MINISTRY OF EDUCATION

REPUBLIC OF GHANA

NATIONAL SYLLABUS FOR INTEGRATED SCIENCE (JUNIOR HIGH SCHOOL)

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NATIONAL SYLLABUS FOR INTEGRATED SCIENCE
(JHS)

RATIONALE FOR TEACHING INTEGRATED SCIENCE

The acquisition of general scientific literacy by every Ghanaian citizen is a requirement for successful living in modern times. Scientific culture develops and this aligns with the country's strategic programme of achieving scientific and technological literacy in the shortest possible time. This scientific culture is the antithesis to superstition and a catalyst for faster development.

The focus of the study of Science is to understand the natural world. There are generally two main goals of Science education. First, it inculcates scientific literacy and culture for all, so that people can make informed choices in their personal lives and approach challenges in the workplace in a systematic and logical order. Second, it aims to produce competent professionals in the various scientific disciplines who can carry out research and development at the highest level. For meaningful scientific education, it is important for pupils to be trained in the investigative process of seeking answers to problems. This requires pupils to physically explore and discover knowledge within their environment and in the laboratory to be able to contribute new scientific principles and ideas to the body of knowledge already existing in their culture.

The integrated science syllabus is a conscious effort to raise the level of scientific literacy of all students and equip them with the relevant basic integrated scientific knowledge needed for their own survival and for the development of the country. It is also expected that scientific experiences in Junior High School will cultivate in pupils an interest and love for science that will urge some of them to seek further studies in science as preparation for careers in science. The study of science will also provide excellent opportunities for the development of positive attitudes and values which include:

- Curiosity to explore their environment and question what they find
- Keenness to identify and answer questions through investigations
- Creativity in suggesting new and relevant ways to solve problems
- Open-mindedness to accept all knowledge as tentative and to change their view if the evidence is convincing
- Perseverance and patience in pursuing a problem until a satisfying solution is found
- Concern for living things and awareness of the responsibility they have for the quality of the environment
- Honesty, truthfulness and accuracy in recording and reporting scientific information
- Love, respect and appreciation for nature and desire to conserve natural balance.

GENERAL AIMS

The syllabus is designed to help the pupil to:

1. Develop a scientific way of life through curiosity and investigative habits
2. Appreciate the interrelationship between science and other disciplines.
3. Use scientific concepts and principles to solve problems of life.
4. Use basic scientific apparatus, materials and appliances effectively.

5. Take appropriate measures for maintaining machinery and appliances used in everyday life.
6. Acquire the ability to assess and interpret scientific information and make inferences.
7. Recognize the vulnerability of the natural environment and take measures for managing the environment in a sustainable manner.
8. Appreciate the importance of energy to the living and non living things and adopt conservation methods to optimize energy sources.
9. Take preventive measures against common tropical diseases
10. Live a healthy lifestyle.

SCOPE OF CONTENT

The content of the Junior High School Integrated Science covers the basic sciences and includes topics in Health, Agriculture and Industry. The course has been designed to offer a body of knowledge and skills to meet the requirements of everyday living, and provide adequate foundation for those who want to pursue further education and training in science and science related vocations.

Specific issues covered are the following:

1. Science for all students
2. Science as an active inquiry process
3. Science and the satisfaction of individual needs
4. Science as a profession
5. Science and culture.

The approach in this syllabus is based on scientific themes that pupils can relate to in their everyday experiences, and related also to commonly observed phenomena in nature. The basic aim is to enable pupils to appreciate the links between seemingly different topics and thus allow the eventual integration of scientific ideas. The **Six** themes chosen are: **Introduction to Science**, **Diversity of matter** (the Living and Non Living things), **Cycles**, **Systems**, **Energy** and **Interactions of matter**. These themes provide a broad based understanding of the environment and scientific phenomena, and should help build a foundation upon which pupils can rely for further study. Apart from the JHS1 which has six themes, the JHS 2 & 3 has five themes. The theme **'Introduction to Science'** is only found in JHS1. This is because the units (Introduction to Integrated Science and Measurement) under this theme could not be placed under the rest of the themes.

Although the content of the syllabus is organized into **themes** (six for JHS1 and five for JHS2 & 3), the units under each theme are not to be viewed as separate blocks of knowledge. In general, there are no clear boundaries between the themes since there are some common topics between the different themes. In particular, it should be noted that Systems, Energy and Interactions are closely related.

