

UNIT 1

PURPOSES AND CHARACTERISTICS OF SCHOOL BASED ASSESSMENT

INTRODUCTION

The preamble of this handbook from Unit 1-6, contains the same information as in the SBA Handbook for primary schools except for a few more details.

The guidelines for setting and administering Class Assessment Tasks for SBA in Junior High Schools build upon the guidelines provided in the primary schools SBA handbook. The SBA presents a reduced number of assignments that can be easily handled by both teachers and students. It is expected that the SBA will help teachers and students to achieve the objectives of the syllabuses and consequently raise the standard of learning in the country. This handbook provides guidelines to help the teacher in writing school based assessment tasks. For purposes of distinguishing items and questions used in class exercises and in tests such as the Basic Education Certificate Examination (BECE), the word 'task(s)' is used for items, questions and projects in SBA.

PURPOSES OF SCHOOL BASED ASSESSMENT

The Basic Education Certificate Examination (BECE) that Junior High School students sit at the end of nine years of basic education is administered by the West African Examinations Council (WAEC), an external examinations body. Thirty percent of the marks that WAEC uses to award grades at the BECE come from marks that students obtain on their performance in school. The 30 percent mark is an internal mark that comes from schools while the 70 percent mark is an external mark based on students' performance at the BECE. Assessment of the performance of students is therefore carried out in two ways: by external examinations and by internal examinations that is, the school based assessment.

Students tend to do well on tests administered in their schools because they are more relaxed when taking tests in their own classrooms. The familiarity with their classroom and school surroundings helps them to do better on tests administered in school. External examinations during which students' work is supervised by people who are not known to the students, tend to create anxiety for some students. This anxiety may tend to reduce the level of performance on the part of some students. It is therefore generally accepted that the performance of students on tests administered by their teachers in their classrooms better reflects the true performance of the student. It is for this reason that the Ministry of Education decided that a percentage of the marks for the BECE should come from performance of students on their school based assessment.

School Based Assessment (SBA) is a system for collecting performance data on students in the course of their work in school. Education in the school system consists of a variety of practical work, as well as theoretical work. SBA therefore gives schools the chance to ensure that the performance of students on both practical skills and theoretical knowledge is reflected in the marks students obtain in the SBA and on their End-of-Term examinations. Learning does not take place only in the classroom. Education is a broad concept and students are expected to learn from a variety of sources; from their teachers, from their friends and elders, from the library and generally from their environment. All these sources contribute to the education of the young person. The seriousness with which students learn in the classroom and outside the classroom should therefore be reflected in the assessment system of schools.

- The first purpose of SBA is therefore to ensure that the grades students obtain at the BECE are based on their performance on the internal tests administered in school and on the external examination administered by WAEC.
- A second purpose of SBA is to give schools the chance to ensure that all aspects of the education and training of the young person are taken into account in the assessment of the performance of the young person while in school.
- SBA thirdly, provides students the chance to show the quality of their learning in and out of school on the marks they obtain on their SBA assignments. The SBA in effect, gives students the chance to receive a broad education.

CHARACTERISTICS OF SCHOOL BASED ASSESSMENT

The general characteristics of SBA are as follows:

1. Periodic collection of assessment information

To obtain accurate and reliable test data on a student, the test must be spread over a longer time, allowing the student to take tests at different times throughout the year. SBA prescribes the administration of one assignment at the end of each month of the school term. The average of the scores earned by the student will be a more accurate indicator of the student's performance in the subject.

2. Use of different test modes

The performance of a student can be better assessed if the assessment is made on different test modes such as class tests, class exercises, home work, projects and other practical activities. SBA will consist of class tests, class exercises and projects.

'Homework' has been eliminated in the redesigned SBA programme and more prominence given to 'projects'. The justification for eliminating homework from the SBA programme is that it is not certain whether homework will be carried out for the student by an adult. **Homework is important in the instructional system and teachers must therefore give homework as part of the instructional process.** Homework will however, not be scored as part of the SBA.

There will be situations, as in the projects, where the SBA will involve students in seeking views and opinions from teachers, parents, elders and school mates. This is the normal work practice in the adult world where the opinion of colleagues and views collected from books etc are vital for effective work performance. Teachers should encourage the search for information during the project period.

3. Inclusion of more complex thinking skills in the testing programme

A further characteristic of the SBA is that it includes tasks that require high ability thinking and performance. Such tasks require analytical thinking; the ability to generate different solutions to a problem; the ability to plan a project; and the ability to be innovative, generate new ideas and create new products etc. High level thinking skills generally require extended time for learning and responding. The addition of such skills in the SBA programme will encourage students to form the habit of using high level thinking skills in solving problems rather than the habit of memorizing class notes which defeats the purpose of education and does not help in problem solving.

4. Teacher assistance and remediation

A fourth characteristic of the new SBA is that it fosters cooperation between the teacher and the student especially in the area of students' class projects. The process allows the teacher to provide assistance to students in the form of advice on various aspects of students' projects. The teacher is expected to provide constructive feedback to help students reach better understanding of their projects. Students learn to consult the teacher, classmates and other sources on aspects of their project work, while maintaining their position as the leader(s) in the project undertaking.

5. Reduced number of assessments and mark recordings

The SBA has been designed to reduce the amount of workload in the previous continuous assessment system by 64 percent on the part of the student and by 53 percent on the part of the teacher. The reductions have been made to reduce the tediousness in the SBA process and at the same time make SBA a more useful tool for improving school performance and for improving the thinking abilities of school children.

6. Emphasis on student-centred learning

One of the major problems that lead to low performance of students on national tests (National Education Assessment (NEA) and BECE is the predominantly teacher-centred approach; used in the instructional system in schools. As a method for improving this situation, the syllabuses that the Ministry of Education has issued to schools since 2000 have all stressed the importance of high ability thinking skills on the part of students. The full impact of this has yet to be realized. However, the SBA system puts a lot of stress on project undertaking. This is the component that allows the student either individually or in groups, the freedom to explore different ideas and skills to produce something of their own. This is the student-centred learning component which should help in improving the standard of education in the country.

7. Standardization of SBA Practice Across Schools

The above characteristic is particularly important in Ghana. In previous years where class teachers had the option of setting their own continuous assessments, a variety of exercises, some good and many of them rather trivial, were used in the school system. The number of items used in the continuous assessment system was not uniform and the marking and grading systems differed from school to school. The current SBA system has been designed to improve the old practice of leaving schools to develop their own assignments by supplying schools with sample items/questions, project topics, marking and grading systems as a procedure for standardizing the SBA process across schools in the country.

SBA EMPHASES IN THE GHANAIAN SCHOOL SYSTEM

The Ghana SBA is based on the six related emphases detailed below.
Pupils/students will acquire:

1. Thinking Skills: Better understanding of issues and the ability to generate ideas and develop new processes and strategies.
2. Problem Solving Skills: The ability to understand a problem, looking at it from different angles ways and adopting solutions based on combination of knowledge and practices from different subjects.

3. Cooperative Learning: The ability to work with class mates in groups to carry out projects and learn in the process.
4. Literacy and Numeracy Skills: This involves greater ability to understand and analyse issues critically and use mathematical ability to solve everyday problems.
5. Moral and Spiritual Development: The attitude of fairness in dealing with others and a general positive attitude in life.
6. Formal Presentations Skills: The ability to make formal presentations before class mates and answer questions.

SBA MODES AND TIMES OF ADMINISTRATION

There will be three assessments and a project work in a term making a total of twelve assessments for the year. The assessments for a term will consist of two tests, one group exercise and a project as follows:

- i. Class tests
- ii. Group exercise (Cooperative learning exercise)
- iii. Project (investigative, experimental or materials production)

The assessments are referred to as Class Assessment Tasks (CAT). CAT1 will be a task made up of test items or an activity depending on the subject. CAT2 will be a group exercise. CAT3 will also be a class test. The project for the first term will be CAT4. The order of the twelve assessments for the three terms of the year will be as follows:

Term 1

- First Class Assessment Task (CAT1): End of Week 4 of Term 1
- Second Class Assessment Task (CAT2): End of Week 8 of Term 1
- Third Class Assessment Task (CAT3): End of Week 11 of Term 1
- Fourth Class Assessment Task (CAT4): To be collected by end of Week 12

Term 2

- First Class Assessment Task (CAT5): End of Week 4 of Term 2
- Second Class Assessment Task (CAT6): End of Week 8 of Term 2
- Third Class Assessment Task (CAT7): End of Week 11 of Term 2
- Fourth Class Assessment Task (CAT8): To be collected by end of Week 12

Term 3

- First Class Assessment Task (CAT9): End of Week 4 of Term 3
- Second Class Assessment Task (CAT10): End of Week 8 of Term 3
- Third Class Assessment Task (CAT11): End of Week 11 of Term 3
- Fourth Class Assessment Task (CAT12): To be collected by end of Week 12

Administration of SBA is expected to be completed by the end of the eleventh week to allow schools the time for preparation and administration of the End-of-Term Test in the twelfth or last week of the term. Preparations for the project work (CAT4, CAT8 and CAT12) involving topic selection and data collection will start in the second week of each term. Projects should be completed and submitted in Week 12 of the term or by the end of the term, whichever is earlier. Only CATs 1-4 will be administered in the first term of JHS3 to allow students the time to prepare for the BECE.

UNIT 2

STRUCTURE OF ASSESSMENTS AND MARK ALLOCATION FOR THE CATS

There are differences in the demands of the various subjects on the curriculum. The different subjects will therefore adopt different ways for constructing the class assessment tasks.

While Mathematics and Religious and Moral Education can set an objective test paper, Music and Physical Education, two practical subjects, may not set objective test papers. The subjects on the JHS curriculum may therefore be grouped into four for purposes of the SBA.

Group 1 Subjects

1. Mathematics
2. Science
3. Religious and Moral Education
4. Social Studies

For each of the above subjects, the number of items in each task and their respective mark allocation will follow the guidelines in Table 1 below. The same number of items and mark allocation as indicated for CATs 1-4 in the table should be maintained in CATS 5-12 from JHS1-3. As already indicated, SBA will terminate at the end of CAT7 in the second term of JHS3.

Table 1
Number of Items and Mark Allocation for Class Assessment Tasks: JHS1-3

	JHS1		JHS2		JHS3	
	No. of Items	Marks	No. of Items	Marks	No. of Items	Marks
CAT 1	10 Objective Items marked out of 10 5 Structured Questions marked out of 20	30	10 Objective Items marked out of 10 5 Structured Questions marked out of 20	30	10 Objective Items marked out of 10 5 Structured Questions marked out of 20.	30
CAT2 (Group Exercise)	1 - 3 items	30	1-3 items	30	1-3 items	30
CAT 3	10 Objective Items marked out of 10 10 Structured Questions marked out of 30	40	10 Objective Items marked out of 10 10 Structured Questions marked out of 30	40	10 Objective Items marked out of 10 10 Structured Questions marked out of 30	40
Total Marks of CAT1-3		100		100		100
End of Term Exam		100		100		100
Total marks for CATs1-3 and End-of-Term ex.		200		200		200
CAT 4: Project (Investigative, material production etc)	1 project	100	1 project	100	1 project	100

Group 2: Languages

1. English
2. French
3. Ghanaian Languages and Culture

The structure of assessments for each of the CATs in English is presented below as guideline for the teacher. The three CATs for each term will be scored out of a total of 100 marks.

Table 2
Structure and Components of Class Assessment Tasks (CAT1-12) in English: JHS1-3

	Components	Mark Allocation	Total Mark
CAT 1	1. Reading Comprehension 2. Literature -Literary devices - 1 mark -Text - 3 marks 3. Grammar 4. Composition - Content -4 - Organization -2 - Expression -4 - Mechanical Accuracy -2	8 4 6 12	30
CAT 2	1,2 or 3 topics considered difficult or important by the teacher (The responses or qualities expected to be determined by the teacher and marks awarded accordingly)		30
CAT 3	1. Reading Comprehension 2. Literature -Literary devices -Text 3. Grammar 4. Composition - Content - 6 - Organization - 3 - Expression - 8 - Mechanical Accuracy - 3	8 4 8 20	40
	TOTAL MARKS		100

Table 3 presents the structure, components and mark allocation for the four CATs (including CATs 1-12) in French.

Table 3
Structure and Components of Class Assessment Tasks (CAT 1-12) in French: JHS1-3

	Components	Mark Allocation	Total Mark
CAT 1	1. Reading Comprehension (C.E.) 2. Listening Comprehension (C.O.) 3. Oral Expression (E. O.) 4. Grammar 5. Composition - Content 4 marks - Organization 2 marks - Expression 6 marks (Expression: French Grammar - 3marks; Use of literary devices-1mark; Punctuations and Spelling-2 marks)	8 2 2 6 12	30
CAT 2	1,2 or 3 topics considered difficult or important by the teacher; especially topics which demand the use of knowledge or production skills(Speaking and writing).		30
CAT 3	1. Reading Comprehension (C.E.) 2. Listening Comprehension (C.O.) 3. Oral Expression (E. O.) 4. Grammar 5. Composition - Content 5 marks - Organisation 3 marks - Expression 8 marks (Expression: French Grammar - 4marks; Use of literary devices-2marks; Punctuations and Spelling-2 marks)	10 3 3 8 16	40
CAT 4	Project-(Investigative writing, imaginative composition, real life descriptions etc.)		100
	TOTAL MARKS		200

Table 4 presents the structure, components and mark allocation for the four CATs (including CATs 1-12) in Ghanaian Languages and Culture.

Table 4

**Structure and Components of Class Assessment Tasks (CAT1-12)
in Ghanaian Languages and Culture: JHS1-3**

	Components	Mark Allocation	Total Mark
CAT 1	1. Oral Literature (Customs and Institutions) 2. Reading Comprehension and Literature 3. Writing -Grammar -Composition	6 6 6 12	30
CAT 2	One topic - 30 marks Two topics - 15 marks each (The responses or qualities expected to be determined by the teacher for awarding marks)		30
CAT 3	1. Oral Literature 2. Reading Comprehension and Literature 3. Writing -Grammar -Composition • Content 4 • Organization 1 • Expression 8 • Mechanical Accuracy 3	8 8 8 16	40
CAT 4	<u>Project</u> - (Essays, Reports etc) 1. Introduction 2. Body/Content 3. Organization 4. Language use (Expression) 5. Originality/Creativity 6. Conclusion	5 30 4 20 15 6	100
	TOTAL MARKS		200

Group 3: Practical/Performance Subjects

Practical/performance subjects include those subjects which require the student to use knowledge and skills acquired in the subject to perform an activity or produce a product. These subjects include the following:

1. Basic Design and Technology
2. ICT

Bear in mind that these subjects have a large theoretical knowledge base that may be tested by objective tests and by using structured question types and practical-performance tests.

Tables 5(a) to 5(d) present the structure, components and mark allocation for CAT1 - 12 in Basic Design and Technology.

Table 5(a)

**Structure and Components of Class Assessment Tasks (CAT1-12)
in Basic Design and Technology: JHS1-3**

CORE SKILLS - JHS1 TERM 1

	Components	Mark Allocation	Total Mark
CAT 1	<u>Basic Life Skills</u> Nutrition Maintaining Good Health	15 15	30
CAT 2	<u>Basic Life Skills</u> Cooking Foods Meal Service Basic processes in sewing	10 5 15	30
CAT 3	<u>Graphic Communication</u> Drawing Planning Processes in sewing (Seams) Development of surfaces	20 5 5 10	40
CAT 4	Project		100
	TOTAL MARKS		200

Table 5(b)

**Structure and Components of Class Assessment Tasks (CATs1-12) in Basic Design and Technology:
JHS1-3**

CORE SKILLS - JHS1 TERM 2

	Components	Mark Allocation	Total Mark
CAT 5	<u>Designing</u> Elements and Principles of Design Colour work	20 10	30
CAT 6	<u>Problem Identification and Idea Dev.</u> -Identification of a problem -Making of artifact <u>Basic Home Maintenance</u> -Basic electricity and electrical repairs -Furniture repairs	10 10 5 5	30
CAT 7	<u>Problem Identification and Idea Dev.</u> -Identification of problem (With drawing) -Making of artifact <u>Entrepreneurship</u> (Marks should be equally spread for the four units of entrepreneurship)	10 10 20	40
Total Marks for CATs 5-7			100
CAT 8	Project		100
	TOTAL MARKS		200

Table 5(c)

Structure and Components of Class Assessment Tasks (CATs1-12) in Basic Design and Technology: JHS1-3

VISUAL ARTS OPTION

The options start from the third term of JHS1 till the second term of JHS3. Data collection on the CATs will terminate at the end of the first term of JHS3.

VISUAL ARTS OPTION JHS1 TERM 3

	Components	Mark Allocation	Total Mark
CAT 9	<u>Importance of Visual Communication and the various Optional Art Forms</u> 1. Compulsory - Visual Communication 2. Options: (i) Weaving and Stitching (ii) Modeling, Casting and Carving (iii) Construction and Assemblage (iv) Fabric and Leather Decoration	15 15	30
CAT 10	<u>Tools, Materials, Equipment and Technique</u> 1. Compulsory - Visual Communication 2. Options: (i) Weaving and Stitching (ii) Modeling, Casting and Carving (iii) Construction and Assemblage (iv) Fabric and Leather Decoration (Characteristics of Leather, Cotton and Linen, tools and materials)	15 15	30
CAT 11	<u>Designing and Making</u> 1. Compulsory - Visual Communication 2. Options: (i) Weaving and Stitching (ii) Modeling, Casting and Carving (iii) Construction and Assemblage (iv) Fabric and Leather Decoration <ul style="list-style-type: none"> • Identification and extraction of dyes • Dyeing pieces of fabric and leather 	20 20	40
Total Marks CATs 9-11			100
CAT 12	Project		100
	TOTAL MARKS		200

Table 5(d)

Structure and Components of Class Assessment Tasks (CATs1-12) in Basic Design and Technology: JHS1-3

VISUAL ARTS OPTION (JHS2 TERM 1 - JHS 3 TERM 1)

Beginning from JHS2 Term 1 till the end of JHS3 Term 1, the SBA programme will focus on the Designing, Making and Appreciation component of the Visual Arts option. The CATs involved are CATs 1 -12 in JHS2 and CATS 1-7 in JHS3.

	Components	Mark Allocation	Total Mark
CAT 1	<u>Designing, Making and Appreciation</u> 1. Compulsory - Visual Communication (2- dimensions) 2. Options (3-dimensions): (i) Weaving and Stitching (ii) Modeling, Casting and Carving (iii) Construction and Assemblage (iv) Fabric and Leather Decoration	15 15	30
CAT 2	Based on difficult and important topics in the subject		30
CAT 3	SAME AS CAT1 WITH EXPANDED SCOPE OF WORK 1. Compulsory - Visual Communication (2- dimensions) 2. Options (3-dimensions):	20 20	40
Total Marks for CATs 1-3			100
CAT 4	Project		100
	TOTAL MARKS		200

NOTE: The equivalent CATs for Terms 2 and 3 of JHS2, that is CATS 5-12 will follow the structure in the table. JHS3, as indicated will terminate at CAT7 at the end of JHS3.

Group 4: Internally Assessed Practical Subjects

Internally assessed practical subjects include those subjects which are not externally examined by WAEC. The subjects require the student to use knowledge and skills acquired in the respective subject to perform an activity. These subjects include the following:

1. Music
2. Physical Education

The above subjects are taught practically in schools and students are expected to be able to exhibit or demonstrate the skills learnt to a high degree of competence. The structure, activities/components required and the mark allocation for the CATs in the two practical subjects are clearly set out in the guidelines for assessing the two subjects in the body of this handbook and will not need to be presented separately in a table as has been done for the subjects detailed in Tables 2-5.

The CAT structures, components and mark allocation presented in Tables 1-5 provide teachers with the format for writing their SBA tasks. The formats presented have been used for providing sample items, topics and activities required in each of the CATs presented in this Handbook.

UNIT 3

DIRECTIONS FOR DEVELOPING AND ADMINISTERING CLASS ASSESSMENT TASKS

The number of syllabus objectives that schools are expected to have completed in the first term, second term and in the third term of each school year have been determined for purposes of the SBA. From the objectives determined for each term, items should be set to cover those objectives the teacher considers important to be tested in each term.

