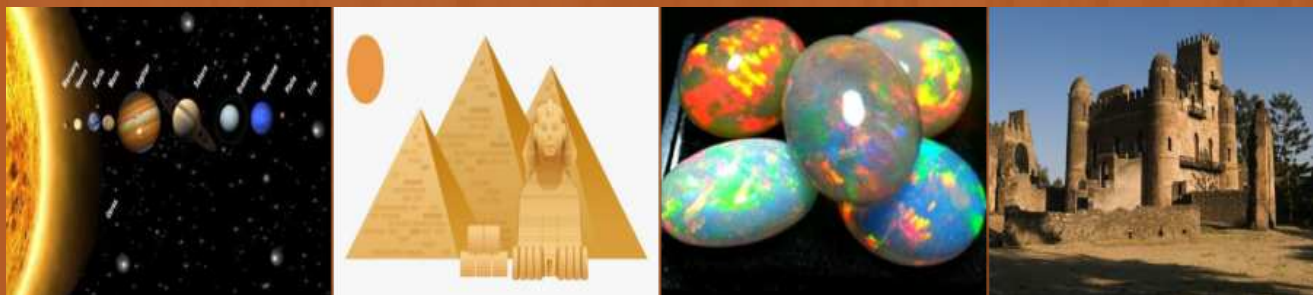




SOCIAL STUDIES

STUDENT TEXTBOOK

GRADE 7



Addis Ababa City Administration Education Bureau

Addis Ababa / Ethiopia / 2014 E.C.

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SOCIAL STUDIES

STUDENT TEXTBOOK

GRADE 7

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Unit One

Physical Characteristics of the Earth

Unit learning outcomes

After studying this unit, you will be able to:

- Explain the origin of the earth and the solar system;
- Evaluate the shape and movement of the earth and their effects;
- Describe the four components of the earth and their interaction;
- Synthesize the earth's internal layers and their characteristics;
- Identify direct and indirect sources of information regarding the interior layers of the earth;
- Identify major elements, minerals and rocks forming the crust of the earth;
- Analyze the spatial distribution and economic importance of rocks in Ethiopia.

Main contents

- 1.1 Origin of the earth and the solar system
- 1.2 Shape and movement of the earth
- 1.3 External components and internal structure of the earth
- 1.4 Materials forming the crust of the earth
- 1.5 The distribution and economic value of different rock types in Ethiopia
 - Unit Summary
 - Glossary
 - Review Exercise

1.1. Origin of the earth and the solar system

Competency: After studying this lesson, you will be able to:

- Explain how the earth and other members of the solar system were originated and evolved to the present state.

These are the words you should try to learn for this lesson
Top 5 words

- | | |
|----------------|-------------|
| ➤ Solar system | ➤ Planet |
| ➤ Sun | ➤ Asteroids |
| ➤ Meteoroid | |

More Key words

- | | |
|----------------|-----------------|
| ➤ Inner planet | ➤ Orbit |
| ➤ Outer planet | ➤ Dwarf planets |

A. The origin of the Earth

Start-up questions

- ✓ What do you understand about the origin of the Earth and the solar system?
- ✓ Where did the Earth come from, and how it is formed?

The origin of the Earth is intimately related to the formation of the solar system. Some scientists believe that the sun, planets and other smaller bodies in the solar system were formed from a large flammable of hot swirling gases. The flammable was loosely packed gases, largely made up of hydrogen and helium, and dust particles. Gradually, the gases and dust particles drew together because of gravitational pull and formed a thin disc. Through time, the disc split into rings and kept spinning.

The spinning rings at the center formed the sun. The outer rings resulted in the formation of the eight planets, including the earth. Geologists estimate that the earth was formed 4.6 billion years ago.

Focus

Till August 2006, Pluto was considered as a planet. However, in a Meeting of the International Astronomical Union, a decision was taken that **Pluto** like other celestial objects (**Ceres, 2003 and UB₃₁₃**) discovered may be called “dwarf planets”.

B. Members of the solar system

Our solar system is made up of a star, eight planets and countless smaller bodies such as dwarf planets, asteroids and meteoroids.

I. The Sun

The sun is the centre of the solar system. It is huge and made up of extremely hot gases. It provides the pulling force that binds the solar system. The sun is the ultimate source of heat and light for the solar system. But that tremendous heat is not felt so much by humans because despite being our nearest star, it is far away from us. The sun is about 150 million km away from the earth.

Things to do!

The earth orbit the Sun at a distance of about 150 million km. Light travels at a speed of 300,000 kilometers/second. How long does it take sunlight to reach the Earth? This sounds like a strange question, but think about it.

Focus

The sun is a star, just like many of the stars that you can see in the night sky. It is the largest object, comprising 99.8% of the system’s mass.

II. Planets

Start-up questions

- ✓ What is a planet?
- ✓ What is the name of the planet we live in?

The word ‘planet’ comes from the Greek word “**Planetai**” which means ‘wanderers’. There are eight planets in our solar system. All the planets revolve around the Sun on paths called **orbits**. The orbit is elliptical in shape. In order of their distance from the sun, they are classified in to two; inner planets and outer planets.

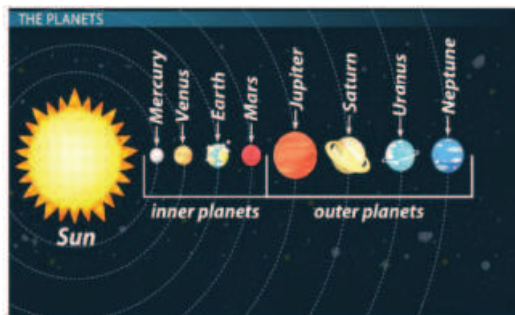


Figure 1.1 The Planets

Inner planets

The four planets closest to the Sun - Mercury, Venus, Earth, and Mars are the inner planets. They exist in solid state. Astronomers call them the “**terrestrial planets**” because they have solid and rocky surfaces. Compared to the outer planets, the inner planets are small in size.

Outer planets

Jupiter, Saturn, Uranus, and Neptune are the outer planets of our solar system. These planets are farthest from the Sun. The outer planets are much larger than the inner planets. Since they are mostly made of gases, they are also called **gas giants**.

III. Asteroids

Apart from the stars and planets, there are numerous tiny bodies which also move around the sun. An asteroid is a relatively small rocky body that orbits the sun. Most asteroids in our solar system are found in the main asteroid belt. They are found between the orbits of Mars and Jupiter.

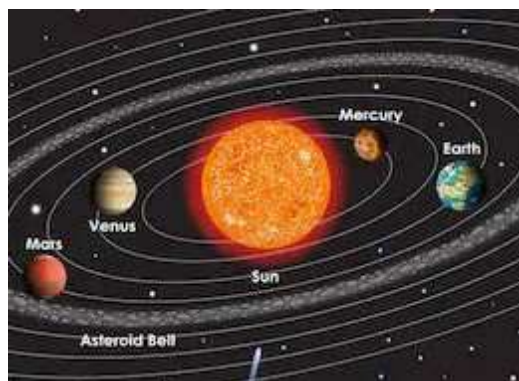


Figure 1.2 Asteroids belt

IV. Meteoroids

Sometimes one asteroid can crush into another. This can cause small pieces of the asteroid to break off. The broken pieces of asteroid are called **meteoroids**. When a meteoroid enters the earth's atmosphere, it vaporizes and turns into a **meteor**:

a streak of light in the sky. Because of their appearance, these streaks of light are sometimes called "shooting stars". Sometimes meteoroids don't vaporize completely in the atmosphere. In fact, sometimes they survive their trip through earth's atmosphere and land on the earth's surface. When they land on earth, they are called **meteorites**.

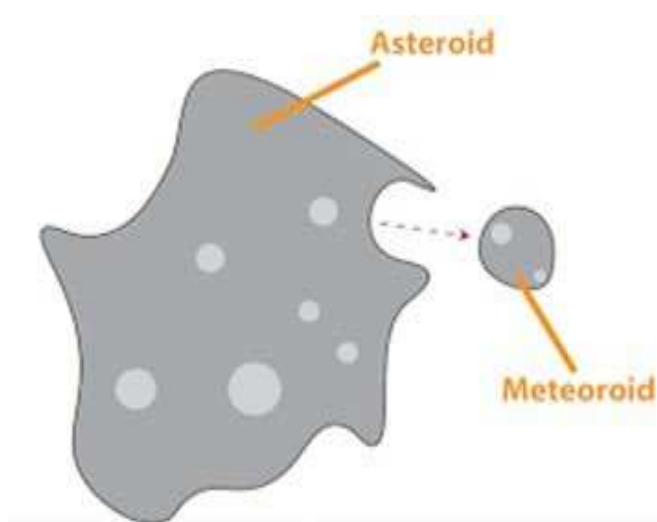


Figure 1.3 Asteroid and Meteoroid



Figure 1.4 Constellations

Interesting Fact!

While watching the night sky, you may observe various patterns formed by different groups of stars, these are called constellations. Today there are a total of 88 constellations that cover the entire night sky including the Andromeda (Princess of Ethiopia), Cassiopeia (Queen of Ethiopia) and Cepheus (King of Ethiopia). You can see the patterns of constellation on *figure 1.4*.

Latin Name

Andromeda

Apus

Aquarius

Cassiopeia

Cetus

Cepheus

Gemini

English Name or Description

Princess of Ethiopia

Bird of Paradise

Water bearer

Queen of Ethiopia

Sea monster (whale)

King of Ethiopia

Twins

Source: <https://starchild.gsfc.nasa.gov/docs/StarChild/questions/88constellations.html>

Things to do!

Why the stars are not visible at the day time? You'll need:

- 1 torch,
- 1 sheet of plain paper, pencil and a needle.

Steps:

1. Place the torch in the centre of the paper with its glass front touching the paper.
2. Now draw a circle around the torch.
3. Perforate the paper with the needle within the circled area.
4. Now place the perforated circle part of the paper on the glass front and cover the paper around the torch with a rubber band.
5. Take care that the switch of the torch is not covered.
6. In a dark room, stand at some distance facing a plain wall, switch off all other lights. Now flash the torch light on the wall. You will see numerous dots of light on the wall, the like stars shine at night.
7. Switch on all the lights in the room. All dots of light will be almost invisible.
8. You may now compare the situation with what happens to the bright objects of the night sky after the sun rises in the morning.

After you practice at home write a report and present to the class.



Activity 1.1

A. Individual work

1. What is 'Solar System'?
2. Name all the planets according to their distance from the sun.
3. Which one is the nearest planet to the sun?

B. Group discussion

Discuss the following question in small groups and present your discussion outcome through your group representative.

- How the earth and other members of the solar system were originated and evolved to the present state?



1.2 Shape and movements of the earth

Competency: After studying this lesson, you will be able to:-

- Evaluate the shape and movement of the earth and their effects

A. The shape of earth

Start-up questions

- ✓ What is the shape of earth?
- ✓ How can we prove the shape of the earth?
- ✓ What evidence is there that Earth is spherical?

These are the words you should try to learn for this lesson.

Top eight words

➡ Spheroid

➡ Revolution

➡ Axis

➡ Equinox

➡ Rotation

➡ Season

➡ Orbit

➡ Solstice

Earth is one of eight planets in our solar system. The earth's shape is not perfectly round. It has a slightly greater radius at the Equator. It is an oblate spheroid (spherical) shape. Earth does not have a perfect spherical shape. This is due to the gravitational force caused by the Earth's rotation. As a result, it is bulging in the middle; whereas slightly flattened at North and South Poles.

Evidences of earth's shape

There are various physical evidences that prove the earth's shape is not perfectly spherical. If the shape of the earth were a flat disc, then the rising Sun would have been seen at all places at the same time. But this does not happen. Places in the east see the rising Sun earlier. When a ship approaches land, its funnel or mast is seen first and then the hull. If the Earth had been flat, the whole ship would have been seen at the same time. These evidences prove that earth's shape is not flat but an oblate spheroid. The following illustrations show what the actual shape of the earth looks like. The illustrations help you to have a better understanding on the shape of the earth.



Figure 1.5 shape of the earth

B. Movements of the Earth

Start-up questions

- ✓ What are earth's movement?
- ✓ What is the difference between rotation and revolution?
- ✓ Explain how rotation and revolution affect days, years and seasons
- ✓ How long does it take for Earth to rotate on its axis?

There is nothing stationary in the universe. The planets, moons, and other heavenly bodies in the universe rotate and revolve at different speeds. Earth has two movements. These movements are called **rotation** and **revolution**.

i. Rotation

Rotation is the movement of the earth on its axis. The earth takes about 24 hours to complete one rotation around its axis. Earth rotates from west to east, so the sun appears to rise in the east and set in the west. It's axis of rotation is tilted at an angle of $23\frac{1}{2}^{\circ}$ and is perpendicular to the Earth's orbit. This tilt influences the amount of daylight (temperature) and other weather patterns from season to season.

Effects of Earth's Rotation

Start-up questions

- ✓ What causes day and night?

The rotation of the Earth has the following effects:

1. Day and Night

Rotation creates a diurnal cycle of light and darkness, temperature, and humidity changes. As the earth rotates on its axis, half of the earth faces the sun and half of the earth faces away from the sun.

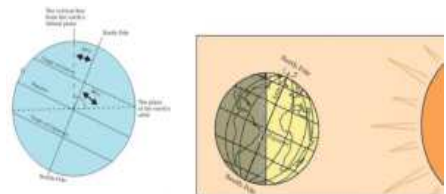


Figure 1.6 Day and night on the earth

2. High and Low Tide

High and low tide is a result of the gravitational pull between the sun and the moon. When the earth rotates, the sun and the moon pulls it, however, one of the force is usually stronger than the other. Hence, we will experience high and low tide.

ii. Revolution of the Earth

Start-up questions

- ✓ What is earth's revolution?
- ✓ How long does it take for Earth to revolve around the Sun?
- ✓ What are effects of the earth's revolution?

Revolution is the movement of the earth around the sun in a fixed path or orbit. Time for one revolution is $365\frac{1}{4}$ days or one year and the speed of earth's revolution is 109,430.32 km or 68,000 miles per hour.

The Effects of Revolution of the Earth

a. variation in the length of day and night

The revolution of the earth gives impression that the sun is moving north and south of the equator. The equator faces the sun directly on March 21 and September 23. During these two days the day and night are equal throughout the earth. These two days are called **equinoxes**. On June 21, the tropic of cancer faces the sun. This is known as **summer solstice**. It is the longest day in the Northern hemisphere and longest night in the southern hemisphere. On December 21, the Tropic of Capricorn faces the sun. This is known as the **winter solstice**. It is the longest day in southern hemisphere and longest night in northern hemisphere.

b. Seasons

The revolution of the earth causes the four seasons namely **summer** (kiremt), **autumn** (Meher), **winter** (Bega) and **spring** (Belg / Tsedey). The following illustration shows the effects of earth's revolution.

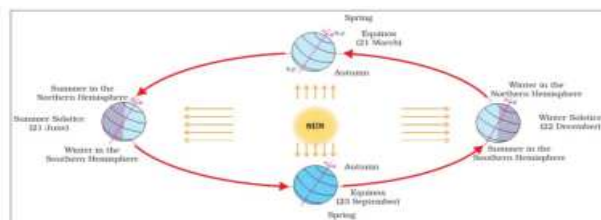


Figure 1.7 The effects of rotation and revolution of the earth.

Activity 1.2



A. Individual work

1. How does the rotation of Earth cause day and night?
2. What effect does the tilting of the earth on its axis have?
3. Why are there not always 12 hours of day light and 12 hours of dark everywhere in the world each day?

B. Things to do

Form a group and conduct the following activities.

1. Take a ball to represent the earth and a lighted candle to represent the sun.
2. Mark a point on the ball to represent a town “X”.
3. Place the ball in such a way that the town “X” is in darkness.
4. Now rotate the ball from left to right.

After you did aforementioned activities, write what you observed.



1.3 External components and internal structure of the earth

Competencies: After studying this lesson, you will be able to;

- Describe the four components (subsystems) of the earth and their constant interaction;
- Distinguish the difference and similarity between direct and indirect sources of information about the internal parts of the earth.

These are the words you should try to learn for this lesson

Top 5 words

- ➡ Atmosphere
- ➡ Hydrosphere
- ➡ Components
- ➡ Biosphere
- ➡ Lithosphere

More Key Words

- ➡ Core
- ➡ Crust
- ➡ Mantle

1.3.1. External Components of the earth

Start-up questions

- ✓ 9 Do you know what each of these spheres represents - lithosphere, hydrosphere, biosphere and atmosphere?
- ✓ 9 Are these external components or sub systems interacted?

The physical environment of the earth can be divided into four components or sub systems. They are the “**lithosphere**” (land), “**hydrosphere**” (water), “**biosphere**” (living things) and the “**atmosphere**” (air).

A. The lithosphere

The lithosphere is the solid or rock part of the Earth. It is the coolest and most rigid part of the Earth. It is an irregular surface with various landforms such as mountains, plateaus, plains and valley etc

Word Origin

Many words used in a language may have been taken from some other languages. The following words are having origin from Greek words.

Atmos – meaning vapor

Hydro – meaning water

Bio – meaning Life

Lithos – meaning Stone

Things to do!

Discuss the following question in small groups and present your discussion outcome through your group representative.

1. List the name of highest mountains, major rivers, and plants grow in your locality.
2. Associate the features you have listed with the components of the earth (to which components of the earth they belong?

The surface of the lithosphere is very uneven. There are highest mountains like **Ras Dejen** (4620 m above sea level) and lowest places like **Dallol** (116 m below sea level) in Ethiopia.

B. The Hydrosphere

The hydrosphere is the water section of the earth. The hydrosphere contains all of the water on earth in liquid, solid and vapor form. They can be found in oceans, seas and lakes etc. The oceans are the most prominent features of the hydrosphere, covering nearly 71 percent of the earth's surface and 97 percent of earth's water.

C. The Biosphere

The biosphere is part of the earth's surface where living things exist. It is concentrated near the surface in a zone that extends from the ocean floor upward for several kilometers into the atmosphere.

D. The Atmosphere

Atmosphere is the envelope of air that surrounds the earth. It is a mixture of gases. The most abundant gas in the atmosphere is Nitrogen (78%). Nitrogen enters the atmosphere when volcanoes erupt and when dead plants and animals decay. The second most abundant gas in earth's atmosphere is oxygen (21%). Oxygen is primarily produced by plants. Nitrogen and oxygen accounts for about 99 % of the gases. Gases including argon, carbon dioxide, methane, and water vapor make up the rest of the atmosphere.

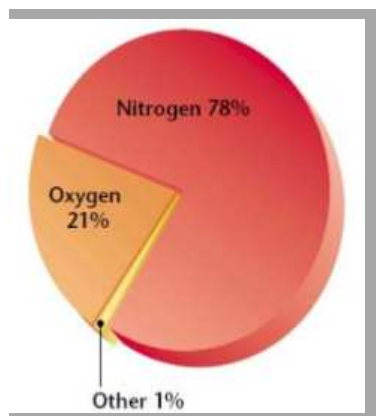


Figure 1.8 Composition of the atmosphere

Things to do!

Discuss the following question in small groups and present your discussion outcome through your group representative.

- State the four external components of the earth and discuss their interaction.

The components (sub systems) of the earth are highly interacted each other. The interaction of these systems influences every environment on Earth. High mountains, for example, often have lower temperatures than valleys or hills. In high-altitude mountain ranges, the lithosphere interacts with the thinner air and precipitation to create a cool or even icy climate zone. Over time, plants and animals have adapted to live in these unique environments

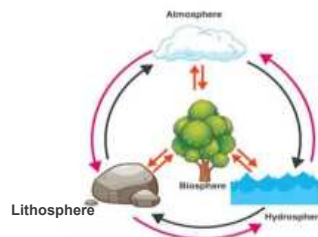


Figure 1.9 Components of the earth and their interaction

How do earth's spheres interact?

The earth is an integrated system that consists of rock, air, water, and living things that all interact with each other. Scientists divide this system into four parts. These are the lithosphere, hydrosphere, biosphere and atmosphere. The spheres are closely connected. For example,

- Many birds (biosphere) fly through the air (atmosphere), while water (hydrosphere) often flows through the soil (lithosphere).
- Human beings from the (biosphere) walk on the ground (the lithosphere); breath the air (the atmosphere); and drink the water (the hydrosphere). We could not exist without any one of these systems.
- Humans (biosphere) built a dam out of rock materials (lithosphere).
- Humans (biosphere) harness energy from the water (hydrosphere) by having it spin turbines (lithosphere) to produce electricity.

1.3.2 Internal structure and sources of information about the internal parts of the earth

1.3.2.1. Sources of information about the internal parts of the earth

Start-up questions

List out the various sources of information about the interior of the earth.

How do we get information about the interior of the earth?

Human lives on the surface of a globe that has a radius of nearly 6500

km, yet no one has ever penetrated more than a few kilometers below the solid earth. The knowledge about the internal parts of the earth is obtained from direct sources and indirect sources.

A. Direct sources

The direct source of information about the internal parts of the earth includes rock materials from mining areas and molten magma from **volcanic eruptions**. Besides scientist are working on “**deep ocean drilling projects**”.

i. Mining

Mining is the process of extracting useful materials from the earth. The gold mining that is being undertaken in the Republic of South Africa enabled human beings to secure rock sample from a depth of 3 – 4 km beneath the surface.

ii. Volcanic eruption

Volcanic eruption forms another source of direct information. When the molten material (magma) thrown in to the surface of the earth, during volcanic eruption it becomes available for laboratory analysis.

iii. Deep ocean drilling projects

Many holes have been dug for research purpose. The deepest hole by far is on the Kola Peninsula in Russia, referred as the “**Kola well**”. The deepest drill at Kola, has so far reached a depth of 12km. This and many deep drilling projects have provided large volume of information through the analysis of materials collected at different depth



Figure 1.10 The Kola Super deep holes, the deepest manmade hole on Earth

A. Indirect Sources

The vast interior of the earth is largely inaccessible to direct study. The indirect sources of information about the internal part of the earth are obtained from **earth quake wave** and by studying the **meteorites** that fall to the earth.

i. Earth quake wave

An earth quake wave is one of the most important sources of information about the interior of the earth. An earth quake is simply the shaking of

the earth. It is a natural event. It is caused due to release of energy, which generates wave that travel in all direction. The wave generated by an earth quake tells us a lot of things about the material property of the interior of the earth.

ii. Study of meteorites that fall to the earth

The materials and the structures observed in the meteorites are similar to that of the earth. The analysis indicated that the core of the meteorites consists of iron and nickel. Since the earth is a celestial body like that of the meteorite, it can easily inferred that our earth also contain iron and nickel in its core.

1.3.2.2. Internal structure of the earth

Start-up questions

List out the various sources of information about the interior of the earth.
How do we get information about the interior of the earth?

The structure of the earth's interior is basically divided into three layers. These are crust, mantle and core.

A. Crust

The crust is the outermost and thinnest layer of the earth. It has two different parts: **continental crust** and **oceanic crust**. The average thickness of continental crust is about 30 to 40 km.

In contrast, oceanic crust is between 5 to 6 km thick. The crust consists of hard and strong rock. Major constituent elements of the continental crust are **Silica** (Si) and **Aluminum** (Al) and thus, it is often termed as **SIAL**. The major constituent elements of the oceanic crust are Silicon (Si) and Magnesium (Mg) and thus, it is often termed as **SIMA**.

B. Mantle

The portion of the interior below the crust is called the mantle. The mantle is about 2,900km thick, and takes up 84% of Earth's volume. The mantle is the thickest layer of the earth. The major constituent elements of the mantle are **Silicon** and **Magnesium** and hence it is also termed as **SIMA**. The upper mantle has solid rocks whereas, the lower part with molten rock called magma.

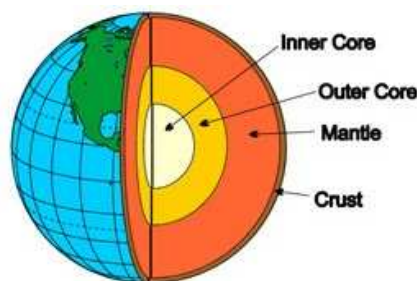


Figure 1.11 Structure of the Earth

C. Core

The core is the innermost layer of the earth. It is composed mainly of **Nickel** (Ni) and Iron (Fe) hence it is also called as **NIFE**. The core's temperature is about 6000°C. The core constitutes nearly 15% of earth's volume. The core has two layers: an inner core that is solid and an outer core that is liquid (or semi-liquid). In the inner core, the force of gravity is so intense that the molten metal (iron and nickel) is compressed in to a solid material.

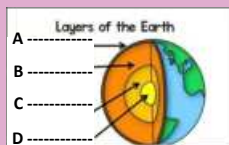
Focus

You can think of the earth like an apple with three layers – skin, flesh and core. Except, in the earth, the layers are called the crust, the mantle and the core.

Activity 1.3

A. Individual work

1. Name the three layers of the earth?
2. Which layers of the earth are the outermost and the thinnest?
3. List out the various sources of information about the interior of the earth?
4. Which layer of the earth accounts about 15% of the earth's volume?
5. Using the following picture, label the layers of the earth that make up the structure of the earth?



B. Group discussion

Discuss the following questions in small groups and present your discussion outcome through your group representative.

1. State the four components (sub systems) of the earth and explain their constant interaction?
2. Discuss why inner core becomes solid?



1.4 Materials forming the crust of the Earth

Competencies: After studying this lesson, you will be able to

- Identify major elements, minerals and rocks forming the crust of the earth;
- Analyze how and why different earth's materials are differentiated into different layers;

These are the words you should try to learn for this lesson

Top ten key words

- | | | |
|--------------------|--------------------|---------------------|
| ➞ Elements | ➞ Sedimentary rock | ➞ Continental crust |
| ➞ Minerals | ➞ Volcanic rock | ➞ Oceanic crust |
| ➞ Igneous rock | ➞ Plutonic rock | ➞ Metamorphism |
| ➞ Metamorphic rock | | |

More key words

- | | | |
|----------|---------|-----------|
| ➞ Oxygen | ➞ Rock | ➞ Lava |
| ➞ Basalt | ➞ Magma | ➞ Granite |

1.4.1. Major Elements

Start-up questions

- ✓ What type of materials makes up the earth's crust?
- ✓ Name the major elements present in the earth's crust?

