilitates this process, but also creates and structures the conditions for learning. Considerable research and advocacy has promoted learner-centred pedagogy in recent years for economic, cognitive and political reasons. Some research suggests this approach can be very effective, but it is also difficult to measure consistently. It is often challenging for teachers to shift from teacher-centred pedagogy to learner-centred pedagogy, and so considerable support may be necessary if this is an important goal for a given education system.
- *Learning-Centred Pedagogy:* 'Learning-centred pedagogy' is a relatively new term that acknowledges that both learner-centred and teacher-centred pedagogy can be effective, but teachers must consider the local context (including the predominant language understood by most learners), class size, the physical environment, availability of teaching and learning materials, etc. Teachers should be flexible and carefully adapt their pedagogical approaches to the school environment. Schwab (1970) notes that in any situation in which teaching and learning is presumed to be occurring, events can be examined by considering the interaction among four commonplaces – 'learners', 'teacher', 'subject matter', and 'context.'
- Each of the four situations in which teaching and learning occurs incorporates a range of factors listed below:
    1. What learners bring to the educational experience - for example, perspective on teaching and learning, prior experience of learning in general and the subject being learnt, perspective on the role of the instructor.
    2. What the teacher brings to the educational experience - for example, perspective on teaching and learning, prior experience of teaching in general and the subject being taught, perspective on the role of the learner.
    3. How the subject matter or discipline affects the educational experience -for example, how the knowledge structures of the discipline influence the nature of the tasks that are engaged in by those in the discipline (Donald, 1986) and the type of learning that is required (often relates to the level of the subject).

4. How the context or external factors influence the nature of the instruction-for example, whether the subject is required or not, the size of the class, other responsibilities of the teacher, and student and institutional factors.

Effective and appropriate pedagogical approaches can lead to academic achievement, social and emotional development, the acquisition of technical skills and a general ability to contribute to society. Among these varied learning outcomes, academic achievement is the easiest to measure, but the others are also important to consider when trying to reform and monitor ongoing changes to pedagogical practices.

Pedagogical effectiveness often depends on ensuring that the approach is appropriate for specific school and national contexts. Certain learner-centred techniques that are effective in classrooms with fewer learners may be difficult to accomplish in crowded or under-resourced classrooms. Some strategies have been more effective than others in a broadly-applicable way. These include the following:

- a strong grasp of pedagogical approaches specific to the subject matter and age of the learners (also called pedagogical content knowledge);
- appropriate use of whole-class, small group and pair work;
- meaningful incorporation of teaching and learning materials in addition to the textbook;
- frequent opportunities for learners to answer and expand upon responses to questions;
- helpful use of local terms and languages;
- varied lesson activities; and
- a positive attitude towards learners and a belief in their capacity to learn.

It is essential that educational practices within the system are in sync with the pedagogical approaches envisaged for The National Curriculum and that teachers who graduate from Ghana's universities and are licensed by the National Teaching Council are able to apply the pedagogies therein. Assessments, curriculum standards, and other education system policies influence teacher pedagogy. National exams that primarily test discrete factual knowledge rather than comprehension or analysis, discourage teachers from using pedagogies that develop higher-order critical thinking skills. For this reason, if education planners wish to change pedagogical practice, it is not sufficient to simply issue new pedagogical guidelines; they will also have to explore ways to align other policies and practices throughout the system.

12.3 Information Communications Technology

Information Communications Technology will be used as a pedagogical tool for the implementation of the *National Curriculum Change and Sustainable Development* and partly in line with the ICT policy framework of the Ministry of Education.

The ICT policy framework, which is an important step in determining the principles and objectives to be achieved, was prepared through extensive consultations with Education Managers, ICT experts, and other stakeholders with diverse experiences. In developing the policy framework, the government acknowledges the importance of ICT integration and how this will result in the creation of new opportunities for learners and teachers to engage in new ways of information acquisition and analysis that will help transform the economy of Ghana. Therefore, the policy document will serve as a platform to launch a systematic ICT in Education delivery to ensure the delivery of the following three pillars:

- ICT as a learning and operating tool
- ICT as integrated into the teaching and learning
- ICT as a career option for learners

As a result, a renewed spirit of commitment, innovation and investing in Science and Technology is being fostered to bend the curve of development and maintain Ghana's relevance in the global economy. The coming years will represent an important challenge for Ghana on its resolute journey towards the goal of integrating ICT in education delivery. The development and integration of persuasive features in ICT tools used in the classroom to enhance teaching and learning will be vital if Ghana is to succeed in producing more quality products from its schools.

Information Technology is a combination of communication, preservation, processing and multimedia capabilities. The main role that is played by communication networks is information and communication technology (or information technology and communication). ICT is a first-rate tool in educational systems, but this statement is based upon scientific findings particularly in training sciences, developmental psychology, knowledge and education capability. Under the aegis of ICT, inequities can be reduced, and educational systems can promote the knowledge and skills of the learners, thereby encouraging and improving creativity, critical thinking and learning how to learn.

The Ghana ICT in Education Strategic Implementation Plan 2011-2015 provides the Education Sector with strategic direction on ICT integration to enable improved access, equity for all and provision of quality educational opportunities. Through efficient integration of ICT in the Education System, the Strategic Implementation Plan also aims to support the Government of Ghana's intentions to use ICT as a tool for economic growth and development.

