MINISTRY OF EDUCATION

Republic of Ghana

TEACHING SYLLABUS FOR GEOGRAPHY (SENIOR HIGH SCHOOL 1 - 3)

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TEACHING SYLLABUS FOR GEOGRAPHY
(SENIOR HIGH SCHOOL)

RATIONALE FOR TEACHING GEOGRAPHY

Geography studies the inter-relationships of the individual, physical and social environments both in spatial (relating to geographic space) and temporal (historical times) terms. Issues of the environment are becoming increasingly important and geography, which studies the environment as a system, can and does provide solutions to environmental problems. Geography thus has a vital contribution to make towards the purpose of education, i.e., solving societal problems and further providing the critical foundation knowledge in the development of Ghana.

The value of geography lies in helping people to understand and adapt to the dynamics of the environment in which they live. The study of geography therefore enables us to understand geographic facts without which it becomes impossible to acquire intimate knowledge of the environment we have to utilize toward our development.

Specifically, geography serves as one of the vehicles or tools for implementing the national educational objectives at the senior high school level by way of the following:

1. improving the communication skills of students, especially in the areas of describing and evaluating environmental concerns.
2. providing students with knowledge and understanding of their communities, nation and the world.
3. developing in them moral values and attitudes for appreciating nature's resources.
4. equipping students with significant skills to enable them contribute towards improving on and sustaining the environment, e.g. landscaping (involving tree planting and controlling or managing erosion).
5. nurturing a generation of people who can think reflectively of others, respect their dignity and values which we as Ghanaians and members of the world community live for. Geography offers opportunities for mental training and intellectual development.
6. enabling students to make an honest living in future. This refers to careers in geography that are open to the Senior High School graduate. The study of geography at this level will lay the foundation in areas such as map-work, human and regional geography. Thus, students who do not opt for higher education at the tertiary level, would be able to find employment in the public and private sectors of the national economy, where they can serve as assistants to other professionals- i.e. Agronomists, Cartographers, Economists, Geographers, Regional and Urban Planners, Sociologists, Surveyors, Teachers etc.
7. producing a generation of citizens imbued with the attitudes of co-operation, self-reliance, industry, self discipline and preparedness to be leaders as well as followers.
8. fostering national and international unity, better understanding of different geographical environments, cooperation of the various ethnic groups in the country toward national growth and development as well as reconciling differences among Ghanaians and other nationalities.
9. acquiring skills for effective organization and utilization of space both in urban and rural environments thereby exposing students to the policies and principles underlying land use practices; recognition of the implications of rapid population growth, urbanization, rural-urban drift of the population and its associated rural depopulation, resource exploitation and utilization for socio-economic development and relevant measures for dealing with the impact of population growth on the environment.

In sum, the contribution of geography to the education of the student at the Senior High School level finds expression in the communicative, cognitive (mental development about environmental resources), affective (caring and protection of the environment) and psychomotor (hands-on-skills for environmental management) domains.

GENERAL AIMS

The syllabus is designed to help students to:

1. use knowledge of the spatial relationships and the differences in character of the earth's surface in their lives and work
2. recognize the relationship between the life of people, their physical environment and the concepts of individual-environment.
3. develop empathy for people of other environments with different resources, goals and challenges from one's own area.
4. acquire the skills of geographic investigation or field study i.e. collecting, classifying, analyzing and interpreting geographic data.
5. acquire the basic knowledge about the nature of the physical and human environment.
6. develop awareness of the nature and functioning of the physical and human elements and their inter-relationships.

SCOPE OF CONTENT

The geography syllabus covers the planetary systems with emphasis on the earth as the planet habitable by humans, plants and animals. The principal issues concern the physical environments with the prospects and challenges of the human environment-relationships. The issue of understanding and interpreting maps, the geographical understanding of political divisions, identification and utilization of resources, livelihood activities that are and can be pursued in specific environments are also dealt with.

ORGANIZATION OF THE SYLLABUS

For purposes of teaching and examining at the Senior High School level, the geography syllabus has been organized into three inter-related branches as follows:

1.	Physical Geography (Geomorphology, Climatology and Biogeography):	This is the study of landforms, climate, weather, plant and animal life.
2.	Human and Regional Geography:	This is the study of human economic activities and their classification on the basis of districts, regions and zones.
3.	Practical Geography:	This involves the application of skills of map reading, map interpretation, data collection and analysis.

These divisions should help students to acquire a sound basis in the study of geography. The following issues have been specifically considered:

1. geography should be taught and learned with emphasis on interpreting the physical and human aspects of the subject.
2. human and regional geography should be taught through themes.
3. practical geography, involving map reading, analysis and interpretation (including statistical maps and diagrams), should be taught giving examples from physical, human and regional geography.

The contents selected and the divisions adopted will ensure that students can actively and effectively utilize their knowledge in geography in the important task of nation building. It is also expected that teachers will take note of the inter-relatedness of the three branches of the subject and make conscious efforts at teaching the three areas as one, i.e., making references and giving examples that incorporate the three branches of the subject.

The syllabus has been structured to cover the three years of the three-year Senior High School, that is, from SHS1 to SHS3. Each year's work comprises three sections with each section further divided into a number of units.

The structure and organization of the syllabus is presented on the next page.

STRUCTURE AND ORGANIZATION OF THE SYLLABUS

SHS1	SHS2	SHS3
SECTION 1: PHYSICAL GEOGRAPHY - THE EARTH AS A PLANET (pg. 1-5) Unit 1: The Planetary System Unit 2: The Earth: Rocks and Minerals Unit 3: The Earth's Atmosphere: Structure and Composition Unit 4: Elements of Weather and Climate	**SECTION 1: PHYSICAL GEOGRAPHY: LANDFORMS (pg. 13-20)** Unit 1: The Hydrosphere (Lakes, Lagoons, Rivers, Oceans and Ocean Currents) Unit 2: Landforms of the Earth's Crust resulting from: a) Faulting and Earthquakes b) Folding c) Vulcanicity Unit 3: External Sources of Landforms (Weathering and Mass Wasting) Unit 4: Agents of Denudation and Associated Landforms	**SECTION 1: PHYSICAL GEOGRAPHY: VEGETATION, SOILS AND ENVIRONMENTAL CONCERNS (pg. 28-32)** Unit 1: Vegetation (Types, Deforestation and Conservation) Unit 2: Soils (Types, Erosion and Conservation) Unit 3: Environmental Concerns
SECTION 2: HUMAN AND REGIONAL GEOGRAPHY: POPULATION AND DISTRIBUTION (pg. 6-9) Unit 1: Population: Size, Structure and Distribution Unit 2: Settlements: Rural and Urban	**SECTION 2: HUMAN AND REGIONAL GEOGRAPHY: ECONOMIC ACTIVITIES (pg. 21-24)** Unit 1: Economic Activities (Primary, Secondary and Tertiary) Unit 2: Renewable and Non-renewable Energy Resources	**SECTION 2: HUMAN AND REGIONAL GEOGRAPHY: GHANA AND AFRICA (pg. 33-39)** Unit 1: Ghana: Size, Location, Physical and Economic Environment Unit 2: Africa including West Africa: Size, Location, Physical and Economic Environment Unit 3: Regional groupings in Africa
SECTION 3: PRACTICAL GEOGRAPHY – USING MAPS (10-12) Unit 1: Elements of Map Reading Unit 2: Principles of Elementary Surveying	**SECTION 3: PRACTICAL GEOGRAPHY: READING MAPS (pg. 25-27)** Unit 1: Principles of Geographic Investigation Unit 2: Statistical Maps and Diagrams Unit 3: Principles of Map Reading	**SECTION 3: PRACTICAL GEOGRAPHY: MAP INTERPRETATION AND MAP USE (pg. 40)** Unit 1: Elements of Map Interpretation and Map use **REFERENCES (pg. 41)**

TIME ALLOCATION

Geography is allocated 6 periods of 40 minutes each per week throughout the 1st, 2nd and the 3rd years.

RESOURCES NEEDED

- Assorted map extracts for map reading
- Survey instruments: prismatic compass, chain, tape measure, arrow, ranging poles, Global Position System (GPS)
- Globes, Digital Camera, Computer, CDs of various geographical features

SUGGESTIONS FOR TEACHING THE SYLLABUS

With the present increase in the number of periods, preferably three teachers should teach the subject. Each branch (Physical Geography, Human and Regional Geography and Practical Geography) should be taught by a different teacher. The three branches should be taught simultaneously throughout the three years of study. The branches of geography have also been classified into units to emphasize the competencies to be acquired by students. It is envisaged that the structure will enable students to be reflective and participate effectively in the teaching and learning process.

In teaching geography, teachers should maintain an open classroom climate consistent with cooperative discussion methods in current teaching methodology. Teachers should make conscious efforts to involve students in sharing their daily experiences of human environment-relations and encourage them to explore their immediate environment in relation to the geography syllabus. This will help students to appreciate their immediate school environment and translate their cognitive (knowledge) into positive attitudes to protect and maintain the environment.

General Objectives

General Objectives have been provided at the beginning of each Section. The General Objectives specify the skills and behaviours students should acquire as a result of learning the units of a section. Teachers are expected to read the General Objectives very carefully before planning to teach a Section. After teaching all the Units of the Section, teachers should go back and read the General Objectives again to be sure the objectives have been adequately covered in the course of teaching.

Sections and Units

The syllabus has been planned in Sections and Units. Each year's work has been divided into three Sections. A Section consists of a fairly homogeneous body of knowledge within the subject. Within each Section are Units. A unit consists of a more related and homogeneous body of knowledge and skills. The teacher is expected to consider the total number of Sections and associated number of Units prescribed for each year and plan the scheme of work and lessons for each term such that the work in all the Sections and Units for each particular class will be completed by the end of the school year.

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

Column 1 – Units: The Units in column 1 are divisions of the major topic of the Section. You are expected to follow the unit topics according to the linear order in which they have been presented. However, if you find at some point that teaching and learning in your class will be more effective if you branch to another Unit before coming back to the Unit in the sequence, you are encouraged to do so. The order in which the Units will be taught depends of course on your scheme of work.

Column 2 – Specific Objectives: Column 2 shows the Specific Objectives for each Unit. The Specific Objectives begin with numbers as 1.3.2 or 2.2.1. These numbers are referred to as "Syllabus Reference Numbers" or SRN. The first digit in the Syllabus Reference Number refers to the Section; the second digit refers to the Unit, while the third digit refers to the serial number of the Specific Objective. For instance, 1.3.2 means: Section 1 (of the appropriate year's syllabus), Unit 3 (of Section 1) and Specific Objective 2. In other words, 1.3.2 refers to Specific Objective 2 of Unit 3 of Section 1. Similarly, the Syllabus Reference Number 2.2.1 means Syllabus Objective number 1 of Unit 2 of Section 2. Using Syllabus Reference Numbers provides an easy way for communication among teachers

and other educators. It further provides an easy way for selecting objectives for test construction. Assuming that Unit 2 of Section 2 has five specific objectives, 2.2.1 – 2.2.5, a teacher may want to base his/her test items/questions on objectives 2.2.3 and 2.2.4 and not use the other three objectives. In this way, a teacher could sample the objectives within Units and within Sections to be able to develop a test that accurately reflects the importance of the various skills and knowledge taught in class.