Earth's crust is made up of several elements. These elements are in a solid form in the outer layer of the earth and in hot and molten form in the interior. About 98% of the total crust of the earth is composed of eight elements. As you can see from the table (table 1.1) the most abundant elements in the Earth's crust are oxygen, silicon, aluminum, iron, calcium, sodium, potassium, and magnesium.

Table 1.1 Weight percentages of the most abundant elements of the earth's crust

Elements	Relative abundance (%)
Oxygen (O)	46.6
Silicon (Si)	27.72
Aluminum (Al)	8.13
Iron (Fe)	5.00
Calcium (Ca)	3.63
Sodium (Na)	2.83
Potassium (K)	2.59
Magnesium (Mg)	2.09
Others	0.41

Source: Data of Geochemistry, sixth edition, Michael Fleischer (1967)

1.4.2. Major Minerals

Start-up question

- ✓ What are the major minerals forming the crust of the earth?

The materials that the earth's crust is made of are called rocks, and all rocks are made of minerals. There are many known mineral species, but the vast majority of rocks are formed by combination of a few common minerals, called rock forming minerals. Minerals, the building blocks of rocks, are inorganic solids with a specific internal structure and a definite chemical composition. Major rock forming minerals are those minerals which are found in abundance in the rocks of the earth's crust. Refer the (table 1.2) which shows the major rock forming minerals: such as silicates, Oxides, Carbonates, Sulfides etc are the major rock forming minerals.

Table 1.2 Major rock forming minerals

Mineral group	Example
Silicates	Mica, feldspar, olivine
Oxides	Quartz, Magnetite
Carbonates	Calcite, Dolomite etc
Sulfides	Pyrite, Galena
Sulfates	Gypsum
Chlorides	Rock salt

1.4.3. Major rocks forming the crust

Start-up questions

- ✓ List the major rocks forming the crust of the earth?
- ✓ How are different rocks formed?

On the basis of their mode of formation (origin), rocks of the Earth's crust are classified into three. These are igneous, sedimentary and metamorphic rocks.

1. Igneous rock

The word igneous was derived from the Latin word “**ignis**”, which means fire. Igneous rocks are formed when molten rock (magma) cools and solidifies either on the surface or inside the surface. Sometimes the hot rock erupts, on the surface. Magma that gets to the surface is called **lava**. There are two main types of igneous rocks. These are extrusive and intrusive igneous rocks.

A. Extrusive igneous rock

Extrusive igneous rocks are also called volcanic rocks. They are formed when magma cools and solidifies on the surface of the earth. An abundant and important example is basalt and obsidian.



Figure 1.12 Types of Igneous rocks

B. Intrusive igneous rocks

Intrusive igneous rocks are also called plutonic rock. They are formed when magma cools and crystallizes within the interior of earth. Granite is the most abundant intrusive igneous rock.

Focus

Magma is a name for molten rock material found below the Earth's surface, and this name changes to lava when magma reaches the Earth's surface. It is produced in the earth's interior at a depth of about 60 to 200km where temperature is between 900 °c and 1600°c

2. Sedimentary rock

The term sedimentary was derived from the Latin term “**sedimentum**”, which means settling (laid down). Sedimentary rocks are formed when sediments come to settle in a certain areas after they have been transported in to those areas by various erosion agents. Most of these types of rocks are formed in rivers, seas and oceans. Sedimentary rock differ from other types of rocks for the fact that it has layers. A layer indicates the amount of sediment deposited at a time. The bottom layer is the oldest and the hardest of all the layers deposited above it while the top layer is the youngest and the softest. Sedimentary rocks contain fossils which indicate evidences of past events. These rocks are ware house of major energy resources, such as coal, petroleum and natural gas.



Figure 1.13 Sedimentary rocks, laid down in layers

3. Metamorphic rock

Start-up questions

How metamorphic rocks are formed?

What is Metamorphism? What are the agents of metamorphism?

Metamorphic rocks get their name from the Greek words “**meta**” meaning change, and “**morpho**” meaning form. Metamorphic rock results from changes in other kinds of rocks. They are produced from pre-existing igneous, sedimentary, and even other metamorphic rocks through heat and pressure inside the earth’s crust. Sometimes they are called **changed rocks**. Marble is an example of metamorphic rock. It is formed from limestone (sedimentary rock).

Focus

Metamorphism involves the transformation of pre existing rocks, i.e igneous and sedimentary rock and other qualitatively different rocks. Heat and pressure are the most important agents of change of igneous and sedimentary rocks into metamorphic rocks.



Activity 1.4

A. Individual work

1. How the different types of rocks are formed?
2. Mention the names of the different types of igneous rocks?
3. List the major elements forming the crust of the earth?
4. List the major minerals forming the crust of the earth?
5. What are the most important agents of metamorphism?



B. Group discussion

Discuss on the following question in small groups and present your discussion outcome through your group representative.

1. State the main difference between intrusive and extrusive igneous rock?
2. Discuss on the major elements, mineral and rocks forming the crust of the earth



1.5 The distribution and economic value of the different rock types in Ethiopia

Competency: After studying this lesson, you will be able to

- Analyze the spatial distribution and economic value of the different rock types in Ethiopia.

Start-up questions

- ✓ Which areas of Ethiopia are largely covered by igneous, sedimentary and metamorphic rocks?
- ✓ List the different uses of rocks in your locality?

A. Distribution of rocks

The igneous, sedimentary and metamorphic rocks are found in different parts of Ethiopia. As you can see from the map (figure 1.14) igneous rocks cover large areas in the central part of the country. Eastern Ethiopia is mainly covered with sedimentary rocks. Metamorphic rocks are found in the northern, western and southern edges of the country.

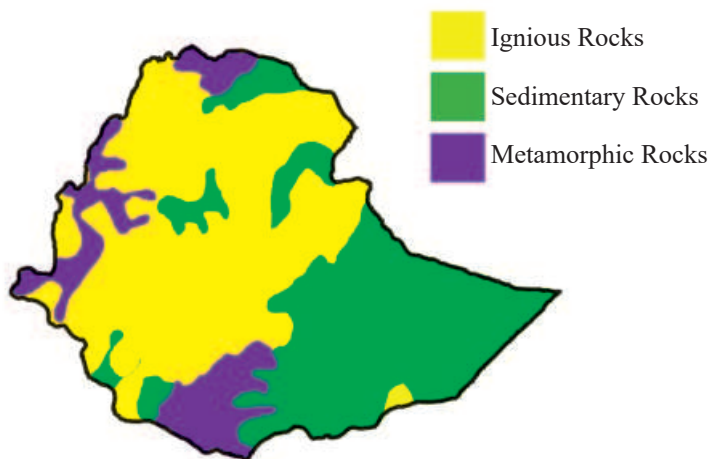


Figure 1.14 Distribution of the major outcropping rocks in Ethiopia

B. Economic importance of rocks in Ethiopia

Rocks have a broad range of uses that make them significantly important to human life. These include:

- I. **Source of fuel:** Sedimentary rocks like coal are a source of fuel for industrial use.
- II. **Construction purpose:** Some rocks like granite and sandstone are quarried and used for road, bridge and building construction. Rocks like marble can be polished as an ornament for decorating floors, walls of buildings etc
- III. **Source of food nutrient:** Rock salt such as sodium chloride from sedimentary rock provide minerals used in cooking.
- IV. **Formation of soil:** Soils are formed from the disintegration of rocks.

Table 1.3 Economic importance of rocks

Major Rocks	Associated mineral	Importance
Metamorphic rock	Metallic minerals, such as - gold, - nickel, - diamond, - copper, - uranium, iron, - platinum and lead	-Decorative and Jewelry materials -Construction, -Electrical wire making, -industrial machinery production etc
Sedimentary rock	Mineral fuels, such as - coal - petroleum - natural gas - limestone, and - gypsum	- Energy sources - Construction - Writing materials
Igneous rock	Basalt, granite, sand etc	- Building and construction materials

Activity 1.5



A. Individual work

1. What type of rock is dominant in Addis Ababa and its surrounding? (refer figure 1.14, distribution of the major outcropping rocks in Ethiopia)
2. List down the uses of rocks?

B. Group discussion

Discuss on the following question in small groups and present your discussion outcome through your group representatives.

1. Is it possible to learn of past conditions of the earth by studying sedimentary rocks?
2. In a group, walk around your school compound and its surroundings. Collect samples of several types of rocks and bring them back to the classroom. Finally, report to the class about the uses of rocks you have collected in your locality?



UNIT SUMMARY

In this unit, we have discussed the physical characteristics of the earth. We discussed how the earth and other members of the solar system were originated and evolved to the present. Besides, We explained the external components and internal structure of the earth and examined the materials forming the crust of the earth. Finally, we have described the distribution and economic value of the different rock type in Ethiopia.

- The origin of the earth is related to the formation of the solar system. The sun and the sun's family (planets, asteroids, meteors etc) were formed from a large filament of hot whirling gases. Finally as a result of long time processes the sun and the planets were formed.
- Geologists estimate that the earth was formed 4.6 billion years ago.
- The earth's shape is not perfectly round. It is an oblate spheroid,
- Rotation is the movement of the earth on its axis.
- Effects of rotation include day and night, High and Low Tide.
- Revolution is the movement of the earth around the sun in a fixed path or orbit
- Effects of revolution are seasons, varying the length of day and night,.
- The four components (sub systems) of the earth are the lithosphere, hydrosphere, biosphere and the atmosphere.
- The knowledge about the internal parts of the earth is obtained from direct sources and indirect sources.
- The internal structure of the earth is divided in to three major components: the crust, the mantle and the core.
- The materials that the Earth's crust is made of are called rocks, and all rocks are made of minerals.
- On the basis of their mode of origin, rocks of the Earth's crust are classified into three: igneous, sedimentary and metamorphic rocks.
- Rocks are used as a source of fuel, construction and serves as a source of food nutrients

Glossary

Asteroids: a relatively small rocky body that orbits the sun.

Atmosphere: the envelope of air that surrounds the earth, held in place by gravity.

Axis :an imaginary line on which the Earth rotates.

Biosphere: part of the earth's surface where living things exist.

Celestial bodies: refers to the sun, the moon, and all those objects shining in the night sky.

Constellation: The patterns of stars seen in the sky

Core: the central layer of the earth which is composed of nickel and iron.

Crust: the outer surface or layer of the earth

Equinox : are days in which day and night are of equal duration.

Hydrosphere: is the water surface of the Earth including oceans, seas and lakes.

Lithosphere: the solid or rock part of the Earth.

Magma: Molten rock beneath the surface of the earth.

Mantle: an intermediate layer of the earth. It is found between the crust and the core layers of the earth

Meteors: Shooting star; fragment of solid matter which enters the upper atmosphere from outer space.

Minerals: naturally occurring inorganic solids with a specific internal structure and a definite chemical composition.

Orbit: the path each planet follows when it moves around the sun

Planet: a spherical object that orbits around a star

Revolution: is the movement of the earth around the sun in a fixed path or orbit.

Rock: a solid material that comprises the earth's crust. They are made of minerals. In turn minerals are made up of elements.

Rotation : is the movement of the earth on its axis.

Season :is a period of the year that caused by the earth's revolution.

Solar system: the sun, the eight planets and all other objects that revolve around the sun

Solstice : are days when the Sun reaches its farthest northern and southern declinations.

Spheroid : ellipsoid, is a sphere flattened at the poles.

REVIEW EXERCISE FOR UNIT ONE

I. True or False

Direction: Write “True” if the statement is correct and write “False” if it is incorrect

1. The core of the earth consists of nickel and iron.
2. The layer of the earth beneath the mantle is core.
3. The crust is the innermost layer of the earth.
4. Mineral fuels such as coal, petroleum and natural gas are associated with metamorphic rocks.
5. An earth quake wave enables us to acquire information about the interior of the earth.
6. Rock is a solid material that comprises the earth’s crust.

II. Matching

Direction: Match the items in column “A” with items in “B”

- | <u>A</u> | <u>B</u> |
|---------------|--|
| 1 Lithosphere | A. The water section of the earth |
| 2 Hydrosphere | B. The cultural landscape of the Earth |
| 3 Atmosphere | C. The part of the earth that supports all sorts of life |
| 4 Biosphere | D. The gaseous envelop of the Earth |
| | E. The solid or rock part of the earth |

III. Multiple choices

Direction: Choose the correct answer from the given options.

1. The type of rock that shows layered arrangement is:
A. Igneous B. Metamorphic C. Sedimentary D. Magma
2. Which is the third nearest planet to the sun?
A. Venus B. Mercury C. Earth D. Mars
3. How long does it take for the Sun’s light to reach Earth?
A. 10 minutes B. 8 minutes C. 7 minutes D. 12 Minutes

4. Which of the following two important elements constitute the earth's innermost core?
 - A. Potassium and Magnesium
 - B. Silicon and Aluminum
 - C. Nickel and Iron
 - D. Magnesium and Silicon
5. The earth rotates around its axis from _____.
 - A. North to south
 - B. South to North
 - C. East to West
 - D. West to East
6. Variations in the length of day time and night time from season to season are due to
 - A. the earth's rotation on its axis
 - B. the earth's revolution round the sun in an elliptical manner
 - C. latitudinal position of the place
 - D. revolution of the earth on a tilted axis

IV. Fill in the blank

Direction: Fill the following blanks with appropriate word(s)

1. The star from which we get light and heat is_____
2. All the planets revolve around the Sun on a path called_____ which is_____in shape.
3. _____is naturally occurring inorganic solid with a specific internal structure and a definite chemical composition.

V. Short answer

Direction: Give short answers for the following questions.

1. How are the earth and other members of the solar system formed?
2. How many planets are there in our solar system?.
3. Write down the direct and indirect sources of information about the interior of the earth?
4. What are the reasons that we know that earth is spherical?
5. How many rotations does the Earth make around its axis in a day?

Check List

Put a tick (✓) mark in each of the boxes for activities you can perform **I can**

- 1 Explain how the earth and other members of the solar system were originated and evolved to the present state ☐
- 2 Evaluate the shape and movement of the earth and their effects ☐
- 3 Describe the four components (sub-systems) of the earth and their constant interaction ☐
- 4 Synthesize the earth's internal layers and their characteristics ☐
- 5 Distinguish between direct and indirect sources of information about the internal parts of the earth ☐
- 6 Identify major elements, minerals and rocks forming the crust of the earth ☐
- 7 Analyze how and why different earth's materials are differentiated into different layers ☐
- 8 Analyze the spatial distribution and economic value of the different rock types in Ethiopia. ☐

UNIT TWO

Human Evolution and World Population

Unit learning outcomes

After studying this unit, you will be able to:

- Appreciate the origin of human beings;
- Show archeological sites on sketch map;
- Point out the archeological sites that show the origin of earlier human beings;
- Analyze world population growth distribution;
- Calculate different demographic rates;
- Evaluate the role of different mode of transportation;
- Identify and show significant road signs

Main Contents

2.1 Human Evolution

2.2 Trend of World Population

2.3 People and the Development of Transportation

- Unit summary
- Review Exercise

2.1 Human Evolution

Competencies: After studying this lesson, you will be able to:

- Point out archeological sites that show the origin of earlier human beings;
- Appreciate the origin of human beings;
- Show archeological sites on sketch map;
- Examine the historical routes humankind has passed through over time;

These are the words you should try to learn for this lesson

Top 10 words

- | | | |
|--------------|----------------|----------------|
| ➔ Evolution | ➔ Homo | ➔ Homo erectus |
| ➔ Fossil | ➔ Hominids | ➔ Homo sapiens |
| ➔ Genus homo | ➔ Homo habilis | ➔ Pre-history |
| ➔ Bi-pedal | | |

More key words

➔ Archeology

➔ creationist

2.1.1 Archeology and archeological works

Start-up question

- ✓ What is archeology?

Archeology is the science in which archeologists dig out material objects and fossils of the past. It helps us in the study of pre-history. Pre-history was the distant past before the beginning of writing and recording. Fossils are the remains of dead plants, human beings and animals. Therefore, the study of fossils and other material remains of the past help us to reconstruct what happened before the art of writing started.



Figure 2.1 Artifacts and fossils

2.1.2 Origin of the first human beings

Start-up question

- ✓ Distinguish the difference between the Creationist theory and the scientific theory?

With regard to the origin of human beings, there are two theories suggested. These are: creationist theory and scientific (evolution) theory.

Creationist theory said that human beings were created by God. Those who believe in the assumption that God creates humans and the whole universe are Creationists.

The Scientific theory believes that human beings and other living things are the result of gradual and natural process of changes that took millions of years. Charles Darwin (1809-1882) explained about evolutionary process. He explained that, human beings developed from lower being through evolutionary process.

According to the scientific theory, human beings developed from a tiny creature called Hominid. They were the ancestors of human beings. Human beings belong to the species called homo sapiens.

Australopithecines (southern ape) were the earliest (the first) human species that appeared in Africa around 6 million years ago. Its fossils were discovered in Ethiopia, Kenya, South Africa and Chad.

The fossil remains of *Australopithecus Afarensis*, Known as *Lucy* or *Dinikensh*, was found in 1974 at Hadar, in the Afar region, Ethiopia. *Afarensis* may have been ancestor of Genus *Homo*.

2.1.3 Historical paths human kind passes over time

There are different species that belong to genus *homo*: *homo habilis*, *homo erectus* and *homo sapiens*.

Homo habilis (handy human being) is considered to be the oldest human being that appeared in Africa. Its fossils were found at Olduvai Gorge in Tanzania, at lake Turkana in Kenya and in the Omo valley in Ethiopia.

Homo erectus (up right walking human being) was the first human being to master the use of fire and the earliest species to migrate from Africa to other part of the world. Its fossils were discovered in Ethiopia in the Omo Basin, Melka-Kunture, Konso-Gardula and Middle Awash.

Homo sapiens (wise human being) were very similar to modern human being. Fossils of this species were found in the Awash and Omo valleys and in the areas near Dire Dawa. Modern human beings appeared about 40,000 years ago in Africa. They are different in many ways from their ancestors. They have large brains, are bi-pedal and walk erect, use languages, develop culture, invent tools and transmit knowledge from generation to generation.

Focus

There are three stages through which the Homo species passed before the emergence of modern humans. These are:-

1. Homo habilis: able to make tools
2. Homo erectus: able to erect upright and walk
3. Homo sapiens: knowledge is the distinctive feature of modern human

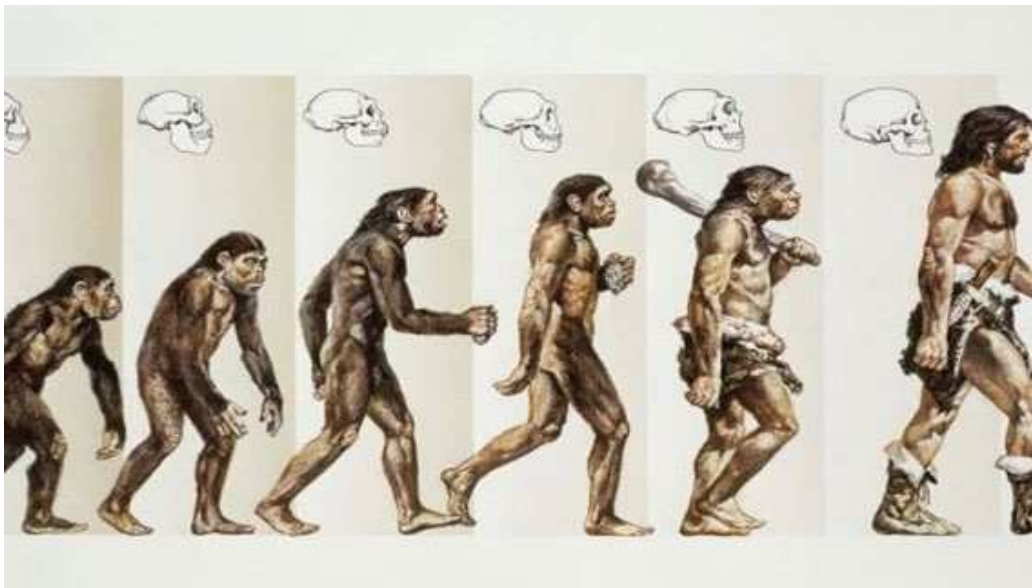


Figure 2.2 Human evolution

Activity 2.1



A. Individual work

Using the reference materials, write very short notes on the following terms:

1. Archaeology
2. Fossils
3. Hominids
4. Creationist theory
5. Evolutionary theory

B. Group discussion:

Discuss on the following questions in small groups and present your discussion outcome through your group representatives.

1. List the sites where the fossils of *Homo erectus* were discovered in Ethiopia.
2. By using the map of Africa indicate the location of archeological sites that show the origin of early human being.



2.2 Trends of world population

Competencies: After studying this lesson, you will be able to:

- Predict future world population growth pattern on the basis of present and past population growth rate
- Calculate different demographic rates such as growth, mortality, fertility, net-migration and etc.;
- Identify types and causes of population movement;
- Locate densely and sparsely populated regions on world population map;
- Evaluate growth trend of Ethiopian population in line with world population growth.

These are the words you should try to learn for this lesson

Top 10 words

- | | | |
|--------------|-------------|--------------|
| ➞ Birth rate | ➞ Fertility | ➞ Mortality |
| ➞ City | ➞ Immigrant | ➞ Migration |
| ➞ Death rate | ➞ Hamlet | ➞ Population |
| ➞ Emigrant | | |

More key words

- | | | |
|--------------------|--------------------|------------------------|
| ➞ Dependency ratio | ➞ Natural increase | ➞ Population explosion |
| ➞ Infant mortality | ➞ Settlement | ➞ Population Cluster |

Start-up questions

- ✓ What do you mean by human population?
- ✓ What factors have contributed to the growth of world population?

Human population refers to the total number of human inhabitants of a specified area, such as a city, country, or continent, at a given time. Population is one of the most critical factor that determine the socio-economic and environmental conditions of every country in the world.

The world's population has been experiencing continuous growth since the mid-20th century. According to United Nations Department of Economic and Social Affairs, Population Division (2019), the global population is still growing at a slower rate than it has been since 1950. From 1 billion in 1800 to 7.7 billion in 2019, the world population has increased dramatically and will likely reach 8.5 billion in 2030. Such rapid and dramatic growth of world population is known as **population explosion**.

Focus

Population doubling time is length of time needed by a population to double itself.

It can be calculated using the following formula:-

$$\text{Doubling Time} = \frac{70}{\text{growth rate}}$$

Example: suppose the population growth rate of country A in 2010 was 2%. How many years will it take the population to double?

$$\text{Doubling Time} = \frac{70}{2} = 35 \text{ years}$$

Factors that contribute for rapid population growth

The rapid increase in the size of the human population is attributed to many factors. These include:

- ➡ Advancements in scientific knowledge, agriculture, industry, medicine;
- ➡ Improvement in peoples living conditions;
- ➡ Humans ability to control famine and disease, which have been major killers of humans;
- ➡ The relatively lower cost of importing vaccines, antibiotics, insecticides, and high-yielding varieties of seeds.

As indicated in (Table 2.1) below, by 1750 there were only about 791 million peoples in the world. However, in a matter of 250 years, the world population reached over 6 billion. The growth of human population between 1750 and 2000 has been very rapid.

Table 2.1 Trends in world population growth (1750-2050)

Region	Population size (in millions)						
	Years						
	1750	1800	1850	1900	1950	2000	2050 (Estimate)
Asia	502	635	809	947	1,437	3,689	5,369
Africa	106	107	111	133	228	797	1,846
Europe	163	203	276	408	546	727	642
Latin America and the Caribbean	16	24	38	74	166	523	480
North America	2	7	26	82	221	481	722
Oceania	2	2	2	6	12	30	45
Total	791	978	1,262	1,650	2,556	6,073	9,104`
Source :- Microsoft Encarta (2009)							

Trend and growth rate of Ethiopian population

According to the 2007 Census, the population of Ethiopia was 73,918 505. The country's population is among the fastest growing in the world

It was estimated that, in 1900, Ethiopia had only 11.8 million peoples. As shown in (Table 2.2), this number increased to about 12.9 million in 1920 and to 23.5 million in 1960. The table shows that, in 1960, the country had twice the population it had in 1900. These values show that, during those decades, it took 60 years for the population to double in size. In contrast, since 1960, the time required for the population to double has been on the decline. This is because of rapid rate of population growth.

As shown in (Table 2.2) the growth rates of the Ethiopian population since 1900 increased by less than 1.0% until about 1920. Regarding worldwide efforts to control malaria and other diseases in the 1950s, the growth rate rises from year to year and reached 2.8% in 1970 and 3.1% in 1984.

According to the results of the three censuses, there was a slight decline in the population growth rate over recent decades, changing from 3.1 percent in 1984 to 2.9 percent in 1994, and to 2.6 percent in 2007. This was mainly the result of the government's efforts to regulate fertility rates through the delivery of family planning services.

Table 2.2 Population estimate and growth rate in Ethiopia (1900-2007)

Year	1900	1920	1940	1960	1970	1984	1994	2007
Population (million)	11.8	12.9	16.3	23.5	29.5	42.6	53.5	73.9
Growth rate (%)	0.2	1.0	1.5	2.2	2.8	3.1	2.9	2.6
Source: Central Statistical Authority (CSA) 1994 and 2007								

Activity 2.2



A. Group discussion

Discuss on the following question in small groups (based on Table 2.1 and 2.2) and present your discussion outcome through your group representative.