Another feature of the syllabus is the **Spiral Approach**. This is characterized by revisiting concepts and skills at different levels with increasing degrees of depth at each stage. The spiral approach has the benefit of matching scientific concepts and skills to pupils' cognitive development. It therefore helps pupils to build a gradual mastery of scientific skills.

The titles of the sections are the same for each class level. However, the knowledge, understanding as well as the activities and range of process skills presented have been extended at the different class levels. The focus of each theme is provided below.

ORGANIZATION OF THE SYLLABUS

The syllabus covers three years of Junior High School education. Each year's work is organized under the five themes or sections. The themes are: **Diversity of matter (living and non living things), Cycles, Systems, Energy and Interactions of matter (living and non living things).** The Junior High School1 has one additional theme, **Introduction to Science**. Under each theme or section are a set of units or topics. The knowledge, understandings as well as the activities and range of process skills presented in each theme have been extended at the different class levels. The focus of each theme is provided below.

Section 1 - **Diversity of matter**
The study of diversity should enable pupils to appreciate that there is a great variety of living and non-living things in the world. It also aims at helping pupils to recognize that there are common threads that connect all living things and unifying factors in the diversity of non-living things that help to classify them. The study of diversity in the world will allow pupils to appreciate the importance of living and non living things and the necessity for coexistence and the need to sustain them.

Section 2 – **Cycles**
The study of cycles should enable pupils to recognize that there are repeated patterns of change in nature. Examples of these cycles are the day and night cycle, life cycles of living things, the recycling of resources and the cyclic nature of agricultural production. Studying these cycles helps us to predict events and processes and understand the Earth as a self-sustaining system.

Section 3 -- Systems
The study of systems should enable pupils to recognize that a system is anything that consists of parts that work together to perform a function. There are systems in nature as well as artificial systems. Examples of systems in nature are the digestive and respiratory systems. Examples of artificial systems are electrical systems. A study of these systems allows humans to understand how they operate and how parts influence and interact with one another to perform a function.

Section 4 – **Energy**
The study of energy should enable pupils to appreciate that energy affects both living and non-living things. Energy makes changes and movement possible in everyday life. There are many forms of energy and one form can be converted to another. Humans use energy in many ways for many different purposes. Humans are not the only animals that use energy; all living and non-living things obtain and use energy. The study of this theme should help pupils to develop energy conservation habits.

Section 5 – **Interactions of matter**
The study of interactions between living and non-living things within systems helps humans to better understand the environment and the roles they should play in it. There are many types of interactions. There are interactions between the living world and the environment at various levels; i.e. interactions which occur within an organism, between organisms as well as between organisms and the environment. There are also interactions between forces and objects. At the societal level, the interaction of humans with the environment drives the development of Science and Technology. At the same time, Science and Technology influence the way humans interact with the environment. By studying the interactions between humans and the environment, pupils can better appreciate the consequences of their actions.

OVERVIEW OF THE JUNIOR HIGH SCHOOL INTEGRATED SCIENCE SYLLABUS

SECTIONS	JHS1	JHS2	JHS3
INTRODUCTION TO SCIENCE	Unit 1: Introduction to Integrated Science (pg 1) Unit 2: Measurement (pg 3)		
DIVERSITY OF MATTER	Unit 1: Matter (pg 6) Unit 2: Nature of Soil (pg 8) Unit 3: Hazards (pg 9)	Unit 1: Elements, Compounds and Mixtures (pg 20) Unit 2: Metals and Non Metals (pg 21) Unit 3: Chemical Compounds (pg 23) Unit 4: Mixtures (pg 23) Unit 5: Water (pg 25)	Unit 1: Acids and Bases (pg 39) Unit 2: Soil and Water Conservation (pg 40)
CYCLES	Unit 1: Life Cycle of Flowering Plants (pg 10) Unit 2: Vegetable Crop Production (pg 11)	Unit 1: Carbon Cycle (pg 26) Unit 2: Weather, Season and climate (Pg 26)	Unit 1: Life Cycle of a Mosquito (pg 41)
SYSTEMS	Unit 1: Farming Systems (pg 12) Unit 2: Respiratory System of Humans (pg 13)	Unit 1: Reproduction in Humans (pg 28) Unit 2: Heredity (pg 29) Unit 3: Diffusion and Osmosis (pg 29) Unit 4: Circulatory System in Humans (pg 30)	Unit 1: The Solar System (pg 42) Unit 2: Dentition in Humans (pg 43) Unit 3: Digestion in Humans (pg 43)
ENERGY	Unit 1: Sources of Energy (pg 14) Unit 2: Conversion and Conservation of Energy (pg 14) Unit 3: Light Energy (pg 15) Unit 4: Basic Electronics (pg 16)	Unit 1: Photosynthesis (pg 31) Unit 2: Food and Nutrition (pg 31) Unit 3: Electrical Energy (pg 32) Unit 4: Basic Electronics (pg 33)	Unit 1: Heat Energy (pg 45) Unit 2: Basic Electronics (pg 46)
INTERACTIONS OF MATTER	Unit 1: Ecosystems (pg 18) Unit 2: Air Pollution (pg 19) Unit 3: Physical and Chemical change (pg 19)	Unit 1: Infectious diseases of humans and plants (pg 35) Unit 2: Pests and Parasites (pg 36) Unit 3: Force and Pressure (pg 36) Unit 4: Machines(pg 37)	Unit 1: Magnetism (pg 47) Unit 2: Science related Industries (pg 48)