Class Assessment Tasks: CAT1, CAT5 and CAT9

The first CAT for each of the three terms, is an individual assessment and is administered after the first four weeks of the term. The objectives to be used for CAT1 are therefore the objectives taught in the first four weeks of each of the terms. CAT1 will be administered, scored and reported to provide information on each student's performance on the items set in the task. The first CAT for the term is scored out of 30

CAT1 should essentially cover the following separate profile dimensions of the material taught in class:

- Knowledge
- Understanding
- Application
- Analysis

Class Assessment Tasks: CAT2, CAT6 and CAT10 - Group Exercise

CATs 2, 6 and 10 will be the second class assessment in Term 1, 2 and 3. This CAT will be in the form of group exercise administered at the end of the eighth week of the school term. The purpose of the group exercise is to introduce students to the principles and ethics of cooperative learning; that is, working together in groups to arrive at solutions together using the ideas and abilities of each group member with positive attitude and fairness to the group members and their ideas.

The second purpose is to ensure that the class is able to master the key topics they have problems with. The group exercise will therefore be designed around one, two or three important but difficult specific objectives in the subject. The teacher should consider the difficult objectives encountered in the first month and in the second month of the term and structure the group exercise around one, two or three of these objectives. In many cases, more than one important specific objective will be combined as a cluster objective for purposes of the group exercise. In some cases, only one topic which remains a problem could be set for the group exercise. CAT 2, just as CATs 6 and 10, is scored out of 30. A summary of the items that should be considered for CAT2, CAT6 and CAT10 is as follows:

1. Objectives that are critical in each term's work. (The understanding of such objectives is very important and crucial for continuing study of the subject)
2. Objectives that are difficult for students to understand and difficult to teach
3. Objectives that consist of a series of activities
4. Objectives that need creativity on the part of the student for learning performance

Double Period for CAT2, CAT6 and CAT10

The group exercise will be conducted over two lesson periods, that is, 60 minutes. The exercise will be problem-solving oriented requiring students to use “knowledge”, “understanding”, “application”, and “analysis” to solve or provide answers to an assignment that is based on material already learnt in class. The topic for the exercise could also be one that will help the groups to understand better a topic or topics that have been problematic in previous lessons as explained earlier. CAT2, CAT6 and CAT10 could also be used to provide prior background learning for a difficult objective coming later in the term.

The teacher should go round the groups as they work and offer help as may be needed without giving answers. The intention of the exercise is to get the groups to arrive at solutions themselves and learn in the process. The teacher should give encouragement and possibly supply materials that the groups may need for their work as he or she goes round the groups.

Class Assessment Tasks - CAT3, CAT7, CAT11

The third class assessment will come at the end of the eleventh week of each term. In setting CAT3, CAT7 and CAT11 the teacher should develop the task in such a way that it will consist of 20% of the instructional objectives of the first four weeks, 20% of the objectives of the second month of the term and 60% of the instructional objectives studied from Week 9 - Week 11. The structure of CAT3, CAT7 and CAT11 will be as follows:

- 20% of objectives taught in the first month (First four weeks of the term)
- 20% of objectives taught in the second month (Second four weeks of the term)
- 60% of objectives taught in the third month (Weeks 9 - 11 of the term)

An overlapping system for developing CAT3, CAT7 and CAT11 will ensure that students learn all the important instructional objectives taught in the first and second terms and those taught in the third term.

CAT3, CAT7 and CAT11 should involve the use of high-order abilities including analysis, creative application of principles and ideas to unfamiliar and real life situations, evaluation and estimation of situations. It is expected that classroom instruction will use real life and unfamiliar problems as illustrations to encourage students to apply their knowledge to problems of varying complexity. CATs 3, 7 and 11 are scored out of 40.

UNIT 4

SBA PROJECTS

Group Projects: CAT4, CAT8, CAT12

The projects will consist of investigations, experiments, material production or idea development. A project could be based on investigations leading to the production of a physical product, a new idea or a new process.

Projects should involve high-order abilities such as analysis, evaluation, inventive thinking involving synthesis of ideas and skills toward creation of a new product, a new idea or a new process as said already. There will be one group project in each term scored out of 100. Some projects may last for two terms or a year. Such projects should be segmented in such a way that one segment would be completed and assessed at the end of a term and the remaining segment continued for presentation in the next term.

Because of increasing numbers in the school system, all three projects will be carried out as Group Projects where four, five or more pupils will come together to undertake a project and give a report on their work. While the group should share the responsibilities involved in the project, the teacher must ensure that each member of the team will have specific duties to perform in the project undertaking and that each individual will contribute equally to the project execution. Where a class consists of manageable numbers, such as numbers lower than 45, the teacher can administer the projects as follows:

CAT4: Group project
CAT8: Group project
CAT12: Individual project or Group project

Project Topics

Project topics will be centrally developed by CRDD in cooperation with the Teacher Education Division of GES every three years and distributed to all schools through the District Education Offices. The process for developing the project topics will ensure that the quality of the projects students will carry out will be of the right type and standard.

A number of project topics will be centrally developed and supplied to schools. Teachers are expected to develop additional three topics for the year, meaning that there will be at least three project topics from which student groups can choose each term. This number will give teachers the chance to select project topics that are suitable for their respective localities in any term. Three or more topics a term will also give student groups a wider scope to choose a topic that they find interesting and suitable in each term.

Students at all school levels will have two weeks from the beginning of the term to consider and choose the project topic they wish to undertake for the term.

UNDERTAKING SBA PROJECTS

There are eleven subjects on the JHS curriculum. To reduce the amount of time and effort required in projects undertaking and marking, a number of project approaches may be considered. All the approaches described are integrated curriculum approaches. The approaches are as follows:

Fused curriculum approach

In this approach, two or more subjects may be fused together with one of them as the organizing subject. The fused curriculum is organized around one of the subjects while the other subject(s) is brought in as and when needed. Citizenship Education for example, may be fused with Natural Science, ICT and English, with Citizenship as the organizing subject in the fusion. Similarly, a project in English could be framed in a way that will require knowledge in Science, Mathematics, BDT, ICT and Social Studies.

Following this approach, a project task may be set in a way that will require knowledge and competencies from other subjects. Some of the topics in the project sections of the guidelines are based on the fused curriculum approach.

Emerging curriculum approach

This approach is based on the felt needs of relevant communities. Project tasks following this approach will be based on the critical needs of the localities where schools are situated. Projects may also be based on felt national needs. Some of the felt needs of our localities and the nation at large are as follows:

1. The conditions of many of our schools in the rural areas
2. Lack of health facilities in many of the rural areas
3. Lack of safe drinking water in many communities
4. How to make unsafe water safe to use
5. Provide recreational centres in our villages
6. How to recycle some of our waste materials
7. How to plan our villages.
8. How to keep our villages, towns and cities clean
9. How to stop malaria from spreading
10. How to prepare one's self for future work
12. How to help Ghana to become a more democratic country

The above list consists of some of the major needs of our villages, towns and cities. Each of the above topics could be carried out by using knowledge from a variety of subjects. The combinations of subjects for each of the listed topics are indicated in Table 7 on the next page.

Table 6

Some Emerging Curriculum Topics and Related Subjects

Emerging Curriculum Topics: Primary 4 - 6	Subjects Related to the Emerging Topics
1. The conditions of many of our schools in the rural areas (P5, P6)	English, ICT and BDT
2. Why we need health facilities in many of our rural areas	Int. Science, BDT, Social Studies, PE and English
3. Problems caused by lack of safe drinking water in many of our communities	Integrated Science and English
4. Making unsafe water safe for use	Integrated Science and English
5. Why we must provide recreational centres in our villages	BDT, English, PE and ICT
6. How to recycle some of our waste materials	Integrated Science, BDT and English
7. How to plan our villages and communities	Integrated Science (P6), Mathematics, Social Studies and ICT
8. How to improve sanitation in our towns and cities	Integrated Science, Social Studies, RME, and English
9. How to prevent the spread of malaria	Integrated Science and English
10. How to build a school park	Mathematics, English, PE and BDT
11. How to prepare for future work	BDT, ICT and English
12. How to help Ghana to become a more democratic country.	Social Studies, and English

Trans-Disciplinary Curriculum Approach

This is a problem-centered curriculum approach where students have to draw on lessons from different subjects. Examples of topics which can be treated using this approach are HIV/AIDS, democracy etc.

By this approach, a project topic may be set in a way that requires a blend of knowledge and competencies from different subjects. This approach is however, recommended for JHS and SHS classes where students will be more able to apply their higher learning in different subjects to complete such projects.

Sources of Information for Projects: References

It will be important for teachers to advise students to read and consult the following sources for information on their projects:

Print Media

- Textbooks
- Magazines
- Encyclopedia

Electronic Media

- Radio
- TV
- The Internet

Human Resource

- Opinion of teachers, elders, experts and friends

Students can interview the class teacher, experts, parents and other elders in the community and their friends, especially their older friends for views, opinions and procedures.

Knowledge comes from books, magazines, radio and Television, newspapers, research reports and the opinion of other people. Students should therefore always consult these sources and the sources listed above for information, and also visit the library for more information, before starting their projects and during the course of their projects.

NOTE: In all cases, students should acknowledge the source of their information. The acknowledgement can come at the beginning pages of the project or at the end of the project

Graphical Presentation of Material in Projects and Reports

Students should use a system of classifying and presenting material collected by using the following in their projects:

- Tables
- Block Graph or Bar Graph
- Flow Chart

Projects that consist of tables and graphs are more interesting to read. They make the issues in the report or project clearer and they further help the student to score more marks.

General Procedure in Project Reports

Students in general need to show the following high ability thinking processes in their projects:

Analysis (Analytical or Critical thinking)

Analytical thinking involves the following:

1. Determining significant parts or points of a problem (key issues; causes/effects)
2. Determining errors/fallacies in arguments: logical and context errors
3. Determining relationships between parts of a problem (causes, sources and their effects)
4. Highlighting major points, relationships and generalizations in a situation or problem.

Problem Solving (Generating solutions to real or imaginary problems)

After going through analytical or critical thinking process, the student should now be in a position to do the following:

1. Define an existing problem (in words, illustrations or both)
2. Consider alternative ways for solving a problem (in words, by illustrations, by pre-imaging etc)
3. Create a new solution that improves a situation or an object in use (in words, illustrations, and/or by developing a new object/device)
4. Improve and refine the new solution

The problem-solving process described above is the synthesis or inventive thinking process. It is a process for solving problems by marshalling solutions from a variety of sources and subjects to solve the problem or invent a new idea, appliance or gadget.

Teachers must make the effort to help students improve their thinking skills. The complicated nature of the present world makes it necessary for people to be better thinkers. No longer is it necessary for young people to memorize their class notes and regurgitate during examinations. That time is past. Memorization cannot help to solve the problems of the moment nor the problems of the future. The present and the future rely more on high-ability thinking skills. High ability thinking skills and problem solving skills required in project work are applicable in all the subjects on the school curriculum.

Project Report Writing and Presentation

The teacher should bring the following points to the attention of students when writing their project reports in the subjects where these may be applicable:

Report writing:

1. Select suitable title
2. Write the introduction
3. Paragraph writing
4. Use of tables and graphs
5. Conclusions

Report Presentation

1. Short introduction
2. Key points of summary
3. Delivery
4. Conclusions
5. Responding to questions

Students should be taught to write in paragraphs, select a title for their work, use tables and graphs and present their reports to class using the key points in their work, and answering questions from their class mates. It is important for schools to start these processes early in the life of the student. Report writing and report presentation processes should therefore, not only be emphasized in subjects like English and Mathematics, but should also be used in projects that involve production of an artifact, a painting, a gadget or any three dimensional object. Projects involving practical outputs should be accompanied with a short written paper of no more than two pages indicating the tools and processes used in the work. In all cases, each project report should be edited before presentation.

UNIT 5

USING SBA FOR IMPROVING LEARNING IN SCHOOLS

The school based assessment system is a formative assessment system. It is an assessment system that helps the teacher to find out the problems of the student as the student's knowledge is being formed. A formative assessment system is a quality control system. It helps the teacher to diagnose the problems of the student and helps the student toward better understanding of the issues the student got wrong.

After administration and marking of each CAT, the class teacher should analyze the problems students faced on the items in the CAT and then organize a remedial session for the class. SBA is a very important tool for improving the learning of students. We should note however, that merely recording the marks students obtain on the tasks without remedial instruction will not help the country to reach high standard of education. The value of SBA will be realized only if teachers allow time for students to complete the assignments and only if teachers spend at least one class period to explain the mistakes students made on the tasks and then offer more help and explanations for students to correct their mistakes. Very often the teacher will have to set one or two items similar to the ones students got wrong, for students to answer orally or by writing, and for the teacher to verify whether or not students have now understood the concepts in the items they got wrong in the CAT. In other cases, what may be needed to correct students' learning will be counseling.

Diagnosis of Learning and Pedagogical Challenges

Genuine answers to the following questions can help a teacher to identify the learning and pedagogical problems of their class.

- Q1. What items in the CAT proved difficult for all students?
- Q2. What items in the CAT were difficult for particular students?
- Q3. Why were the items in the CAT difficult for all students? (Interview students/whole class to diagnose the sources of their problems; teach difficult topics again using a different method and give a short test.
- Q4. Why were the items in the CAT difficult for particular students? (Interview students concerned to diagnose their problems, provide remedial instruction at a convenient time, or use peer teaching to correct the problem and give a short test). You can also use those difficult topics in CATs 2, 6 and 10)

Giving Feedback on SBA Performance

Students should take active part in their own learning to be able to improve their learning performance. They can do this better if the teacher provides them with accurate feedback on their performance. Apart from giving marks for each of the tasks, the teacher should provide diagnostic comments on areas the student performed poorly. For example, if a student is unable to get a mathematical problem correct, giving zero will not help the student. In this case, the teacher has to provide feedback that tells the student what they did wrong and also provide information on what to do to get such task correct in the future.

The range of scores that a student may earn is provided with feedback comments on each score range in the section on marking and grading on the next page. Also provided is the range of scores for project work scored out of 100

MARKING AND GRADING

Structured questions do not all carry the same marks in most cases. A question based on application or analysis generally carries more marks than a question based on pure knowledge or understanding.

Eight score ranges, grades and feedback comments for total marks of CATs 1 -3, project, End-of-Term's Examination Results and the total term's performance of the student are indicated below.

(A+) Excellent Performance

90 - 100: Excellent performance. Makes very few errors. Must revise the following areas:

(A) Very Good Performance

80 - 89: Very Good performance. Could improve work if attention is given to the following areas:

(B+) Good Performance

70 - 79: Good performance. Makes a number of errors that could be corrected through extra work. Has to work harder in the following areas:

(B) Advanced Performance (B)

60 - 69 Advanced performance. Could improve work if attention is given to the following areas:

(C) Proficiency Level Performance

50 - 59: Has proficiency for improvement. Particularly weak in the following areas:

(D) Beginner's Performance

40 - 49 Beginner's performance; makes a number of errors that could be corrected through extra work. Has to work harder in the following areas:

(D-) Performance Below Expectation

30 - 39 Performance rather weak and below expectation. Makes a number of errors that could be corrected through extra work. Has to work harder in the following areas:

No Grade Possible (NGP)

Scores From 29 and Below Has not done enough to deserve a grade. Particularly very weak on items which require knowledge in the following: (Provide information on the knowledge and skills required to improve performance)

NOTE

In all the above cases, the teacher should indicate the student's areas of weakness, or areas that need attention in the feedback sections.

Score Ranges and Feedback Comments on Projects (Marked out of 100)

The following mark boundaries and feedback comments should help the teacher in marking and grading the projects.

Eight mark ranges and their associated feedback comments for the projects are recommended as follows:

90 - 100: Excellent work in all respects

80 - 90: Very experienced performance in the project; Makes very few errors.

70 - 79: Experienced performance in the project; Makes very few errors.

60 - 69: Advanced performance in the project; could turn out a better project if attention is given to the following:

50 - 59: Advanced beginner's performance in the project; could turn out a better project if attention is given to the following:

40 - 49: Beginner's performance in the project; makes a number of errors that makes the outcome of the project fall below expected standard.

30 - 39: Project outcome below expectation

29 and Below: Project outcome far below expectation. Poor project in execution and in outcome

Learning and Pedagogical Challenges and Some Solutions

After marking and grading the CATs and the projects, the teacher will notice a number of the learning problems that students encountered as a result of misunderstandings during the instruction periods. The teacher could then adopt the following measures to help students overcome their learning problems and perform better on future tests and projects:

- Counseling students
- Organizing remedial teaching activities for low achievers
- Organizing enrichment activities for high achievers
- Conducting Performance Appraisal Meetings with Parent Teacher Associations (PTAs) or holding discussions with individual parents on some of the difficulties their children are facing in their lessons and the possible help parents could give etc.

Value of Projects

The school based assessment system emphasizes the student-centred instructional approach. This is achieved by planning the project component of the SBA in a way that will require students to carry out investigations and experiments, and produce written or physical materials/objects using a variety of tools and processes. It is estimated that if CAT3 is planned and developed in a way that will include at least 40 percent of high level abilities (analytical thinking, synthesis or inventive thinking, and evaluation), the addition of the contribution of the high level thinking in CAT3 to the high level ability expected in the projects will raise the productive thinking and performance component of individual students to a very high level.

THE END-OF-TERM EXAMINATION

Some guidelines for developing the end-of-term examination have been provided in all the Basic School syllabuses. It should further be added that while the End-of-Term 1 Test should be based on all the important objectives taught in Term 1, the End-of-Term 2 examination should be based on 30 percent of the instructional objectives of Term 1 and 70 percent of the instructional objectives of Term 2.

Overlapping the two tests is necessary to make students aware that they should not forget Term 1's work and concentrate only on the work of Term 2. Similarly, in developing the End-of-Term 3 examination, the guideline should be to use 10% of objectives from Term 1; 20% of the objectives of Term 2, and 70% of the objectives of Term 3. A summary of the guidelines is as follows:

Composition of End-of-Term 1 Examination

The examination should be composed of a representative sample of all the important syllabus objectives taught in Term 1

Composition of End-of-Term 2 Examination

- 30% of the objectives of Term 1
- 70% of the objectives of Term 2

Composition of End-of-Term 3 Examination

- 10% of the objectives of Term 1
- 20% of the objectives of Term 2
- 70% of the objectives of Term 3

Teachers are again reminded that at least 40% of the test items in the end-of-term tests should be of high-ability thinking type. This system for developing classroom tests will lead to rapid increase in the thinking ability of students.

Number of items in End-of-Term Examination

The number of items for the end-of-term examination depends on the subject. As indicated earlier, some subjects will need fewer items than others. In general however, the following may be suggested for the respective groups of subjects:

Group 1 Subjects

- Mathematics
- Religious and Moral Education
- Social Studies
- Integrated Science

The end-of-term examination for these subjects may consist of the following:

- 20 objective type items marked out of 20
- The remaining 80 marks could be spread on structured questions and on questions that require some activities

Group 2 Subjects (Languages)

- English
- Ghanaian Languages and Culture
- French

The language subjects should test each of the major components of the subject appropriately using both objective-type items, structured questions and composition writing. 20 marks for 20 objective type questions and 80 marks for structured questions and activities are recommended.

Group 3 Subjects

- Creative Arts
- ICT
- Music
- Physical Education

These subjects are activity oriented. The examination may consist of objective questions and activity oriented questions.

For each of the above subjects, it will be important to divide the examination into Section A and Section B where Section A will consist of objective items and Section B made of structured questions and other forms of activities.

Combining the SBA Component with the End-of-Term Examination Results

The performance of each student in a term or in a year is measured by the student's performance in CATs1-3; CATs 5-7 and CATs 9-11, in the project, and in the End-of-Term examination. Each set of assessment is made out of 100 marks. This therefore makes it easier to combine CATs1-3 with the End-of-Term marks, Bear in mind that the project stands alone and should be marked and graded separately and recorded in the Student's Progress Record.

To assign grades for the terms work, add the marks on the set of CATs to the marks earned on the End-of-Term Test. Divide the total by two to bring the marks to 100 from grading.

SBA Marks for WAEC

SBA marks that should go to WAEC as part of the BECE start from JHS1 to the second term of JHS3.