You will note also that Specific Objectives have been stated in terms of the student i.e. what the student will be able to do after instruction and learning in the unit. Each Specific Objective hence starts with the following, "The student will be able to." This in effect, means that you have to address the learning challenges of each individual student. It means individualizing your instruction as much as possible such that the majority of students will be able to achieve the objectives of each unit of the syllabus.

PROFILE DIMENSIONS

Profile dimensions describe the underlying behaviours or abilities students are expected to acquire as a result of having gone through a period of instruction. Each of the specific objectives in this syllabus contains an action verb that specifies the type of learning or skill that the student should acquire by the end of the instructional period. For example, a specific objective will be stated as follows: The student will be able to describe …etc. contains an action verb "describe" that indicates what the student will be able to do after teaching and learning have taken place. Being able to "describe" something after the instruction has been completed means that the student has acquired "knowledge". Being able to explain, summarise, give examples, etc. means that the student has understood the lesson taught. Similarly, being able to develop, plan, construct, etc. means that the student has learnt to create, innovate or synthesize knowledge. Each of the action verbs in the specific objectives of the syllabus describes the behaviour the student will be able to demonstrate after the instruction. "Knowledge", "Application", etc. are dimensions that should be the prime focus of teaching, learning and assessment in schools.

In Geography, the three profile dimensions that have been specified for teaching, learning and assessment are:

Knowledge and Understanding	40%
Application of Knowledge	40%
Attitudes, Values and Process Skills	20%

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

Emphasizing the three dimensions in your teaching will ensure that Geography will not only be taught and studied at the cognitive level but will also lead students to the acquisition of positive attitudes and values that will enable them to deal effectively with issues in geography and with issues in life in general.

The explanation and key words involved in each of the profile dimensions are as follows:

Knowledge and Understanding (KU)

Knowledge: The ability to remember, recall, identify, define, describe, list, name, match, state principles, facts and concepts. Knowledge is the ability to remember or recall material already learned and this constitutes one of the levels of learning.

Understanding: The ability to explain, summarize, translate, rewrite, paraphrase, give examples, generalize, estimate or predict consequences based upon a trend. Understanding is generally the ability to grasp the meaning of some material that may be verbal, pictorial, or symbolic.

Application of Knowledge (AK)

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

Application: The ability to apply rules, methods, principles, theories, etc. to concrete situations that are new and unfamiliar. It also involves the ability to produce, solve, demonstrate, discover, etc.

Analysis: The ability to break down material into its component parts; to differentiate, compare, distinguish, outline, separate, identify significant points etc., ability to recognize unstated assumptions and logical fallacies; ability to recognize inferences from facts, etc.

Innovation/Creativity The ability to put parts together to form a new whole. It involves the ability to synthesize, combine, compile, compose, devise, suggest a new idea or possible ways, plan, revise, design, organize, create, and generate new solutions. The ability to create or innovate is the highest form of learning. The world becomes more comfortable because some people, based on their learning, generate new ideas, design and create new things.

Evaluation The ability to: appraise, compare features of different things and make comments or judgments, contrast, criticize, justify, support, discuss, conclude, make recommendations etc. Evaluation refers to the ability to judge the worth or value of some materials, ideas etc., based on some criteria. Evaluation is a constant decision making activity. We generally compare, appraise and select throughout the day. Every decision we make involves evaluation. Evaluation is a high level ability just as application, analysis and innovation or creativity since it goes beyond simple knowledge acquisition and understanding.

The action verbs provided under the various profile dimensions should help you to structure your teaching so as to achieve the effects needed. Select from the action verbs provided for your teaching, for evaluation exercises and for test construction. Check the weights of the profile dimensions to ensure that you have given the required emphasis to each of the dimensions in your teaching and assessment.

FORM OF ASSESSMENT

In developing assessment procedures, select specific objectives in such a way that you will be able to assess a representative sample of the syllabus objectives by the end of the school year. Each specific objective in the syllabus is considered a criterion to be achieved by the student. When you develop a test that consists

of items or questions that are based on a representative sample of the specific objectives taught, the test is referred to as a "Criterion-Referenced Test". In many cases, a teacher cannot test all the objectives taught in a term, in a year etc. The assessment procedure you use i.e. class tests, home work, projects etc. must be developed in such a way that the various procedures complement one another to provide a representative sample of the important objectives taught over a period.

Assessment at Senior High School 1-3 (Elective)

The table below shows the recommended examination structure for SHS1-3. The structure consists of two examination papers: Paper 1 and Paper 2. The two examination papers must be taken at separate sittings. Paper 1 has two sections, A and B. Section A is made up of items on general geography. This is a 50 minutes test consisting of 50 multiple choice questions covering the entire geography syllabus except elementary surveying. Section B covers elements of Practical and Physical Geography. This section consists of 8 questions to be answered in one hour and fifty minutes. Students are expected to answer 4 questions. Question 1, which is compulsory, is based on Map Reading and Interpretation.

Paper 2 consists of questions on Human and Regional Geography. This is a two-hour essay-type paper consisting of 3 Sections, A, B, & C. Students are required to attempt 4 questions out of 9 choosing at least one from each section. Section A is on Human Geography of the world; Section B is Regional Geography of Ghana, and Section C is Geography of Africa.

Paper 1 is marked over 120 marks. Paper 2 is marked over 80 marks giving a total mark of 200 for the two papers. The total number of marks should be converted to 100 for grading. The raw score mark ratio between Paper 1 and 2 is 60:40. This ratio is maintained in the examination paper structure below.

Distribution of Examination Paper Weights and Marks

TEST DIMENSIONS	PAPER 1 General Geography		PAPER 2 Human and Regional Geography			TOTALS	Weights of Dimensions
	A Objective Test	B Essay	A The World	B Ghana	C Africa		
Knowledge and Understanding	25	25	7	15	8	80	40%
Application of Knowledge	20	25	10	15	10	80	40%
Attitudes and Process Skills	5	20	3	10	2	40	20%
TOTALS (Raw Scores)	50	70	20	40	20	200	100%
Conversion to 100	60		40			100	100%

GUIDELINES FOR SCHOOL BASED ASSESSMENT

A new School Based Assessment system (SBA) will be introduced into the school system in 2011. The new SBA system is designed to provide schools with an internal assessment system that will help schools to achieve the following purposes:

- Standardize the practice of internal school-based assessment in all Senior High Schools in the country
- Provide reduced assessment tasks for subjects studied at SHS
- Provide teachers with guidelines for constructing assessment items/questions and other assessment tasks
- Introduce standards of achievement in each subject and in each SHS class
- Provide guidance in marking and grading of test items/questions and other assessment tasks

- Introduce a system of moderation that will ensure accuracy and reliability of teachers' marks
- Provide teachers with advice on how to conduct remedial instruction on difficult areas of the syllabus to improve class performance.

The arrangement for SBA may be grouped in categories as follows: Project, Mid-Term test, Group Exercise and End of Term Examination.

Project: This will consist of a selected topic to be carried out by groups of students for a year. Segments of the project will be carried out each term toward the final project completion at the end of the year, The project may consist of

i) Investigative study
ii) Practical work
iii) Case Study

Mid-Term Test: The mid-term test following a prescribed format will form part of the SBA

Group Exercise: This will consist of written assignments or practical work on a topic(s) considered important or complicated in the term's syllabus

End-of-Tem Examination: The end-of-term test is a summative assessment system and should consist of the knowledge and skills students have acquired in the term. The end-of-term test for Term 3 for example, should be composed of items/questions based on the specific objectives studied over the three terms, using a different weighting system such as to reflect the importance of the work done in each term in appropriate proportions. For example, a teacher may build an End-of-Term 3 test in such a way that it would consist of the 20% of the objectives studied in Term 1, 20% of objectives studied in Term 2 and 60% of the objectives studied in Term 3.

Students are expected to undertake assignments that may involve investigations, surveys, interviews etc. as home work and as part of the SBA. The following guidelines are provided for making written SBA assignments of such nature.

1.	Introduction (including acknowledgement)	10%
2.	Data collection and analysis	50%
3.	Conclusions and recommendations	20%
4.	References	20%

GRADING PROCEDURE

To improve assessment and grading and also introduce uniformity in schools, it is recommended that schools adopt the following WASSCE grade structure for assigning grades on students' test results. The WASSCE structure is as follows:

Grade A1:	80 - 100%	-	Excellent
Grade B2:	70 - 79%	-	Very Good
Grade B3:	60 - 69%	-	Good
Grade C4:	55 - 59%	-	Credit
Grade C5:	50 - 54%	-	Credit
Grade C6:	45 - 49%	-	Credit
Grade D7:	40 - 44%	-	Pass
Grade D8:	35 - 39%	-	Pass
Grade F9:	34% and below	-	Fail

In assigning grades to students' test results, you are encouraged to apply the above grade boundaries and the descriptors which indicate the meaning of each grade. The grade boundaries i.e., 60-69%, 50-54% etc., are the grade cut-off scores. For instance, the grade cut-off score for B2 grade is 70-79% in the example. When you adopt a fixed cut-off score grading system as in this example, you are using the criterion-referenced grading system. By this system a student must make a specified score to be awarded the requisite grade. This system of grading challenges students to study harder to earn better grades. It is hence a very useful system for grading achievement tests.

Always remember to develop and use a marking scheme for marking your class examination scripts. A marking scheme consists of the points for the best answer you expect for each question, and the marks allocated for each point raised by the student as well as the total marks for the question. For instance, if a question carries 20 marks and you expect 6 points in the best answer, you could allocate 3 marks or part of it (depending upon the quality of the points raised by the student) to each point , hence totaling 18 marks, and then give the remaining 2 marks or part of it for organization of answer. For objective test papers you may develop an answer key to speed up the marking.

SENIOR HIGH SCHOOL - YEAR 1

SECTION 1

PHYSICAL GEOGRAPHY (GEOMORPHOLOGY, CLIMATOLOGY, BIOGEOGRAPHY)

General Objectives: The student will:

1. acquire basic knowledge about the nature of the physical environment.
2. be aware of how the physical environment functions.
3. be aware of the inter-relationships between the physical and human environments.
4. acquire basic knowledge about the nature of the climatic environment.

