



ETHIO NATIONAL SCHOOL

2020 G. C 4TH QUARTER GEOGRAPHY LESSON NOTE FOR GRADE 12



☞ Dear students: - Copy the note and do the given homework on your exercise book!

Subject: Geography

Grade & section: 12(A)

Unit:

Main topic: Temperature Conditions in Africa

Sub topic/s:

Page range from:

MONDAY, JUNE 16, 2020

Temperature Conditions in Africa

- Spatially, lowlands (coastal areas) and the desert and semi desert areas of Africa experience the highest temperatures in the continent.
- The Sahara, the largest desert in the world, has the highest temperature.
- The Kalahari Desert in the south has relatively cooler temperatures as a result of the cold Benguela Ocean current.
- The Ethiopian and East African highlands, on the other hand, have lower temperature condition as a result of their high altitude.
- The Atlas of Morocco and Cape Ranges of South Africa have the lowest temperature in the continent as a result of **their high altitudinal and latitudinal location**.
- The distribution of temperature in Africa also has seasonal variation. Such variation is the result of the **apparent movement of the overhead sun** between the two tropics.
- The months **of December, January and February** constitute the **summer season in the southern hemisphere**. During this time, the sun is overhead, south of the equator. As a result, areas of high temperature are found in Southern Africa.
- **The Northern and northeastern** parts of the continent remain relatively **cool and dry** in **December, January and February**.
- The **summer season in the northern hemisphere** corresponds with the months **of June, July and August**.
- This season is a season of high sun angle in Africa north of the equator.
- Hence, the Sahara and other parts of Northern Africa experience high temperature conditions. In contrast, the areas south of the equator are characterized by lower temperatures at this time.

Rainfall Distribution in Africa

- The distribution of precipitation (rainfall) in Africa is controlled by the Inter Tropical Convergence Zone (ITCZ).
- The position of ITCZ is, in turn, determined by the position of the overhead sun
- In July the overhead sun is located near the Tropic of Cancer. Hence, winds that carry moisture from the Atlantic and Indian Oceans, the Guinea monsoon (equatorial westerly) and the southeast trade winds, invade parts of Africa north of the equator, causing the region to receive high rainfall
- In this season, West African coastal areas, the Ethiopian highlands, and eastern Madagascar get their heavy rainfall.
- In January, the sun is overhead near the Tropic of Capricorn, pulling the northeast trade winds southward over Africa. These winds are continental in origin, carrying limited or no moisture.
- In this season, therefore, Northern Africa remains dry, except for the Maghreb region, where the Mediterranean type of climate dominates.
- **Southern Africa**, however, gets its maximum rainfall from the **southeast trades of the Indian Ocean**.
- **The Congo Basin gets** rainfall from the **moist winds of the Atlantic Ocean**.
 - ❖ The **Guinea monsoon(equatorial westerly)** winds from the **Atlantic Ocean** bring rainfall to the **north of Africa up to the southern fringes of the Sahara in July**
 - ❖ Moist winds from the Atlantic Ocean and the southeast monsoon winds from the Indian Ocean bring rainfall to Southern Africa in January
 - ❖ The westerly winds bring rainfall to the Maghreb region of North Africa and the Cape Province of South Africa in their respective winter seasons. Summer is not the wettest season in these places
 - ❖ Summer is a season of heavy rainfall in all parts of Africa, except in the Sahara desert and the Mediterranean-climate regions
 - ❖ Winter is dry in all parts of Africa, except for the equatorial and Mediterranean climate regions

Climatic Regions of Africa

- A climatic region is a geographical area with more or less similar climatic characteristics mainly of temperature and rainfall.
- There are seven main climatic regions in Africa.

➤ The Equatorial Climate

- ✓ The parts of Africa that are found around the equator have this type of climate.
- ✓ The region surrounds the equator extending between 6°N and 6°S latitudes
- ✓ This climatic region is dominant in Western and Central Africa.
- ✓ The region has a high mean annual and mean monthly temperature due to the high angle of the sun.
- ✓ Temperatures remain high throughout the year, averaging more than 27°C annually, and rarely falling below 21°C.
- ✓ Most of the time, the annual range of temperature of this region is between 1°C to 3°C.
- ✓ This climatic region is particularly known for its wetness.
- ✓ Rainfall is high, normally exceeding 1,500 mm per year, and it reaches 3,200 mm in some places.
- ✓ The region receives extremely high amount of total annual precipitation throughout the year.
- ✓ In this region, the convectional type of rainfall is dominant.