The expected sets of marks include the following:

JHS1

CATs1-12; including 3 projects and 3 End-of-Term Results

JHS2

CATs1-12; including 3 projects and 3 End-of-Term Results

JHS3

CATs1-7, including 1 project completed by end of First Term; and 1 End-of-Term examination marks obtained at the end of the First Term.

The marks for each of the above sets of assessments are recorded in the SBA termly register.

UNIT 6

GUIDELINES FOR PROJECT DEVELOPMENT AND PROJECT ASSESSMENT

The following guidelines are provided for teachers to consider in developing and assessing projects for their classes.

The project titles supplied to schools provide the following:

- Project title
- Project brief
- Detailed description
- Subject area connections and syllabus references
- Project objectives
- Project outputs
- Project outcomes

The teacher is expected to write project topics and guidelines following the above format and also work with the students to develop the dates or periods for the project activities.

PROJECT DEVELOPMENT

Project Title

Project title refers to the name of the project. Before selecting the project title, go through the syllabus looking through the sections and units to identify interesting ideas that may be developed into a project. The project title should capture important skills required in the sections and units of a term in the subject. Since we are using the fused and emerging curriculum approaches in developing project topics, each topic selected should reflect skills and abilities from a variety of subjects. In most cases, we recommend the fused curriculum approach in which case each project will have an organizing or leading subject, with other subjects coming in as supporting or connecting subjects for the project. The project title should be catchy and interesting. The selected project itself should also be interesting for students to do.

Project Brief

The project brief is a simple one sentence description of the project

Detailed Description

This is a description of the project in more than three sentences. The description should include what students should do in carrying out the project successfully.

Class, Term and Year

Write the class, the term and the year of the project.

Example: Primary JHS1, Term 2 2012

Leading Subject(s) Example: ICT and English

Connecting Subjects and Syllabus References

Examples:

BDT: JHS1 Term 1 SRN: 1.1.1

English: JHS1 Term 2, SRN: 1.1.3 and 1.3.1

ICT: JHS2, Term 1 SRN: 1.2.2 and 3.2.2

Project Objectives

This section consists of a list of the objectives students should accomplish in the project

Project Activities

This section consists of the activities students should go through to achieve the objectives of the project. (Teacher should assist students in writing the activities to be carried out each day and each week toward completing the project)

Project Duration: One Term (A few projects are intended to be carried out in two segments covering two terms)

Project Outputs

List of outputs expected as a result of the objectives and activities of the project

Project Outcomes

This is a list of the learning behaviours students are expected to have acquired by the end of the project

PROJECT ASSESSMENT

This section consists of guidelines for assessing a project. Projects can be of different types: Investigative A second set of projects may involve application of scientific principles, while a third set of projects may involve development of artefacts or other hard and ephemeral products such as dishes. Guidelines are provided in Tables 8 and 9 for assessing each of the three types of projects.

Table 7

Assessment of Mathematics and Investigative Writing

	Assessment Criteria	Mark Allocation
1.	<u>Title</u> i. Appropriate for the project ii. Catchy enough to attract attention	5 marks
2.	<u>Introduction</u> -Describes the topic very well	5 marks
3.	<u>Content</u> i. Relevance of content/material to the topic - 5 ii. Knowledge and understanding of the topic -10 -Originality (5) -Evidence of research from books, interviews, internet etc (5) iii. Connections with other subjects and current issues (At least 2 subject areas referred to) - 5 iv. References - 5	25 marks
4.	<u>Organization</u> -Logical presentation and coherence of paragraphs	10 marks
5.	<u>Data Analysis</u> -Use of tables, calculators and graphs etc	10 marks
6.	<u>Expression</u> i. Use of appropriate register ii. Grammatical correctness of language	15 marks
7.	<u>Associated Outputs</u> -Drama, posters, exhibitions etc	10 marks
8.	<u>Conclusions, Interpretation and Usefulness of project</u> -5 marks for conclusions and 5 marks for interpretation and usefulness	10 marks
9.	<u>Editing Skills</u> i. Punctuation ii. Capitalization iii. Spelling	10 marks

Table 8

Assessment of Practical Products: JHS

Assessment Criteria	Mark Allocation
<i>Process assessment</i> -Attitude, commitment, cooperation and problem solving skills	20
<i>Product assessment</i> -Originality -Design: use and organization of elements and principles of art -Craftsmanship: skill in use of tools, materials, techniques, colour application etc. -Finishing -Usefulness/Suitability	60 (10) (10) (20) (10) (10)
<i>Project Report and Presentation</i> i. <u>Project write-up</u> - Content should include the ff: - Tools used - Process, - Interpretation of product-colours used, symbols etc - Suggested uses of product ii. <u>Project Presentation</u> (Reporting and Communication) -Introduction -Delivery -Conclusions -Answering questions	20 (15) (5)
Total marks	

Table 9

Assessment of Science Projects: JHS

Assessment Criteria	Mark Allocation
<p><i>Process assessment</i></p> <p>i. Identification of Project Idea (problem on which project is based {real or imaginary})</p> <p>ii. Scientific principles underlying project</p> <p>iii. Preparations for project: Research - Literature: Books/Internet sources - Primary data/information (/observations/ interviews) - Appropriateness of materials - quality of materials</p> <p>iv. Attitude, commitment, cooperation skills</p>	<p>35</p> <p>(5)</p> <p>(10)</p> <p>(15)</p> <p>(5)</p>
<p><i>Project Output assessment</i></p> <p>i. Design: originality, organization of elements and principles of art</p> <p>ii. Craftsmanship: skill in use of tools, materials, techniques,</p> <p>iii. Finishing - smoothness, colour, etc</p> <p>iv. Usefulness of device/object - Suitability - Safety / precautions</p>	<p>35</p> <p>(10)</p> <p>(10)</p> <p>(5)</p> <p>(5)</p> <p>(5)</p>
<p><i>Project Report and Presentation</i></p> <p>Report write-up - Content should include the ff:</p> <ul style="list-style-type: none"> - Main Objective - Methods/processes - Tools used - Suggested uses of product - Advantages of device/object/product <p>ii. Report Presentation (Reporting and Communication)</p> <ul style="list-style-type: none"> -Introduction -Delivery (Participation from group members) -Conclusions -Answering questions 	<p>30</p> <p>(20)</p> <p>(10)</p>
Total marks	100

Information on Assessment Rubrics and Mark Allocation for Students

You will notice that each type of project is marked and graded on the basis of a number of rubrics. Two examples are reproduced below.

Assessment of Investigative Writing

<u>Rubrics</u>	<u>Mark Allocation</u>
1. Title	5 marks
2. Introduction	5 marks
3. Content	25 marks
4. Organization	10 marks
5. Data Analysis	10 marks
6. Expression	15 marks
7. Associated Outputs	10 marks
8. Conclusions and Interpretation	10 marks
9. Editing Skills	<u>10 marks</u>
Total	<u>100 marks</u>

Assessment of Practical Products

<u>Rubrics</u>	<u>Mark Allocation</u>
1. Process assessment	20 marks
2. Product assessment	60 marks
3. Project Report and Presentation	20 marks
i. Written Report (15)	
ii. Presentation (5)	

It is very important that teachers provide students with information of the rubrics on which their project work will be assessed and the mark allocation for each segment. Knowledge of the rubrics and their sub-categories or expected behaviours as detailed in Tables 7, 8 and 9 should be made known to students for them to become aware of their goals and targets, as well as the rewards in terms of marks to be earned for good work.

UNIT 7

SCHOOL BASED ASSESSMENT (SBA) PROJECTS FOR JUNIOR HIGH SCHOOLS

Project topics are provided for each of JHS1, JHS2 and JHS3 in this unit. The teacher is expected to read the project topics and determine the terms in which the topics can be comfortably carried out by students considering the stage of learning reached by the class. JHS1 is supplied with six project topics and the teacher is expected to add three project topics to make a total of nine projects. JHS2 has eight projects and the teacher is expected to add another one to make it nine. JHS3 has five project topics and that is adequate enough since they will carry out only one project.

Project Outputs and Outcomes

Each of the projects for all three JHS classes is aimed at getting students to achieve certain outcomes and also come out with some outputs as a result of their learning in the project undertaking. A number of outputs and outcomes have consequently been stated for each of the projects listed in this section. These outputs and outcomes are not exhaustive. The teacher is advised to observe the students as they go on with the projects. There may be other outputs and outcomes that may emerge and which the teacher could record as part of project outputs or outcomes.

JHS1 PROJECTS

The list of project titles and descriptions supplied to schools for JHS1 are as follows:

1. My Role Model
2. Our Festivals, Our Identity
3. Refuse to die young
4. "Villamatics": A Healthy Environment
5. Breaking into the Electronic Age
6. We Are The World
7. Hundred Uses of Counting

PROJECT 1

Project Title: MY ROLE MODEL

Project Brief: Students undertake a project which will help them identify persons in the society worthy of emulation.

Detailed Description: Can you make him/her out? There are a lot of people in the community whose lives are considered by society as worthy of emulation. In this project, students are required to use the appropriate register, that is the appropriate words and terms for identifying such role models based on their personalities, appearance, social status, and contributions to the community. They are also required to use the same descriptive words in the English and Ghanaian Languages, render what they admire about their role model in any of the artistic forms and present an oral /written presentation on societal values. Students are expected to interact with their role models.

Leading Subject(s): French SRN 1.4, English SRN 2.4.1; 4.6.1; 2.6.1; 5.2.1; 5.4.1-5.4.5, Ghanaian Language SRN 1.4.1 and 1.4.2

Connecting Subject(s) and Syllabus Reference Numbers:

ICTS RN3.1.2, 3.2.2, 2.2.1, 1.1.2, 2.3.1,
RME SRN 2.1.1, 2.1.2, 2.2.1
BDT SRN 3.1.1 - 3.1.5, 4.1.1 - 4.1.7, 4.2.1 - 4.2.4

Project Objective(s)

Student(s) will:

1. Compile a list of desirable social and moral values
2. Describe the identified role models using the appropriate French and English vocabularies
3. Identify role models in the community through various artistic forms
4. Develop communicative and investigative skills

Project Duration: One Term

Project Output(s)

1. A register of descriptive words in French and English produced
2. Artistic representations of role model qualities eg. paintings, songs, poems, sketches, sculpture, flyers posters made
3. A well formatted document on desirable societal values and morals produced e.g. flyers, posters produced.

Project Outcome(s)

1. Investigative, innovative, communicative, creative and collaborative skills developed.
2. ICT skills improved

PROJECT 2

Project Title: OUR FESTIVALS, OUR IDENTITY

Project Brief: Students will find out, show and demonstrate how aspects of our culture and festivals identify and unite us as Ghanaians.

Detailed Description: Culture can simply be described as the way of life of a people. In Ghana, our culture (tangible and intangible) which identifies us as a people, covers our beliefs, folklore, clothing, housing, foods, artworks/ artefacts, festivals, music, dances, songs, etc.

When we are ignorant and unconcerned about our culture, we lose our identity and purpose as a people.

Students are to identify and investigate from human and material sources and from opinion leaders, aspects of our cultural practices and then determine their similarities, differences, religious, social, economic and educational importance. They will use their experiences and available information to present oral and written reports.

They will also write articles/essays for publication in newspapers, journals, school news board and newsletters. In addition, they will develop and demonstrate their understanding of our culture through dances, songs, clothing/costumes, artworks/artefacts, food recipes, drama, etc.

Leading Subject and References: Ghanaian Language and Culture: JHS1 SRN 1.5.1, JHS3 SRN 1.4.1-1.4.4
BDT JHS 1 SRN 1.1.1; 2.1.1; 3.1.1; 4.1.1; 5.1.1

Connecting Subject(s) and Syllabus Reference(s)

- RME: JHS 2 SRN 3.1.1 - 3.1.3
- Music & Dance: JHS 1 SRN 3.2.2; JHS 3 SRN 3.2.1
- Social Studies: JHS 2 SRN 1.1.1 - 1.1.6; JHS 2 1.3.2
- English Language: JHS2 SRN 4.5.1; JHS 3 SRN 4.7.1
- ICT: JHS1 SRN 3.1.1

Project Objective(s)

Students will:

1. Investigate aspects of our festivals that show our identity as a nation.
2. Analyze the role of festivals for national unity and identity.
3. Identify similarities and differences in aspects of our culture through festivals.
4. Propose ways of promoting and preserving our festivals for national unity.
5. Write and disseminate information and understanding about our culture to peers and other stakeholders in the community.
6. Design and make artworks and costumes to portray our culture.
7. Compose songs and poems to portray our culture
8. Organize art exhibitions and cultural festivals of different language groups to promote their different cultural heritage.

Project Duration: One Term

Project Output(s)

1. Ways of promoting and preserving our cultural identity and unity proposed and documented.
2. Songs, dances, stories, drama, posters, flyers to promote national identity and unity developed.
3. Traditional dishes prepared and exhibited

Project Outcome(s)

1. Knowledge and skills for making artworks and reporting acquired.
2. Skills in fostering unity, peace, collaboration and tolerance acquired.
3. Knowledge and skills for reporting on findings developed
4. Skills in preparing traditional dishes acquired

PROJECT 3

Project Title REFUSE TO DIE YOUNG

Project Brief Many young people are presently dying due to causes such as inadequate exercise and not eating well. Students take on the role of food scientists and Physical Education experts to explore the question “How can we ensure food safety and good health in our community”?

Project Description Inadequate exercise and eating contaminated foods have been identified by experts as the major causes of ill-health leading to untimely deaths in our communities.

Students are to assume roles of food scientists and Physical Education Experts to find solutions to curb the situation. Students in groups go out to investigate the major food source in the community i.e., whether it is produced locally from the community or they buy them from outside the community. Students use data collection methods to find out the quality of food produced in the community and those brought in from outside the community. They will

- identify preservation techniques used in storing the food commodities.
 - visit various food vendors and observe how meals are prepared, served and what happens to the left-over food and also how they manage the waste generated.
 - interview health personnel on causes, symptoms and remedies for food related-diseases.
 - find out major causes of sudden death particularly among the youth in their community.
- collect data on quality and safety of food and related food diseases from appropriate agencies such as

Ministry of Food and Agriculture
Ministry of Health (and from hospitals)
Food and Drugs Board
Market women and Food vendors

Leading Subject BDT (H/E): SRN 1.2.1, 1.2.2, 1.2.3
P.E: SRN 1.1.1

Connecting Subjects Mathematics: SRN 1.15.1, 1.15.2, 1.15.3
Science: SRN 5.2.1, 5.2.2
ICT: JHS1 SRN 3.2.1; 3.2.2; 2.2.1; 2.2.1; 1.1.2; 2.3.1
English: JHS2 SRN 4.5.1

Project Objectives Students will:

1. Identify causes of food contamination and how to prevent them
2. Identify and explain some symptoms of food related diseases and how to remedy them
3. Collect and analyze data from a survey on the sources of food in the community
4. Suggest healthy habits that can help people to live longer
5. Suggest weight control techniques and exercises to maintain a healthy body

Project Duration One Term

Project Outputs

1. Causes of food contamination and prevention methods identified and documented
2. Symptoms of food related diseases identified and prevention methods documented
3. Healthy habits that promote longer life identified and written out
4. Different exercises for maintaining healthy body identified and documented

Project Outcomes

1. Investigative and analytical skills developed
2. Knowledge of healthy habits for longer life acquired and practiced

PROJECT 4

Project Title "VILLAMATICS": A HEALTHY ENVIRONMENT

Project Brief Students to design and make a model settlement taking into consideration clean environment layout and sustainable use of resources

Detailed Description Construction of buildings in most communities does not follow laid down procedures as required by building regulations. This indiscipline has led to problems such as flooding, inaccessible roads, filth etc.

Students in groups take on the role of civil engineers to research the appropriate procedures for designing and constructing new settlements through interviews and structured observations. In project teams, students discuss their findings gathered from places such as Town and Country Planning, District Assemblies, Schools, Health facilities, Survey Department, Public Works Department (PWD), related institutions and houses. Students prepare a poster on the advantages of a good settlement to guide their design and draw the final model settlement taking into consideration landscaping, gutters, walkways, driveways and playing fields. Working procedures are followed to model the settlement. Mount exhibition and share findings with stakeholders. Students role-play to demonstrate punitive actions against badly laid out settlements.

Leading Subjects and References: BDT (Pre-Technical Skills): JHS 1, SRN 2.1.1-2.1.3; 2.2.1-2.2.2; 3.1.1-3.1.5; 4.1.1-4.1.7; 4.2.1-4.2.4; 6.4.1, 6.4.3

Connecting Subjects and References: Social Studies: JHS1 SRN 3.1.1 - 3.1.5
ICT JHS1, SRN 3.1.2; 3.2.2; 2.2.1; 1.1.2; 2.3.
Integrated Science JHS1 SRN 5.1.1 - 5.1.6; JHS2 SRN 1.2.1 - 1.2.5
RME JHS SRN 2.2.1
Mathematics JHS1 SRN 1.5.1-1.5.3; 1.12.1-1.12.3; 1.15.1-1.15.3

Project Objectives Students will

1. Explain the importance of a good layout for a decent settlement
2. Suggest ways for preventing badly laid-out settlements
3. Propose punitive action against badly laid-out settlements
4. Demonstrate through role plays/debate/street theatre, punitive actions to be taken against offenders
5. Take accurate measurements of ,model structures they want to build
6. Mount an exhibition

Project Duration One Term

Project Outputs

1. A well laid-out settlement designed and modeled
2. A poster of a well designed settlement prepared
3. A well organized exhibition mounted and products displayed
4. Role play/debate/street theatre organized to demonstrate punitive actions taken against badly laid-out settlements

Project Outcomes

1. Knowledge of settlement design and modeling acquired
2. Techniques for exhibition mounting and products display learnt
3. Knowledge of punitive actions taken against badly laid-out settlement acquired

PROJECT 5

Project Title: BREAKING INTO THE ELECTRONIC AGE

Project Brief:

Students use their own initiative to put up an ICT centre in their school

Project description:

Initiative is one of the important factors for change and development. It is difficult for a community which holds on to its past (customs and practices) without initiative to progress. In this project, students are going to use their own initiative to put up an ICT Centre in their school. They will identify items needed for an ICT centre, budget for the items, give reasons for the inclusion of the items in the budget, identify sources of funding, prepare a power point and make a presentation to a group of stakeholders and sponsors for funding.

Leading subject(s): French

SRN 7.3.1; 4.1.1; 4.1.2; 4.4.1-4; 4.6.1-3;10.5.1

Connecting subject(s): English language

Social Studies

Ghanaian language

ICT

Citizenship Education

Project Objectives

Students will

1. Compile a list of items needed for the ICT centre
2. Prepare a budget
3. Suggest ways of sourcing for funds
4. Prepare a power point on the project
5. Put up an ICT centre

Project Duration: One Year

Project Outputs

1. List of ICT items collated
2. Budget for the ICT centre prepared
3. Sources of funding the ICT centre identified
4. ICT centre established

Project Outcomes

1. Knowledge in budgeting acquired
2. Lobbying strategies developed
3. ICT skills developed

PROJECT 6

Project Title: WE ARE THE WORLD

Project Brief: Students engage in a project to investigate and make presentations on how interdependency, teamwork and cooperation in natural ecosystems can be applied to human communities for harmonious living.

Project Description: Interdependency and adaptation mechanisms help organisms to achieve balance in nature. In this project, students assume the roles of eco-researchers to answer the question on “How human communities apply the principles of interdependence and adaptation in ecosystems to achieve co-operation and teamwork for harmonious living”

They brainstorm and use mind mapping to explain the concepts of ecosystem, interaction and interdependency. They develop observation schedules and organize nature watch to explore some of the interactions in nature. They also consult books, search the internet and watch the TV programme (National Geographic) for more information on interactions in nature which depend on interdependency. Students interview NGOs and eco-related organizations e.g. Friends of the Earth, Eco-Brigade, Department of Game and Wildlife, etc, to gather relevant information on the project. They write report on their investigations and also develop communication strategies such as role-plays, poems, stories, posters and artworks to educate the public on the use of co-operation, teamwork and interdependency for peaceful living.

Leading Subject: Integrated Science
JHS 1 SRN 5.1.4

Connecting Subjects and syllabus references:

Music and Dance JHS 2: SRN 2.2.2.

Social Studies JHS 2: SRN 1.2.2., 1.1.6.