National investment in ICT in Ghana is well under way, and the Government has identified ICT integration in the Education Sector as a prioritised area for Ghana's socio-economic development. The need for a nationally accepted ICT in Education Strategic Implementation Plan for Ghana is vital to ensure a coordinated approach towards the country's transition into a knowledge-based economy. Educational objectives and priorities must be aligned and remain focused on transforming Ghana into 'an information rich knowledge based and technology driven high income economy and society' as stated in the Ghana ICT for Accelerated Development policy (ICT4AD, 2003).

The purpose of the ICT in Education Strategic Implementation Plan is to ensure that ICT is efficiently integrated in Ghana's educational system to fulfil the goals and guiding principles in national policy frameworks such as the Education Strategic Plan (ESP) 2010-2020, the Ghana ICT for Accelerated Development policy (ICT4AD, 2003), and the draft ICT in Education Policy (2007). The ICT in Education Strategic Implementation Plan will provide the education sector with strategic direction, coordination capacity and resource identification for ICT in Education initiatives.

The curriculum for ICT in Education aims at realising the goals of the national ICT in Education Policy (2015), and the National Curriculum Framework. Given the dynamic nature of ICT, the curriculum, emphasises the core educational purposes, is generic in design, and focuses on a broad exposure to technologies. In addition, it aims at enhancing the creativity and imagination of the learners.

For the teacher, it is an initiation into:

- exploring the educational possibilities of technology for teaching and learning;
- learning to make the right choices of hardware, software and ICT interactions; and
- growing to become a critical user of ICT.

For the learner, it is an initiation into:

- creativity and problem solving;
- an introduction to the world of information and technologies; and
- an opportunity to shape career pursuits.

12.3.1. ICT Standards

Transforming education requires us to rethink how we teach and learn. The ICT Standards act as a roadmap for making effective use of ICT in Ghana's schools and classrooms for the digital age, discovering new ways to learn on the journey to meaningful, effective education technology integration.

12.3.1.1 For leadership

Leadership will use ICT for their specific roles and related functions. These include:

- ***Visionary Leadership:*** Leaders inspire and create the environment for the development and implementation of a shared vision for comprehensive integration of technology to promote excellence and support transformation throughout the organisation. They:

    1. inspire and facilitate among all stakeholders a shared vision of purposeful change that maximises use of digital age resources to meet and exceed learning goals, support effective instructional practice, and maximize the performance of district and school leaders.
    2. engage in an ongoing process to develop, implement and communicate technology-infused strategic plans aligned with a shared vision.
    3. advocate on local, state and national levels for policies, programmes and funding to support the implementation of a technology-infused vision and strategic plan.

Digital Age Learning Culture: Leaders create, promote and sustain a dynamic, digital age learning culture that provides a rigorous, relevant and engaging education for all learners. They:

1. ensure instructional innovation focused on continuous improvement of digital age learning.
2. model and promote the frequent and effective use of technology for learning.
3. provide learning-centred environments equipped with technology and learning resources to meet the individual, diverse needs of all learners.
4. ensure effective practice in the study of technology and its infusion across the curriculum.
5. promote and participate in local, national and global learning communities that stimulate innovation, creativity and digital age collaboration

***Excellence in Professional Practice*:** Leaders promote an environment of professional learning and innovation that empowers educators to enhance student learning through the infusion of contemporary technologies and digital resources. They:

1. allocate time, resources and access to ensure ongoing professional growth in technology fluency and integration.
2. facilitate and participate in learning communities that stimulate, nurture and support administrators, faculty and staff in the study and use of technology.
3. promote and model effective communication and collaboration among stakeholders using digital age tools.
4. stay abreast of educational research and emerging trends regarding the effective use of technology and encourage evaluation of new technologies for their potential to improve student learning.

Systemic Improvement: Leaders provide digital age leadership and management to continuously improve the organisation through the effective use of information and technology resources. They:

1. lead purposeful change to maximise the achievement of learning goals through the appropriate use of technology and media-rich resources.
2. collaborate to establish metrics, collect and analyse data, interpret results and share findings to improve staff performance and student learning.
3. recruit and retain highly competent personnel who use technology creatively and proficiently to advance academic and operational goals.
4. establish and leverage strategic partnerships to support systemic improvement.
5. establish and maintain a robust infrastructure for technology including integrated, interoperable technology systems to support management, operations, teaching and learning.

Digital Citizenship: Leaders model and facilitate understanding of social, ethical and legal issues and responsibilities related to an evolving digital culture. They:

1. ensure equitable access to appropriate digital tools and resources to meet the needs of all learners.
2. promote, model and establish policies for safe, legal and ethical use of digital information and technology.
3. promote and model responsible social interactions related to the use of technology and information.
4. model and facilitate the development of a shared cultural understanding and involvement in global issues through the use of contemporary communication and collaboration tools.

12.3.1.2 For Teachers

ICT provides new avenue for teachers to be empowered to take ownership of own learning. The teacher becomes a learner, a leader, designer, analyst, collaborator and a facilitator of learning. The teacher is an empowered professional and learning catalyst within the culture of ICT integration in the teaching and learning process.

- ***As a Learner***: teachers continually improve their practice by learning from and with others and exploring proven and promising practices that leverage technology to improve student learning.

