



## Secondary

# Geography 4

Secondary Geography for Secondary Schools has been written and developed by the Ministry of General Education and Instruction, The Government of South Sudan in conjunction with Subjects experts. This course book provides a fun and practical approach to the subject of Geography, and at the same time imparting life long skills to the students.

The book comprehensively covers the Secondary 4 syllabus as developed by Ministry of General Education and Instruction.

**Each year comprises of a student's Book and a teacher's Guide.**

**The teacher's guide provide:**

- Full coverage of the national syllabus.
- A strong grounding in the basics of how to teach Geography as a subject, inclusive of helpful detailed notes.
- Clear presentation and explanation of Geographical concepts, theories and ideas
- Answers to a variety of case studies, progress checks, comprehensive activities and exercises, often showing how Geography can be applied to tackle real-life situations.
- It provides opportunities for collaboration through group work activities.
- Clear, detailed and stimulating illustrations.



All the courses in this Secondary series were developed by the Ministry of General Education and Instruction, Republic of South Sudan. The books have been designed to meet the Secondary school syllabus, and at the same time equipping the pupils with skills to fit in the modern day global society.



Secondary Geography 4

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# Geography 4

Teacher's Guide

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SECONDARY

4

# Geography

## Teacher's Guide

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## FOREWORD

I am delighted to present to you this Teacher's Guide, which is developed by the Ministry of General Education and Instruction based on the new South Sudan National Curriculum. The National Curriculum is a learner-centered curriculum that aims to meet the needs and aspirations of the new nation. In particular, it aims to develop (a) Good citizens; (b) successful lifelong learners; (c) creative, active and productive individuals; and (d) Environmentally responsible members of our society. This textbook, like many others, has been designed to contribute to achievement of these noble aims. It has been revised thoroughly by our Subject Panels, is deemed to be fit for the purpose and has been recommended to me for approval. Therefore, I hereby grant my approval. This Teacher's Guide shall be used to facilitate learning for learners in all schools of the Republic of South Sudan, except international schools, with effect from 4th February, 2019.

I am deeply grateful to the staff of the Ministry of General Education and Instruction, especially Mr Michael Lopuke Lotyam Longolio, the Undersecretary of the Ministry, the staff of the Curriculum Development Centre, under the supervision of Mr Omot Okony Olok, the Director General for Quality Assurance and Standards, the Subject Panelists, the Curriculum Foundation (UK), under the able leadership of Dr Brian Male, for providing professional guidance throughout the process of the development of National Curriculum, school textbooks and Teachers' Guides for the Republic of South Sudan since 2013. I wish to thank UNICEF South Sudan for managing the project funded by the Global Partnership in Education so well and funding the development of the National Curriculum, the new textbooks and Teachers' Guides. I am equally grateful for the support provided by Mr Tony Calderbank, the former Country Director of the British Council, South Sudan; Sir Richard Arden, Senior Education Advisor of DfID, South Sudan. I thank Longhorn and Mountain Top publishers in Kenya for working closely with the Ministry, the Subject Panels, UNICEF and the Curriculum Foundation UK to write the new textbooks. Finally, I thank the former Ministers of Education, Hon. Joseph Ukel Abango and Hon. Dr John Gai Nyuot Yoh, for supporting me, in my role as the Undersecretary, to lead the Technical Committee to develop and complete the consultations on the new National Curriculum Framework by 29 November 2013.

The Ministry of General Education and Instruction, Republic of South Sudan, is most grateful to all these key stakeholders for their overwhelming support to the design and development of this historic South Sudan National Curriculum. This historic reform in South Sudan's education system is intended to benefit the people of South Sudan, especially the children and youth and the future generations. It shall enhance the quality of education in the country to promote peace, justice, liberty and prosperity for all. I urge all Teachers to put this textbook to good use.

May God bless South Sudan. May He help our Teachers to inspire, educate and transform the lives of all the children and youth of South Sudan.



Deng Deng Hoc Yai, (Hon.)

Minister of General Education and Instruction, Republic of South Sudan

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## Guide to teaching Secondary school students

Learning for secondary school students is basically acquired through listening, reading, writing, creative, investigative and imaginative activities. It is through these activities that learners enhance various aspects of development which include: physical, cognitive, language, social, moral, spiritual, emotional, cultural and aesthetic.

It is imperative for teachers to realize that individual differences should be put into consideration when organizing activities for secondary school learners. This is in relation to their abilities, capabilities and potentialities.

This guide book provides hints for the teacher in relation to the activities children can perform in order to cover specific content. Teachers are advised not to consider the hints suggested to be exhaustive. They are instead expected to be creative and come up with more activities which can make learning more interesting for the learners.

It is important for teachers to note that the activities suggested for a specific content area varies in the level of complexity as we move from one level to another. The aspect is meant to cater for the development age levels of learners in terms of their abilities and capabilities.

## Note to the Teacher



### The significance of using the teacher's guide

The guide will help you to:

1. Outline the specific objectives in the themes and sub-themes to be taught.
2. Plan for the daily lessons geared towards achieving the targets for the whole term/ semester.
3. Identify and choose teaching and learning methods that will facilitate the achievement of the outlined objectives.
4. Prepare simulating environments to enhance the teaching / learning experience.
5. Select and ensure that the teaching / learning resources are suitable and available for teaching a given theme.
6. Assess the progress of the learner by using appropriate assessment methods.





## Why teach Geography in Schools

Geography in secondary schools is important for learners to acquire knowledge about the distribution of world's physical features and their impacts to human activities. Geography appreciates the diversity in nature and tries to grant learners with knowledge on how physical features are formed. Similarly they also learn how human activities contribute to change in climate and issues like environmental degradation among others.

As a career subject, geography has vast areas of specialization in the job industry giving the student a wide array of choices for his/her future aspirations. Examples of careers that learners may benefit from geography include aviation, meteorology, survey, tour guide among others.

Geography is an interesting subject to teach and teachers should ensure that the lessons are adventurous, lively and interactive by encouraging participation of the learners in the classroom.

## Components of the book

### A summary of the contents in the course book and the teacher's guide

The student's course book contains 8 broad units, each with a varied number of detailed topics. The book also contains a variety of numbered exercises, comprehensive activities, creative and cases studies to assess the understanding of the student. The activities and the case studies are group centered hence making the subject interactive based. They also help the student understand the various units within the book by upholding practicability.

The teacher's guide contains all detailed teaching notes on the 8 units and the topics within them. It also has the answers for the case studies, exercises and activities within the student's course book.

The guide also has themes spread over the 8 broad topics which are:

1. Learning objectives,
2. Learning outcomes,
3. Key competencies to be developed,
4. Cross cutting issues,
5. Link to other subjects,
6. Gender equality and sensitivity and
7. Attention to special need education.

*Note:* The content maps are represented as a comprehensive summary of the eight units before the detailed subtopics. This helps the teacher note the needs of the units in relation to the curriculum/ syllabus before embarking on the lessons.

For an effective learning experience, the teacher should ensure that the learners have a copies of the student's course book, maps, atlases and a geometrical set.

## Handling the various Units

Each unit has materials that intend to develop the learner's understanding of Geography. The course book also aims to develop creativity and interaction of the learner with people around them.

Learners will reach understanding through observation, listening and action before they can embark on listening and reading. The course book contains a varied number of comprehensive, creative activities and a number of case studies that foster more on working in pairs, engaging in debates and group works, making the experience interesting, meaningful, adventurous and fun.

The teacher should use the notes provided in the teacher's guide as a supplement for his/ her teaching. He or she should gather all information on the topic and write short notes to be used during the various individual lessons.

It is the responsibility of the teacher to encourage individual responses for the work done in class to develop religious competency of each learner in the classroom set up.

## Useful methods or strategies for teaching the Geography course



### DISCUSSION

A discussion is having a talk about something with others.

#### Points to note about a discussion:

- Learners should talk more than the teacher.
- A discussion will be effective if there is good discipline in the class.
- Learners should be taught to talk one at a time.
- They should be taught to listen to each other.
- The teacher should remember to be a good chair person.
- The teacher should make sure that the students learn the message in the discussion.

- A summary should be made at the end of the discussion of what the students have said.
- It may be necessary to divide the learners in smaller groups. In such case, the teacher should appoint or get the groups to appoint a chairperson who will report back to the whole class later.

*A discussion can be started in the following ways:*

- Using an illustration.
- Describing a situation.
- Asking learners to describe situations they have experienced.

*A discussion can be held:*

- After an activity.
- After a role play or a drama.

## **BRAINSTORMING**

Brainstorming is the name given to any discussion during which people progress their ideas freely. Brainstorming is a way of listing as many solutions as possible in a short period of time. All the ideas offered should be accepted and written down. No criticism or evaluative comments should be made.

Brainstorming is an important part of learning/ teaching creative thinking. It allows students to work together to create ideas. It also has a place in decision making as it helps to increase the range of factors taken into account in reaching a decision. There should be no criticism in the ideas suggested. On the other hand ideas that seem wild or outrageous should not be discouraged. Similarly, new ideas may result from combining or building on previous ideas

## GROUP WORK



Group work is one of the solutions to effective handling of large classes which teachers may often be faced with. The extent to which the teachers work with their classes or with individuals or groups affect the kind of contact they have with each pupil. Group work is appropriate for the following reasons:

- i. So that work can be provided at a suitable level for students of similar abilities.
- ii. So that cooperation and independence can be developed in students.
- iii. So that group discussion and interaction can be generated. Students learn from their interaction with one another as much as they do from their interactions with the teacher.
- iv. To make better use of limited materials.
- v. It is less easy for a student to “opt out” than in a whole situation.

### Types of groups:

- *Ability groups:* These are useful where the work provided is of different levels to suit the stage of development of the students in each group. They might be in the fast group in some topics or subtopics and in the average or slower groups. Avoid referring to the groups in such a way that suggest ability rating.
- *Mixed ability groups:* these are carefully chosen so that brighter students can aid slower students.
- *Friendship groups:* they are chosen by students themselves. These however, can, if not handled carefully, result in all girls or all boys groups which may not be desirable. Also there is always a pupil who is not wanted in any group.
- *Random groups:* these are chosen by the teacher on the spot. Probably the best method is to have a variety of different types of groups in different situations. This also helps to create interest for the students rather than keeping them in the same group throughout.



## BEGINNING GROUP WORK

It is observable, especially at the outset, that even when the learners are set to work in groups, they often work as individuals. It is very rare to find learners working harmoniously as a group. It is therefore useful to remember that learners need to be trained to work as a group. They need to have a practice in sharing, listening to others, points of view and contributing to common goals. This often needs constant hard work and positive reinforcements for the teacher.

### DOs and DON'Ts of group works

DOs	DON'Ts
<ul style="list-style-type: none"><li>a) Give your groups names.</li><li>b) Appoint reliable group leaders.</li><li>c) Have group monitors responsible for collecting and returning materials if any.</li><li>d) Make provisions for “messy” activities by providing newspaper covering, clothes and water for cleaning up.</li><li>e) Make sure that learners are clear about what they are going to do before they begin.</li><li>f) Have eyes on the back of your head</li><li>g) Move around from group to group.</li></ul>	<ul style="list-style-type: none"><li>a) Give out materials before learners are ready to begin.</li><li>b) Overemphasize the aspect of competition since this discourages co-operation.</li><li>c) Stand with your back to other groups when taking in any particular groups.</li><li>d) Be too fussy about noise provided it is reasonable and to the point of the lesson.</li></ul>

### Field work



Participating in field activities is important in understanding geography. Observing the natural landscape and applying whatever they have taught is paramount.

Field trips enhance practicability as a tool in understanding geography. It is advisable for the teacher to liaise with the school's administration or any other authority within the school to make sure that the learners take a visit to a nearby national park or game reserve to engage themselves in activities within the book.

The teacher should also communicate with the parents and explain the importance of field work to the academic progress of the student.



Figure 1. Field work opportunities within the student's book

*Note:* Adequate preparations before the field trip is important to ensure that all stakeholders participating in the academic trip are well catered for. If possible the learners may engage in field work activities, however in cases where there could be problems related to accessing the areas of visit (as indicated in the activities) the teacher should come up with activities to substitute the fieldwork. The activities should relate with the topic.

# Assessment opportunities within the Student's book



## Progress Check: Creating a fact sheet



Mr. and Mrs. Ford would like to visit East Africa, South Sudan in particular. Unfortunately, they do not have a copy of a map of East Africa or a brochure to guide them in the course of their journey. In groups, design a fact sheet for the East African region that highlights the physical features described in the previous topic. Make sure you highlight the key words and landmarks.



## Progress Check

Read the news article below. Discuss why GDP is perceived as an ineffective tool of measuring development.



## Time to leave GDP behind

Gross domestic product is a misleading measure of national success. Countries should act now to embrace new metrics, urge **Robert Costanza** and colleagues.

Robert E. Kennedy once said that a country's gross domestic product (GDP) measures "everything except that which makes life worthwhile". The metric was developed in the 1930s and 1940s amid the upheaval of the Great Depression and global war. Even before the United Nations began requiring countries to collect data to report national GDP, Simon Kuznetz, the metric's chief architect, had warned against equating its growth with well-being.

GDP measures mainly market transactions. It ignores social costs, environmental impacts and income inequality. If a business used GDP-style accounting, it would aim to maximize gross revenue – even at the expense of profitability, efficiency, sustainability or flexibility. That is hardly smart or sustainable (think Boeing).

Yet since the end of the Second World War, promoting GDP growth has remained the primary national policy goal in almost every country. Meanwhile, researchers have become much better at measuring what actually does make life worthwhile. The environmental and social effects of GDP growth

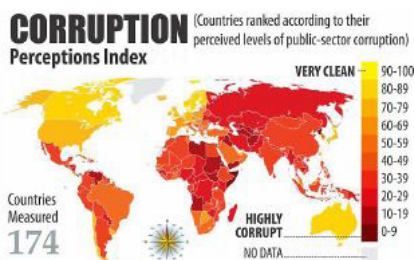
can be estimated, as can the effects of income inequality. The psychology of human well-being can now be surveyed comprehensively and quantitatively. A plethora of experiments has produced alternative measures of progress (see Supplementary Information: go.nature.com/bnqano). The chance to ditch GDP is now in sight. By 2015, the UN is scheduled to announce the Sustainable Development Goals, a set of international objectives to improve global well-being. Developing integrated measures of progress attached to these goals offers the global community the opportunity to define what it

Progress checks are tasks specifically designed to help the teacher provide a break during lessons. They focus more on nurturing critical and creative thinking.



In groups, Investigate why social and political unrest can result in geographical differences in wealth and development. Use the example of African countries to justify your answer. **Note:** Present your finding to the class.

## Corruption and development

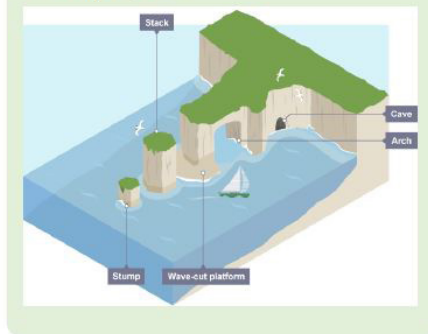


From the data provided above, discuss how corruption affects development. Suggest some reasons for corruption and how these might be addressed.

## Exercise 2

Answer the following questions in pairs: (where possible, use models to explain your answer)

- Define the following terms:
  - Coasts.
  - Erosion.
  - Deposition.
- Differentiate the following terms:
  - Destructive waves and constructive waves.
  - Long-shore currents and rip currents.
  - Headlands and bays.
- State the two broad categories of coastal landforms.
- In groups, look at the illustration below. Explain how the coastal landforms, within the picture, are formed.



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Exercises and comprehensive activities are tools to gauge the knowledge and understanding of the student on various concepts.



## Research Quiz



Research how sea and ocean tides affect different places around the world in different ways



## Case study 1

### Cultural Erosion



As people from different regions around the world interact, they share their cultures, ideas, language among others. Unfortunately this interaction has led to the erosion of local cultures since Africans now want to copy from the western culture.

As a class debate on the validity of this statement

Research Quizzes and Case Studies are investigative tasks that apply theories and concepts into real life contexts. They enhance the students' understanding and critical thinking through collaboration

## Remember

Metamorphic rocks can be formed from any other type of rock - **sedimentary** or **igneous**. Remember these two examples of common metamorphic rocks and where they come from:

- ✓ **Slate** is formed from shale
- ✓ **Marble** is formed from limestone

These are sections within the book to help the student recall key concepts with ease.



## Content Map 1

### Unit 1: Globalization

#### Number of topics

*3 topics*

#### Approximated number of lessons

*4-6 lessons each with an estimated time of one hour*

#### What are the learners expected to learn in this unit?

Learners should learn about the concept and development of globalization (the connections between people and environments across the globe). They should find out about the factors that have accelerated globalization, and use a range of sources to investigate the expansion of Trans National Corporations (TNCs), international organizations and global markets.

They should also find out about the effects of globalization on population movements, and explore the nature of the voluntary economic migrants around the world.

Learners should find out about the various ways of classifying nations into global groupings and how these changes overtime in response to international trade agreements and changes in wealth and power.

Research on how natural resources, energy, labour pools, skills and culture can be magnets for investments and influence global connectivity.

They should work in groups to relate their understanding of globalization to the situation of South Sudan and suggest the implication for the country's economic development

#### Knowledge and understanding

- Understand the concept and development of globalization.
- Understand the various ways of classifying nations into global groupings and how these changes over time.

## Key Inquiry questions

- a) What is globalization and how does it influence people's lives.
- b) What are the main regional economic groupings and what differences in levels of power and wealth exist?
- c) Why, as places and societies becomes more interconnected, why do some places show extreme wealth and poverty?

### Skills to be acquired

- Identify the factors that have accelerated globalization?
- Use a range of resources to investigate the expansion of Trans National Corporations.
- Research how natural resources, energy, labour, pools, skills and culture can be magnets for investment.
- Suggest the implication of south Sudan's economic development.

### Competencies to be developed

- Critical thinking and creative thinking: by identifying factors, researching impacts and suggesting implications
- Co-operation and communication: by working in groups and making presentations

### Attitudes

Appreciate the importance of sustainable development.

### Link to other subjects

*Peace Education, Environment and sustainability:* sustainable development and peaceful co-existence.

# Understanding Globalization



## What is expected of the teacher?

The teacher is supposed to:

1. Read and gather information about Globalization in order to familiarize with the topics to be tackled. Note making can be an important tool to improve on understanding before embarking into lessons.
2. Effectively define Globalization to the learners using relevant examples. For example using different contexts (the urban set up, the classroom set-up or any other relevant set-up.)
3. Explain the different types of Globalization and how they affect the lives of people around the world. (After this, the teacher is supposed to organize his/ her learners in groups to discuss and answer the questions in the various assessment opportunities within the student's book.
4. Explain what global groupings are and the various ways of classifying nations into the various global groupings. Also explain how these global groupings change in time in response to international trade agreements and changes in wealth.

**Note:** use the detailed notes within the student's course book to familiarize yourself with individual topics and make notes before the lessons.

**Progress checks, case studies and comprehensive activities** in the book are paramount for the student to understand the different topics through group discussion and presentation. Organize the learners in random groups.

## Brainstorming



As described earlier, brainstorming can be an effective method of teaching. Brainstorming allows students to work together in creating ideas. The teacher is supposed to start the lesson with a brainstorming question to ignite the comprehension of the learner. Use the following information.



Why do some places show extreme wealth and poverty as places and societies become more interconnected?



What are the main regional economic groupings and what differences in levels of power and wealth exists?

What is globalization and how does it influence people's lives?

**Note:** Use this brainstorming as an opportunity to elicit questions from students and group them/ sort them into ones that might be most useful



## Resources required in this unit

Generally, the teacher is supposed to ensure even distribution of the student's course book within the classroom. For an effective learning experience, the following resources should be provided to the students in order to cover the various subtopics, activities and exercises provided within the student's course book. Liaise with the school's authority for the provision of these items.

### Subtopic

### Requirements

Through the entire unit

Supplementary books (preferably from the school's library, if any) with information on globalization.

# Answers



## Comprehensive Activity 1 Pg. 15

Organize the learners in random groups to **discuss** and **tackle** the questions in the page indicated above:

The following are possible suggested answers (the teacher is to expect variegated answers):

### 1. **What is globalization?**

Globalization is a process of interaction and integration among the people, companies, and governments of different nations, a process driven by international trade and investment.

### 2. **What are some of the factors that influence globalization?**

- a) Advancement in technology
- b) Infrastructural development.
- c) Removal of capital exchange controls.
- d) Free trade.
- e) Emerging markets in low income countries.
- f) International consumption of goods.

### 3. **How has globalization affected people's lives?**

- a) The **economy of low income countries has grown** due to loans offered by the World Bank and the International Monetary Fund (IMF). These loans have made low income countries invest in economic activities that has boosted their growth.
- b) **Advancements in Education and Health systems;** nowadays, Job markets demand for certain qualities and skills from their potential employees. Such a demand lead to people searching for higher education. On the other hand, advances in health systems are due to the economic prosperity of both the low income countries and the high income countries.
- c) **Increased competition:** Globalization has resulted in making nations productive in terms of economic produces such as agricultural exports, manufactured and processed goods among others. This has led to competition since global consumers of such products have a wide variety of choices to choose from.