ICT JHS 1: SRN 2.3.1

French JHS 2: SRN 7.4.1 - 7.4.3.

BDT JHS 3: SRN 1.1.1.

P.E. JHS 2: SRN 2.2.1.

Ghanaian Languages & Culture: JHS1: SRN 1.5.1, 1.6.1 and 1.3.1.

English Language: JHS 1: SRN 4.4.2, 4.5.1 and 4.6.1.

RME: JHS1 : 2.3.3

Project Objectives: Students will:

1. explain the concepts: ecosystem, interaction and interdependency.
2. identify organisms that use interdependency to live in named ecosystems and why they do so.
3. draw food chains and food webs to show interdependency of organisms in an ecosystem.
4. identify human institutions that depend on interdependency, teamwork and cooperation for their survival
5. identify socio-cultural problems in the communities which require interdependency and cooperation for solutions.
6. suggest the benefits of interdependency to achieve harmony in society and in nature
7. develop communication strategies to educate the public on the importance of cooperation, teamwork and interdependency in solving social and economic problems in society.

Project Duration: One Term.

Project Outputs:

1. An album of organisms that demonstrate interdependency for their survival made.
2. Songs, poems, stories and newspaper articles on the importance of cooperation, teamwork and interdependency in nature and society written.
3. Artworks and animations on how to live harmoniously in different cultures designed and developed.
4. Puppet show to demonstrate interdependency in nature and society mounted.

Project Outcomes:

1. The terms ecosystem, interaction and interdependency learnt.
2. Skills in the construction of observational checklist and interview schedules for data gathering developed.
3. Skills for conducting interviews and communication strategies for public education improved.

PROJECT 7

Project Title: HUNDRED USES OF COUNTING

Project Brief: Students undertake a project involving 'counting' to enable them develop the culture of taking inventory and keeping record of people/things/events and situations in everyday life.

Project Description: Counting has many uses in everyday life. The use of counting is fundamental to our understanding of numeracy and can motivate us to love mathematics. In this project, students undertake a project to demonstrate the importance of counting. They apply the skill to solve social and economic problems such as in transportation, food security and agriculture, environmental protection, health and construction

For example: Students take on the role of statisticians and gather data on transportation issues. They interview transport/bus officials to find out the number of buses available, their seating capacity and the shuttle time interval. They join the queues, counting the number of passengers and match it with the number of buses available. They also calculate the number of buses needed to reach their turn.

They join the buses and calculate the time interval taken by the bus to reach their destination. They do the same for the return journey. They compare and compute the time difference. Students liaise with the relevant agencies for security protocol.

Students may choose to carry out the project on any of the following:

- Transportation (as already described)
- Health (e.g. amount of medicines to purchase for hospitals counting the number of patients)
- Education (e.g., number of schools to be built for pupils etc)
- Agriculture
- Food Security

All the above are topics in which counting is vital for planning.

Leading Subject: Mathematics SRN 1.1.1-1.1.4; 1.15.1-1.15.3

Connecting Subjects and syllabus references:

BDT: (VA) SRN 1.3.2

Social Studies: SRN 1.2.2, 1.2.3 (JHS 3)

Integrated Science: SRN 1.3.1 - 1.3.5 (JHS 1)

Project Objectives: Students will:

1. Brainstorm and come out with counting scenarios in the areas of transportation, environmental protection, health, education, agriculture and food security.
2. Collect, organize and analyze data to arrive at statistical information such as frequency distribution tables, bar charts, histogram, pie chart, percentages, averages and charts based on data collected from sources such as transportation, health, education, agriculture etc
3. Develop communication strategies-posters and media reports to inform the general public and relevant Municipal and District Assemblies (MDAs) on the importance of data collection.

Project Duration: One Term

Project Outputs:

1. Statistical data in transportation such as vehicles density on a particular road obtained.
2. Statistical data in agriculture and food security such as number of homes in the village with background gardens etc.
3. Statistical data on environment such as number of families which uses firewood/charcoal/gas as cooking fuel.
4. School data such as number of students who have visited a hospital/clinic (with malaria) in the past six months etc.

Project Outcomes:

1. Investigative, communication and collaborative skills developed.
2. Skills in counting, data collection, data analyses and storing data developed.
3. Skills in writing mathematics expressions and equations using, variables, co-efficient, addition, subtraction, division and multiplication signs improved
4. Skills in drawing graphs improved.
5. Skills in analyzing graphs improved.
6. Skills in finding measures of central tendency improved.

JHS2 PROJECTS

The list of JHS2 project titles sent to schools is as follows:

1. Energy for You and Me
2. Our School, Our Pride
3. Alarm Blow
4. Let's Make Money (For 2 Terms)
5. My Voice, A Safe World (For 2 Terms)
6. The News Media: What Direction?
7. Feel Green, Feel Great
8. Virtues for Life
9. Healthy Eating, Healthy Body

Note: Projects (3) and (4) have to be carried out in two terms.

PROJECT 1

Project Title ENERGY FOR YOU AND ME

Project Brief: Students to conduct research on alternative energy sources

Detailed Description: The demand for energy has increased as a result of increased population, industrialization, urbanization and new lifestyles. This has put pressure on the current energy sources in the country. Community are therefore advocating for alternative sources of energy. Students are to take the role of energy experts to come out with alternative energy sources in which they describe their vision of the future of energy - especially how to provide and generate enough energy for all the people in the country.

Leading Subject and Syllabus References: Integrated Science: SRN 4.3.1 - 4.3.6
BDT (Pre-Technical) JHS3: 3.1.1-3.13

Connecting Subject Syllabus Area Reference(s)

- English: SRN 4.2.1- 4.6.1; 5.1.1 - 5.3.4
- Ghanaian Languages: SRN 3.4.1.; 3.3.1
- ICT: SRN 2.1.1 - 2.2.5
- Mathematics: SRN 2.4.1- 2.4.4
- BDT (Home Economics) SRN 2.1.1-2.1.25

Project Objectives: Students will:

1. Carry out research on alternative sources of energy
2. Design and make energy generating devices
3. Write articles on alternative sources of energy to educate the public

Project Activities

The following activities can be used as a guide for undertaking the project:

1. find out how energy is produced
2. visit existing energy sources to find out how clean energy is produced,
3. find out the need for alternative sources of energy
4. find out how other countries generate energy through different sources from library, internet, energy experts, etc.
5. sketch to show how energy can be generated from the sources identified
6. document their findings
7. report on alternative sources of energy
8. demonstrate how alternative sources of energy can be generated
9. demonstrate the use of different sources of power to cook food
10. write an article on “Alternative Sources of Energy” to be published in a journal, Junior Graphic, Daily Graphic, School Journals etc.
11. organize press briefing on their findings
12. create public awareness through print and electronic media
13. exhibit and demonstrate how alternative sources generate power
14. present their findings to the Energy Commission and the Ministry of Energy

Project Duration: One Term

Project Outputs

1. Alternative sources of energy documented
2. Public awareness created through print and electronic media
3. Alternative sources of generating energy exhibited
4. Article on “Alternative Sources of Energy” published in the *Junior Graphic*.
5. Press briefing on findings organized
6. Findings presented to the Energy Commission and the Ministry of Energy

Project Outcomes

Skills in investigations, collaboration, communication, self-direction, creativity, innovation, critical thinking and problem-solving acquired.

PROJECT 2

Project Title: OUR SCHOOL, OUR PRIDE

Project Brief: Students will find out the history, functions and impact of the school on the community.

Detailed Description: The school is regarded as a place for formal education particularly for the youth. It serves as a sign post which directs the members of the community through various activities organized in the school. Members of the community become enlightened and prepare for the future. Schools are established by individuals, philanthropists, collective efforts of the people, Faith-Based Organizations (FBO), Non Governmental Organizations (NGOs) and the government. Schools contribute to the social, religious, economic and human resource development of communities as well as the nation. However, some communities are ignorant about the role and functions of the school and exhibit lukewarm attitude towards the development of the school.

Students will find out the historical development of the school and its contribution to the development of the community. They are also to find out the challenges of the school and suggest ways of solving them to enhance the good image of the school.

Leading Subject and References: English Language JHS Two SRN 4.5.1 and 4.4.1

Connecting Subject(s) and References

- RME: JHS 3 SRN 3.1.1, 3.1.2
 - Ghanaian Languages: JHS 2 SRN 1.1.1, 1.1.2, 1.2.1 - 1.2.3
 - Social Studies: JHS 2 SRN 1.3.2, 2.2.2
 - ICT: JHS 1 SRN 1.2.1, 3.1.1, 2.1.1 - 2.1.5
- BDT: JHS 1 SRN 1.3.1, 1.3.2; JHS 1 SRN 2.1.1 - 2.1.13, 4.1.1 - 4.1.7, 4.2.1 - 4.2.4
- JHS2: SRN 4.1.1, JHS 3 SRN 4.1.1

Project Objective(s)

Student(s) will:

1. Find out the role and functions of schools and their contribution towards the development of the community.
2. Determine the contribution and impact of individuals and other stakeholders on the school.
3. Suggest ways for enhancing the image of the school
4. Suggest ways by which the school could contribute to the socio-economic development of the community, i.e., by cleaning, growing grass, planting trees and undertaking other community development projects
5. Present oral and written reports on their findings.
6. Design and make art forms/artefacts to project the image of the school eg. songs, badges, crest, flyers, etc.
7. Compose songs and poems to project the image of the school

Project Duration: One Term

Project Outputs

1. Information about the school documented, e.g. photo album of old students.
2. Items to disseminate information about the school produced e.g. Present and former heads of the school and school prefects, CDs, cassettes, fliers, posters, sign boards, school labels. Other items produced include school crest, model of the school, etc.
3. Tree planting, flower planting, desilting choked gutters, clearing bushes and other community development programmes undertaken etc.
4. Image of the school improved
5. Clubs formed to promote the image of the school through engagement in extended school projects and services

Project Outcomes

1. Communicative skills developed.
2. Skills in developing CDs, cassettes, flyers, posters, sign boards, school labels, school crest, model of the school, etc. acquired
3. School and community relationship established and improved through effective communication and mutual support schemes.

PROJECT 3

Project Title: ALARM BLOW!

Project Brief: Students undertake a project to produce simple alarm systems which can be used to monitor movement of people in the school and at home to improve security networks. The alarm could also be applied to alert people about time.

Project Description: Human movement goes on almost everyday in the school, home and communities and in unauthorized places. It is difficult to track the movement of individuals. Simple Alarm Systems can be inserted in doorways to do the tracking. There is also the need to remind people to respect time.

Simple alarm systems could be used to sound time when required.

In this project, students design and construct simple alarm systems to be used in cars, homes, offices etc. to monitor movements, unlawful entries and use of time.

Students use inductors, capacitors, transistors, wires, battery, step down transformers, switches and buzzers and other suitable electronic components to construct the alarm systems.

Leading Subject: Integrated Science JH3 1 SRN 4.4.1.

Connecting Subjects and syllabus references:

BDT (VA) JHS 2: 4.3.1; PRE-TECH JHS 3: 3.2.1

RME JHS 2: 1.1.3-1.1.4.

Mathematics JHS 2: 1.8.1.

Social Studies JHS 2: 2.2.3.

English Language JHS3: 4.3.1 - 4.3.2.

Project Objectives: Students will:

1. identify the appropriate electronic components for the construction of electronic circuits.
2. construct a simple alarm circuit.
3. use alarm circuits to check movements of people to support security in the school and the home.

Project Outputs:

1. Simple alarm systems designed and produced for the school, home and offices.
2. Artwork depicting simple alarm systems produced and exhibited.

Project Outcomes:

1. Skills in designing and constructing simple alarm circuits developed.
2. Alarm circuit security consciousness developed.

PROJECT 4

Project Title LET'S MAKE MONEY

Project Brief: Students research the needs of their community, design and make creative products and marketing plans to set up a small scale enterprise.

Detailed Description: There is currently a problem of graduate unemployment in the country because graduates are looking for white-colour jobs which are limited. However, with the knowledge and skills acquired, they can be self employed.

This project is introduced to help the youth to be innovative and enterprising by researching into the needs of their community, design and make different creative products and a marketing plan that will help them set up small-scale enterprises.

Students will first be expected to Conduct research on the needs and wants of the people in the community and the employment needs of the community

NOTE: An expert will need to be invited to give a talk on entrepreneurial skills.

Leading Subject: BDT: SRN 4.1.1 - 4.2.4; JHS 1 SRN 6.1.1 - 6.4.3

Connecting Subjects and Syllabus References Social Studies JHS 2 Term 3 SRN 3.5.1 - 3.3.4

English Language: 5.1.1 - 5.3.4

BDT Visual Arts:

ICT: Term 2 SRN 2.1.1 - 2.2.5

Mathematics :SRN 2.4.1- 2.4.4

RME: SRN 1.2.2 & 1.3.1

Integrated Science: SRN 5.4.1 JHS 3

Music and Dance: SRN 4.1.1

French: SRN 4.4.3

Project Objectives

Students will:

1. Outline the procedures for developing different products from used materials
2. Identify discarded materials, odds and ends and other resources available that can be used to design a product.
3. Design and create a product
4. Develop a plan to market the product
5. Compose a jingle to market the product.
6. Develop a plan for setting up a small-scale enterprise
7. Communicate their finding to the community and the entire nation through exhibition, print and electronic media.

Project Duration: 2 Terms (Terms 2 & 3)

Project Outputs

1. A product created or developed.
2. A market plan developed.
3. A business plan for setting up a small-scale enterprise developed
4. Product exhibited and disseminated through print and electronic media.
5. A jingle/song composed.
6. Public sensitized.

Project Outcomes

1. Skills for business writing acquired.
2. Report on research findings communicated to community and nation through multimedia
3. Use of knowledge and skills in other subject areas acquired

PROJEC 5

Project Title: MY VOICE, A SAFE WORLD

Project Brief Students investigate and come out with ways to prevent and manage conflicts.

Detailed Description: There are many conflicts in our communities. Women and children are the worse affected. This project aims at equipping students with skills in conflict prevention and management.

Students design instruments for interviewing stakeholders on causes and effects of conflicts in their communities. They will also research ways for preventing and managing conflicts in their communities through the following:

1. identify areas of conflict.
2. find out factors that contribute to conflict by using observations, resource persons, internet, etc.
3. develop interview schedules and interview stakeholders to assess the impact of conflicts.
4. analyze and present report

Leading Subject: Social Studies: SRN 2.3.2 - 2.3.5

Connecting Subjects: English Language: JHS 2 SRN 4.4.1
French: JHS 3 SRN 9.1.1, 9.2.1, 9.4.2
Music & Dance: JHS 2 SRN 3.2.3
BDT(VA): JHS 2 SRN 1.1.1
Integrated Science JHS 3 SRN 5.2.2
P. E. JHS 2 SRN 2.1.1 - 2.1.2
ICT JHS 1 SRN 2.3.1

Project objectives Student(s) will:

1. explain the meaning of conflict.
2. identify types of conflict in their communities.
3. identify causes of conflict in their communities
4. trace the effects of conflict on their communities
5. suggest ways for reducing conflict.
6. design and make posters, photo albums showing the effects of conflicts and peaceful coexistence.
7. compose songs, poems, slogans, stories, drama, etc to educate people on the need for conflict resolution.
8. Organize activities such as games, durbars, T.V. shows etc to show how conflict can be resolved

Project Duration: Two Terms

The project should be divided into two parts. The first part should be submitted at the end of one term and the second part submitted at the end of the next term.

Project Output(s)

1. Types and causes of conflicts in communities identified.
2. Effects of conflict assessed.
3. Ways of reducing conflicts learnt
4. Posters on effects of conflict designed and produced.
5. Songs, poems, slogans, stories, drama, etc to resolve conflicts composed and performed.
6. Public sensitized on conflict management and resolution through games, durbars, T. V. Programmes, drama, etc.

Project Outcomes

1. The term conflict understood
2. The sources and causes of conflicts understood
3. Ways for reducing conflicts learnt
4. Skills in developing posters acquired
5. Strategies for sensitizing the public on important issues on conflict resolution learnt

PROJECT 6: THE NEWS MEDIA, WHICH DIRECTION?

Project Brief: Students undertake a project to assess the objectivity of the news media in Ghana.

Detailed Description: News Media objectivity is a crucial factor for peace and sustainable national development. In recent times, political unrest in some countries have been triggered by unbalanced media reportage. In this project, students take on the roles of news media researchers to investigate the objectivity of the media in their communities. Students brainstorm and explain the term sustainable national development. They identify the differences between rumours, facts and opinions in stories they hear or materials they read. They search for information on the effects of unbalanced media reportage on society from internet sources, books, peace building agencies such as WANEP, Media Foundation for West Africa, CHRAJ and opinion leaders in their communities

They tape or record radio and TV news bulletins. They play and listen to the tapes, read news paper articles and identify the number of times facts and opinions occur in each news item. Students analyse the data gathered and represent it in tables, charts and graphs. They write a report and present it for a class discussion. They make posters and power point on their findings. Students write newspaper report on the project and share their findings with the community. They publish the newspaper report on the project in the Junior Graphic.

Leading subject: English Language, French and Ghanaian Languages and Culture
French SRN 3.1.1 -3.1.3 and 4.6.1

Connecting Subjects and References

Integrated Science SRN 1.1.3 and 1.1.4
BDT(VA) JHS 1 SRN 1.3.1

Project Objectives

Students will:

1. differentiate between the terms rumours, facts and opinions
2. identify facts and opinions in newspaper articles, radio and TV news
3. analyse the effects of rumours, facts and opinions on society
4. devise ways for spreading facts to annul the effects of rumours and opinions
5. hold a public education seminar on the effects of rumours and opinions on society

Project Duration: One Term

Project Outcomes:

1. The term sustainable national development understood
2. Knowledge on differences between rumours, facts and opinions acquired.
3. Core skills such as identifying facts from opinion, cooperation, critical thinking, teamwork, initiative, independent learning and presentation improved
4. Research skills such as data collection and analysis acquired.

Project Outputs:

1. Project report written and presented.
2. Public education materials such as posters and power point made and presented.
3. Public education seminar on the effects of rumours and opinions on society held.
4. Newspaper report on the project published in the Junior Graphic.

PROJECT 7

Project Title: FEEL GREEN, FEEL GREAT

Project Brief: Students undertake a project on tree planting exercise.

Detailed Description : Rampant felling of trees and bush burning are fast reducing the natural habitat, animal species, and depleting forest resources.

Students embark on afforestation programmes in the community.

They form clubs to undertake afforestation campaigns and undertake physical afforestation on identified sites in their community.

Students will collaborate with Forest Resources Commission for seedlings and other logistics.

Leading Subject(s): Integrated Science
JHS One SRN 5.1.3, 5.1.4, 5.1.6
JHS Two SRN 4.1.2 - 4.1.4

Connecting Subjects: 1. RME JHS One - SRN 1.1.2; 1.1.3
2. Social Studies JHS One - SRN 1.1.2/1.1.3; 1.1.4
3. English Lang. JHS 2, SRN - 4.5.1
4. Music and Dance JHS 2, SRN - 3.2.3
5. ICT: JHS 1 SRN 2.3.1
6. Mathematics

Project Objectives: Students will

:

1. Identify deforested areas in the community
2. Identify suitable tree species for the depleted areas in the community.
3. Establish and manage nurseries for seedlings.
4. Plan fund raising activities.
5. Assess appropriate period for transplanting seedlings.
6. Transplant and care for the seedlings.

Project Activities:

1. Groups visit the community to identify areas that are badly affected by tree cutting and bush burning.
2. Consult forest experts to assess information about suitable tree species for the deforested areas.
3. Select a site for the nursery
4. Obtain planting materials and other logistics.
5. Establish and manage nurseries
6. Plant and maintain transplanted seedlings.
7. Keep records on the activities performed for report writing.
8. Plan funding activities and visit the community.
9. Plan and organize campaigns on afforestation in the community.
10. Consult stake holders for logistics and guidance
11. Showcase and perform their activities on afforestation.

Project Outputs:

1. Deforested areas identified
2. Seedlings planted
3. Fund raising activities planned and implemented.
4. Role plays, drama, songs performed.
5. Photographs and pictures on afforestation activities exhibited.