The teacher:

1. sets professional learning goals to explore and apply pedagogical approaches made possible by technology and reflect on their effectiveness.
2. pursues professional interests by creating and actively participating in local and global learning networks.
3. stays current with research that supports improved student learning outcomes, including findings from the learning sciences.

As a Leader: teachers seek out opportunities for leadership to support student empowerment and success and to improve teaching and learning. The teacher:

1. shapes, advances and accelerates a shared vision for empowered learning with technology by engaging with education stakeholders.
2. advocates for equitable access to educational technology, digital content and learning opportunities to meet the diverse needs of all learners.
3. models for colleagues the identification, exploration, evaluation, curation and adoption of new digital resources and tools for learning.

***As a Citizen*:** teachers inspire learners to positively contribute to and responsibly participate in the digital world.

The teacher

1. creates experiences for learners to make positive, socially responsible contributions and exhibit empathetic behaviour online that build relationships and community.
2. establishes a learning culture that promotes curiosity and critical examination of online resources and fosters digital literacy and media fluency.
3. mentors learners in the safe, legal and ethical practices with digital tools and the protection of intellectual rights and property.
4. models and promote the management of personal data and digital identity and protect student data privacy.

Collaborator: teachers dedicate time to collaborate with both colleagues and learners to improve practice, discover and share resources and ideas, and solve problems. They:

1. dedicate planning time to collaborate with colleagues to create authentic learning experiences that leverage technology.
2. collaborate and co-learn with learners to discover and use new digital resources and diagnose and troubleshoot technology issues.
3. use collaborative tools to expand learners' authentic, real-world learning experiences by engaging virtually with experts, teams and learners, locally and globally.
4. demonstrate cultural competency when communicating with learners, parents and colleagues and interact with them as co-collaborators in student learning.

Designer*:* teachers design authentic, learner-driven activities and environments that recognise and accommodate learner variability. They:

1. use technology to create, adapt and personalise learning experiences that foster independent learning and accommodate learner differences and needs.
2. design authentic learning activities that align with content area standards and use digital tools and resources to maximise active, deep learning.
3. explore and apply instructional design principles to create innovative digital learning environments that engage and support learning.

Facilitator: teachers facilitate learning with technology to support student achievement of the 2016 International Society for Technology Education (ISTE) Standards. Teachers:

1. foster a culture where learners take ownership of their learning goals and outcomes in both independent and group settings.
2. manage the use of technology and student learning strategies in digital platforms, virtual environments and hands-on makerspaces or in the field.
3. create learning opportunities that challenge learners to use a design process and computational thinking to innovate and solve problems.
4. model and nurture creativity and creative expression to communicate ideas, knowledge or connections.

As Analyst: teachers understand and use data to drive their instruction and support learners in achieving their learning goals. They:

1. provide alternative ways for learners to demonstrate competency and reflect on their learning using technology.
2. use technology to design and implement a variety of formative and summative assessments that accommodate learner needs and provide timely feedback to learners and inform instruction.
3. use assessment data to guide progress and communicate with learners, parents and education stakeholders to build student self-direction.

12.3.1.3 For Learners

It is expected that ICT use should be second nature to the day to day activities in which learners are involved. ICT use should empower leaners and develop them into digital citizens who are innovative designer, computational thinkers, global collaborators and be able to communicate creatively and demonstrate key related skills in those areas.

As Empowered Learner: learners leverage technology to take an active role in choosing, achieving and demonstrating competency in their learning goals, informed by the learning sciences. They:

1. articulate and set personal learning goals, and develop strategies, leveraging technology to achieve them and reflect on the learning process itself to improve learning outcomes.
2. build networks and customise their learning environments in ways that support the learning process.
3. use technology to seek feedback that informs and improves their practice and demonstrates their learning in a variety of ways.
4. understand the fundamental concepts of technology operations, demonstrate the ability to choose, use and troubleshoot current technologies and are able to transfer their knowledge to explore emerging technologies.

Digital Citizen: learners recognise the rights, responsibilities and opportunities of living, learning and working in an interconnected digital world, and they act and model in ways that are safe, legal and ethical. They:

1. cultivate and manage their digital identity and reputation and are aware of the permanence of their actions in the digital world.
2. engage in positive, safe, legal and ethical behaviour when using technology, including social interactions online or when using networked devices.
3. demonstrate an understanding of and respect for the rights and obligations of using and sharing intellectual property.
4. manage their personal data to maintain digital privacy and security and are aware of the data-collection technology used to track their navigation online.

Knowledge Constructor*:* learners critically curate a variety of resources using digital tools to construct knowledge, produce creative artefacts and make meaningful learning experiences for themselves and others. They:

1. plan and employ effective research strategies to locate information and other resources for their intellectual or creative pursuits.
2. evaluate the accuracy, perspective, credibility and relevance of information, media, data or other resources.
3. seek information from digital resources using a variety of tools and methods to create collections of artefacts that demonstrate meaningful connections or conclusions.
4. build knowledge by actively exploring real-world issues and problems, developing ideas and theories and pursuing answers and solutions.

Innovative Designer*:* learners use a variety of technologies within a design process to identify and solve problems by creating new, useful or imaginative solutions. They:

1. know and use a deliberate design process for generating ideas, testing theories, creating innovative artefacts or solving authentic problems.
2. select and use digital tools to plan and manage a design process that considers design constraints and calculated risks.
3. develop, test and refine prototypes as part of a cyclical design process.
4. exhibit a tolerance for ambiguity, perseverance and the capacity to work with open-ended problems.