➤ Tropical Continental (Savanna) Climate

- ✓ This climatic region is found between 5°N and 15°S north and south latitudes.
- ✓ It occurs north and south of the tropical wet zone, in many parts of Western Africa and Southern Africa and in most of Madagascar.
- ✓ The region is situated between the wettest and driest climate zones of the continent. (Zone of transition)
- ✓ In this region, summer is very hot, with an average temperature of 25°C, and winter is cool, with an average temperature of slightly above 15°C.
- ✓ A well-defined dry season of three to eight months, with annual rainfall ranging between 500 and 1,500 mm
- ✓ A progressive decline in total annual rainfall, north and south wards

- ✓ That part of the savanna which borders the equatorial rainfall region receives high rainfall, with that amount decreasing as distance from the equator increases
 - ✓ Slightly higher ranges of temperature than the equatorial climatic zone, with the range increasing with distance from the equator
 - ✓ High daily temperatures averaging more than 30°C in its northern section throughout the year, with relatively lower temperatures in its Southern and eastern sections, due to higher altitudes.
- **The Tropical Desert and Semi-desert Climate**
- ✓ This type of climate is found bordering the tropical savanna climatic region, especially in north central and Southern Africa.
 - ✓ There are two types of deserts in Africa. These are the coastal and continental deserts.
 - ✓ The coastal type includes deserts that are found along the western coast of the continent, like the Namib and Western Sahara.
 - ✓ In contrast, the Sahara, which constitutes Africa's continental type of desert, is located north of the equator.
 - ✓ A short rainy season of up to three months. There are about 250 to 500 mm of rain per year in the semi-desert areas and less than 250 mm in the desert regions
 - ✓ Variable, unreliable and insufficient precipitation, which hinders plant growth
 - ✓ High daily average temperature, which ranges between 25°C and 36°C
 - ✓ Significant annual temperature variations and also extreme fluctuations in temperature over the course of a day. For instance, in the Sahara desert, daytime summer temperatures exceed 50°C, but winter night temperatures drop below freezing.
- **Tropical Maritime (Monsoon) Climate**
- ✓ The tropical monsoon climatic region is found only in the southern hemisphere, dominating areas that are located on the southeast coast of Africa.
 - ✓ The region's characteristics are similar to those of the tropical climates, with heavy rainfall almost throughout the year. This characteristic is the result of the warm Mozambique Ocean Current
 - ✓ The Mozambique warm ocean current has both warming and wetting effect on the region

- ✓ Temperature is high throughout the year, with summer being the hottest season, and winter being warm
- ✓ Low annual range of temperature, which is similar to, but relatively higher than, that of the equatorial climatic regions.
- **Warm Temperate Continental Climate**
 - ✓ This climatic region is confined to the southern part of Africa, especially to the high Veld (temperate grasslands) of the Republic of South Africa
 - ✓ The region is the smallest of all the climatic zones in the continent.
 - ✓ Higher rainfall and cooler temperature conditions characterize it.
 - ✓ The region's climate is influenced by the high altitude of the area. Rainfall is controlled mainly by the onshore winds that blow from the Indian Ocean.
- **Highland (Mountain) Climate**
 - ✓ It is dominant in the equatorial and tropical highlands and plateau regions of the continent.
 - ✓ Ethiopian and East African highlands and the higher parts of South Africa (The Drakensberg mountain region) and the Atlas Mountains region of northern Africa have this type of climate.
 - ✓ The climate is similar to the temperate climate of the world.
 - ✓ Temperature is cool, with small annual ranges. Some areas are covered by permanent snow, as on Kilimanjaro and Kenya mountains.
 - ✓ The region also experiences high rainfall, mainly of orographic origin. The rainfall increases with the rise in altitude.
- **Mediterranean Climate**
 - ✓ The Mediterranean climatic region is found in the northern and southern tips of Africa.
 - ✓ The Maghreb region in the north, from Morocco to northern Libya and the Cape Province of South Africa are the main areas that have this type of climate.
 - ✓ In this region, summer is not the rainy season. Most of the rain falls in winter, with a total annual rainfall that ranges from 250 mm to 1000 mm.
 - ✓ The region is one of the most attractive climatic zones in the continent. Many tourists visit the region every year.