Project Outcomes:

1. Knowledge and skills in tree planting and afforestation acquired
2. Skills in fund raising acquired
3. Strategies for organizing campaigns on afforestation learnt

PROJECT 8

Project Title: VIRTUES FOR LIFE

Project Brief: Students to investigate and write about norms and values that guide the day-to-day activities of people in their communities.

Project Description: Laws of life are the set of rules and principles that guide the members/people of a community to live in peace and harmony. Students write in their own words the norms and values they cherish in their communities. They classify the norms and values as positive or outdated and write essays that suggest modifications to those norms and values that impact negatively on the lives of the people in the community. Groups to present their findings and reports through recitals, sketches, role play and also write articles for publication in *Junior Graphic, Daily Graphic, School Journals etc.*

Leading Subjects RME SRN 2.2.2-2.2.4
Social Studies SRN 1.1.1 -1.1.6; 2.2.1-2.2.4

Connecting Subjects and References Ghanaian Language and Culture: SRN 1.2.1
Science: Year 1: SRN 1.3.1 - 1.3.4; Year 2 - SRN 5.1.1. - 5.1.6
English Language: SRN 4.4.1 - 4.5.1
Music & Dance: SRN 3.2.1 - 3.2.2
Mathematics: SRN 2.2.1 - 2.2.5
ICT SRN 2.1.1 - 2.2.5
French JHS SRN 9.3.1

Project Objectives: Students will

1. Brainstorm and come out with some norms and values of the community.
2. Investigate the origins of some of the norms and values in the community.
3. Exhibit positive behaviours to become fully integrated members of the community.
4. Suggest a review or modifications of norms and values that are outdated and have negative impact on society.
5. Write and present a report on their findings.
6. Develop flyers and write short stories on norms that promote healthy lifestyles.

Project Duration One Term

Project Outputs

1. Reasons underpinning some norms and values identified.
2. Suggestions on modification of norms and values made.
3. Drama on acceptable behaviours developed and organized
4. Short stories and poems written.
5. Jingles, songs composed.
6. Flyers developed and distributed.
7. Essay competition organized.
8. Findings shared among peers

Project Outcome(s)

1. Communication skills developed.
2. Team work, collaboration, critical thinking and innovation skills developed.

PROJECT 9

Project Title: HEALTHY EATING, HEALTHY BODY

Project Brief: Students investigate and disseminate information on an identified nutritional deficiency problem in the community and suggest possible solutions.

Detailed Description: Children in a community exhibit nutritional deficiency signs such as scanty reddish hair, flat buttocks, skinny bodies and protruding bellies.

Students take on the role of food scientists and investigate the causes of the problem, the number of children affected and how the problem could be solved. They enquire from dieticians, nutritionists and health experts about how such children in the community could regain their health. They also explore and document the different foods that could be used to correct the problem in the community. They further develop a recipe book on different kinds of foods for correcting the nutritional deficiency in the community.

Students may enlist the support of parents whose children are affected by the deficiency problem.

Leading Subject: BDT- Home Economics: SRN: 1.1.1- 1.1.6
Integrated Science: JHS2, 4.2.1 - 4.2.5

Subject area (s) connections:

Visual Arts: JHS2, SRN1.1.1

ICT:JHS 2 Term 2 SRN 2.1.1 - 2.2.5

English Language: SRN 4.2.1- 4.6.12.1; 4.6.1; 5.1.1 - 5.3.4

Mathematics: JHS2; SRN, 2.13.4: 2.11.4

Music: JHS 2, SRN 3.2.3

RME:JHS 1 SRN 1.1.1

Project Objectives

Students will:

1. Identify children with symptoms of nutritional problems
2. Investigate the causes of such symptoms
3. Plan a week's menu that could be used to correct the deficiency problem.
Select and prepare suitable dishes from the menu using local foods.
4. Produce a recipe book on foods to combat the problem
5. Mount an exhibition of prepared dishes.
6. Create a jingle/music for the exhibition
7. Compose a poem, song or drama to educate the public on the causes and effect of malnutrition
8. Educate the community on the problem and its solutions using multi media approaches such as flyers, songs, poems and jingles in English, French and Ghanaian Languages

Project Duration: One Term

Project Output(s)

1. Recipe book on foods for combating nutritional deficiency prepared
2. Poems and music on healthy eating habits composed
3. Posters/banners on food groups developed.
4. Flyers on healthy eating habits developed and distributed
5. Community sensitised on healthy living
6. Report published and disseminated
7. Exhibition on prepared meals and recipe book mounted

Project Outcomes

1. Knowledge on some foods and their nutritive values acquired.
2. Skills in planning menus, preparing and serving meals for different groups of people developed.
3. Presentation, communication (written and verbal), collaboration, self-direction, creativity, innovation, critical thinking, problem solving, responsibility and leadership skills improved.

JHS3 PROJECTS

The list of project topics with descriptions is as follows:

1. The Magic Toy
2. My Bag of Many Colours
3. Population: Quality, Not Quantity
4. The Wisdom Pot (For 2 terms)
5. Give Me a Pass (For 2 terms)

PROJECT 1

Project Title: THE 'MAGIC' TOY

Project Brief: Students design a project using local materials and simple electronic components to make toys that can move and talk.

Detailed Description: There are a lot of local materials around us that students can explore and apply their ingenuity to create simple toys. This project provides opportunity for students to use their knowledge and skills in electronics to develop such toys. The toys should be capable of moving and making amazing sounds. Students will be required to use the internet to find ways to carry out their project. Language students (French, English and Ghanaian Language) will be required to present a written or oral report on the project. They are to support their report with drawings and sketches.

Leading Subjects: BDT(Pre-Tech): SRN:2.11-2.1.13,2.2.1-2.2.2,4.1.1-4.1.7,4.2.4,3.1.1-3.1.3,3.2.1,6.4.1-6.4.3, Integrated Science SRN 1.2.1-1.2.5,1.3.1-1.3.5

Connecting Subjects and Syllabus References:

ICT JHS2: SRN 1.1.1-1.2.1, SRN 2.1.1-2.2.5,
English JHS2: SRN4.5.1, JHS3 Term Two: SRN 2.5.1-2.6.2,
French JHS1: SRN 01,

Project Objectives

Student(s) will:

Project Duration: One Term

Project Outputs

1. 'Magical' toys produced
2. Exhibitions of projects mounted
3. Procedure for making the toy documented.

Project Outcomes

1. Investigative, innovative, research, communicative and collaborative skills developed.
2. Skills in applying principles of electronics developed.

PROJECT 2

Project Title: My Bag of Many Colours

Project Brief: Students to design and make a modern and durable carrier bag to carry their school materials from off-cut fabrics.

Detailed Description Most students carry their school materials in their bare hands, armpit and sometimes on their heads to school. This sometimes results in their books getting torn and missing. Meanwhile there are certain materials in our communities which are discarded such as pieces of fabrics from the dressmaker's shop, water sachet bags, yoghurt and fan ice wrappers which can be put together to make carriers bags for students to carry their things. Students in groups visit dressmakers' shops to collect pieces of off-cut fabrics.

Leading Subject BDT(HE): SRN 3.1.2; 3.1.3; 2.2.1

Connecting Subjects and Syllabus References: English JHS2: SRN 4.5.1; JHS3 SRN 4.9.1;
ICT SRN 1.1.1-1.2.1, 2.1.1-2.2.5
Mathematics SRN 3.3.12; 3.3.3
Integrated Science SRN 1.3.1; 1.3.5

Project Objectives Students will

1. Pre-image a designed carrier bag.
2. Sketch the pre-imaged design.
3. Plan the design layout for making a school bag bearing in mind the principles and elements of design in the selection, making and use of fabrics.
4. Measure and cut out pattern pieces for the bag.
5. Use appropriate stitches to join the pieces together.
6. Mount an exhibition of products made

Project Duration One Term

Project Outputs

1. A school bag of many colours produced.
2. Step-by-step pictorial folder developed.
3. Exhibition of products mounted.

Project Outcomes

1. Sketching skills improved.
2. Skills in application of principles and elements of design improved.
3. Stitching skills improved.
4. Knowledge and skills in mounting exhibitions improved.

PROJECT 3

Project Title POPULATION: QUALITY NOT QUANTITY

Project Brief The present rate of growth of Ghana’s population is about 3%. This is likely to double in the next twenty-three years. This condition will put pressure on the natural and human resources, as well as the social amenities of the country. In this project, students design investigative and communicative strategies to help control the population growth.

Detailed Description Students in groups, take on the role of population experts to research the causes of high population growth rate in Ghana. In project teams, students undertake a survey to gather data using questionnaires developed with assistance from teachers, population officers, etc. They sketch the area and prepare write-ups of their findings on the population.

They put together their findings, analyse them and write a report on the study including the sketch map of their area and discuss in class.

Students role play a scenario to depict the effects of large population, discuss their findings of the study with stakeholders (school, community, and government officials) and mount exhibition of their reports and sketch maps of their area..

Leading Subject Social Studies JHS3: SRN 1.1.2-1.2.5
Connecting Subjects and SRN

1. Mathematics JHS 3 SRN 3.4.1 - 3.4.3
2. BDT JHS 1 SRN 4.1.1 - 4.1.6, 6.4.1, 6.4.3
3. Integrated Science SRN 5.1.2 - 5.1.3, 3.1.1 - 3.1.4
4. ICT JHS 1 SRN 3.1.2, 3.2.2, 2.2.1, 1.1.2, 2.3.1
5. English Language JHS 2 SRN 4.5.1, 4.6.1

Project Objectives Students will

1. Collect field data for analysis
2. Write a report on their findings on the population for discussion
3. Role play their findings through a scenario that depicts the effects of large population on available resources in the community.

Project Duration One Term

Project Outputs

1. Report on the study of population written and discussed.
2. Exhibition of works mounted.
3. A sketch (play) on effects of large population staged.
4. Findings of the study shared with stakeholders.
5. Sketch of population map.of their communities produced.

Project Outcomes

1. Skills in questionnaire development acquired.
2. Strategies for conducting surveys acquired.
3. Techniques for data analysis and interpretation learnt.
4. Appreciation of the need to control population growth developed.

PROJECT 4

Project Title: THE WISDOM POT

Project Brief: Students engage in creative writing on advocacy of moral values in society

Detailed Description: Every society in Ghana has values its members cherish. These values are transmitted from generation to generation through songs, folktales, poetry, etc. Today, however, society is confronted with moral decadence. In this project, students will produce folktales; cartoons, video clips, poems to educate members of the community on the benefits of upholding these moral values.

Leading Subjects

English Language JHS3: SRN 5.1.1; 5.2.1

1. French SRN 10.1.1
 SRN 10.3.1
 SRN 10.4.1
 SRN 10.5.1
2. Ghanaian Languages: JHS3 SRN 1.6.1-1.6.4

Connecting Subjects and References

1. R.M.E. SRN 1.1.1
 SRN 1.1.2
 SRN 1.1.3
2. Social Studies JHS2: SRN 1.1.4-1.1.6
3. Music & Dance SRN 2.2.1
4. ICT JHS3 (Term2) SRN 2.2.1-2.2.3
 ICTJHS2: 1.1.1-1.1.2

Project Objectives: Students will

1. Identify moral values in the society
2. Analyze the benefits of moral values on the individual, the family and the society
3. Suggest ways in which these moral values can be transmitted through folktales, poems, cartoons and videos
4. Present their productions during the school Open day.

Project Activities:

Students may use the following guidelines to undertake the project.

1. List as many as possible moral values that are expected in the community.
2. Identify traditional heroes (legendary/living)
3. Read newspapers, books, and search the internet, etc. to identify folktales which depict moral values
4. Determine the benefits of moral values to the individual, family and the society.
5. Suggest ways in which these values can be transmitted.,
6. Compose folktales,
7. Develop Cartoons
8. Produce a video clip on folktales
9. Organize an open day to exhibit final productions

Project Duration: Two Terms

Project Outputs

1. Folktales composed
2. Cartoons developed
3. Poems written
4. Video clips produced
5. Moral values shared with members of the community
6. Communicative-collaborative skills developed
7. Creativity, innovation and critical thinking skills developed

Project Outcomes

1. Moral values in society acquired
2. Strategies for transmitting moral values learnt
3. Knowledge of traditional heroes acquired

PROJECT 5

Project Title: GIVE ME A PASS'

Project Brief:: Students develop their own game with rules and organize a competition to educate the community about how cooperation among them could be emulated by the community to embark on a useful venture.

Detailed Description:

Students develop a game and give it a new name. The game has rules that portray interdependency and team work to achieve success. Successful organization of a game in a sport can be related to community interdependency to achieve common goals in ventures.

Leading Subject:

Physical Education (PE) JHS 2, SRN 2.2.1
Integrated Science JHS 1; SRN: 5.1.1 - 5.1.6

Connecting Subjects:

1. Music and Dance JHS 2 SRN: 2.2.2
2. Social Studies JHS 2 SRN: 1.2.2 - 1.1.6
3. ICT JHS 1; SRN: 2.3.1
4. French JHS 2: SRN: 7.4.1 - 7.4.3
5. BDT JHS 3; SRN: 1.1.1
6. Ghanaian Languages & Culture

Project Objectives: Students will

1. Explain roles played by teachers, coaches, players and individual supporters for the school team to perform well
2. Demonstrate roles of various players in an inter-class/sections competitions
3. Organize a match in the new game between groups from the class with supporters singing songs and displaying banners with inscriptions on morality (i.e., tolerance, cooperation, team work and interdependency)
4. Organize a public forum for opinion leaders to give a talk on how cooperation between school and community can help in achieving a venture in the community

Project Duration: Two Terms

The project should be organized in two parts. The first part carried out by the end of one term and the second part carried out by the end of the next term.

Project Outputs

1. Songs, poems and slogans composed
2. Placards and banners mounted
3. Competitions organized
4. A new game developed

Project Outcomes

1. The spirit of cooperation and interdependency developed
2. The spirit of mutual support developed
3. Knowledge about goal setting toward creation of a successful venture learnt

UNIT 8

SAMPLE ITEMS FOR CLASS ASSESSMENT TASKS (CATs)

The sample tasks presented in the pages that follow do not always consist of the total number of items required in the respective CATs. In many cases, less number of items as required in the CAT is provided for teachers as a guide to help them in developing their own assessment tasks for their classes.

Note that the teacher is required to look at the tables presented on pages 5-8 to see the areas of the subjects where test items for the CATs should be written. The tables also present the detailed mark allocation for each CAT and for the aspects of the CAT tested.

Answers to Items in the CATS

Note that no answers are provided for the items in any of the CATS in this Handbook. Teachers are expected to develop the answers themselves and also use every available resource to find out the correct answers.

The guidelines for setting Class Assessment Tasks in Integrated Science are presented below.

**GUIDELINES FOR WRITING
AND ADMINISTERING CLASS
ASSESSMENT TASKS**

IN

INTEGRATED SCIENCE

CAT 1 (CONT'D)	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION
<p>Explain how science and technology affect society. (SRN 1.1.6)</p>	<p style="text-align: center;">SECTION B SAMPLE ITEMS</p> <p>Students to explain how science and technology influence society.</p> <ol style="list-style-type: none"> 1. Group the workers in the box into natural scientists and social scientists. <div style="border: 1px solid black; padding: 5px; margin: 10px auto; width: fit-content;"> <p style="text-align: center;">Archeologist, Physicist, Lawyers, Politician, Pathologist, Chemist, Dentist, Electronic Engineer, Historian, Psychologist, Agriculturist, Nutritionist</p> </div> 2. State four differences between social science and natural science. 3. With the help of one example explain how the work of the social scientist supports the work of natural scientist. 4. Using a concept map, illustrate how a medical doctor uses the scientific method to treat a patient suffering from malaria. 5. Arrange the following activities a, b, c, d to show the order in which both scientist and social scientist follow to find solutions to problems. <ol style="list-style-type: none"> a. Analysis of data b. Observation c. Making inference d. Collection of data <p>NOTE: <i>The following items can also be considered.</i></p> <ol style="list-style-type: none"> 6. A crop scientist is experimenting to develop improved varieties of crops. Write out two benefits the society will derive from the scientist's experiment. 7. (a) Describe three ways by which mobile phones have benefited society. (b). Give one reason why you think mobile phones have negatively affected the society. 8. (a) Explain why science and technology usually go together (b) State three differences between technology and science. 	

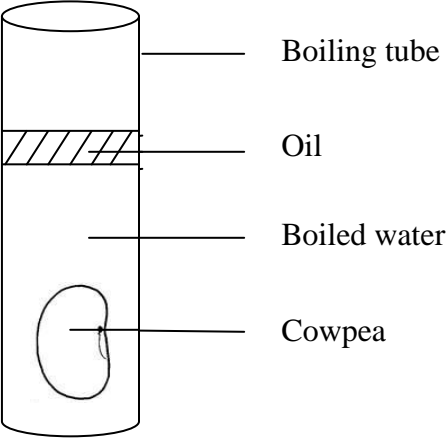
JHS 1 TERM 1

CAT 3	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION
<p>Distinguish between base and derived units and describe the measurement of mass temperature with the appropriate instrument. (SRN 1.3.3 & 1.3.4)</p>	<p>CAT 3 consists of 10 objective test items marked out of 20 and 5 structured questions to be scored 4 marks each. The objective items could be multiple choice, supply type items, or completion. Each item scored one mark. A number of sample objective and structured items have been provided to guide you. Follow the sample items to write your own items to complement the total number of items needed</p> <p style="text-align: center;">SECTION A</p> <p>Students to show differences between basic and derived units of measurement. Select information from the boxes to fill in the blank spaces for questions 1 and 2.</p> <ol style="list-style-type: none"> 1. The _____ is used in the measurement of the volume of water. (Note: use one of these terms to complete Q1 :Graduated cylinder, meter rule, a cup, tape measure) 2. The density of _____ is measured by applying the principle of displacement of fluids. (<i>Regular objects /irregular objects</i>) 3. Which of the following statements about measurement of units are not appropriate. <ol style="list-style-type: none"> A. measurement of mass using a micrometer screw gauge. B. measurement of temperature using hygrometer C. measurement of time in ms^{-2} D. measurement of luminous intensity in candela. 4. Which of the following statements explain why cooking oil floats on water? <ol style="list-style-type: none"> A. oil is heavier than water B. oil is lighter than water C. water is less dense than oil D. water is colourless while oil has colour 	

CAT 3	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION												
<p>Describe and explain the nature of soil and the importance of soil profile on crop production. (SRN 1.4.1 & 1.4.2)</p>	<p style="text-align: center;">SECTION B SAMPLE ITEMS</p> <ol style="list-style-type: none"> 1. Classify the following physical quantities into basic and derived units; mass, volume, time, weight, area, amount of substance, density, temperature. 2. Distinguish between derived and basic units using specific physical quantities. 3. Two students were asked to read the volume of a specific quantity of water in a measuring cylinder. They gave slightly different values. What could be the cause? 4. Describe how you will use a displacement can to find the density of alcohol. 5. The table below shows the mass and volume of three different substances A, B, and C. <table border="1" data-bbox="500 989 1166 1136" style="margin-left: auto; margin-right: auto;"> <thead> <tr> <th></th> <th>Mass(g)</th> <th>Volume(cm³)</th> </tr> </thead> <tbody> <tr> <td>A</td> <td>5</td> <td>20</td> </tr> <tr> <td>B</td> <td>35</td> <td>10</td> </tr> <tr> <td>C</td> <td>30</td> <td>15</td> </tr> </tbody> </table> <ol style="list-style-type: none"> i. Which of them A, B and C will sink in water and why? ii. Which of them A, B and C will float on water and why? iii. How can you make any one of A, B and C sink or float? <p>Note: Give only one reason for each question.</p> <p>Pupils to describe the nature of the soil and soil profile.</p> <ol style="list-style-type: none"> 6. Describe an experiment to show that soil contains water, air and mineral salts. 7. Explain how soil water, air and mineral salts contribute to the fertility of the soil. 8. Draw a soil profile and explain its importance in crop cultivation. 		Mass(g)	Volume(cm ³)	A	5	20	B	35	10	C	30	15	
	Mass(g)	Volume(cm ³)												
A	5	20												
B	35	10												
C	30	15												