- d) **Creation of employment:** High income countries have tapped into the resources of high income countries leading to industrialization. This has led to creation of new Job opportunities for people living in the low income countries. This can also have a negative impact on the high income countries since job opportunities now shift from high income countries to the low income countries hence reduced Job opportunities
- e) **Business investments:** As a result of globalization, low income countries which perform well in the field of business and economics attract foreign investors. Foreign companies have directly invested in low income countries by starting local production units and international branches. Factors that attract financial investors include: abundance in natural resources and energy, which include minerals, timber, agricultural produce, availability of wildlife and diversity of landforms in the field of tourism, availability of skilled labour and presence of peace.
- f) **Erosion of culture:** Many low income countries are concerned about the rise of globalization because it might lead to destroy their own culture, traditional, identity, customs and their language Developing Country's customs and traditional have been changed. They wear and behave like high income countries, a few people are wearing their traditional cloths that they used to wear.
- g) **Globalization increases world's carbon dioxide emission** Enhancements in transportation and the rapid growth of industries as a result of globalization has increased the amount of carbon dioxide being released in the atmosphere as a result of human activity. This leads to acceleration in global warming which in turn is causing rapid climate change.
- h) **Domination of high income countries in world trade:** High income countries have been seen to dominate world trade because of the financial investments, loans and grants offered to low income countries. Globalization mainly operates in the interest of the richest countries which continue to dominate the world trade market at the expense of low income countries.
- i) **Increased gap between the rich and the poor:** Ideally, globalization should have resulted in creation of wealth and prosperity, but corporate greed and corrupt government has ensured that money is not distributed equally
- j) **Rise in health risks :** Globalization has brought people from various countries together, and this has led to numerous health risks such as the spread of HIV/ AIDS, Human Papilloma Virus (HPV), Ebola, swine flu among others
- k) **Rise in terrorism and criminal activities:** Terrorism and other criminal activities have risen as a result of globalization. This is through technological development in information and weaponry. Terror attacks have been on the rise in different nations around the world. A good example is the West gate shopping mall attack by the al-Shabaab terror group in Nairobi, Kenya and the September 9/11 attack on the world trade center in New York City, U.S.A.

## Case study 1 Pg. 15

### Cultural Erosion (class debate)

Organize the class and form a debate on “the erosion of local African cultures as a result of globalization”. The debate should have two sides, the opposing side and the proposing side.

The debate should describe how globalization leads to the erosion of local African cultures.

*The teacher can choose to assess the debate by awarding the two different side according to their performance.*

## Case study 2 Pg. 24

### Economic impacts of Globalization (Group work and presentation)

The teacher is supposed to organize the learners into random groups and guide them in tackling questions on the page indicated above. Variegated answers should be encouraged. Let the learners provide answers from their comprehensive point of view not from the notes you have already given them.

After the group discussion, let each group present their finding before the entire class.

- How can natural resources, energy, skills and culture become magnets for investments and influence global connectivity?

Natural resources and availability of energy are the main attraction for investment. High income countries are mainly interested in liaising with the developing nation in terms of exploiting their resources. In return low income countries receive money, job opportunities among other privileges.

Culture on the other hand can be a hindrance or a magnet to foreign investment. In terms of tourism, investors may see a countries' culture as attracting bringing forth profits from the many tourists who visit the country. Similarly a culture can chase away investors if the people within the nation are hostile. The global connectivity of prospering low income countries increases with their ties with other investors. This is also reflected back to its economic growth.

- How has globalization affected South Sudan?

Just like any other nation around the world, South Sudan has been affected both negatively and positively by globalization. The globalization of the South Sudan was brought about via the commodity of oil, and other resources. Despite the fact that oil has been a natural resource that has brought the country wealth and economic growth, it also has led to loses of life and damage of property through clashes and civil wars. (Sudan was the ninth largest country in the world before it was split due to clashes and civil wars caused due to political indifferences.)





## Exercise 1 Pg. 24

### 1. Negative and positive effects of globalization?

#### The positive effects

- a) The **economy of low income countries has grown** due to loans offered by the World Bank and the International Monetary Fund (IMF). These loans have made low income countries invest in economic activities that has boosted their growth.
- b) **Advancements in Education and Health systems**; nowadays, Job markets demand for certain qualities and skills from their potential employees. Such a demand lead to people searching for higher education. On the other hand, advances in health systems are due to the economic prosperity of both the low income countries and the high income nations.
- c) **Increased competition**: Globalization has resulted in making nations productive in terms of economic produces such as agricultural exports, manufactured and processed goods among others. This has led to competition since global consumers of such products have a wide variety of choices to choose from.
- d) **Creation of employment**: High income countries have tapped into the resources of low income countries leading to industrialization. This has led to creation of new Job opportunities for people living in the low income countries. This can also have a negative impact on the high income nations since job opportunities now shift from high income nations to the low income countries hence reduced Job opportunities
- e) **Business investments**: As a result of globalization, low income countries which perform well in the field of business and economics attract foreign investors. Foreign companies have directly invested in low income countries by starting local production units and international branches. Factors that attract financial investors include: abundancy in natural resources and energy, which include minerals, timber, agricultural produce, availability of wildlife and diversity of landforms in the field of tourism, availability of skilled labour and presence of peace.

#### The negative effects

- a) **Erosion of culture**: Many low income countries are concerned about the rise of globalization because it might lead to destroy their own culture, traditional, identity, customs and their language Developing Country's customs and traditional have been changed. They wear and behave like high income nations, a few people are wearing their traditional cloths that they used to wear.
- b) **Globalization increases world's carbon dioxide emission**: Improvements in transportation and the rapid growth of industries as a result of globalization has increased the amount of carbon dioxide emission in the atmosphere. This leads to acceleration in global warming since carbon dioxide emitted from car exhausts and industries is a greenhouse gas. Carbon dioxide among other greenhouse gases leads to the damage of the ozone layer leading to global warming.

c) **Domination of high income countries in world trade:** High income countries have been seen to dominate world trade because of the financial investments, loans and grants offered to low income countries. Globalization mainly operates in the interest of the richest countries which continue to dominate the world trade market at the expense of low income countries.

d) **Increased gap between the rich and the poor:** Ideally, globalization should have resulted in creation of wealth and prosperity, but corporate greed and corrupt government has ensured that money is not distributed equally

e) **Rise in health risks:** Globalization has brought people from various countries together, and this has led to numerous health risks such as the spread of HIV/ AIDS, Human Papilloma Virus (HPV), Ebola, swine flu among others.

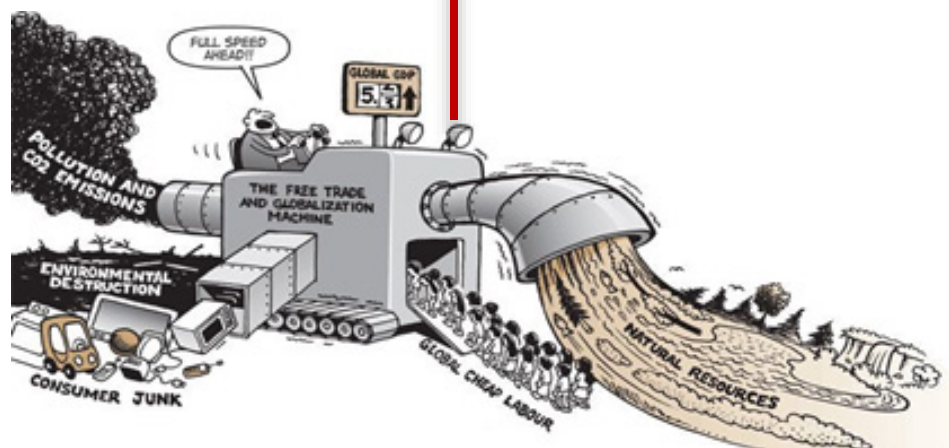
f) **Rise in terrorism and criminal activities:** Terrorism and other criminal activities have risen as a result of globalization. This is through technological development in information and weaponry. Terror attacks have been on the rise in different nations around the world. A good example is the West gate shopping mall attack by the al-Shabaab terror group in Nairobi, Kenya and the September 9/11 attack on the world trade center in New York City, U.S.A.

## 2. Different perceptions of globalization:



**The positive side:** The world is now perceived as a global village; different countries around the world can now trade easily.

**The negative side:** globalization has accelerated the exploitation of natural and human resources for selfish gain leading to global warming and in some cases, poverty.



## Assessment Guide for Unit 1: Globalization

When assessing learner's understanding of globalization through their talk and debate, consider the following:

- How well learners can define globalization and offer examples.
- How well learners can explain globalization using examples.
- How well learners can explain positive and negative impacts on people's lives, offering explanations to back up their lives.



### **“Progress Check” sections within the student's book**

As discussed earlier these sections can be effective for the teacher to gauge if his or her students have understood the topic. The questions within this sections have been designed to nurture the student's creative and critical thinking thorough applying the concept of globalization in real life context. (See pages 4, 7, 10, 13 and 16 of the student's book).



# Unit 2: Seas and Oceans

## Number of topics

4 topics

## Approximated number of lessons

4-8 lessons each with an estimated time of one hour

## What are the learners expected to learn in this unit?

Learners should learn about the seas and oceans of the world in terms of their impact on the land (erosion and deposition) and on climate. They should find out about the sea and ocean currents and the impact they have on weather and climate and how they (the ocean currents) are changing. They should use a range of sources to explore the recent research on the impact of climate change of the polar ice caps and how melting would affect the world.

They should also find out about the economic importance of seas and oceans in terms of food, trade, tourism and energy production, and make a special study of two projects to develop wave or tidal energy or sustainable fishing. They should also make a study of two examples of adverse effects of human activities (for example, the overfishing in North Atlantic Ocean or the Gulf oil spillage) They should use this information to suggest ways in which sustainable economic use can be made of the seas and oceans.

## Knowledge and understanding

- Understand how the seas and oceans impact on global climate.
- Understand the importance of the melting polar ice on climate.
- Understand the need for developing economic use of seas and oceans sustainably.

## Key Inquiry questions

- a) How do seas and oceans affect climate?
- b) What changes are happening to the seas and ocean currents as a result of climate change?
- c) How are the seas and oceans being used for food and energy supply?
- d) What impact do the seas and oceans have on the shape of the land?
- e) How can seas and oceans be used sustainably?

## Skills to be acquired

- Use a range of sources to research the impact of ocean currents and ice caps on climate change.
- Compare and contrast different ways in which seas and oceans have been used economically.
- Suggest ways in which sustainable economic use can be made of the seas and oceans.

## Competencies to be developed

- Critical thinking and creative thinking: by investigating the impact of climate change through comparing and contrasting.
- Co-operation and communication: working in groups and making presentations.

## Attitudes

Appreciate the importance of seas and oceans to life on the land.

## Link to other subjects

Environment and sustainability: sustainable use of the seas and oceans.

# Understanding Seas and Oceans



## What is expected of the teacher?

The teacher is supposed to:

1. Read and gather information about oceans and seas in order to familiarize with the topics to be tackled. Note making can be an important tool to improve on understanding before embarking into lessons.
2. Effectively describe the differences and similarities between oceans and seas to the learners.
3. Explain to the learners how seas and oceans affect global climate and the effects of global warming on polar ice caps.
4. Explain the economic importance of oceans and seas and how they affect land shapes.
5. Explain to the learners how to sustainably use seas and oceans.

**Note:** use the detailed notes within the student's course book to familiarize yourself with individual topics and make notes before the lessons.

**Progress checks, case studies and comprehensive activities** in the book are paramount for the student to understand the different topics through group discussion and presentation. Organize the learners in random groups.

## USING MODELS TO SUPPORT THE LESSON

Models can be of effective use in this unit. The teacher may use a water basin or a lab trough to mimic the impact and action of sea waves and ocean currents. Refer to the different types of waves and currents on page 25-37 of the student's course book.

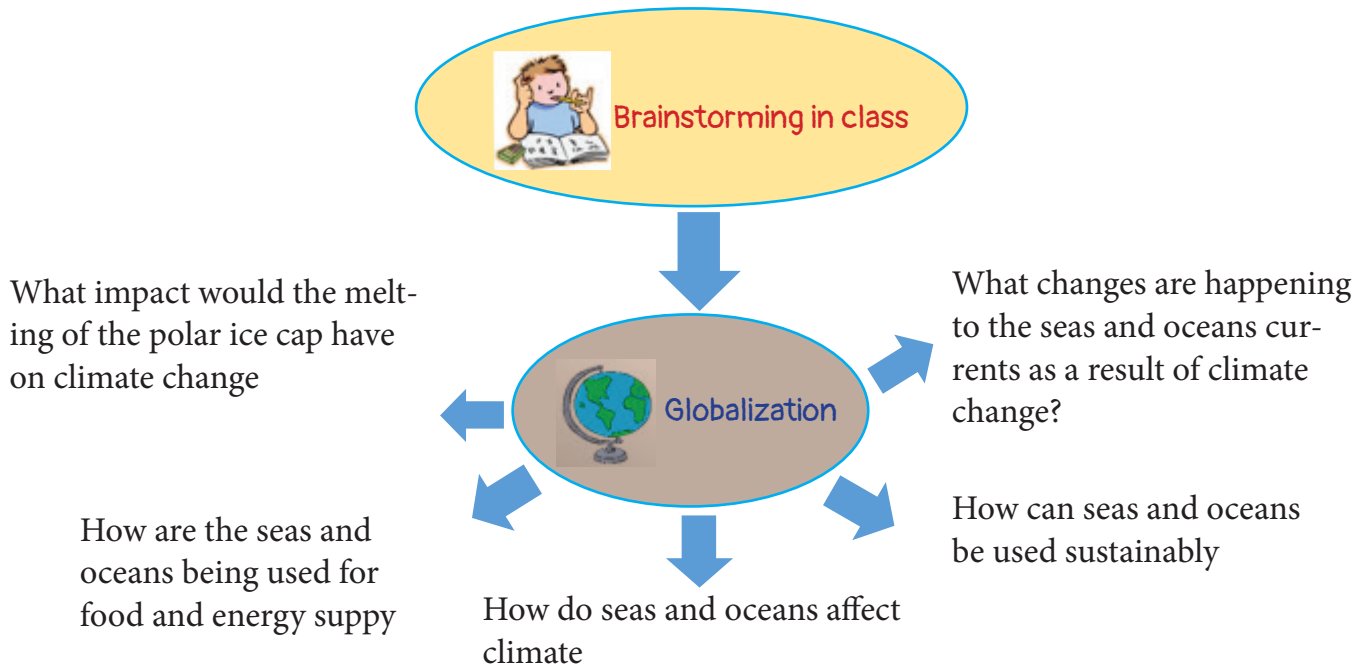


Figure 2. A water trough

## Brainstorming



Before introducing the unit to the students. Engage the learners in a discussion to evaluate their comprehension on seas and oceans. This will make them eager to learn about the new topic introduced. It will also make them attentive throughout the lesson. Use the following information.



**Note:** Use this brainstorming as an opportunity to elicit questions from students and group them/ sort them into ones that might be most useful.

## Resources required in this unit



For an effective learning experience, the following resources should be provided to the students in order to cover the various subtopics, activities and exercises provided within the student's course book. Liaise with the school's authority for the provision of these items. If not possible, come up with alternative lesson plans based on the topic coverage

### Subtopic

### Requirements

Through the entire unit

Copies of map extracts, globes and atlases

Supplementary books (preferably from the school's library, if any) with information on seas and oceans.

Water trough and 3D models of seas and oceans

# Answers



## Exercise 2 Pg. 40-41

1. Define the following terms:

- a) **Coast:** Land located near a sea or an ocean
- b) **Erosion:** the process by which the surface of the earth is worn away by the action of water, glaciers, winds, waves, etc.
- c) **Deposition:** is the geological process in which sediments, soil and rocks are added to a landform or land mass.

2. Differentiate the following terms:

a) **Destructive waves and constructive waves.**

Constructive waves are the waves that build up the beaches. They have a large 'swash', which means they can carry deposits of sand and other materials far up the beach. They are much lower than destructive waves and have a longer 'wave length': this is the distance between the peak of each wave, or the top. Constructive waves are made when the sea is calm. On the other hand, destructive waves are much larger and more powerful, and are mostly made during a storm. They have travelled a long way, and this is what makes them so powerful. Because they have a stronger backwash than swash, they erode the coastline because they take the sand back with them into the sea. There is a shorter distance between their peaks than with constructive waves (wavelength), and they are also much taller.

**Note:** The teacher may use a water trough to illustrate to model the impact of waves.

b) Longshore currents and rip currents.

Longshore currents meet the coast at an acute angle and flow in a zigzag motion unidirectional while rip currents move in a convectional manner to and fro the coast (see the explanation in the student's book).

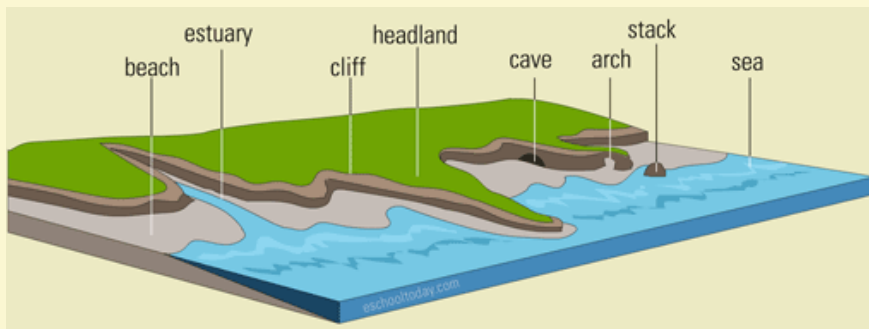
c) Headlands and bays. Bays are water bodies which are bordered by land on three sides, and the water regions are referred to as gulfs. Headlands are land bordered by either salt or fresh water on three sides; these lands are referred to as capes. Bays are made up of soft rocks while headlands are made up of hard rocks. Bays and headlands are formed where the parallel bands of harder and softer rocks are perpendicular to the coastline. Headlands are usually formed when the ocean attacks a part of the coastline with alternating bands of soft and hard rocks. Soft rock bands like clay and sand tend to erode faster than resistant rocks like chalk.

3. State the two broad categories of coastal landforms.

- a) Erosional coastal landforms.
- b) Depositional coastal landforms.

4. **Explaining the formation of caves, arches, stacks and stamps** (see the explanation provided in the student's book on page 31-34)

5. Name the coastal landforms in the picture below:



6. Using 3D models, explain how landforms are formed: this question is similar to question 4 but different in a way that the students are supposed to use 3d models to explain how the coastal landforms are formed. They are to answer the question in random groups. The teacher should provide the students with all the materials necessary for them to be able to make 3D models of all the coastal landforms listed in the question (For notes on how the coastal landforms are formed, refer to the student's book on pages 31-34).

### Case study 3 Pg. 42

## Importance of coastal landforms to humans

The teacher is supposed to organize the learners into random pairs and guide them in tackling questions on the page indicated above. Variegated answers should be encouraged. Let the learners provide answers from their comprehensive point of view not from the notes you have already given them. After the group discussion, let each group present their finding before the entire class.

For question 3 and 4 in this section, arrange for a library session for the students to investigate on the questions as indicated in the student's course book in pairs

- In pairs discuss the importance of beaches and bays to humans. Use appropriate examples. Beaches and bays are important since they serve as a tourist attraction. Beaches provide a wonderful place for people to play and bask. They are also a natural habitat for aquatic species such as crabs. Bays on the other hand are a perfect place for swimming, fishing among other water sports around seas and oceans.
- Using any reference material as instructed by your teacher, explain how ocean tides affect the coast. (for this question, the teacher is supposed to allow students to use any reference material within the school library or the computer lab to find out answers to the question). The importance of tides to coastal geological processes is threefold. First, the periodic change in water level results in different parts of the foreshore being exposed to wave energy throughout the day. In regions with large tidal ranges, the water may rise and fall 10 meters, and the shoreline may move laterally several kilometers between high and low water. This phenomenon is very important biologically because the ecology of tidal flats depends on their being alternately flooded and exposed. The geological significance is that various parts of the intertidal zone are exposed to erosion and deposition. Second, tidal currents themselves can erode and transport sediment.

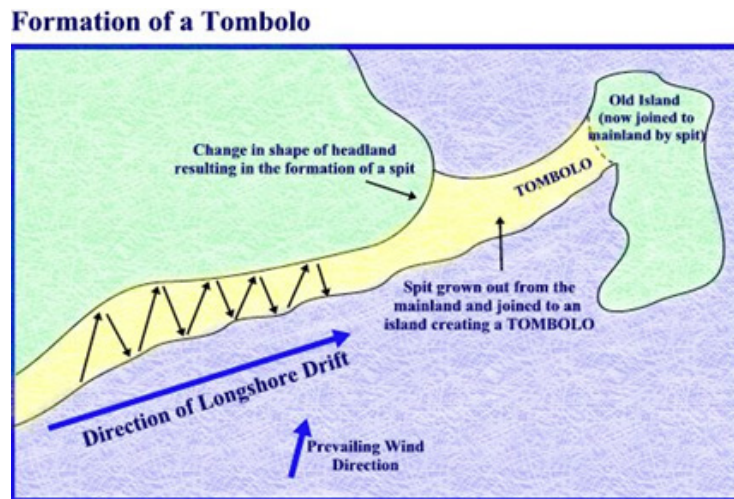


Generally, tidal currents become stronger near the coast and play an increasingly important role in local circulation. Because of the rotating nature of the tidal wave in many locations (especially inland seas and enclosed basins), ebb and flood currents follow different paths. As a result, residual motions can be highly important in terms of transport and sedimentation. In inlets and estuaries, spatially asymmetric patterns of ebb and flood may cause mass transport of both water and sediment. Third, tides cause the draining and filling of tidal bays. These bays are found even in low-tide coasts such as the Gulf of Mexico. This process is important because it is related to the cutting and migration of tidal inlets and the formation of flood- and ebb-tidal shoals on barrier coasts the exchange of seawater in and out of tidal bays is essential to the life cycle of many marine species.