1. Identify the two continents whose population growth rates differ the most?
2. Discuss the consequences of any rapid population growth you have observed in your locality? What measures do you suggest to correct the situation?
3. Discuss about the growth and distribution pattern of Ethiopian population?



2.2.1 Components of population dynamics

Start-up question

- ✓ What are the components of population dynamics?

The main components of population dynamics/ determinants are fertility, mortality and migrations. Fertility and mortality are biological factors, while migration is purely non-biological. The combined effect of the three factors controls the changes in population size and composition.

A. Fertility

Start-up questions

- ✓ What do you mean by fertility?
- ✓ What factors affect the fertility of a society?

Fertility refers to the actual reproductive performance of a population. The growth of world population depends largely on human fertility. This is so because any society replenishes itself through the process of human fertility.

Measures of fertility

Fertility can be measured by using different methods, but the most commonly used measure of fertility is birth rate.

Birth Rate (BR)

Birth rate is the most common and simplest index of fertility. It is simply the number of live births observed in one year among one thousand people in a given region.

Birth rate can be expressed as a number of live births per thousand people.

$$BR = \frac{B}{P} \times K$$

Where **B** is the total number of live births during a year, **P** is mid-year total population and **K** is a constant, conventionally 1000.

Example

If the number of live births in a population of 50,686,000 was 150,800, the birth rate is:

$$BR = \frac{B}{P} \times K = \frac{150,800}{50,686,000} \times 1000 = 2.9 \text{ births per } 1000 \text{ per year}$$

Factors of Fertility Distribution

Various factors affect fertility distribution in the world including

- ➡ Low access to contraceptives;
- ➡ Backwardness and poverty;
- ➡ Low status of women;

- ➔ Need of children for labour;
- ➔ Children are considered as symbol of virility and
- ➔ Low educational background.

B. Mortality

Start-up questions

- ✓ What is mortality?
- ✓ What factors affect mortality?

Mortality refers to the occurrence of death in the human population. Mortality rates are higher in the developing countries than in the developed ones. This difference is caused by variations in standards of living, nutrition, medical services, personal hygiene and environmental sanitation.

Measures of Mortality

Mortality can be measured in a number of ways, including the use of death rate and infant mortality rate.

Death rate (DR): is the ratio of the total registered deaths of a specified year in a region to the total mid-year population, multiplied by 1000.

$DR = \frac{D}{P} \times K$ where DR is crude death rate, D stands for total observed deaths, P is total mid-year population, and k is a constant, 1000.

Example

In a hypothetical region, the total number of deaths observed in 2011 was 21,000, and the total mid-year population was 7,000,000. What is death rate?

$DR = \frac{D}{P} \times K = \frac{21,000}{7,000,000} \times 1000 = 3/1000$. This number indicates that the deaths of 3 persons were observed for each 1000 people per year.

Focus

Rate of natural increase refers to the difference between the number of live births and the number of deaths occurring in a year.

Rate of natural increase = Birth rate - Death rate

Infant mortality is the death of infants aged below one year.

Major factors that attributed for high death rate are the following:

- ➡ Low standard of living
- ➡ Low access to health facilities
- ➡ Poor nutrition, and sanitary practices
- ➡ Civil war and political instability
- ➡ Wide spread of famine and starvation
- ➡ High incidence of disease and infections

C. Migration

Start-up questions

- ✓ What is migration?
- ✓ Why do people migrate?

Migration refers to the movement of humans from one place to another. Migration takes place with two major factors. These are:

- I. **Push factors:** impose pressure on peoples to migrate, which includes poor employment, civil war, and harsh climate etc.
- II. **Pull factors:** attract peoples to migrate, which include good job opportunity, favorable climate and good welfare service.

An emigrant (out migrant) is a person who is leaving one country to live in another.

An immigrant (in migrant) is a person who is entering a country from another to make a new home.

Measures of migration

Immigration rate indicates the number of people arriving at a destination per 1000 people in a given year

$$\text{Immigration rate} = \frac{\text{Number of Immigrants}}{\text{Total polpulation at destination}} \times 1000$$

Emigration rate indicates the number of departing people from an area of origin per 1000 people in a given year.

$$\text{Immigration rate} = \frac{\text{Number of Emigrants}}{\text{Total polpulation at origin}} \times 1000$$

Net Migration Rate (NMR): shows the net effect (balance) of immigration and emigration in an area. It can be expressed as an increase or decrease per 1000 people in the area in a given year.

$$\text{NMR} = \frac{\text{Number of Immigrants} - \text{Number of Emigrants}}{\text{Total population}} \times 1000$$

Example:- Assume the number of emigrants and immigrants of country 'A' are 50,000 and 260,000 respectively. If the total population is 105 million, what will be the **NMR**?

$$\text{NMR} = \frac{\text{Number of Immigrants} - \text{Number of Emigrants}}{\text{Total population}} \times 1000$$

$$\frac{260,000 - 50,000}{105,000,000} \times 1000 = 2/1000$$

Activity 2.3



A. Individual Work

1. What are the factors that led fertility differences in developed and developing countries?
2. What are the major factors that attributed for high death rate in the world?

B. Group work

Discuss on the following questions in small groups.

1. The number of live births for place "A" was 2400, and its mid-year population was 160,000. Find BR.
2. The number of deaths for place "B" was 219,300, and its mid-year population was 19,297,000. Calculate DR.
3. Assume the number of emigrants and immigrants are 30,000 and 150,000 respectively, if total population is 100 million. Calculate NMR?



2.2.2 Population characteristics

Start-up question

- ✓ What are the major characteristics of population?

The structure or composition of population can be classified in to two categories; these are biological and cultural characteristics.

Biological characteristics include race, ethnicity, sex and age and cultural characteristics comprise of education, health, nutrition, religion and occupation.

Age structure is the distribution of a given population into age groups. There are two important statistical tools used to understand age structure. These are: age groups and population pyramid.

Age groups: in the broad age groups, age structures are;

- ➔ Young age, 0-14 (the young dependent population),
- ➔ Working age, 15-64 (the economically active population)
- ➔ Old age, 65+ (the elderly dependent population).

Population Pyramid: implies the graphic representation of the age distribution of a given population by sex.

Look the Figure given below which show the population of Ethiopia.

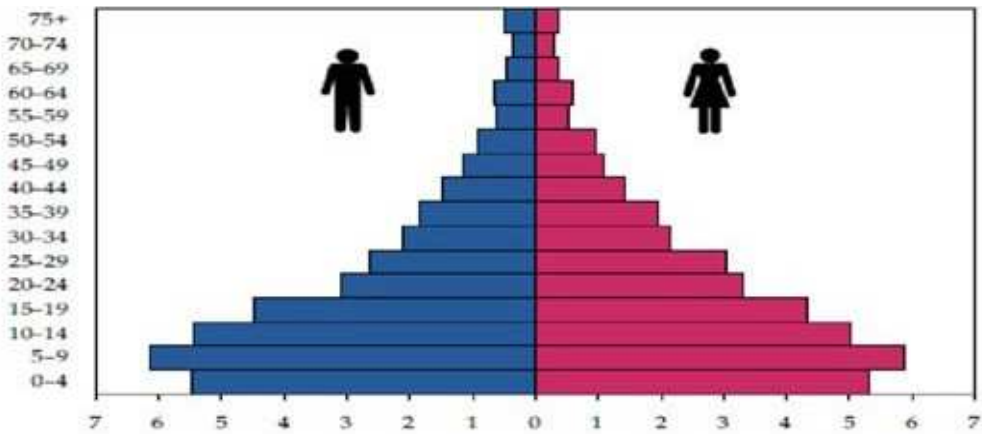


Figure 2.3 Typical example of population pyramid

Population Pyramid of Ethiopia for 2007 Source: PCC [14].

In general, population pyramids of developing countries like Ethiopia have very broad bases, showing the dominance of the young-age population.

Sex Structure

Start-up question

- ✓ What is sex structure?

The sex structure of a population is shown by sex ratio, which is the ratio of male population to female population. Sex ratio is usually expressed as the number of males per 100 females in a population

$$\text{Sex ratio} = \frac{\text{Male population}}{\text{Female population}} \times 100$$

Age dependency ratio

Start-up questions

- ✓ What is age dependency ratio?
- ✓ Is the dependency ratio of your locality or city high or low? Why?

Age dependency ratio (ADR) is the relationship between the working or economically active population and the non-working population. In Ethiopia, the age dependency ratio is very high. In other words, the dependency burden of the young and old age populations on the working or economically active population is very heavy.

$$\text{ADR} = \frac{(\text{Population of aged 0-14}) + (\text{Population of aged 65+})}{\text{Population of aged (15-64)}} \times 100$$

Example:

Suppose region “A” has the number of dependent population (under-15 years) is 16,247,000. The number of old age (dependent) population > 64 is 6,217,000 and number of independents (15 – 64 years) is about 27,160,000. What will be the ADR?

$$\begin{aligned} \text{ADR} &= \frac{(\text{Population of aged 0-14}) + (\text{Population of aged 65+})}{\text{Population of aged (15-64)}} \times 100 \\ &= \frac{(16,247,000) + (6,217,000)}{27,160,000} \times 100 = 82.7\% \end{aligned}$$

Activity 2.4



A. Individual work. Try to calculate individually in the class

1. Assume total students of a given school were 3000. Out of this 1650 were females. What is sex ratio?
2. Suppose region “A” has the number of dependent population under-15 years is 12,191,000, number of old age (dependent) population > 64 is 5,127,000 and the number of independents $15 - 64 = 29,120,000$. Calculate ADR?



2.2.3 Population distribution

Start-up question

- ✓ What factors have influenced the distribution of world population?

Population distribution refers to the way people inhabit and occupy the earth's surface. Generally, the distribution of population in the world is uneven.

Factors of population distribution

The major factors of population distribution can be classified in to two groups. These are: physical factors and human factors.

Physical Factors

The most significant physical factors affecting the distribution of population are:

- ➔ Natural resources (water, soil, vegetation and minerals etc)
- ➔ The nature of topography (slope and altitude)
- ➔ Climate condition (mainly rainfall and temperature)

Human factors

The major factors affecting distribution of population includes:

- ➔ Socio-economic factors (job opportunities, availability of technology)
- ➔ Political factors (civil war, political unrest)
- ➔ Type of farming and transportation facilities,
- ➔ Social organization

Spatial distribution of world population

1. Densely Populated Regions

There are three main belts of high population density and concentration in the world. These areas are also called “Population Clusters”. These regions are:

- A. Asiatic population belt
- B. Peninsular Europe
- C. North-eastern of North America

A. Asiatic Population Belt: The region accounts for about 60% of the world’s total population. The belt includes:

- ➔ **East Asia-** Japan and China are the most populous in the sub-region.
- ➔ **South Asia-** India, Pakistan and Bangladesh are densely populated.

A. Peninsular Europe: Europe makes up 10.8% of the world's total population.

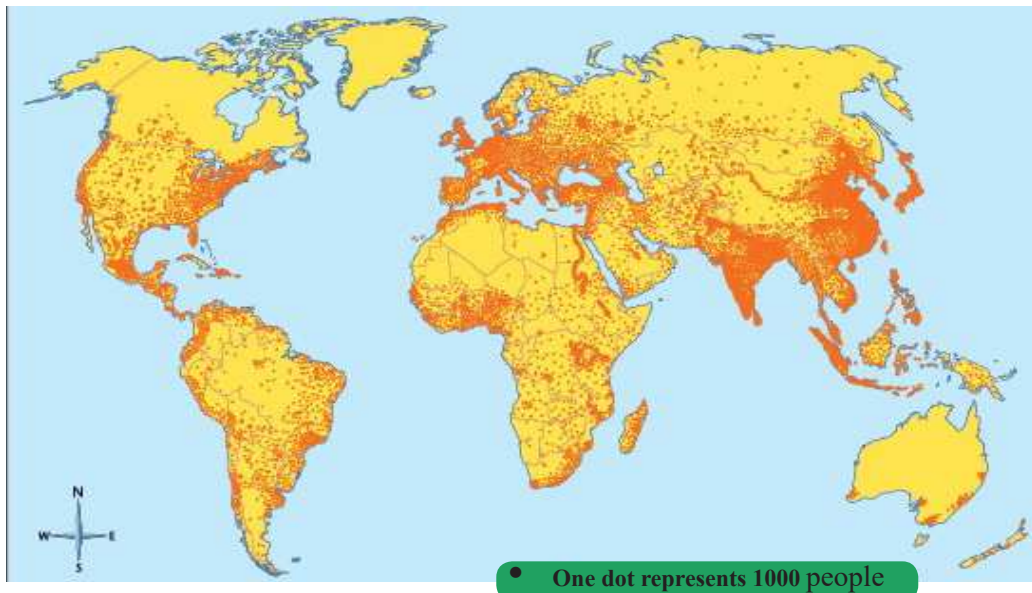
B. North-eastern of North America: It accounts for about 5% of the world's total population. This part of North America (mainly the USA) is highly urbanized and industrialized.

2. Sparsely Populated Regions

Sparsely populated areas contain few people because of physical and human factors which are not suitable for peoples living.

These regions include the following areas.

- Tundra
- Hot-dry- land
- Areas with poor soil
- Hot-wet-land
- High relief



Dot map of world-population Distribution, 2000 (Source: Maps.com)

Figure 2.4 spatial distribution of world population

Activity 2.5



A. Group discussion

Discuss on the following question in small groups and present your discussion outcome through your group representative.

1. Why are some part of the world so crowded and others so sparsely populated?
2. What does population distribution mean?
3. List some natural and human factors that affect population distribution in your locality?



2.2.4 Population movement (International and intra-national)

Start-up question

- ✓ Why do peoples move from one place to another?

The movement of population can be international (cross boundary) and intra-national (within) a nation.

Intra-national migration has taken place when people move from one part of a country to another part. It takes the following forms:

- ➡ Rural-urban
- ➡ Urban-rural
- ➡ Rural-rural
- ➡ Urban-urban

For example, peoples migrate from Afar region to Addis Ababa is considered as **intra-national migration**.

When migrants move across a national territory of a country, the movement is called **international migration**. For instance, peoples migrate from Ethiopia to Saudi-Arabia is considered as **international migration**

Activity 2.6

Individual work

Do the following question in your exercise book.

1. Can we consider all kinds of people's movements as "migration"? Why or why not?
2. What are some of the possible consequences of migration, both in areas of origin and destination?



2.2.5. Population settlement (rural and urban)

Start-up questions

- ✓ What is the difference between a rural settlement and an urban settlement?
- ✓ What are the advantages of living in an urban area?

A **settlement** is defined as a place in which people live, carrying out a variety of activities, to make their livings, such as trade, agriculture and manufacturing.

Settlements can be divided into rural and urban based on the density of human-made structures and dominant economic activity.

Rural settlement refers to peoples live in villages and dispersed (scattered) settlements in areas far from urban centres. In rural settlements, peoples are mainly engaged in agriculture.

Urban settlement refers to peoples live in town or city and they are engaged on non-agricultural activities.

All settlements are a part of settlement hierarchy, but it differs in size, number of population and range of goods and services provision. For instance, small settlements, like hamlet and village, are found in rural areas with isolated homesteads and less service provision. Whereas town and cities are urban areas with higher population and wider range of goods and service provision. See figure 2.5, that show hierarchy of settlement and the range of goods and services.



Figure 2.5 Hierarchy of settlement

Activity 2.7



Practical activity:

Visit or observe the surrounding settlement of your locality then, discuss the following questions based on your visiting, and present it to your classmate by your representatives.

1. Write down the difference between rural and urban settlement based on
 - a. Style of buildings
 - b. Density of population
 - c. Dominant economic activity
2. Why do most people prefer to live in cities?



2.3 People and the development of transportation

Competencies: After studying this lesson, you will be able to:

- Explain basic terms and concepts related to transport activities;
- Describe the historical development of means of transportation;
- Evaluate the role of transportation by using the different modes of transport system;
- Compare the different modes of transportation on the basis of their use;
- Identify significant road signs in class room;
- Explain basic road safety rules;
- Discuss the socio economic impact of traffic accidents..

These are words you should try to learn for this unit

Top 10 words

- | | | |
|-----------------|-------------|------------------|
| ➞ Air transport | ➞ Shipping | ➞ Transportation |
| ➞ Passengers | ➞ Pipelines | ➞ Traffic signs |
| ➞ Light train | ➞ Railway | ➞ Road safety |
| ➞ Pack animal | | |

More key words

- | | |
|-------------------|-------------------------|
| ➞ Water transport | ➞ Road traffic accident |
|-------------------|-------------------------|

2.3.1 The concept and historical development of transport

Start-up question

- ✓ What sorts of transportation systems are available in your area?

Transportation refers to the movement of passengers, animals and goods from one place to another. There are different means of transportation system that are available in different area like human powered and pack animal transports. In the earlier time there was no means of transportation other than walking, but gradually the development began to use animals to travel and transport things on land. The human being invented wooden cart with four legs as means of land transport. Then, advances in technology have allowed people to travel farther and invented different modern means of transport after industrial revolution.

Nowadays, the types and quality of transportation have made much progress. This has enabled people to travel longer distances in shorter times than ever before.

Over the year, faster means of transportation have been introduced, and now distances which used to take days or months to cover, can be covered in a matter of minutes or hours. The rapid progress in transportation and other forms of communications have made places all over the earth functionally closer to each other.



Figure 2.6 Different mode of road transport

2.3.2 The role of transport for socio economic development

Start-up question

- ✓ How do you explain the usefulness of transportation in the world and in Ethiopia?

When transport systems are efficient, they provide economic and social opportunities and benefits that result in positive multiplier effects such as better accessibility to markets, employment, and additional investments.

When transport systems are deficient in terms of capacity or reliability, they can have an economic cost such as reduced or missed opportunities and lower quality of life.

Good transportation systems are needed to move goods within a country and abroad. They are also essential to spreading the benefits of health care and education.

Transportation plays a crucial role in the activity of a community. For instance, public transportation provides people with mobility, access to employment, community resources and recreational opportunities.

2.3.3 Modes of transport

Startup question

- ✓ What are the major modes of transport?

Modes of transport refer to different ways by which goods or people are transported from one place to the other through land, air or water. Basically, modes of transport classified in to three categories. These are:

1. Land Transport (road, railway, pipelines)
2. Water Transport (shipping)
3. Air Transport

1. Land transport

Land transport is accomplished either by rail or by road. It includes car, bicycle, railway and other means of transportation that go from one place to another land.

Types of land transport

A. Road transport

It is the most common and oldest mode of transportation. Road transport includes animal transport such as mules, donkey, and horses and transports including vehicles such as trucks and buses.

Domestic animals like donkey, horses, mules and camels are widely used in Ethiopia to transport goods and peoples from place to place.

Road transport has advantages over other mode of transportation for two reasons.

- I) It provides door to door services,
- II) It operates on public high ways that do not require an expensive terminal



Figure 2.7 Road transport

B. Railway transport

It involves the use of trains that transport passenger and large amount of goods usually for long distance. They can carry heavy bulk products like iron ore, coal and petroleum.

However, railway lines are not easy to construct. They are expensive to build, especially in mountainous countries like Ethiopia because train cannot climb steep hill sides. The main railway route in Ethiopia is Addis Ababa -Djibouti railway which covers a distance of 784 km.

Addis Ababa light train is the first light train in eastern Africa and launched in the city on 20 September 2015. It covers 31.6 km running in the city in two lines. These are East-West line stretches from *Ayat* village to *Torhayloch* through *Megenagna*, *Meskel Square*, *Legehar*, and *Mexico*. The North-south line stretches from *Menilik Square* to *Kality* through *Merkato*, *Lideta*, *Legehar*, *Meskel Square*, and *Gotera*.

It is important to reduce traffic congestion, air pollution, and increase mobility in the city.



Figure 2.8 Addis Ababa light train and Ethio-Djibouti railway

Focus

Pipelines are specialized form of transport used to transport liquids and gases. For example a pipeline can be used to transport oil deposits from Sudan to Ethiopia. The other modes also includes cable (internet, energy supply), and space,(satellite).

2. Water transport

Water transport is the cheapest form of transport for bulky goods over long distance. Water transport involves the use of Ships to transport various goods from place to place. Water transport does not require heavy construction like road and railway lines. It needs ports and canals construction. Water transport is not well developed in many parts of Ethiopia. However, in some parts of the country, rivers and lakes are used for water transportation like,

- ➔ Lake Tana, (*Gojjam* to *Gondar*),
- ➔ Lake Abaya, *Arba Minch* to *Dilla*
- ➔ River Baro, (**Ethiopia** to **Sudan**),



Figure 2.9 Ethiopian shipping

3. Air transport

Air transport is the latest and fastest mode of transport. Planes can carry only a certain types of cargo because of size and shape limitation. Furthermore, planes are the most expensive form of transportation.

It is speedy transport so that it is suitable to transport perishable products and electronic materials. Aeroplanes, helicopter etc are examples of air transport that travel by airways.



Figure 2.10 Ethiopian air transport

2.3.4 Road safety, road traffic accidents and its socio economic implication

Start-up questions

- ✓ Why is road safety important?
- ✓ What are the most important road safety rules?

Road traffic safety refers to the method and measures used to prevent road users from being killed and injured. Typical road users include pedestrians, cyclists, motorists and vehicle passengers.

The most important road safety rules for pedestrians

- ➔ Know your safety signal
- ➔ Take extra care in crossing curve road.
- ➔ Be careful while crossing the road
- ➔ Always use sidewalks crossing
- ➔ Never jump over the divider railings
- ➔ Wait a suitable gap in the traffic flow before crossing the road



Figure 2.11 Road traffic signs for pedestrians

The most important road safety rules for drivers

- ➡ Never drink and drive
- ➡ Never break red signal
- ➡ Always drive with in speed limit
- ➡ Understand and follow the road signs

Road traffic accidents and its socio economic implication

Startup questions

- ✓ Who are affected by road accidents?
- ✓ Is road accident a social problem?
- ✓ What is the effect of road traffic accident on economic growth of Ethiopia?

A road traffic accident occurs when a vehicle that is moving along a roadway crashes with another vehicle or object.

Road accident is most unwanted thing which happens to road user. Road accident causes loss of lives, increase of dependency, and destruction of property, increase of poverty, injuries and permanent disability. Road traffic injuries caused significant economic losses to individuals, their family and countries all over the world. These losses may be associated with cost of treatment, loss of productivity and valuable working time for victims and relatives, loss of skilled labor force.

More than half of all road traffic deaths and injuries involve vulnerable road users such as pedestrians, cyclists and motorcyclists and their passengers.

Activity 2.8



A. Individual work: answer the following questions

1. Write down the means of transport used in your locality and compare and contrast based on uses, accessibility and compatibility.
2. Think the advantage and disadvantage of modes of transport along with land, air and water transportations you could do this in the form of table

Modes of transport	Advantage	Disadvantage
Land		
Water		
Air		

B. Group discussion

Discuss on the following questions in small groups and present your discussion outcome through your group representative.

1. Observe your locality, and explain the socio economic impact of road traffic accident.
2. Discuss about the basic road safety rules.





SUMMARY

- Archaeology is the science in which archaeologists dig out material objects and fossils of the past. It helps us in the study of pre-history.
- With regard to the origin of human beings, there are two theories suggested.
- These are: Creationist theory and Scientific (Evolution) theory
- Human population refers to the total number of human inhabitants of a specified area, such as a city, country, or continent, at a given time.
- The main components of population dynamics/ determinants are fertility, mortality and migrations.
- The structure or composition of population can be classified in to two categories; these are biological and cultural characteristics.
- The distribution of population in the world is uneven because of two major factors. These are natural and human factors.
- There are three main belts of high population density and concentration in the world. These are Asiatic population belt, Peninsular Europe and North eastern North America.
- The movement of population can be national (cross boundary) and intra-national (within) a nation.
- Settlements can be divided into rural and urban based on economic activity.
- Modes of transport includes land, water, and air transport.
- Road traffic safety is a measure used to prevent road users from being killed and injured. Road accident causes loss of lives, increase dependency, destruct property, and bring physical injuries and permanent disability.

Glossary

Air transport: the movement of passengers and cargo by aircraft such as airplanes and helicopters.

Archeology: is the science which dig out material objects and fossils of the past.

Australopithecines: the first earliest human species.

Bi-pedal: walk erect

Creationist: believes in human beings are created by God.

Doubling time of population: is length of time needed by a population to double itself.

Evolution: gradual process of change.

Fossil: remains of dead material object.

Homo: family of human being.

Hominids: ancestor of modern human being.

Pipelines: is the long-distance transportation of a liquid or gas through a system of pipes.

Pre-history: the period before the beginning of writing.

Population explosion is the rapid (sudden) increase of population.

Population: is the number of people in a city or town, region, country or world.

Population cluster: refers to a large population concentration.

Population structure: refers to the age-sex composition of any population.

Spatial distribution of population: is concerned with how people are distributed spatially.

Settlement: indicates a place where people live and form communities.

Traffic signs: implies a sign conveying information, an instruction, or a warning to drivers.

Transportation: implies the movement of people and goods from one location to another.

Railway: is also known as train transport.

Road traffic accident: is any injury due to crashes originating from terminating with or involving vehicle partially or fully on public road.

Road transport: means transportation of goods and people from one place to another via road.

Road safety: refers to the method and measures used to prevent road users from being killed or seriously injured.

Rural: regards the countryside rather than the town.

Transportation: implies the movement of people and goods from one location to another.

Urban: a place characteristic of a town or city.

Water transport: is the process of moving people, goods, etc. by barge, boat ship over water bodies.

REVIEW EXERCISE FOR UNIT TWO

I. True or False

Direction: Write “True” if the statement is correct and write “False” if it is incorrect

1. Archeology is the science in which archeologists dig out material objects and fossils of the past.
2. The distribution of population in the world is uniform in all countries.
3. Migration is a biological factor that determines the size of population.
4. Air transport is a very latest and fastest form of transport.

II. Multiple choices

Direction: Choose the correct answer from the given options.