Computational Thinker: learners develop and employ strategies for understanding and solving problems in ways that leverage the power of technological methods to develop and test solutions. They:

1. formulate problem definitions suited for technology-assisted methods such as data analysis, abstract models and algorithmic thinking in exploring and finding solutions.
2. collect data or identify relevant data sets, use digital tools to analyse them, and represent data in various ways to facilitate problem-solving and decision-making.
3. break problems into component parts, extract key information, and develop descriptive models to understand complex systems or facilitate problem-solving.
4. understand how automation works and use algorithmic thinking to develop a sequence of steps to create and test automated solutions.

***Creative Communicator**:* Learners communicate clearly and express themselves creatively for a variety of purposes using the platforms, tools, styles, formats and digital media appropriate to their goals. They:

1. choose the appropriate platforms and tools for meeting the desired objectives of their creation or communication.
2. create original works or responsibly repurpose or remix digital resources into new creations.
3. communicate complex ideas clearly and effectively by creating or using a variety of digital objects such as visualisations, models or simulations.
4. publish or present content that customises the message and medium for their intended audiences.

Global Collaborator: Learners use digital tools to broaden their perspectives and enrich their learning by collaborating with others and working effectively in teams locally and globally. They:

1. use digital tools to connect with learners from a variety of backgrounds and cultures, engaging with them in ways that broaden mutual understanding and learning.
2. use collaborative technologies to work with others, including peers, experts or community members, to examine issues and problems from multiple viewpoints.
3. contribute constructively to project teams, assuming various roles and responsibilities to work effectively towards a common goal.
4. explore local and global issues and use collaborative technologies to work with others to investigate solutions.

12.4 Language of Teaching and Learning

Ghanaian languages refer to the language spoken in the locality of a school. Of the many languages spoken in Ghana, 11 are approved for teaching and learning purposes. These are: Fante, Akuapem Twi, Asante Twi, Nzema, Ga, Dangme, Ewe, Gonja, Kasem, Dagbani and Dagaare. The use of Ghanaian languages as the medium of instruction at the lower primary level has had a chequered history.

From 1925 to 1951, a Ghanaian language was used as the medium of instruction for the first three years. Between 1951 and 1956, it was used only for the first year. From 1957 to 1966, a Ghanaian language was not used at all, from 1967 to 1969 it was used only for the first year, and between 1970 and 1974 a Ghanaian language was used for the first three years and where possible beyond (to the sixth year). From 1974 to 2002, a Ghanaian language was used for the first three years.

In May 2002, Ghana promulgated a law which mandates the use of English language (hereafter L2) as the medium of instruction from primary one (grade one) to replace the use of a Ghanaian language as the medium of instruction for the first three years of schooling, and English as the medium of instruction from primary four (grade four). In 2007, the Prof. Jophus Anamuah-Mensah Education Reform committee revised the policy to use 70% local language and 30% English language from Kindergarten to primary three with English Language thereafter.

Table 10 Diagrammatic representation of the policy from the pre-colonial era to the present (1529 - 2007)

	1st Year	2nd Year	3rd Year	4th Year +
1529-1925 a. Castle Schools Era b. Missionary Era	- +	- +	- +	- -
1925-1951	+	+	+	-
1951-1955	+	-	-	-
1956-1966	-	-	-	-
1967-1969	+	-	-	-
1970-1973	+	+	+	+
1974-2002 (Sept)	+	+	+	-
2002-2007	-	-	-	-
2007-Present	+	+	+	-

Key:

+ = A Ghanaian language was used as the medium of instruction.

- = Ghanaian not used

Source: Charles Owu-Ewie (2006) The Language Policy of Education in Ghana: A Critical Look at the English-Only Language Policy of Education

In many national contexts, school teachers base their daily routines on three 'assumptions of normality':

a. society wants only a smaller proportion of a student cohort to qualify for professional (academic) careers;
b. learners are competent native speakers of the dominant language of schooling; and
c. they are used to the school´s particular patterns of language use since in their (learners) families, reading and writing is a major concern.

Based on these three points of departure, schools delegated responsibility for language development to the specialists, i.e. teachers of language (L1) as a subject and to teachers of classical and modern languages (L2). The teaching of other subjects, however, focused on subject-specific content and expected learners to be able to face the linguistic challenges of subject teaching – if not, they simply did not qualify for academic advancement. School is a discourse community with its ways and means to use language as a medium or tool for making meaning, i.e. teaching and learning content across the curriculum.

12.5 Inclusion and diversity

Inclusion is about the active presence, participation and achievement of all learners in a meaningful and relevant set of learning experiences. While some of these experiences will come from the national pre-tertiary curriculum, others, equally important, will come from the wider curriculum in and beyond the classroom. An effective inclusive school needs to adopt a whole-school approach to the curriculum. The purpose for developing a whole-school curriculum will be to establish an inclusive, learning environment which welcomes, nurtures, and educates all children regardless of their gender, physical, intellectual, social, emotional, linguistic or other characteristics.

Inclusive Education (IE) is seen as a process of addressing and responding to the diversity of needs of all learners through increasing participation in learning, cultures and communities, and reducing exclusion within and from education. It involves changes and modifications in content, approaches, structures and strategies, with a common vision which covers all children of the appropriate age range and a conviction that it is the responsibility of the

regular system to educate all children. IE, therefore, is a rights-based as well as a developmental approach to education. It respects and responds to diversity and does not discriminate on grounds of language, ethnicity, disability, gender, color, religion etc. This must be so because all children have the right to learn together.