- At your own free time, read and make notes on how the following coastal features are formed:

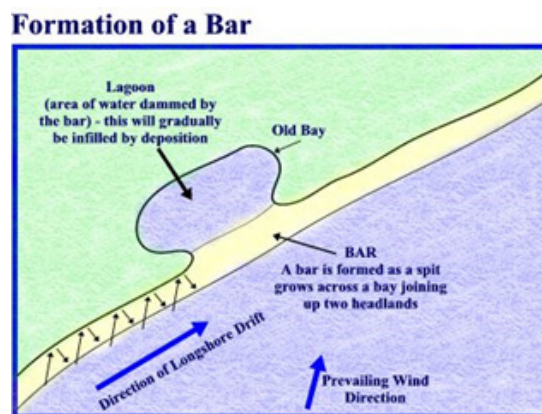
- a) **Tombolo.** A tombolo is a coastal formation that means, when translated from Italian, “mound”. It appears to be a small island that has not fully separated from the mainland. This island-like landform is actually attached to the coast by a thin sand bar or spit. Tombolos are sometimes referred to as “tied islands”, because it seems too tethered to the coast. These formation can be either solitary or found in clusters. When clustered, the sand bars may form a lagoon-like enclosure near the coast. These types of lagoons are likely to fill with sediment over time.

## How Tombolos are formed



- Longshore Drift: Longshore drift occurs as waves push sediment (which may consist of sand, silt, and clay) towards the coastline at an angle. Instead of landing on the beach, this sediment begins to build up between the beach and an island, creating the bar mentioned above and effectively “tying” the island to the mainland. This drift is often influenced by the wind direction. When created by longshore drift, these formation are sometimes not considered a true tombolo.
- Wave Diffraction and Refraction: A true tombolo is formed by wave diffraction and refraction. Waves move toward the coastline and are slowed down as they enter the shallower water. They first reach the islands that are close to the shore. Because these waves are moving at a slower than normal pace, they move around the island instead of over it. As the water moves more slowly around the island, it picks up sediment along the way. When the waves meet on the other side of the island (the side facing the coast), the sediment is deposited. This sediment continues to build up until it creates the sandbar that connects the island to the beach.

- **Changing tombolos:** Because of the unique shape of tombolos, they tend to be more likely to change over time due to weathering and tides than the regular coastline. Sometimes, the island at the end of the bar, or spit, is large enough that it supports commercial or residential activity. In order to prevent changes to the tombolo, the bar is reinforced with cement roads or parking lots. This prevents wind and waves from washing away the finer sediment on top of the bar.
- b) **Bars:** These form in the same way as a spit initially but bars are created where a spit grows across a bay, joining two headlands. Behind the bar, a lagoon is created, where water has been trapped and the lagoon may gradually be infilled as a salt marsh develops due to it being a low energy zone, which encourages deposition.



### Case study 4 Pg. 50

## Preventing effects of global warming on ice caps (group discussion and presentation)

The teacher is supposed to organize the learners into random groups and guide them in tackling questions on the page indicated above. Variegated answers should be encouraged. Let the learners provide answers from their comprehensive point of view not from the notes you have already given them. After the group discussion, let each group present their finding before the entire class.

Some of the various ways to prevent the effects of global warming on Earth's polar ice caps.

- Reduce emission:** In order to effectively address global warming, the government of South Sudan should significantly reduce the amount of heat-trapping emissions that its citizens are putting into the atmosphere. As individuals, we can help by taking action to reduce our personal carbon emissions. But to fully address the threat of global warming, we must demand action from our elected leaders to support and implement a comprehensive set of climate solutions.
- Stop deforestation:** Tropical deforestation accounts for about 10 percent of the world's heat-trapping emissions. Reducing tropical deforestation can significantly lower global warming emissions and — together with efforts to reduce emissions from fossil fuels which plays an integral role in a comprehensive long-term solution to global warming. The government of south Sudan should come up with legislated laws to abolish deforestation and uphold afforestation.

- 
- c. **Boosting energy efficiency:** The energy used to power, heat, and cool our homes, businesses, and industries is the single largest contributor to global warming. Energy efficiency technologies allow us to use less energy to get the same—or higher—level of production, service, and comfort. This approach has vast potential to save both energy and money, and can be deployed quickly. The government should educate citizens on this and provide energy saving apparatus to its citizens.
  - d. **Greening transportation:** The transportation sector's emissions have increased at a faster rate than any other energy-using sector over the past decade. A variety of solutions are at hand, including improving efficiency (miles per gallon) in all modes of transport, switching to low-carbon fuels, and reducing vehicle miles traveled through smart growth and more efficient mass transportation systems.
  - e. **Revvig up renewables:** Renewable energy sources such as solar, wind, geothermal and bioenergy are available around the world. Multiple studies have shown that renewable energy has the technical potential to meet the vast majority of our energy needs. The government of South Sudan can develop renewable technologies which can be deployed quickly, are increasingly cost-effective, and create jobs while reducing pollution.
  - f. **Phasing out fossil fuel electricity:** Dramatically reducing our use of fossil fuels—especially carbon-intensive coal—is essential to tackle climate change. There are many ways to begin this process. Key action steps include: not building any new coal-burning power plants, initiating a phased shut down of coal plants starting with the oldest and dirtiest, and capturing and storing carbon emissions from power plants. While it may sound like science fiction, the technology exists to store carbon emissions underground. The technology has not been deployed on a large scale or proven to be safe and permanent, but it has been demonstrated in other contexts such as oil and natural gas recovery. Demonstration projects to test the viability and costs of this technology for power plant emissions are worth pursuing.
  - g. **Exploring nuclear energy:** Because nuclear power results in few global warming emissions, an increased share of nuclear power in the energy mix could help reduce global warming—but nuclear technology poses serious threats to our health due to emission of radiation from explosions caused by system failures.
  - h. **Developing and deploying new low-carbon and zero-carbon technologies.** Research into and development of the next generation of low-carbon technologies will be critical to deep mid-century reductions in global emissions. Current research on battery technology, new materials for solar cells, harnessing energy from novel sources like bacteria and algae, and other innovative areas could provide important breakthroughs.
  - i. **Ensuring sustainable development:** the countries of the world—from the most to the least developed—vary dramatically in their contributions to the problem of climate change and in their responsibilities and capacities to confront it. A successful global compact on climate change must include financial assistance from richer countries to poorer countries to help make the transition to low-carbon development pathways and to help adapt to the impacts of climate change.

**What would happen when all the ice in the Earth's polar regions melt away:** refer to the notes on page 48 of the student's course book.



## Exercise 3 Pg. 53

### 1. What is the difference between an ocean and a sea?

Oceans are large bodies of water that exist on the Earth. An ocean is a body of saline water that composes a large part of a planet's hydrosphere. On the other hand, a sea is a large body of saline water that may or may not be connected to an ocean, they are smaller as compared to an ocean. Seas are usually located near land and are used to connect the land with an ocean.

### 2. How do oceans affect climate?

Oceans influence precipitation patterns.

As ocean water is heated by the sun, it evaporates and is transformed into water vapor that increases the temperature and humidity of the air, forming rain and storms. This precipitation is carried by winds to large distances around the world.

The ocean's role in producing precipitation is so important that nearly all rain that falls over the Earth's land originates from the ocean. Heat absorption and ocean evaporation are particularly high in the tropics, which receive more than 15 inches (3m) of rain per year and approximately 8mm of rain per day.

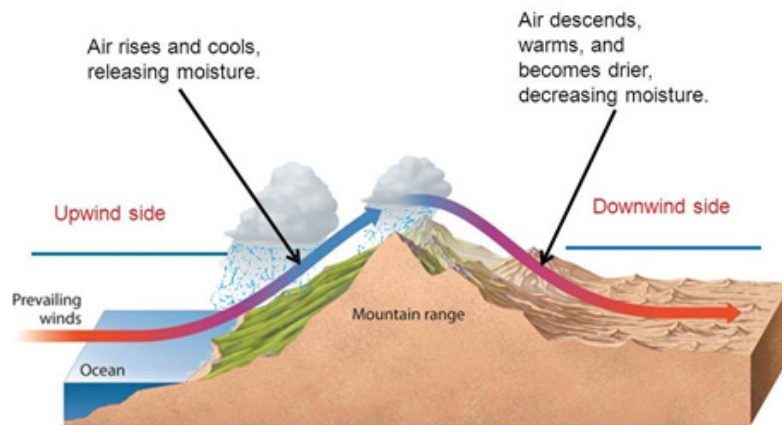


Figure 3. Convectional rainfall near oceans.

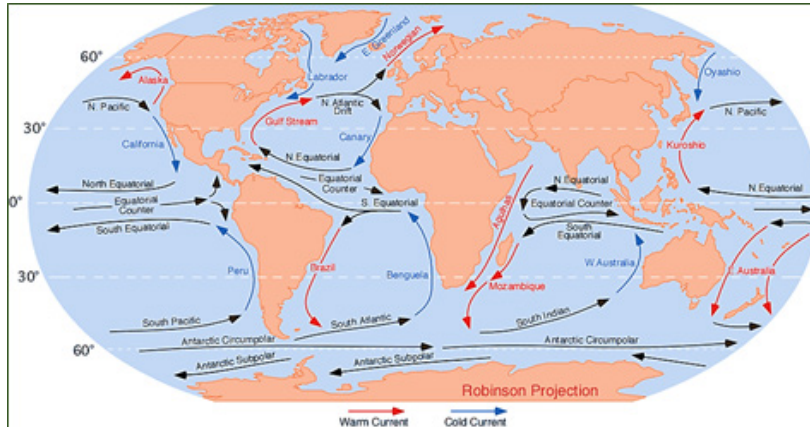
About half of the global carbon cycle is managed by photosynthetic organisms that live in the ocean such as **phytoplankton**, that produce oxygen and influence the levels of **greenhouse gases** (like carbon dioxide and methane) that are present in the ocean and in the atmosphere. The level of greenhouse gases in the atmosphere influences global temperatures and weather patterns because these gases absorb solar heat so efficiently.

While much of the information on climate change that we are exposed to focuses heavily on CO<sub>2</sub> in the atmosphere, almost half of the **carbon dioxide** that is being produced by the burning of fossil fuels has been absorbed by the ocean.

### Global weather patterns are controlled by ocean currents

Weather patterns are primarily controlled by ocean currents, which are influenced by surface winds, temperature, salinity, the Earth's rotation, and ocean tides. Ocean currents generally flow clockwise in the Northern Hemisphere and counterclockwise in the southern Hemisphere

Ocean currents bring warm water and rain from the equator to the poles and cold water from the poles toward the equator. These ocean currents help to counteract the high levels of solar radiation that the Earth's equator receive. Without these currents, it would be much hotter at the equator, much colder at the poles, and our planet's land would be much less habitable



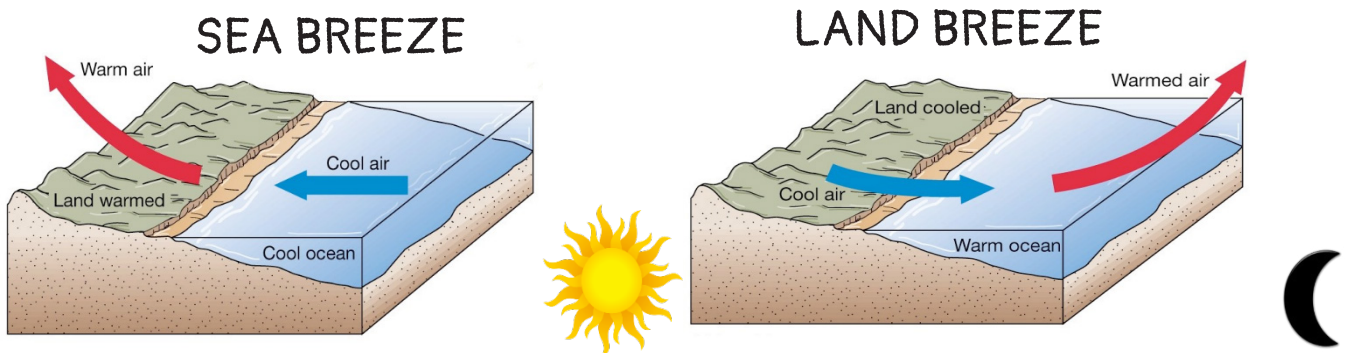
Oceans influence regional climate.

In addition to affecting climate on a global scale, the ocean also influences the climate of various regions around the world. The difference in temperature between the land in the middle of a continent and the surrounding ocean drives the development of monsoons. In the winter, the much colder air over a continent flows outward toward the ocean, and in the summer, the much hotter air over a continent draws moist air inland, bringing forth summer rains.

Cities located along coastlines also benefit from ocean breezes, a result of the difference in temperature between land and sea, where the land is cooler at night and warmer during the day.

3. Using a well-drawn and labelled diagrams, explain the difference between land and sea breeze.

A land breeze is created when the land is cooler than the water such as at night and the surface winds have to be very light. When this happens the air over the water slowly begins to rise, as the air begins to rise the air over the surface of the ocean has to be replaced, this is done by drawing the air from the land over the water, thus creating a sea breeze. A sea breeze is created when the surface of the land is heated sufficiently to start air rising. As air rises, it is replaced by air from the sea; you have now created a sea breeze. Sea breezes tend to be much stronger and can produce gusty winds as the sun can heat the land to very warm temperatures, thereby creating a significant temperature contrast to the water.



4. **Discuss how global warming affects polar ice caps.**

When temperatures rise and ice melts, more water flows to the seas from glaciers and ice caps, and ocean water warms and expands in volume. This combination of effects has played the major role in raising average global sea level

Similarly, melting of the polar ice poses a threat to major towns located on coastal regions. If the ice cap continues to melt on an accelerated pace, the following could happen:

1. **Low fish production:** Fishing industries around the globe will have low fish production due to rise in the sea levels.
2. **Erosion of major beaches:** water from the sea will erode and cover most of the ocean and sea beaches. This might negatively affect the tourism industry of countries depending on them.
3. **Flooding of the coast:** rising of sea levels means increased water in the sea. Town around the coast will be flooded.
4. **Uncontrollable climate change:** the polar regions of the earth will face unusual, overwhelming and catastrophic climatic changes that will have irreversible effects on the surrounding ecosystems. Melting of the ice caps in the north and South Pole poses a threat to the existing biodiversity. Animals that depend on the arctic tundra are now threatened to extinction

Currently there is nothing we can do to reverse the damage that global warming has done to the polar regions of the earth. The best method to prevent any further damage is by conserving the environment.

5. **What are the economic importance of seas and oceans?**

- a) **Seas and oceans are a means of transport:** Oceans cover most of the earth's surface and each continent is linked by a different type of ocean and sea. Countries transport their exports and imports in bulk on huge ships. However, transportation by sea takes a very long time hence not suitable for perishable goods. Land locked countries do not have access to oceans and seas but instead benefit from countries near oceans through other forms of transport such as rail, road and air. This may in turn rise the economies of countries bordering such waterbodies.
- b) **They are tourist attraction sites:** The beautiful beaches and coral reefs near oceans and seas are a home for different plant and fish species. Tourists like basking in warm and calm coastal regions located near the equator such as the African coasts of Dar-es-Salam and Mombasa
- c) **They offer biodiversity.** Along with coral reefs, estuaries sustain 75 % of all commercial fish and shell fish during some point of their life cycles. Spawning organisms make reefs and estuaries their home because animals can find an abundance of food and excellent protection from predators. The fish, anemones, sea cucumbers and sea fans that populate the coral reefs all work together in symbiosis. In the estuary, the seagrasses provide protection to young sea organisms and food for herbivores. Mangroves not only act as nurseries for commercially important marine species, they also act as a filtering system for coastal water. Seagrass beds, mangroves and coral reefs are crucial to providing protection against shoreline erosion and flooding. The sandy shores are home to fiddler crabs and burrowing worms, as well as a feeding ground for birds. Without coral reefs and estuaries, our oceans would lose many, many organisms that are important to both humans and other marine life.
- d) **They possess a great amount of natural resources:** Despite oceans and seas possessing great amount of fish, Ocean and sea floors have many important minerals, including oil and natural gas. Countries near major oceans and seas have built oil extractions and refinery plants. However oil spill in oceans and seas pollute the marine ecosystems killing all the diverse marine plants and animal species.

## Case study 5 Pg. 60

### Sustainable use of Oceans and Seas

The teacher is supposed to organize the learners into random groups and guide them in tackling questions on the page indicated above. Variegated answers should be encouraged. Let the learners provide answers from their comprehensive point of view not from the notes you have already given them.

After the group discussion, let each group present their finding before the entire class.

#### 1. Methods using oceans and seas sustainably:

- Reducing on the use of artificial fertilizers: Artificial fertilizers are the main cause of algal bloom. A harmful algal bloom (HAB) are organisms that can severely lower oxygen levels in natural waters, killing marine life. Blooms can last from a few days to many months. After the bloom dies, the microbes which decompose the dead algae use up even more of the oxygen, which can create fish die-offs. When these zones of depleted oxygen cover a large area for an extended period of time, they are referred to as dead zones, where neither fish nor plants are able to survive. Algal bloom not only affect fisheries but also the tourism industry. They are toxic and harmful to human health. Farmers are to be encouraged and sensitize on the use natural of fertilizers to reduce on the effects of algal bloom on oceans and seas.
- Exploring aquaculture: Aquaculture, also known as fish or shellfish farming, refers to the breeding, rearing, and harvesting of plants and animals in all types of water environments including ponds, rivers, lakes, and the ocean. Aquaculture avoids overfishing by first breeding young fish species to mature ones then harvesting them for economic and domestic use. There are two types of aquaculture:
  - Marine aquaculture: refers to the culturing of species that live in the ocean.
  - Freshwater aquaculture: produces species that are native to rivers, lakes, and streams. Such species include Tilapia, Nile perch and catfish among others.

#### 2. How oil spill affects aquatic plants and animals.

Oil spill originate from tankers and oil drill in oceans and seas. Spilled oil can harm living things because its chemical constituents are poisonous. This can affect organisms both from internal exposure to oil through ingestion or inhalation and from external exposure through skin and eye irritation. Oil can also smother some small species of fish or invertebrates and coat feathers and fur, reducing birds' and mammals' ability to maintain their body temperatures.

#### 3. Explain how seas and oceans affect the shape of the land.

- The coastal landscape is ever-changing. It reflects the conflicting processes of erosion (the gradual wearing away of Earth surfaces through the action of wind and water) and deposition (the accumulation and building up of natural materials). Coasts are among the most beautiful and inspiring landscapes on the planet. The line that marks the boundary between water and land is the shoreline. It constantly fluctuates because of the regular action of waves and tides. The coast and coastline begin where the shore ends at its high tide mark (farthest landward). The line between the coast and the shore at high tide is the coastline. The coast extends landward from the coastline to the first major change in terrain features, which may be miles inland. This could be a highland or a forest or some other type of terrain.

#### 4. WHAT ARE THE EFFECTS OF HUMAN ACTIVITIES TO COASTAL REGIONS:

- a) Oil spills: Oil spill originate from tankers and oil drill in oceans and seas. Spilled oil can harm living things because its chemical constituents are poisonous. This can affect organisms both from internal exposure to oil through ingestion or inhalation and from external exposure through skin and eye irritation. Oil can also smother some small species of fish or invertebrates and coat feathers and fur, reducing birds' and mammals' ability to maintain their body temperatures.
- b) Marine pollution: Many ocean pollutants are released into the environment far upstream from coastlines. Nitrogen-rich fertilizers applied by farmers inland, for example, end up in local streams, rivers, and ground-water and are eventually deposited in estuaries, bays, and deltas. These excess nutrients can spawn massive blooms of algae that rob the water of oxygen, leaving areas where little or no marine life can exist. Solid waste like bags, foam, and other items dumped into the oceans from land or by ships at sea are frequently consumed, with often fatal effects, by marine mammals, fish, and birds that mistake it for food. Discarded fishing nets drift for years, ensnaring fish and mammals.
- c) Overfishing: Overfishing occurs when more fish are caught than the population can replace through natural reproduction. Gathering as many fish as possible may seem like a profitable practice, but overfishing has serious consequences. The results not only affect the balance of life in the oceans, but also the social and economic well-being of the coastal communities who depend on fish for their way of life.

#### 5. What are some of the possible suggestions to marine pollution?

- a) Bann or reduce the use of plastic bags around the ocean.
- b) Reduce on the use of aquatic fertilizers.
- c) Use other alternating sources of energy apart from fossil fuel to prevent oil spillage.





## Content Map 3

### Unit 3: Coastal Areas

#### Number of topics

3 topics

#### Approximated number of lessons

4-8 lessons each with an estimated time of one hour

#### What are the learners expected to learn in this unit?

Learners should use a range of sources (*including maps and the internet where possible*) to find out about the concentration of population and development in the coastal areas of the world, and consider the reasons for this (*e.g. flat land, soil fertility, equable climate and biodiversity, potential for fishing, recreation/tourism, industrial and port development and accessibility*). They should relate the coastal areas to land-locked countries like South Sudan.

They should examine the range of natural factors that influence coastal environments and their value, (*e.g. geology, geomorphology and ecosystems*) and make a particular study of the growth of contrasting crowded coasts such as East Africa: Kenya in particular *e.g. Mombasa and Lamu*, and Spanish Coast and The coast of Florida)

They should investigate through some examples on how coastal development has sometimes caused conflict between competing interests (*tourism, industrial development, fishing, the environment, etc.*) and how these can be resolved.

They should find out how coastal environments are threatened by the growing incidence of coastal hazards such as rapid erosion and rising sea levels and identify the steps of combating this.

#### Knowledge and understanding

- Understand why the coastal zone is so favored for development.
- Understand how various coastal developments can create competition and conflict.
- Understand how coastal management adapts to new ideas and situations.