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 1 **THE PLANETARY SYSTEM: THE PLANET EARTH** .	The student will be able to: 1.1.1 identify the position of the various planets in relation to the sun and the earth.	The sun is at the centre of the planetary system. All the other planets, including the earth revolve around it. The earth in addition to revolution, rotates on its own axis. The earth is spherical in shape. The planets are: Mercury, Venus, Earth, Mars, Jupiter, Saturn, Uranus and Neptune. **Note:** Recent scientific discovery indicates that Pluto is no longer recognized as an existing planet. It is now termed a "dwarf planet"	Students to: ▪ list and sketch the orbital paths of the planets. ▪ discuss the relationship between the sun at the centre of the universe and the earth as one of the planets. ▪ use atlases, maps and globes to identify latitudes and longitudes and show the differences in their uses. ▪ use the internet to view pictures of space exploration. ▪ use different sources, such as journals, magazines, newspapers, the internet etc. to find out why Pluto is no longer recognized as a planet.	Class exercise Draw and label the planetary system.
	1.1.2 explain effects of revolution and rotation of the earth.	Revolution of the earth causes: i) solstices and equinoxes. ii) seasons (winter, spring, summer, autumn) Rotation of the earth causes day and night and also the difference in time.	Students to demonstrate the differences between revolution and rotation of the earth in space and their resultant effects using the globe and torch light.	Class exercise Show the calculation of time between settlements on different longitudes. Class assignment Write the differences between the earth's rotation on its axis and revolution around the sun.

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 2 **STRUCTURE OF THE EARTH, ROCKS AND MINERALS**	The student will be able to: 1.2.1 describe the structure of the earth.	The earth's structure comprises four concentric zones namely: ▪ the inner core ▪ the outer core ▪ the mantle which is made up of molten rock called magma. ▪ the crust: a discontinuous mass of rocks separated by the hydrosphere (water bodies). It is made up of two categories of rocks the SIAL and SIMA. The atmosphere forms part of the earth's structure.	Students to draw and label the earth's structure and describe it. Students to visit ENCARTA to observe the structure of the earth.	<u>Group Project</u> Students model the earth's crust using clay or 'papier mârché' to show the components.
	1.2.2 describe the types of rocks, their modes of formation and characteristics.	There are generally three types of rocks. ▪ Igneous rocks ▪ Sedimentary rocks ▪ Metamorphic rocks The classification is essentially based on the mode of formation of the rock type.	Assist students to describe the formation of each of the three types of rocks. Organize students to visit quarries, mines, road cuttings, excavations, river and stream beds, shorelines, etc. collect specimen rocks for classification, description and observation of their characteristics and write reports on their observation.	<u>Class exercise</u> Write out the types of rocks and their formation.
	1.2.3 explain the importance of rocks and minerals to national development.	<u>Importance of rocks</u> ▪ For construction (roads and buildings) ▪ As source of fuel (e.g. coal) ▪ As source of raw materials for industry e.g. glass, alumina from bauxite, limestone for cement, industrial diamond, etc. ▪ As ornaments and jewellery e.g. gold, silver, bronze ▪ As a source of internal revenue e.g. royalties, company tax ▪ As a source of external revenue e.g. foreign exchange from mineral exports ▪ As source of employment e.g. at the mines and quarries ▪ As source of food e.g. salt petre ▪ Used for preservation e.g. sodium chloride (salt) ▪ parent material for soil formation.	Students to do the following: -use various sources, including digital content, to examine and describe the characteristics of rocks - visit industries and construction sites to observe how minerals and rocks are used. .	<u>Individual assignment</u> Find out from different sources why some mineral deposits are not being mined in Ghana and present reports to class**.** <u>Class exercise</u> Draw a sketch map of Ghana and locate the important areas where the major minerals are mined. Explain the importance of minerals to Ghana.

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 3 **THE EARTH'S ATMOSPHERE: STRUCTURE AND COMPOSITION**	The student will be able to: 1.3.1 describe the structural components of the earth's atmosphere. 1.3.2 explain the importance of the components of the earth's atmosphere. 1.3.3 explain the causes and effects of changes in the atmosphere.	The atmosphere comprises the: ▪ troposphere ▪ stratosphere ▪ mesosphere ▪ thermosphere ▪ ionosphere The earth's atmosphere is made up of various gases and particles. E.g. Nitrogen (78%), Oxygen (21%), Carbon Dioxide (0.03%) and rare gases including water vapour in insignificant proportions. <u>Importance of components of the atmosphere</u> ▪ Support plant and animal life through photosynthesis, breathing etc. ▪ Support combustion ▪ Aid formation of precipitation (rain, dew, snow, etc.) ▪ Supports decomposition and disintegration of materials (plant and animal decay, weathering of rocks etc) The earth's atmosphere is indirectly warmed by long-wave ground radiation. Various conditions of the atmosphere are maintained by radiation, convection, conduction and evapo-transpiration. Human activities that negatively affect the atmosphere include: ▪ bush burning ▪ release of exhaust fumes from automobiles and industries forming smog in the sky. ▪ discharge of chlorofluorocarbons (CFCs) from old refrigerators leading to Greenhouse effect and depletion of the ozone layer. ▪ release of various chemicals from aero sprays such as deodorants, hair sprays, insect sprays.	Guide students to discuss the various components of the atmosphere bringing out the differences between each component. Students in small groups to discuss the usefulness of the components of the atmosphere in the environment and report for class discussion. **Note:** Teacher to facilitate the discussion. Students to: - brainstorm the meaning of radiation, convection, conduction and evapo-transpiration. - discuss the causes of the changes that occur in the atmosphere. - discuss the effects of the changes that occur on the environment. In small groups students to discuss human activities that impact negatively on the atmosphere and suggest ways for minimizing them. Each group to present their findings for class discussion.	<u>Class exercise</u> Sketch and label the structure of the atmosphere. <u>Class essay</u> Write an essay on the importance of atmospheric gases to life. <u>Class Project</u> Students to explore their environment and identify human activities that negatively impact on the environment. <u>Class assignment</u> Explain why the air in the regional capitals of the earth may not be as healthy as the air in the rural settlements.

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 4 **ELEMENTS OF WEATHER AND CLIMATE AND THE FACTORS INFLUENCING CLIMATE**	The student will be able to: 1.4.1 differentiate between weather and climate.	Weather: day to day atmospheric conditions of a place. Climate: average atmospheric conditions of a place studied over a period of time, usually 30 years.	Guide students to: - brainstorm the differences between weather and climate.	
	1.4.2 identify and describe the elements of weather and climate.	The elements of weather and climate include the following: ▪ Temperature ▪ Precipitation ▪ Humidity ▪ Air pressure ▪ Winds ▪ Sunshine ▪ Cloud cover	Students to identify and discuss the elements of weather and the factors influencing climate.	Class exercise Explain the elements of weather and climate and relate them to the factors influencing climate.
	1.4.3 identify and describe the factors influencing climate.	The factors of climate include: ▪ Altitude ▪ Latitude ▪ Ocean Currents ▪ Land and Sea Breezes ▪ Continentality ▪ Aspect	With the help of a map or globe students identify latitudes and ocean currents	
	1.4.4 describe the instruments used in measuring elements of weather.	Instruments used in measuring weather ▪ thermometer for temperature ▪ barometer for air pressure ▪ rain gauge for rainfall ▪ sun dial for sunshine ▪ wind vane/anemometer for wind ▪ hygrometer for humidity	Field trip Students visit a weather station to identify and observe the various instruments and how they are used. Students present reports for class discussion.	Class exercise Draw and label two instruments used for measuring weather and climate.

UNITS	SPECIFIC OBJECTIVE	CONTENT	TEACHING AND LEARNING ACTIVITIES	E VALUATION
UNIT 4 (CONT'D) **ELEMENTS OF WEATHER AND CLIMATE AND THHE FACTORS INFLUENCING CLIMATE**	The student will be able to: 1.4.5 locate the different climatic zones.	<u>The different types of climate</u> ▪ Equatorial Climate ▪ Tropical Desert Climate ▪ Tropical Continental Climate ▪ Tropical Monsoon Climate ▪ Mediterranean Climate ▪ Steppe Climate ▪ Tundra Climate	Students to: - use various means, including the internet to identify various climatic zones. - locate the different climatic zones on an outline map of the world.	<u>Class exercise</u> Draw and label the different world climatic zones in note books.
	1.4.6 describe the characteristics of each climatic type.	Characteristics of each climatic type should be discussed in relation to: ▪ temperature. ▪ precipitation. ▪ winds.	Students in small groups brainstorm the characteristics of each identified climatic zone in relation to temperature, precipitation and winds and present reports for class discussion.	<u>Class exercise</u> Name and describe two types of climate.
	1.4.7 explain the effect of climate on human activities.	Human activities influenced by weather and climate include: ▪ farming. ▪ construction of airport. ▪ construction of buildings.	Students identify human activities that are influenced by weather and climate and explain how these activities are influenced by weather and climate	<u>Class assignment</u> Write an essay on how weather and climate affect human activities

SENIOR HIGH SCHOOL - YEAR 1

SECTION 2

HUMAN AND REGIONAL GEOGRAPHY: POPULATION, DISTRIBUTION AND SETTLEMENT

General Objectives: The student will:

1. understand the concept of population and its relationship to the physical environment.
2. understand the concept of differential character of population and settlement.

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 1 **POPULATION: SIZE, STRUCTURE AND DISTRIBUTION**	The student will be able to: 2.1.1 explain the following population concepts: 'census', birth rate, death rate, fertility rate, growth rate' population density.	▪ **Census:** Involves headcount of individuals or persons within a defined boundary and period, and the collection of data on various characteristics of the population. Ghana's previous censuses were held in 1960, 1970, 1984, 2000 and 2010. ▪ **Birth rate**: Number of live births per 1,000 persons in a population at a given year. ▪ **Death rate:** Number of deaths per 1,000 persons in a population at a given year. ▪ **Fertility rate:** Average number of live births to a woman in the population during her child bearing years of 15-45. ▪ **Growth rate:** difference between birth rate and death rate. ▪ **Population density:** Number of people living in a square kilometre.	Students to: - brainstorm the meanings of the various population concepts. - discuss the importance of population concepts.	<u>Group project</u> Students in groups simulate census of the school population and present reports. Using data from the census, students diagrammatically represent the age and sex structure.
	2.1.2 differentiate between immigration and emigration. 2.1.3 explain the factors responsible for migration	**Immigration:** moving and settling either temporarily or permanently in another location e.g. town, country. **Emigration:** moving out of one location to settle in another location. <u>Factors of migration</u> Migration can be the result of natural disasters such as flooding and earthquakes. It can also be due to human factors such as ethnic conflicts or civil wars, or for political or economic reasons.	Assist students to: - explain the meaning of migration and role play the concept of migration - discuss the effects of migration on the individual and the nation as a whole in relation to the source and destination. - identify areas of heavy immigration and areas of heavy emigration in Africa and explain why.	<u>Class test</u> What are the advantages and disadvantages of migration?