1. The graphical representation of age distribution of a given population by sex is:
A. Age structure
B. Population pyramid
C. Age dependency ratio
D. None
2. Which one of the following is not the feature of modern human beings?
A. Large brains
B. Large jaws
C. Bi-pedal
D. Transmitting knowledge
3. The cheapest form of transport for bulky goods over long distance is
A. Air transport
B. Land transport
C. Road transport
D. Water transport
4. Which of the following is not a factor that contributes rapid population growth in the world?
A. Human ability to control disease
B. improved vaccinations
C. Improvement in knowledge
D. Increase in illiteracy

5. Which of the following region is not sparsely populated?
- | | |
|----------------------|-----------------------|
| A. Peninsular Europe | C. High relief areas |
| B. Tundra | D. Hot dry land areas |

III. Fill in the blank space:

Direction: Fill the following blanks with appropriate word(s)

1. The remains of dead plants, animals and human beings are called _____
2. The actual reproductive performance of a population is called _____
3. Human beings belong to the species called _____
4. A person who is leaving one country to live in another is _____
5. A Mode of transport which is accomplished either by road or rail way is called _____

IV. Short answer

Direction: Give short answers for the following questions.

1. What are the main factors that control the change in population size?
2. Write down some factors affecting fertility distribution.
3. Describe the two important statistical tools to understand age structure.
4. Explain the difference between urban and rural settlement.
5. Explain the socio economic implication of road traffic accidents.

Check List

Put a tick (✓) mark in each of the boxes for activities you can perform

I can

1. Appreciate the origin of human beings; ☐
2. Show archeological sites on sketch map; ☐
3. Point out archaeological sites that show the origin of earlier human beings ☐
4. Examine the historical routes humankind has passed through over time; ☐
5. Predict future world population growth pattern on the basis of present and past population growth rate; ☐
6. Calculate different demographic rates such as growth, mortality, fertility, net-migration and etc;
7. Identify types and causes of population movements; ☐
8. Locate densely and sparsely populated regions on worldpopulation map ☐
9. Evaluate growth trend of Ethiopian population in line with world population growth; ☐
- 10.Explain basic terms and concepts related to transport activities; ☐
- 11.Describe the historical development of means of transportation; ☐
- 12.Evaluate the role of transportation by using the different modes of transport system; ☐
- 13.Compare the different modes of transportation on the basis their use; ☐
- 14.Identify significant road signs in class room; ☐
- 15.Explain basic road safety rules; ☐
- 16.Discuss the socio-economic impacts of traffic accidents. ☐

UNIT THREE

Human and Natural Resources

Unit learning outcomes

After studying this unit, you will be able to:

- Describe the reciprocal relationships between humans and nature;
- Describe what is meant by over population, optimal population and under population;
- Categorize natural resources on the basis of their degree of permanency;
- List factors affecting the utilization of natural resources;
- Predict the consequences of the destruction of non-renewable resources;
- Evaluate the relationship between population density and natural resource

Main contents

- 3.1. Human-Environment relationships (reciprocal relationship)
- 3.2. Population- resource relationship (over population, optimal population and under population)
- 3.3. Types of Natural Resources
- 3.4. Factors Affecting Natural Resources in Ethiopia
 - Unit Summary
 - Review Exercise

3.1 Human-Environment relationships (reciprocal relationship)

Competency: After studying this lesson, you will be able to:

- Examine the reciprocal relationships between human and the environment.

These are the words you should try to learn for this lesson

Top 3 words

➞ **Human**

➞ **Environment**

➞ **Reciprocal relationship**

Start-up questions

- ✓ How does the environment influence human beings?
- ✓ How do the humans modify (influence) their environment?
- ✓ What type of relationship exists between humans and the environment?

Every single living thing on the earth is dependent on the environment it lives in. Humans need to interact with the environment to obtain food, water, fuel, medicines, building materials and many other things.

The elements of the physical environment such as climate, relief, soil and the like influence peoples' mode of life. It is impossible to explain the difference between human society, and the history of that society without referring to the influence of the environment. Some factors, for example, favorable climate, fertile soil, adequate water supply positively influence population concentration. Areas with unfavorable climate (extremely hot or cold and dry climate), infertile soil, and inadequate water discourage

large human settlement. This clearly shows how the environment influences population distribution.

The influence of environment on humans' activity is unavoidable. But peoples can modify (influence) their environment with the help of their skill, knowledge and experience. The advancement of technology enables human beings to create conducive environments.

Generally, there is an inseparable bond between human beings and nature. The relationship between the two is highly reciprocal (both affect each other).

Activity 3.1



A. Group discussion

Discuss the following question in small groups and present your discussion outcome through your group representative. Some food items are easily perishable. The high temperature of an area for example, may cause the food to be easily perishable. Since ancient times peoples use different techniques to preserve food for a long time.

1. What kind of **food preservation methods** are used in your home (locality)?
 - A. List the traditional methods of food preservation.
 - B. List the modern methods of food preservation.
2. What influences humans to practice different food preservation methods?
3. Is it possible for humans to modify (influence) their environment with the help of their skill, knowledge and experience? Explain
4. "The relationship between human and the environment is reciprocal". Explain it.



3.2 Population- resource relationship (over population, optimal population and under population)

Competency: After studying this lesson, you will be able to:

- Describe over, optimal, and under population with respect to natural resources.

These are the words you should try to learn for this lesson

Top 3 words

➡ Over population ➡ Optimum population ➡ Under population

More Key words

➡ Anti natalist ➡ Pro natalist ➡ Carrying capacity

Start-up questions

- ✓ What is population? What is a resource?
- ✓ How do you explain the relationship between population and resources?
- ✓ What is meant by overpopulation, optimal population and under population?

Human population refers to the number of people living in a definite area. Humans cannot live without the clean air we breathe, the plants we eat, or the water we drink. Natural resources are essential to human wellbeing.

Natural resources are resources that occur in nature. These cannot be produced by human kind, but they are derived from the environment. Natural resources include soil, water, minerals, wildlife, vegetation, and energy sources.

People use all these resources to improve their lives. Population and resources have a strong relationship with each other. The growth and decline of population affects the availability of natural resources. At the same time, the availability of natural resources affects the trends of population.

Overpopulation

Overpopulation refers to an excess of population in an area in relation to the available resources. When the carrying capacity of an area is exceeded by its population the area is said to be over-populated because the area has more population than what it can comfortably support. Overpopulation is characterized by low per capita income, high unemployment, malnutrition and famine, low standards of living, and outward migration.

Under population

The concept of under population is just the opposite of over population. Under population occurs when the population of an area is too small for full utilization of its resources. In these circumstances an increase in population would mean a more effective use of resources and increased living standards for all of the people. Under population is characterized by low unemployment and inward migration.

Optimum population

The term optimum population refers to the balanced population - resource relationship in an area.

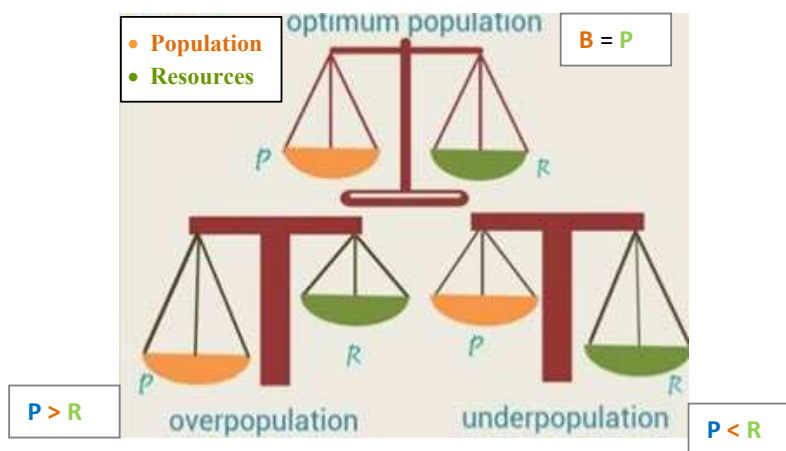


Figure 3.1 Population-resource relationships

Generally, overpopulation and under population refers to an imbalance in the relationship between the level of population and the actual resources in an area. Several countries have attempted to introduce population policies aimed at managing or balancing this relationship. The population policies are classified into two categories. These are:

- A. **Anti natalist population policy:** is a policy which aims to reduce birth rate and slow population growth. This can be done through education on family planning and increased access to contraception, or by law (example China, Ethiopia and many developing countries of the world)
- B. **Pro natalist population policy:** is a policy which aims to increase birth rate and rate of population growth. This can be done through the use of incentives (example France, Sweden, Romania etc)

Do you know?

The Chinese one child policy

One of the most documented population control policies has been the Chinese one child policy. The Chinese government became concerned about population growth. The government realized that the Chinese people could only have a rising living standard if the population was controlled.

Between 1974 - 1979 the people were encouraged to reduce the birth rate by the slogan '*Wan- xi- shao*' (later, longer, fewer):

- **Later** marriage
- **Longer** gap between children
- **Fewer** children

The '*Wan- xi- shao*' policy did not work well and the population went on increasing.

In 1979 the government introduced the **one child policy**. Strong pressure was put on women to use contraception. This policy was very successful in urban areas than rural areas. In 1990 onwards the one child policy has been relaxed slightly. This is partly because it was so difficult to enforce, and because the Chinese government was concerned about the economic implications of a population in which there were far older people than younger ones.

Activity 3.2



A. Individual work

1. Define the following terms:

- A. Over population
- B. Under population
- C. Optimum population

B. Group discussion

Discuss the following question in small groups and present your discussion outcome through your group representative.

- 1. What is the difference between pro natalist and Anti natalist population policies?
- 2. How the population policies help in solving problems caused by the imbalance between population and resources?



3.3 Types of Natural Resource

Competency: After studying this lesson, you will be able to:

- Distinguish between renewable and non-renewable natural resources;
- Predict the consequences of the destruction of non-renewable resources;
- Evaluate the relationship between population density and natural resource;

These are the words you should try to learn for this lesson

Top 3 words

➞ **Non-renewable**

➞ **Resources**

➞ **Renewable**

More key words

➞ **Fossil fuels**

➞ **Wind energy**

➞ **Replace**

Start-up question

- ✓ What do we call the materials that people use from the environment to meet their needs?
- ✓ What is the difference between renewable and non-renewable resources?
- ✓ Write at least three renewable and non-renewable resources that you ever know.

In the context of **renewability**, natural resources can be categorized in to renewable and non-renewable resources.

3.3.1 Renewable resources

Resources that can replace themselves naturally after used are called **renewable resources**. The renewable resources are replaceable in character since they are able to reproduce themselves. For instance, forest is a renewable resource that can produce timber and other forest products year after year if it is carefully and scientifically managed. Examples: air, water, sunlight, wind, forest etc.

3.3.2. Non-renewable resources

Resources that exist in limited supply and cannot be replaced if they are once used are called **non-renewable resources**.

These resources are generally non-replaceable in character. Examples: petroleum, natural gas, coal, and fossil fuels etc.

The following table shows the difference between renewable and non-renewable resources.

Renewable	Non-renewable
➤ Can be used more than once ➤ Exist in an unlimited amount ➤ Results in lower carbon emission ➤ Have less environmental impact	➤ Can be used one time ➤ Exist in a limited supply ➤ Brings higher relative carbon emission ➤ Have more environmental impact Example: natural gas, opal



Figure 3.2 Renewable and non-renewable resources

Do you know Opal?

The meaning of the word Opal comes from a Greek word ‘**Opallios**’ which means ‘**to see a change of color**’, which is connected with the way precious opal diffracts light.

It is a hydrated amorphous form of silica and chemically similar to quartz, and its water content may range from 3%-20%. Opal is first discovered in Ethiopia in the early 1990’s. Ethiopian Opal is the newest variety of precious opal gemstone resourced from *Wollo massif of Yejju Wadla Delanta* (Amhara region), of northern Ethiopia.

What rock is opal found in?

Because of its amorphous character, it is deposited at a relatively low temperature and may occur in the fissures of almost any kind of rock, being most commonly found with limonite, sandstone, rhyolite, marl, and basalt.

It is currently economically valuable and one of the main export mineral resource in Ethiopia.



Figure 3.3 Ethiopian Opal

Activity 3.3



A. Individual works. Question based on facts

1. What are natural resources?
2. About the uses of resources available in your locality?

B. Group discussion

Do the following question in small groups and present your discussion outcome through your group representatives.

1. List the natural resources available in your locality, then categorize which resources are renewable and non-renewable.
2. Discuss how people can conserve and manage these resources.

C. Predict what would happen if the following natural resources are exhaustively depleted and present your prediction for your classmates.

1. Petroleum Oil
2. Metallic and non Metallic minerals



3.4 Factors affecting natural resource in Ethiopia

Competencies: After studying this lesson, you will be able to:

- State major human activities affecting the natural resources in Ethiopia;
- Develop sketch map to locate natural resources in their locality.

There are words you should try to learn for this lesson

Top 10 words

- | | | |
|--------------------|-------------|-----------------------|
| ➡ Agriculture | ➡ Farm land | ➡ Overgrazing |
| ➡ Deforestation | ➡ Forest | ➡ Population pressure |
| ➡ Natural resource | ➡ Wild life | ➡ Resettlement |
| ➡ Urbanization | | |

Start-up questions

- ✓ List down the major natural resources of Ethiopia?
- ✓ What are the major problems of natural resource in Ethiopia?
- ✓ Write down the impact of population pressure on natural resources.

Ethiopia is gifted with abundant natural resources of adequate landmass, fertile soil, favorable climate, water, wildlife, natural vegetation and various minerals. Many of these resources are not properly identified, well managed, and fully exploited. In Ethiopia, natural resources are under the influence of various interconnected factors. These are:

- | | |
|--------------------------|----------------------|
| ➡ Population pressure | ➡ Resettlement, |
| ➡ Agricultural expansion | ➡ Rapid urbanization |

Population pressure

Population is a vital resource of any country and the most important means for development. But it is also the major factor for natural resource degradation. Rising number of population leads to enormous production of wastes, increased pressure on arable lands, losses of biodiversity, pollution of air and water.

Population pressure results in loss of soil fertility, low vegetative cover, unsustainable farming practice, overgrazing, and migration of wildlife. The process ends with amplified environmental consequences such as:

- ➡ Decline biodiversity
- ➡ Occurrence of natural hazards
- ➡ Water quality deterioration
- ➡ Diverse socio-economic problems
- ➡ Imbalance ecosystem service
- ➡ Poverty, famine and starvation.

Resettlement

Start-up question

What is resettlement?

Resettlement is a process of moving a group of people to a new place or settlement to live in. Resettlement programs in Ethiopia have been considered as a viable solution to the rural communities which face different problems. However, it causes significant impacts on natural resources of the environment specifically at the destination areas.

The main objective of Ethiopian government resettlement program was to support households get access to productive farmlands, and achieve food self-sufficiency. This strategy, in most cases, was taking place through the clearing of natural vegetation particularly in the areas covered by dense forests.

These households had settled by clearing areas which were originally covered by forests causing deforestation, land degradation, and associated environmental problems.

Agricultural expansion

Start-up question

How does agricultural expansion cause deforestation?

Agricultural expansion is the conversion of uncultivated land to arable land. For instance, conversion of forest land to arable land.

Agriculture is the backbone of Ethiopian economy, because more than 80% of the population are engaged in agricultural activities. But, today in Ethiopia the agricultural sector is a major cause of environmental pollution and affects natural resources. These impacts include the following:

- ➡ Deforestation (for expanding arable land)
- ➡ Using of chemical fertilizer and pesticides easily contaminate living organisms, soil, air, and water, etc.

The recently established large-scale horticulture and floriculture activities are extensively using chemicals. These chemicals mostly leave a pollutant with in the environment, causing adverse effect on soil, air, and water quality



Figure 3.4 Deforestation and agricultural expansion

Rapid Urbanization

Rapid urbanization is the process of population shifts from rural to urban, or an increasing number of people living in town or cities.

Nowadays, in different areas of Ethiopia, the rate of urbanization is growing very fast. Peoples in many rural areas have been migrating towards urban centers in search of better livelihood, job opportunities, education, and other services. This leads to an unplanned and rapid expansion of small cities and creation of huge pressure on natural resources. Moreover, conversion of land to new urban settings, establishments of different infrastructures like education, health, shopping centers and housing developments, parking lots, construction of complex road networks, industrial sites, etc. results in extensive deforestation.

Generally, rapid urbanization in Ethiopia has always been related to remarkable environmental problems such as, degradation of land, deforestation, large scale quarrying and excavation of sand, gravel, and other building materials.

Methods of conserving natural resources

The Ethiopian government has taken several steps to address these problems like tree planting programs, launching soil and water conservation campaign.

The major methods of conserving natural resources includes:

- ➡ Agro forestry
- ➡ Social forestry and
- ➡ Apply upward growing of urban centers.



Activity 3.4

A. Individual work (Questions based on facts)

1. What are the effects of the destruction of natural resources?
2. How do population pressure and agricultural expansion affect natural resources?
3. What do you mean by resettlement?

B. Group discussion:

Go to the field in your locality and visit or observe the condition of forest and soil resource in that area then;

1. Write a report on what you observed and present your findings to your classmates
2. Develop a sketch map of the place you visit and locate natural resources in their locality.
3. How does rapid urbanization affect natural resources?





UNIT SUMMARY

In this unit, we have discussed the human and natural resources. We discussed the human-environment relationship, population-resource relationship, the types of natural resources and the factors affecting natural resources in Ethiopia.

- The elements of the physical environment such as climate, relief, soil and the like influences peoples mode of life.
- The influence of environment on humans' activity is unavoidable. But peoples can modify (influence) their environment with the help of their skill, knowledge and experience.
- Population and resources have a strong relationship with one another. The growth and decline of population affect the availability of natural resources. At the same time, the availability of natural resources affects the trends of population.
- Natural resources can be categorized in to renewable and non-renewable resources.
- Resources that can replace themselves naturally after use are called renewable resources. Examples: air, water, sunlight, wind, forest etc.
- Resources that cannot be replaced once used are called non-renewable resources. Example: natural gas, petroleum oil, coal, fossil fuels etc.
- In Ethiopia, natural resources are under the influence of various interconnected factors: such as population pressure, resettlement, agricultural expansion and rapid urbanization.

Glossary

Agriculture: is an activity of crop production and rearing animals.

Carrying capacity: The number of people a region can support without environmental degradation

Deforestation: permanent removal of trees.

Fossil fuel: a fuel formed by natural processing.

Non-renewable resource: resources that can't replace themselves once used.

Overgrazing: staying cattle in a range land for long time.

Overpopulation: refers to an excess of population in an area in relation to the available resources.

Optimum population: denotes balanced population resource relationship in an area.

Renewable: resources that can replace themselves.

Resource: all material available in the environment.

Resettlement: moving group of people by government to a new place to live.

Under population: occurs when the population of an area is too small for full utilization of its resources.

Urbanization: an increasing number of peoples in town and cities.

Wind energy: is the process by which wind is used to generate electricity

I. REVIEW EXERCISE FOR UNIT THREE

True or False

Direction: Write “True” if the statement is correct and write “False” if it is incorrect

1. Forest and water resources are non-renewable resources.
2. Rapid increasing of population number does not affect natural resource.
3. Chemical fertilizers used in agricultural activities are major sources of water pollution.
4. Humans and the environment are strongly inter-related.
5. Agricultural expansion does not affect natural resources.

II. Matching

Direction: Match the items in column “A” with items in “B” and write the answer in the space provided.

- | A | B |
|----------------------|---|
| 1 Overpopulation | A. Permanent removal of trees |
| 2 Under population | B. Increased number of people living in town |
| 3 Optimum population | C. The available resources exceeds the population |
| 4 Deforestation | D. Population exceeds the available resources. |
| 5 Urbanization | E. Balanced population-resource relationship |
| | F. Group of the same species |

III. Multiple choices

Direction: Choose the correct answer from the given options.

1. Which one of the following is different from the others?

A. Natural gas	C. Fossil fuel
B. Petroleum	D. wind energy
2. Which of the following factor is not the causes for deforestation?

A. Agricultural expansion	C. Resettlement
B. population pressure	D. Agro forestry

3. Which of the following country adopts anti-natalist population policy in managing or balancing human and resource relationship?
A. France B. Sweden C. Ethiopia D. Romania
4. One of the following is not a method of conserving natural resources.
A. Deforestation C. Social forestry
B. Agro forestry D. Reforestation

IV. Fill in the blank spaces

Direction: Fill the following blanks with appropriate word(s)

1. _____ is the conversion of uncultivated land to arable land.
2. The process of moving a group of people to new place or settlement to live is known as _____
3. Resources that cannot replace themselves after use is known as. _____
4. The number of people a region can support without environmental degradation is called: _____

V. Short answer

Direction: Give short answers for the following questions.

1. Write down some methods of conserving natural resources in Ethiopia.
2. Explain the reciprocal relationship existing between humans and the environment.
3. How does population growth affect a country's natural resources?
4. Explain the difference between renewable and non-renewable resources.
5. What are the roles of renewable and non-renewable resources in sustainable economy?

Check List

Put a tick (✓) mark in each of the boxes for activities you can perform

I can

- 1 Examine the reciprocal relationships between human and the environment; ☐
- 2 Describe over, optimal, and under population with respect to natural resources; ☐
- 3 Distinguish between renewable and non-renewable natural resources; ☐
- 4 State major human activities affecting the natural resources in Ethiopia; ☐
- 5 Predict the consequences of depletion of non-renewable resources; ☐
- 6 Develop sketch map to locate natural resources in my locality. ☐
- 7 Evaluate the relationship between population density and natural resource. ☐

UNIT FOUR

Ancient World Civilization

Unit Learning Out Comes

After studying this unit, you will be able to:

- Locate the major river valley civilizations of the world;
- Compare and contrast the rise and expansion of Christianity and Islam;
- Analyze major historical developments of the world during the medieval period.

Main Contents

- 4.1 Ancient world civilizations
- 4.2 Rise and expansion of Christianity
- 4.3 Medieval history of the world
 - Unit Summary
 - Review Exercise

4. Ancient Civilizations and Medieval History of the World

4.1 Ancient world civilizations

Competencies: After studying this lesson, you will be able to:

- Point out common elements of the ancient river valley civilization.

These are the words you should try to learn for this lesson

Top 10 words

- | | | | |
|----------------|-------------|-----------------|------------|
| ➞ Buddhism | ➞ Democracy | ➞ Reincarnation | ➞ Republic |
| ➞ Confucianism | ➞ Empire | ➞ Logographic | |
| ➞ Consuls | ➞ Hinduism | ➞ Oligarchy | |

More Key Words

- | | |
|-------------|--------------|
| ➞ Assembly | ➞ Monotheism |
| ➞ Cuneiform | ➞ Polis |

Introduction

Start-up question

- List the major river valley civilization of the ancient world.

The ancient civilization was born along the banks of rivers and made lasting contribution to world civilization. Rivers were attractive locations for the first civilization because they provided a steady supply of water and made the land fertile for growing crops and facilitated transportation and communications. In ancient time agriculture was well under way in several regions including Ancient India (around the Indus and Ganges Valley), Mesopotamia (between Tigris and Euphrates River), and China (along the Huang Ho (Yellow) and Yangtze River).

It was assumed that the origin of civilization was closely connected with the beginning of cultivation of crops and domestication of animals which necessitated permanent settlement. Almost all of the ancient river valley civilizations were developed on the base of well- organized states, religious belief, towns, and government and writing systems.

4.1.1 Mesopotamia

Geographical Location of Mesopotamia

Start-up question

- ✓ Where is the location of Mesopotamia?

Mesopotamia was located along the Tigris and Euphrates rivers in the Middle East. The name given to the civilization, Mesopotamia comes from the Greek word “mesos” meaning “between rivers.” Sumer was a region where the world’s first civilization developed in south eastern Mesopotamia around 2900 B.C. It is also referred to as Sumerian civilization.

Focus

The heart land of the region of Mesopotamia civilization was the land between the two rivers: the Tigris and Euphrates

Ancient Mesopotamia civilization

now lies mostly in modern Iraq and parts of what is today Syria, Turkey, and Iran.



Figure 4.1 Fertile crescent/ Mesopotamia

Contributions of the Sumerian Civilization

Start-up questions

- ✓ Do you know the existence of 60 minute in hour and 360° in a circle?
- ✓ What was the cuneiform?

Sumer left behind a lasting legacy. One of their legacies was the writing system. The Sumerians developed one of the world's earliest systems of writing called Cuneiform. Sumerians invented the boat moved by wind and the plough (agriculture). They built monuments in mud bricks dried by the sun. They laid foundation for the study of modern science in astronomy, medicine, mathematics and metal work. They invented 60 minutes in hour and 360° in a circle.

It was in Mesopotamia that the earliest cities, first urban civilization most probably appeared. The rulers of the Sumerian city-states were absolute kings called lugal. Mesopotamian religion was polytheistic, they worshipped many gods. The king ruled as the representatives of the city-state's chief god and he was not a god himself as in Egypt.

Activity 4.1



Answer the following questions:

A. Individual work

1. In which river banks did the Mesopotamian civilization originate?
2. Which present day countries were included in an Ancient Mesopotamia?

B. Group discussion:

Discuss on the following questions in small groups and present your discussion outcome through your group representative.

1. List the main contributions of ancient Mesopotamia.
2. Using reference materials write very short notes on the following:

-Cuneiform

-lugs

- Sumerians



4.1.2 Ancient India and China

Ancient India

Start-up question

- ✓ Which present day countries were included in ancient India?

India is a country in South Asia whose name comes from the Indus River. About 2500 B.C Indian civilization emerged by the Dravidians (indigenous peoples of North India) in the Indus Valley in the western part of Asia, which is today known as Pakistan and western India. **Harappa** and **Mohenjo-Daro** were the two major cities of this period of the Indus valley civilization.