#### Key Inquiry questions

- a) Why is the coastal zone so favored for development?
- b) How do various coastal developments create competition and conflict?
- c) How can these pressures be resolved?
- d) How is coastal development increasingly at risk from, and vulnerable to, physical process?
- e) How is coastal management adapting to new ideas and situations?
- f) What are the challenges facing landlocked countries?

#### Skills to be acquired

- Consider the reasons for coastal development.
- Examine the factors that influence coastal environments.
- Investigate how coastal development can cause conflict.
- Identify the steps being taken to combat coastal

#### Competencies to be developed

- **Critical thinking and creative thinking:** by examining factors, identifying steps taken and considering reasons.
- **Co-operation and communication:** working in groups and making presentations

## Attitudes

Appreciate the need for sustainable development of the coasts.

## Link to other subjects

Environment and sustainability: sustainable development of coastal areas.

# Describing Coastal Areas



## What is expected of the teacher?

The teacher is supposed to:

1. Read and gather information about coastal areas in order to familiarize with the topics to be tackled. Note making can be an important tool to improve on understanding before embarking into lessons.
2. Effectively describe why the coastal zone is favored for development.
3. Make a study on the growth of major coastal towns in East Africa.
4. Describe coastal management and how various coastal developments create competition and conflicts. The teacher should also explain how these pressures are resolved.
5. Guide the student's through the progress checks after each topic.

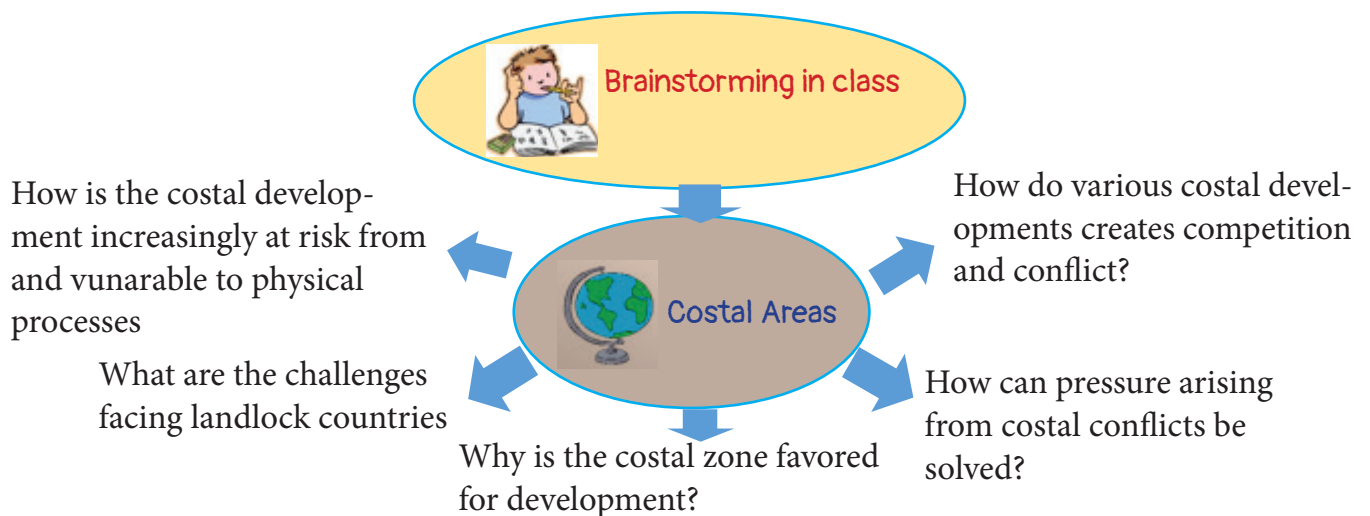
**Note:** use the detailed notes within the student's course book to familiarize yourself with individual topics and make notes before the lessons.

Progress checks, case studies and comprehensive activities in the book are paramount for the student to understand the different topics through group discussion and presentation. Organize the learners in random groups.

## Brainstorming



Before introducing the unit to the students. Engage the learners in a discussion to evaluate their comprehension on coastal areas. This will make them eager to learn about the new topic introduced. It will also make them attentive throughout the lesson. Use the following information.



## Resources required in this unit



For an effective learning experience, the following resources should be provided to the students in order to cover the various subtopics, activities and exercises provided within the student's course book. Liaise with the school's authority for the provision of these items. If not possible, come up with alternative lesson plans based on the topic coverage.

### Subtopic

### Requirements

Through the entire unit

Copies of map extracts, globes and atlases

Supplementary books (preferably from the school's library, if any) with information on seas and oceans.

Water trough and 3D models of seas and oceans

## Answers



### Case study 6 Pg. 68

## The importance of East African ports on South Sudan (Group Discussion and Presentation)

The teacher is supposed to organize the learners into random groups and guide them in tackling questions on the page indicated above. Variegated answers should be encouraged. Let the learners provide answers from their comprehensive point of view not from the notes you have already given them.

After the group discussion, let each group present their finding before the entire class.

South Sudan is a landlocked country. In groups discuss how east African ports are important to the economy of South Sudan and other landlocked countries such as Uganda, Rwanda and Burundi.

Landlocked countries depend on countries with coasts hence an increase in the development of coastal areas. South Sudan gets most of its imports from the Kenyan coast. South Sudan and other landlocked countries depend on the east African coast as a pathway for their imports from foreign countries such as:

- Vehicles and machinery.
- Clothes.
- Horticulture
- Armoury.
- Glass and Chemicals.
- Processed food products among others.

Landlocked countries in the East Africa also convey their exports to other countries through the East African Coast the major export in South Sudan is Oil.



## Case study 7 Pg. 71

### Resolving coastal conflicts and providing solutions to coastal hazards (Group discussion and presentation).

The teacher is supposed to organize the learners into random groups and guide them in tackling questions on the page indicated above. Variegated answers should be encouraged. Let the learners provide answers from their comprehensive point of view not from the notes you have already given them. If required, they may use relevant reference materials in the school's library.

After the group discussion, let each group present their finding before the entire class

#### What do you understand by coastal management

Coastal management is defense against flooding and erosion, and techniques that stop erosion to claim lands. It also involves resolving conflicts between coastal users with different users.

#### What are some of the ways of resolving human conflict between coastal users?

Through integrated coastal management where the government ministry takes into account the people's views and the environment. integrated coastal management involves a meeting with all coastal users to come to a common agreement on how to manage the coast to prevent issues such as coastal erosion, coastal pollution and damages caused by natural disasters such as storms, cyclones and tsunamis

#### In groups, investigate on how coastal environments are threatened by growing incidences of coastal hazards such as rapid erosion and rising seas levels and identify ways of combating this.

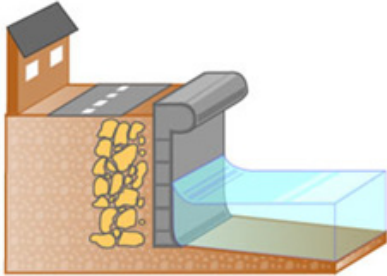

The coastal area is affected by cases of rapid erosion in the beach areas where waves and ocean tides erode beaches and cliff rocks making the sea expand deep into the coastal areas. Furthermore, coastal regions are prone to natural disasters such as Cyclones, heavy storms and tsunamis among others. If such natural disasters persist for a long time, Home owners in the coastal areas could lose their homes on the sea, roads and infrastructure will be destroyed, beaches will be washed away and farm land at the coastal areas will be taken away.

The process of preventing such incidences from happening is called, coastal management. There are two steps for managing coastal areas and they include:

1. Hard engineering.
2. Soft engineering.

## Hard engineering

Hard engineering options tend to be expensive, short-term options. They may also have a high impact on the landscape or environment and be unsustainable.

Types of defense	Advantages and disadvantages
<p>Building a sea wall: this is basically a wall built at the edge of the coastline</p>  <p><i>Figure 4. a sea wall</i></p>	<p><b>Advantages</b> Protects the base of cliffs, land and buildings against erosion. Can prevent coastal flooding in some areas.</p> <p><b>Disadvantages</b> Expensive to build. Curved sea walls reflect the energy of the waves back to the sea. This means that the waves remain powerful. Over time the wall may begin to erode. The cost of maintenance is high.</p>
<p>Building groynes: A wooden barrier built at right angles to the beach.</p>  <p><i>Figure 5. Groynes.</i></p>	<p><b>Advantages</b> Prevents the movement of beach material along the coast by longshore drift. Allows the buildup of a beach. Beaches are a natural defense against erosion and an attraction for tourists.</p> <p><b>Disadvantages</b> Can be seen as unattractive, Costly to build and maintain.</p>

## Soft engineering

Soft engineering options are often less expensive than hard engineering options. They are usually more long-term and sustainable, with less impact on the environment.

There are two main types of soft engineering.

1. Beach management
  - This replaces beach or cliff material that has been removed by erosion or longshore drift.
  - The main advantage is that beaches are a natural defense against erosion and coastal flooding. Beaches also attract tourists.
  - It is a relatively inexpensive option but requires constant maintenance to replace the beach material as it is washed away.

2. Managed retreat

- Areas of the coast are allowed to erode and flood naturally. Usually this will be areas considered to be of low value - e.g. places not being used for housing or farmland.
- The advantages are that it encourages the development of beaches (a natural defense) and salt marshes (important for the environment) and cost is low.
- Managed retreat is a cheap option, but people will need to be compensated for loss of buildings and farmland.



Exercise 4 Pg. 71

1. Why are coastal areas favored for development?

For this question, refer to the detailed notes on the student's course book.

2. How do coastal developments create competition and conflicts?

Coastal development is often accompanied by increasing competition between different users for space for their activities within the coastal environment. There is demand for space for buildings, structures, and facilities, both on land and within the coastal marine area. This demand comes from the need to support recreational activities (e.g., walking, swimming, surfing, kayaking, jet skiing and boating), commercial activities (eg, ports and aquaculture), and infrastructure (eg, roading, seawalls, storm water outfalls, and marine energy generation).

The supply of land on the coast is often limited by natural topography. Coastal land is affected by the dynamic influence of the coast including sea and weather. Where coastal development uses and activities are not compatible or are not managed proactively and effectively, there can be loss of property, loss of public values, and damage to important infrastructure. Competition for space can also cause conflict. This may restrict public access to varying degrees, impact on natural character and coastal landscapes, increasing the risks from natural hazards, affect coastal historic heritage, impact on coastal biodiversity and the special relationship of thangata whenua with the coastal environment.

3. What are the challenges facing landlocked countries?

In spite of technological improvements in transport, landlocked low income countries continue to face structural challenges to accessing world markets. As a result, landlocked countries often lag behind their maritime neighbors in overall development and external trade. They undergo many border taxations on their exports and imports since they have no access to seas and oceans.

4. You are elected as a leader of a landlocked country, what you can offer as a solution to the challenges your country faces as a landlocked country

This question talks indirectly of South Sudan as a landlocked country. Students are supposed to figure out ways of how South Sudan as a landlocked country can be able to solve its economic problems. Some of the answers the student is expected to come up with are:

- a) Coming up with other means to counter sea transport such as freight aircrafts to transport exports and imports in and out of the country courtesy of making good use of foreign investments.
- b) Forming trade alliances with nearby coastal countries for a free trade policy on imports and exports. They may also join existing trade blocs such as the East African Community (E.A.C), COMESA among others.



# Unit 4: Global Energy Resources

## Number of topics

5 topics

## Approximated number of lessons

4-8 lessons each with an estimated time of one hour

## What are the learners expected to learn in this unit?

Learners should investigate types of energy resources, their classification and contrasting the environmental impacts associated with their production and use. They should examine the distribution of fossil fuel resources and renewable potential, globally and in contrasting countries.

They should investigate trends in global energy supply and demand by source, type of economy and economic sector and relate this to the lack of capacity to ease pressure on energy resources and therefore the rising energy insecurity as resources are finite.

They should find out about developments in the geography of energy infrastructure and supply pathways that connect producers to consumers and investigate the tensions between energy producers and consumers that can result in increased risk (risking cost) and conflicts

They should work in groups to relate this learning to South Sudan and make a presentation of the costs and benefits of exploiting sustainably new areas and resources, in economic, human and environmental terms.

## Knowledge and understanding

- Understand the potential impacts of an increasingly energy insecure world.
- Understand the geography of energy supply and demand.
- Understand that tensions exist between energy producers and consumers and can result in increased risk and conflict.

## Key Inquiry questions

- To what extent is the world “energy secure” at the present?
- What are the potential impacts of an increasingly “energy insecure” world?
- What might be the world’s energy supply in the next decade?
- What is the geography of energy supply and demand?
- How can South Sudan’s energy resources be developed sustainably?

## Skills to be acquired

- Investigate types of energy resources.
- Compare and contrast fossil fuel resources and renewable potential in different countries.
- Investigate tension existing between energy producers and consumers.
- Suggest how South Sudan’s energy resources can be developed sustainably.

## Competencies to be developed

- *Critical thinking and creative thinking*: by comparing and contrasting, suggesting ways of developing energy sustainably, investigating types of energy resources
- *Co-operation and communication*: making presentations and working in groups.

## Attitudes

Appreciate the need for sustainable use of energy resources.

## Link to other subjects

Environment and sustainability: sustainable development of energy.

# Explaining the distribution of Global Energy Resources



## What is expected of the teacher?

The teacher is supposed to:

1. Read and gather information about global energy resources in order to familiarize with the topics to be tackled. Note making can be an important tool to improve on understanding before embarking into lessons.
2. Effectively describe renewable energy and non-renewable energy resources.
3. Help the learner compare and contrast fossil fuel resources and renewable potential in different countries.
4. Help the learner understand the current status of global energy consumption and its effects to the environment.
5. Help the learner understand the need for sustainable energy resources.
6. Engage the learner in case studies and other related activities within the book.

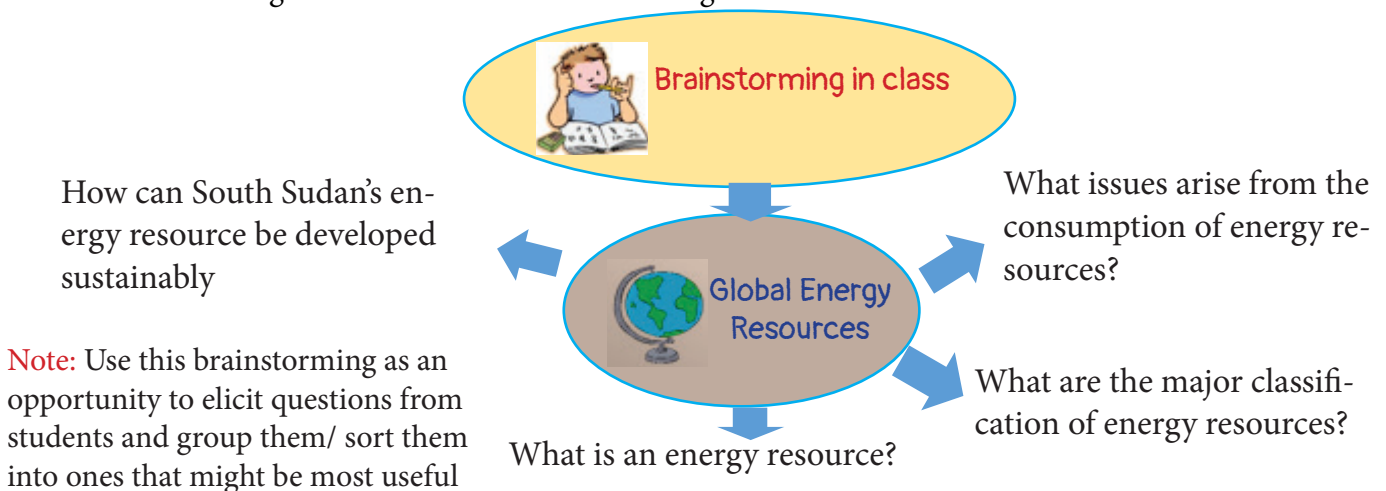
**Note:** use the detailed notes within the student's course book to familiarize yourself with individual topics and make notes before the lessons.

Progress checks, case studies and comprehensive activities in the book are paramount for the student to understand the different topics through group discussion and presentation. Organize the learners in random groups.

## Brainstorming



Before introducing the unit to the students. Engage the learners in a discussion to evaluate their comprehension on global energy. This will make them eager to learn about the new topic introduced. It will also make them attentive throughout the lesson. Use the following information.





## Resources required in this unit



For an effective learning experience, the following resources should be provided to the students in order to cover the various subtopics, activities and exercises provided within the student's course book. Liaise with the school's authority for the provision of these items. If not possible, come up with alternative lesson plans based on the topic coverage.

### Subtopic

### Requirements

Through the entire unit

Copies of map extracts, globes and atlases

Supplementary books (preferably from the school's library, if any) with information on global energy resources.

## Answers



### Case study 8 Pg. 76

## Advantages and disadvantages of renewable energy

This is a group work activity

- What are the advantages and disadvantages of renewable energy resources?

### Advantages of renewable resources

One major advantage with the use of renewable energy is that as it is renewable it is therefore sustainable and so will never run out.

Renewable energy facilities generally require less maintenance than traditional generators. Their fuel being derived from natural and available resources reduces the costs of operation.

Even more importantly, renewable energy produces little or no waste products such as carbon dioxide or other chemical pollutants, so has minimal impact on the environment.

Renewable energy projects can also bring economic benefits to many regional areas, as most projects are located away from large urban centers and suburbs of the capital cities. These economic benefits may be from the increased use of local services as well as tourism.

### Disadvantages of renewable resources

It is easy to recognize the environmental advantages of utilizing the alternative and renewable forms of energy but we must also be aware of the disadvantages.

One disadvantage with renewable energy is that it is difficult to generate the quantities of electricity that are as large as those produced by traditional fossil fuel generators. This may mean that we need to reduce the amount of energy we use or simply build more energy facilities. It also indicates that the best solution to our energy problems may be to have a balance of many different power sources.

Another disadvantage of renewable energy sources is the reliability of supply.

Renewable energy often relies on the weather for its source of power. Hydro generators need rain to fill dams to supply flowing water. Wind turbines need wind to turn the blades, and solar collectors need clear skies and sunshine to collect heat and make electricity. When these resources are unavailable so is the capacity to make energy from them. This can be unpredictable and inconsistent. The current cost of renewable energy technology is also far in excess of traditional fossil fuel generation. This is because it is a new technology and as such has extremely large capital cost.



Case study 9 Pg. 87

## Advantages and disadvantages of Non- renewable energy

This activity should be done in pairs.

- What are the advantages and disadvantages of non-renewable energy resources?

### Advantages of Non-Renewable Energy

Non-renewable energy sources cannot be replenished in a short period. They include fossil fuels such as oil, natural gas, coal, and uranium used for nuclear energy.

The main advantages of non-renewable energies is that they are abundant and affordable. For example, oil and diesel are still good choices for powering vehicles. Non-renewable energy is cost effective and easier to product and use. There are reservoirs of non-renewable energy sources throughout the world

### Disadvantages of Non-Renewable Energy

On the other side are the disadvantages to non-renewable energy. Once sources of non-renewable energies are gone they can't be replaced or revitalized.

The mining of non-renewable energy and the by-products they leave behind cause damage to the environment. There is little doubt that fossil fuels contribute to global warming. When fossil fuels are burned, nitrous oxides cause photochemical pollution, Sulphur dioxide creates acid rain, and greenhouse gases are emitted.

A major disadvantage of non-renewable energy is the challenge of breaking humans of their habit of learning on it. It's an uphill battle to sway consumers that the so-called "public goods" of renewable energy, such as reducing pollution for everyone, may not be enough to convince them to pay more for cleaner energy.

As countries disagree through wars and differences, the prices of non-renewable energies such as oil has become a commodity where price fluctuation is always eminent. The burning of fossil fuels continues to rise producing high levels of carbon dioxide (CO<sub>2</sub>).



## Exercise 5 Pg. 87

### 1. Differentiate between renewable energy resources and non-renewable energy resources.

A renewable resource is a resource which can be used repeatedly and replaced naturally. Examples include water, geothermal, wind, tidal, solar energy and biomass. On the other hand, Non-renewable energy is energy produced by burning fossil fuels such as coal. They are non-renewable because there are limited resources of fossil fuels on the planet. If they are continually used, one day they will run out. Non-renewable fossil fuels include crude oil, nuclear energy, natural gas and coal.

### 2. What are the impacts of energy resources to humans?

Energy resources are paramount to human existence. Energy both renewable and non-renewable power machines and vehicles that make human work easier. Oil products power vehicles and vessels (ships and airplanes) that help man commute over long distances. Hydroelectric, wind, solar and geothermal energy help man produce electricity to run all the electronic appliances including radios, computers, life supporting machines and so on. People rely on energy to cook and preserve food as well as for temperature regulation and lighting in their homes. This type of energy used has enormous impacts on people's health and wealth, as well as their financial status.

### 3. Discuss why non-renewable energy resources are greatly consumed in comparison to renewable energy resources.

The main advantages of non-renewable energies over non-renewable energy is that they are abundant and affordable. For example, oil and diesel are still good choices for powering vehicles. Non-renewable energy is cost effective and easier to product and use.

Renewable energy has difficulties in generating the quantities of electricity that are as large as those produced by traditional fossil fuel generators. This may mean that we need to reduce the amount of energy we use or simply build more energy facilities. It also indicates that the best solution to our energy problems may be to have a balance of many different power sources.

Another disadvantage of renewable energy sources is the reliability of supply. Renewable energy often relies on the weather for its source of power. Hydro generators need rain to fill dams to supply flowing water. Wind turbines need wind to turn the blades, and solar collectors need clear skies and sunshine to collect heat and make electricity. When these resources are unavailable so is the capacity to make energy from them. This can be unpredictable and inconsistent. The current cost of renewable energy technology is also far in excess of traditional fossil fuel generation. This is because it is a new technology and as such has extremely large capital cost.