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 1 (CONT'D) **POPULATION: SIZE, STRUCTURE AND DISTRIBUTION**	The student will be able to: 2.1.4 explain factors that influence population distribution.	Factors that influence population distribution include the following: ▪ Historical factors such as settlements due to wars. ▪ Physical factors such as terrain that is favourable for settlements e.g. along the coast or difficult terrain such as flood plain or rugged topography. ▪ Avoidance of disease-prone areas like the River Volta Basin which is black fly-infested. ▪ Availability of economic opportunities e.g. sea for fishing, minerals for mining. **Note:** Give examples from Ghana, Africa and the rest of the World.	In small groups, students to discuss factors that influence the distribution of population and present reports in class for discussion. Using a relief map, assist students to identify possible areas of high and low population density in Ghana and assign reasons for the distribution pattern. Using a world map, engage students in identifying high and low population density areas.	Oral exercise Explain factors affecting population distribution. Individual assignment Draw a sketch map showing population distribution in Ghana.

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 2 **SETTLEMENTS: RURAL AND URBAN**	The student will be able to: 2.2.1 differentiate between the various types of settlements.	A settlement is any location where people live. <u>Types of Settlements</u> **Rural settlements:** settlements with a population of less than 5,000 persons. **Urban settlements:** settlements of more than 5,000 persons (UNDP, 1998).	Students to discuss the meaning of the following terms: ▪ Settlements ▪ Rural settlement ▪ Urban settlement Students to mention their home towns. Using the population data of Ghana, class categorizes the hometowns as either rural or urban settlement	<u>Class exercise</u> Identify and name rural and urban settlements on the population map of Ghana.
	2.2.2 describe the characteristics of rural and urban settlements.	<u>Characteristics of rural settlements</u> ▪ Many people engage in primary occupations such as farming, fishing, and hunting. ▪ None or just a few public social amenities like schools, post offices, police stations and portable water. ▪ Buildings are made of local materials such as bamboo, swish with thatch roofs. ▪ Both humans and domestic animals tend to share the same compound. ▪ The settlements are mostly dispersed. <u>Characteristics of urban settlements</u> ▪ Many people engage in secondary and tertiary occupations such as manufacturing, insurance, banking and office/clerical type of work. ▪ Buildings are made of durable materials such as cement blocks, burnt bricks, iron rods and aluminum and brick tile roofing materials. ▪ They have many public facilities such as hospitals, super markets, stadia, potable water, electricity. ▪ They are normally planned and are of either linear or chess board pattern.	<u>Field trip</u> Students to undertake fieldtrip to urban and rural settlements to observe and identify the characteristics of each type of settlement. **Note:** This should be a guided trip. Assist students to plan out the trip and submit reports for class discussion.	<u>Class test</u> Write an essay to show the differences between rural and urban settlements.

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 2 (CONT'D) **SETTLEMENTS: RURAL AND URBAN**	The student will be able to: 2.2.3 analyze problems associated with rural and urban settlements.	Problems associated with rural settlements include: ▪ long distances to be covered due to the dispersed nature (for medical facilities, water etc). ▪ inadequate modern facilities. ▪ relatively high cost of manufactured product due to transportation ▪ children sometimes have to travel long distances to the nearest educational institution. ▪ high illiteracy rate. ▪ relatively low standard of living. Problems associated with urban settlements include: ▪ overcrowding. ▪ relatively high crime wave. ▪ anonymity and individualism. ▪ poor sanitation. ▪ pollution of the environment. ▪ pressure on public facilities.	Students to: - work in small groups to brainstorm and identify problems associated with rural and urban settlements. Each group to make a presentation for class discussion. - view urban and rural settlements from various sources including the internet. <u>Case study</u> Organize students to take a trip to a rural settlement to observe facilities/amenities and develop a plan for improving life in the settlement.	<u>Individual assignment</u> State and explain the problems associated with rural or urban settlements. Write an essay on ways of improving living conditions in rural settlements.

SENIOR HIGH SCHOOL - YEAR 1

SECTION 3

PRACTICAL GEOGRAPHY – USING MAPS

General Objectives: The student will:

1. acquire knowledge and skills for interpreting geographic data.
2. acquire the skills of investigating geographic information.

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 1	The student will be able to:			
ELEMENTS OF MAP READING	3.1.1 define a map and discuss its importance.	A map is a representation of all or part of the earth's surface on a medium such as paper, cloth, wall or board.	Students to brainstorm the definition and importance of maps.	
	3.1.2 identify different types of maps and their uses.	There are several types of maps. These include: ▪ political maps. ▪ topographical maps. ▪ population maps. ▪ relief maps. ▪ geological maps. ▪ climatic maps. ▪ vegetation maps. **Note:** The specific features inherent in a map are used to determine the name of the map.	Using different types of map, students to: - observe and identify the features of each map to bring out the similarities and differences. - explain when each type of map may be used.	<u>Class exercise</u> Write out the uses of each type of map in their exercise books.
	3.1.3 identify marginal information and conventional symbols.	Maps contain marginal information such as: ▪ scale of maps. ▪ compass direction. ▪ longitudes and latitudes. ▪ key or legend. ▪ title and date. Maps also show conventional symbols which represent features such as: ▪ chapel ▪ hospital ▪ school ▪ market	In small groups, students use internet or real maps to identify and explain the marginal information and conventional symbols on various types of maps. Each group to present their findings for class discussion.	<u>Case study</u> The country is embarking on re-demarcation of its regions. Which type of map may be necessary for this exercise? Explain.

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 1 (CONT'D) **ELEMENTS OF MAP READING**	The student will be able to: 3.1.4 state and explain different types of scales.	<u>Types of scales</u> 1. Statement scale: It is a statement which embodies two units of measurement, one for the map and the other for the actual distance on the ground, e.g. one centimeter on the map represents one kilometer on the ground. 2. Representative Fraction (RF): It is stated as a numerical ratio with the numerator always being 1 but without any unit stated against the ratio. 3. Linear or graphic scale: It is a line scale or the graphic representation of statement or RF scale.	Demonstrate how to develop scales and convert one type of scale to another. Students in small groups to measure the dimensions of their classroom or suitable area on the school compound and convert the measurements to the three types of scales.	<u>Class exercise</u> Convert one type of scale to the other.

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 2 **PRINCIPLES OF ELEMENTARY SURVEYING**	The student will be able to: 3.2.1 define surveying.	Surveying involves reading bearings and measuring distances between points. It also identifies locations as in the case of the GPS or Theodolite.	Students to brainstorm the meaning of surveying.	
	3.2.2 describe basic surveying instruments and their uses.	<u>Surveying instruments</u> 1. Prismatic compass Used for taking bearings. 2. Ranging poles Used for marking stations. 3. Chain Used for measuring linear distances. 4. Tape measure Used for measuring distances. 5. Pins or arrows Used for marking the intervals between distances. 6. Optical square Used for taking offsets from the chain line or traverse leg. 7. Field note book Used for recording field data. 8. Global Position System (GPS) **Note:** Surveying normally involves a team of three, the leader, recorder and follower.	Students to identify surveying instruments and describe their uses. **Note:** You may invite a resource person such as a surveyor in the locality to demonstrate the use of surveying instruments.	<u>Class exercise</u> Draw the following surveying instruments in exercise books and explain their uses: ▪ Prismatic compass ▪ Ranging pole ▪ Tape measure ▪ Pins
	3.2.3 use field data to plot a traverse.	Field data involves bearings, stations and distances. A traverse is the diagram plotted from the field data. This could either be an open or close traverse. Sometimes one would need to overcome obstacles in surveying using techniques such as similar triangles, squares or rectangles. Surveying also involves adjusting an open traverse. This involves constructing an error correcting graph.	Assist students to: - brainstorm field data. - describe types of traverse. - observe a demonstration in plotting a traverse from field data. - plot traverses using available data. - use the error-correcting graph to adjust an open traverse.	<u>Individual assignment</u> Students plot a traverse from sample data.

SENIOR HIGH SCHOOL - YEAR 2

SECTION 1

PHYSICAL GEOGRAPHY: LANDFORMS

General Objectives: The student will:

1. acquire basic knowledge of the nature and importance of the physical environment.
2. acquire knowledge on the differential character of the earth's surface.

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 1 **THE HYDROSPHERE: LAKES, LAGOONS, RIVERS, OCEANS AND OCEAN CURRENTS**	The student will be able to: 1.1.1 identify the differences among the various water bodies on the earth's surface.	<u>Oceans of the world</u> The Atlantic, Pacific, Indian, Arctic and Antarctic. The oceans lie between the continents. <u>Seas of the world</u> Mediterranean Sea, Red Sea, etc. The other water bodies – rivers, lakes and lagoons are located on the continents. Water bodies are the habitat for aquatic life (fish e.g. tilapia, herrings, sharks and whale).	Students to: - look out for and identify various water bodies from an atlas. - go on a field trip to explore the immediate locality, observe types of water bodies and write reports for class discussion.	<u>Individual assignment</u> Draw a sketch map of Ghana and locate one river, one natural lake, one artificial lake and a lagoon.
	1.1.2 explain the mode of classification and distribution of ocean currents of the world.	Ocean currents are classified into either warm or cold depending on the source region. <u>Distribution of ocean currents</u> ▪ Currents of the Atlantic Ocean ▪ Ocean currents of the Pacific Ocean ▪ Currents of the Indian Ocean.	Students to: - use the atlas to locate the various ocean currents. - discuss oceans that are warm and those that are cool giving reasons.	<u>Class exercise</u> On an outline map of the world, students insert two each of cold and warm currents in the Atlantic and Pacific Oceans.

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 1 (CONT'D) **THE HYDROSPHERE: LAKES, LAGOONS, RIVERS, OCEANS AND OCEAN CURRENTS**	The student will be able to: 1.1.3 explain the effects of ocean currents on adjacent lands.	<u>Effects of ocean currents on the adjacent lands</u> ▪ Warm currents increase temperature and precipitation. ▪ Cool currents reduce temperature of the adjacent coastline and create advection fog on the sea which has negative impact on visibility. ▪ Cool currents reduce precipitation along adjacent coastline. Deserts are therefore found along coastlines washed by cool currents. ▪ Cool currents move icebergs from the polar region towards equatorial zones which pose danger to shipping.	Students to - view ocean currents from various sources, including internet. - discuss the effects of ocean currents on adjacent lands. Guide students to discuss how ocean currents affect human activities.	<u>Class essay</u> Write an essay on the effects of a cold or warm current on the adjacent land.
	1.1.4 describe the topography of the ocean floor.	The ocean floor is made up of a variety of landforms which include the continental shelf, continental slope, deep sea plain, ocean ridges, ocean trenches and ocean deeps.	Assist students to use internet or other sources to identify and describe topographical features of the ocean floor. Students to model the topography of the ocean floor using clay or 'papier mârché'.	
	1.1.5 describe the formation of rivers, lakes, lagoons.	**Rivers:** they are run-offs on the surface of the earth. They are usually confined to defined channels called valleys. E.g. Volta, Nile **Lakes** are classified into two groups: natural and man-made or artificial lakes. *Natural lakes* Depressions occupied by water. There are no outlets. E.g. Lake Victoria, Lake Chad, Crater lakes. *Man-made (artificial) lakes* Lakes which are formed when a flowing river is blocked. E.g. by the construction of a dam such as the Volta Lake., blockade by lava or by animals such as beaver lakes	Students in small groups to find out from various sources including the internet, how various water bodies are formed and present their findings for class discussion.	<u>Class exercise</u> Using specific examples, describe the formation of any of the following: a) rivers b) lakes c) lagoons
	1.1.6 explain the importance of water bodies to life.	<u>Importance of water bodies</u> ▪ Water bodies are used as fishing grounds, for irrigation farming, as tourist sites and for recreation, as a source of minerals, for manufacturing, induce rainfall, etc. ▪ Hydro-electric power supply, ▪ Transportation ▪ Domestic activities	Students to: ▪ brainstorm the importance of various water bodies to life and give examples. ▪ discuss the effects of inappropriate use of water bodies by humans and suggest ways of sustaining them.	<u>Class test</u> Explain four ways in which either lakes or rivers are important to life and the limitations encountered in their use.