Achievements of Ancient India

Start-up question

- ✓ Where did the symbol for Zero originate?

Science and mathematics

Indians were advanced in science and mathematics. Particularly in surgery the Indian physicians were famous. The Arabic numerals (1, 2, 3), were first used in India. The decimal system and the symbol for Zero had their origin from India. Indus artisans used copper, bronze, silver and gold to make different tools and ornaments.

Urbanization

Start-up question

- ✓ What are the two major cities of ancient India?

Well planned cities reveal organized government in ancient India. Harappa and Mohenjo-Daro were one of the two prominent ancient cities in India. The Indus valley civilization had the most advanced town planning.

Focus

The Indus cities are noted for their urban planning. They are also noted for their baked brick houses, public baths, well-planned streets, elaborated drainage system and water supply.

Religion

Start-up questions

- ✓ Where did Hinduism originate?
- ✓ Who was Buddha?

Hinduism (the Hindu religion) is the major religion of India and one of the oldest living religions of the world. It teaches that mankind (soul) is condemned to a cycle of rebirth. This continuous process of rebirth called **reincarnation**.

Buddhism was the religion founded by Siddhartha Gautama about 500 B.C. He was called Buddha by his followers, which means Enlightened one. Buddhism emerged from Hinduism as a reform movement.



Figure 4.2 Symbol of Buddhism

Fall of Indus Valley Civilization

Start-up question

- ✓ How did the Indus Valley civilization disappear?

Suddenly, the Indus Valley civilization disappeared for the reason not known much. Seemingly it may have been ended due to environmental change and the invasion from outside especially by the Aryans from north. Aryans were the People migrated from central Asia into northern India and drove out the Dravidians.

Ancient China

Start-up question

- ✓ Where did the ancient Chinese civilization emerge?

Ancient Chinese civilization first emerged along the **Huang Ho (Yellow)** River Valley in northern part of China. The **Shang** and the **Chou** were the earliest Chinese dynasty. The Shang dynasty was the first dynasty in China that arose in northern China around 1700 B.C. The Shang dynasty dominated the region until 1122B.C. The Shang dynasty was centred in the Huang Ho valley.

Achievements of Shang Dynasty

Start-up question

- ✓ What was the writing system of ancient China?

Bronze vessels, horse drawn war chariot and the writing system was some of the achievements of the Shang state. The Chinese had a system of writing called **Logographic**. It used pictorial symbols to stand for words of Chinese language. From bronze they made different weapons such as spears and daggers.

Fall of the Shang Dynasty and the rise of the Chou Dynasty

Start-up question

- ✓ How the Shang dynasty was ended?

About 1122 B.C the Chou people of Western China defeated the last king of the Shang state and established their own rule. They set up the Chou (Zhou), which lasted until 256 B.C.

Achievements of the Chou Dynasty

Start-up question

- ✓ What is Confucianism?

During the period of the Chou dynasty, the Chinese philosophy emerged. **Confucius** (551-479B.C) was the most respected and influential Chinese philosopher in Chinese history. His philosophy was known as **Confucianism**.

Under the Chou dynasty, culture flourished, civilization spread and feudal system of government emerged. The Chou period was also known for economic growth, trade expansion and cities establishment. Trade grew even faster with the help of metal coins. During Chou dynasty writing was standardized and iron working was refined. Different weapons such as spears and daggers from bronze were produced by Chinese craftsmen.

Focus

Basically Confucianism was a secular philosophy not a religion. Confucianism stresses the need to develop moral character (personal ethics) and responsibility.

Discoveries and Invention of Ancient China

Start up question

- ✓ Why did the Chinese construct the Great Wall?

The ancient Chinese constructed the Great Wall across northern China to protect their territory out of invaders from central Asia. It was the remarkable achievement of ancient Chinese and one of the seven wonders of the ancient world. The use of Coal was first started by the Chinese. They were also the first to produce porcelain (ceramic). The Wheel barrow, Silk-making from the cocoons of silk worms, the lacquer, paper, printing and the gun powder were also discovered in China.



Figure 4.3 Great Wall of China



Activity 4.2

A. Individual work: Answer the following questions:

1. Describe the main achievements of the Indus valley civilization.
2. Which present day countries were included in Ancient India?
3. How the Shang dynasty came to an end?

B. Group Discussion:

1. Discuss the following terms

- Confucianism -Buddhism -Logographic
- Reincarnation -The Chou dynasty -Confucius
- Hinduism -Buddha

2. Show the location of Ancient India and China by using the world map



4.1.3 The Greco-Roman World

Ancient Greece

Geographical Location

Start-up question

- ✓ What is Hellas?

Geographically Greece is located in south Eastern Europe. The Greeks called themselves *Helens* and their land *Hellas*.

Beginning of Greece civilization

Start up questions

- ✓ Who were the first European people to become civilized?
- ✓ What is Polis?

Ancient Greece was the birth place of Western civilization about 2,500 years ago. The ancient Greek glorious achievements in government, philosophy, science and arts still influence our daily life in the present. Ancient Greece civilization was developed mainly in small city-states. A city-state consisted of a city or town and nearby villages and farm lands. The Greek city-states were called ***Polis***. The two most known city-states were **Athena** and **Sparta**.



Figure 4.4 Location of Greece

Government in Ancient Greece

Start-up question

- ✓ What are Oligarchy and democracy?

One type of government that evolved in ancient Greece city-states was called **oligarchy**. It was a type of government in which power is in the hands of small, wealthy elite. But, during the 6th century B.C, among Greek city-states, Athens evolved into a democracy.

The Athenians called their political system “*demokratia*,” which means “rule by the people.” Except women and slaves, ordinary citizens of Athens could fully participate in government. In the Assembly, general meeting, all Athens citizens had the right to debate, attend, speak, and vote.

Among the Greek city-states Athens was the largest in size and population. Athens developed the most successful democracy. The type of democracy that Athens practiced was direct democracy i.e. people can directly participate in the decision making process.

Contribution of Greek Civilization

Start up question

- ✓ What you heard about the word psychology, Olympic and Marathon?

Ancient Greece is the birthplace of western philosophy. Some of the Greek philosopher’s include Socrates, Plato and Aristotle. Herodotus was said to be the “**Father of History**.” Modern medicine had its foundation in Greek. Hippocrates was said to be the “**Father of Medicine**.” Ancient Greeks also made great achievements in government, science, architecture, art, drama, pottery and sculpture. Athena was the centre of Greek culture.

Focus

Democracy, psychology, philosophy, Olympic and Marathon were originated in Greece. They made great contribution to the modern world in physics, biology, mathematics, medicine, drama, poetry, art and sculpture.



Figure 4.5 Greek architecture

Ancient Rome

Start-up question

- ✓ Who were the ancient settlers of Rome?

Different peoples inhabited ancient Italy around 753 B.C along the Tiber River. One of the early peoples settle in Rome was called the Latins. They were the ancestors of Romans. Gradually, Rome grew from a village of farmer and shepherds into a prosperous city and Empire.

The Romans Establish a Republic

The Romans established a form of government, which today we call a Republic. The Republic lasted from 509 B.C until 27 B.C.Two elected officials called **consuls** headed the government of the republic. A consul served for only a year. The most powerful government body of the Republic was the Senate. The Senators served for life.

Roman Citizens

Start-up question

- ✓ What were the three social classes in ancient Roman society?

Roman citizens were classified into three classes known as: Patricians, Equites and Plebeians.

Roman Empire

Start-up question

- ✓ What are meant by the Republic and the Empire?

The Roman Republic existed until 27 B.C. A **republic** is a form of government in which power is held by the people and their elected representatives. The Roman Empire was established in 27 B.C after the republic was destroyed. The Roman Empire lasted until Rome fell in about 476 A.D. When an extensive group of people or countries were ruled by a single supreme authority called **Empire**.

The Roman Achievement

Start-up question

- ✓ What was an amphitheatre?

The Romans had contributed a lot to modern world civilization. Their legal system, Latin language and Latin alphabet are some of the heritages of the ancient Romans. The Romans were well known in engineering like roads, bridges, and harbours were built by Roman engineers.

Focus

The **Patricians** were the richest land holding nobles(upper class).

The **equites** were rich but they were not nobles.

The **Plebeians** were ordinary people like farmers, artisans, merchants and laborers. They had the legal rights but little influence. There were also a large number of slaves. They have no right at all like the Roman citizen. They are not considered as citizens.

Focus

Ancient Romans built public baths and amphitheaters (outdoor arenas).The most famous amphitheater in the city of Rome was called Coliseum.

Activity 4.3



A. Individual Work: Questions based on facts:

1. Discuss the following :

- Herodotus
- Latin
- Hippocrates
- Socrates
- Plato

2. Define the following terms:

- Republic
- Oligarchy
- Patricians
- Empire
- Polis
- Plebeians
- Democracy
- Consuls

B. Group Discussion:

Discuss on the following questions in small groups and present your discussion outcome through your group representatives.

1. Name the two most known ancient Greek city-states.
2. List the major contributions of ancient Greece.
3. By using the world map, locate the following – Rome, Greece, Sparta, and Athens



4.2 Rise and Expansion of Christianity

Competency: After studying this lesson, you will be able to:

- Explain the rise and expansion of Christianity.

Start-up question

- ✓ What is Christianity?

Origins of Christianity

Christianity emerged in the 1st century in Palestine. At that time Palestine was ruled by Roman Empire. It is the religion centred on the life and teaching of Jesus Christ. Jesus was born in Bethlehem, near Jerusalem, in Judea the then part of Palestine.

Focus

Christianity is a monotheistic religion. Christians believe in one God and that created the universe. According to Christianity, God sent Jesus (the messiah) into the world as a savior, hence Christ, from the Greek word for “anointed one”.

Early Christianity and its Expansion

Start up question

- ✓ Why Roman government was intolerant towards Christians?

The Roman government was not tolerant to the Christians at the beginning and persecuted them for about 300 years. This was because the Christians believed that making sacrifices in honour of the emperor was denying God. The Roman government considered this act as political disloyalty because they refused to honour the emperor.

Despite ruthless persecution by the Roman rulers, many people (non Jews) gradually accepted Christianity. The idea of the Christianity “Equality of men before God” was attracted many people to join the new religion. Rome’s change of attitude towards Christianity began with Emperor Constantine.

Focus

The persecution of Christians finally ended in the 4th century A.D, when Emperor Constantine (r. 324-337) issued the **Edict of Milan**. It granted religious toleration and freedom of worship to all citizens of the Roman Empire. In 392 A.D. the Emperor Theodosius (r. 379-395A.D.) proclaimed Christianity as the official state religion.

Difference arose in the Christian church. The East-West difference in 1054 A.D divided the Christian church into two distinct parts: the Roman Catholic Church and Greek Orthodox Church. Again in 1517, western Christianity was divided into the Roman Catholic Church and Protestantism by a movement called the **Reformation**.

Christian, nowadays is the largest religious group in the world. It is the major religion in Europe, the Americans, and Australia. Large numbers of Christians also live in Africa and Asia.

Activity 4.4



A. Individual Work: Locate the following places on a world map:

- | | | |
|----------------|------------------|-----------|
| - Palestine | - Constantinople | - America |
| - Roman Empire | - Africa | - Europe |
| - Australia | - Asia | |

B. Discuss in a group:

1. Who was the Roman Emperor that order religion tolerance?
2. During whose time was Christianity proclaimed as the official religion of the Roman Empire?



4.3 Medieval History of the world

Competencies: After studying this lesson, you will be able to

- Analyze the main features of the Byzantine empire;
- Compare and contrast the rise and expansion of Christianity and Islam.

These are the words you should try to learn for this lesson
Key Words

- | | | | |
|-----------|------------------|---------|--------------|
| ➞ Crusade | ➞ Seljuk Turks | ➞ Kaaba | ➞ Quraysh |
| ➞ Hejira | ➞ Justinian Code | ➞ Jihad | ➞ Polytheism |

4.2.1 Byzantine empire

Start-up question

- ✓ What was the political centre of Byzantine Empire?

The time from the 5th century to the 15th century is known as **medieval period** (middle age) in European history. Feudalism was the major economic, social and political system during this period.

The Byzantine Empire was also referred to as the Eastern Roman Empire or Byzantium, was the continuation of the Western Roman Empire in its eastern provinces during the medieval ages. Since 330 A.D. Constantinople, renamed after its founder Emperor Constantine, was its capital city. After the fall of Eastern Roman Empire the Byzantine Empire survived and continued to exist for more additional years until it fell to the Ottoman Empire in 1453. The empire got its name from Byzantium, the old name of the city of Constantinople. Constantinople later is called **Istanbul**.

Byzantine Empire existed for long period after the collapse of West Roman Empire. It becomes a centre of civilization in Europe during the medieval period with the decline of civilization in West Europe. Byzantine civilization was Greco-Roman and Christian in nature.

During most of its existence, the Byzantine Empire was the most powerful economic, cultural, and military force of Europe. Christianity, Greek culture and Roman customs flourished in the empire. The Byzantine Orthodox Church which was officially separated from Roman Catholic Church in 1054 became a national church of the Byzantine Empire.

The Byzantine Empire reached its greatest size under Emperor Justinian I (r.527-565). He organized and reformed many laws of the ancient Romans. These collections of Laws were known as the **Justinian code**.

Byzantine architecture made use of domes and beautifully coloured glasses. The church of *Hagia Sophia* (St. Sophia) in Constantinople is a good example of Byzantine architecture. The church was built in 537A.D, during the reign of Justinian. It is still stands.



Figure 4.6 Hagia Sophia

Agriculture, crafts and trade were the economic basis of the Byzantine Empire. The Byzantine Empire was headed by the Emperor. In 1071 the Byzantine Empire was defeated by the Seljuk Turks. The Byzantine Empire asked military assistance of Western Europe.

The help in the form of military expedition came from Western Europe in the form of **Crusades**. The crusades were a serious religious war between Christian Europe and the Muslim Seljuk Turks to secure Christian holy land, Jerusalem.

Focus

The Byzantine Empire ended when Ottoman Turks controlled the city of Constantinople in 1453. Constantinople later renamed Istanbul.

Activity 4.5



A. Individual work: Answer the following questions:

1. Why the Byzantine Empire was called a centre of Civilization in Europe during the medieval period? Explain.
2. When did the Byzantine Empire reach at heights of its expansion?

B. Things to do:

1. Draw a sketch map of Middle East and show (locate) the area of Byzantine Empire.



4.2.2 The Rise and expansion of Islam

Arabs before Islam

Start-up question

- ✓ Who are the Arabs?

The Arabs are Semitic-speaking peoples who led a nomadic life in Arabian Peninsula. They engaged on trade. Pre-Islamic Arabs were politically disunited and polytheists.

Beginning of Islam

Start-up question

- ✓ What do you understand by the word Islam and Muslim?

Islam is the name given to the religion preached by Prophet Mohammed. Islam rise in about 610 AD. The founding Prophet of Islam, Mohammed was born in Mecca about 570 A.D from Quryash tribes. The Quryash were powerful merchant tribe in Arab peninsula that inhabited and controlled Mecca and its **Kaaba**.

When Prophet Mohammed began his teaching Islam in Mecca at the age of 40 he was experienced strong resistance and persecution from Quryash tribe. Because his teaching attacked the idolatry, and the economic source of the Quryash.



Figure 4.7 Birth place of Islam

Focus

Prophet Mohammed sent his followers including his daughter and her husband to take refuge in Ethiopia at about 615 A.D. They were allowed to stay in Ethiopia until their return to Arabia in 628 A.D.

Islam in the Arabic word means “submission to the will of God.” Those who believe in one God and accept Mohammed as His messenger are called **Muslims**.

Like Christianity, Islam is a monotheistic, based on belief in one God. The Arabic name for God is **Allah**. The Muslim holy book is known as the **Quran**. Mohammed moved from Mecca to Medina in 622 A.D. His flight to Medina is known as **Hejira**. The date was taken as the beginning of Islamic calendar.



Figure. 4.8 The Kaaba in Mecca

Expansion of Islam

Start-up question

✓ Write four countries of the world which have the largest Muslim population?

Medina became the center of the new religion after when Prophet Mohammed moved to Medina and he got many followers and organized an Islamic society. He started a holy war (**Jihad**) to defend or to spread their belief. As a conqueror he comes back to Mecca in 630 A.D with huge army.

Prophet Mohammed destroyed all the pagan gods (idols) except the black stone, the **Kaaba**, which was incorporated into Islam because they had great respect throughout Arabia.

One-third of Arabia had accepted the new religion at the time of his death. Four caliphs (successors) after the death of Prophet were: **Abu Bakar(632-634), Umar (634-644), Othman (644-656) and Ali (656-661)**. The Arabs were able to expand Islam outside Arabia with the Arabic tribal customs of making raids against unbelievers. This activity of making raids against one's enemies was called a **jihad**, (Islamic Holy war). Egypt, Palestine, Syria and the Persian Empire were incorporated within a decade after the death of Mohammed. Gradually, Islam expanded to North Africa, Spain, other parts of the Middle East and reached India. They created a new vast Muslim Arab empire that extended from Spain to the Indus River valley through jihad.

Islam is one of largest religion in the world. Nowadays, Muslims live in every country in the world. According to the existing sources, more than half of the world's Muslims live in South and South East Asia. The Muslims living in the Middle East account for one-fourth of the total followers of Islam. Indonesia, India, Bangladesh and Pakistan have the largest Muslim population.



Figure 4.9 Muslim empires in the old world

Basic Features of Islam and Its Achievements

Start-up question

- ✓ What are some of the contributions of Islam to this world?

The basic feature of Muslim Arab civilization is not purely Arabian in all aspects because they were influenced by other civilization like Greek, India, China, Byzantines and Persians. Muslim scholars added not only the use of logic in the development of mathematical ideas and relationships, but also to an effective system of numeration that involved zero. They built big monuments including Mosques and palaces in different cities.



Figure 4.10 The Mosque of Damascus

During expansion of Islam trade generally flourished. The flourishing of trade led to the creation of prosperous cities which in turn becomes centers of administration, culture and economic activities. Arabic become an international language over the vast Muslim Arab Empire.

Activity 4.6



A. Individual Work: Questions based on facts:

1. Who are the Quryash
2. Describe the following terms

Hejira

Quran

Jihad

Polytheist

B. Group Work

1. Where is the birth place of Islam?
2. What is meant by Islam?
3. What is meant by Muslim?





UNIT SUMMARY

In this unit, first, we have discussed the ancient and medieval civilization of the different parts of the world. In detail, we have seen the civilization of Mesopotamia, India, China, the Greco-Roman world and the Byzantine Empire. Most of the civilizations have common elements. Almost all of them developed on the bases of well-organized states, towns and writing system. Some of the civilization developed in river valley, while others were maritime civilization. Innovations and discoveries that they made still influence our life in many ways.

Secondly, we have studied the emergence of Christianity and its spread from the 1st century A.D on wards. At first, Christians were suffered of persecution by the Romans but since the reign of Emperor Constantine the new religion got tolerance and spread freely all through the Roman Empire.

Thirdly, we have also seen the rise and expansion of Islam since the 7th century A.D. Before the rise of Islam, the Arabs were politically disunited and practiced traditional religion. With the rise of Islam, the Arabs entered a new way of life. They were united under Islam through Prophet Mohammed. Within a few decades of Mohammed's death, the Middle East comes under their rule through jihad. They created a new empire that extended from Spain to the Indus valley. Arab rule brought with it a new religion and a new culture to the conquered areas and people.

Glossary

Buddhism: a religion created by Buddha.

Confucianism: a philosophy developed in the 6th century B.C in China by Confucius.

Consuls: elected officials of Roman Republic.

Crusade: the war of Christian Europe against Seljuk Turks.

Cuneiform: ancient form of Mesopotamian writing system.

Empire: rule of an extensive group of states or countries by a single monarch (Emperor).

Hejira: the journey of the prophet Mohammed from Mecca to Medina.

Hinduism: major religion in Indian.

Kaaba: the holy shrine (or Islamic relic) in Mecca.

Jihad: Islamic holy war.

Justinian Code: collection of Roman law by Emperor Justinian.

Logographic: ancient Chinese writing system

Lugals: rulers of the Sumerian city-states.

Monotheism: a belief in the existence of one God.

Polytheism: the worship of or belief in multiple gods.

Quryash: a powerful tribe that controlled Mecca and Kaaba.

Republic: a government led by elected officials.

Reincarnation: rebirth or transmigration of the soul.

Seljuk Turks: a Muslim Turks that ruled central Asia in the 11th and 13th centuries.

REVIEW EXERCISE FOR UNIT FOUR

I. True or False Item

Direction: Write “True” if the statement is correct and “False” if the statement is wrong on the space provided.

- 1.The Byzantine Empire reached its height of the power during the time of Justinian I.
2. The Mesopotamian civilization emerged along the Indus Valley.
3. Hinduism was a reform movement developed from Buddhism.
- 4.The ancient Chinese civilization emerged in the Nile River.
- 5.Latins was one of the first settlers of ancient Rome.

II. Matching Item

Direction: Match the following items from “B” column with “A” column

A

B

- | | |
|--------------|--|
| 1.Herodotus | A. Islamic Holy Book |
| 2.Coliseum | B. Richest nobles of Rome |
| 3.Quraan | C. Father of History |
| 4.Theodosius | D. Amphitheaters in Rome |
| 5.Patricians | E. Make Christianity official religion of Rome |

III. Multiple Choice Items.

Direction: Choose the correct answer and write the letter of your choice on the space provided.

- 1.The absolute king of the ancient Mesopotamia was called:

A. Cuneiform	C. Sumerians
B. Lugals	D. Pharaohs
2. One of the following is major religion of India:

A. Hinduism	C. Islam
B. Christianity	D. Shintoism
3. One of the following was the ancient Chinese writing system:

A. Hieroglyphics	C. Mandarin
B. Cuneiform	D. Logographic

4. The city-states of the ancient Greeks were called:

A. Constantinople

C. Hellens

B. Polis

D. Hellas

5. One of the following was the most powerful government body of the Roman Republic:

A. Consul

C. Senate

B. Iugals

D. President

IV. Fill in the Blank spaces

Direction: Fill in the blank spaces with suitable words.

1. The Greeks called their land _____
2. The first Roman Emperor was _____
3. The type of government in which power were controlled by a few powerful people are called _____
4. Jesus Christ was born in _____
5. The Arabs were the speakers of the language family known as _____

Check List

Put a tick (✓) mark in each of the boxes for activities you can perform

I can

- 1 locate the major river valley civilizations of the world ☐
- 2 Compare and contrast the rise and expansion of Christianity and Islam ☐
- 3 Analyze the main features of the Byzantine Empire ☐

UNIT FIVE

Ancient History of Africa

Unit Learning out comes:

At the end of this unit, students will be able to:

- Explain the major contribution of the ancient Egyptian Civilization.
- Identify the typical features of the kingdom of Nubia.
- Discuss the main historical events of the Kingdom of Meroe.
- Appreciate that Africa is a continent with ancient history and civilization.

Main contents

5.1. Ancient Kingdom of Egypt

5.2. The Kingdom of Nubia

5.3. The Kingdom of Meroe

- Unit Summary
- Review Exercise

5.1 Ancient Civilization of Egypt

Competency

- Outline the major contributions of the ancient Egyptian civilization;

These are the words you should try to learn for this lesson

Top 10 words

- | | | |
|-----------------|-------------|-----------|
| ➤ Hieroglyphics | ➤ Pyramid | ➤ Papyrus |
| ➤ Pharaoh | ➤ Vizier | ➤ Temple |
| ➤ Nome | ➤ Peasant | ➤ Tomb |
| | ➤ Craftsmen | |

Start-up question

- Where is the location of present day Egypt?

The civilization of ancient Egypt began at about 3000 BC in the Nile Valley. Egypt was located in Northeast parts of Africa. The ancient Greek Historian Herodotus said that Egypt was “the gift of the Nile.” The Nile River is the lifeline of Egyptians. Egypt could not exist without the floods, water and soil supplied by Nile. Due to Nile flood most of the people during this time was living along the river and the river delta. The Nile River has two major tributaries. These are White Nile and Blue Nile (Abay).

History of Ancient Egypt

Start- up questions

- ✓ What was the capital city of the ancient Egypt old Kingdom?
- ✓ What was the political Centre during the Middle and the New kingdom?

The history of ancient Egypt was divided in to three periods. These are: the Old Kingdom, Middle Kingdom and New Kingdom. The capital of the Old Kingdom was **Memphis**. During the Middle and New Kingdoms, the capital was **Thebes**.

Social Class in Ancient Egypt

Start-up questions

- ✓ What is a peasant?
- ✓ What are craftsmen?

There were three social classes in ancient Egypt. These are:

The upper class: made up of Kings, government officials, rich land owners and priests.

The Middle Class: consisted of merchants, craftsmen and other skilled workers.

The Lower class: made up of poor farmers. They were the most oppressed class. The peasants lived in small mud huts and grew crops. They were largest and lowest social class. Peasants in ancient Egypt perform corvee labor, public services and were conscripted as soldiers.

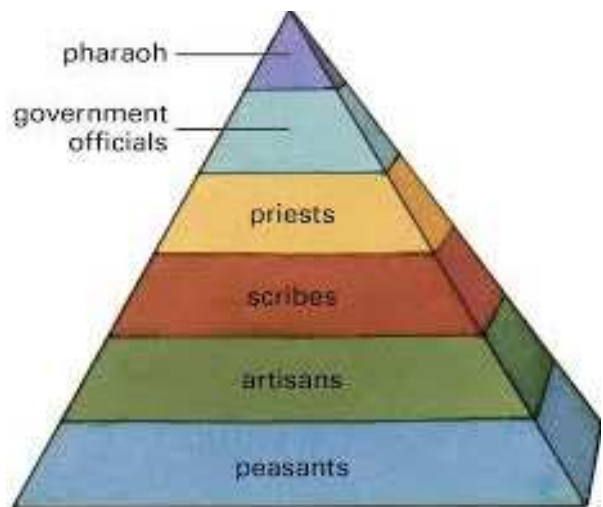


figure 5.1 Social divisions in Ancient Egypt

Agriculture

Start -up question

- ✓ What were the main crops of ancient Egypt?