PRE-REQUISITE SKILLS AND ALLIED SUBJECTS
Average performance in Integrated Science and Mathematics at Basic Stages 4 – 6 is necessary for success in this course.

SUGGESTED TIME ALLOCATION
A total of six periods a week, each period consisting of forty minutes, is allocated to the teaching of Integrated Science at the Junior High School level. It is recommended that the teaching periods be divided as follows:

Theory: 4 periods per week (two 40-minute periods)
Practical: 2 periods per week (one double-period)

SUGGESTIONS FOR TEACHING THE SYLLABUS
For effective teaching and learning in this course, it is recommended that schools should have science equipment and materials. As much as possible, the social relevance of all science concepts taught must be made clear e.g. their application to agriculture and industry. Schools must adopt the integrated and team teaching approach for teaching the course.

A class may consist of pupils of different physical problems and mental abilities. Some of the children may have high mental ability, while others may be slow learners; some may be dyslexic and not able to read or spell well as the others in the class. All these are special needs children who need special attention. Ensure that you give equal attention to all pupils in your class to provide each of them equal opportunities for learning. Pupils with disabilities may have hidden talents that can only come to light if you provide them the necessary encouragement and support in class.

General Objectives
General Objectives have been listed at the beginning of each section of the syllabus, that is, just below the theme of the section. The general objectives flow from the general aims for teaching natural science listed on page (ii) of this syllabus. The general objectives form the basis for the selection and organization of the themes and their unit topics. Read the general objectives very carefully before you start teaching. After teaching all the units, go back and read the general aims and general objectives again to be sure you have covered both of them adequately in the course of your teaching.

Years and Units

The syllabus has been planned on the basis of Years and Units. Each year's work is covered in a number of units sequentially arranged and in a meaningful manner such that each unit's work will provide the necessary and enabling skills for the next unit. A description of the contents of each column is as follows:

Syllabus Structure

The syllabus is structured in five columns: Units, Specific Objectives, Content, Teaching and Learning Activities and Evaluation. A description of the contents of each column is as follows:

Column 1 - Units: The units in column 1 are the major topics of the year. You are expected to follow the unit topics according to the linear order in which they have been presented. However, if you find at some point that teaching and learning in your class will be more effective if you branched to another unit before coming back to the unit in the sequence, you are encouraged to do so.

Column 2 - Specific Objectives: Column 2 shows the Specific Objectives for each unit. The specific objectives begin with numbers such as 1.2.5 or 3.4.1. These numbers are referred to as "Syllabus Reference Numbers". The first digit in the syllabus reference number refers to the year/class; the second digit refers to the unit, while the third refer to the rank order of the specific objective. For instance 1.2.5 means Year 1 or Primary 1, Unit 2 (of Class 1) and Specific Objective 5. In other words 1.2.5 refers to Specific Objective 5 of Unit 2 of Primary 1. Similarly, the syllabus reference number 3.4.1 simply means Syllabus Objective number 1 of Unit 4 of Primary 3. Using syllabus reference numbers provide an easy way for communication among teachers and educators. It further provides an easy way for selecting objectives for test construction. For instance, if Unit 4 of Primary 3 has seven specific objectives 3.4.1 - 3.4.7, a teacher may want to base his/her test items/questions on objectives 3.4.4 to 3.4.7 and not use the other first three objectives. In this way, a teacher would sample the objectives within units to be able to develop a test that accurately reflects the importance of the various specific objectives and skills taught in class.