## Case study 10 Pg. 89

### Global energy supply, demand and consumption

Note: For this type of case study, learners are to be organized in random groups after which they are supposed to conduct a research using any reference materials with books from the School library, using the internet from the school's computer lab etc.

- From the graphs provided what might be the world's next energy supply in the next decade?

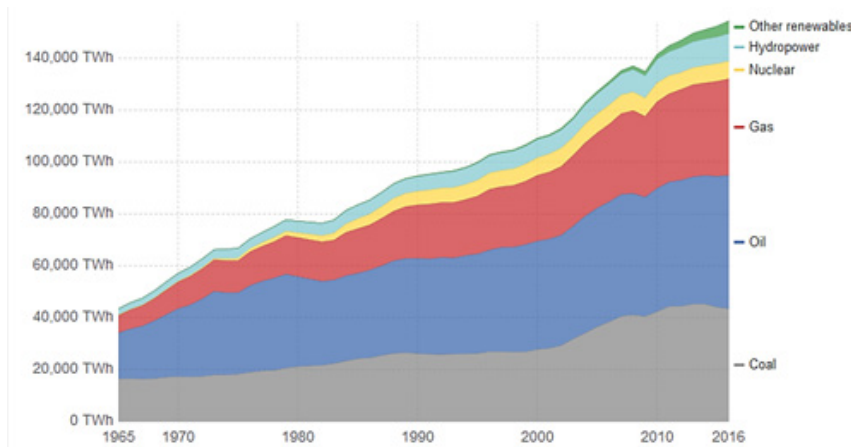


Figure 7. Global consumption of energy in terms of energy types.

From this table it is clear that coal, oil, and natural gas are being consumed globally in large amount. The three are non-renewable resources and this means that in the next decade there is a possibility that the resources may be scarce.

Scarcity on such significant energy resources may lead to inflation of prices to the little available amount of energy left or exploitation of other similar energy resources such as solar, geothermal, hydroelectric and biomass.

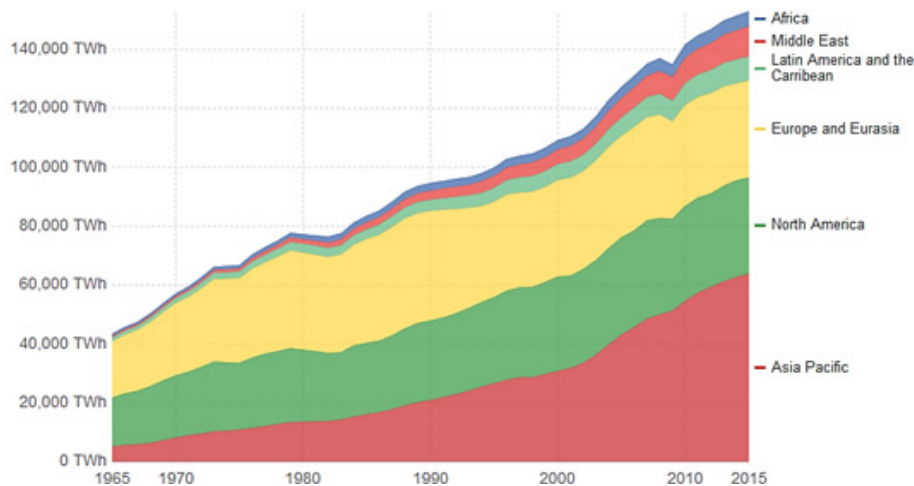


Figure 8. energy production by region

From the table above, Asia, North America and Europe are leading global producers on non-renewable resources. As years go by, the resources within these region will be depleted. Other regions will be relied upon to fill the gap of production which may also lead to depletion of resources.

Despite the fact that high consumption of non-renewable energy leads to depletion of natural resources, such an increased consumption leads to accelerated environmental pollution which leads to global warming.

**Discuss how mining non-renewable energy resources such as oil and coal causes damage to the environment.**

Bad mining practices can ignite coal fires, which can burn for decades, release fly ash and smoke laden with greenhouse gasses and toxic chemicals. Furthermore mining releases coal mine methane, a greenhouse gas 20 times more powerful than carbon.

dioxide. Coal dust inhalation causes black lung disease among miners and those who live nearby, and mine accidents kill thousands every year. Coal mining displaces whole communities, forced off their land by expanding mines, coal fires, subsidence and contaminated water supplies.

**Acid mine drainage** is created when water mixes with coal and other rocks unearthed during mining, taking on toxic levels of minerals and heavy metals. This toxic water leaks out of abandoned mines to contaminate groundwater, streams, soil, plants, animals and humans. As a result an orange colour can blanket the river, estuary or sea bed killing plants and making surface water unusable as drinking water.

Oil extraction may lead to cases of oil spillage on water bodies which may cause death to aquatic life. Oil mines suffer threat of fires and explosion.

- **How has non-renewable resources caused conflicts?**

The exploitation of natural resources has proven to be a major driver of conflict in regions where non-renewable resources such as oil are produced abundantly. Oil exploration in most countries in the middle east and African regions have poor local engagement, the total exclusion of communities from decision making and the criminalization of local protests against oil. Here are some of the ways that non-renewable energy resources cause conflicts:

- Poor engagement, marginalization or exclusion of communities and stakeholders from discussions related to the process of extractive resource development;
- The unfair (or apparently unfair) distribution of benefits compared to the distribution of costs, risks and responsibilities. Those who are disenfranchised may bear risks and responsibilities without fair compensation and, therefore, are likely to oppose the development and may even rebel;
- Diversion of the vast revenues from extractive resources to satisfy individual gains (or to finance armies and violent conflict) at the expense of national and community interests; and the
- Mismanagement of funds, which is often a symptom of a broader lack of institutional and legal capacity to manage the development of extractive resources for the benefit of the country as a whole.

The political aspect of extractive resource management seeks to find ways of institutionalizing political reforms to strengthen the administrative capacities of governments to adequately respond to external shocks, rent-seeking and the predatory behaviour of state agents. Politicians fall short in making difficult political choices to reform bureaucracies in an attempt to insulate the State from organized interest groups and deploy economic policies more effectively.

- **What are South Sudan's major energy resources? How can they be developed sustainably?**

South Sudan's major energy resources include oil, wind and solar. The most commonly used energy resources are oil and solar energies. However, south Sudanese people have focused a lot on the use of oil. Oil production in south Sudan has led to conflict leading to civil clashes within the region.

Solar energy can be used to generate electricity in the urban and rural settlements. Used oil from cars and machines can be recycled to avoid pollution.



## Additional Unit: Rocks (unit 5)

**Note:** This unit is not included in the syllabus, however, it is a significant topic for advanced geography students especially at this level of education. The teacher is supposed to use all the resources possible (inclusive of the notes within the students' course book to help the students understand the topic.

**Collaboration** can be a very efficient tool when teaching this topic. Organize students in random groups and pairs to tackle the questions provided within the book refer to the following assessment forums from the students' book: Field observation 1 Page 80, Comprehensive activity 3 page 90, Case study 11 and Exercise 6 page 99

### Understanding the formation, composition and texture of rocks as compared to soils

#### What is expected of the teacher?

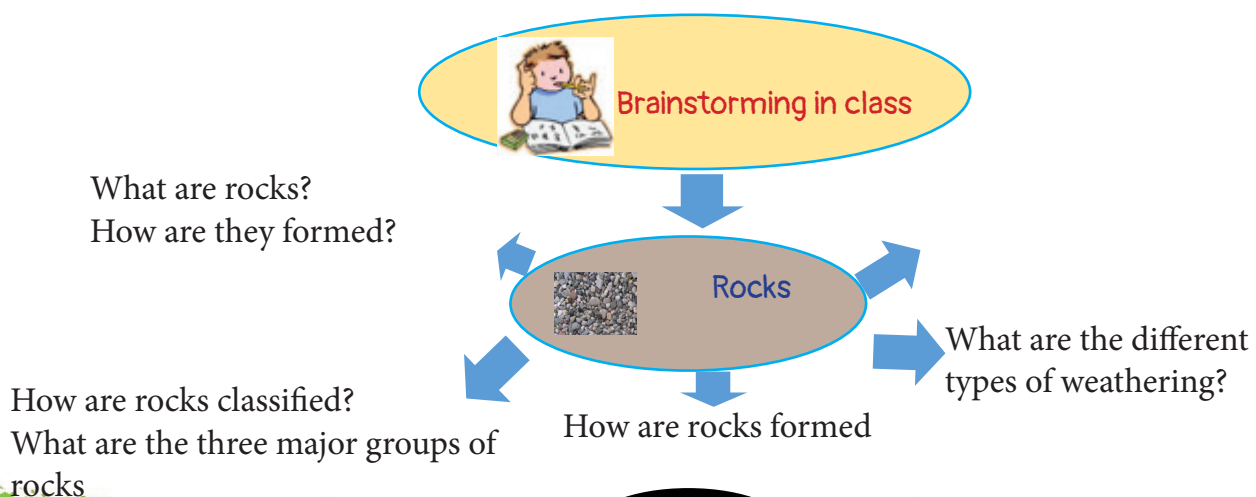
The teacher is supposed to:

1. Read and gather information about rocks and soil in order to familiarize with the topics to be tackled. Note making can be an important tool to improve on understanding before embarking into lessons.
2. Effectively describe the differences and similarities between rocks and soils to the learners. Organize the students in pairs and instruct them to observe different types of rocks and soil using a magnifying glass. (refer to field observation 1 page 89)
3. Explain the three distinct types of rocks and the process leading to their formation. Also effectively describe the rock cycle to the students, Use the well labelled illustrations in the students' book.
4. Organize a library session for student to research on the usage of different types of rocks. Use the detailed notes within the Student's course book to familiarize yourself with individual topics and make notes before the lessons.

#### Brainstorming



Before introducing the unit to the students. Engage the learners in a discussion to evaluate their comprehension on rocks. This will make them eager to learn about the new topic introduced. It will also make them attentive throughout the lesson. Use the following information.



Note: Use this brainstorming as an opportunity to elicit questions from students and group them/ sort them into ones that might be most useful.

## Resources required in this unit



For an effective learning experience, the following resources should be provided to the students in order to cover the various subtopics, activities and exercises provided within the student's course book. Liaise with the school's authority for the provision of these items. If not possible, come up with alternative lesson plans based on the topic coverage.

### Subtopic

### Requirements

Through the entire unit

Copies of map extracts, globes and atlases

Supplementary books (preferably from the school's library, if any) with information on global energy resources.



### Field Observation 1 Pg. 90-91

## The composition and texture of rocks and soil

ITEM	PARAMETER OF OBSERVATION	DESCRIPTION (Write down what you have observed)
<b>Rocks</b> 	<b>Texture</b> How does the rock observed feel when touched?	
	<b>Composition</b> The description of the rock (How does it look like?)	
	<b>Magnetism</b> What happens when a magnet is place over the rock?	
<b>Soils</b> 	<b>Texture</b> How does the soil observed feel when touched?	
	<b>Composition</b> The description of the soil (How does it look like?)	
	<b>Magnetism</b> What happens when a magnet is place over the soil?	

This activity will help them differentiate between rocks, pebbles and soil particles.

## Answers



### Comprehensive activity 2 Pg.100-101

## Understanding the different types of rocks

**Note:** this evaluation section is designed to help the student effectively understand the unit by including multiple choices as well as collaboration through group discussion. Organize the learners in random or variegated groups to tackle the questions within this section. To make the session interesting, the teacher can as well announce the winning group and later help the students get the right answers to the questions they failed.

The following are the answers to the questions within the student's book:

1. Which of the following is true about rocks? d) Most rocks are a mixture of minerals
2. Which of the following is NOT one of the three types of rocks? c) Minerals
3. Metamorphic rocks form as a result of heat and pressure.
4. What is the name given to a rock that forms when magma hardens beneath Earth's surface? b) Intrusive igneous rocks.
5. Which of the following is an example of an extrusive rock? c) Sandstone.
6. Lava that cools so quickly that crystals do not have time to form will lead to an igneous rock with a glassy texture (c)
7. Fossils are only found in sedimentary rocks (b)
8. A student obtains a cup of quartz sand from a beach. A saltwater solution is poured into sand and allowed to evaporate. The mineral residue from the saltwater solution cements the sand grains together, forming material similar to sedimentary rocks (c)
9. Using well labelled diagrams explain how the following rocks are formed.
  - a) Sedimentary rocks.
  - b) Igneous rocks.
  - c) Metamorphic rocks.

**Note:** Referring to the illustrations within the student's book, evaluate the answers given by the students.

10. What are fossils? In which of the three categories of rocks do fossils fall? A fossil is any preserved remains, impression, or trace of any once-living thing from a past geological age. Fossils are found in sedimentary rocks.



### Case study 11 Pg. 101

## Usage of rocks

**Note:** For this type of case study, learners are to be organized in random groups after which they are supposed to conduct a research using any reference materials with books from the School library, using the internet from the school's computer lab etc.

Research on the usage of the following rocks:

- a) Limestone: A sedimentary rock, it is used mainly in the manufacture of cement, the production of lime, manufacture of paper, petrochemicals, insecticides, linoleum, fiberglass, glass, carpet backing and as the coating on many types of chewing gum.



- b) Sandstone. A sedimentary rock more or less rounded. Generally thick-bedded, varicolored, rough feel due to uneven surface produced by breaking around the grains. Used principally for construction.
- c) Marble: A metamorphic even-granular grain to medium grained and may be uneven granular and coarse grained in calc-silicate rock. The normal color is white but accessory minerals act as coloring agents and may produce a variety of colors. Depending upon its purity, texture, color and marbled pattern it is quarried for use as dimension stone for statuary, architectural and ornamental purposes. Dolomite rich marble may be a source for magnesium and is used as an ingredient in the manufacture of refracting materials.
- d) Soapstone: this is a natural quarried stone and is a metamorphic rock called steatite. This is the material we use for our countertops, sinks, masonry heaters, flooring, and many other architectural applications.
- e) Shale: A sedimentary rock, well stratified in thin beds. It splits unevenly more or less parallel to bedding plane and may contain fossils. It can be a component of bricks and cement.
- f) Coal: A sedimentary rock, formed from decayed plants, is mainly used in power plants to make electricity.



### Exercise 6 Pg. 108

## Answer the following questions

### 1. What do you understand by the rock cycle?

The rock cycle is a basic concept in geology that describes the time-consuming transitions through geologic among the three main rock types: sedimentary, metamorphic, and igneous. Each of the types of rocks is altered or destroyed when it is forced out of its equilibrium conditions. An igneous rock such as basalt may break down and dissolve when exposed to the atmosphere or melt as it is located under a continent. Due to the driving forces of the rock cycle, plate tectonics and the water cycle, rocks do not remain in equilibrium and are forced to change as they encounter new environments. The rock cycle is an illustration that explains how the three rock types are related to each other, and how processes change from one type to another over time.

### 2. Using well labelled diagrams where necessary, describe the following processes:

- a) Physical/ mechanical weathering.
- b) The freeze- thaw process.
- c) Biological weathering.
- d) Chemical weathering.

**Note:** Referring to the notes and illustrations within the student's book, evaluate the answers given by the students.



# Unit 6: Mineral and Mining

## Number of topics

7 topics

## Approximated number of lessons

4-8 lessons each with an estimated time of one hour

## What are the learners expected to learn in this unit?

Learners should use a range of resources to find about the mining and global trade in minerals. They should investigate the range of minerals being mined in different countries, the methods used to extract and process them, and the uses to which they are put.

They should make a particular study of two or three contrasting operations (for instance gold mining in china, iron mining in Australia and diamond mining in Russia) and find out the benefits that accrue, and how adverse effects on people and the environment can be avoided.

They should work in groups to apply this knowledge to South Sudan, making a survey of the mineral resources and suggest ways in which the mineral potential can be developed sustainably.

## Knowledge and understanding

- Understand the extent of the global trade in minerals.
- Know how different minerals are extracted, refined and used.
- Understand the possible adverse effects on people and the environment.
- Understand the mineral potential of South Sudan.

## Key Inquiry questions

- a) What are the key minerals being mined around the world?
- b) Which countries are involved?
- c) What is the extent of the global trade in minerals?
- d) How are different minerals extracted, refined and used?
- e) What are the adverse effects of mining and how can these be avoided?
- f) What is the mineral potential of South Sudan?
- g) How can this be exploited sustainably?

## Skills to be acquired

- Investigate the range of minerals.
- Compare and contrast mining in different countries.
- Apply their knowledge to South Sudan and suggest ways in which mineral potential can be developed sustainably.

## Competencies to be developed

- Critical thinking and creative thinking: investigate the range of minerals, compare and contrast mining in different countries; suggest ways in which the mineral potential can be developed sustainably.
- Co-operation and communication: work in groups and make presentations.

## Attitudes

Appreciate the need to develop mineral extraction sustainably

## Link to other subjects

Environment and sustainability: sustaining development of mineral extraction.

# Describing the Global Distribution of Minerals, their Mining Processes and their usage



## What is expected of the teacher?

The teacher is supposed to:

1. Read and gather information about minerals and mining in order to familiarize with the topics to be tackled. Note making can be an important tool to improve on understanding before embarking into lessons.
2. Effectively describe the global distribution of gold, iron and diamond and the processes involved in their mining.
3. Help the learner understand the various processes involved in refining the minerals extracted.
4. Help the learner investigate the effects of mining on human health and on the environment.
5. Help the learner understand the need to develop mineral extraction sustainably.
6. Engage the learner in case studies and other related activities within the book.

**Note:** use the detailed notes within the student's course book to familiarize yourself with individual topics and make notes before the lessons.

Progress checks, case studies and comprehensive activities in the book are paramount for the student to understand the different topics through group discussion and presentation. Organize the learners in random groups.

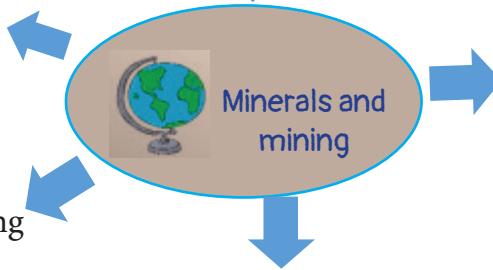
## Brainstorming



Before introducing the unit to the students. Engage the learners in a discussion to evaluate their comprehension on mining and global mineral distribution. This will make them eager to learn about the new topic introduced. It will also make them attentive throughout the lesson. Use the following information.



What are the different methods of mining?



What is the extent of the global trade of minerals

What are the key minerals being mined around world?  
Which countries are involved?  
What is the mining npotential of South Sudan

What are the adverse effects of mining and how can they be avoided?  
How can minerals be exploited sustainably.

**Note:** Use this brainstorming as an opportunity to elicit questions from students and group them/ sort them into ones that might be most useful



## Resources required in this unit

For an effective learning experience, the following resources should be provided to the students in order to cover the various subtopics, activities and exercises provided within the student's course book. Liaise with the school's authority for the provision of these items. If not possible, come up with alternative lesson plans based on the topic coverage.

### Subtopic

### Requirements

Through the entire unit

Copies of map extracts, globes and atlases

Supplementary books (preferably from the school's library, if any) with information on global mineral distribution and mining.

# Answers



## Case study 12 Pg. 12

### The effects of mining on the Environment

**Note:** For this type of case study, learners are to be organized in random groups after which they are supposed to conduct a research using any reference materials with books from the School library, using the internet from the school's computer lab etc.

Mining is good for the economy of a country however, it poses serious damages to the environment. Discuss some of the damages caused by mining to the environment near the mines.

Mining is an inherently destructive industry, and the mining effects of even a single operation can have a severe impact on the environment and the wildlife that lives nearby. Although there are some regulations in place that are intended to minimize the damage, they are not enough to allow mining and wildlife to exist in harmony, especially in cases where the regulations are difficult to enforce. The mining industry has the potential to disrupt ecosystems and wipe out wildlife populations in several different ways. Here's how mining affects the environment and wildlife.

#### Habitat Loss

Mining can lead to the destruction of habitats in surrounding areas. The process begins with deforestation. The land above the mine must be cleared of all obstructions to allow the miners to go to work. Sadly, most mining companies are quite willing to destroy an entire forest to get access to mineral wealth. Deforestation has several effects. Birds, animals, and creatures that depend on trees and plants for food or shelter lose their homes or starve to death. Any remaining survivors are forced to relocate and find a new dwelling. The removal of trees can also significantly affect the plants that rely on them for shade from the harsh sun. Some mining methods cause further destruction, such as the use of explosions to destroy mountain tops. Toxic chemicals and minerals could go to streams, rivers, and other bodies of water which can create harmful effects to aquatic species.

#### Pollution

Mining can leak pollutants into the environment that may lead to water contamination. At the most basic level, mining requires clearing of trees that hold soil in place. The process can disturb the ground and wash the soil into waterways. The increase in sediment is not poisonous, but it can still upset the delicate balance of the aquatic ecosystem by changing growing conditions and eventually alter the shape of the river. Other forms of pollution can be even more severe. The mining process exposes bodies of water to heavy metals and toxic minerals like selenium which can negatively impact the human and the marine lives.

#### Water Loss

Mining cause the water table to shrink. Water often seeps into areas that contain coal and other valuable products, and that water needs to be pumped out of the mine to allow the miners to work. Aside from pollution, the process would also cause water loss in the ground. Some mines have to collect water for use as a dust suppressant, which puts more strain on the local water supply. Nearby residents who depend on wells for their water supply can also get affected. They will need to drill even deeper to ensure that they have access to water. When the water loss from mining is combined with another large source of strain on the supply, it can lead to a shortage, which can contribute to the destruction of ecosystems.