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 2 **LANDFORMS OF THE EARTH'S CRUST RESULTING FROM FAULTING, FOLDING AND VULCANICITY**	The student will be able to: 1.2.1 describe the internal forces that cause movement within the earth's crust.	<u>Forces that cause movement within the earth's crust</u> **Compression**: lateral or horizontal movement towards each other. This results in folding and sometimes faulting within the earth's crust. **Tension**: lateral or horizontal movement from a central point in the opposite direction resulting in faulting. **Tectonic movement**: Vertical movement of the earth's crust that causes the land to be either up-thrown or down thrown. **Vulcanicity:** Movement of molten rock or magma vertically and or horizontally within the earth's crust.	Guide students to: - brainstorm the following terms: compression, tension, tectonic movement, vulcanicity, folding, faulting. - use a table cloth to demonstrate how folding occurs. - use a piece of string or paper, to demonstrate how tensional forces occur in the earth's crust. Students find out from different sources including the internet, CD ROMs and documentaries on how vulcanicity occurs and discuss in class.	<u>Class exercise</u> Draw diagrams to illustrate the following earth movements: a) folding b) faulting (lateral and vertical earth movement).
	1.2.2 identify the landforms that result from the earth's movements.	<u>Resultant landforms from earth movements</u> **Folding:** e.g. Fold mountains (anticlines), Valleys (synclines) **Faulting:** e.g. Block Mountains, Rift Valleys, Escarpments, Plateaus, Earth tremors and earthquakes **Vulcanicity:** *Intrusive landforms* such as dykes, sills, batholiths, laccoliths, etc. *Extrusive landforms* such as cinder cones, composite cones, lava plateaus, craters, geysers, etc.	Students to find out from different sources including the internet and CD-ROMs the appearance of folds. <u>Field trip</u> Students to go on field trips to observe folding along road cuttings, surface mines and faults such as the Kwahu Scarp. Students to submit field reports for class discussion. Guide students to discuss the formation and appearance of the various landforms associated with intrusive and extrusive vulcanicity.	<u>Class exercise</u> Using specific examples, draw and describe the appearance and formation of two intrusive and two extrusive features of vulcanicity.
	1.2.3 explain precautions to take during an earth quake/earth tremor	<u>What to do during an earthquake/earth tremor</u> ▪ For the duration of the quake people should hide under beds or tables to avoid injury from falling debris. ▪ After the quake quickly move out of buildings to open spaces devoid of trees. ▪ Do not re-enter buildings until they have been declared safe. ▪ Buildings in earthquake zones should be constructed largely of wooden materials. ▪ Houses should not be built along the coast in earthquake-prone zones to avoid tsunamis.	<u>Historical search</u> Students to do a historical search from various sources including ICT, of earthquakes in Ghana and present reports for class discussion.	<u>Individual assignment</u> Write on what to do when an earthquake or earth tremor occurs.

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 2 (CONT'D) **LANDFORMS OF THE EARTH'S CRUST RESULTING FROM FAULTING, FOLDING AND VULCANICITY**	The student will be able to: 1.2.4 describe the characteristics of the landforms that result from earth movement.	Fold mountains have limbs which are the slopes and the crest which is the summit. Block mountains have vertical slopes and scarps.	Students to draw and label the various landforms and discuss their characteristics.	Class exercise Identify and describe two resultant landforms from earth movement. For each landform, students give specific examples from Africa.

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 3 **EXTERNAL SOURCES OF LANDFORMS**	The student will be able to: 1.3.1 distinguish between different types of weathering.	**Weathering:** Physical (mechanical) or chemical breakdown of rocks in situ. That is, the breakdown of the rocks exactly where the rock is. There is no movement of the broken down materials. **Factors of weathering** Temperature Water Ice Plants The processes of weathering vary depending on the type of existing climate. There are two main types of weathering: physical and chemical weathering. **Physical or Mechanical weathering:** Breaking down of rocks through physical processes due to temperature changes, action of plant root and the dropping of huge pieces of rocks from a height. **Chemical weathering:** The reaction between rock minerals and water through the processes of solution, oxidation, carbonation and hydrolysis.	Students to: - brainstorm meaning and types of weathering and the bringing out the differences. - Identify and discuss factors of weathering. Class experiments 1. *Physical weathering*: Students to collect different types of rocks and physically break them into smaller fragments. 2. *Chemical weathering*: Students to demonstrate various chemical changes that occur when rain water reacts with chemicals in rocks. E.g. adding water to either sodium chloride (common salt), or salt pêtre. **Note:** You can also demonstrate chemical expansion by adding water to garri. Students to observe and report the various reactions that took place. Field trip Students to explore and observe how roots of plants penetrated rock crevasses on their school environment and report for class discussion.	Individual assignment Students write their observations in the two experiments conducted in the Teaching Learning Activities Class exercise Students describe the differences between physical (mechanical) and chemical weathering processes.
	1.3.2 identify the various types of mass wasting.	**Mass wasting:** The down slope movement of weathered rock material under the force of gravity. Mass wasting is categorized based on the speed of movement of material. There are 4 types. 1. Sudden falling or dropping of rock and debris or eroded material e.g. rock fall 2. Sliding: relatively slower movement of debris e.g. land slide, rock slide, slump 3. Relatively rapid flow types which take the form of avalanche e.g. earth flow, mud flow. 4. Relatively slow flow e.g. soil creep, rock creep	Students in small groups to -brainstorm factors that trigger mass wasting and report for class discussion. -observe and describe pictures of various types of mass wasting and the associated landforms. Field trip Organize a field trip for students to observe processes of mass wasting and associated landforms. Students to submit field reports for class discussion.	Class test Using specific examples, students outline the types of mass wasting and associated landforms

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 4 **AGENTS OF DENUDATION AND ASSOCIATED LANDFORMS**	The student will be able to: 1.4.1 explain 'denudation' and name the agents of denudation.	Denudation is a three-phased activity that embraces erosion, transportation and deposition of weathered materials. Agents of denudation are: ▪ Rivers (surface and underground) ▪ Wind ▪ Sea waves	Students to: - discuss the meaning of denudation. - identify the agents of denudation.	
	1.4.2 identify landforms associated with rivers.	a) Landforms due to river erosion include: i) Pot holes: shallow and circular depressions on a river bed. They are mostly found in the upper and middle courses of a river. ii) Interlocking spurs: masses of land projecting out from a hill or mountain into a river valley. They develop at the upper course of a river. iii) Waterfall: a vertical drop in the gradient of a river valley enabling water to fall from a height into a depression called a plunge pool. b) Landforms due to river deposition include: i) Meanders: The sharp bends or twists of a river on a plain. ii) Ox bow lakes (cut-offs): They are meander loops of a river that have been separated from the main river. iii) Deltas: A delta is fan-shaped mouth of a river where alluvium is deposited. iv) Estuaries: Funnel-shaped tidal mouth of a river v) Levees: Raised embankments of the river channel. These are made of silt and mud built up by the river as it overflows its bank over a period.	Guide students to find out from different sources including the internet and CD ROMs, the various landforms associated with river erosion and deposition and describe them in class. Students to give examples of land forms due to river erosion and river deposition they have observed and explain how they could have occurred. Students to prepare an album on landforms due to river erosion and deposition.	<u>Class exercise</u> Using illustrations, students draw and label two each of erosional and depositional features of rivers.

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 4 (CONT'D) **AGENTS OF DENUDATION AND ASSOCIATED LANDFORMS**	The student will be able to: 1.4.3 describe drainage patterns.	Drainage patterns refer to a network of rivers and their tributaries. There are five basic patterns: a) Dendritic pattern develops on homogeneous rock structure. Tributaries join the main river at acute angles. E.g. River Volta and its tributaries b) Trellised pattern develops on heterogeneous (soft and hard) rock structure. Tributaries join main river at almost right angles. E.g. River Tano c) Radial pattern develop from dome-shaped rock structures. Rivers flow out of the summit down slope in all directions. E.g. The Blue Nile. d) Centripetal pattern develops when rivers flow from surrounding highlands into a depression. E.g. Lake Bosumtwi in the Ashanti Region, Lake Chad. e) Annular pattern is a snake-like pattern around a highland.	Students observe pictures of the various drainage patterns and discuss the differences in the features. **Note:** Students could use digital content to observe these features. Students to draw and discuss various drainage patterns in their note books.	<u>Individual exercise</u> Draw contour lines to distinguish between radial and centripetal drainage patterns.
	1.4.4 identify landforms associated with underground water.	Landforms associated with underground water include: i) **Sink holes:** enlarged joints in limestone rocks through which surface water disappears. ii) **Limestone caves:** underground hollows made from the chemical dissolution of limestone. iii) **Stalactites:** limestone deposits that hang from the roof of the limestone cave. iv) **Stalagmites:** limestone deposits that grow from the floor of the cave upwards. v) **A limestone pillar:** formed when a stalagmite and a stalactite are joined. Springs and wells i) A spring is underground water that flows slowly until it emerges on the surface at a point where the impermeable rock layer on which it flows appears on the surface. ii) Wells are holes drilled into the ground to below the water table, that is, into the aquifer.	Students to: - observe, from various sources, including digital content, pictures of various underground features in limestone regions. - describe their characteristics and how they are formed. - prepare an album of landforms associated with underground water.	<u>Class exercise</u> Draw and label an underground limestone carven.