You will note also that specific objectives have been stated in terms of the pupil i.e. what the pupil will be able to do during and after instruction and learning in the unit. Each specific objective hence starts with the following "*The pupil will be able to…..*" This in effect, means that you have to address the learning problems of each individual pupil. It means individualizing your instruction as much as possible such that the majority of pupils will be able to master the objectives of each unit of the syllabus. The teaching of Natural Science should be activity-oriented for two important reasons. The activity approach challenges the children to develop their own ideas, and secondly makes the subject more meaningful and relevant to them.

As has been said already, the order in which the topics appear should not necessarily be the teaching order. There should however, be a linkage in the order in which the units and specific objectives are treated. The teacher will have to study the syllabus carefully and plan ahead the activities the pupils will carry out during a particular period. Knowing the requirements of a particular lesson, the teacher should assemble the materials which will be required for the activities well in advance. The collection must be done by both the teacher and the pupils. Other materials like bottles, cans, match boxes, etc. may be continually collected and stored to be used when required. When materials are not available in the immediate environment, the teacher should try to contact resource persons or persons in higher institutions for help.

As pupils begin work on the activities of each lesson, the teacher should serve as a facilitator and motivate the pupils in various ways to sustain their interest. The teacher should pay particular attention to children's questions and should also ask questions that will guide them to other areas of useful investigation. During the last ten minutes of the class activity, all pupils should come together to discuss their observations. The teacher must involve all pupils in the discussion.

Column 3 -- Content: The "content" in the third column of the syllabus presents a selected body of information that you will need to use in teaching the particular unit. In some cases, the content presented is quite exhaustive. In some other cases, you could add some more information based upon your own training and based also on current knowledge and information.

Column 4 -- Teaching/Learning Activities (T/LA): T/LA that will ensure maximum pupil participation in the lessons is presented in Column 4. The General Aims of the subject can only be most effectively achieved when teachers create learning situations and provide guided opportunities for pupils to acquire as much knowledge and understanding of science as possible through their own activities. Pupils' questions are as important as teacher's questions. There are times when the teacher must show, demonstrate, and explain. But the major part of a pupil's learning experience should consist of opportunities to explore various mathematical situations in their environment to enable them make their own observations and discoveries and record them. Teachers should help pupils to learn to compare, classify, analyze, look for patterns, spot relationships and come to their own conclusions/deductions. Avoid rote learning and drill-oriented methods and rather emphasize participatory teaching and learning in your lessons. You are encouraged to re-order the suggested teaching/learning activities and also add to them where necessary in order to achieve optimum pupil learning.

A suggestion that will help your pupils acquire the capacity for analytical thinking and the capacity for applying their knowledge to problems and issues is to begin each lesson with a practical problem. Select a practical problem for each lesson. The selection must be made such that pupils can use knowledge gained in the previous lesson and other types of information not specifically taught in class. The learning of any skill considered important must start early. From age twelve (12), engage your pupils in analytical thinking and practical scientific problem solving techniques.

Column 5 -- Evaluation: Suggestions and exercises for evaluating the lessons of each unit are indicated in Column 5. Evaluation exercises can be in the form of oral questions, quizzes, class assignments, essays, project work, etc. Try to ask questions and set tasks and assignments, etc. that will challenge pupils to apply their knowledge to issues and problems as has already been said, and that will engage them in developing solutions, and in developing observational and investigative skills as a result of having undergone instruction in this subject. The suggested evaluation tasks are not exhaustive. You are encouraged to develop other creative evaluation tasks to ensure that pupils have mastered the instruction and behaviours implied in the specific objectives of each unit.

Lastly, bear in mind that the syllabus cannot be taken as a substitute for lesson plans. It is necessary that you develop a scheme of work and lessons plans for teaching the units of this syllabus.