THURSDAY, JUNE 18, 2020

Drought in Africa

- Drought is a condition of unusually dry weather within a geographic region
- The severity of a drought is measured in terms of the degree of moisture deficiency, its duration, and the size of the area affected.
- Disastrous droughts occur mostly at latitudes of about 15°-20°, in areas bordering the permanently arid regions of the world.
- The continent (Africa) is one of the most drought-affected areas in the world.
- Major causes of drought in Africa include unwise use of natural resources, including **deforestation, overgrazing and over cropping, expansion of farm lands and settlements, and the resultant environmental degradation.**
- EL-Nino (abnormal change in the direction of moist winds due to heating of oceanic surfaces) also contributing for the occurrence of drought
- **The Sahel region** of Africa is one of the extremely drought-affected areas in the continent. The region is a transitional zone between the Sahara on the north and the wetter tropical areas to the south.
- Desertification of the Sahel was aggravated by extended drought between the late 1960s and early 1980s, the worst in 150 years.
- Desertification is the process whereby soil loses its ability to retain moisture, and then desert encroaches on arable land.
- Desertification is shrinking the size of the Sahel (meaning changing it into a typical desert) and causing famine in many parts of the region.
- The drought in the Sahel region of West Africa, which began in the late 1960s and lasted until the early 1980s, was the worst drought of the 20th century.

FRIDAY, JUNE 19, 2020

DRAINAGE SYSTEMS OF AFRICA

The Major Rivers and Drainage Systems of Africa

- The entire area that a river drains is called its **catchment area or drainage basin**
- A group of drainage basins, which are supplied by multiple rivers, with common characteristics, such as a common destination, form **a drainage system**

- Nine major rivers drain the African continent. These are the **Nile, Congo, Zambezi, Limpopo, Orange, Niger, Volta, Gambia and Senegal** rivers.
- There are four drainage systems named after the direction and destination of the rivers

The Atlantic Ocean Drainage System

- ✓ This system is made up of all major rivers that drain westward and southward and empty into the Atlantic Ocean.
- ✓ The system is the largest in terms of **catchment area, annual discharge and drainage density**.
- ✓ It accounts for about **90 percent of the continent's surface flow**.
- ✓ The major river basins that constitute this system are the **Congo, Niger, Volta, Gambia, Orange and Senegal** basins
- ✓ CONGO river is the largest in terms of volume of water in Africa
- ✓ VOLTA river is divided into three parts: Black Volta, White Volta and Red Volta

The Mediterranean Sea Drainage System

- ✓ This drainage system includes all the major rivers that flow northwards into the Mediterranean Sea.
- ✓ The system has only one major river basin, which is the Nile. The Nile is the longest river in the world.
- ✓ Two major tributaries, namely the White Nile and Blue Nile, form the Nile proper when they converge in the Sudan, at Khartoum.
- ✓ The White Nile originates from Lake Victoria in Uganda, while the Blue Nile emerges from Lake Tana in Ethiopia, near Bahir Dar
- ✓ The Nile flows generally northwards through the Sudan and Egypt and empties into the Mediterranean forming an extensive delta in north Egypt.

The Indian Ocean Drainage System

- ✓ The Indian Ocean Drainage System includes all the major rivers that flow eastwards into the Indian Ocean.
- ✓ This system is the second largest system, in Africa in terms of drainage density, catchment area and annual discharge.
- ✓ The Zambezi, Wabishebele and Juba river basins are the major basins in this system. the last two are from Ethiopia

The Closed (Inland) Drainage System

- ✓ The rivers of Africa that do not have direct access to the sea form this drainage system
- ✓ Most of the rivers in this system have multiple flow directions. This makes the system different from the rest of the drainage systems in Africa.

- ✓ This drainage system covers nearly 32% of the total area of the continent. It receives nearly 4% of the continent's total annual runoff.
- ✓ The river basins included under this system are:
 - Awash and Ghibe/Omo rivers in Ethiopia
 - Okovango Swamp in Botswana
 - Sudd Basin in the Sudan
 - Danakil Basin in Ethiopia and Eriterea
 - Lake Chad Basins (The largest inland basin in the continent)