## Climate Change

Mining is one of the most common methods for extracting fossil fuel from the ground. Fossil fuels can be used to power mining machinery. Although useful, burning fossil fuels release greenhouse gasses into the air which contributes to climate change. Many mines produce methane as a waste product. Methane is a relatively potent greenhouse gas; even a small amount of it can gradually worsen climate change. Coal mines are responsible for approximately six percent of the methane that is released due to human activities.

- **What are some of the dangers that underground miners face?**

## Accidents encountered in mines

### Cave-ins

Cave-ins are one of the most common underground mining accidents. They can take place for a number of reasons, including the following:

- The result of the gradual sinking of land
- Unsecured underground mineshaft walls and ceilings
- Cracks in the shaft floor and walls, as a result of excessive excavation, which can lead to a weakening of the whole structure

### Floods

Floods are a big risk for both underground and above-ground mining sites. They can come about because of ground water ingress or uncontrolled surface runoff, such as flash flooding following heavy rains. Floods can compromise the stability of pit walls, bringing about a collapse that kills miners and wrecks equipment.

### Gas explosions

A methane gas buildup can lead to an explosion in a coal mine. As such, a work area must be properly ventilated in order to reduce gas pocket formation. Coal mining equipment must be monitored on a regular basis to look for faults that can cause sparks and set off explosions.

### Chemical leakage

Chemicals are used in mines to transform ores from a natural state into usable commodities. When chemicals are not stored properly and/or miners do not adhere to safety procedures, accidents happen. It is also critical for miners who work with these chemicals to have appropriate ventilation to reduce the incidence of inhaling hazardous dust and fumes – these dangerous substances can result in long-term physical damage.

### Electrocution

Mining crews must use heavy electrical equipment that poses severe threats, including industrial machines, drills and lighting. If the mining environment is damp, workers are highly susceptible to electrocution. Worn plugs and cables can also trigger explosions.

### Fires

There are a number of reasons that fires can occur in mines, including faulty electrical connections, gas leaks and flammable chemical spills. Coal mines contain a number of combustible products, some of which can ignite at very low temperatures. Coal itself poses a serious hazard. Solid or uncut coal requires high temperatures to ignite, but coal dust ignites quite easily, which can have devastating effects. The presence of methane in underground mines also heightens the risk of both fires and explosions, as it can ignite or spontaneously combust.

## Health risks that underground miners face

### Dust

One of the top on-the-job health risks of mining is dust. Blasting and drilling leave very fine mineral dust particles in the air that can accumulate in the lungs. This buildup can lead to pneumoconiosis. A disabling, irreversible form of this condition known as silicosis can develop when a miner inhales large quantities of quartz or crystalline silica. Another common form of the disease for miners is black lung disease. Pneumoconiosis can cause fibrosis, which is the scarring of the lungs.

### Radon

Radon, an odorless radioactive gas, is associated with multiple kinds of underground mining. Long-term radon exposure can lead to lung cancer.

### Welding fumes

Mining welding fumes consist of vaporized molten metal. Long-term excessive exposure can result in pneumoconiosis, respiratory tract irritation and systemic poisoning.

### Mercury

Mercury is a heavy metal that's present in some organic mineral compounds found in mines. The quantity varies slightly depending on the given mine. Workers can inhale or swallow mercury or absorb it through their skin. Even minimal exposure can result in significant poisoning. Mercury poisoning symptoms include mouth ulcers, weakness, and tremors, bleeding gums, nausea, loose teeth, headaches, abdominal pain, cardiac weakness and diarrhea.

### Noise

Mining processes are inevitably noisy. Mining equipment, including crushers, drills and engines, that lets off unfiltered noise can cause short-term or permanent hearing loss, eardrum rupture or compromised speech.

### Heavy loads

A quarter of all mining injuries that result in employees taking time off include back injuries from shoveling and lifting, as well as slips and falls.

There are a number of modern safety precautions that have greatly decreased or even eliminated exposure to all of the previously mentioned risks — black lung disease, which can be deadly, has been almost completely eradicated. These precautions include respirators, ventilation systems and ear protectors. They have substantially lowered the number of injuries and fatalities from the recorded totals of the late 20th century.

It is still important to remember that miners face constant exposure to roof falls, moving machinery, fires and explosions. There are different types of mines, such as metal, non-metal and coal mines, but many of the dangers remain the same across multiple environments.



## Case study 13 Pg. 132

### Mining in South Sudan

**Note:** For this type of case study, learners are to be organized in random groups after which they are supposed to conduct a research using any reference materials with books from the School library, using the internet from the school's computer lab etc.

#### What are some of the minerals found in south Sudan?

The Mining Sector in South Sudan has the potential to become an engine for economic development of South Sudan as it has plenty of mineral deposits including gold, copper, iron, manganese, uranium, zinc, marble/dolomite and gemstones among others.

#### Gold

Gold occurs in several areas including at Kawokono in Kapoeta district. Other potential areas are Morukan-boloing, Nyangea, Anakanak, Karomi, Lopua, Nazarich, Lauro; Nathalani; Buno, Naputo and Luri.

#### Copper

The only known copper ore occurrence is at Hofrat en Nahas near the border with S. Darfur. Four copper occurrences have been reported in different locations in the Kapoeta district.

#### Zinc and lead

Zinc and lead usually occur together in massive sulphide deposits, which have been identified in the Juba-Yei-Tori zone, with the highest zinc concentration detected around Juba, while lead concentrations are spread further south and also between Torit and Wau.

#### Aluminium

South Sudan has three areas of anomalous aluminium values of above 4.5% around Juba (coinciding with areas of nepheline syenite); Raga-Wau-Rumbek zone and west of Yambio up to the border with DRC.

#### Iron

A large area stretching from Yambio all the way to the border with South Darfur is anomalous in iron.

#### Marble/Dolomite

In Kapoeta area there are several occurrences. The largest is about 4 km N.E of Kapoeta town. Several dolomite occurrences have been reported in Torit district in large amounts suitable for dimension stones in construction, lime and a wide range of other industries such as fertilizers, refractory, glass, furnace flux and flux

#### Talc

A gritty and coarse-grained form of talc is found along the Kit river area SE of Juba. Despite being of low quality, the talc is useful as a ceramic raw material; a heat resistant hardener in drill fluids used in for example petroleum drilling or road construction in hot climates. Several other talc deposits have been found to the east of Juba in Central & Eastern Equatoria. A large, white and soapy deposit of talc covering a one square kilometer area has been identified to the east of Kapoeta town



## Challenges of mining in South Sudan

- Regulatory capacity is weak
- Little prospecting carried out so far in South Sudan, though potentiality is believed to be high.
- Infrastructure not yet in place for mining
- No industrial scale mining activity so far in South Sudan
- Large potential for a number of minerals (e.g. gold, iron, copper, etc.) unexplored.
- Lack of local human capacity to manage the sector

- **How can these minerals be exploited sustainably?**

Sustainable mining involves managing resources in a way that the world can continue to develop without harming the environment. It involves extracting minerals without harming the environment and considering the needs of the future environment. Sustainable mining focuses on:

- Reducing the waste produced from mines.
- Reducing amount of water usage by reducing the amount of ore extracted in the mines.
- Using energy efficient technologies that focus more on renewable energy for example sensor based ore sorting will help reduce the usage of water in sorting minerals from ores.
- Reclaiming the mines into productive lands.
- Reducing acidification and toxic waste disposal into the environment.



### Exercise 7 Pg. 132

1. **Define minerals.**

Minerals are defined as solid, inorganic, naturally occurring substances with a definite chemical formula and general structure.

2. **Differentiate between Open cast mining and underground excavation.**

Open cast mining is done when the ore body is relatively shallow up to a depth of 400m. The rock is removed layer by layer from the surface of the earth. This is a less costly and safer than an underground mining as it does not require deep level excavation. If surface ore bodies are exhausted or if the ore body extends deep into the earth, mining goes underground. A complex network of tunnels and shafts are built to access and transport the ore from deep underground to the surface for purification.

3. **Describe the following surface mining practices:**

- a) Placer mining.
- b) Panning.
- c) Sluicing.
- d) Dredging.
- e) Alluvial mining.

[Refer to the notes provided within the students' course book](#)

4. **Differentiate between alluvial mining and diamond pipe mining.**

There are two types of pipe mining, namely open-pit mining and underground mining.

**Diamond pipe mining:**

There are two types of pipe mining, namely open-pit mining and underground mining.

a) Open-pit mining involves removing the layers of sand and rock found just above the kimberlite. Once exposed, the ore in the pit is broken up by blasting. A single blast can break approx. 3,000 tonnes of ore. Once the ore is broken, excavators load the ore into haul trucks and transport it to a primary ore crusher where the diamond extracting process begins. The Kimberley Big Hole is an example of open-pit mining.

b) In underground mining, miners tunnel through Earth's crust to the kimberlite pipe. Tunnels are constructed in two levels, one above the other with funnels built to connect the two. Mining begins on the top level by blasting ore, which falls through the funnels and collects on the second tunnel. Here, loaders collect the broken ore and bring back to the surface for processing.

**Alluvial mining:**

Alluvial mining involves the building of walls and the diversion of rivers. Once the water is emptied out and prevented from flowing into the area of interest, bulldozers can now be used to exploit the ground of the riverbank.

**5. How are the following minerals mined?**

a) **Gold**

Gold is mined through open cast mining, underground mining, dredging, sluicing, panning and placer mining. (Refer to the student's course book).

b) **Diamond.**

Alluvial mining and diamond pipe mining. (Refer to the student's course book)

c) **Iron.**

Open cast and underground mining. (Refer to the student's course book)

**6. Explain the various uses of the following minerals:**

a) **Gold:** jewelry, electronics and computer parts, dentistry and medicine, medals and awards, finances and investing, aerospace industry.

b) **Iron:** Iron metal is strong but also quite cheap. Most automobiles, machine tools, the hulls of large ships, building parts and machine parts are made of iron. Steel is made by combining other iron and other metals. Stainless steel is used in building parts, cooking pots, pans, cutlery and surgical equipment. It is also used in aircraft and automobiles.

c) **Diamond.** Glass cutting, jewelry, polishing other stones, engraving stones, electronic appliances



# Unit 7: Regional studies

## Number of topics

6 topics

## Approximated number of lessons

4-8 lessons each with an estimated time of one hour

### What are the learners expected to learn in this unit?

Learners should use a range of resources to study the key physical, economic and human feature of the east African region and compare these to other regions of Africa (for example the west and southern African regions).

They should explore the main economic products and process, the distribution of occupations, population type, distribution and political and economic organization. They should find out about the projected development of the region and identify the factors that might promote or hinder this.

They should make a special study of a contrasting region in another continent and relate this to their findings about African regions. They should prepare a presentation of key similarities and differences.

Learners should work in groups to investigate south Sudan's position within east African region and compare it with other regional countries and to the region as a whole. They should make a presentation outlining the key steps that south Sudan should take to develop sustainability in line with its regional partners.

### Knowledge and understanding

- Understand the key physical features and economic features of the East African region.
- Understand the projected development of the region.
- Understand South Sudan's position within the region.

### Key Inquiry questions

- a) What are the key physical, human and economic features of the East African region?
- b) How does this compare with other regions of Africa and the world?
- c) What is the projected development of the region?
- d) What is south Sudan's position within the region?

### Skills to be acquired

- Compare East Africa with other regions of Africa and the world.
- Identify the factors that might promote or hinder regional development.
- Outline the key steps that south Sudan should take to develop in line with its regional partners.

### Competencies to be developed

- Critical thinking and creative thinking: compare and contrast regional development: identify factors: outline developmental steps
- Co-operation and communication: work in groups and make presentations.

## Attitudes

Appreciate the need for sustainable development.

## Link to other subjects

Environment and sustainability: the need for sustainable regional development

## Describing African Regions



# What is expected of the teacher?

The teacher is supposed to:

1. Read and gather detailed information about the East and West African regions in order to familiarize with the topics to be tackled. Note making can be an important tool to improve on understanding before embarking into lessons.
2. Effectively describe the population distribution of people, the economic development, the physical geography, and the political interaction of countries within the east and West African regions.
3. Help the learner understand the projected development of the two regions in relation to the world and the African continent.
4. Help the learner investigate the factors that promote and hinder regional development.
5. Help the learner understand role of South Sudan in the East African region.
6. Engage the learner in case studies and other related activities within the book.

**Note:** use the detailed notes within the student's course book to familiarize yourself with individual topics and make notes before the lessons.

Progress checks, case studies and comprehensive activities in the book are paramount for the student to understand the different topics through group discussion and presentation. Organize the learners in random groups.

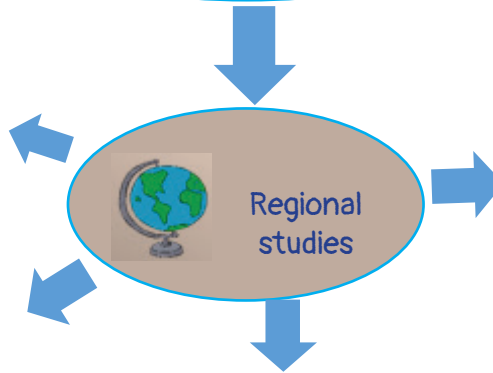
## Brainstorming



Before introducing the unit to the students. Engage the learners in a discussion to evaluate their comprehension on the East and West African regions. This will make them eager to learn about the new topic introduced. It will also make them attentive throughout the lesson. Use the following information.



What is South Sudan's position within East African region?



How could economic development prospect be improved?

What are the key physical, human and economic features of the East African region? How does this compare with other regions of Africa and the World

What is the projected development of the two African regions?

**Note:** Use this brainstorming as an opportunity to elicit questions from students and group them/ sort them into ones that might be most useful



## Resources required in this unit

For an effective learning experience, the following resources should be provided to the students in order to cover the various subtopics, activities and exercises provided within the student's course book. Liaise with the school's authority for the provision of these items. If not possible, come up with alternative lesson plans based on the topic coverage.

### Subtopic

### Requirements

Through the entire unit

Copies of map extracts, globes and atlases

Supplementary books (preferably from the school's library, if any) with information on East and West African region.

## Answers



### Comprehensive Activity 4 Pg. 142

The teacher is supposed to organize the learners in random groups or in pairs to answer the question in the section labeled above.

#### What is the economic significance of South Sudan to the East African region?

Just like any other country within the East African region, South Sudan also plays a part to the economy of the East African region. The country has significant geographical features that promote the tourism industry within the East African region. They include the vast Sudd swamplands, the Imatong Mountain ranges, the blue and white Nile among others.

The nation also is endowed with abundant natural resources including oil, minerals like gold, copper, iron, manganese, uranium, zinc, marble/dolomite and gemstones among others. These natural resources encourage trade between South Sudan and other nations within the region



### Case study 14 Pg. 145

## Factors influencing Regional Development

**Note:** For this type of case study, learners are to be organized in random groups after which they are supposed to conduct a research using any reference materials with books from the School library, using the internet from the school's computer lab etc.

- Describe the factors that speed up development in the East African region?
  - The strategic location can be advantageous, in terms of connectivity land, air and water. Countries near the sea develop faster than landlocked countries.
  - Politicians at local, regional and national levels could play an important role in decisions related to regional development.
  - Availability of natural resources could be a deciding factor, sometimes in terms of productivity and sustainability.
  - Human resource availability depending on the skill level may influence the regional development.
  - Promotion of Industrial parks and Export Processing Zones with generous subsidies and tax exemptions could lead to regional development.
  - Discuss some of the factors that may hinder regional development.
1. Similarity of the goods produced among the member states can hinder trade. If countries produce the same goods there is no need to trade amongst each other. This situation is seen among East African countries which produce almost the same agricultural products such as maize, sugar etc. this undermines trade among them.
  2. Some countries may not have experience a shortage in foreign exchange. They may not have enough foreign money to trade and buy from other countries. This may be because they do not earn enough from their exports.

3. Countries may have different ideologies. They may not be comfortable with their cultures or opinions. This makes it difficult to synchronize their economic strategies.
4. In the trading blocks, trade is undermined by poor transport and communication. This is experienced mainly in low income countries. This makes it difficult to trade and move from one country to another.
5. For business to flourish there must be a peaceful environment. Therefore if a member state is experiencing political instability, it will affect trading relations in the whole block. This undermines trade among the member states.
6. Some countries have trading partners who are not in the trading block. They prefer to trade with them rather than the member states of the block. These outside partner could be former colonial master which member states have closer trading ties with.
7. Member states could experience lack of funds or capital. They are unable to pay for goods ordered. This interferes with the functionality of the trading block.
8. Member states may not use the same language. There will be a language barrier among them making it difficult to communicate. This will make trading in the block more difficult and hinder economic integration.
9. Countries in the block may have different levels of development. Countries that are more developed will benefit more from the common market. The less high income countries will feel unfair trading practices against them.
10. In trading blocs especially Africa, the member countries sell unprocessed primary goods. This limits trade because there are limited manufactured goods in the market.
11. There is interference from high income countries that are not in the trading block. They impose conditions that limit trade among the member states. This will undermine the union.



## Exercise 8 Pg. 145

1. Describe the key physical features of the East African region?

**Note:** Refer to the notes on the learners' course book (pg. 121-125)

2. Discuss the major economic features of the East African region

Major industries in the East African region include: agriculture, forestry and fishing, mining and minerals, industrial manufacturing, energy production (geothermal, hydroelectric power and natural gas), tourism and financial services. (Refer to the student's book pg. 127-130)



## Case study 15 Pg. 153

### Research and Group discussion and presentation The Central African Region

Note: For this type of case study, learners are to be organized in random groups after which they are supposed to conduct a research using any reference materials with books from the School library, using the internet from the school's computer lab etc. Each group is to present their finding before the class.



Central Africa is the core region of the African continent which includes Cameroon, Central African Republic, Chad, Congo Republic - Brazzaville, Democratic Republic of Congo, Equatorial Guinea, Gabon, and São Tomé & Príncipe. (South Sudan is at times considered to be part of the central African region). This region covers the equator and contains the Congo Basin, with the second largest rainforest in the world. Oil is a leading export of the region.

#### Physical features within the Central African region

The landscapes of Central Africa are most often wide plateaus, which are smooth in the central part and etched at the periphery. The interior basin of the Congo River is joined to the Atlantic Ocean by a narrow neck traversing ridges parallel to the coast. The basin contains some marshlands in the region where the Congo, Ubangi, Likouala, and Sangha rivers converge and where Lakes Mai-Ndombe and Tumba are found. Its major part, however, consists of drier surfaces (low plateaus or alluvial terraces).

The most rugged terrain lies on the eastern fringe of the Congo basin. North of Lake Kivu and of Rwanda, the Virunga volcanoes form an east-west-trending range. The highest point in Central Africa, Margherita Peak (16,795 feet [5,119 metres]), whose summit bears residual features of glaciation, is located on the eastern fringe of the Rift Valley on the border of Congo (Kinshasa) and Uganda.

The Congo River basin is second only to that of the Amazon in rate of flow. In the central part of the basin, the fan of quiet rivers constitutes one of the most attractive networks of navigable waters in the world, but this network is cut off from the Atlantic by a succession of rapids in western Congo (Kinshasa) between Kinshasa and Magadi. All the rivers in the region flow down through rapids or waterfalls from the peripheral plateaus to the central basin.





## Economy

The main economic activities of Central Africa are farming, herding and fishing. At least 40% of the rural population of northern and eastern Central Africa lives in poverty and routinely face chronic food shortages. Crop production based on rain is possible only in the southern belt. Flood recession agriculture is practiced around Lake Chad and in the riverine wetlands. Nomadic herders migrate with their animals into the grasslands of the northern part of the basin for a few weeks during each short rainy season, where they intensively graze the highly nutritious grasses. When the dry season starts they move back south, either to grazing lands around the lakes and floodplains, or to the savannas further to the south.

In the 2000-01 period, fisheries in the Lake Chad basin provided food and income to more than 10 million people, with a harvest of about 70,000 tons. Fisheries have traditionally been managed by a system where each village has recognized rights over a defined part of the river, wetland or lake, and fishers from elsewhere must seek permission and pay a fee to use this area. The governments only enforced rules and regulations to a limited extent. Local governments and traditional authorities are increasingly engaged in rent-seeking, collecting license fees with the help of the police or army.

Oil is also a major export of the countries of northern and Eastern Central Africa, notably making up a large proportion of the GDPs of Chad and South Sudan.

## Culture and religion

Following the Bantu Migration, Central Africa is primarily inhabited by Bantu peoples and Bantu languages predominate. These include the Mongo, Kongo and Luba people. Central Africa also includes many Nilo-Saharan and Niger-Congo Ubangian communities: in north western Central Africa the Nilo-Saharan Kanuri predominate. Most of the Ubangian speakers in Africa (often grouped with Niger-Congo) are also found in Central Africa, such as the Gbaya, Banda and Zande in northern Central Africa.

Due to common historical processes and widespread demographic movements between the countries of Central Africa before the Bantu Migration into much of southern Central Africa, the cultures of the region evidence many similarities and interrelationships. Similar cultural practices stemming from common origins as largely Nilo-Saharan or Bantu peoples is also evident in Central Africa including in music, dance, art, body adornment, initiation and marriage rituals.

Christianity and African Traditional Religion are the predominant religions in Central Africa. Islam is also practiced in some areas in Chad and the Central African Republic



## Case study 16 Pg. 154

### Comparing and contrasting regions

**Note:** For this type of case study, learners are to be organized in random groups after which they are supposed to conduct a research using any reference materials with books from the School library, using the internet from the school's computer lab etc.

- According to the lesson, how can you gauge the economic development of East African region in comparison to West Africa?