Planning for inclusion at the school level means thinking about how the curriculum can be designed to match the needs and interests of the full range of learners. These will need to be addressed both inside and outside the classroom.

The learners may include:

- The gifted and the talented
- Learners with learning difficulties and disabilities
- The different needs of boys and girls
- Learners with social, emotional and behavioural difficulties
- marginalized learners (e.g. orphans and vulnerable children, street children)

The breadth and flexibility of the pre-tertiary curriculum, the choices offered in the selection and sequencing of content and its focus on the developmental needs of children will ensure its adaptability to the diversity of children's circumstances and experiences. The curriculum will allow for 'differentiation' within a school or class relative to the needs, abilities and aptitudes of the learners. Differentiation applies to all effective teaching but is particularly important for learners with Special Educational Needs. Learners vary in their intellectual and physical capabilities, their motivation, interest, health and background. These variations call for flexible teaching approaches, allowing for differentiation and success for all learners, while accommodating those who are experiencing difficulties and those who need more challenging tasks. There is also the need for proper management of space and time to make it possible for learners who need extra support or remedial/compensatory teaching to take place. The teacher will combine several strategies including, among others, the Five Approaches, Child-to-Child, Peer Tutoring and Cooperative Learning[7]

The school should be a welcoming learning environment for all children, with a welcoming head of school, welcoming staff, welcoming classrooms and a welcoming curriculum. Subject and classroom teachers cannot plan for inclusion in isolation. Effective whole school planning will be essential to ensure that the learning needs of all learners are identified, adequately resourced and responded to effectively.

A useful model for school planning might include the following phases:

- Designing school plans and strategies which detail how the curriculum content, teaching and learning approaches, assessment and instructional materials can be used to meet the learning needs of all learners, including learners with general learning disabilities

[7] (UNESCO 2004 *Embracing Diversity: Toolkit for Creating Inclusive Learner Friendly Environments.* Bangkok: UNESCO

Ainscow, M. 1994 *Special Needs in the Classroom*. Paris: UNESCO

- Outlining a course of action to support teachers in meeting the learner's learning needs
- Reviewing and assessing at regular intervals whether the goals outlined in the school plan are being achieved.

The physical infrastructure of the school should be restructured to be environmentally disability-friendly to all children especially those with disabilities and special educational needs. For example, gutters need to be covered; ramps created, handrails erected and classrooms well illuminated. The provision of the above-mentioned facilities will make schools, classrooms, and the curriculum accessible to all children including those with disabilities and special educational needs.

All teachers should have a foundation in inclusive education and a course in remedial/compensatory teaching. Every big school (2-3 streams) or school cluster of 2-3 schools should have Resource or Support Teachers who have IE/Special Education as part of their qualification or continuous professional development. These teachers should provide support to both teachers and learners. They should be prepared in identifying learning needs, referral procedures, understanding and using basic sign language, or managing computer-assisted learning for different impairments, according to the needs of the learners to be enrolled. Professional support to inclusive education must be called on as and when necessary.

12.5.1 Children with Disabilities and Special Educational Needs

The aim of the Education Sector Plan (ESP) is that by 2015 all children of school-going age, including those with special education needs, will complete primary schooling. The central aim of the UN-SDG 4 and Ghana's ESP 2018 – 2030 is to provide quality education for all. Therefore, learners n in special schools should be screened to determine their levels of disability or impairment as a method to hasten the inclusive education process. Only in cases where the degree of impairment or learning disability is such that a student cannot be included in mainstream classes or schools with a support class, will a student be referred to a special school. The purpose of special schools is to provide for the particular needs of these learners, but with an emphasis on preparing them for full integration in society.

12.5.2 Special Assistive Devices

Specific assistive devices should be provided for learners who have special educational needs. Assistive Technologies (AT) facilitate access to learning and communication for learners with special educational needs. AT devices can be low tech (large print books, jigsaws, letter/word/figure cards, etc.) medium (hearing aids, magnifiers, Braille printer, sound books), and high tech (ICT hardware and software). There are four possible approaches to deployment of a continuum of resource provision:

1. school based approach: full IE setting where the AT is deployed in the regular classroom (full inclusion).
2. resource Centre Network approach: dedicated resource centres set up in regular schools (partial inclusion)
3. special School approach: special schools dedicated to Special Education (segregated/ dual system)
4. a mix of the 3 approaches above

The Policy document on Inclusion takes its source from national legal documents including the 1992 Constitution of the Republic of Ghana; the Ghana Shared Growth and Development Agenda, the Education Strategic Plan (2010-2020), the Disability Act and the Education Act, among others. The document is founded on the premise that every child has

the right to, and can, learn. Hence, the Universal Design for Learning (UDL) model is the super structure upon which the Inclusive Education policy is expected to deliver quality equitable education to all. The UDL is complemented by the Child Friendly Schools (CFS) model. Under the UDL and the CFS model, the strategic focus of the policy has the overarching goal to redefine the delivery and management of education services to respond to the diverse needs of all learners within the framework of the UDL. The strategic focus includes improving access to quality education for all learners of diverse educational needs; the provision of requisite teaching and learning materials; capacity development for professional and specialised teachers and managers as well as improvements in education service delivery.