Economy of ancient Egyptian was mainly based on agriculture. Climatically ancient Egypt was a hot country with almost no rainfall. Most of the year, the farmers grew crops by using irrigation. They used canals that carried water from the Nile to their agricultural fields. The peasants used wooden plough pulled by oxen. Wheat, barley, onion, flax and vegetables were the main crops of ancient Egypt. They were also keepers of cattle, goats and other domestic animals



Figure 5.2 Ancient Egypt

Trade

Start-up question

- ✓ Who sent the well-known Egyptian Voyage to the land of Punt?

Ancient Egyptian traders sailed to lands bordering Aegean, Mediterranean and Red seas. They acquired silver, iron, horses and cedar logs as a result of trade. They got slaves, ivory, gold, copper and ebony from Nubia and Kush, a country south of Egypt. The well-known Egyptian voyage to the land of Punt was sent by Queen Hatshepsut. Punt was the first historical known state in the Horn of Africa. By means of trade Egyptian ideas and customs were spread.

Government

Start-up question

- ✓ Who was the appointed official of nomes?

The ancient Egyptians made remarkable progress in government. The officials called **viziers** (prime minister) helped the king govern ancient Egypt. The king of ancient Egypt was called “**Pharaohs.**” Ancient Egypt was divided into 42 provinces called “**nomes,**” each governed by an appointed official known as “**nomarch**”.

The Pyramid

Start-up question

- ✓ What is Pyramid?

Ancient Egyptian rulers used the labor of peasant and slaves for the construction of palaces, temples and tombs. The large royal tombs built for the Pharaohs were called **Pyramids**. Egyptian pyramids are the oldest and largest stone structure in the world. The largest Pyramids at Giza recognized as one of the Seven Wonders of the Ancient World



Figure 5.3 Pyramid of Egypt

Beliefs

Start-up question

- ✓ What is Mummification?

The ancient Egyptians worshiped many gods. They believed in life after death. Ancient Egyptians preserved the body of the dead. The process of preserving the dead body intact is called **mummification**. They believed that by preserving a dead person's body their soul would live on in the after life forever. Therefore, they built big pyramids for the Pharaohs as tombs.

Egyptian Writing

Start -up question

- ✓ What were hieroglyphics and papyrus?

The best known and most elaborate system of writing developed by the ancient Egyptians was called **hieroglyphics**. It was a pictorial form of writing. It is an old form of writing of its kind.

The Egyptians first used hieroglyphics for inscription carved or painted on temple, palace pillars and walls, also on tombs. Egyptians, gradually, however introduced sheets of **papyrus**. Papyrus was a paper like substance.

Contributions of Egyptians

Start-up question

- ✓ Explain the contribution of the ancient civilization of Egypt.

The ancient Egyptians invented lots of things we still used today. They made remarkable progress in government, religion, engineering and architecture. Also they contributed in writing, medical discoveries and science including mathematics. They produced a calendar with 365 days.

Activity 5.1

A. Individual work: Question based on facts:



- | | |
|---------------------------|---------------------------|
| ✓ What is a pyramid? | ✓ What was hieroglyphics? |
| ✓ What was mummification? | ✓ Who is Vizier? |
| ✓ Who was nomarch? | ✓ What was papyrus? |

B. Group work: Let the students to discuss in groups and present their ideas through their group representative.

1. According to the Greek historian Herodotus, Egypt was “the gift of the Nile” What does it mean? Discuss.

C. Things to do

1. Draw sketch map of Africa and locate the source of Nile River.



5.2. The kingdom of Nubia(Kush)

Competency: After studying this lesson, learners will be able to:

- Point out the main features of ancient Nubia.

Geographical Location

Start-up question

- ✓ Where was the Nubia kingdom located?

Nubia, which was also known as Kush was located in the South of Egypt in the present day Sudan. The kingdom was one of the most ancient independent kingdoms of Africa. According to Egyptian records, the kingdom of Kush began around 2000 BC and fell in 350 AD. It was lie along the Nile River. The kingdoms had capitals at **Napata** and **Meroe**. Historically, its culture and history was closely linked with ancient Egypt. For example, Nubia used Egyptian writing system until it invented its script in the later periods.

Egyptian Conquest

Start-up question

- ✓ How did the Nubians' rule end in Egypt?

Egyptians controlled Nubia around 1500's BC. Nubians adopted elements of Egyptian art, architecture, language and religion. The Nubians ruled Egypt in turn from about 750 BC until 670 BC. Napata became the capital of the combined territory of Egypt and Nubia. The Nubian rule over Egypt ended in about 670 BC when the **Assyrians** invaded Egypt and drove them out of the country. They destroyed Napata. Then the Nubians moved their capital south to Meroe.



Figure 5.4 The Kushite kingdom in 750 BC.

Trade

Nubia was a trading centre. The kingdom exported slaves, cattle, gold and ivory. Many Nubians lived along the Nile. In the deserts, Nubians mined mineral resources. Nubians traded with the Egyptians.

Activity 5.2

Question from facts:



A. Individual work

1. What were the political centers of Nubia (Kush) before Meroe?
2. What was the capital of combined territory of Egypt and Nubia?
3. Who drove out the Kushities in 670 B.C from Egypt?

B. Group discussion

What factors forced the Kushities to leave Egypt in 7th century B.C?



5.3 The Kingdom of Meroe

Competencies: After studying this lesson, learners will be able to:

- point out the main features of ancient Meroe; and
- compare and contrast the main features of pre-colonial African states

Start-up question

- ✓ Why was the period Meroe served as capital marked as the glorious period of civilization of Kush?

When the Assyrians destroyed Napata, the capital of Kush in 670 BC, the rulers of Kush fled to south and began to expand its territory in the Southern direction. Meroe supplanted Napata as the political, religious and economic centre of Kush.

The then capital Meroe was a little north of Khartoum, which is the present day capital city of Sudan. The Nubian kingdom flourished again.

The period which Meroe served as the capital marked as the peak of the civilization of Nubia. The Nubian civilization of this period is often referred to as Meroetic civilization. During the Meroetic time, the Nubians found iron ore, developed iron industry and made iron tools and weapons. The use of iron weapons made the kingdom militarily very powerful and enabled them to conquer a large territory.

Trade

Start-up question

- ✓ What were the main export items of Meroe?

Meroe dominated the trade of the Horn of Africa. Trade became the main source of prosperity. Ivory, slaves, ebony and gold were the main export items.

Achievements of Merotic civilization

When the Merotic civilization reached height of its power, the people of Meroe developed new styles in art and architecture, used their own language, invented a system of writing and worshipped their own gods.



figure 5.5 Merotic monument

Decline of Meroe

Start-up question

- ✓ Who destroyed the Merotic civilization in 350 AD?

Meroe reached height of its power from the middle of the third century BC to the first century BC. The decline of Meroe was highly related to the rise of rival Aksumite state. About 350 AD the Aksumite king called Ezana invaded and sacked Meroe, which brought the end of Merotic civilization.

Comparison between pre-colonial Egypt, Nubia and Meroe.

Ancient Egypt was the preeminent civilization on the Mediterranean world. Ancient Egypt was the birthplace of one of the world's oldest and long lasting civilization. Centered along the Nile valley this advanced culture arose about 3000 years ago and continued for over 2000 years in northeastern Africa.

The contribution of ancient Egyptian in the development of world civilization was outstanding and visible. They developed a civilized way of life. Ancient Egyptians invented the writing system known as hieroglyphics. They also discovered papyrus. In government they created the world's earliest national despotic government. They created basic forms of arithmetic, and calendar of a 365 day. The belief life after death was developed by ancient Egyptians. For the tombs of royal family ancient Egyptians developed a special burial system known as pyramids.

They also made great advance in a system of mathematics, medicine and preserving died body intact through the process known as mummification. In agriculture they introduced irrigation system.

Nubia was emerged in the present Republic of the Sudan. In 1500 BC they were conquered by Egyptians. The Nubians also conquered and ruled Egypt. The invasion of Egypt by Assyrian marked the end of Nubians rule over Egypt. Around the 6th century BC, Kush expanded its territory in the southern direction. This made Meroe as the centre of a new Nubian civilization. The time was referred to as the golden age of the Nubian, hence the Meroetic civilization.

Activity 5.3



Question based on facts:

A. Individual work

1. When did the civilization of Meroe end?
2. Who destroyed the Merotic civilization?
3. What is the capital city of the Republic of Sudan?

B. Group work

Draw Sketch Map of Africa and locate Egypt, Sudan and Ethiopia.



Unit Summary



Ancient Egyptians developed one of the earliest world civilizations in the northeast Africa. It was flourished on Nile river valley. They developed a civilized way of life. Ancient Egyptian civilization was developed on the base of well-organized state structure, towns, government, engineering, religion, architecture and writing system. Many of ancient Egyptian innovations and ideas were taken by the people who they conquered. The ideas were also spread by means of trade using the merchants from foreign land.

Nubia was also known as Kush, land of Kush, Napata or the Kingdom of Meroe. It refers to the vast lands that lie to the south of Egypt in the present Republic of Sudan. The kingdom was one of the most ancient independent kingdoms of Africa. Nubian's history is closely linked with ancient Egypt.

Meroe heavily engaged in commerce and iron working and it had become a major center after Napata. Between middle of 3rd century BC to the 1st century AD, Meroe's greatness seems to have been reached its height of power. Through time, the Merotic civilization developed its own quality and style. Meroe continued as a cultural, political and commercial center until it was destroyed by the Aksumite state around 350 A.D.

Glossary

Corvee labor: compulsory (free) labor service without payment.

Craftsman: skilled workman who practices a craft.

Hieroglyphic: ancient form of Egyptian writing system

Mummification: art of preserving dead body intact.

Nome: province in Egypt.

Nomarch: appointed provincial governors

Papyrus: a paper like writing material

Peasant: people who engaged on agriculture

Pharaoh: name for ancient ruler of Egypt

Pre-colonial: period before colonialism

Pyramid: royal tomb in ancient Egypt

Temple: building for the worship of a god

Tomb: place dug in the ground for a dead body

REVIEW EXERCISE FOR UNIT FIVE

I. True or False Items

Direction: Write “True” if the statement is correct and “False” if the statement is wrong.

1. The art of preserving dead body intact was called hieroglyphics.
2. Ancient Egyptians believed in life after death.
3. The Merotic civilization was remembered for their iron weapons.
4. Ancient Egyptian economy was based on agriculture.
5. The Nubians were conquered by Egyptians around 1500B.C.

II. Matching Items

Direction: Match the following items from column “B” with column “A”

“A”

“B”

- | | |
|------------|---|
| 1. Memphis | A. The capital of Egypt during Middle kingdom |
| 2. Napata | B. The largest pyramid |
| 3. Thebe | C. The capital of old kingdom of Egypt |
| 4. Giza | D. Destroyed by king Ezana |
| 5. Meroe | E. The capital of Nubia |

III. Multiple Choices

Direction: Choosing the correct possible answer and write the letter of your correct answer on the provided space.

1. The largest pyramids of ancient Egypt are located in:
A. Memphis B. Cairo C. Thebes D. Giza
2. The Nubian civilization emerged in:
A. Sudan B. Ethiopia C. Egypt D. Mesopotamia
3. The political centre of the Kush was
A. Meroe B. Napata C. Sennar D. Memphis
4. The city of Meroe was destroyed by:
A. Aksumite state B. Egyptians C. Romans D. Persians
5. Ancient Egypt was divided in to province which were called
A. nomes B. nomarch C. Viziers D. old kingdom

IV. Fill in the blank space with the correct word or phrase

- 1, The political center of the Old kingdom of Egypt was called_____
2. The society of ancient Egypt was divided into_____,
_____and _____classes.
3. The history of ancient Egypt was divided into _____
and _____ periods.
4. The well-known Egyptian voyages to the land of Punt was conducted
during the time of_____.
5. The large royal tombs built for Pharaohs were called_____

Check List

Put a tick (✓) mark in each of the boxes for activities you can perform

I can

1. Outline the major contributions of the ancient Egyptian civilization; ☐
2. Point out the main features of ancient Nubia and Meroe; ☐
3. Compare and contrast the main features of pre-colonial African states. ☐
4. Show appreciation for Africa's ancient history and civilizations. ☐

UNIT SIX

States and Peoples of Ancient and Medieval Ethiopia

Unit learning outcomes

After studying this unit, you will be able to:

- Describe the main features of the Aksumite kingdom;
- Discuss major historical events of Ethiopia during the Zagwe dynasty;
- Explain the main features of the Gondarian period;
- Describe the main features of the major Muslim Sultanates in Ethiopia;
- Analyze the practice of agriculture, trade, and taxation during ancient and medieval Ethiopia;
- appreciate the Ancient and Medieval civilizations of Ethiopia.

Main contents

- 6.1. Aksum, Lalibela and Gondar
- 6.2. Muslim Sultanates
- 6.3. Population movements, interaction and integration (Gada and Other indigenous organizations)
- 6.4. Economic base of states: agriculture, trade and trade routes, Taxation
 - Unit Summary
 - Review Exercise

6.1 Aksum, Lalibela and Gondar

Competency: After studying this lesson, you will be able to:

- Explain the ancient history and civilization of Ethiopia.

These are the words you should try to learn for this lesson

Top 10 words

- Heritage
- Illegitimate
- Inscription
- Legacy
- Nine Saints
- Obelisk
- Pilgrimage
- Rock-hewn church
- Warra sheh
- Zemene Mesafint

More Key Words

- Castle
- Coin
- Dynasty
- Industriousness
- Itege
- Peninsula
- Jabarti
- Monument

Aksumite state

Start-up questions

- ✓ Is Aksum the first state in Ethiopian region? Why?
- ✓ What are the two main contemporary written sources of Aksumite state?

Introduction

Aksum was not the first state in Ethiopia. **Punt** and **Damat** were the two ancient historical known states in Ethiopian region and the Horn of Africa. Punt was the oldest state in Ethiopia and the Horn of Africa. Damat existed just before the rise of Aksum. There were also other sites of pre-Aksumite civilization in Ethiopia like Yeha, Coleo, Matara, Hawelti, Melazo and Adulis.

Sources about Aksum

Our information about Aksum mainly was archaeology, inscriptions and written sources. However, the **Periplus of the Erythraean Sea** and a book entitled the **Christian Topography** were two main current documents from which accurate information about Aksumite state is obtained.

The Origin of Aksum

Start-up question

✓ Who was the king of Aksum according to the Periplus of the Erythraean Sea?

The Aksumite state was one of the ancient civilizations that arose in the Northern part of Ethiopia. The present day city of Aksum was its centre. The extension of trade and sedentary life facilitated the formation of Aksumite state.

The exact date when the kingdom of Aksum (or Aksumite state; also known as the Aksumite Empire) emerged as a center of state had not been so far established. Based on the existing sources, scholars assumed that the Aksumite state was emerged around the middle of the second century B.C. This assumption was mainly based on the **Periplus of the Erythraean Sea**, which was written around 50 A.D by unknown writer. It was a manual or handy book used by merchants. According to the source, Adulis was the port of the city of Aksum and the king of Aksum was called **Zoscales**. The other document which entails about the inscription of Adulis was published in a book entitled the **Christian Topography** by a traveler called **Cosmos Indicopleustes**.

Focus

Just to avoid confusion on the use of Aksumite state, Aksumite Kingdom and Aksumite Empire:

State: is an organized political community with its apparatus of government and territory in which it exists.

Kingdom: is a country ruled by a king or a queen.

Empire: is a different group or possible countries under a single supreme authority.

Territorial Extent of Aksum.

Start up question

- ✓ What was the cause for rivalries between Meroe and Aksum?

In the heyday, Aksumite territories extended from the Red sea coast in the East to the Nile valley in the West, and from the Northern tip of what is today Eritrea in the North as far as Northern Shewa in South. Between Meroe and Aksum, there were intense rivalries in order to dominate the Red Sea trade. Some of historical evidence mentioned that Aksumites had controlled territory in parts of South Arabia.



Figure 6.1 Aksumite Empire

Aksumite state structure and Society

Start-up question

- ✓ Who was the largest majority of the Aksumite social classes?

Aksum as a kingdom was powerful states with a well distinguished social structure. The king and royal family came at the top. Below the king were provincial officials who ruled over the provinces and collected taxes. There were also priest and other religious officials.

Apart from these, the Aksum society constituted different social classes which were divided on occupational basis. The vast majority of Aksumite society was the peasants while the rest include artisans, merchants and slaves.

Economy

Start-up question

✓ What was the important factor for the prosperity of Aksumite economy?

Agriculture constituted the base of Aksumite economy. Beside agriculture, the state also had a considerable income from internal and international trade. Trade was important factor for the wealth of the Aksumite economy because it yields much income to the state.

The kings of Aksum used the port of Adulis for their international trade on the Red Sea coast. The most important export items were ivory, tortoise-shell, slaves, gold and live animals. Import items include textiles, glassware, jewellery, copper sheets, drinking vessels and other products.

The Aksumites dominated the red sea trade and maintained trade relation with Egypt, the Mediterranean region, Arabia, Syria and India.

Aksumite Coins

Start-up question

✓ What can you learn from Aksumite coins?

One of the important achievements of the Aksumite period is the minting of coins. From the 3rd century A.D to 7th century A.D the Aksumite kings minted and issued different kinds of coins in gold, silver and bronze for international trade. It was one of the first African governments to issue its own coins. The coins were decorated with Geez and Greek inscriptions, the busts of the kings and other symbols. Those before the introduction of Christianity to Aksum had crescent and disc and those after introduction of Christianity were identified by their cross.



Figure 6.2 Aksumite gold coins

Military power

Start-up question

- ✓ Why did the Aksumite state control territory in Southern part of Arabian Peninsula?

Aksum built strong military power using the income from red sea trade to protect trade and trade routes from rivals. They had ship making technology at Adulis. With this army, they also expanded their territory. On a number of occasions Aksum had overseas territories in Southern parts of Arabian Peninsula, in the present day Yemen. This was probably in a desire to extend their domination over the territories on both sides of the Red Sea to secure trade.

External Relation

Aksumite established closer diplomatic and commercial relations with Greco-Roman world, the Middle East, Near East and other countries on the Indian Ocean.

Introduction of Christianity

Start-up question

- ✓ How was Christianity introduced to Aksum?

In the 4th century A.D, the Aksumite state experienced a very remarkable king called Ezana (r.320-350 A.D.) Christianity introduced during his time around 330 A.D. But he was not the first Ethiopian to accept Christianity. The one responsible in converting king Ezana and his friends was a young

Syrian named Fremnatos (Abba Salama). Therefore, Fremnatos became the first Bishop of Ethiopia and Ezana the first Christian King to accept Christianity. Since then, Christianity became the state religion in Aksum and secured the royal support. The introduction of Christianity had diplomatic advantage. It was instrumental for the development of strong relations with the Byzantine Empire.

Expansion of Christianity

Start-up question

- ✓ When did the Nine Saints arrive to the city of Aksum?

At the beginning, Christianity was restricted to the court of Ezana in Aksum. Later on with the coming of some monks known as the **Nine Saints** towards the end of 5th century A.D, Christianity spread to the broad masses. They came probably from Syria, Lebanon and Cyprus. The contributions of the Nine Saints were:

- ✓ They built different churches
- ✓ They translated the Bible from Greek into Geez language.
- ✓ They introduced monastic life
- ✓ They convert many people into Christianity

Legacies of Aksumite Civilization

Start-up question

- ✓ Why did Aksumites build obelisks?

Aksumite state controlled local and international trade. This trade brought an immense wealth to Aksum. With this income, the Aksumite kings built large palaces and churches. Above all magnificent achievement of Aksumite state was construction of monumental stelae (or obelisks). They may be erected for religious purpose or as a tomb of the kings.



Figure 6.3 one of the standing obelisks and Broken remains of the largest obelisk of Aksum

Focus

The largest obelisk is 33 meters long and found at Aksum broken and fallen down. Fascist Italy taken the second largest obelisk of 25 meters to Rome in 1937 and now returned to his mother country very recently. The third largest obelisk, which stands up in Aksum, is 24 meters high. The obelisk in Aksum was registered by UNESCO as world heritage and became centres of tourist attractions in Ethiopia today. In general remains of Aksumite temples, iron tools, obelisks, ornaments, coins and tombs were signs of the advanced technology of Aksumite civilization. However, preserving all ancient historical heritage of Ethiopia are the responsibility of the present generation.

The Decline of Aksum

Start-up question

✓ What was the major external factor for the downfall of Aksumite Empire?

The power and wealth of the Aksumite Empire began to decline in the early decades of the 7th century. Internal and external factor were responsible for the decline of Aksumite kingdom.

External factor: the expansion of Muslim Arabs to the Red Sea led maritime conflict between the Muslim Arabs and Aksum over the control of Red Sea trade. Aksumite lost their control of maritime trade. The economic decline results in the collapse of the defence system of the state.

Internal factors: the loss of income from the international trade weakened the economic power as a result the Aksumite rulers failed to establish strong control over the internal rebellion. like Beja and Agaw. The Aksumite state finally came to an end in about 1150 A.D.

The Zagwe Dynasty (1150 A.D-1270 A.D)

Start-up question

- ✓ Who was the founder of the Zagwe dynasty?

The Zagwe dynasty took political power in Northern Ethiopia after the downfall of Aksum. The dynasty was founded by Cushitic speaking Agaw people. The Zagwe dynasty was formed around 1150 A.D. The founder was said to be Marara (Marra Takla Haymanot). He established his centre in Adefa, a small town in the district of Bugna in Lasta region. Near Adefa existed another small town called Roha. The political center of the kingdom later changed to Lalibela which was named after one of its greatest king Lalibela.

Territorial Limits of the Zagwe

In the north, it includes most of the highland provinces of the Aksumite Kingdom. In the south, its territory include the present day Wollo and Northern Shewa. In the West their presence reached up to Lake Tana. But in the East its territorial limit was not clearly known.



Economy

✓ What was the economic base of the Zagwe kingdom?

The main important export items were slaves, ivory, and rare spices. While imported items includes cotton, silver and copper vessels and newly minted coins.

Start-up question

- ✓ Who was the Zagwe king that built 11 rock-hewn churches in Lalibela?

The Zagwe rulers engaged more on church construction. The reign of Lalibela marked as the peak of the Zagwe dynasty.

The Zagwe rulers left their deepest imprint on Ethiopian history through their architectural achievements in the construction of eleven rock-hewn churches in Lalibela, named after one of the more famous of their King Lalibela. These churches are known as monolithic churches, because they were chiselled out of a living single rock. They were recognized by UNESCO as part of world's cultural heritage and become a known centre of tourism in Ethiopia. According to different sources, the main purposes of construction of the beautiful churches of Lalibela was in fact a planned attempt to reproduce other holy city of Jerusalem in Ethiopia. Roha was considered to be substitute for Jerusalem.



Figure 6.5The well known Lalibela rock-hewn churches

The Zagwe period was a golden age in Ethiopia's architecture and painting. The construction of Churches signifies religious, architectural, artistic, economic and literal revival of the ancient Aksumite civilization.

Cultural tradition of the Aksumite state was not interrupted but continued during the Zagwe dynasty.

- Christianity continued to be state and official religion of the country.
- Geez continued to serve as a church and writing language.
- Relation with the Muslim rulers of Egypt was continued.

- Religious pilgrimage to the Holy Land of Jerusalem reached its peak during the Zagwe dynasty.

Dawn Fall of the Zagwe Dynasty

Start-up question

- ✓ What were the main reasons for the downfall of the Zagwe dynasty?

Two factors were accountable to the down fall of the Zagwe Dynasty. These were:

1. Internal factors: there was no peaceful political succession with the death of the reigning king.
2. External factor: the Semitic-speaking peoples of Tigre and Amhara were organized strong political reaction. In Tigray the Christian church spread anti-Zagwe information's who claimed the Zagwe as usurpers (illegitimate rulers). The resistance to the Zagwe was rooted in the legend of the supposed queen of Sheba. Their goal seems to have been to bring back the former the so called "Solomonic dynasty".

Eventually an Amhara chief Yekuno-Amlak, being supported by the Christian church, overthrew the last Zagwe king; Yetbarek in 1270. This marked the end of Zagwe dynasty and the "restoration of the Solomonic dynasty".

Gondarine Period

Start-up questions

- ✓ Why was it called Gondarine period?
- ✓ Who founded Gondar?

The highland Christian kings had tradition of mobile capital from one region to another throughout the medieval period. One exception to this rule was Debre Berhan, founded by Zara Yacob in 1454.

The Gondarian period (1636-1769) refers to the period during which the rulers of the Christian kings ruled from a new capital called Gondar.

Gondar was founded as a fixed capital by King Fasiledes (r.1632-1667) in 1636. Gondar then used as the capital of Ethiopia for more than 200 years. Gondar became the political, economic and cultural centre because the Christian kings began to stay long in the city.

One of the greatest achievements of Gondar was in architecture. Gondar was known by the ruins of wonderful castles and palaces built by a series of emperors since its foundation. Churches, bridges and swimming pools were constructed.



Figure 6.6 Fasiledes Castle

The Period between 1636 and 1706 can be considered as the Golden Age of Gondar. In other words, during the times of the first three successive kings i.e. Fasiledes (r.1632- 1667), Yohannes I (r.1667-1682) and Iyasu I (r.1682-1706). Gondar enjoyed a period of glory and luxury. The ruling class led a luxurious life in the beautiful palaces and castles.

The establishment of Gondar marked a new chapter in the country's urban history. Gondar developed certain urban features very soon and witnessed a fantastic population growth. The population composed of different religious, cultural, local and foreign communities.

