TAVUA COLLEGE

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WEEKLY HOME STUDY PACKAGE - WEEK 2 (12/07/21 – 16/07/21)

Subject	**GEOGRAPHY**	**Year/Level**	**12C/D**
Strand	HUMAN GEOGRPHY		
Sub-strand	3.3 – AGRICULTURE AND FOOD SUPPY		
Content Learning Outcome	**Geo 12.2.2.1** Discuss the significance of the agricultural sector in providing food supply and source of income and analyze its importance in food security.		

LESSON NOTES

Topic: Physical factors affecting agriculture.

Objective: How physical factors such as climate, climate change, relief, soils affect agriculture.

Physical factors are environmental factors that influences the growth of crops. Physical factors include:

1. Climatic factors such as light, water and rainfall, temperature, air and wind also affect farming in various ways.
   - **Light** – Light is critical in plant photosynthesis (the process of manufacturing food in plants as sugars) and chlorophyll (the green pigment in plants) production. The intensity (degree or level of light brightness a plant receives), quality (specific light wavelengths) and day length (the duration plants receive light in a day) of light affects plant growth and development.
   - **Water and Rainfall** – Water promotes animal and plant life. The availability of water affects crop growth and development, and thus yield. Water irrigation can double farm yields, increasing the number of crops grown in a single year. The frequency and amount of rainfall varies based on the prevailing type of climate and location. Water and rainfall determine the specific vegetation type that dominates and grows in any specific location. Therefore, they affect the growth and yield of crops.
   - **Temperature** – Temperature is the degree or level of coldness or hotness of a substance, expressed in centigrade (C) or degree Celsius and degree Fahrenheit (F). Plants mature earlier in hot areas with high temperatures because photosynthate translocation occurs faster.
   - Temperature rise increases chemical reaction rates and enzyme activity in crops. On the other hand, extremely high temperatures limit the growth and development of crops.
   - **Air** in the troposphere comprise of 21% oxygen, 78% nitrogen and 1% argon gases, including carbon dioxide and traces of other gases. Crops require oxygen during respiration to produce energy used in different plant growth and development processes. During.
   - **Wind** causes physical damage to the crops, spreads pest and diseases and increases rate of transpiration in crops hence water and mineral uptake.

2. Climate change can disrupt food availability, reduce access to food, and affect food quality.
   - For example, projected increases in temperatures, changes in precipitation patterns, changes in extreme weather events, and reductions in water availability may all result in reduced agricultural productivity.
   - Increases in the frequency and severity extreme weather events can also interrupt food delivery, and resulting spikes in food prices after extreme events are expected to be more frequent in the future.
   - Increasing temperatures can contribute to spoilage and contamination.

3. **Topography/Relief** – Topography relates to how difficult it is to till land, soil erosion and poor transportation networks and facilities.
    - Agriculture can be mechanized depending on the topography of land to be used. It's impossible to use farm machinery on sloppy land or rough, hilly slopes.
    - Steep slopes hinder machinery and have thinner soils; lower, more gentle slopes are less prone to soil erosion.
    - Lowlands, such as flood plains, are good for crops.
    - Tea and coffee crops prefer the well-drained soil on hill slopes.
    - South-facing slopes receive more sunlight.

4. **Soil** – Crops thrive in rich, loamy soils with proper drainage.
    - Soils with poor texture and harsh chemicals are low in productivity. Therefore, poor soils inhibit plant growth and development.
    - Fertility is important; poor soil means lower outputs or larger inputs of fertilisers.
    - Floodplains are good for rice because of the alluvial soils.
    - Good drainage reduces the dangers of waterlogging.

ACTIVITY:

1. List four physical factors that affect agriculture.

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2. How does wind affect crops.

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3. State two ways by which soil affects the growth of plants.

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_____**(2 marks)**

4. Describe the environmental conditions that may lead to low crop yields.

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