Diversity means all the ways in which we differ. Some of these differences we are born with and cannot change. Anything that makes us unique is part of this definition of diversity. Inclusion involves bringing together and harnessing these diverse forces and resources, in a way that is beneficial. Inclusion puts the concept and practice of diversity into action by creating an environment of involvement, respect, and connection—where the richness of ideas, backgrounds and perspectives are harnessed to create educational value. Schools need both diversity and inclusion to be successful.

Teacher expectations of disadvantaged learners: when teachers have a positive attitude towards their learners, they are more socially responsive and attentive, they more often tailor their instruction to particular learner needs, and they are more successful at drawing on learners' experiences to make lessons meaningful and contextually relevant. Conversely, learners from disadvantaged social groups, such as females, minorities, or the disabled often suffer from teacher prejudices, which translate into low expectations of these learners' capacities. Teachers who have low expectations of their learners make less of an effort to help them learn, in addition to discouraging them in other subtle ways, with the final result that these learners often underperform academically.

Adapting pedagogy to mixed-level, large and under-resourced classrooms is what constitutes effective pedagogy and this is often context-dependent; teachers therefore, need to receive specific preparation in how to make contextual adaptations to their teaching approaches through both pre-service and in-service training. Ghana's classrooms are mixed-ability and in such cases, teachers need to have a deep understanding of learners' different ability levels to alter their instruction and activities to meet the needs of each learner. Group work can also be helpful for learners of different ability levels. When teaching in large classes, group work is vital to maintaining classroom routines. Many excellent teachers set up routines for group-work, peer review, distributing papers, etc., to help reduce chaos and increase instructional time. There are also specific techniques for effective use of questions and encouraging discussions in large classrooms. In under-resourced classrooms, teachers need to be especially creative about how to use locally-available materials, and how to connect lessons to observations of the social and natural environment. These approaches can, in fact, strengthen teaching even in well-resourced classrooms, since teaching and learning materials are most beneficial when they are relevant to learners' needs.

12.6 Accountability, Monitoring and Quality Assurance

Education in most countries has been subject to increased public attention and scrutiny. Many governments have imposed structural changes, including changes in institutional role, expansion in the number of institutions, or mergers among certain types of institutions. Others have adopted new financing schemes, often with grants and tuition fees.

The introduction of accountability policies, in which governments have called on educational institutions to demonstrate more explicitly their quality and effectiveness, has

become widespread. New reporting requirements, performance standards and evaluation visits by external review teams have been introduced, and new agencies have been established to implement the new forms of monitoring. Public agencies responsible for quality assurance and accountability can be found worldwide. A coordination network therefore has to be designed to help members carry out these new responsibilities of accountability and quality assurance. Hence, the role of the National Inspectorate Board (NIB) in ensuring regular and robust monitoring of classroom and school practices is paramount for effective implementation of the curriculum.

NIB's Policies, supported by clear procedures, should provide teachers and learners (and where appropriate, parents) with clear direction and guidance for holding the school, the headteacher, teachers and learners accountable for performance of their varying roles to ensure effective implementation of the curriculum. The policies need to be understood by the school community and enforced through quality assurance practices, including teacher evaluation. Curriculum evaluation should focus on the review and development of these policies as part of the curriculum planning process. Some of the policies are directly owned by the Ghana Education Service as such all efforts must be made by the Service to ensure that the teachers who their employees also take ownership of the policies and play a leading role in their implementation.

In addition to teacher evaluation, the following relate to issues of curriculum implementation:

- ***Language Policy:*** Every school will have its own language profile so it is important that this is reflected in a policy that recognises the language needs of different groups of learners and teachers. It will consider the solution to questions including: How will English as a second language be supported? How will learners be encouraged to develop their first or best language? What responsibilities do teachers have to support language learning?
- ***Assessment Policy:*** How often are internal summative grading and reporting conducted? What are the grading procedures and how does this relate to the criterion system used by Cambridge and/or other qualifications taught in the school? How is assessment for learning supported? What can learners and parents expect from teachers in terms of reporting and detailed feedback on specific assignments and over specified lengths of time?
- ***Homework Policy:*** What are the expectations? How is this organised to ensure that classroom learning is supported in a way that is balanced?
- **Inclusive Policy:** What are the expectations for teachers to differentiate so that all learners are appropriately challenged? How does the school support learners with specific needs?
- ***Co-curricular expectations:*** What does the school provide for learners beyond regular classes? How does this fit in with teacher contracts and expectations? How does the school work with the local community to support learner participation in activities that it cannot provide itself, or are better provided outside the school?
- ***Discipline Policy:*** What is the code of conduct for teachers and the code of conduct for learners? How is the code of conduct supported and enforced? What support is provided to learners who display discipline problems?
- ***Classroom Policy:*** Environment should be provided by the authorities and a [discussion should relate classroom context and school environment for learning]

- ***Textbook and Other Educational Resources Distribution Policy:*** What ethics exist for textbook writing and publishing, evaluation and distribution? This addresses the role of textbook and educational equipment committee access and determines the suitability of supplementary educational materials submitted by publishers

12.7 Teaching and Learning Resources

The National Council for Curriculum and Assessment (NaCCA) must ensure that teaching and learning resources balance (relevant to) the need to provide challenging and engaging learning programmes for learners with the use of materials that do not offend learners and the wider community due to their obscene, highly offensive or overly controversial nature.