JHS 1 TERM 2

CAT 5	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION																																																
<p>Classify crop plants on the basis of growth, life cycle and uses. (SRN2.1.1-2.2.3)</p>	<p>CAT 5 consists of 10 test items. The items must be multiple choice, supply type and completion of sentences. Each test item should be scored 1 mark. It should also have 5 structured test items to be scored 4 mark each. Sample test items have been provided to guide you to set the required number of test items needed. Follow the test items and write your own to meet the required number of test items.</p> <p>Pupils to describe plants according to the growth habit, life cycle and their uses.</p> <p style="text-align: center;">SECTION A</p> <p>1. Tick the mode of pollination of each of the plants listed in the table below:</p> <table border="1" data-bbox="440 930 1227 1493"> <thead> <tr> <th data-bbox="440 930 594 995">Plants</th> <th data-bbox="594 930 906 995">Self-Pollination</th> <th data-bbox="906 930 1227 995">Cross-Pollination</th> </tr> </thead> <tbody> <tr><td data-bbox="440 995 594 1026">Cocoa</td><td data-bbox="594 995 906 1026"></td><td data-bbox="906 995 1227 1026"></td></tr> <tr><td data-bbox="440 1026 594 1058">Cotton</td><td data-bbox="594 1026 906 1058"></td><td data-bbox="906 1026 1227 1058"></td></tr> <tr><td data-bbox="440 1058 594 1089">Pawpaw</td><td data-bbox="594 1058 906 1089"></td><td data-bbox="906 1058 1227 1089"></td></tr> <tr><td data-bbox="440 1089 594 1121">Mango</td><td data-bbox="594 1089 906 1121"></td><td data-bbox="906 1089 1227 1121"></td></tr> <tr><td data-bbox="440 1121 594 1152">Orange</td><td data-bbox="594 1121 906 1152"></td><td data-bbox="906 1121 1227 1152"></td></tr> <tr><td data-bbox="440 1152 594 1184">Tomato</td><td data-bbox="594 1152 906 1184"></td><td data-bbox="906 1152 1227 1184"></td></tr> <tr><td data-bbox="440 1184 594 1215">Pepper</td><td data-bbox="594 1184 906 1215"></td><td data-bbox="906 1184 1227 1215"></td></tr> <tr><td data-bbox="440 1215 594 1247">Hibiscus</td><td data-bbox="594 1215 906 1247"></td><td data-bbox="906 1215 1227 1247"></td></tr> <tr><td data-bbox="440 1247 594 1278">Okro</td><td data-bbox="594 1247 906 1278"></td><td data-bbox="906 1247 1227 1278"></td></tr> <tr><td data-bbox="440 1278 594 1310">Sorghum</td><td data-bbox="594 1278 906 1310"></td><td data-bbox="906 1278 1227 1310"></td></tr> <tr><td data-bbox="440 1310 594 1341">Maize</td><td data-bbox="594 1310 906 1341"></td><td data-bbox="906 1310 1227 1341"></td></tr> <tr><td data-bbox="440 1341 594 1373">Rice</td><td data-bbox="594 1341 906 1373"></td><td data-bbox="906 1341 1227 1373"></td></tr> <tr><td data-bbox="440 1373 594 1404">Wheat</td><td data-bbox="594 1373 906 1404"></td><td data-bbox="906 1373 1227 1404"></td></tr> <tr><td data-bbox="440 1404 594 1436">Millet</td><td data-bbox="594 1404 906 1436"></td><td data-bbox="906 1404 1227 1436"></td></tr> <tr><td data-bbox="440 1436 594 1467">cowpea</td><td data-bbox="594 1436 906 1467"></td><td data-bbox="906 1436 1227 1467"></td></tr> </tbody> </table> <p>2. Which of the following plants are cultivated for ornamental purposes? A. Bougainvillea B. Elephant grass C. Guinea corn D. Spinach</p> <p>3. Which of the following pairs of crops are stem tubers? A. Cassava and yam B. Cocoyam C. Cocoyam and yam D. Potato and Carrot</p>	Plants	Self-Pollination	Cross-Pollination	Cocoa			Cotton			Pawpaw			Mango			Orange			Tomato			Pepper			Hibiscus			Okro			Sorghum			Maize			Rice			Wheat			Millet			cowpea			<p>30 marks</p>
Plants	Self-Pollination	Cross-Pollination																																																
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CAT 5	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION
<p>Classify crop plants according to their growth cycle, uses and describe the life cycle of flowering plants. (SRN 2.1.1. & 2.1.2)</p>	<p style="text-align: center;">SECTION B</p> <p>1a. Explain the terms: annuals, biennials and perennials. 1b. Classify each of the following crops as annuals, biennials and perennials: Cocoa, maize, coffee, cassava, yam, tomato, plantain and okro.</p> <p>2. Rearrange the following stages of the life cycle of Flowering: plants in the order in which they occur in nature: Fertilization, flowering, fruit and seed formation, pollination, seed germination, seed dispersal, seed maturation, seedling and planting.</p> <p>3. (a) Explain the meaning of seed germination. (b) What 3 environmental conditions favour seed germination? (c) The diagram below illustrates an experiment on germination of a bean seed. Study it carefully and use it to answer the questions that follow.</p> <div style="text-align: center;">  <p>The diagram shows a vertical boiling tube. The top portion is empty. Below that is a layer of oil, indicated by diagonal hatching. Below the oil is a layer of boiled water. At the bottom of the tube, a cowpea seed is shown, partially submerged in the water. Labels with leader lines point to the 'Boiling tube', 'Oil', 'Boiled water', and 'Cowpea'.</p> </div> <p>(i) What is the aim of this experiment? (ii) What will happen to the cowpea seed at the end of the experiment? (iii) Explain your answer in (ii) (iv) What conclusion can you draw from this experiment?</p>	




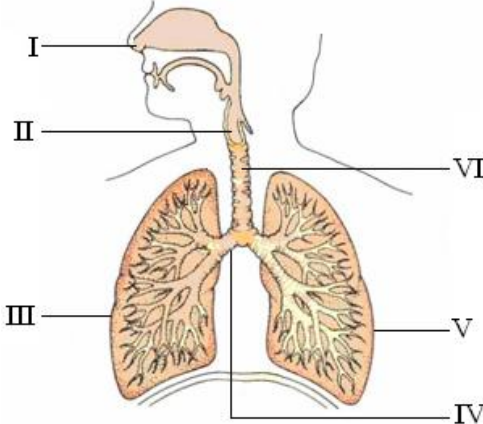






CAT 5 (CONT'D)	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION
	<p>4. Describe the life-cycle of a named flowering plant: Use diagrams to show what happens at each stage of the life cycle.</p> <p>5. Explain how each of the following factors influence vegetable production.</p> <ul style="list-style-type: none">(i) soil(ii) climate <p>6. Explain the term: pollination.</p> <ul style="list-style-type: none">ii. Distinguish between self-pollination and cross-pollination	

JHS 1 TERM 2

CAT 6	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION
<p><u>Group exercise:</u> State the importance of vegetable crops to humans and explain the factors influencing vegetable crop production. (SRN 2.2.1 & 2.2.2)</p> <p>Outline the importance of fish farming and describe the conditions suitable for rearing tilapia. (SRN 2.3.2 & 2.3.3)</p>	<p>CAT 6 is a group exercise consisting of three tasks. Divide the class into three and assign one task to each group. The members of each group must be of mixed ability and in mixed schools gender balanced. Use double period for the task and assign 30 marks to each deserving group work. Advance preparation should precede the exercise to enable the students complete the activity within the stipulated period. Each group must select a leader and a recorder. Each member should be encouraged to actively participate in the activity. Group reports must be exhibited and discussed dispassionately.</p> <p>Pupils to explain the basic units of matter, and to bring out basic differences between plants and animals.</p> <p>Group 1</p> <ul style="list-style-type: none"> • Discuss how a farmer’s knowledge about the life cycle of an okro plant is important in the production of the crop. Present a group report.(diagram of life cycle to be included) <p>Group 2</p> <ul style="list-style-type: none"> • Develop a poster with 10 messages to advise farmers against the use of polluted water in vegetable crop production. • Mention three vegetable growing communities in Ghana where this message could be disseminated. <p>Group 3 Students to describe the importance and conditions of fish farming.</p> <ul style="list-style-type: none"> • Brainstorm to list and report on the importance of tilapia farming in Ghana under the following headings: <ul style="list-style-type: none"> - Employment opportunities - Food supply • Tilapia farming can be practised in lagoons and river water; while mudfish can only be reared in river water. Give reasons for these differences. 	<p>30 marks</p>

JHS 1 TERM 2

CAT 7	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION
Distinguish between the two types of respiration (aerobic and anaerobic) (SRN 3.1.1-3.1.2)	<p>CAT 7 consist 10 objective questions to be scored 1 mark each and 10 structured test items to be scored 5 marks each. A number of sample test items have been provided to guide you to set more items to meet the required number of items.</p> <p style="text-align: center;">SECTION A SAMPLE ITEMS</p> <p>Students to explain:</p> <p>(a) aerobic and anaerobic respiration system. (b) identify hazard symbols and their meaning and protective measures for each hazard.</p> <ol style="list-style-type: none"> 1. Which of the following organs does not belong to the respiratory system? <ol style="list-style-type: none"> A. Lungs B. Trachea C. Tympanic membrane D. Wind pipe 2. Which of the following statements best describes tissue respiration? <ol style="list-style-type: none"> A. Respiration in the presence of carbon dioxide B. Respiration in the presence of oxygen C. Breathing air through the nose. D. Exchange of gases in the lungs. 3. After _____ glucose is absorbed into the blood stream and then broken down to release energy during _____ 4. The food nutrient broken down to release energy during respiration is _____ <ol style="list-style-type: none"> A. Vitamin B. Amino acid C. Glucose D. Mineral salts 	60 marks

CAT 7 (CONT'D)	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION												
<p>Explain the term hazard, identify and interpret hazard warning symbols in science and safety precautions to be adopted to prevent the identified hazard (SRN 1.5.1-1.5.3)</p> <p>Draw and label the human respiratory system and distinguish between the two types of respiration. (SRN 3.1.1 & 3.1.2)</p>	<p style="text-align: center;">SECTION B SAMPLE ITEMS</p> <p>1. Study and complete the table below:</p> <table border="1" data-bbox="462 493 1214 1161"> <thead> <tr> <th data-bbox="462 493 690 562">Hazard symbol</th> <th data-bbox="690 493 889 562">Meaning</th> <th data-bbox="889 493 1214 562">Protective measure(s) against hazard</th> </tr> </thead> <tbody> <tr> <td data-bbox="462 562 690 762" style="text-align: center;"></td> <td data-bbox="690 562 889 762"></td> <td data-bbox="889 562 1214 762"></td> </tr> <tr> <td data-bbox="462 762 690 961" style="text-align: center;"></td> <td data-bbox="690 762 889 961"></td> <td data-bbox="889 762 1214 961"></td> </tr> <tr> <td data-bbox="462 961 690 1161" style="text-align: center;"></td> <td data-bbox="690 961 889 1161"></td> <td data-bbox="889 961 1214 1161"></td> </tr> </tbody> </table> <p>2. The diagram below illustrates the human respiratory system.</p> <p>i). Label the parts ii). Give one function each of the labeled part.</p> <div style="text-align: center;">  </div> <p>3. (i) List three diseases associated with the respiratory system. (ii) State one possible cause of each of the diseases listed in (i) above.</p> <p>4. Explain the following statement: Blockage of the respiratory track is always dangerous.</p>	Hazard symbol	Meaning	Protective measure(s) against hazard										
Hazard symbol	Meaning	Protective measure(s) against hazard												
														
														
														

JHS 1 TERM 3

CAT 9	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION
<p>Describe the composition and types of transistors. (SRN 4.3.1-4.3.2)</p> <p>Describe the composition and types of transistor and describe the characteristics of a transistor. (SRN 4.3.1 & 4.3.2)</p> <p>State the forms of energy and give reasons for conserving energy. (SRN 4.2.1 & 4.2.3)</p>	<p>CAT 9 consists of 10 objective test items. The items should be multiple choice, supply type and completion of sentences. Award 1 mark to each item answered correctly. Five structured items should also be set and awarded 4 marks each. A number of sample items have been provided to guide you set your own to meet the required number of test items.</p> <p style="text-align: center;">SECTION A</p> <p>1. The active region of a transistor is for (a)Emitting electrons (b)Collecting electrons (c)Balancing electrons (d)Amplifying electrons</p> <p style="text-align: center;">SECTION B</p> <p>1. Explain the following terms associated with the way transistors operate: a. Forward bias b. Reverse bias c. Avalanche state</p> <p>2. Distinguish between a diode and a transistor.</p> <p>3. Use a flow chart to show how chemical energy is converted to electrical, light and sound energies.</p> <p>4. List four different types of energy and state their sources.</p> <p>5. Use a flow chart to show how energy stored in Volta Lake is converted to light in a bulb.</p> <p>6. State two ways by which energy is conserved in the home.</p> <p>7. Explain the following statement: Energy generated by Akosombo dam can be conserved.</p>	<p>30 marks</p>

JHS 1 TERM 3

CAT 10	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION
<p>Demonstrate the rectilinear propagation of light and relate it to opaque, translucent and transparent objects. (SRN 4.4.2-4.4.3)</p>	<p>CAT 10 consists of group exercises of four tasks. Divide the class into four groups and let each group select one task and work on it for a double period. Ensure that each group has mixed ability and gender equity in mixed schools. Thirty marks should be awarded in accordance to the quality of work produced. Advance preparation should be done to enable students complete the work within the stipulated period. Each group must select a leader and a recorder to control and keep records of the work. Group reports must be exhibited and discussed in class.</p> <p>Group 1</p> <ol style="list-style-type: none"> Explain the concept of rectilinear propagation of light. Show the factors which allow this concept to work in a chosen environment. Demonstrate how the rectilinear propagation of light is used in the operation of a pin hole camera. <p>Note: illustrate the demonstration in (iii)</p> <ol style="list-style-type: none"> What will you do to change the direction of a light ray moving in a straight line? List the material you will use to do this. <p>Group 2</p> <ol style="list-style-type: none"> A liquid is translucent and does not allow light to freely pass through it. What will you do to make the liquid transparent? Draw a lamp shade that will cause a transparent light bulb to produce a translucent shady light in a room. <p>Group 3</p> <ol style="list-style-type: none"> Draw a diagram to show how total eclipse is formed. Explain why light may change path when it enters different media Explain why a stick standing in a pond is seen bent. Use diagrams to illustrate it. <p>Group 4</p> <ol style="list-style-type: none"> Discuss refraction and reflection of light. Give reasons why a fish in a pond appears to be closer to the surface than it is real. State 2 applications each of refraction and reflection of light in everyday life. 	<p>30 marks</p>

JHS 1 TERM 3

CAT 11	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION
<p>Define ecosystem and describe the characteristics of different habitats. (SRN 5.1.1 & 5.1.2)</p>	<p>CAT 11 consists of ten objective test items to be awarded 2 marks each and 5 structured questions to be awarded 4 marks each. A number of sample test items have been provided to guide you to set more test items to meet the required number.</p> <p style="text-align: center;">SECTION A</p> <ol style="list-style-type: none"> 1. Which of the organisms listed below is a producer in a food chain? <ol style="list-style-type: none"> A. Housefly B. Orange plant C. Seagull D. Spider 2. Which of the following organisms lives in an aquatic habitat. <ol style="list-style-type: none"> A. Ostrich B. Cow C. Tilapia D. Horse <p style="text-align: center;">SECTION B</p> <ol style="list-style-type: none"> 1. List three features that enable a fish to adapt to aquatic habitat. 2. State three characteristics that make a rain forest different from a savanna ecosystem? 3. Explain the terms (i) food chain (ii) food web. 4. Explain the following terms associated with food chain and food web. <ol style="list-style-type: none"> (i) Primary producer (ii) Primary consumer (iii) Secondary consumer 5. Draw a simple food chain to show how the energy from the sun is transferred to a lion in a forest. 6. Explain the following terms: <ol style="list-style-type: none"> i. Aquatic habitat ii. Terrestrial habitat iii. Arboreal habitat 	<p>40 marks</p>

JHS 2 TERM 1

CAT 1	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION
<p>Classify materials into elements, mixtures and compounds,</p> <p>Write the chemical symbols for the 1st 20 elements</p> <p>Draw the structure of an atom. (SRN 1.1. 1 & 1.1.3)</p>	<p>CAT 1 consist s of 10 objective questions, completion and supply type items to be scored 1 mark each. In addition there should be 5 structured test items to be scored 4 marks each.</p> <p style="text-align: center;">SECTION A</p> <ol style="list-style-type: none"> 1. A uniform mixture of two or more metals is referred to as <ol style="list-style-type: none"> A. alloy B. compound C. solvent D. suspension 2. Which of the following liquids cannot dissolve an oily paint for spraying cars? <ol style="list-style-type: none"> A. kerosene B. petrol C. turpentine D. water 3. A mixture of iron filings and sulphur powder when strongly heated forms a compound called <ol style="list-style-type: none"> A. Iron powder B. Iron(II) sulphide C. Iron(III) sulphide D. Iron sulphate 4. Which of the following properties of non-metals are correct? <ol style="list-style-type: none"> A. They can be bent and stretched without breaking, are strong and conduct heat and electricity B. They have low melting and boiling point, have dull surfaces and do not conduct heat and electricity C. They have shiny surfaces especially when freshly cut, conduct heat but not electricity D. They react with bases but not acids, conduct heat but not electricity 5. An example of a liquid-liquid mixture is <ol style="list-style-type: none"> A. sea water. B. brass. C. crude oil. D. smoke. 	<p>30 marks</p>

JHS 2 TERM 1

CAT1 (CONT'D)	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION
<p>Draw and label the structure of an atom (SRN 1.1.3)</p> <p>Group the first twenty elements of the periodic table into metals and non-metals (SRN 1.2.1)</p>	<p style="text-align: center;">SECTION B</p> <ol style="list-style-type: none"> 1. (a) Explain the terms: (i) compound (ii) element (b) Give two properties of compounds (c) Explain why powdered chalk in water is not a compound 2. Write down the chemical formulae for the compounds that will be formed when the following pairs of elements react: <ol style="list-style-type: none"> i. Sulphur and Iron, ii. Hydrogen and Oxygen. iii. Sodium and chlorine 3. i. Name two factories that use compounds as raw materials ii. What are the raw materials? iii. state two differences between compounds and mixtures iv. Give 2 examples each of compounds and mixtures A. What are their products? 4. Draw the sodium atom and show how its electrons are distributed among the shells 5. (a). Name three (3) subatomic particles and indicate where each is located in the atom. (b). Indicate also the charges on each subatomic particle. 6. Classify the following elements as metals or non-metal: Lithium, Phosphorus, Carbon, Silicon, Chlorine, Magnesium, Hydrogen, Calcium, Oxygen, and Sodium. 7. State three (3) differences between metals and non-metals. 8. State the difference between a chemical symbol and a chemical formula. 9. (a) Differentiate between an atom and an ion (b) Explain why a sodium ion carries a positive charge but sodium atom does not. 	