DEFINITION OF PROFILE DIMENSIONS

The concept of profile dimensions was made central to the syllabuses developed from 1998 onwards. A 'dimension' is a psychological unit for describing a particular learning behaviour. More than one dimension constitutes a profile of dimensions. A specific objective may be stated with an action verb as follows: The pupil will be able to describe, state….. etc. Being able to "describe" something or "state" a fact or principle after the instruction has been completed means that the pupil has acquired "knowledge". Being able to explain, summarize, give examples, etc. means that the pupil has understood the lesson taught.

Similarly, being able to develop, plan, solve problems, construct, etc. means that the pupil can "apply" the knowledge acquired in some new context. Each of the specific objectives in this syllabus contains an "action verb" that describes the behaviour the pupil will be able to demonstrate after the instruction. "Knowledge", "Application", etc. are dimensions that should be the prime focus of teaching and learning in schools. It has been realized unfortunately that schools still teach the low ability thinking skills of knowledge and understanding and ignore the higher ability thinking skills. Instruction in most cases has tended to stress knowledge acquisition to the detriment of the higher ability behaviours such as application, analysis, etc. The persistence of this situation in the school system means that pupils will only do well on recall items and questions and perform poorly on questions that require higher ability thinking skills such as application of mathematical principles and problem solving. For there to be any change in the quality of people who go through the school system, pupils should be encouraged to apply their knowledge, develop analytical thinking skills, develop plans, generate new and creative ideas and solutions, and use their knowledge in a variety of ways to solve mathematical problems while still in school. Each action verb indicates the underlying profile dimension of each particular specific objective. Read each objective carefully to know the profile dimension toward which you have to teach.

The dimensions for teaching, learning and testing in Integrated Science at JHS and their respective weights are as follows:

Knowledge and Comprehension	20%
Application of Knowledge	40%
Experimental and Process Skills	40%

Each of the dimensions has been given a percentage weight that should be reflected in teaching, learning and testing. The weights indicated on the right of the dimensions show the relative emphasis that the teacher should give in the teaching, learning and testing.

You will notice that “Application of knowledge” and “Practical and Experimental Skills” have equal weight that is higher than the weight for “Knowledge and Comprehension”. This means that the second and third dimensions are considered more important and will therefore need more emphasis in the teaching and testing system.

The explanation and key words in each of the profile dimensions are indicated below.

Knowledge and Understanding (KU)

Knowledge	The ability to: Remember, recall, identify, define, describe, list, name, match, state principles, facts and concepts. Knowledge is simply the ability to remember or recall material already learned and constitutes the lowest level of learning.
Understanding	The ability to: Explain, summarise, translate, rewrite, paraphrase, give examples, generalize, estimate or predict consequences based upon a trend. Understanding is generally the ability to grasp the meaning of some material that may be verbal, pictorial, or symbolic.

Application of Knowledge (AK)

Ability to use knowledge or apply knowledge, as implied in this syllabus, has a number of learning/behaviour levels. These levels include application, analysis, synthesis, and evaluation. These may be considered and taught separately, paying attention to reflect each of them equally in your teaching. The dimension "Application of Knowledge" is a summary dimension for all four learning levels. Details of each of the four sub-levels are as follows:

Application	The ability to: Apply rules, methods, principles, theories, etc. to concrete situations that are new and unfamiliar. It also involves the ability to produce, solve, operate, plan, demonstrate, discover etc.
Analysis	The ability to: Break down material into its component parts; to differentiate, compare, distinguish, outline, separate, identify significant points etc., recognize unstated assumptions and logical fallacies recognize inferences from facts etc.
Synthesis	The ability to: Put parts together to form a new whole. It involves the ability to combine, compile, compose, devise, plan, revise, design, organize, create, generate etc.
Evaluation	The ability to: Appraise, compare features of different things and make comments or judgement, contrast, criticize, justify, support, discuss, conclude, make recommendations etc. Evaluation refers to the ability to judge the worth or value of some material based on some criteria.

You will note from the above that evaluation is the highest form of thinking and is therefore the most difficult behaviour. Start to develop this important skill early in your pupils by giving them a lot of practice in evaluation.

The action verbs and the definitions provided in the explanations of the three profile dimensions should help you to structure your teaching such as to achieve the effects needed. Select from the action verbs provided for your teaching, in evaluating learning before, during and after the instruction. Use the action verbs also in writing your test questions. This will ensure that you give your students the chance to develop good thinking skills, and the capacity for excellent performance in integrated science and in examinations. Check the weights of the profile dimensions to ensure that you have given the required emphasis to each of the dimensions in your teaching and assessment.