Due to its increasing commercial importance, Gondar became the centre of active trade. The daily and weekly market held in the city became a meeting point for the people from surrounding areas for the exchange of their respective product. This facilitated intense urban-rural interaction and interdependency.

The trade was mostly dominated by the Ethiopian Muslims, known as the Jabarti. Items of various crafts were provided by other occupational groups like the Bete Israel (Falasha).

Gondar usually was divided into several zones or quarters. They had a separate living area for the Muslim communities which still called Addis Alem. The Falasha also settled at the outskirts of the town. In addition, foreign communities mainly Armenians, Greeks and Indians were conducting trade in Gondar with their own living quarter.

The Decline of the Royal power

Start-up question

- ✓ Who was the last strong king before Gondar entered to political disorder?

The last powerful king before the Gondar enters to political disorder and social unrest was Iyasu I (Iyasu the Great). The assassination of Iyasu I in 1706 once again opened a political disorder as a result of plot, poisoning and power struggle. Regional warlords became the most powerful and began to exercise the power in the name of weak central kings. Gondar also engaged in conflict over religious principles or doctrines.

Itege Mentewab

Start-up question

- ✓ Who was Mentewab?

After the death of King Bakafa in 1730 once again royal power began to decline. His son and successor Iyasu II, Iyasu the little, (r.1730-1755) was a minor when he came to power. The mother of Iyasu II and wife of Bakafa, Itege Mentewab began to rule on behalf of her son. Itege Mentewab became dominant and prominent woman in the politics of the last stage of the Gondarian period. She was supported by her brother, Ras Welde Leul. The exercise of real power by Mentewab and Welde Leul undermined the power of Iyasu II.

Iyasu II in 1755 was succeeded by his son Iyoas (r. 1755-1769). Mentewab and her brother controlled real power. So, Ras Bitweded Welde Leul was more powerful than the king. The title of Ras Bitweded was more important. To manipulate the king as they wanted, the regional lords began to aspire and compete for that position. The absence of a powerful successor to the

throne resulted in the rise of Mentewab and Welde Leul. The gradual concentration of power in the hands of Ras Bitweded led to the decline of the King's power.

The Zemene Mesafint (The Era of Warlords) (1769-1855)

Start-up question

- ✓ Do you know what the term “Zemene” and “Mesafint” are?

The Zemene Mesafint is a period in history of Ethiopia which more or less started with the death of Iyoas in 1769 and lasted with the rise of Tewodros II in 1855.

The Amharic term “Zemene” refers to a certain period or duration in history. In English its equal term is “era.” Amharic term “Mesafint” its English literal version is “prince or lord.” Prince means son or close relatives of a king or queen. The literal meaning of Zemene Mesafint is, therefore, the “Era of princes or Era of Warlord.” The king in Gondar was a puppet or symbol. The kings merely reigned; but they did not rule.

Ras Welde Leul died in 1767. His death was followed by power struggle between Itege Mentewab (the grandmother of reigning king Iyoas) and Wubit (the mother of reigning king Iyoas). Mentewab was from Quara and supported by her kinsmen from Quara. Wubit on the other hand was from Wollo and wanted to maintain her rule in the name of her son, King Iyoas. She was supported by Oromos already stationed in Gondar.

Beginning of Zemene Mesafint

Start-up question

- ✓ Who was Ras Michael Sehul?

Mentewab, in an attempt not to lose the power, invited the Tigrean warlord, Ras Michal Sehul to maintain peace and order in Gondar. He arrived at Gondar in 1769. But Ras Michael Sehul created another political crisis by killing the reigning king, Iyoas in 1769 which marked as the beginning of Zemene Mesafint. Ras Michael become a “king maker” (i.e., he had the power to bring kings to the throne and depose them as he wished).

Extreme action taken by Ras Michael made him unpopular and led to the creation of union against him. In 1771, the rulers of Gojjam, Wollo and Lasta defeated Ras Michael at the battle of Sabrakusa. Ras Michael forced to return to Tigray.

Between 1771 and 1786, various regional lords competed to become the next Ras Bitweded and indirectly control royal power. In 1786, the post of Ras Bitweded was occupied by an Oromo family, the warra Sheh, commonly known as the Yejju dynasty. Ali Gwangul (or Ali I) was believed to be the founder of the dynasty. They made Debre Tabor their seat of power and acted as guardians of the kings at Gondar.

- In 1730, king Bakafa died and was succeeded by his son Iyasu II. But actual power was in the hands of Mentewab and her brother Welde Leul.
- In 1755, Iyasu II died and was succeeded by his son Iyoas. Mentewab and Welde Leul continued to exercise actual power as usual.
- In 1767, Welde Leul died. Mentewab and Wubit competed for power. Ras Michael Sehul arrived at Gondar upon Mentewab invitation.
- In 1769, Ras Michael Killed Iyoas and that marked the beginning of Zemene Mesafint.
- In 1771, Ras Michael was defeated and back to Tigray.
- In between 1771 and 1786, regional warlords competed to assume the position of Ras Bitweded
- In between 1786 and 1853, the Yejju lords controlled the position of Ras Bitweded and acted as guardians of the puppet kings at Gondar. The Emperors in Gondar merely reigned; but they did not rule.

The Main Features of Zemene Mesafint

Start-up question

- ✓ What were the main features of Zemene Mesafint?

The main features of Zemene Mesafint were:

- Religious(doctrinal) division
- Political division
- Weak central authority
- Continuous civil war
- Social disorder and others

Throughout the Zemene Mesafint various regional lords fought for the following reasons. These were;

- to take the position of Ras Bitweded
- to expand their territories

The endless civil wars of the Zemene Mesafint harmfully affected the development of Ethiopia by reducing productivity. It greatly affected the life of peasants, trade and industriousness (hardworking), which become one important cause for the country's backwardness.

The Zemene Mesafint was ended in 1855 by Tewodros II who get rid of powerful regional lords in four major battles: Guramba (1852), Gorgra Bitchen (1852), Ayshal (1853), and Deresge (1855) respectively.

Activity 6.1



Question based on facts:

A. Individual work

1. List the major external and internal factors for the downfall of Aksum and Zagwe dynasty.
2. Complete the table below by writing the items of export and import of Aksum and Zagwe

Aksum		Zagwe	
Export	Import	Export	Import

B. Group Work

1. Have you ever seen the picture of the Aksumite obelisks, Rock-hewn churches of Zagwe and the castles of Gondar? Sketch it on your exercise book.
2. Organize the class into three groups and let them to collect pictures showing the legacies of Aksumite, Zagwe and Gondarian civilization and present their finding in the class.
3. Organize the class into three groups and let them to write report on the economic and cultural importance of the Lalibela church, obelisks of Aksum and castles of Gondar.



6.2 Muslim Sultanates

Competency: After studying this lesson, you will be able to:

- Describe the political, social and economic structures of ancient and medieval Islamic states in Ethiopia.

These are the words you should try to learn for this lesson

Top 4 words

➡ Mahkzumite

➡ Sultan

➡ Walasma

➡ Sultanate

Start-up questions

- ✓ What is the word sultanate?
- ✓ When was the first contact of Ethiopia and Islam?

Sultanate is a Muslim state ruled by a Sultan. Sultan is an Islamic title given to a Muslim ruler.

When Prophet Mohammed began his mission, the rulers of Mecca, called the Quryash, created problem on him and his followers. So in 615 A.D, he sent Muslim refugees to Aksum. The Aksumite king by the name Ella Saham, permitted them to live peacefully until they returned to their country in 628 A.D.

By the beginning of the 8th century A.D, Islam made its appearance in Ethiopia and the Horn of Africa. Trade and Islam were the main factors for the emergence of Muslim Sultanates in Ethiopia and the Horn of Africa. Along the trade routes from Zeila, market centres emerged. Gradually, the centres became centres of Muslim Sultanates. Dahlak, Shewa, Ifat, Adal, Fatagar, Dawaro, Arababini, Dara, Sharka, Bali and Hadya were some of the Muslim Sultanates of the region.

Unlike northern Africa and other regions, in Ethiopia the process of conversion was not followed by Arabization. This was because Arabs did not open war of conquest against Ethiopia and the Ethiopian converts remained with their nation and ethnic identity.

Gateways of Islam in Ethiopia and the Horn

The two main gateway of Islam to the Ethiopian region and the Horn were:

I. The Dahlak Island in the Red sea:

Islam could not able to penetrate deep in to the interior of Ethiopia on this direction because of the existence of strong Christian community. On this direction Islam was firmly established on the Red Sea coast and by the 10th century a Muslim sultanate of Dahlak was emerged.

II. The port of Zeila on the Gulf of Aden:

Zeila was the most important gateway for the spread of Islam into interior part of Ethiopian region as far as Eastern Shewa, Wollo, Bali, Arsi , and Harar.

The Sultanate of Shewa

Start-up question

✓ Who was the founder of The Sultanate of Shewa?

Since the 9th century A.D, a serious of Muslim sultanate began to emerge. The earliest was the sultanate of Shewa which was founded around 896/7 A.D by the Mahkzumite dynasty. Its location was on the left side of the West Awash River in lowland of Shewan plateau. Its rulers used the title Sultan. Its worst enemy was Ifat. The sultanate of Shewa was defeated by the Ifat Sultanate around 1280.

The Sultanate of Dahlak

Start-up question

- ✓ When was the Sultanate of Dahlak formed?

The Muslim Sultanate of Dahlak was formed in the 10th century A.D. It was emerged after when the Arabs established their settlement on the Dahlak Island after they destroyed Adulis in 702 A.D. Its economy was based on trade.

The Sultanate of Ifat

Start-up question

- ✓ Who founded the Sultanate of Ifat?

Another sultanate was Ifat which was ruled by the Walasma Dynasty. It was emerged towards the end of the 13th century. The founder of the dynasty was Umar Walasma. It was located around Northeast of the Shewan plateau. Ifat was the strongest Muslim sultanate in the region towards the end of the 13th and the first half of the 14th century. It monopolized the Zeila trade. Ifat was strategically located along the trade routes. Its source of power was mainly the control of trade routes.

The Sultanate of Adal

Start-up question

- ✓ Who was the well known leader of Adal?

The Sultanate of Adal was formed in the late of 14th century by the descendents of Walasma ruling family on the Harar plateau. The relationship between the Christian state and Muslim Sultanates (Adal) were not always peaceful. Centuries of confrontation led to famous revolt of Imam Ahmad Ibrahim (traditionally nicknamed “Ahmed Gragn; the Left-Handed”). The Sultanate of Adal made strong war of resistance against Christian state until 16th century.



Figure 6.7 Muslim states in the Time of ‘Amda Seyon’

The Economy of Muslim Sultanates

The main economic bases of these Muslim sultanates were agriculture and profit from the rich long distance trade of Zeila.

The Christian rulers were equally demanded in controlling the trade route to and coming from Zeila. The major trade routes connecting the port of Zeila to the interior had been the root of conflict between the Christian kings and the rulers of Ifat. In 1332 A.D King Amda Seyon (r. 1314-1344) defeated the combined army of Ifat. King Amda Seyon was the most expansionist Christian highland king of the medieval period.

Common features of Muslim Communities

Some of common characters of the Muslim communities that formed in the region were :

- their sultans (rulers) exercised both religious and political power;
- their population was made up of Muslim;
- their economy was mainly depended on trade; and
- most of the Sultanates were located in the South Eastern lowlands.

Activity 6.2



Questions based on the facts:

A. Individual work

1. Write short notes of on the following Muslim states:
 - Ifat
 - Shewa
 - Dahlak
 - Adal
2. List the two main gateways of Islam to Ethiopia.
3. List the Muslim Sultanates that formed along the Zeila trade route.

B. Things to do

1. Draw a sketch map of Ethiopia and the Horn and locate the Muslim Sultanates that emerged along the Zeila trade route.



6.3 Population movements, interaction and integration (Gada and other indigenous organizations)

Competency: After studying this lesson, you will be able to:

- Deduce that there has been integration and interaction among the Ethiopian people since long time.

There are words that you should try to learn for this lesson

Top 5 words

➡ Chaffe

➡ Guddifacha

➡ Waqa

➡ Gada

➡ Moggassa

The Afar and Somali Population Movement

Start-up questions

- ✓ What is population movement?
- ✓ What causes a population movement of Afar and Somali?

Population movement is the movement of people from one place to another with the intentions to settle in the new location. The Afar and Somali population movement had started earlier than that of the Oromo population movement. The Afar and Somali moved from the South Eastern parts of Ethiopia and the Horn towards to the Harar plateau. Factors that caused their movement were: drought, famine and land pressures.

The Oromo Population Movement

Start-up question

- ✓ To which linguistic family group do the Oromo belong?

The Oromo's belong to the Cushitic speaking language family. The movement and expansion largely took place from around 1522 to 1618.

Original Home land of the Oromo

Start-up question

- ✓ Where is the original homeland of Oromo?

According to recent studies, the Oromo place of origin is supposed to be the South Eastern highland. **Madda Walabu** was the political and religious centre before and during their movement. Madda Walabu was located in Bale Zone.

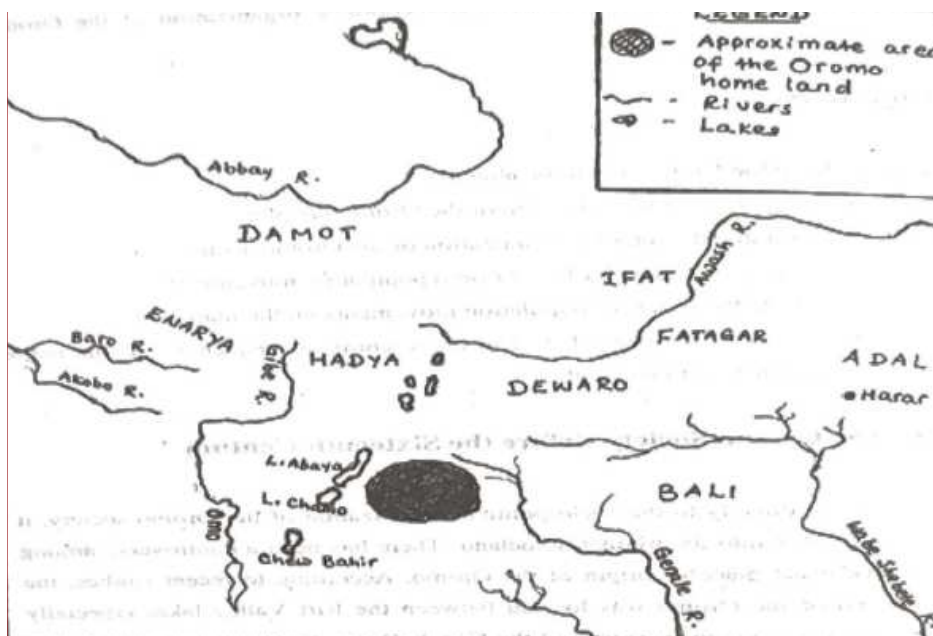


Figure 6.8 Map showing the location of the original homeland of Oromo

Causes of the Movement

Start-up question

- ✓ How did demographic factor cause the Oromo population movement?

The Oromo population movement was a historical event that took place in the 16th century. It was one of the greatest population movements in the Horn of Africa.

The Oromo population movement significantly changed the demographic composition of Ethiopia. The Oromo people played important roles in the socio-political and economic life of the country in the following centuries.

It is believed that human, (wars and disturbance), natural, (climatic change) and demographic (increase in human and animal population) factors have combined to effect movement of Oromos to different places in search of better land.

Oromo Institutions and Social Organization

Start-up question

- ✓ What is the Gada system?

The term “Gada” refers to time or term (i.e., period of rule) through which the Gada classes passed. Gada system was the socio-political structure by which Oromo public life was administered. The Gadaa system constituted elements of democracy such as periodic succession and power sharing to prevent a one-man rule. Other principles of the system included representation of all lineages, clans and confederacies. It also served as a mechanism of socialization, education, maintenance of peace and order, and social cohesion. In addition, Gadaa constituted rules of arara (conflict resolution), guma (compensation) and rakoo (marriage). Women also maintained their rights by the Sinqe institution, which helped them to form sisterhood and solidarity. They involved in occasions like power transfer, conflict resolution, thanks-giving and others.

According to the Gada system, the Oromo society was organized into ten groups (grades). Each age-grade had duration of eight years. The full ten Gada cycle was divided into two five levels or grades. The first five grades covered 1-40 years while the second five grades were from 41-80 years. In the first five grades the Oromo male youngsters were taking military, political and ritual training (i.e. considered as the period of schooling). The six age grade (41-48) is called **Gada**. This was stage of assuming a position of leadership.

Gadaa grade	Age	Roles
Dabale	0-8 years	Socialization
Gamme	9-16	
Folle	17-24	Military training, agriculture etc.
Qondala	25-32	Military service
Raba-Dori	33-40	Candidates for political power
Luba	41-48	Leaders of Gada government
Yuba	49 to 80	Senior advisors, educators and ritual leaders

The above table shows a common version of age-grades and roles associated to them.

The Gadaa system functioned by the cyclical power transfer from one Gadaa class to the next every eight years. With some minor differences in nomenclature in different parts of Oromo territories, the five Gadaa classes (generation sets) are listed below:

Fathers	sons
Melba	Harmufa
Mudena	Robale
Kilole	Birmaji
Bifole	Mul'ata
Michille	Dulo

The five Gada classes

The Gada Officials

Start-up question

- ✓ Who was the commander of war?

Leaders were elected democratically and periodically for a specific period of time. There were civilian, military and religious leaders. There were also peaceful transfers of political power from one Gada class to the other every eight years.

All power rested on the **chaffee** which means **Gada assembly**. It was the source of power. **Abba Boku**(**Abba Gada**) acted as a civilian leader and the spokesman of the assembly. The military leader or commander was called **Abba Dula**. **Abba Sera**, was in charge of the traditional Oromo laws.

Economy

The Oromos exercised a mixed economy before they started the movement. They practiced pastoralism and sedentary agriculture. However, following their movement and expansion they become largely sedentary agriculturists.

Religion

Start-up question

- ✓ Who was the highest priest in the Oromo traditional religion?

Initially the Oromo's were neither Christian nor Muslims. They followed their own traditional religion. They believed in one chief God known as **Waaqa** (the sky God). The spiritual leader of the Oromo traditional religion was known as **Qallu**. After the movement and expansion the great majority of them adopted Christianity and Islam based on the area they moved.

Directions of the Oromo Population Movement and Expansion

Start-up questions

- ✓ To which confederacies does the Guji Oromo belong?

The Oromo society was grouped into two major tribal groups namely: the Borana and Barentu Confederacies. Most of the Oromo clans now trace their root to one of these tribal groups. Mecha, Tulama, Southern Borana and Guji clans believe that they are descendents of Borana. The Barentu consisted of the Karayu, Marawa, Ittu, Humbana, Akachu, Wollo and Arsi clans. The movement in the Ethiopian region was set on two directions. Barentu moved out in North-easterly direction. The Borana followed North-westerly direction and moved out in the direction of Kenya and Somalia.

Factors for the success of Oromo Population Movement and Expansion

Start-up questions

- ✓ What helped the Oromo to occupy such a large area?

Factors for the success can be credited to several reasons. These were:

- The mutual weakness of the Muslim states and the Christian kingdom by the war of previous years. Training and military organization given by the Gada system.
- The tradition of adopting non-Oromo people called *Moggassa*.

The Oromo integrated non-Oromo through two adoption mechanisms: Guddifacha and Moggasa. Guddifacha refers to the adoption of a child by a foster parent. In this system, the child enjoyed equal rights and privileges with a biological child. Likewise, Moggasa was a system of adopting non-Oromos commonly known as Oromsu. Moggasa was the practice of incorporation of individuals or groups to a clan through oath of allegiance with all the rights and obligations that such membership entailed. Moggasa was undertaken by the Abba Gadaa on behalf of the clan. The adopted groups gained both protection and material benefits.

Interaction and Integration as the result of Population Movement

Since long time there has been integration and interaction among Ethiopian people as a result of population movement and commercial relation. With the Oromo population movement and expansion ethnic, linguistic and cultural inter-mixing took place between the Oromo and other peoples in the Ethiopian region. The Oromo settled on new lands as far as southern Tigray, south eastern Gondar and parts of Gojjam. Thus, Oromo communities become the human and material bridges of cultural interaction and integration between the Southern and northern parts of Ethiopia. The process significantly contributed to the social cohesions, national integration, and the revival of long-distance trade.

The interactions also resulted in an exchange of socio-cultural values and institutions. A number of peoples in the neighborhood of the Oromo adopted Gadaa system and Oromo language. Likewise, the Oromo adopted and adapted cultures and traditions of the people with whom they came into contact. The case in point is the adoption of monarchical systems and the integration of the Oromo to the Christian and Muslim states.

Activity 6.3

Question based on facts:



A. Individual Work

1. Describe the Gada system.
2. Name the two major Oromo confederacies.
3. Describe the Chaffee.

B. Group Work

1. Organize class into three groups and let students discuss causes, consequence and factors for the success of the Oromo population movement.
2. Make a short list of Oromo clan names that belonged to Barentu and Borana Confederacies and complete the following table.

Borana	Barentu

6.4 Economic base of states: agriculture, trade and trade routes, taxation

Competency: After studying this lesson, you will be able to:

- Explain the role that agriculture, trade and taxation play for national development.

These are the words you should try to learn for this lesson

Top 5 words

➡ Amole

➡ Caravan

➡ Trade

➡ Afkala

➡ Negadras

More Key Words

➡ Cartridge

➡ Long distance trade ➡ Maria Theresa

➡ Local trade

➡ Trade route

Start-up questions

- ✓ What is trade?
- ✓ Is it possible for people to live without trade interaction? Why?

Trade is a basic economic activity involving the buying and selling of goods and services. Trade can be divided in to two namely: **local** and **long distance trade**.

Local trade: was a type of exchange of goods among peoples of the same region. It was conducted at open market held once in a week at a fixed day.

Long distance: trade was a type of trade carried between different regions, markets, peoples and goods. It combines both import and export trade.

Long Distance Trade in Ethiopia

Start-up question

- ✓ Who were the two dominant merchants in Ethiopia in the 19th century?

Long distance trade revived in Ethiopia in the 19th century. Muslim dominated the long distance trade in Ethiopia. **Jabarti** and **Afkala** were the two most dominant merchants of the long distance trade. The Muslim merchants of the Northern Ethiopia were called the **Jabarti**. The Oromo Muslim Merchants in the South Western Ethiopia were called the **Afkala**.

The long distance trade in the 19th century in Ethiopia was carried out by caravan merchants who moved long distances in large groups. The leader of the commercial caravan was called **Negadras**. The term Negadras in Amharic literally means “head of the merchants” (from negade or merchants) and ras (head.)

Items of Trade

Start-up question

- ✓ What were the major export items of the period?

Ivory, musk, gold, skins and hide, wax, incense, coffee and slave were the major export items in the 19th century. South Western Ethiopian region

was the major area of supply of export items. The major import items to Ethiopia from outside include copper, brass, cartridge, firearms, cloths and other different tools.

Markets and Trade Routes

Start-up question

- ✓ What is trade route?

The market was the basic institutions of the trade all over the country. Markets of the 19th century Ethiopia was classified in to local market and major market.

The major markets were markets where the import-export trade items were available. They were located along the major trade routes. Trade routes are line of trade that join the major markets and areas of supply.

The major trade routes of 19th century consisted of two main trade routes. They connected the market centers along the North-South and East-West. The starting points of both lines were the South Western part of Ethiopia. One of this line connected peoples and states of Southern region with the North part of Ethiopian. The line started from Bonga, the political center of the Kaffa kingdom. Some of the major market along this trade route includes: Bonga (Kaffa), Jiren (Jimma), Sakka (Limmu Enarya), Assendabo (Wollega), Basso (Gojjam) and Darita (Begemder).

The route from Darita joined Gondar where it split into two lines. One line moved Westwards to Sudan through Metemma, while the other proceeded Northward through Adwa (Tigray) and reached Massawa on the Red Sea coast. This route was the most important in the export-import of the 19th century in Ethiopia. The second trade route linked East-West. Major market along the East-West trade route were Soddo (Gurage), Ankobar and Aliyu Amba (Northern Shewa), Dire Dawa and Harar (Hararge). In this line of trade Zeila and Berbera were used as outlet of the trade.



Fig. 6.9 Trade Route in the 19th century

Medium of Exchange

Start up question

- ✓ What was the chief medium of exchange in the 19th century long distance trade?

One of the chiefly used medium of exchange in the 19th century in Ethiopia was bars of salt called **Amole**. **Maria Theresa** was other important medium of exchange. It was a silver coin named after the Austrian queen. It was imported into Ethiopia towards the end of the 18th century by foreign merchants.

Focus

Trade was carried out partly by barter (i.e. exchange of goods with goods) and partly with the aid of currency of various kinds. There is no uniform medium of exchange during this time

among different peoples of Ethiopia. It was the major factor for peaceful interactions and integration. In addition of exchange of goods, people also interchange views, values, cultures, customs and ideas. Trade used

as a means of economic ties and interdependence among these states and peoples.

On the other hand, trade served as one major sources of income to rulers. As trade routes led their ways across different areas keeping security of merchants and collecting taxes became very important. With the incomes from trade in order to strengthen their economic and political power, rulers imported firearms.

One of the most important contributions of the trade and trade routes was the political and religious changes among the Oromo of Gibe states that formed the Oromo kingdom. Through merchants and trade they also accepted Islam.

Rulers began to collect taxes in the form of money with the introduction of money. It also increased the income of the state. Furthermore, long distance trade tied together the politically and ethnically diverse states and peoples of Ethiopia.

Activity 6.4

Questions based on the facts:



A. Individual Work

1. Define the following terms

- Trade
- Local trade
- Local market
- Major market
- Long distance trade
- Trade route

B. Things to do:

Let the students to visit a nearby market and write a short report of their finding on the nature of the market in relation to its merchants, major items of trade, taxation and its contribution to the nation and present it in the class.