CAT1 (CONT'D)	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION																				
	<p>9. How does painting an iron bar prevent it from rusting?</p> <p>10. Study the table below and answer the questions that follow:</p> <table border="1" data-bbox="485 636 1203 873"> <thead> <tr> <th>Atom</th> <th>Number of protons</th> <th>Number of neutrons</th> <th>Number of electrons</th> </tr> </thead> <tbody> <tr> <td>W</td> <td>3</td> <td>4</td> <td>3</td> </tr> <tr> <td>X</td> <td>8</td> <td>10</td> <td>10</td> </tr> <tr> <td>Y</td> <td>19</td> <td>20</td> <td>18</td> </tr> <tr> <td>Z</td> <td>1</td> <td>0</td> <td>1</td> </tr> </tbody> </table> <p>(a) Which atom(s) has a net positive charge and why?</p> <p>(b) Which atom has a net negative charge and why?</p> <p>(c) Which atom(s) is neutral and why?</p>	Atom	Number of protons	Number of neutrons	Number of electrons	W	3	4	3	X	8	10	10	Y	19	20	18	Z	1	0	1	
Atom	Number of protons	Number of neutrons	Number of electrons																			
W	3	4	3																			
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JHS 2 TERM 1

CAT 2	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION
<p>Group exercise</p> <p>SRN 1.2.4-1.2.5</p>	<p>CAT 2 consists of 3 group tasks. Divide the class into 3 groups or six groups (High class size) and let 2 groups' pair to work on a task. Encourage mixed ability and gender equality in the grouping. Advance preparation should be done to enable the students complete their activities in a double period. Each group should have a leader and a recorder to ensure accurate report is done.</p> <p>Group 1</p> <ol style="list-style-type: none"> i. Explain the term corrosion ii. Discuss the conditions necessary for corrosion to occur. iii. Demonstrate how to remove rust from a piece of iron metal, and show how to prevent iron from rusting. iv. Write a report. <p>Group 2</p> <ol style="list-style-type: none"> i. Discuss the methods used to separate a mixture of sand and granulated common salt. ii. Sketch the different separation set-ups you will use. iii. If you use any solvent in the process, how will you get it back? iv. Write a report to present to class. <p>Group 3</p> <ol style="list-style-type: none"> i. Water is purified on commercial basis by passing it through filter beds. ii. Discuss how a filter bed is prepared. iii. Make a miniature filter bed and use it to filter dirty water. iv. Sketch and label the bed you have made. v. Present a report to class. 	<p>30 marks</p>

JHS 2 TERM 1

CAT 3	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION
	<p>CAT 3 consists of 10 objective questions, completion and supply type items to be scored 1 mark each. In addition there should be 5 structured test items to be scored 4 marks each.</p> <p style="text-align: center;">SECTION A</p> <ol style="list-style-type: none"> Which of the following chemical symbols represent sodium and potassium respectively? <ol style="list-style-type: none"> K and Na P and Na S and K S and P Silicon is described as a semimetal because <ol style="list-style-type: none"> it comes before the metals on the periodic table it comes after the metals it exhibits some property of both metals and non-metals. between the first element and the tenth element Which of the following processes will you use to separate a mixture of sand and iodine? <ol style="list-style-type: none"> Evaporation Filtration Magnetization Sublimation Which of the following equations represent a balanced chemical reaction between sodium and chlorine? <ol style="list-style-type: none"> $\text{Na} + \text{Cl} \rightarrow \text{NaCl}$ $\text{Na} + \text{Cl}_2 \rightarrow \text{NaCl}_2$ $2\text{Na} + \text{Cl} \rightarrow \text{Na}_2\text{Cl}$ $2\text{Na} + \text{Cl}_2 \rightarrow 2\text{NaCl}$ What is the best method for making hard water soft? <ol style="list-style-type: none"> Addition of alum Boiling Distillation Filtration Solute + solvent \rightarrow _____ 	<p>30 marks</p>

CAT 3 (CONT'D)	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION
	<p>SECTION B</p>	
SRN 1.3.3	1. Write the systematic names of the following compounds. Al_2O_3 , CaCl_2 , Cu_2O , FeS	
SRN 1.3.5	2. Balance the following chemical equations. $\text{N}_2 + \text{H}_2 \rightarrow \text{NH}_3$ $\text{Al} + \text{O}_2 \rightarrow \text{Al}_2\text{O}_3$ $\text{Na} + \text{Cl}_2 \rightarrow \text{NaCl}$	
SRN 1.4.1	3. Give one example of each of the following mixtures. (i) solid - solid mixture (ii) solid - liquid mixture (iii) solid - gas mixture (iv) liquid - liquid mixture (v) gas - gas mixture (vi) liquid - gas mixture	
SRN 1.4.5	4. Explain why it is difficult to separate the following substances after they have formed mixtures. (i) Calcium carbide and water. (ii) An acid and a base.	
SRN 1.5.1	5. (a) Describe three properties of water. (b) Explain the term, hard water. (c) It is not advisable to wash clothes with hard water? Why?	
SRN 2.1.2	6. Explain how human activities cause a disruption in the carbon cycle	
	7. Identify the solvent and solute in the following mixtures. (i) Sodium chloride solution (ii) an alloy of copper and zinc in which the copper is more than zinc	
	8. (i) There are two types of hard water. These are ___ and ___ (ii) Give three properties of hard water. (iii) Describe three ways of softening hard water.	

JHS 2 TERM 2

CAT 5	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION
<p>Distinguish between weather and climate and explain that weather and climate happens in a cycle form (SRN 2.2.1 & 2.2.2)</p> <p>Relate climate to vegetation zones. (SRN 2.2.5)</p>	<p>CAT 5 consists of 10 objective questions, completion and supply types of test items to be scored 1 mark each. It should also contain 5 structured test items to be scored 4 marks each. A number of sample test items are provided to guide you to produce enough test items to meet the required number.</p> <p style="text-align: center;">SECTION A</p> <p>1. Which of the following factors determine the weather in a particular day in a selected area</p> <ul style="list-style-type: none"> I. Sunshine and wind II. Air pressure and rainfall III. Climate and Clouds <p>(A). I, II and III (B). I and II only (C). II and III only (D). III only</p> <p>2. Which of the following equipment is used for measuring the speed of the wind?</p> <ul style="list-style-type: none"> A. Anemometer B. Rain gauge C. Thermometer D. Wind Vane 	<p>30 marks</p>

JHS 2 TERM 2

CAT 5 (CONT'D)	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION
	<p style="text-align: center;">SECTION B</p> <ol style="list-style-type: none"> 1. (a) Describe the conditions that exist in forest belts under the following: <ol style="list-style-type: none"> i. Temperature ii. Rainfall iii. Humidity (b) List two crops associated with each of the following vegetation zones. <ol style="list-style-type: none"> (i) Northern Savanna grassland (ii) Semi deciduous forest (iii) Coastal Savannah grassland 2. Tabulate four differences between the male and female reproductive systems in humans. 3. Explain the following statement: identical twins are not gifts from gods. Give scientific reasons why the statement is not true. 4. Use a future's wheel to trace the effects of teenage pregnancy. 	

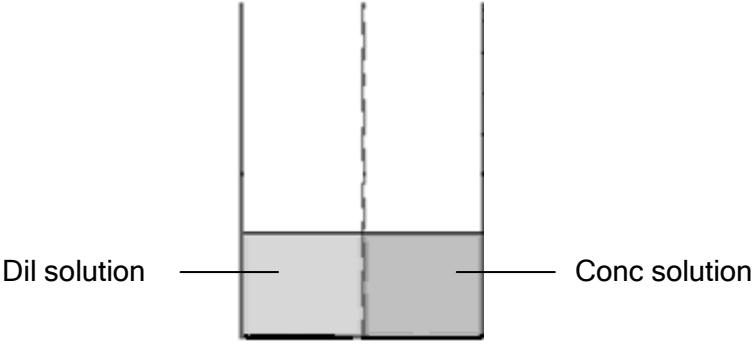
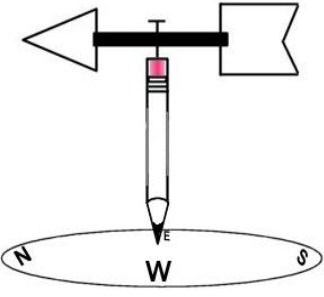
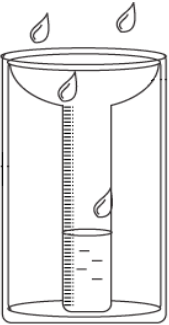

JHS 2 TERM 2

CAT 6	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION
SRN 1.5.1-1.5.3	<p>CAT 6 is a group exercise consisting of four tasks. Group the class into 4 groups. Adequate advance preparation should be made to enable the students complete the activities in a double period. Each group must have a leader and a recorder. Ensure full participation of all the members in each group. Encourage mixed ability grouping and gender equality among the groups. Each group should prepare a report for class discussion.</p> <p>Group 1</p> <ol style="list-style-type: none"> 1. You have been given three 500ml beakers labeled A, B and C. 2. One contains rain water, another contains river water and the other contains well water but not in that order. In addition to the above, you are also given liquid soap, boiling tubes and heat source. 3. Demonstrate how you will identify each source of water. 4. Pour 30ml of A into a boiling tube. 5. Repeat the procedure in (4) for B and C. 6. Add three (3) drops of the liquid soap to each boiling tube. Shake vigorously and allow each to stand. 7. Watch the suds that form in each tube. 8. Which of the suds stayed for a long time? 9. Take fresh samples of the two sources of water which gave fewer suds. Heat to boil and leave the tubes to cool. 10. Add three (3) drops of liquid soap to these two boiling tubes with 30ml of their respective sources of water. 11. Shake vigorously and allow them to stand. 12. Which source of water gave the greater amount of suds? 13. Which of the two suds formed stayed for a long time? 14. What inferences can you make from this experiment? 	30 marks

JHS 2 TERM 2

CAT 6 CONT'D	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION
<p>Acids and bases SRN 1.1.1-1.1.4</p> <p>Demonstrate the process of diffusion. (SRN 3.3.1)</p>	<p>Group 2 D and E are two different colourless solutions of equal concentration.</p> <p>(i) Pour 10ml of solution D into a test tube and label it D. What effect does solution D have on blue or red litmus paper?</p> <p>(ii) Pour 10ml of solution E into a test tube and label it E. What effect does solution E have on blue or red litmus paper?</p> <p>(iii) Now mix D and E in the test tube F to form 20ml solution. What effect does solution F have on blue or red litmus paper?</p> <div data-bbox="646 743 943 1052" style="text-align: center;"> <p style="text-align: center;">D E F</p> </div> <p>(iv) What reaction has taken place between D and E to form F?</p> <p>(v) What chemicals are in solution F?</p> <p>(vi) How will you separate the components of solution F?</p> <p>(vii) Write the word equation for the reaction that takes place when D and E reacted to form solution F.</p> <p>Note: D should be dil HCl acid of conc. 0.1 moldm^{-3} E should be dil NaOH of conc 0.1 moldm^{-3}</p> <p>Group 3 Discuss osmosis and diffusion and state two differences between them. The group will study the diagram below which shows a vessel containing concentrated and dilute solution separated by a semi-permeable membrane. They will draw a similar diagram to show the liquid levels after an hour or two. Write a report.</p>	

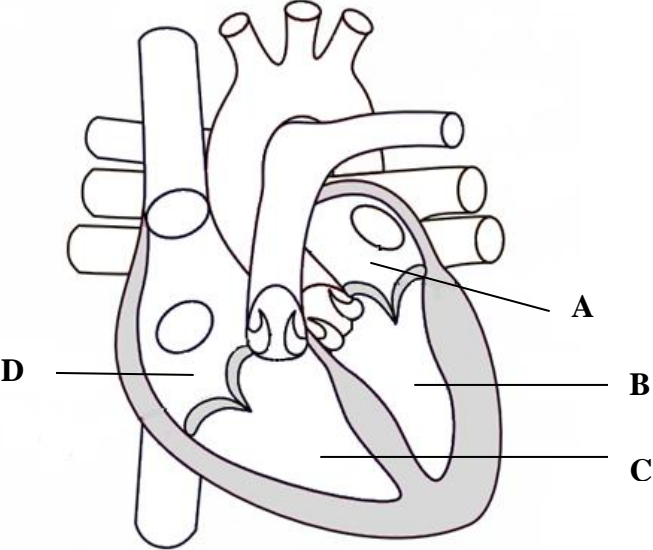
JHS 2 TERM 2

CAT 6 CONT'D	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION
<p>(SRN 2.2. -2.2.5)</p>	<p style="text-align: center;">Membrane</p> 	
	<p>Group 4 The figures below show three different weather measuring instruments (X, Y and Z). Study them carefully and answer the questions that follow:</p> <div style="display: flex; justify-content: space-around; align-items: center;"> <div style="text-align: center;">  <p>X</p> </div> <div style="text-align: center;">  <p>Y</p> </div> <div style="text-align: center;">  <p>Z</p> </div> </div> <ol style="list-style-type: none"> i. Identify the instruments X, Y and Z. ii. State one function each of X, Y and Z. iii. Describe how each instrument is used to measure a specific weather condition. iv. Use local materials to construct X and Z. v. Demonstrate the uses of X and Y. 	

JHS 2 TERM 2

CAT 7	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION
<p>Outline the functions of the parts of the circulatory system.</p> <p>Describe the composition and functions of the human blood. (SRN 3.4.2)</p>	<p>CAT 7 consist 10 objective questions to be scored 1 mark each and 10 structured test items to be scored 5 marks each. A number of sample test items have been provided to guide you to set more items to meet the required number of items.</p> <p style="text-align: center;">SECTION A</p> <p>1. Failure of a plant to obtain CO₂ results in its inability to</p> <ol style="list-style-type: none"> A. reproduce B. make food C. get rid of waste D. absorb minerals <p>2. Which of the following statements about the circulatory system of mammals is correct?</p> <ol style="list-style-type: none"> A. The pulmonary artery carries oxygenated blood from the heart to the lungs. B. The pulmonary vein carries oxygenated blood from the lungs to the heart. C. The pulmonary vein carries deoxygenated blood from the lungs to the heart. D. The pulmonary artery carries deoxygenated blood from the heart to the limbs. <p>3. Which of the following food items are all energy producing foods substances?</p> <ol style="list-style-type: none"> A. Kenkey and fish B. Maize porridge and bread C. Rice and gizzard D. Yam and fish <p>4. All the following factors are necessary for photosynthesis except</p> <ol style="list-style-type: none"> A. Carbon dioxide B. Oxygen C. Sunlight D. Water <p>5. In heredity, which of these diseases is not inherited?</p> <ol style="list-style-type: none"> A. Colour blindness B. Diabetes C. Night blindness D. Sickle cell 	<p style="text-align: center;">40 marks</p>

JHS 2 TERM 2

CAT 7	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION
	<p style="text-align: center;">SECTION B</p> <p>The diagram below shows the human heart with chambers labeled A,B,C,D. Study and use it to answer question 1</p>  <p>1. (a) The heart has four chambers labelled A, B, C and D. Name them. (b) Which of the chambers receive blood? (c) From which chambers does blood leave the heart? (d) Trace the diagram of the heart and label the aorta, vena cava, left and right atriums and left and right ventricles.</p> <p>2. (a) Which organs system support the efforts of the circulatory system? Give reasons for your answer. (b) List two diseases associated with the circulatory system</p> <p>3. Distinguish between the functions of the red blood cell and the white blood cell.</p> <p>4. (a) What is meant by a balanced diet? (b) Plan a day's menu showing: i. balanced diet ii. poor diet</p> <p>5. Mention three differences between osmosis and diffusion.</p>	

JHS 2 TERM 2

CAT 7 (CONT'D)	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION																													
<p>Explain why the sun is the source of energy for plants and animals. (SRN 4.1.1 & 4.1.2)</p> <p>Classify food items based on nutritional value and their importance to humans.</p>	<p>6. (a) What does photosynthesis do? (b) Where does it occur in the plant?</p> <p>7. Write down the word equation for the process of photosynthesis.</p> <p>8. Explain why photosynthesis is the major process that produces energy for both plants and animals.</p> <p>9. State two differences between photosynthesis and respiration?</p> <p>10. List the factors necessary for photosynthesis to occur.</p> <p>11. Complete the following table by ticking (v) the appropriate food substance in the column.</p> <table border="1" data-bbox="430 1066 1256 1419"> <thead> <tr> <th data-bbox="430 1066 649 1283" rowspan="2">Type of food substance</th> <th colspan="4" data-bbox="649 1066 1256 1100">Uses in the body</th> </tr> <tr> <th data-bbox="649 1100 803 1283">Promote growth and repair of cells</th> <th data-bbox="803 1100 958 1283">Provides defense against disease</th> <th data-bbox="958 1100 1101 1283">Provides energy</th> <th data-bbox="1101 1100 1256 1283">Aids in digestion</th> </tr> </thead> <tbody> <tr> <td data-bbox="430 1283 649 1316">Protein</td> <td data-bbox="649 1283 803 1316"></td> <td data-bbox="803 1283 958 1316"></td> <td data-bbox="958 1283 1101 1316"></td> <td data-bbox="1101 1283 1256 1316"></td> </tr> <tr> <td data-bbox="430 1316 649 1350">Carbohydrates</td> <td data-bbox="649 1316 803 1350"></td> <td data-bbox="803 1316 958 1350"></td> <td data-bbox="958 1316 1101 1350"></td> <td data-bbox="1101 1316 1256 1350"></td> </tr> <tr> <td data-bbox="430 1350 649 1383">Vitamins</td> <td data-bbox="649 1350 803 1383"></td> <td data-bbox="803 1350 958 1383"></td> <td data-bbox="958 1350 1101 1383"></td> <td data-bbox="1101 1350 1256 1383"></td> </tr> <tr> <td data-bbox="430 1383 649 1419">Fibres</td> <td data-bbox="649 1383 803 1419"></td> <td data-bbox="803 1383 958 1419"></td> <td data-bbox="958 1383 1101 1419"></td> <td data-bbox="1101 1383 1256 1419"></td> </tr> </tbody> </table>	Type of food substance	Uses in the body				Promote growth and repair of cells	Provides defense against disease	Provides energy	Aids in digestion	Protein					Carbohydrates					Vitamins					Fibres					
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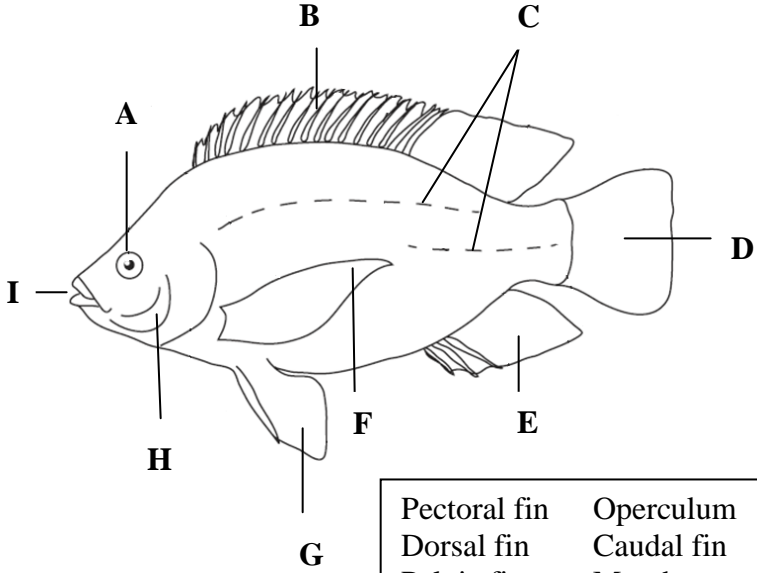
JHS 2 TERM 3

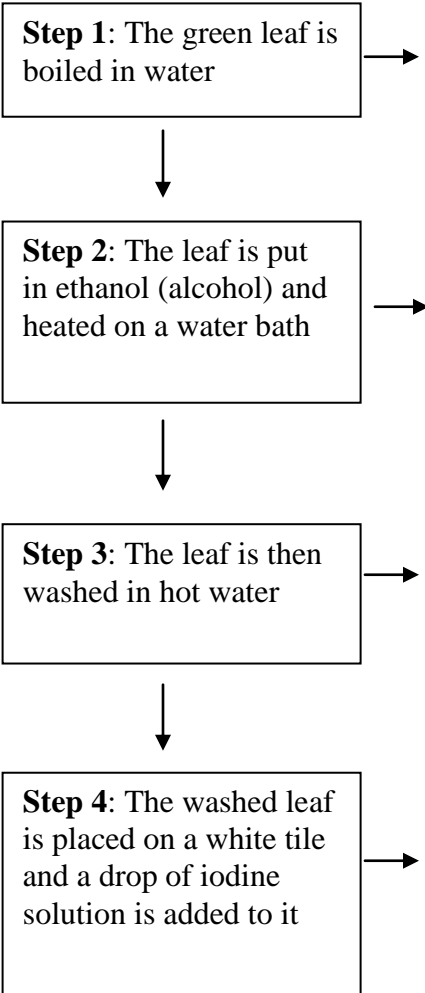
CAT 9	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION
<p>Describe components of electrical and electronic circuits and ways of generating electrical energy.</p> <p>Identify common infectious diseases and describe their symptoms. (SRN 5.2.1)</p>	<p style="text-align: center;">SECTION B</p> <ol style="list-style-type: none"> 1. (a). List three ways of generating electrical energy. (b). State two uses of transistors. 2. Classify the following as chemical or physical change. <ol style="list-style-type: none"> (i) Baking of bread (ii) Distillation of palm wine (iii) Melting of candle wax (iv) Rusting of iron (v) Burning of wood (vi) Freezing of water to form ice (vii) Smoking fish (viii) Making salt from sea water (ix) Heating a mixture of iron filings and sulphur 3. Group the following diseases under infectious and non-infectious: Cancer, goiter, HIV/AIDS, Anthrax, Tuberculosis (TB) and Diabetes 4. (i) What is a chemical compound? (ii) Give two properties of compounds (iii) Write down the systematic names and chemical formula for the compounds that will form between the following elements: <ol style="list-style-type: none"> (a) Nitrogen and Hydrogen (b) Magnesium and Oxygen 5. Differentiate between ecto-parasites and endo-parasites of farm animals and give two examples of each. 6. (a) Explain the term 'pressure'. (b) State three applications of pressure in everyday life. 7. (a). A person weighing 1000N wears shoes of total area 40cm². What pressure would he exert on the ground? (b). What would happen to the pressure he/she exerts if they stood on one foot? 	<p style="text-align: center;">30 Marks</p>