Experimental and Process Skills (EPS)

Experimental skills involve the enquiry/investigative process of planning and designing experiments, carrying out case studies and field studies to be able to compare phenomena or to observe phenomena closely to be able to identify causes and reasons for the occurrence of phenomena and develop practical solutions to problems and tasks.

Process skills involve demonstration of practical manipulative skills using tools, machines and equipment for problem solving in science. Process skills also involve the processes of observation, classification, drawing, measurement, interpretation, recording, reporting, and expected scientific conduct in the laboratory/field.

A summary of the skills required for effective experimental and process work are the following:

1. Equipment and apparatus handling
2. Observing
3. Classifying
4. Comparing
5. Communicating/ Reporting
6. Inferring
7. Predicting
8. Analysing
9. Measuring
10 Interpreting
11. Evaluating
12. Recording
13. Planning and designing of experiments
14. Generalizing
15. Formulating hypothesis
16. Designing

Equipment and apparatus handling
This is the skill of knowing the functions and limitations of various apparatus, and developing the ability to select and handle them appropriately for various tasks.

Observing
This is the skill of using our senses to gather information about objects or events. This also includes the use of instruments to extend the range of our senses.

Classifying
This is the skill of grouping objects or events based on common characteristics

Comparing
This is the skill of identifying the similarities and differences between two or more objects, concepts or processes.

Communicating/Reporting
This is the skill of transmitting, receiving and presenting information in concise, clear and accurate forms - verbal, written, pictorial, tabular or graphical

Inferring
This is the skill of interpreting or explaining observations or pieces of data or information.

Predicting
This is the skill of assessing the likelihood of an outcome based on prior knowledge of how things usually turn out.

Analysing
This is the skill of identifying the parts of objects, information or processes, and the patterns and relationships between these parts.

Generating possibilities
This is the skill of exploring all the options, possibilities and alternatives beyond the obvious or preferred one.

Evaluating
This is the skill of assessing the reasonableness, accuracy and quality of information, processes or ideas. This is also the skill of assessing the quality and feasibility of objects.

Formulating hypothesis
This is the skill of making a general explanation for a related set of observations or events. It is an extension of inferring.

Designing
This is the skill of visualizing and drawing new objects or gargets from imagination

Measuring
This is the skill of using measuring instruments and equipment for measuring, reading and making observations

Interpreting
This is the skill of evaluating data in terms of its worth: good, bad, reliable, unreliable; making inferences and predictions from written or graphical data; extrapolating and deriving conclusions. Interpretation is also referred to as “Information Handling”.

Recording
This is the skill of drawing or making graphical representation boldly and clearly, well labeled and pertinent to the issue at hand.

Generalizing
This is the skill of being able to use the conclusions arrived at in an experiment to what could happen in similar situations

Planning and designing of Experiments

This is the skill of developing hypotheses; planning and designing of experiments; persistence in the execution of experimental activities; modification of experimental activities where necessary in order to reach conclusions.

ETHICS AND ATTITUDES
In all scientific inquiry, the adoption of certain mental attitudes such as *curiosity, creativity, objectivity, integrity, open-mindedness, perseverance* and *responsibility* are advocated. Attempts should also be made to promote safety consciousness among students and to encourage students to adopt safe practices.

Curiosity
This is the attitude of desiring to explore the environment and question what is found.

Creativity
This is the attitude of seeking innovative and relevant ways to solve problems.

Objectivity
This is the attitude of seeking data and information to validate observations and explanations objectively.

Integrity
This is the attitude of handling and communicating data and information with integrity.

Open-mindedness
This is the attitude of accepting all knowledge as tentative and the willingness to change their views if the evidence is convincing.

Perseverance
This is the attitude of pursuing a problem until a satisfactory solution is found.

Responsibility
This is the attitude of showing care and concern for living things and awareness of our responsibility for the quality of the environment.

Opportunities should be provided in the classroom for students to ask questions. Students should be encouraged to ask both closed and open questions. From the type of questions asked by the students, teachers could gather information on their 'frame of mind' and the quality of their understanding.