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 4 (CONT'D)	The student will be able to:			
AGENTS OF DENUDATION AND ASSOCIATED LANDFORMS	1.4.5 identify and explain the formation of landforms associated with wind.	a) Landforms due to wind erosion include: i) **Rock pedestal:** mushroom-shaped features resulting from differential erosion by wind. ii) **Depressions (Blow outs):** circular hollows formed in an arid area. When the blowout is deep enough to reach a water table, underground water seeps out to form an oasis. iii) **Zeugens:** a horizontal ridge and furrow landscape. iv) **Yardangs:** vertical ridge and furrow landscape v) **Wadis:** u-shaped valleys created by water erosion in an arid region. b) Landforms due to wind deposition include: i) **Barchan dunes:** crescentic dunes which have gentle windward and concave leeward slopes. ii) **Seif dunes:** longitudinal ridges of sand. They occur in groups and parallel to one another and to the direction of the prevailing wind iii) **Loess dunes:** fine desert sand scooped by the wind and deposited on the fringes of the desert.	Students to: - identify and describe the various landforms associated with wind erosion and deposition. - draw the various landforms associated with wind erosion and deposition.	Class exercise Students give examples of features due to wind erosion and explain why they are found in those areas.
	1.4.6 identify and explain the formation of landforms associated with sea waves.	a) Landforms due to wave erosion include: i) **Sea cliff:** vertical or nearly vertical rock face on the sea coast. ii) **Arch:** a semi-circular underpass in a headland. iii) **Wave cut platform**: flat piece of land that is created as a result of wave erosion. iv) **Stack:** isolated piece of resistant rock mass in the sea, usually a remnant from an eroded headland. It is called a stump if it reduces in size and can only be seen at low tide. v) **Bay:** a wide inlet into the land. E.g. Windy Bay at Winneba. b) Landforms due to wave deposition include: i) **Spit**: a strip of low-lying sand or gravel along a coastline projecting from one end of the land into the sea or across a bay or lagoon. ii) **Sand bar**: a strip of low-lying sand or gravel along a coastline projecting from one end of the land to the other across a bay. **iii) Beach:** marine deposits along the coastline.	Field trip Students to undertake a field trip to a coastal area, if possible, to observe the various coastal features and write reports for class discussion. Students to observe pictures of the various coastal landforms from different sources including the internet and the CD-Rom and distinguish between the features.	Class Essay Write an essay on the appearance and formation of two erosional and two depositional coastal landforms.

SENIOR HIGH SCHOOL - YEAR 2

SECTION 2

HUMAN AND REGIONAL GEOGRAPHY: ECONOMIC ACTIVITIES

General Objectives: The student will:

1. be aware of the differential character of the earth.
2. understand the concept of individual-environment relationships.

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 1	The student will be able to:			
ECONOMIC ACTIVITIES (PRIMARY, SECONDARY, TERTIARY)	2.1.1 explain the three systems of economic activities.	The three economic systems are: a) Primary systems which involve direct exploitation of resources in the environment such as hunting, fishing, farming and mining. b) Secondary system involving manufacturing industries such as canneries, textiles. c) Tertiary system involving support services to the primary and secondary economic systems. E.g. banking, insurance, transport, trade, communication and advertising.	Students to: - discuss the three systems of economic activities with examples. - describe and compare characteristics of the three economic systems.	Oral exercise Distinguish among the three systems of economic activities.
	2.1.2 explain the components of primary activities.	Components of primary activities include; a) Agriculture (farming and fishing): i) Subsistence farming (e.g. Bush fallowing) ii) Commercial farming (e.g. plantation farming). iii) Livestock farming b) Mining. c) Lumbering	Students in small groups to discuss components of primary economic activities and present reports for class discussion. **Note:** Guide students to give specific examples from Ghana, Africa and other countries where these activities occur.	Class exercise Write an essay on the problems facing any one of the following primary activities: i) agriculture ~~i)~~ii) mining ~~i)~~iii) lumbering.
	2.1.3 explain the components of secondary economic activities.	It is essentially manufacturing (adding value to primary products). e.g. i) Food processing ii) Textiles iii) Local crafts iv) Steel and metal works	Students in groups to discuss components of secondary economic activities and present reports for class discussion. **Note:** Students to give specific examples from Ghana, Africa and other countries.	Individual homework Find out from various sources including ICT, the advantages of large scale manufacturing industries

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UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 1 (CONT'D)	The student will be able to:			
ECONOMIC ACTIVITIES (PRIMARY, SECONDARY, TERTIARY)	2.1.4 explain the components of tertiary economic activities.	Tertiary economic activities involve trade, transport, communication, banking and insurance. Trade: exchange of goods and services internally and internationally. Internal trade is trade within the nation. International trade is trade between and among nations. Transportation: Land (road, rail, and footpaths) Water (using canoe, boat, launch, and ship) Air (commercial and cargo plane). Communication comprises newspapers, electronic media, radio, television, internet communication, posts and telecommunication. Banking and Insurance involves banking institutions both local and foreign and Insurance Companies.	Students in small groups to discuss components of tertiary economic activities and present reports for class discussion. **Note:** Encourage students to give specific examples from Ghana, Africa and other countries.	<u>Class exercise</u> Write an essay on the importance of the three components of tertiary economic activities in Ghana.
	2.1.5 explain the importance of economic activities.	<u>Importance of economic activities</u> ▪ Source of employment. ▪ Co-operation and neighbourliness among countries. ▪ Source of raw materials. ▪ Source of food. ▪ Source of revenue to the nation, both internal and external. ▪ Source of development leading to improvement in standard of living. ▪ Enhancement of peace and unity in the nation. ▪ Development of human resource base of the nation. ▪ Improvement in national productivity.	Students visit various economic activity centres to observe their operations and submit field report for class discussion. **Note:** Encourage collection of information and specimen of various institutions for class exhibition and discussion.	<u>Group Project</u> Students to classify the information and specimen collected during their field trip into the three categories of economic activity. Using specific examples, students to report on how one economic activity is transformed from primary to secondary stage and the support given by the tertiary institutions.

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 1 (CONT'D) **ECONOMIC ACTIVITIES (PRIMARY, SECONDARY, TERTIARY)**	The student will be able to: 2.1.6 explain problems that hinder economic development.	<u>Problems hindering economic development</u> ▪ Lack of adequate credit facilities. ▪ Difficulty in land acquisition. ▪ High cost of inputs. ▪ Inadequate sources of power. ▪ Over-reliance on foreign assistance for development programmes. ▪ Inadequate protection for local industries resulting in unfair competition. <u>Social and political problems</u> ▪ Poor work ethics. ▪ Inadequate human resource development programmes including in-service training, on-the job training, skills upgrading etc. ▪ Corruption ▪ Discontinuation of some important national development programmes when a new government comes to power	Assist students to identify and discuss problems militating against development of Ghana's economy. Students in small groups to discuss possible solutions to problems identified and present for class discussion.	<u>Class debate</u> Debate on the topic 'Reliance on foreign assistance is a challenge to development in Ghana'. <u>Class essay</u> Identify two economic and two socio-political problems facing Ghana and suggest solutions to them.

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 2 **RENEWABLE AND NON-RENEWABLE ENERGY RESOURCES**	The student will be able to: 2.2.1 distinguish between renewable and non-renewable energy resources.	Resource is anything human beings obtain from the environment to meet their needs and aspirations. <u>Types of energy resources</u> ▪ Renewable: they are the resources of nature that can be depleted over time but can be replaced through natural forces and human efforts in the long run. E.g. forest, water bodies, solar. ▪ Non-renewable resources are exhaustible and cannot be renewed after use. E.g. petroleum, bauxite, natural gas	Students to: - brainstorm the meaning and differences between renewable and non-renewable energy resources. - locate from the map of Africa areas of developed energy resources.	<u>Class exercise</u> Categorize energy resources from the map of Africa into renewable and non-renewable resources.
	2.2.2 explain the importance of energy resources.	<u>Importance of energy resources</u> ▪ They serve as a source of employment. ▪ They are source of raw materials. ▪ Source of government revenue. ▪ Facilitate national development. ▪ Lead to infrastructural development. ▪ As basis for food. ▪ Source of aesthetic beauty that promotes tourism.	Students in small groups brainstorm the importance of energy resources and present for class discussion. <u>Field trip</u> Students to discuss Ghana's energy sources and undertake field trips to any of the energy producing sites in Ghana to observe the processes of energy production. Students to submit reports for class discussion.	<u>Class essay</u> Write an essay on the importance of hydroelectric power to the socio-economic development of Ghana.
	2.2.3 describe the negative effects of exploitation of energy resources on the environment.	<u>Negative effects of exploitation of energy resources on the environment</u> ▪ Flooding of lands as a result of the construction of dams across rivers. This affects the economic activities of the communities. ▪ Danger posed by the disposal of residual waste. ▪ Land degradation through dumping of toxic waste. ▪ Pollution due to spillage of oil, discharge of petroleum products into drains. ▪ Air pollution as a result of emission of carbon dioxide into the atmosphere through charcoal burning, oil refining etc. ▪ Change of economic activities as a result of inundation of land by water from a dam.	Students to discuss the negative effects of energy resource exploitation on the environment giving examples of possible solutions for correcting such negative effects.	<u>Individual assignment</u> Students write ways to conserve energy in the home.

SENIOR HIGH SCHOOL - YEAR 2

SECTION 3

PRACTICAL GEOGRAPHY: READING MAPS

General Objectives: The student will:

1. acquire skills in geographic investigation.
2. acquire skills in interpreting and analyzing geographic information
3. acquire skills in map interpretation and analysis.

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 1 **PRINCIPLES OF GEOGRAPHIC INVESTIGATION**	The student will be able to: 3.1.1 distinguish between primary and secondary data.	Primary data include firsthand information secured through field work using survey instruments such as questionnaires, interview guide and observation checklist. Secondary data consist of information extracted from existing documents, census reports and from the electronic media.	Assist students to: ▪ conduct surveys in their local area ▪ develop data collection instruments (e.g. questionnaires, interview guide and observation checklist. ▪ extract data from existing reports, maps, etc. **Note**: the local market, industrial and agricultural areas are of geographic interest.	<u>Class Exercise</u> Design a ten-item interview questionnaire
	3.1.2 write a report on an investigation, surveys and interviews conducted.	<u>Components of investigation report</u> ▪ Introduction (including acknowledgements). ▪ Data collection and analysis. ▪ Conclusions and recommendations. ▪ References.		<u>Individual assignment</u> Write a report on a survey conducted in the local market.

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 2 **STATISTICAL MAPS AND DIAGRAMS**	3.2.1 differentiate between statistical maps and statistical diagrams.	Statistical maps: maps on which symbols are used to represent geographic phenomenon on a base map. E.g. proportional circles, dot maps, isobars. Statistical diagrams: maps which show relationships between quantities using lines and/or bars. They do not necessarily need a base map. E.g. line graphs, bar graphs, combined line and bar graphs.	Students to: - discuss the differences between statistical maps and diagrams. On a base map, guide students to use symbols to represent various phenomena. E.g. proportional circles or dots to represent population of an area.	
	3.2.2 represent statistical data graphically.	Quantities are represented on the Y-axis (dependent variables) and time/period on the X axis (independent variables).	Students to use average monthly rainfall and temperature figures to plot line graphs and draw bar graphs to represent the rainfall and temperature figures. Students to: - observe a demonstration of graphic representation of statistical data. - use secondary data to plot the diagrams. **Note:** Guide students as they plot the diagrams.	<u>Individual exercise</u> Use statistical data from a secondary source to draw statistical diagram.