The NaCCA's guidelines are designed to inform decision-making processes for teachers, principals and school councils. The teaching and learning resources referred to in these guidelines include any spoken, written or visual text or activity used or conducted by schools, for example:

- textbooks
- novels
- films
- plays
- radio programmes
- multimedia
- digital learning resources including video, audio, text, animations and images
- lectures
- speeches
- performances
- classroom and outdoor play materials/equipment

Note:

- *Offensive or obscene* material means material about which there is a consensus view that it is unacceptable
- *Controversial* material means material about which opinions often contrast.

12.7.1 Selecting Teaching and Learning Resources

***Purpose*:** To provide guidance to ensure that schools respond reasonably and respectfully to objections about the use of specific curriculum resources.

Guidelines: Teachers and headteachers in consultation with the NaCCA, National Teaching Council (NTC) and National Inspectorate Board (NIB) need to ensure that the selection of teaching and learning resources:

- considers the expected student learning outcomes and standards described in the Ghanaian curriculum frameworks;
- considers the particular needs of its learners;
- does not expose learners to highly offensive or obscene materials or themes;
- ensures that curriculum resources are suitable for the age group using them; and
- considers the words, behaviour, images or themes of the resources regarding the:

- context
- impact on the learners' age group
- literary, artistic or educational merit of the material
- intention of the author and general character of the material
- how parents might react to their children being exposed to this content
- standards of morality, decency and propriety generally accepted by adults
- impact on persons from different ethnic, religious, social and cultural backgrounds.

Headteachers must ensure that:

- the school implements the policies and procedures that comply with these curriculum guidelines;
- the school community is informed of possible controversial texts and that learners and their parents have a right to object to teaching and learning resources under the provision of the ministry of education's guidelines.

12. 8 Guidance and Counselling

Guidance and counselling services and programmes promote the personal/social, educational, and career development of learners. The guiding principle of guidance and counselling is that optimum emotional and psychosocial wellbeing of the learner is a determining factor for effective learning. Therefore, this strategy outlines ways of ensuring that the emotional and psychosocial wellbeing of learners are promoted and strengthened.

Ensuring that children are emotionally and psychologically able to learn is an essential component of an effective education system. This is especially relevant to efforts to achieve "Education for All" in the most deprived rural and peri-urban areas as well as urban areas. At present, more of the poorest and most disadvantaged children have no access to good quality education, the majority of whom are girls. It is these children, who often experience different forms of abuse and who are generally vulnerable to contracting communicable diseases or are forced into early marriages, who have the most to gain educationally from supportive and functional guidance and counselling services.

Most learners encounter challenges beyond the scope of teachers' awareness in some cases during their time at school. While experiencing such dilemmas, many learners develop the adaptive coping skills that help them navigate life's difficult experiences. Despite the natural coping ability that most learners' exhibit, most of the primary school teachers are ill-equipped to provide the necessary and appropriate guidance counselling skills in the way that learners adapt, change and grow through the process of learning from outcomes and mistakes. Guidance and Counselling teachers are expected to assess the learners' behavioural outcomes in order to better guide them.

Through the support and role-modelling that is provided by fully engaged parents, teachers, and other concerned adults, children and adolescents are able to learn how to manage challenges. Learning to deal with challenges empowers them to overcome obstacles and seize opportunities. In some cases, a learner's adaptation to adult figures and role models appears to be a type of mirroring, though in other cases, it is more goal-oriented or self-directed.

While some of the learners may receive support from adults in their home and classroom environments, other learners may not receive the quality or quantity of parental or classroom support they need. The lack of support prevents the achievement of academic

and psychological stability (Fredericks, Blumenfeld, & Paris, 2004). Hence these learners may require additional support and intervention in order to support their optimal social, academic and career development.

The variety of concerns that learners deal with have increased, particularly in this age when HIV/AIDS and Orphan-hood has impacted negatively on the schools and learners in particular. Adults who function in supervisory capacities also recognise that the pressures being borne by learners at the primary and secondary school level (particularly in government and community schools) are generating a wide range of academic, emotional, and social problems that require more support for learners.

The role of Guidance and Counselling teachers and their presence in public schools has become increasingly important in recent years. The increased importance being placed on guidance and counselling makes sense on many levels. By being available, school guidance and counselling teachers are used as a resource, and in becoming accepted they are free to focus on student needs that may not have surfaced during basic instruction or supervision.

A Guidance and Counselling teacher can support a learner's long-term desire for higher education or vocation. Full time Guidance and Counselling teachers are able to do this in a way that teachers who are confined to a certain grade level or subject, for example, are unable to. According to Scarborough and Luke (2008, p.1), 'comprehensive, developmental school counselling programming has numerous benefits for learners and is considered best practice'. Student outcomes are highly mutable and are shaped by many aspects of learner's lives that do not occur in the classroom.

Trying to ascertain how to best deal with those out-of-school factors and how to best help a learner who needs additional help is one of the most significant ways in which counselling can be most effective.

The guidance and counselling strategy should outline key strategic components and activities for:

1. policy harmonisation of the common areas with components such as Life Skills Education, Sexuality Education, Orphans and Vulnerable Children, and Special Educational Needs; and
2. establishing and strengthening structures at district and school levels that support guidance and counselling service provisions which are currently in the establishment.