Unit Summary

Aksum emerged as a state in Northern Ethiopia. Thus, Aksum is not the oldest state because there were a number of pre-Aksumite states. Coins, inscriptions and ruins of buildings are some of our main living testimonies for the existence of well advanced civilization. Aksumite declined in its power when the Muslims destroyed the port of Adulis.

The Zagwe period was best remembered for its rock hewn churches. The Zagwe dynasty finally failed due to internal and external factors.

Gondar was founded by king Fasiledes. The period between 1636 and 1706 can be regarded as the Golden Age of the Gondarine period. The last period of Gondarine period was dominated by Mentewab. Mentewab and Wubit competed for power. Ras Michael Sehul invited by Mentewab to Gondar. Michael killed Iyoas and that heralded the Zemene Mesafint.

Several Muslim sultanates emerged in Ethiopia and the Horn. Ifat was the most powerful Muslim states until the middle of the 14th century. Among the population movements of 16th century the Oromo movement was one of the great historical events that changed the demographic structure of Ethiopia.

The economic bases of states and peoples states were based on the agriculture and trade. The long distance trade was conducted by Muslim merchants. In the interaction and integration, the trade and population movement played tremendous role. The end result shows how different peoples and states of the whole region of Ethiopia were highly interrelated with each other in a number of situations.

Glossary

- Afkala:** Muslim Oromo merchants of southwest
- Amole:** Salt bar used as medium of exchange
- Caravan:** a group of merchants moving together for safety.
- Castle:** a large strong building, built by a ruler.
- Dynasty:** a succession of hereditary rulers of the same line descent.
- Gada:** a period of rule in Oromo society
- Guddifacha:** a system of adopting a child.
- Heritage:** the full range of our inherited traditions, monuments, objects and culture
- Industriousness:** hard working
- Inscriptions:** words cut on a stone.
- Jabarti:** Muslim merchants in Northern Ethiopia
- Legacy:** historical heritage left us from past
- Mahkzumite:** rulers of Shewa Muslim Sultanate.
- Mogassa:** system of assimilation of non-Oromo people
- Negadras:** traditional title for the heads of the caravan merchants
- Obelisk:** a tall stone monument
- Peninsula:** is a portion of land nearly surrounded by water
- Qallu:** spiritual leaders of the Oromo traditional religion
- Rock hewn church:** church chiseled out of a living single rock
- Sultan:** Islamic title to Muslim rulers
- Sultanate:** Muslim states ruled by sultan
- Walasma:** ruling dynasty of Ifat
- Warra sheh:** Yejju dynasty formed by Ali Gwangul
- Zemene Mesafint:** era of princes or War lords

REVIEW EXERCISE FOR UNIT SIX

I. True or False Item

Direction: Write “**True**” if the statement is correct and “**False**” if the statement is wrong and writes your correct answer in the space provided in front of each statement.

1. Islam made a great penetration into interior of the Ethiopia and the Horn of Africa through the port of Zeila.
2. The last king of the Zagwe dynasty was called YekunoAmlak.
3. Zoscales was the king of Aksum.
4. Addis Alem was established in Gondar as a living quarter for the Muslims
5. The political center of Yejju rulers was Debre Tabor.

II. Matching

Direction: Match column “B” with column “A’

A	B
1 Adulis	A. Trade outlet along Ethio-Sudanese boarder
2 Zeila	B. The port of Aksum
3 Adafa	C. The main port during Zagwe
4 Metemma	D. Lalibela

III. Multiple Choices

Direction: Answer the following questions by choosing the correct answer and write the letter of your answer in the provided space.

- The king of Aksum who welcomed the Muslim refugees was
A. Ezana B. Caleb C. Zoscales D. Ella Saham
- The Muslim state which organized the Muslim resistance against the Christian Kingdom was
A. Ifat B. Bali C. Hadiya D. Shewa
- The Oromo social, political, economic and religious organization was based on the
A. Monarchical B. Gada system C. Qallu institution D. Waqa
- Gondar was founded as political center by
A. Iyasu I B. Yohannes I C. Fasiledes D. Itege Mentewab
- The leader of the caravan merchants was known as
A. Negadras B. Jabarti C. Afkala D. King

IV. Fill in the blank spaces

Direction: Fill in the blank space with the correct word or phrase

- A very influential woman in the last part of Gondarian period was _____.
- The monastic life to Ethiopia was introduced by _____.
- The coins used by the Aksumite kings were made of _____, _____ and _____.
- The period of political disintegration from 1769-1855 was known as _____.
- The sultanate of Ifat was founded by _____.
- The founder of the Zagwe dynasty was _____.

Check List

Put a tick (✓) mark in each of the boxes for activities you can perform

I can

1. Explain the ancient history and civilization of Ethiopia; ☐
2. Describe the political, social and economic structures of ancient and medieval Islamic states in Ethiopia; ☐
3. Deduce that there has been integration and interaction among the Ethiopian people since long time; ☐
4. Explain the role that agriculture, trade and taxation play for national development. ☐

UNIT SEVEN

Contemporary Global Issues

Unit Learning Outcomes

After studying this unit, you will be able to:

- Describe the idea of environment;
- Explain the impacts of people on their surrounding;
- Identify major global and local environmental problems;
- Reflect their roles as citizens in solving local environmental problems;
- Analyze the socio-economic and psychological effects of terrorism; and
- Explain the causes and effects of human trafficking.

Main contents

7.1 Environment

7.2 Demographic ‘overload’

7.3 Terrorism

7.4 Human Trafficking

- Unit Summary
- Unit Review Exercise

7.1 Environment

Competency: After studying this lesson, you will be able to:

- Examine human activities impacting their surrounding environment;
- Explain the importance of community participation in solving environmental problems;
- Reflect their roles and identities as environmental actors in their locality.

These are the words you should try to learn for this lesson

Top 10 Key words

- | | | |
|---------------------------|-------------------------|-------------------|
| ➤ Biodiversity | ➤ Methane | ➤ Pollution |
| ➤ Chlorofluoro carbons | ➤ Ozone layer depletion | ➤ Ultraviolet ray |
| ➤ Environmental pollution | ➤ Pollutant | ➤ Geosphere |
| ➤ Global warming | | |

More Key words

- | | |
|-----------------|-----------|
| ➤ Living things | ➤ Sewage |
| ➤ Melting ice | ➤ Recycle |

7.1.1 Understanding the environment

Start-up Question

- ✓ What is environment?

Environment: is the real world that has living as well as non living things of surrounding on the earth. It also refers to a particular geographical area. The plants, air, soil, water, animals, human beings and other living and non living things exist in the environment.

Environment plays an important role in healthy living and the existence of life on the earth. Earth is a home for different living species and we all are dependent on the environment for food, air, water and other needs. Therefore, it is important for every individual to save it by tackling the different environmental problems.

7.1.2 Environmental problems

Major environmental problems include pollution, global warming, ozone layer depletion, waste disposal, and loss of biodiversity. Governments and environmentalists address these issues through advocacy, education and activism. These issues are discussed as follows.

I. Pollution

Start-up Questions

- How do human activities affect the surrounding environment
- List the major environmental problems in your locality
- What is pollution?
- What are the causes of pollution?
- Mention some of water pollutants

Pollution: is the introduction of harmful materials into the environment. There are three major types of pollutions. These are: water, air and land pollutions.

A. Water pollution

Water pollution occurs when harmful substances often chemicals or micro organisms contaminate a stream, river, lake, ocean or other body of water which degrade water quality and makes it toxic.



Figure 7.1 Water pollution caused by industrial waste

Causes of Water pollution

Water bodies can be contaminated by various pollutants. These water pollutants are numerous infectious agents (bacteria, viruses, and parasites) that contaminate the water through sewage, human waste, and animal excreta. These pollutants are briefly discussed as follows:

- **Sewage waste** –includes human excreta, paper, cloth, soap, and other detergent, all sorts of garbage and trash.
- **Industrial waste**- including wastes from paper, food processing, chemical industries etc.
- **Agricultural pollutants** - include chemicals such as fertilizers, herbicides, insecticides and animal wastes etc.

Water conservation methods

- Effective treatment of municipal and industrial waste.
Removal of pollutants by purification
- The regulation of chemical runoff from agriculture mining and forestry. The development of less pollution technology
- Recycling wastes
- Use of chemicals including the use of chlorine.

B. Air pollution

Air pollution is the mixture of solid particles and gases in the air. Carbon dioxide emissions, chemicals and smokes from factories, dusts are air pollutants. Air pollutants are gases and particles that harm people or other life, damage materials or reduce visibility. Air pollutants can be natural and human made. Some air pollution comes from volcanic eruptions, forest fires and hot springs. Most of air pollutants are the result of human activities such as burning of fossil, burning of solid waste, and forest fire.

Effect of air pollution

- Affect health of human being and animals
- Climate change
- Causes acid rain
- Increase in global warming

Ways of reducing air pollution

- Government laws- air pollution can be controlled by laws
- Filter system- can be installed in chimneys to remove solid pollutants
- Altering exhaust system – vehicles can reduce pollution from their smokes.
- Use of mass transportation- reduce both fuel consumption and carbon monoxide production



Figure 7.2 Air pollution

C. Land pollution

Start-up Questions

- ✓ What is land pollution?
- ✓ Describe the causes and consequences of land pollution on the environment.

Land pollution is a result of dumping garbage, discharging waste and other toxins which making the land contaminated. Land pollution is a major problem around the world and is caused by a variety of factors. Some of the main causes of land pollution include:

- **Agricultural activities:** in order to meet the increasing demand of food for population, chemical fertilizers and pesticides are being used, and this leads to the toxicity of soil.
- **Industry mining:** most industries are dependent on extracting minerals from the earth. Whether it is iron ore or coal the bi-products are contaminated and cause soil pollution.
- **Rapid urbanization and illegal dumping of waste:** In urban area, disposal of huge amount of waste and lack of waste management procedure is the cause for soil /land pollution

The following are some ways of reducing land pollution

- ✓ Recycle materials like paper, glass and plastics.
- ✓ Recover metals from scrap and disposed materials.
- ✓ Replace use of chemical fertilizers by the use of bio fertilizers and manures.
- ✓ Reduce use of pesticides by adopting biological control of pests.
- ✓ Encourage use of cattle dung and agricultural wastes in biogas plants.

II. Global warming

Global warming is the long-term heating of earth's climate system. It is caused due to human activities, primarily fossil fuel burning, which increases heat-trapping greenhouse gas levels in earth's atmosphere. The followings are some of the factors that cause global warming

- i. **The increment of carbon monoxide:** it is the most single factor in global warming. It is caused by road vehicles, burning fossil fuels, and emissions of effluents from industries. Since developed countries are using many industries, they are the major cause for the increment of carbon monoxide.
- ii. **Chlorofluorocarbon:** its main cause is toxic gases that released out of refrigerator and from industrial emission. It is the most damaging of the greenhouse gases. This toxic gas contributes a lot for the increment of the temperature of the earth.
- iii. **Methane:** is released from decaying of organic matter such as waste dumps, animal dung's, and farm land. "Koshe area", around Ayer Tena, was a large open land fill which receives Addis Ababa's waste. This area regularly emits methane gas to the surrounding environment and causes accidental fire.



figure 7.3 Koshe area

Effects of global warming

Global warming has tremendous effects on living things as well as on the environment. Some of its effects are:

- **Melting ice caps and glaciers:** This in turn results rise of sea level and the flooding of low-lying areas;
- **The rise of sea temperature:** This also causes loss of biodiversity;
- **Depletion of ozone layer:** This effect also increases global temperature and various diseases on human beings and other living things.

III. Ozone layer depletion

Start-up Questions

- ✓ What is ozone layer depletion?
- ✓ Describe the importance of ozone layer for living things

Ozone is naturally occurring molecule containing three molecules of oxygen. The ozone layer is found in the stratosphere. It is a layer of gas which absorbs much of the sun's ultraviolet radiation, preventing it from reaching the earth.

Nowadays it is discovered that earth's protective ozone layer is becoming thinner and at some points making holes. Chemicals known as Chloro Fluro Carbon (CFC), used in the cooling system of refrigerators, freezers and air conditioners is the primary cause of ozone layer depletion. The effects of ozone layer depletion on our health and environment are:

- skin cancer
- breathing problem
- losing acquired immunity of a person increasing in air temperature.

IV. Waste disposal

Start-up Questions

- ✓ What is waste disposal?
- ✓ What are the effects of improper waste management?

Disposing of waste has huge environmental impacts and can cause serious problems. Some waste will eventually rot, but not all, and in the process it may smell, or generate methane gas, which is explosive and contributes to the greenhouse effect.

The following are some of waste management mechanisms.

Minimize buying of packed products: As a consumer, you can influence manufacturers to reduce solid waste. If you buy products that have less packaging and products that last longer or that can be used more than once, manufacturers will produce more of those products to satisfy the demand of the consumer.

Recycling: in addition to reducing waste, we need to find ways to make the best use of all the materials we throw away. It is the process of reusing materials or recovering valuable materials from waste or scrap. Making products from recycled materials usually saves energy, water, and other resources.

Composting: can also be an effective way of handling waste from food processing plants and restaurants, manure from animal feed- lots, and municipal sewage sludge. If all biodegradable wastes were composted, the amount of solid waste going to landfills could be reduced.

Do You Know this?

Once you throw away your trash, you probably do not give it a second thought. But where does the trash go? The trash from the wastebasket probably will be picked up by a collection service and taken to a landfill, where the trash will be dumped with thousands of tons of other trash and covered with a layer of soil. What would happen if rainwater ran down into the landfill, and leached a harmful chemical, such as paint thinner, and it seeped into the groundwater? Suddenly, the trash that was not bothering anyone is causing an environmental problem.

V. Loss of Biodiversity

Start-up Questions

- ✓ What is biodiversity?
- ✓ What kinds of human activities cause the loss of biodiversity in your locality?

Biodiversity is a term that describes the varieties of life on the Earth. It refers to wide varieties of the ecosystems and living organisms: such as, animals, plants, their habitats and their genes.

The major causes loss of biodiversity are: deforestation, over population, pollution and global warming. It has long been feared that human activities are causing massive extinctions of biodiversity. Unless measures are taken, the loss of biodiversity will continue.

Some of the measures to be taken to save biodiversity are: habitat restoration, seed banking, and preserving nature, reduce climate change, purchase sustainable product and so on.

Activity 7.1A



A. Individual work: Define the following terms

1. Environment
2. Pollution
3. Global warming
4. Waste disposal
5. Biodiversity

B. Group discussion

Discuss on the following question in small groups and present your discussion outcome through your group representative.

1. Describe the human activities impact on the surrounding environment
2. Carefully observe major environmental problems and the effort made to tackle them in your localities and report to the class
3. Make a simple observation on the reuse and recycle of used materials in your localities and report to the class.



7.1.3 Protecting the Environment

These are words/ phrases you should try to learn for this lesson

Top 5 words

- ➔ Afforestation
- ➔ Recycling
- ➔ Reforestation
- ➔ Reducing
- ➔ Reusing

More Key words

- ➔ Environmental actor
- ➔ Environmental problem

Start-up Questions

- ✓ What are the different methods of protecting the environment?
- ✓ Explain how community participation plays an important role for the protection of the environment?
- ✓ Describe your role in protecting the environment in your locality.

Environmental protection is the practice of conserving the natural environment. Environmental protection has invaluable benefits on conserving existing natural environment repairing the damage and reversing trends.

Governments, organizations and individuals are making various efforts and contributing a lot in protecting the environment. Some of the community participation which are essential for the protection of the environments are:

- engaging afforestation and reforestation program,
- educating people about how to protect the environment
- reducing, reusing and recycling plastic materials and others.

Start-up Questions

- ✓ What are reforestation and afforestation?
- ✓ How do you engage in reforestation and afforestation activities in your localities to protect the environment? Discuss

Afforestation: is the planting of trees in area where there were no previous cover of trees..

Reforestation: It is also the process of planting trees on the ground in an area where trees are removed.

Activity 7.1 B



A. Individual work: Define the following terms

1. Afforestation
2. Reforestation

B. Group discussion

Discuss on the following question in small groups and present your discussion outcome through your group representative.

1. Describe the importance of community participation in solving environmental problems.
2. Explain your roles as an environmental actor in your localities



7.2 Demographic Overload

Competency: After studying this lesson, you will be able to:

- Discuss the impacts of uncontrolled population growth on natural environment.

These are the words you should try to learn for this lesson

Top 5 words

- Demography
- Population growth
- Desertification
- Uncontrolled population
- Population control

More Key words

- Environmental problem
- Utilization of resources

Start-up Questions

- ✓ What is demography?
- ✓ Describe demographic ‘overload’?
- ✓ Explain the impact of uncontrolled population on the natural environment and present your discussion to the whole class.

The Effect of Uncontrolled Population Growth on the Natural Environment

When there is uncontrolled population growth in a given country, the demand for resources will be so great. This causes improper resources utilization. This is a threat to the environment and obstacle to the development of a country. The Earth’s natural resources can be depleted and destroyed if there is no population control mechanism.

Population overload is a challenge that causes environmental problems like deforestation and desertification, the decrease of farmland, water pollution, the depletion of the ozone layer, and increases the greenhouse effect. Thus, population control helps alienate environmental problems.



Activity 7.2

A. Individual work: Define the following terms

1. Demography
2. Uncontrolled population
3. Natural environment

B. Group discussion

Discuss on the following question in small groups and present your discussion outcome through your group representative.

1. How does uncontrolled population affect the natural environment? Discuss in a group.
2. Make a simple observation in your localities and report the impact of population growth on the natural environment to the class



7.3 Terrorism

Competency: After studying this lesson, you will be able to:

- describe the meaning and impacts of terrorism on socio-economic development and human life.

These are the words you should try to learn for this lesson

Top 5 words

- | | | |
|----------------------|-----------------|---------------------|
| ➤ Crime of terrorism | ➤ Terrorism | ➤ Social disruption |
| | ➤ Terrorist act | ➤ Threat |

More Key words

- | | | |
|--------------|------------|---------------|
| ➤ Chaos | ➤ Disorder | ➤ Freedom |
| ➤ Conspiracy | ➤ Endanger | ➤ Instability |

Start-up Questions

- ✓ What is terrorism?
- ✓ What are the consequences of terrorism on socio-economic development and human life?

Terrorism is commonly understood as the act of violence that target civilians in the pursuit of political or ideological aims. It is the deliberate act of endangering the lives or properties of people, denying the freedom of a person or a group of person. Terrorism includes criminal acts intended or calculated to provoke a state of terror in the general public, a group of persons or particular persons for political purposes. It includes “unlawfully and intentionally” causing, attempting or threatening to cause:

- a. death or serious bodily injury to any person;
- b. serious damage to public or private property, including a place of public use, state or government facility, a public transportation system, an infrastructure facility or the environment;

Terrorism touches every aspects of economic, social, cultural, and political life of the people. Terrorism brings every types of violence to the society, loss of lives, social disruption, environmental loss, destructions of properties, damage to the infrastructure, loss of confidence, bring fear, anxiety, depression and so on.

Activity 7.3



A. Individual work: Define the following term

- Terrorism

B. Group discussion

Discuss on the following question in small groups and present your discussion outcome through your group representative.

- Describe the economic, social and psychological impacts of terrorism



7.4 Human Trafficking

Competency: After studying this lesson, you will be able to:

- explain causes and consequences of illegal human trafficking

These are the words you should try to learn for this lesson

Top 5 words

- | | |
|---------------------|-----------------------|
| ➤ Child trafficking | ➤ Poverty |
| ➤ Exploitation | ➤ Trafficking victims |
| ➤ Human trafficking | |

More Key words

- | | |
|--------------------|-------------------------|
| ➤ Anxiety | ➤ Emotional health |
| ➤ Child marriage | ➤ Gender discrimination |
| ➤ Child soldiering | ➤ Substance abuse |

Start-up Questions

- ✓ What is human trafficking?
- ✓ Describe child trafficking?
- ✓ What do you think about the consequences of child trafficking for the victim?
- ✓ Explain the causes and consequences of human trafficking

Human Trafficking is the transportation, recruitment or harboring of people through force, threat or coercion for the purpose of exploitation. It is currently catching the attentions of most governments and international organizations because of its severe health consequences and subsequent social crisis.

Causes of Human Trafficking

There are various causes for human trafficking. Some of them are: -

- Poverty, war, natural disaster and search for a better life
- Demand for cheap labor
- Generates a huge profit (for the trafficker)

Human trafficking in Ethiopia has occurred internally and externally in the form of adult and child labor and commercial sex trafficking. There were also some reports of organ trafficking and other closely related human rights violations, such as child marriage, and exploitative inter country adoption.

Child Trafficking can be defined as any person under 18 years' old who is illegally recruited, transported and harbored for the purpose of exploitation, either within or outside the country.

The consequences of Human Trafficking

Human trafficking victims may suffer physically and psychologically like inhumane living condition, poor sanitation, inadequate nutrition, and poor personal hygiene, physical and emotional attacks by the hands of their traffickers, dangerous work place condition and occupational hazards. In addition, victims may suffer from problems like feelings of sever guilt, stress and disorder, depression, fear and anxiety.

Activity 7.4



A. Individual work: Define the following terms

1. Human trafficking
2. Child trafficking

B. Group discussion

Discuss on the following question in small groups, and present your discussion outcome through your group representative.

- Describe the causes and consequences of human trafficking





UNIT SUMMARY

- **Environment:** Environment is the real world that has living as well as nonliving things of surrounding on the earth.
- **Pollution:** is the introduction of harmful materials into the environment
- There are three major types of pollutions. These are: water, air and land pollutions.
- The major causes of water pollution are sewage waste, industrial waste, and agricultural pollutants
- Air pollution is the mixture of solid particles and gases in the air. It's basically caused dose to dusts, chemicals and smokes emitted from factories, and cars.
- Land pollution is a result of dumping garbage, waste and other toxin making the land contaminated
- Ozone is naturally occurring molecule containing three molecules
- Disposing of waste has huge environmental impacts and can cause serious problems
- When there is uncontrolled population growth in a given country, the demand for resources will be very high.
- Terrorism is the deliberate act of endangering the lives or properties of people, denying the freedom of a person or a group of person.
- Terrorism affects the socio-economic status of a person and the country
- Human trafficking is transporting, recruiting, harboring a person by threat and force for the purpose of exploitation

Glossary

Afforestation: is planting trees formerly not covered with trees.

Bio diversity: refers to wide varieties of the ecosystems and living organisms: such as, animals, plants, their habitats and their genes.

Carbon monoxide: it is the most single factor in global warming. It causes by road vehicles, by burning fossil fuels, and emissions from industries

Child trafficking: is illegally transporting, recruiting, harboring a person under the age of 18 years old by threat, coercion for the purpose of exploitation.

Chloro fluoro carbon: a family of chemical containing chlorine

Demography: is the study of human populations and how they change.

Environment: it is the natural world as a whole or in particular geographical area especially as affected by human activities.

Global warming: The slow increase in the temperature of the earth caused partly by the greenhouse effect, increasing the amount of carbon dioxide in the atmosphere

Human trafficking: is illegally transporting, recruiting, harboring of people by threat, coercion for the purpose of exploitation

Methane: released from decaying of organic matter such as waste dumps, animal dung's, and farm land

Ozone: is a highly reactive gas composed of three oxygen atoms.

Reforestation: is planting trees on land once they were covered by plant but from which the trees have been removed

Terrorism: is the act of endangering the lives and properties of people

REVIEW EXERCISE FOR UNIT SEVEN

I. True or False

Direction: Write “True” if the statement is correct and write “False” if it is incorrect

1. Pollution is the introduction of harmful materials into the environment.
2. Excessive use of chemical fertilizers helps to reduce land pollution.
3. Supporting terrorist act is not a crime of terrorism.
4. Recycling used materials helps to protect the environment.
5. Human trafficking is helpful for the promotion of peace and development.

II. Matching

Direction: Match the items in column “A” with items in “B”

A

B

- | | |
|---------------------|--|
| 1 Reforestation | A. The study of human population |
| 2 Demography | B. Planting trees where non exist before. |
| 3 Human trafficking | C. The act of endangering peoples’ lives |
| 4 Afforestation | D. Illegal transporting of people |
| 5 Terrorism | E. Planting trees on land where they are cut down. |

III. Multiple choices

Direction: Choose the correct answer from the given options.

1. Which one of the followings is a method to reduce air pollution?
A. the burning of wood and coal C. the use of public transport
B. causing wild fire D. burning solid waste
2. Which One of the following has a positive influence on the environment?
A. Deforestation C. Overpopulation
B. Pollution D. Conservation
3. The following are the major factors, that affect wild animals except:
A. Over grazing C. Deforestation
B. Afforestation D. Illegal hunting

4. Which one of the followings is a crime of terrorism?
 - A. endangering the lives and properties of a person or a group of person
 - B. contributing one's own talent for the development of the country
 - C. respecting national symbol and anthem
 - D. cooperation to advance national unity and integrity
5. The following are the main sources of soil pollution except:
 - A. Fertilizers
 - B. sewages
 - C. Pesticides
 - D. Solid waste

IV. Fill in the blank: Fill the following blanks with appropriate word

1. _____ is a highly reactive gas composed of three oxygen atoms
2. _____ is the mixture of gases around the earth

V. Short answer: Give short answers for the following questions.

1. List the effects of ozone layer depletion?
2. Describe the consequences of terrorism on socio-economic development

Check List

Put a tick (✓) mark in each of the boxes for activities you can perform

I can

- 1 examine human activities impact on the surrounding environment ☐
- 2 explain the importance of community participation in solving environmental problems ☐
- 3 reflect my role and identity as environmental actor in my locality ☐
- 4 discuss the impact of uncontrolled population growth on natural environment ☐
- 5 describe the meaning and impacts of terrorism on socioeconomic development and human life ☐
- 6 explain the causes and consequences of illegal human trafficking ☐



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