The East African region is a fast growing economic region within the African continent with ambitious economic developments. However, as compared to the West African region, East African development is still behind. West African region is strategically located next to the European Union and North America giving it an advantage over the East African region on foreign investments. . The GDP of most West African nations is high as compared to East Africa. Furthermore West African countries have abundant natural resources as compared to East African region however, soon, with projected developments such as the LAPPSET and the SGR projects, the east African region will be more developed than the west.

- Describe the major geographical features found in the East African region.

Refer to the detailed notes on the students' book from page 121-125.

- What are the major economic activities in the East African region?

Major industries in the East African region include: agriculture, forestry and fishing, mining and minerals, industrial manufacturing, energy production (geothermal, hydroelectric power and natural gas), tourism and financial services. (Refer to the student's book pg. 127-130)

- What are some of the challenges that the West African region face?

Poverty, and political instability are some of the challenges facing the West African region. The region also faces some incidences of terrorism from terror gangs such as the Boko haram.

- Which trade blocs are found in the following regions?

- a) East African region.
- b) West African region.
- c) Southern African region.
- d) Central African region.
- e) North African region.

Refer the map below;

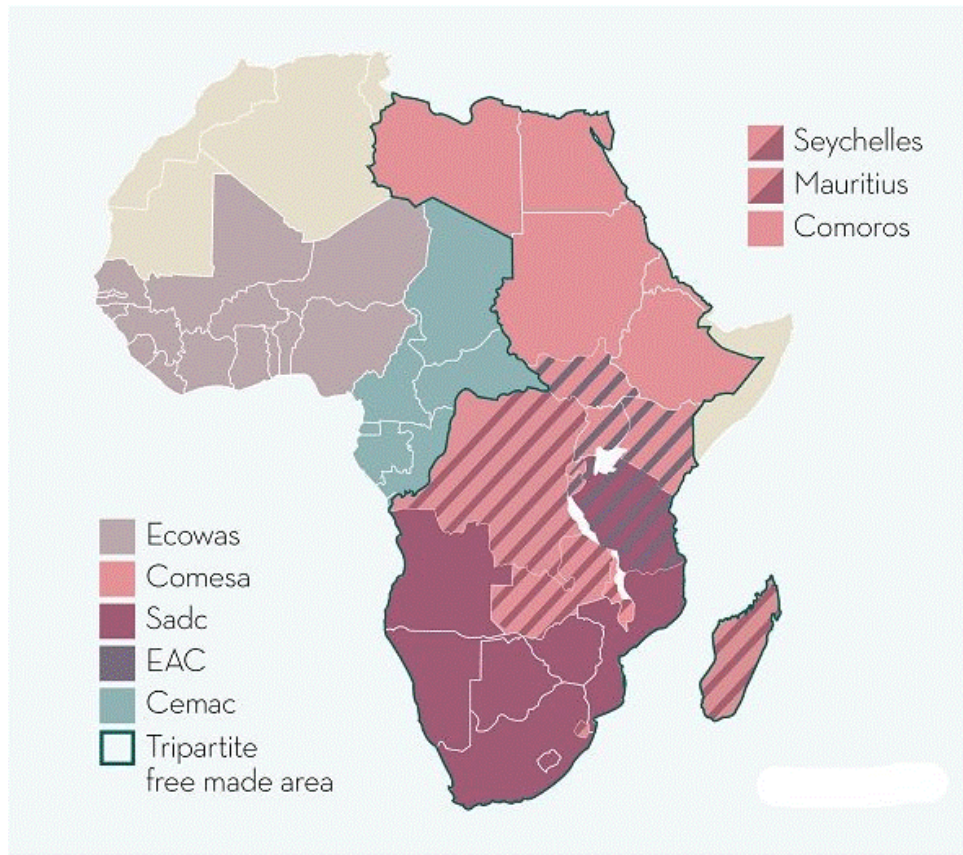
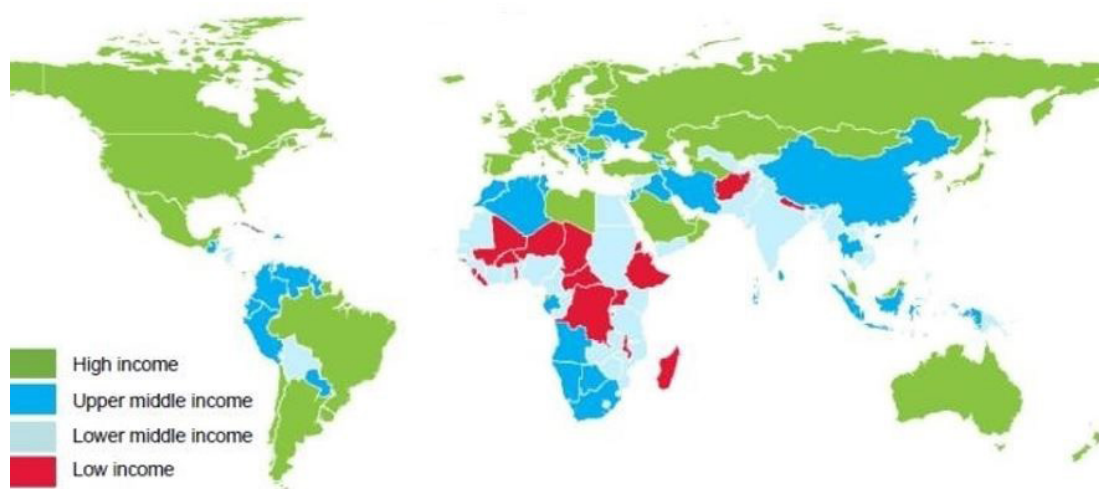


Figure 9. Trade blocs in Africa.

- How does the development in Africa compare with other regions in the world? (Use the data below to justify your answer)

## World Economic Growth (2017)



As compared to other continents, the development of Africa is still low. This is because of the following reasons:

1. Over reliance of foreign aid: where countries rely on foreign aid for survival instead of using their natural resources to sustain their livelihood. Most African countries rely on foreign nations for development hence shifting profits and opportunities to low income countries.
2. Differences in politics including other factors of conflicts such as tribalism which has separated Africans. Similarly corruption also leads to unequal distribution of wealth in most African states.
3. African nations suffer from lack of infrastructure or low levels in the development of infrastructure since less African countries have embraced science and technology as compared to high income countries. Science and technology is among other factors that speed up the development of any nation.



# Unit 8: Bridging the “Development gap”

## Number of topics

5 topics

## Approximated number of lessons

4-8 lessons each with an estimated time of one hour

## What are the learners expected to learn in this unit?

Learners should find out about the geographical disparities arising from different social, economic and political systems and understand that these allow wealth and advantage to accumulate in unequal ways. They should investigate the advantages and disadvantages of different ways to measure and quantify the development gap.

They should weigh the positive (often social and economic) against the negative (often environmental and social) consequences of countries moving out of poverty, and investigate how and why social and political unrest can result from geographical disparities in wealth and the economy.

Learners should find out how private, public and voluntary organization may have different philosophies in resolving the development gap and that each may develop initiatives that reflect these philosophies. They should investigate the differences between investments and aid, nature and expectations of the investor or donor and their relationship with the recipient.

They should work in groups to weigh up different trade and investment strategies in terms of their success in bridging and reducing the development gap and identify their impacts on different sections of the society (including role of the government, the World Trade Organization, SAP (Standard Assessment Procedures), TNC (Trans National Corporations) and the HIPS( Heavily indebted Poor Countries) initiative.

## Knowledge and understanding

- Understand the nature of the “development gap” and how it has arisen.
- Know the implications of the development gap at different scales for the world’s poorest.

## Key Inquiry questions

- a)What is the nature of the development gap?
- b)How has it arisen?
- c)What are the implications of the “development gap” at different scales for the world’s poorest people?
- d)How might the development gap be bridged and by whom?

## Skills to be acquired

- Investigate the advantages and disadvantages of different ways to measure and quantify the development gap.
- Investigate how and why social and political unrest can result from geographical disparities in wealth and opportunity
- Weigh up different trade and investment strategies.

## Competencies to be developed

- Critical thinking and creative thinking: investigate advantages and disadvantages, weigh up different strategies.
- Co-operation and communication: work in groups and make presentations.

## Attitudes

Appreciate the need for the gap to be bridged to achieve equity of opportunity.

## Link to other subjects

- Environment and sustainability:
- Peace education



## Explaining the Concept of the “Development gap”

### What is expected of the teacher?

The teacher is supposed to:

1. Read and gather detailed information about the concept of the development gap in order to familiarize with the topics to be tackled. Note making can be an important tool to improve on understanding before embarking into lessons.
2. Effectively describe the concept of development gap to the learners and let them understand the reason as to why wealth is not distributed equally among all regions in the world.
3. Help the learner understand the ways of measuring the development gap. Engage the learners in the activities within the book.
4. Explain to the learners the factors that accelerate the widening of the development gap and measures to bridge it.
5. Help the learner investigate the geographical inequalities arising from different social, economic and political systems that lead to inequality in wealth distribution.
6. Help the learner understand role of private, public and voluntary organizations in resolving the development gap. Help them differentiate between investments and foreign aid.
7. Engage the learner in case studies and other related activities within the book.

**Note:** use the detailed notes within the student’s course book to familiarize yourself with individual topics and make notes before the lessons.

Progress checks, case studies and comprehensive activities in the book are paramount for the student to understand the different topics through group discussion and presentation. Organize the learners in random groups.

## Brainstorming



Before introducing the unit to the students. Engage the learners in a discussion to evaluate their comprehension on the concept of the “development gap”. This will make them eager to learn about the new topic introduced. It will also make them attentive throughout the lesson. Use the following information.



How might the development gap be bridged and by whom?



What methods are use to measure the development gap.

What do you understand by the concept of "development gap"?



What factors lead to the widening of "development gap"?

**Note:** Use this brainstorming as an opportunity to elicit questions from students and group them/ sort them into ones that might be most useful.

## Resources required in this unit



For an effective learning experience, the following resources should be provided to the students in order to cover the various subtopics, activities and exercises provided within the student's course book. Liaise with the school's authority for the provision of these items. If not possible, come up with alternative lesson plans based on the topic coverage.

### Subtopic

### Requirements

Through the entire unit

Copies of map extracts, globes and atlases

Supplementary books (preferably from the school's library, if any) with information on the concept of the "development gap."

## Answers



### Comprehensive Activity 4 Pg. 158

#### Calculating Gross Domestic Product

**Note:** After the lesson, the teacher should help the learners tackle the question labelled above. Do not give them clues because this is an evaluation session. Encourage individual answers

1. BMW is a German car manufacturing company. Place each of the following transactions in one of the four components of expenditure for the German economy (C, I, G, NX):

- BMW sells a car to a German Household. (consumption spent by households [c] )
- BMW sells a car to a US resident. (Net export [NX] )
- BMW sells a car to the German government. (Government purchase of goods and services [G] )
- BMW makes a car to be sold next year. (Investment spending by business [I] )

2. South Sudan government has nominated you to become a secretary in the ministry of Finance. Using the data in the table below, calculate the Gross Domestic product of South Sudan.

Item	Amount spent
Government purchases of goods and services	500,000 USD
Net imports	2,000,000 USD
Investments spending by businesses and households	100,000 USD
Consumption spending by households	800,000 USD

$$\text{Gross Domestic Product (GDP)} = 500,000 + 2,000,000 + 100,000 + 800,000 = 3,400,000$$



### Case study 17 Pg. 162

#### Recall: Understanding GDP and GNI in relation to South Sudan's economy (group discussion)

**Note:** For this type of case study, learners are to be organized in random groups after which they are supposed to conduct a research using any reference materials with books from the School library, using the internet from the school's computer lab etc.

1. In groups, research on which of the following statements are true:
  - a) The GDP of South Sudan is the same as its GNI.
  - b) The GNI of South Sudan is higher than its GDP.
  - c) The GDP of South Sudan is lower than its GNI.



2. What could be the reason behind the following economic circumstances?

- a) An increase in a country's Gross Domestic Product (GDP)
- b) A decrease in a country's Gross Domestic Product.

3. Discuss the advantages and disadvantages of Gross Domestic Product (GDP) as a way to measure the development of a region.

Gross Domestic Product helps to show the strength of a country's local income received from Domestic sources such as Industrial and agricultural output among others. GDP is an effective way of measuring a region's development through combining all the GDP figures of the countries within the region.

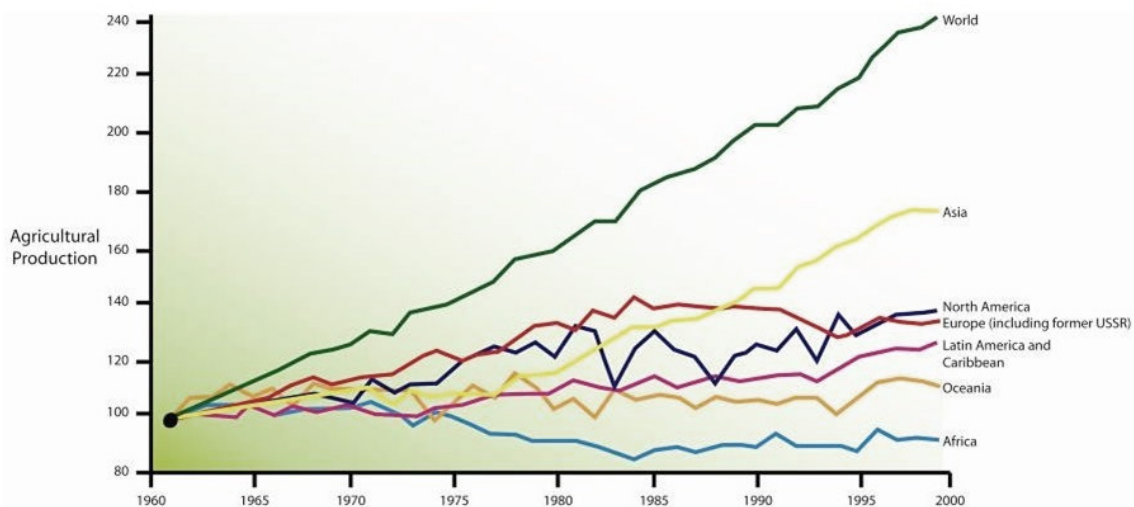


Case study 18 Pg. 1 67

## Research - The leading regions in the world in terms of agricultural production.

Look at the graph below and answer the questions that follow in groups:

### World Food Supply



Describe the graph above in three different sentences.

- a) Global food production is increasing as time goes.
- b) Asia is the leading region in terms of agricultural production.
- c) Africa's food production is fluctuating.

Which region is least productive in agriculture according to the graph? What could be the reason for this?

As compared to other regions, Africa is yet to embrace new technologies in the field of Agriculture. Such as the use of improvised seeds, modern farm machinery, the use of biodegradable and ecofriendly fertilizers and other practices such as crop rotation among others

### Which regions lead in terms of agricultural productivity and why?

The use of extensive cultivation and modern methods of farming makes Asia, Europe and North America lead in agricultural production.

### Where does South Sudan's agricultural productivity lie in the graph.

South Sudan is an African country, however its agricultural production is still low compared to other regions within the continent.

### How can South Sudan as an African country improve its agricultural productivity?

- a) Develop high yield crops.
- b) Boost irrigation to combat unpredictable weather patterns.
- c) Increase and encourage the use of biodegradable and eco-friendly fertilizers.
- d) Developing and rural infrastructure such as roads to provide farmers with new market opportunities as well as reducing cases of agricultural yield going bad.
- e) Make better use of the information technology to get knowledge of crop, fertilizer and pesticide selection, also land and water management. There useful information in the internet giving farmers information about crop prices in different markets which then increases their bargaining power.
- f) **Reform land ownership with productivity and inclusiveness in mind:** Africa has the highest area of arable uncultivated land in the world (202 million hectares) yet most farms occupy less than 2 hectares. This results from poor land governance and ownership. Land reform has had mixed results on the African continent but changes that clearly define property rights, ensure the security of land tenure, and enable land to be used as collateral will be necessary if many African nations are to realize potential productivity gains.
- g) **Step up integration into Agricultural Value Chains (AVCs):** Driven partly by the growth of international supermarket chains, African economies have progressively diversified from traditional cash crops into fruits, vegetables, fish, and flowers. However, lack of access to finance and poor infrastructure have slowed progress. Government support, crucial to coordinate the integration of smallholder farmers into larger cooperatives and groups, may be needed in other areas that aid integration with wider markets.



## Case study 19 Pg. 169

### Reducing dependency on high income countries

**Note:** For this type of case study, learners are to be organized in random groups after which they are supposed to conduct a research using any reference materials with books from the School library, using the internet from the school's computer lab etc.

Most nations in Africa depends mostly on high income countries such as the United States of America, China and the United Kingdom for financial aid and food aid among others. What are the results of over dependence on foreign aid?

There are many arguments of the importance of foreign aids in low income countries around the world however as much as foreign aid seems advantageous to low income countries, it still has various disadvantages that lead to low development in the low income countries.

Foreign aid can be defined as voluntary transfer of resources from one country to another, mostly from the high income countries, to the low income countries. It somehow helps in bridging the "development gap" but if low income countries over depend on foreign aid, there will be certain consequences that may affect their economies.

Here are some of the results of over dependence on foreign aids:

- a) Foreign aid reduces local agricultural production. Food given as foreign aid from high income countries is cheap and at times low in prices as compared to food produced locally. This causes local farmers to suffer severe losses since they earn little profits as compared to the amount of money they have invested on farming.
- b) Over dependence of foreign leads to overexploitation of natural resources in the low income countries by the developed states. Foreign nations are interested in the abundance of natural resources present in Africa and the Middle East and use foreign aid to act as a form of payment in order for them to benefit from the natural resources found in the two regions of the world. This leads to widening of the “development gap”
- c) Countries become less productive if they depend on foreign aid. Over dependence on foreign aid makes low income countries loose accountability and responsibility in terms of development making them “lazy”. Furthermore, it makes nations leads to poor planning. Low income countries should use their available local resources for development instead of relying on foreign aid.

**How can low income countries within the continent reduce foreign dependence?**

- a) Embrace science and technology
- b) Local governments should be transparent and accountable when handling local revenue.
- c) Embrace domestic savings and investments.
- d) Reducing foreign loans i.e. from the World Bank and the International Monetary funds.
- e) Accountability and integrity in the taxation systems of local revenue collection.



## Comprehensive Activity 6 Pg. 171

### War and development, corruption and development

**Note:** For this type of activity, learners are to be organized in random groups after which they are supposed to conduct a research on the question provided in the activity. They are to present their finding to the class where the teacher should assess the performance of each group. **Before starting the activity, the teacher should start by a brief brainstorming on war and give appropriate and useful examples of the effects of war.**

The teacher should compare what the students have found which what is available in the teacher’s guide and come up with a general conclusion after the activity. This will help the learners understand what was required of them.

The teacher should make the activity as interesting as possible to speed up and improve on understanding of the topic by the learners.

#### Questions:

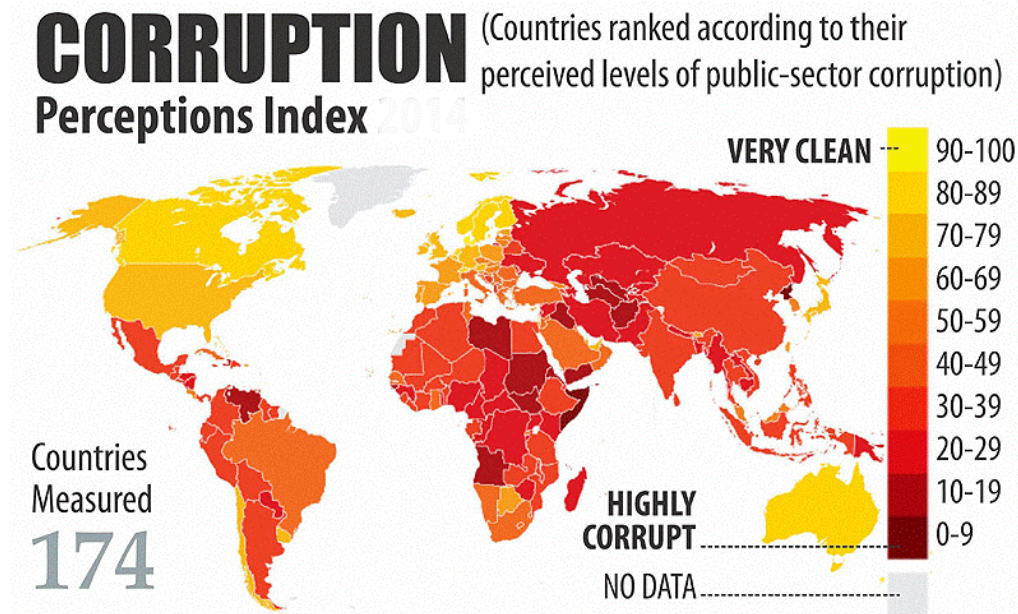
In groups, Investigate why social and political unrest can result in geographical differences in wealth and development. Use the example of African countries to justify your answer. **Note: Present your finding to the class.**

**War has many negative effects to the economy of a country. Here are some of the effects:**

- 1) War leads to massive destruction of infrastructure including industries, power lines, schools, hospitals, railway lines and roads among others. This in turn hinders development making the country less productive since no economic activity runs when there is war.
- 2) Countries participating in war use their national revenue that could have otherwise been used in developmental projects, to buy weapons, armored vehicles, ships and military aircrafts.
- 3) War leads to the death of many productive local citizens hence reduction in man power. After the war, the few who have survived will suffer from depression and trauma hence slow development.
- 4) Disruption of peace in war struck countries leads to sanctions on major exports and imports to and from other countries as well as chasing away tourists and investors.