JHS 2 TERM 3

CAT 10	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION
<p>Group Exercise</p> <p>(SRN 4.3.2)</p>	<p>CAT 10 is a group exercise consisting of three tasks. Group the class into 3 or into 6 groups (High class size) and pair two groups to work on a task. Adequate advance preparation should be made to enable the students complete the activities in a double period. Each group must have a leader and a recorder. Ensure full participation of all the members in each group. Encourage mixed ability grouping and gender equality among the groups. Each group should exhibit the report for class discussion</p> <p>Group 1 You are given 3 batteries, 2 bulbs, a switch and connecting wires. Follow the steps and carry out the activities below.</p> <p>(a) Connect a simple circuit using the following: one battery, one bulb, connecting wires and a switch. Close the circuit and write up your observation</p> <p>(b) Connect a simple circuit using the following: one battery, two bulbs in series, connecting wires and a switch. Close the circuit and write up your observation. Compare the brightness of the bulb in (b) to that of (a). Explain the change in brightness of the bulbs.</p> <p>(c) Connect a simple circuit using the following: two batteries in series, one bulb, connecting wires and a switch. Close the circuit and write up your observation. Compare the brightness of the bulb in (c) to that of (a). Explain the change in brightness of the bulbs</p> <p>(d) Connect a simple circuit using the following: two batteries in series, two bulbs in series, connecting wires and a switch. Close the circuit and write up your observation. Compare the brightness of the bulb in (d) to that of (c). Explain the difference in brightness of the bulbs.</p> <p>(e) Connect a simple circuit using the following: three batteries in parallel, two bulbs in parallel, connecting wires and a switch. Close the circuit and write up your observation. Compare the brightness of bulbs in (e) to that of (a).</p> <p>(f) Connect a simple circuit with the following: three batteries in series, two bulbs in parallel, connecting wires and as switch. Close the circuit, and write up your observation. Compare the brightness of the bulb in (f) to that of (e)</p>	<p>30 marks</p>

JHS 2 TERM 3

CAT 10 (CONT'D)	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION										
<p>Group Exercise</p>	<p>Group 2 Take two empty cylindrical tins or any two suitable containers. Label one of them A and the other, B</p> <p>Punch three holes around the lower section of A at the same height from the bottom of the container.</p> <p>Punch three holes on the same side of B but at different heights from the bottom of the container. The lowest hole should be at the same height as in A</p> <p>Fill the two tins to the brim with water, record and discuss your observation. Relate your findings to pressure in liquids.</p> <p>Group 3 You have been given a diagram of a tilapia fish with letter labels A-I and names of the parts to match.</p> <ol style="list-style-type: none"> Members in the group will search their textbooks, internet and other sources to enable them label the parts indicated on the diagram using the words in the box. Members in the group will also look for how the parts labeled, help the fish to live its life in water. The group will brainstorm to come out with the benefits humans derive from tilapia farming. <div style="text-align: center;">  </div> <table border="1" style="margin-left: auto; margin-right: auto;"> <tr> <td>Pectoral fin</td> <td>Operculum</td> </tr> <tr> <td>Dorsal fin</td> <td>Caudal fin</td> </tr> <tr> <td>Pelvic fin</td> <td>Mouth</td> </tr> <tr> <td>Lateral line</td> <td>Eye</td> </tr> <tr> <td>Anal fin</td> <td></td> </tr> </table>	Pectoral fin	Operculum	Dorsal fin	Caudal fin	Pelvic fin	Mouth	Lateral line	Eye	Anal fin		
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Anal fin												

CAT 10 (CONT'D)	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION
	<p>Group 4 The flow chart below shows the steps for testing for starch in a green leaf. Study and answer questions that follow.</p>  <pre> graph TD S1[Step 1: The green leaf is boiled in water] --> S2[Step 2: The leaf is put in ethanol (alcohol) and heated on a water bath] S2 --> S3[Step 3: The leaf is then washed in hot water] S3 --> S4[Step 4: The washed leaf is placed on a white tile and a drop of iodine solution is added to it] </pre> <p>a. Why was the green leaf boiled in water</p> <p>b. Explain why the leaf was heated in ethanol (alcohol)</p> <p>c. Explain why the ethanol (alcohol) was heated on a water bath and not on a naked fire</p> <p>d. Why was the leaf washed in hot water?</p> <p>e. Why was the leaf placed on a white tile before iodine was added?</p> <p>f. What happens to the leaf after addition of iodine solution?</p> <p>g. Predict what the colour of the alcohol would be after heating the leaf in it.</p>	

JHS 2 TERM 3

CAT 11	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION										
	<p>CAT 11 consists of 10 objective questions, completion and supply types of test items to be scored 2 marks each. It should also contain 5 structured test items to be scored 4 marks each. A number of sample test items are provided to guide you to produce enough test items to meet the required number.</p> <ol style="list-style-type: none"> List six types of forces. Fill in the blank spaces with the opposing forces. <table border="1" data-bbox="532 758 1107 932"> <tbody> <tr> <td>Cohesive</td> <td></td> </tr> <tr> <td></td> <td>Up thrust</td> </tr> <tr> <td>Centrifugal</td> <td></td> </tr> <tr> <td></td> <td>Reaction</td> </tr> <tr> <td>Tensile</td> <td></td> </tr> </tbody> </table> <ol style="list-style-type: none"> Define the term 'force'. State two disadvantages of friction. State two advantages of friction. Calculate the force that will be exerted by a body of mass 10.0kg moving with an acceleration of 5ms^{-2} <ol style="list-style-type: none"> What are simple machines? List three examples of simple machines used in each of the following places <ol style="list-style-type: none"> Homes Workplaces and Farms Explain why some joints in the human body act as levers e.g. the arm. <ol style="list-style-type: none"> Give two examples of each of the three classes of levers. Explain why efficiency of a machine is not 100%. Calculate the efficiency of a machine whose work input is 2000J and work output is 1200J. 	Cohesive			Up thrust	Centrifugal			Reaction	Tensile		<p>40 marks</p>
Cohesive												
	Up thrust											
Centrifugal												
	Reaction											
Tensile												

INTEGRATED SCIENCE

JHS 3 TERM 1

CAT 1	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION
Distinguish between an acid and a base and classify substances as acids or bases (SNR 1.1.1 1.1.2)	CAT 1 consists of 10 test items for a total of 20 marks. The items should be multiple choice, supply type items, or completion of sentences. Each item should be scored 1 mark. It should also contain 5 structured items and 1 each of the structured items should be scored 4 marks. A number of sample items have been provided to guide you. Follow the sample items to write your own items to complete the test items needed.	30 marks
	SECTION A	
	1. What happens when blue litmus paper is dipped into a solution of sodium hydroxide? A. Blue litmus paper turns red B. Blue litmus paper remains blue C. Blue litmus paper turns green D. Blue litmus paper becomes colourless	1 mark
	SECTION B	
	1. State two characteristics of acids that make them different from bases.	4 marks
	2. Group the following substances as acids or bases; vinegar, wood ash, unripe lemon, bicarbonate of soda, urea, tomato juice, chlorine water and sodium hydroxide.	4 marks
	3. State four ways by which water can be conserved.	4 marks
4. Discuss the steps involved in the preparation of common salt (sodium chloride crystals) from hydrochloric acid and sodium hydroxide.	4 marks	
5. List four effects of soil erosion.	4 marks	

6. Explain two factors which lead to the depletion of soil resources.		
7. The scarcity of good drinking water has led to its conservation. Outline how water is conserved in: (a) School (b) Homes		

CAT 2	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION																											
<p>Group exercise</p> <p>List the planets of the solar system and explain what a star is (SRN 3.1.1-3.1.6)</p> <p>Identify parts of a tooth and the functions of different types of teeth. (SRN 3.2.1-3.2.2)</p>	<p>Group 2 Study the components of the solar system and make a model and a poster of it. Show the number of moons on each of the planet (E.g. Jupiter 12). Explain why the planets are not a natural source of light. Research from internet to show the distance covered by each planet in one revolution, the speed of the planets and the interval between the planets. Exhibit the reports.</p> <p>NOTE: Pupils to do the internet search before the class.</p> <p>Group 3 Collect the skulls of the skull of a dog, a goat and humans from a nearby Science Resource Centre and study the dental arrangements. Looking at the types of teeth in each skull, a). State the type of food for dogs and goats. b). Give reasons to your answer. c). Identify and compare the canine, molar, incisor and premolar in the human jaw. d). Label the diagram of the premolar tooth as indicated using the words provided in the box.</p> <table border="1" data-bbox="427 1226 675 1896"> <tr><td>Cementum</td><td>U</td><td></td></tr> <tr><td>Crown</td><td>V</td><td>A</td></tr> <tr><td>Pulp</td><td>W</td><td>_____ B</td></tr> <tr><td>Root</td><td></td><td></td></tr> <tr><td>Enamel</td><td>X</td><td></td></tr> <tr><td>Dentin</td><td>Y</td><td>C</td></tr> <tr><td>Nerve and blood vessel</td><td></td><td></td></tr> <tr><td>Gum</td><td>Z</td><td></td></tr> <tr><td>Root end opening</td><td></td><td></td></tr> </table>	Cementum	U		Crown	V	A	Pulp	W	_____ B	Root			Enamel	X		Dentin	Y	C	Nerve and blood vessel			Gum	Z		Root end opening			
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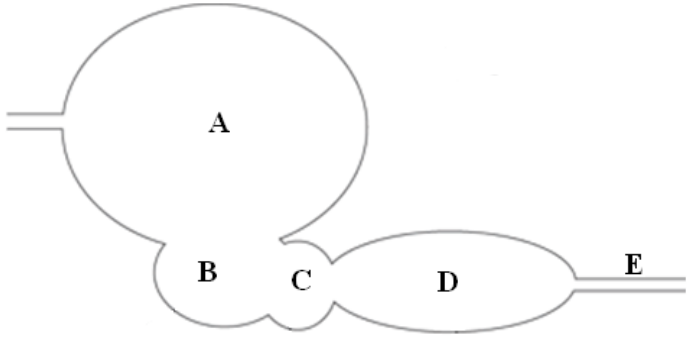
JHS 3 TERM 1

CAT 2	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION
	Do all species of animals have the same dental formula? Explain your answer. Access information from the internet on dentition in humans. Look for the causes of tooth decay and its prevention. Exhibit your report on the work.	

JHS 3 TERM 1

CAT 3	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION	
Identify the parts of digestion systems and the function of Ruminants. (SRN 3.3.1 & 3.3.2)	CAT3 consist 10 objective questions to be scored 2 marks each and 5 structured test items to be scored 4 marks each. A number of sample test items have been provided to guide you. Set more items to meet the required number of items.	40 marks	
	1. The most characteristic teeth in ruminants are the A. Canines and molars B. Canines and premolars C. Incisors and molars D. Incisors and premolars	1 mark	
	2. Which of the following animals chew the cud? (i) Sheep and Cattle (ii) Goats and Horses (iii) Pigs and Rabbits A. I and III B. II and III C. I and III D. I and II	1 mark	
	3. Which type of teeth is used for biting and cutting? A. incisors B. canine C. molars D. premolars	1 mark	
	4. Ten drops of Biuret's Solution was added to a food sample, the solution remained blue. This means the food A. contains protein B. contains starch C. does not contain protein D. does not contain starch	4 marks	
	SECTION B		
	1. Describe the changes that happen when a piece of cooked yam enters the stomach of humans when eating.	4 marks	
	2. Explain the terms: heat and temperature. In what units are they measured?	4 marks	
	3. Describe what could happen when a solid, liquid or gas i). gains heat ii). loses heat.	4 marks	

JHS 3 TERM 1

CAT 3	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION
<p>Identify parts of the digestive system and their functions (SRN 3.3.1)</p> <p>Describe changes that occur to food during digestion. (SRN 3.3.2)</p> <p>Identify the parts of the digestive system and state their functions (SRN 3.3.1-3.3.3)</p>	<p>The figure below shows a sketch of the Ruminant digestive system. Study it and answer questions 4, 5 and 6</p>  <p>4. Name the parts A, B, C, D and E stand for?</p> <p>5. (i) Which of the parts A, B, C, D and E represent the true stomach in the ruminant digestive system? (ii) What is the major function of C</p> <p>Note: The following items can also be considered</p> <p>6. (a) The diagram below shows the human digestive system. Use the following words (stomach, large intestine, oesophagus, duodenum, liver, small intestine, and anus) to label it.</p> <p style="text-align: right;">_____ F</p> <p>G _____</p> <p style="text-align: right;">_____ H</p> <p>I _____</p> <p style="text-align: right;">_____ J</p> <p>K _____</p> <p style="text-align: right;">_____ L</p> <p>7. (b) Identify two organs of the digestive system that have not been indicated in the diagram.</p>	<p>40 marks</p>

JHS 3 TERM 2

CAT 5	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION	
<p>Discuss the effect of heat on substances and heat transfer. (SRN 4.1.3 & 4.1.4)</p>	<p>CAT 5 consists of 10 objective questions, completion and supply types of test items to be scored 1 mark each. It should also contain 5 structured test items to be scored 4 marks each. A number of sample test items are provided to guide you to produce enough test items to meet the required number.</p>	<p>30 marks</p>	
	<p>1. Heat applied to a substance can cause it to I Melt II Evaporate III Condense A. I and II only B. I and III only C. II and III only D. I, II and III</p>	<p>1 mark</p>	
	<p>2. What happens to the following substances (camphor, candle wax, ice) when sufficient heat is applied to them.</p>	<p>4 mark</p>	
	<p>3. Heat travels through liquids by the process of A. Conduction B. Convection C. Radiation D. Condensation</p>	<p>1 mark</p>	
	<p>4. When a heated solid changes into gas state without passing through liquid, the substance is said to have A. sublimed B. condensed C. vaporized D. melted</p>	<p>1 marks</p>	
	<p>5. When a gaseous substance cools and changes into solid without passing through liquid, the substance is said to have A. condensed B. vaporised C. frozen D. deposited</p>	<p>1 marks</p>	
	<p>SECTION B</p>		
	<p>1. What role does the transistor play in an electronic circuit?</p>	<p>4 marks</p>	
<p>2. List any two uses of an inductor.</p>	<p>4 marks</p>		

JHS 3 TERM 2

CAT 6	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION
<p>Demonstrate a magnetic field of force using a bar magnet. (SRN 5.1.1 & 5.1.2)</p> <p>Explain the impact of technology on society. (SRN 5.2.2)</p>	<p>CAT 6 is a group exercise consisting of three tasks. Group the class into 3 or into 6 groups (High class size) and pair two groups to work on a task. Adequate advance preparation should be made to enable the students complete the activities in a double period. Each group must have a leader and a recorder. Ensure full participation of all the members in each group. Encourage mixed ability grouping and gender equality among the groups. Each group should write the report for class discussion.</p> <p>Group 1 Place a bar magnet between two equal size note books. Cover the books with a plain sheet of paper. Sprinkle iron filings on the paper and gently tap the paper. Draw and label the magnetic field of force around the magnet. Change the direction of the poles of the bar magnet and record both the direction and the magnetic flux on the paper. Use two bar magnets and change the directions of the poles and record the variations in the magnetic field of force observed. Where on the bar magnet is the magnetic flux dense? Explain your answer.</p> <p>Group 2 Use an insulated rewinding wire to construct a coil (inductor) on a 3 inch nail. Connect a 9V battery with a connecting wire to the ends of the coil. Draw the coil toward office pins or iron filings and record your observation. Remove the nail from the core of the coil and record its effect on the pins and the iron filings. Insert the following into the core of the coil and record your observations.</p> <ol style="list-style-type: none"> I. rolled paper II. plastic III. stick <p>Draw a magnetic field of force created by the inductor.</p>	<p>30 marks</p>

JHS 3 TERM 2

CAT 6	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION
	<p>Group 3 The figure below shows four different electronic components (Q, R, S and T). Study it carefully and answer the questions that follow.</p> <p style="text-align: center;">Q R S T</p> <p>(i). Name the components Q, R, S and T.</p> <p>(ii). Draw the circuit symbol for each component</p> <p>(iii). State one use each for R and T</p> <p>(iv) An LED is connected in an electronic circuit powered by a 6V battery. Which of these electronic components would you connect in the circuit to protect the LED from burning?</p>	

JHS 3 TERM 2

CAT 7	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION
<p>Explain 'Input Work, Output Work and Efficiency' as they apply to machines SRN 5.5.4</p>	<p>CAT 7 consist of 10 objective questions to be scored 20 marks and 5 structured test items to be awarded 4 marks each. It is to be administered at the end of the third month of the second term. A number of sample test items have been set for you to follow to build others to get the required number of test items specified for the assessment.</p> <p style="text-align: center;">SECTION A</p> <p>1. Efficiency is a measure of how well a machine works. Divide the mechanical advantage by the velocity ratio and multiply the result by 100 to determine the efficiency of a machine. A pulley system with a velocity ratio of 5 and a MA of 3 has an efficiency of</p> <p>A. 30% B. 33% C. 40% D. 60%</p> <p>2. Which of these physical quantities is not a force?</p> <p>A. magnetism B. gravity C. electricity D. air resistance</p> <p>3. Work is calculated using the formula $W = F \times d$. If you lift a box onto your desk that is 4 meters off the floor, using 50 Newtons of force, how much work have you done?</p> <p>A. 200 joules B. 125 joules C. 50.4 joules D. 49.6 joules</p> <p>4. Which of the following types of heat transfer matches heat from the Sun?</p> <p>A. Convection B. Evaporation C. Radiation D. Conduction</p>	<p>40 marks</p> <p>2 marks</p> <p>2 marks</p> <p>2 marks</p> <p>2 marks</p>

CAT 7	GUIDELINES FOR WRITING AND ADMINISTERING CLASS ASSESSMENT TASKS (CATs)	MARK ALLOCATION
	<p>SECTION B</p>	
Identify some machinery and their uses (SRN 5.3.1)	1. List two machinery for each of the following works. (i) road construction (ii) farm work (iii) factory (iv) house work	4 marks
SRN 5.3.3	2. State four advantages and three disadvantages of using machinery for work.	4 marks
SRN 5.4.1	3. (i). What is a machine? (ii). Write the expression for the efficiency of a machine (iii). A boy pulled a load through a distance of 5m. If he exerts a force of 15N in the direction of the force, calculate the work done.	4 marks
SRN 5.4.1	4. Describe four Medium and Small-scale Enterprises (SMEs) and state their importance in the community. Note: The following items can also be considered	4 marks
SRN 5.4.3	5. State the types of agricultural chains and describe the components of the chains.	
Describe and demonstrate the task/ activities performed in some SMEs (SRN 5.4.2)	6. Discuss two roles performed by the (i) Ghana standards Board (ii) Food and Drugs Board 7. State and describe four functions of a good business manager.	

References

In addition to the Government approved textbooks, the following books were consulted

1. Junior High School Integrated Science
(Peter Asiedu and Lawrence Simpi)
2. Junior High School Integrated Science
(J W Essiah, E C Saka & Co)
3. Integrated Science for Junior High School
(E. Boateng Ennimful, J. G. Adomah, K.B. Asiamah & S.V.K. Adjibolosoo)