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 3 **PRINCIPLES OF MAP READING**	The student will be able to: 3.3.1 use practical skills to demonstrate map reading.	Skills of map reduction and enlargement, comparison of gradient/slope (concave and convex) and representation of relief using colours, hachures etc. Drawing of cross-profiles and cross-section. Calculation of map area, gradient, vertical exaggeration, etc.	Students to: - brainstorm the processes of map reduction and enlargement. - describe steps in reducing and enlarging maps. - form small groups and use topographical sheets to go through the principles of map reduction and enlargement etc. - calculate the area of their classroom.	<u>Individual exercise</u> Draw annotated cross-section between two points across a river basin.

SENIOR HIGH SCHOOL - YEAR 3

SECTION 1

PHYSICAL GEOGRAPHY: ENVIRONMENTAL CONCERNS

General Objectives: The student will:

1. acquire basic knowledge about the nature of the physical environment.
2. be aware of environmental concerns and their impact.

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 1 **VEGETATION (TYPES AND DEFORESTATION)**	The students will be able to: 1.1.1 identify major vegetation zones of the world.	<u>Main vegetation zones of the world</u> The type of vegetation found at a place is determined by the existing climatic conditions. As a result, the vegetation zones of the world generally correspond to the climatic zones of the world. Major vegetation zones include: ▪ Tropical Rain forest ▪ Tropical Savanna ▪ Monsoon Forest ▪ Desert Scrub ▪ Mediterranean Forest ▪ Temperate Grassland ▪ Tundra **Note:** No sharp boundaries exist between the different vegetation zones. They rather have transition zones where one zone gradually changes to the other vegetation zone.	Guide students to do the following: i. identify the different vegetation types in the world and relate them to the corresponding climatic zones ii. describe the climatic zone associated with each of the vegetation types with explanation.	<u>Class exercise</u> Locate different vegetation zones on the outline map of the world.
	1.1.2 describe the characteristics of various vegetation types.	Features of typical vegetation types include: ▪ species (types of plants) ▪ structure of plants ▪ relationship between different types of plants (e.g. parasites, creeping and climbing plants etc) ▪ distribution of plants, that is, whether it is mixed or pure strands (e.g. tropical or coniferous forests)	Students to describe the characteristics of various vegetation zones using the features listed in content as a guide. <u>Field trip</u> Students to explore, observe, and record different types of vegetation in the school or community environment and present their observations for class discussion.	<u>Class exercise</u> Draw a sketch map of Ghana or West Africa, locate the vegetation zones and describe the characteristics of one of them.

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 1 (CONT'D)	The students will be able to:			
VEGETATION (TYPES AND DEFORESTATION)	1.1.3 explain the importance of vegetation to life.	Importance of vegetation ▪ Lumber for construction such as buildings, furniture, bridges. ▪ Trees serve as wind breaks. ▪ Food for human beings, animals and plants. ▪ Some species are used for medicinal purposes. ▪ Wood used as pit props in the mining industry. ▪ Timber used in the transportation sector as railway sleepers, boats and automobiles etc. ▪ Vegetation serves as habitat for animals etc.	Students to discuss the factors that account for differences in distribution of different types of vegetation. Students in small groups to discuss the importance of vegetation to life. Each group to make a presentation for further class discussion.	Class essay Write an essay on the importance of vegetation to life.
	1.1.4 describe the causes and effects of deforestation.	Causes of deforestation ▪ Improper farming practices ▪ Indiscriminate logging ▪ Wanton bushfires Effects of deforestation ▪ Flooding ▪ Soil infertility ▪ Soil erosion	Students in groups to: - discuss the term deforestation. - discuss causes and effects of deforestation in Ghana. - present reports for class discussion.	Class exercise Using specific examples, students to write on three causes of deforestation.
	1.1.5 suggest methods for conserving vegetation.	Vegetation conservation methods include: ▪ afforestation and re-afforestation. ▪ creation of forest reserves. ▪ legislation and enforcement on bush burning. ▪ controlled animal grazing. ▪ better farming practices.	Students to discuss ways of conserving vegetation and give examples of forest reserves and afforestation programmes in the country.	Group Project Students in groups to plant trees on the school compound or in the neighbourhood and nurture them.

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 2 **SOILS (TYPES, EROSION AND CONSERVATION)**	The student will be able to: 1.2.1 explain the term 'soil'	Soils are the topmost part of the earth's crust, the end product of weathering. They serve, for example, as anchor for and contain minerals for plants.	Students brainstorm the meaning of soils and how soil it is formed.	
	1.2.2 identify the properties and importance of soils.	The properties of soils determine what the soils can be used for. E.g. farming, construction and as raw materials for industries. The properties include: ▪ texture. ▪ structure. ▪ colour. ▪ moisture retention capacity. ▪ acidity and alkalinity. Importance of soils: anchor for plants, source of minerals for plants, for farming, source of bauxite, diamonds etc.	Students to: - discuss the properties of soils as listed in content. - discuss the importance of soils. <u>Field work</u> Students on a guided tour to: i) observe soil types on the school compound. ii) dig a pit at a convenient site on the school compound, observe the soil profile and collect samples of soil from the various horizons for discussion iii) classify soil types collected from the field according to their properties.	<u>Class exercise</u> Students draw and label the soil profile on the school compound (or in the neighbourhood)
	1.2.3 explain soil forming factors.	Processes and influences act to develop the soil. These processes called soil-forming factors include: ▪ parent material. ▪ landform. ▪ time. ▪ climate. ▪ biological (plants and animals).	Class to brainstorm factors that affect soil formation.	<u>Class assignment</u> Write a short report on two factors that affect the formation of soils.
	1.2.4 classify different types of soils.	Soils are classified according to the climatic conditions pertaining in the area. Soil type include the following: ▪ Tropical soils such as latosols (laterites) ▪ Temperate soils such as podsols ▪ Savanna regions have chernozerrms. ▪ Desert soils such as sandy soils	Students to: - use real maps or internet to identify various types of soils on a world map. - describe the characteristics of the soils.	<u>Individual assignment</u> Draw a sketch map of Ghana showing the soil types.

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 2 (CONT'D)	The students will be able to:			
SOILS (TYPES, EROSION AND CONSERVATION)	1.2.5 explain soil degradation and its effects.	<u>Soil degradation</u> Any activity that leads to reduction in soil quality. These include natural, human and animal activities such as: ▪ soil erosion (sheet and gulley). ▪ use of chemicals for farming. ▪ dumping of industrial waste such as oil, chemicals. ▪ dumping of non-bio-degradable waste materials by humans such as plastic waste, metal and oil waste. ▪ overgrazing	Students in small groups to: - brainstorm the meaning of soil degradation. - discuss causes of soil degradation, its effects and present reports for class discussion.	<u>Class essay</u> Students analyze the relationship between human activities and soil degradation.
	1.2.6 explain various ways of soil conservation.	<u>Soil conservation</u> It involves the practice of maintaining and improving the soil quality Ways of soil conservation include: ▪ erosion control such as strip cropping, terracing, cover cropping, mulching, building of artificial embankments, landscaping. ▪ encouraging organic farming instead of chemical farming. ▪ enforcement of policies and laws on proper disposal of industrial and domestic waste. ▪ recycling of waste material instead of dumping it on the soil.	Students to: - discuss various ways for soil conservation - describe ways of maintaining the soil in Ghana.	<u>Group Project</u> Students explore the local community and categorize types of waste materials according to the following: i) Biodegradable and non-biodegradable materials ii) Materials that can or cannot be recycled iii) Toxic materials such as batteries and cartridges. Suggest appropriate disposal ways of each category of waste material.

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 3 **ENVIRONMENTAL CONCERNS**	The student will be able to: 1.3.1 define environmental concerns. 1.3.2 explain the degradation of the environment	<u>Environmental concerns</u> The environment has to do with land, water and air, hence the concerns include various kinds of degradation. Degradation entails environmental concerns such as: ▪ flooding ▪ deforestation ▪ bushfires pollution (i.e. land, water, air, noise, etc.).	Students discuss or brainstorm the various components of environmental concerns relating to land, water, air, etc. Students engage in picture analysis of degraded elements. Students take a walk around the environment and share experiences.	<u>Class Exercise</u> Explain the causes and effects of land, water, air and noise pollution.

SENIOR HIGH SCHOOL - YEAR 3

SECTION 2

HUMAN AND REGIONAL GEOGRAPHY: GHANA

General Objectives: The student will:

1. acquire knowledge of the special relations and the differences in the character of the landscape of Ghana.
2. acquire basic knowledge about the individual environment-relationships in Ghana.
3. develop empathy for other environments with different resources.

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 1 **GHANA: SIZE, LOCATION, PHYSICAL AND SOCIO-ECONOMIC ENVIRONMENT**	The student will be able to: 2.1.1 define the boundaries of Ghana in relation to her neighbours.	Size: Ghana covers an area of 238,539 sq. km. Ghana is bounded in the east by the Republic of Togo, in the west by the Republic of Côte d'Ivoire, in the north by the Republic of Burkina Faso and in the south by the Gulf of Guinea in the Atlantic Ocean. Ghana had a total population of 18.9 million people, growth rate of 2.6% and a density of 77 people per square kilometer by the 2000 population census. The estimated population in 2006 was 23.0 million with growth rate of 2.1%.	Students use an atlas to: - identify the location of Ghana in relation to her neighbours. - discuss the size of Ghana in relation to the size of her West African neighbours.	
	2.1.2 describe the physical features of Ghana.	The physical features of Ghana include the relief and drainage systems. <u>Relief Systems</u> Ghana is sub-divided into 5 relief regions namely: ▪ The Coastal Plain ▪ The Savanna High Plain ▪ The Forest Dissected Plateau ▪ The River Volta Basin ▪ The Highlands that surround the River Volta Basin (The Gambaga Scarp, The Akwapim-Togo Ranges) <u>Drainage systems include:</u> ▪ Rivers such as the Volta, Pra, Tano, Black Volta, the White Volta and the Ankobra. ▪ Lakes: The Volta lake which is man-made and Lake Bosumtwi which is a natural lake. ▪ Lagoons: e.g. Keta Lagoon, Korle Lagoon in Accra.	Guide students to identify and discuss the relief and drainage systems in Ghana. <u>Field trips</u> Students to go on field trips to observe some of the relief features and drainage systems in Ghana and write reports for discussion. The areas include: ▪ The Akosombo dam, Kwahu Scarp (Eastern Region), ▪ Lake Bosumtwi (Ashanti Region), ▪ Keta Lagoon (Volta Region) ▪ Kintampo Waterfall (Brong Ahafo Region ▪ River Pra (Through Eastern, Ashanti and Central Regions) ▪ The Volta Estuary (Ada in the Greater Accra Region).	<u>Individual assignment</u> Draw a sketch map of Ghana, locate and name the following: i) Three major relief features. ii) Three rivers. iii) One natural lake. iv) Three lagoons. Students discuss the importance of Lake Volta for the economic development of Ghana. <u>Class essay</u> Economic importance of highlands in Ghana.