## CORRUPTION AND DEVELOPMENT:

From the data provided below, discuss how corruption affects development in South Sudan and other low income countries. Give suggestions on ways to fight corruption. (Note: The data shows perception, not hard evidence.)



From the data provided above, it is evident that most African countries are perceived as being corrupt. Corruption hinders development in that resources meant for public consumption are distributed unevenly in such a context, the poor are the ones who suffer

To make the session interactive, the teacher can ask the learners to discuss the negative impacts of corruption and consider ways that it might be eradicated.



### Exercise 9 Pg. 177

#### 1. What do you understand by the “development gap”


“The Development Gap” refers to the widening difference in levels of development between the world’s richest and poorest countries.

#### 2. What is the “Brandt line?”

“The Brandt line” refers to the widening difference in levels of development between the world’s richest and poorest countries.

#### 3. Define the following terms:

a) High income countries: these are countries with effective rate of industrialization and individual income.

- 
- b) **Low income countries:** these are countries with a slow rate of industrialization and low per capita income.
  - c) **Gross Domestic Product (GDP):** the measure of a country's overall economic output.
  - d) **Gross National Income (GNI):** the total value produced within a country comprising of the Gross Domestic Product (GDP) with the income obtained from other countries.

#### 4. What are some of the ways of measuring the development gap?

Refer to the student's course book on pages 141-146

#### 5. What is the reason behind the widening of the development gap and how can it be bridged?

The following are reasons behind the widening of the development gap:

- a) Biased trade where farmers in low income countries are paid less for their goods while farmers in high income countries are paid more.
- b) Overdependence of foreign aid by low income countries.
- c) Persistent war and conflict that affect the development in the African continent.
- d) Corruption in low income countries.
- e) Low or Lack of developments in science, technology and infrastructure in the low income countries and the rapid growth of industrialization in high income nations provides a clear difference in development hence the development gap.

Here are some of the ways of narrowing/ bridging the development gap:

- Focus of the world bodies such as the UNESCO and the United Nations as well as the World Bank should be more inclined towards ensuring unbiased distribution of the world's natural resources. The international community should sympathize and appreciate the problems of the poorer nations and try to solve them.
- The sharing of technology and information should continue at rapid pace so that the poorer nations can benefit from modern techniques of operations that are available in the high income countries.
- The high income nations should also accept the poorer nations to be on the same level with them and appreciate their independent status. Too much interference by high income nations in the affairs of low income nations is not good since it affects their progress.
- Social and communication barriers need to be reduced so that there is a more friendly interaction between the two sections of the countries.
- An air of superiority among the high income nations and the belief that poorer nations are ethnically also backward must not be there. Racial superiority can affect the growth of the nation which is discriminated against. In South Africa, apartheid only indicates the white superiority. Racial differences ought to be solved since everyone is equal.
- Low income countries should stop relying on high income countries for development and instead use their readily available natural resources to develop themselves.
- Corruption and social conflict should be eradicated since these are hindrances to development.
- Low income countries should focus on using their local skills and resources to industrialize themselves. Industrialization can speed up the development of a country since goods sold domestically and exported overseas will add up to the country's gross national income.
- Low income nations especially African countries should use modern agriculture as a tool to eliminate food shortage. This will in turn help them stop depending on foreign aid.

## 6. What are the major differences between developed and low income countries?

**Key differences** between high income and low income countries.

The following are the major differences between high income countries and low income countries:

1. The countries which are independent and prosperous are known as high income countries. The countries which are facing the beginning of industrialization are called low income countries.
2. High income countries have high per capita income and GDP as compared to low income countries.
3. In high income countries, the literacy rate is high, but in low income countries the illiteracy level is high.
4. High income countries have good infrastructure and better environment in terms of health and safety, which is absent in the low income countries.
5. High income countries generate revenue from the industrial sector. Conversely, low income countries generate revenue from the service sector.
6. In high income countries, the standard of living of people is high, which is moderate in low income countries.
7. Resources are effectively and efficiently utilized in high income countries. On the other hand, proper utilization of resources is not done in low income countries.
8. In high income countries, the birth rate and death rate are low, whereas in low income countries, both rates are high.

### COMPARISON CHART

BASIS OF COMPARISON	HIGH INCOME COUNTRIES	LOW INCOME COUNTRIES
<b>Meaning/ definition:</b>	A country having an effective rate of industrialization and individual income is known as a high income country.	A low income country is a country which has slow rate of industrialization and low per capita income.
<b>Unemployment and poverty</b>	Low	High
<b>Life and death rates</b>	Infant mortality rate, death and birth is low while life expectancy rate is high.	High infant mortality rate, death rate and birth rate, along with low life expectancy.
<b>Generates more revenue from:</b>	Industrial sector	Service sector
<b>Growth</b>	High industrial growth	They rely on the high income countries for their growth
<b>Standard of living</b>	high	Low
<b>Distribution of income</b>	Equal	Unequal
<b>Factors of production</b>	Effectively utilized	Ineffectively utilized

7. Discuss how the following factors affect the development of a country:
- a) Existence of natural resources.
  - b) Inaccessible landscapes.
  - c) Political instability.
  - d) Social and political conflict.
  - e) Overreliance on foreign aid.
  - f) High industrial productivity.
  - g) Corruption.

Refer to notes provided on the students' book from page 163-173

8. As a citizen of South Sudan, discuss some of ways that your nation can progress economically. For this question assess the answers provided by the learners.



# Unit 9: International trade

## Number of topics

6 topics

## Approximated number of lessons

4-8 lessons each with an estimated time of one hour

## What are the learners expected to learn in this unit?

Learners should be introduced to the concept of international Trade, and how it operates, its advantages and disadvantages to the low income countries.

They should examine tariff arrangements between regional groupings such as European Union, The East African Community, the European Union, The Union of the Americas, Economic Community of West African States and South African Development Co-operation etc. the effect and influence of the world Trade Organization (WTO) on international trade.

## Knowledge and understanding

- Understand the dynamics of the International Trade Organization.
- Identify the advantages and disadvantages of the international trade.
- Understand the Key methods that led for the success of the International Trade Organization.
- Understand how World Trade Organization operates
- Distinguish between International Trade and the World trade Organization.
- Identify different trading zones of the World.
- Name some of the factors that affect International Trade.

## Key Inquiry questions

- a) How does international trade operate?
- b) What are the advantages and disadvantages of International Trade?
- c) How does International trade differ from world trade organization?
- d) Which countries have signed to the world trade organization and why?
- e) What are the key methods that contributed to the success of the International Trade Organization?

## Skills to be acquired

- Investigate how the international trade operates.
- Evaluate the importance of the international trade to Africa and south Sudan in particular.
- Analyze the conduct of the world trade organization.

## Competencies to be developed

- Critical thinking and creative thinking: investigate advantages and disadvantages of the world trade and weigh up different strategies.
- Co-operation and communication: work in groups and make presentations



## Attitudes

Appreciate the value of the international trade.

## Link to other subjects

- Environment and sustainability: understand the need for sustainable development to bridge the gap.
- Peace education: recognize the dangers of conflict where there is disparity of wealth and opportunity.

# Understanding International Trade and the World Trade Organization



## What is expected of the teacher?

The teacher is supposed to:

1. Read and gather detailed information about the international trade and the world trade organization among other regional economic grouping (trade blocs) in order to familiarize with the topics to be tackled. Note making can be an important tool to improve on understanding before embarking into lessons.
2. Effectively describe international trade and its impact to low income countries (i.e. South Sudan in particular) by explaining how it works as well as its advantages and disadvantages.
3. Help the learner understand the World trade organization and how it operates. The learner should also be able to pin point the difference between the World trade organization and international trade.
4. Help the learner identify different trading zones of the world.
5. Engage the learner in case studies and other related activities within the book.

**Note:** use the detailed notes within the student's course book to familiarize yourself with individual topics and make notes before the lessons.

Progress checks, case studies and comprehensive activities in the book are paramount for the student to understand the different topics through group discussion and presentation. Organize the learners in random groups.

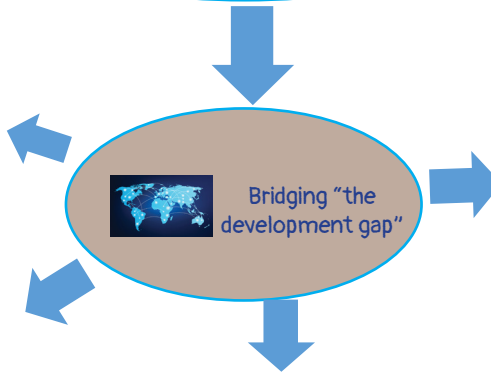
## Brainstorming



Before introducing the unit to the students. Engage the learners in a discussion to evaluate their comprehension on the concept of the “development gap”. This will make them eager to learn about the new topic introduced. It will also make them attentive throughout the lesson. Use the following information.



Which countries have signed to the world Trade Organisation and why?



How does the international trade differs from the world Organisation trade?

How does international trade operate?

What are the advantages and disadvantages of international trade.

**Note:** Use this brainstorming as an opportunity to elicit questions from students and group them/ sort them into ones that might be most useful



## Resources required in this unit

For an effective learning experience, the following resources should be provided to the students in order to cover the various subtopics, activities and exercises provided within the student's course book. Liaise with the school's authority for the provision of these items. If not possible, come up with alternative lesson plans based on the topic coverage.

### Subtopic

### Requirements

Through the entire unit

Copies of map extracts, globes and atlases

Supplementary books (preferably from the school's library, if any) with information on international trade.



## International Trade

Note: For this type of case study, learners are to be organized in random groups after which they are supposed to conduct a research using any reference materials with books from the School library, using the internet from the school's computer lab etc.

- **What are some of the factors that affect international trade?**
  - a) The geographical location of a country or a region can affect international trade in terms of accessibility and agricultural produce in relation to climate and so on.
  - b) Availability of natural resources in a country leads to trade interests by foreign nation's hence international trade.
  - c) Economic development level can directly affect a country's foreign trade in that countries with high economic development have a high level of international trade as compared to countries with low economic development.
  - d) The world's political relations: The policy of a country also has a big impact to international trade. Political policies can be negative or positive this means that policies can either encourage or discourage international trade. Political ties and indifferences between different countries affect international trade.
- **What are the advantages and disadvantages of International trade?**

### Advantages of international trade:

- a) International trade encourages productivity since each country works hard to produce goods and services in accordance to its area of specialization.
- b) International trade leads to a wider range of commodities for consumers to choose from.
- c) International trade promotes increased industrialization since countries work on producing goods and services for the purpose of trade. Industrialization paves way for the creation of employment to the local citizens.
- d) It also promotes development of infrastructure through which the traded commodities will be transported. This will improve the lives of people living around such facilities.
- e) International trade facilitates competition between the countries participating in trade which in turn leads to reduce prices on goods and services provided.
- f) International trade promotes peace and good will through interaction between different countries. Apart from this it also foster economic interdependence by making the participating countries realize that no country in the world is self-sufficient.

### Disadvantages of international trade:

- a) Exhaustion of natural resources: in order to achieve profits on exports, a country may exploits it limited natural resources beyond limits which may lead to exhaustion of natural resources such as iron, coal etc. this may have consequences to the future generation.
- b) In most cases, international trade discourages the development of domestic industries locals may rely on foreign commodities such as textiles, foot wear, vehicles, and books among other products.

**What is the importance of international trade to Africa and south Sudan in particular?**

- a) Creation of new job opportunities since high income countries are able to move their operations into low income countries. This then leads to a higher standard of living for local citizens.
- b) Industrialization: which is as a result of the exploitation of African natural resources by the high income countries. Many industries will be built leading to the creation of job opportunities.
- c) Development of infrastructure: as industries are built, other facilities follow such as schools, hospitals, electric grid lines, road networks, airports, railway lines among others. This then ease the transportation of goods and services in and out of the country.
- d) International trade facilitates foreign investments to African countries. Foreign investors contribute in raising up the economy of a country by creating job opportunities.



**Exercise 10 Pg. 187**

**1. Distinguish between international trade and the world trade organization.**

International trade is the action of exchanging goods across international boundaries while the world trade organization is an intergovernmental organization that regulates international trade by settling trade disputes between its 164 member states and protecting the interest of the low income countries through rules and regulations.

**2. Discuss the benefits of the World trade organization.** Refer to notes provided on the student's course book on page 111 and 110.

**3. Which countries have signed to the world trade organization and why? 164 countries in the world have signed to the world trade organization in order to enjoy its benefits which include:**

- a) Free trade with no border tariff or taxes on imports and exports.
- b) Access of new trade markets as a result of trade with different countries.
- c) Wide variety of goods to choose from since trade between the 164 different member states allows for competition.
- d) Reduced prices on traded goods and services.
- e) Employment opportunities and engagement of foreign investors leading to the rising of the economy of a region or a state.

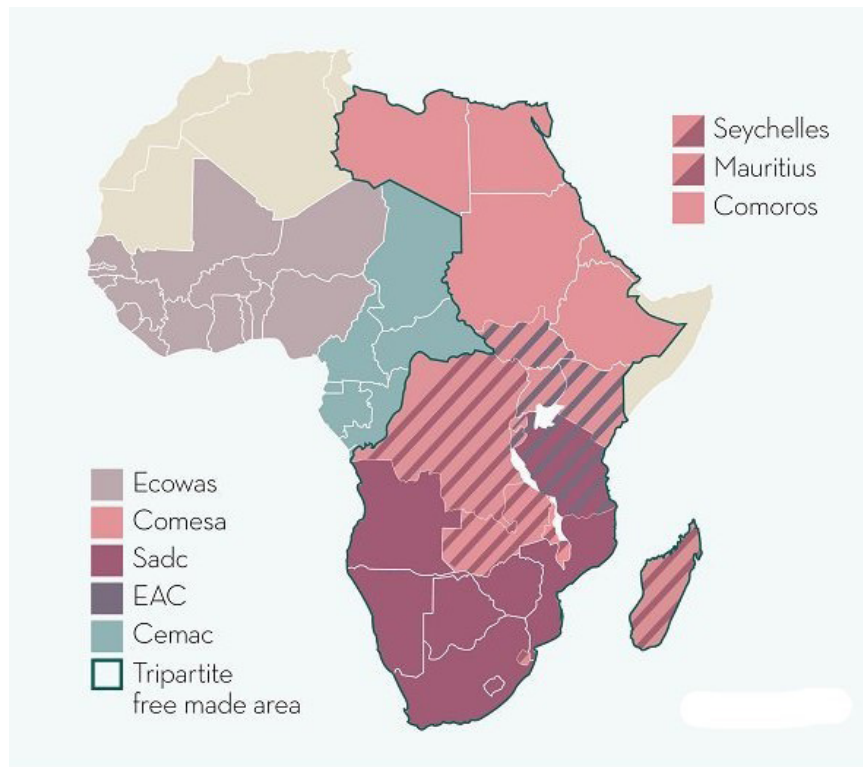


**Case study 21 Pg. 187**

**Trading Zones in Africa**

Note: For this type of case study, learners are to be organized in random groups after which they are supposed to conduct a research using any reference materials with books from the School library, using the internet from the school's computer lab etc.

Apart from the World Trade Organization find out more about other regional economic blocs important to the development of African countries. Use the data provided in the map below:



## Common Market for Eastern and Southern Africa (COMESA)

This is the largest regional economic organization in Africa, with 19 countries and an approximated population of 390 million.

The main objectives of COMESA are:

- To strengthen relations among member countries and the rest of the world.
- Promotion of research and adaptation of science and technology for development.
- To nurture closer relations amongst member states.
- Promote growth and development of the members.
- Co-operate in promotion of peace, security and steadiness among member states.
- Promote the creation of an environment that allows foreign cross-border and local investment.
- To raise the standards of living of its people by promoting development in economic activities.

## The East African Community (EAC)

This is an international organization consisting of six countries such as: Burundi, Kenya, Rwanda, South Sudan, Tanzania, and Uganda. South Sudan joined the east African Community in March 2016.

## The Economic Community of West African States (ECOWAS)

The Economic Community of West African States is a regional organization of 15 nations of the West African region. Its main aim is to promote economic unity in fields such as industrialization, regional trade, tourism, mining, transport and agriculture among others. Members include Benin, Burkina Faso, Cape Verde, Cote d'Ivoire, The Gambia, Ghana, Guinea, Guinea Bissau, Liberia, Mali, Niger, Nigeria, Sierra Leone, Senegal and Togo.

## Southern African Development Community SADC

SADC is an intergovernmental organization involving 16 southern African countries which are: Angola, Botswana, Democratic Republic of Congo (DRC), Lesotho, Madagascar, Malawi, Mauritius, Mozambique, Namibia, Seychelles, South Africa, Swaziland, United Republic of Tanzania, Zambia and Zimbabwe. Its main aim is to promote socio-economic cooperation and unity amongst its members.



1. **Globalization:** the process by which businesses or other organizations develop international influence or start operating on an international scale.
2. **Tariff:** a tax or duty to be paid on a particular class of imports or exports.
3. **Quota:** a limited quantity of a particular product which under official controls can be produced, exported, or imported.
4. **Global warming:** a gradual increase in the overall temperature of the earth's atmosphere generally attributed to the greenhouse effect caused by increased levels of carbon dioxide, CFCs, and other pollutants.
5. **Biodiversity:** the variety of plant and animal life in the world or in a particular habitat.
6. **Coast:** the part of the land adjoining or near the sea.
7. **Tide:** the alternate rising and falling of the sea.
8. **Sustainability:** avoidance of the depletion of natural resources in order to maintain an environmental balance.
9. **Algal bloom:** a rapid growth of microscopic algae in water, often resulting in a colored scum on the surface.
10. **Aquaculture:** the rearing of aquatic animals or the cultivation of aquatic plants for food.
11. **Harbour:** a place on the coast where ships may anchor for protection against rough waters.
12. **Port:** a town or city with a harbour or access to navigable water where ships load or unload.
13. **Beach:** a sandy shore especially next to the sea or ocean.
14. **Coastal management:** this is the understanding the different uses of coastal land and the physical processes impacting on the coast, such as erosion and longshore drift. It also involves representing the interest and need of each coastal user in order to avoid human conflict.
15. **Renewable energy:** is an energy resource which can be used repeatedly and replaced naturally.
16. **Non-renewable energy:** energy produced by burning fossil fuels such as coal. They are non-renewable because there are limited resources of fossil fuels on the planet.
17. **Biomass:** organic matter used as a fuel, especially in a power station for the generation of electricity.
18. **Coal:** a combustible black or dark brown rock consisting mainly of carbonized plant matter, found mainly in underground seams and used as fuel.
19. **Natural gas:** flammable gas, consisting largely of methane and other hydrocarbons, occurring naturally underground (often in association with petroleum) and used as fuel.
20. **Rocks:** the solid mineral material forming part of the surface of the earth and other similar planets, exposed on the surface or underlying the soil.
21. **Texture:** the feel, appearance, or consistency of a surface or a substance.
22. **Composition:** the general appearance of a substance.
23. **Igneous rocks:** After a volcanic eruption, lava cools and forms igneous rock.
24. **Sedimentary rocks:** these are rocks formed from material transported and deposited by water, wind, or glaciers, or by the secretions of organisms.
25. **Metamorphic rocks:** Metamorphic rock are formed when sedimentary or igneous rock is exposed to high heat and pressure, thus transforming the rock.
26. **Rock cycle:** The rock cycle is a basic concept in geology that describes the time-consuming transitions through geologic among the three main rock types: sedimentary, metamorphic, and igneous.
27. **Erosion:** The action or process of wearing away by the action of water, wind, or glacial ice.
28. **Contact metamorphism:** is a type of metamorphism where rock minerals and texture are changed, mainly by heat, due to contact with magma.

29. **Regional metamorphism:** is a type of metamorphism where rock minerals and texture are changed by heat and pressure over a wide area or region.
30. **Hydrothermal metamorphism:** also called metasomatism, may take place across wide regions of rock, thereby constituting a variant of regional metamorphism. It may alternately may take place in a limited, localized area and constitute a variant of local metamorphism. Hydrothermal metamorphism takes place when hot, volatile solutions percolate into and react with the protolith, or the original rock. The heat of the intrusive igneous body and the hot volatile fluids serves to catalyze
31. **Sluicing:** wash or rinse freely with a stream or shower of water.
32. **Dredging:** clear the bed of (a harbour, river, or other area of water) by scooping out mud, weeds, and rubbish with a dredge.
33. **Placer:** a deposit of sand or gravel in the bed of a river or lake, containing particles of valuable minerals.
34. **Alluvial mining:** a type of mining usually performed in areas of secondary deposits like riverbanks, beaches or even off-shore locations. It involves the building of walls and the diversion of rivers.
35. **Artisanal mining:** a method of mining that involves the screening and straining of mud.
36. **Tailing:** the waste or residue of something, especially a mineral ore.
37. **Development gap:** the widening difference in levels of development between the world's richest and poorest countries.

## List of Abbreviations



1. **AU:** The African Union.
2. **CFCs:** Chlorofluorocarbons.
3. **CO<sub>2</sub>:** Carbon dioxide.
4. **COMESA:** Common Market for Eastern and Southern Africa.
5. **EAC:** East African Community.
6. **ECOWAS:** Economic Community of West African States.
7. **GDP:** Gross Domestic Product.
8. **GNI:** Gross National Income.
9. **G8:** The group of eight.
10. **HDI:** Human Development Index.
11. **H.E.P:** Hydroelectric Power.
12. **LDCs:** Least Developed countries.
13. **NIC:** Newly Industrialized Countries.
14. **SADC:** Southern African Development Community.
15. **WTO:** World Trade Organization.
16. **OPEC:** Oil Producing and Exporting Countries.



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