Table 11 Four Components of a Comprehensive School Counselling Programme

Guidance Curriculum	Individual Planning	Responsive Services	System Support
Provides guidance content in a systematic way to all learners across all phases Purpose Student awareness, skill development and application of skills needed in everyday life Areas Addressed Motivation to achieve Decision making, goal setting, planning and problem-solving skills Self-esteem development Interpersonal effectiveness Communication skills Cultural diversity Responsible behaviour Education planning Knowledge of postsecondary opportunities Counsellor Role Structured groups Consultation Guidance curriculum Implementation	Assists learners in planning, monitoring, and managing their personal and career development Purpose Student educational and career planning, decision making and goal setting Areas Addressed Educational Acquisition of study skills Awareness of educational opportunities Appropriate course selection Lifelong learning Utilization of test data Career Knowledge of career opportunities Knowledge of postsecondary options Need for positive work habits Personal-Social Development of adaptive and adjustive social behaviour Planning Placement Counsellor Role Assessment Planning Placement	Addresses the immediate concerns of all learners Purpose Prevention and intervention Areas Addressed Academic concerns School-related concerns Tardiness Absences and truancy Misbehaviour School-avoidance Dropout prevention Relationship concerns Abuse issues Grief/loss, death Substance abuse Family issues Sexuality issues Coping with stress Counsellor Role Individual and small group counselling Consultation Referral	Includes programme, staff and school support activities Purpose Programme delivery and support Areas Addressed Guidance Programme development Parent education Teacher/administrator consultation Staff development School improvement planning Professional development Research and publishing Community outreach Public relations Counsellor Role Programme management Consultation Coordinator

Source: Adapted from Developing and Managing Your School Guidance Program by Norman C. Gysbers, Ph.D.

12.9 Teacher Professional Development

Professional development is defined as activities that develop an individual's skills, knowledge, expertise and other characteristics as a teacher.

Over the years, Ghana has reformed and restructured its teacher education system in response to the demands of new vision and mission for education to meet the demands of a knowledge society. What has been missing in this entire process is a set of professional standards for teachers that provide a strong definition of and a key reference point for the work of teachers towards achieving the learning and social outcomes articulated in the 2008 Education Act. The Teaching Standards are therefore designed to codify what a 'good teacher' looks like for Ghana, recognising the urgent need to improve the quality of the school experience and learning outcomes for all learners and to raise the status of teachers in their communities and country. The Standards are aspirational in their vision, positively embracing the promises and challenges of the 21st century for Ghana. Importantly, they support Ghana in meeting Goal 4 of the Sustainable Development Goals for 2030 to 'ensure inclusive and equitable quality education and promote life-long learning opportunities for

all'. In contributing towards this Goal, the Standards are also, however, realistic, and relatively few in number so as to be achievable and user-friendly.

The Education Act 778 of Ghana, passed by the country's Parliament in 2008, has caused the establishment of a self-regulatory body for teaching known as the National Teaching Council (NTC), with responsibility for setting professional standards, registering and licensing teachers. (Act 778, Education Act 2008) The Education Act was enacted to deal with the problem of unqualified teachers practising in Ghanaian schools, and to ensure an efficient and adequately-trained career teachers. At the moment, the Ministry of Education (MoE) and Ghana Education Service (GES), in partnership with their international development partners, have developed policy briefs to guide implementation the functioning structure of the NTC as part of the Ghana Education Decentralization Project.

There is no doubt that the current educational climate is driven by an overriding concern with student achievement and what promotes it. The role of teachers in student achievement is central to this concern. According to the U.S. Department of Education, 'teachers are the single most important factor in raising student achievement.' Higher standards for teachers accompany the push for higher standards for learners and greater accountability for student learning, and professional development is a critical link among new policies, school reform, and improved educational practice (Knapp, 2003). To promote quality teacher professional development, the following should be considered:

- what is known about what makes teacher professional development effective; and
- how teachers change as a result of professional development

No matter how good pre-service training for teachers is, it cannot be expected to prepare teachers for all the challenges they will face throughout their careers. Education systems therefore seek to provide teachers with opportunities for in-service professional development in order to maintain a high standard of teaching and to retain a high-quality teacher workforce. As the OECD's comparative review on teachers has noted (OECD, 2005): effective professional development is on-going, includes training, practice and feedback, and provides adequate time and follow-up support. Successful programmes involve teachers in learning activities that are similar to ones they will use with their learners and encourage the development of teachers' learning communities. There is growing interest in developing schools as learning organisations, and in ways for teachers to share their expertise and experience more systematically. The development of teachers beyond their initial training can serve a number of objectives (OECD, 1998), including:

- to update individuals' knowledge of a subject in light of recent advances in the area;
- to update individuals' skills, attitudes and approaches in light of the development of new teaching techniques and objectives, new circumstances and new educational research;
- to enable individuals to apply changes made to curricula or other aspects of teaching practice;
- to enable schools to develop and apply new strategies concerning the curriculum and other aspects of teaching practice;
- to exchange information and expertise among teachers, academics, industrialists, and other practitioners; and
- to help weaker teachers become more effective.

The types of professional development could fall under any of the following headings:

- Informal dialogue to improve teaching
- Courses and workshops
- Reading professional literature
- Education conferences and seminars
- Professional development network
- Individual and collaborative research
- Mentoring and peer observation
- Observation visits to other schools

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