FORM OF ASSESSMENT

From September 2012, the form of assessment in schools will follow the requirements of the School Based Assessment (SBA) system. Schools will assess pupils/students at the end of the first four weeks, at the end of the eighth week and at the end of the eleventh week. Each test is called "Class Assessment Task (CAT)". CAT1 will be administered at the end of the first four weeks of the term; CAT2 will be administered at the end of eight weeks of the term, and CAT3 will be administered at the end of the eleventh week, while the End-of-Term test will come possibly at the end of the twelfth week.

Apart from the three CATs and the end-of-term test, pupils/students will be required to carry out a project for each term. The project for the term will constitute CAT4 in the first term. Assessment in the school system will hence follow the guideline below:

Term 1

CAT1 – End of week 4 of Term 1
CAT2 – End of week 8 of Term 1
CAT3 - End of week 11 of Term 1
CAT4 – Project work to be submitted at the end of the 11th week
End-of-term examination administered at the end of the twelfth week

Term 2

CAT5 – End of week 4 of term 2
CAT6 – End of week 8 of term 2
CAT7 – End of week 11 of term 2
CAT8 – Project work to be submitted at the end of the 11th week
End-of-term examination administered at the end of the twelfth week

Term 3

CAT9 – End of week 4 of term 3
CAT10 – End of week 8 of term 3
CAT11 – End of week 11 of term 3
CAT12 – Project work to be submitted at the end of the 11th week
End-of-term examination administered at the end of the twelfth week

CAT1, CAT5 and CAT9 will generally consist of an objective test, with possibly structured questions or story problems depending upon the subject.

CAT2, CAT6 and CAT10 will be based on 1, 2 or 3 topics that the teacher identifies as important but difficult for pupils/students to learn in the first and second month of the term. CAT2, CAT6 and CAT10 will be organized as Group Exercise where groups of pupils/students will discuss and learn by the co-operative learning approach and each group's work awarded marks by the teacher. The group exercise could also be based on some practical work such as in ICT and BDT.

CAT3, CAT7 and CAT11 will be administered tasks consisting of objective items, structured questions and possibly practical exercises.

It is expected that the administration of all the CATs will be completed by the end of the eleventh week of the term to allow schools enough time to prepare for the administration of the end-of-term examination.

Because of increasing numbers in classrooms, project work will be carried out as group projects where each project will be planned and carried out by a group of pupils/students. Schools will be supplied with at least six project topics for each class for the year. Groups of pupils/students will be expected to select a project topic of their interest in each term in the first two weeks of the term, carry out the project over the next two months and submit their completed project by the end of the eleventh week.

End-of-term Examination

The end-of-term examination should be developed to consist of Section A and Section B. Section A will be the objective items section; Section B will be the structured questions section. Depending upon the requirements of the subject, there could be a Section C, the practical test component.

Home Work and Class Exercises

Home work and class exercises are very important aspects of formative evaluation in the teaching and learning process but will not be included in the SBA. Teachers are however, expected to give homework and class exercises as part of the regular teaching and learning process.

SBA at JHS3

SBA will terminate at the end of the first term of JHS3 after completing CATs 1- 4. This is to allow JHS3 students the time to prepare for the BECE coming at the end of April of the next year.

Purposes of SBA

The purposes of the new SBA are as follows:

- To provide a reduced but more effective system of internal school assessment replacing the former Continuous Assessment system which was rather tedious for both teachers and pupils/students
- To standardize the practice of internal school assessment throughout the country
- To provide teachers with guidelines for constructing assessment items/questions
- To provide teachers with advice on how to conduct remedial instruction to improve pupil/student school performance
- To provide guidance in marking and grading test items and questions and carry out general appraisal of pupil/student performance

SBA Handbook

Details of the SBA system are contained in the “Teachers’ Handbook on School Based Assessment”. The details include issues on the following:

- Characteristics of the SBA
- Structure of the SBA and mark allocation for the SBA
- Directions for developing and administering the SBA and the end-of-term examination
- Using SBA for improving learning; including marking and grading systems
- Guidelines for project development and project assessment

The handbook contains sample items and questions for all subjects from Primary 1 to JHS3. Teachers are expected to use the sample items and questions provided in the handbook as guides for developing their own items and questions for the CATs and end-of-term examinations.

Accompanying the SBA Handbook are the following records:

- Primary School/JHS SBA Register
- Pupil's/Student's Report Card
- Pupil's/Student's Progress Record (i.e. Cumulative record)

Teachers are encouraged to obtain copies of the SBA Handbook to guide them in carrying out the SBA process.