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 1 (CONT'D) **GHANA: SIZE, LOCATION, PHYSICAL AND SOCIO-ECONOMIC ENVIRONMENT**	The students will be able to: 2.1.3 describe the major economic activities in Ghana.	<u>Major economic activities in Ghana</u> Primary economic activities - farming, fishing and mining, hunting and gathering of forest products, lumbering - commercial agriculture: (i) irrigation project such as Tono Vea, Okyereko and Dawhenya. (ii) plantation agriculture such as Twifo oil palm, rubber in Western Region and cocoa in Bunso Secondary economic activities - manufacturing, tourism, construction (roads, buildings) Tertiary economic activities - trade, transport, insurance and banking.	Students in small groups to discuss components of economic activities in Ghana with examples, and present reports for class discussion. <u>Class discussion</u> Students to discuss problems facing mining and manufacturing industries in Ghana and suggest solutions to them.	<u>Individual assignment</u> Find out from different sources including the internet and CD ROMs, tourist sites in Ghana and discuss problems facing the development of these sites.

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 2 **AFRICA INCLUDING WEST AFRICA: SIZE, LOCATION, PHYSICAL AND ECONOMIC ENVIRONMENTS**	The student will be able to: 2.2.1 locate the African continent in relation to longitudes and latitudes.	Africa lies roughly within longitude 20 degrees West and 50 degrees East and also within latitude 35 degrees north and 40 degrees south.	Students use a wall map or an atlas to identify the location of Africa in relation to longitudes and latitudes. **Note:** This topic must be taught with the aid of large wall maps of Africa. Students must be encouraged to draw and make sketches.	
	2.2.2 describe the physical environment of Africa.	The physical environment comprises the relief, drainage, climate and vegetation. <u>Relief</u> Africa has important highlands which include the Atlas Mountains, The Ethiopian Highlands, The Futa Jallon Plateau, The Jos Plateau and Drakensburg Mountains. <u>Drainage</u> The drainage comprises rivers such as the Nile, the Zambezi, the Orange, the Niger, the Senegal, Sasandra and the Zaire. The lakes include Victoria, Chad, Nasser, Kariba and Kainji. <u>Climate and Vegetation</u> Africa has a variety of climates and vegetation types which include: ▪ The Equatorial Climate with its selva vegetation ▪ Tropical Continental Climate with the Tropical Savanna Vegetation ▪ The tropical Desert Climate with its Scrub vegetation ▪ The Mediterranean Climate with the Mediterranean Forest.	Assist students to discuss the meaning of physical environment and the concepts of drainage, climate and vegetation. Students with the aid of large wall maps, atlases or digital content, locate and describe the relief and drainage systems in Africa. **Note:** The lesson should cover the aspects mentioned in the content. Using knowledge already gained on units 1.2.1 and 2.1.2, students to discuss the relation between climate and vegetation in Africa. Students brainstorm in groups to identify various climatic and vegetation types in Africa. Each group to present a report for class discussion. Students with the aid of large wall maps or atlases to locate the climatic and vegetation zones in Africa.	<u>Class exercise</u> Students draw a sketch map of Africa and locate the major relief and drainage features. <u>Project</u> Select one drainage area in Africa outside of Ghana (the Zambesi, the Niger etc) and write a paper, with appropriate diagrams, outlining the type of climate and vegetation that will occur in the selected drainage area. <u>Class assignment</u> Describe the characteristics and relationships between the climatic and vegetation types in Africa.

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 2 (CONT'D) **AFRICA INCLUDING WEST AFRICA: SIZE, LOCATION, PHYSICAL AND ECONOMIC ENVIRONMENTS**	The students will be able to: 2.2.3 explain the economic importance of relief and drainage features in Africa	<u>Some economic importance of highlands</u> ▪ They are the source of important rivers such as the Nile which takes it source from the Ethiopian Highlands, the Orange River from the Drakensburg Mountains. ▪ They are good sites for locating communication masts. ▪ They are made up of granitic rocks which are quarried for construction. ▪ Some contain valuable minerals such as gold ▪ Some are tourist sites such e.g. Kilimanjaro. ▪ Moderate the temperature of the surrounding area making the area suitable for settlements. ▪ Highlands are suitable for cultivation of some specific crops e.g. coffee on the slopes of Mount Kenya. <u>Some economic importance of water bodies in Africa</u> ▪ They are harnessed for domestic use. ▪ They are used for industries purposes. ▪ Some rivers are dammed for the generation hydro-electric power. ▪ Some rivers are dammed for irrigation. ▪ Some rivers are dredged for minerals e.g. River Sewa in Sierra Leone for diamonds. ▪ Some rivers have waterfalls which are tourists sites or could be used for electric power generation. ▪ They are rich fishing grounds.	In small groups, students to brainstorm the economic uses of highlands and water bodies in Africa. Each group to present a report for class discussion.	<u>Individual assignment</u> Write four economic importance of highlands and four economic importance of water bodies in Africa.

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 2 (CONT'D) **AFRICA INCLUDING WEST AFRICA: SIZE, LOCATION, PHYSICAL AND ECONOMIC ENVIRONMENTS**	The students will be able to: 2.2.4 explain the main economic activities in Africa.	<u>Some economic activities in Africa</u> The people of Africa engage in both subsistence and commercial farming. E.g. Peasant farmers engage in the cultivation of food crops within the forest and savanna zones; irrigation agriculture in the Nile and the Niger basins. Commercial farming is important in several parts of Africa such as coffee cultivation in Kenya, sisal in Tanzania, tea in Malawi, coconut in Benin, cocoa in the La Côte d'Ivoire and Ghana, oil palm in Nigeria, cotton in Sudan and fruit farming in the Mediterranean Regions of Africa. Large scale commercial mining is an important economic activity. This includes copper mining in Zambia and Zaire, gold in South Africa and Ghana, diamonds in Zaire, petroleum in Angola, Algeria, Nigeria, Gabon and Libya.	Students in small groups to discuss components of economic activities in Africa and present reports for class discussion. Students to give specific examples. <u>Class discussion</u> Students to discuss problems facing mining and manufacturing in Africa and suggest solutions to them.	<u>Individual assignment</u> Find out from different sources including the internet and CD ROMs, tourist sites in Africa and discuss the following: i. Factors that contribute to sustaining tourist attraction to these sites ii. Factors that hinder the development of tourism in such sites

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 3 **REGIONAL GROUPINGS IN AFRICA**	The student will be able to: 2.3.1: identify the various regional groupings.	Regional groupings in Africa include: ▪ African Union ▪ Economic Community of West African States ▪ Southern Africa Development Coordination Council (SADCC) ▪ East African Economic Community (EAEC) ▪ The Magreb Union	Students to discuss and group the African countries into regional unions.	
	2.3.2 explain why regional groupings were set up.	<u>Why regional groupings were set up</u> ▪ To promote regional development. ▪ To intervene and mediate in regional conflicts. ▪ To prevent conflicts between and within member states. ▪ To present a united force on international issues. ▪ To promote free movement of people across political boundaries. ▪ To give support to member states in times of crises. ▪ To promote unity and peace among member nations. ▪ To collaborate in sustainable use of common regional resources such as water resource.	Students in small groups to discuss the need for regional groupings. Each group to present a report for class discussion,	<u>Class essay</u> Write an essay on the achievements of one of the regional groupings.
	2.3.3 assess the impact of regional groupings on the political, economic and social set up of individual member countries.	<u>Impact of regional groupings</u> ▪ Intervention in conflicts within member nations e.g. ECOWAS in Liberia, Sierra Leone, La Côte d'Ivoire. AU in post-election conflict in Kenya, SADCC in Zimbabwe ▪ Wider market for goods and services produced in the sub-region. ▪ Apparent free movement of people within member states. ▪ Pressure on member countries to practice democracy, e.g. African Peer Review Mechanism. ▪ Facilitation of inter-regional trade through harmonization of tariffs, provision of access to seaports for land-lock countries. ▪ Adoption of lingua fraca to promote good neigbourliness e.g. Swahili in EAEC	Students in groups to discuss the impact of regional grouping on their member countries. Each group to present a report for class discussion.	<u>Case study</u> Write a report on the impact of ECOWAS on the socio-economic development of Ghana.

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 3 (CONT'D) **REGIONAL GROUPINGS IN AFRICA**	The students will be able to: 2.3.4 explain the challenges facing member countries of regional groupings.	<u>Challenges faced by regional groupings</u> ▪ Harassment of travelers on frontiers by security personnel. ▪ Lack of common currency militates against free trade. ▪ Allegiance of some countries to colonial masters e.g. Francophone countries. ▪ Reluctance of some countries to implement the organization's protocol. E.g. Nigeria banning categories of goods from Ghana ▪ Inability of member countries to pay subscriptions to the union resulting in the secretariats being cash-strapped. ▪ No sanctions for defaulting members. Most of these groupings are just loose organizations. ▪ Production of similar goods in most countries narrows the market.	Students with the guide of teachers discuss the challenges that the various regional groupings face with special emphasis on the African Union and the ECOWAS. Students brainstorm solutions to the challenges facing countries in regional groupings.	<u>Class assignment</u> Identify three challenges militating against efficient functioning of the regional blocs and suggest solutions to them.

SENIOR HIGH SCHOOL - YEAR 3

SECTION 3

PRACTICAL GEOGRAPHY: MAP INTERPRETATION AND MAP USE

General Objectives: The student will:

1. acquire skills of geographic investigation.
2. acquire skills for analysing and interpreting geographic data.

UNITS	SPECIFIC OBJECTIVES	CONTENT	TEACHING AND LEARNING ACTIVITIES	EVALUATION
UNIT 1	The student will be able to:			
ELEMENTS OF MAP INTERPRETATION AND MAP USE	3.1.1 interpret conventional symbols used on maps.	Symbols are provided on the topographical sheet to indicate: ▪ marshlands. ▪ Relief and drainage. ▪ spot heights and trigonometrical stations. ▪ bridges. ▪ embankments. ▪ Types of settlements **Note:** Students must be able to identify and interpret these symbols in map reading.	Students to use topographical maps to identify symbols and interpret their meaning.	Class exercise Describe the drainage patterns on a topographical map.
	3.1.2 describe the functions of symbols in interpreting maps.	Some symbols depicting functions of maps i) Where roads and railways intersect in a town, that settlement is described as a nodal town. ii) Where the symbol of mining is in or near a settlement, that settlement is described as a mining settlement. iii) Where there is a symbol of a market, the settlement is a commercial town.	Students to identify symbols provided on topographical maps to explain the functions of maps.	Class exercise Describe the pattern of settlements on a topographical map and explain how they are related to physical features.