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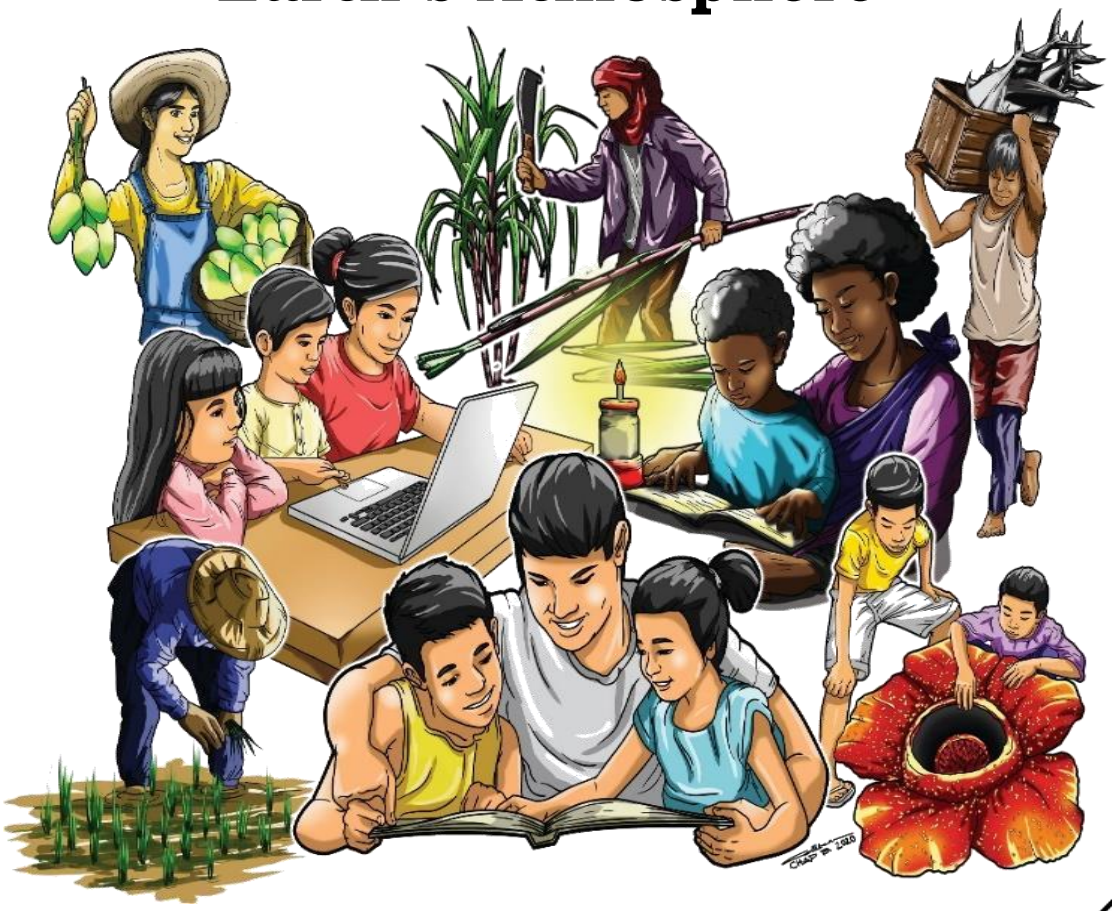
DepED
DEPARTMENT OF EDUCATION

Science Activity Sheet
Quarter 4 - MELC 3
Week 3
Sun's Energy and Layers of the Earth's Atmosphere



REGION VI-WESTERN VISAYAS

Science 7
Activity Sheet No. 3 – Sun's Energy and Layers of the Earth's Atmosphere
First Edition, 2021

Published in the Philippines.
By the Department of Education
Region 6 - Western Visayas

This **Learning Activity Sheet** is developed by Sipalay City Division, DepEd Region 6 - Western Visayas.

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Introductory Message

Welcome to **Science Grade 7!**

The **Learning Activity Sheet** is a product of the collaborative efforts of the Schools Division of Sipalay City and DepEd Regional Office VI - Western Visayas through the Curriculum and Learning Management Division (CLMD). This is developed to guide the learning facilitators (teachers, parents and responsible adults) in helping the learners meet the standards set by the K to 12 Basic Education Curriculum.

The **Learning Activity Sheet** is self-directed instructional materials aimed to guide the learners in accomplishing activities at their own pace and time using the contextualized resources in the community. This will also assist the learners in acquiring the lifelong learning skills, knowledge and attitudes for productivity and employment.

For learning facilitator:

The **Science Activity Sheet** will help you facilitate the leaching-learning activities specified in each Most Essential Learning Competency (MELC) with minimal or no face-to-face encounter between you and the learner. This will be made available to the learners with references/links to ease the independent learning.

For the learner:

The **Science Activity Sheet** is developed to help you continue learning even if you are not in school. This learning material provides you with meaningful and engaging activities for independent learning. Being an active learner, carefully read and understand the instructions then perform the activities and answer the assessments. This will be returned to your facilitator on the agreed schedule

Name of Learner: _____

Grade and Section: _____ Date:_____

SCIENCE 7 ACTIVITY SHEET NO. 3
Sun's Energy and Layers of the Earth's Atmosphere

I. Learning Competency

Discuss how energy from the Sun interacts with the layers of the atmosphere **(S7ES-IVd-5)**

II. Background Information for Learners

The ultimate source of energy of the Earth is the Sun. It emits light and heat energy that reaches the Earth by passing through the layers of the atmosphere. It drives the weather by warming the air. The energy of the sun enables the plants to produce its own food as part of the food chain and for animals to sustain life.

Table 1 below shows the different layers of Earth's atmosphere and their characteristics.

Table. Characteristics of the different layers of the atmosphere.

Layer of the Atmosphere	Characteristics
Troposphere	The lowest layer-the part we live in. It has the average height of 10 to 18 kilometers above the ground. The actual temperature varies from day to day depending on the weather. Temperature above the ground is hotter than the temperature high above. This is the layer where it contains most of the water vapor making our weather possible. Without water there will be no clouds, rain, snow or other weather features. Air is constantly moving. Aircraft flying in this layer may have a very bumpy ride (turbulence)
Stratosphere	The next layer of the atmosphere. It extends to the height of 50 kilometers from the surface of the Earth. This is where the ozone layer can be found which absorbs much of the Sun's harmful radiations that could otherwise be dangerous to plant and animal life. (Ozone is a form of oxygen which each molecule contains three atoms of oxygen). Temperature here increases as the height increases because ozone layer absorbs ultraviolet light from solar radiation. Most "shooting star" (or meteorites) are burned up in this layer.
Mesosphere	The layer between 50 to 80 kilometers above the Earth's surface. In this layer the air is thin and cold, thus as the height increases, temperature decreases. Meteors or rock fragments burn up. The coldest layer of the atmosphere.
Thermosphere	This is in between 80 to 110 kilometers above the Earth. This is where the space shuttles fly, and it is also where the auroras are found

	(Auroras are caused when the solar wind strikes gases in the atmosphere above the poles).
Exosphere	The upper limit of our atmosphere. This is between 500 to 1000 kilometers from the Earth. This layer of the atmosphere merges into space. Satellites are stationed in this area.

III. Accompanying DepEd Textbook and Educational Sites

Department of Education. (2017). K-12 Basic Education Curriculum, Science 7 Learners Material First Edition (p312-314). Pasig City, Philippines
Department of Education Bureau of Learning Resources (DepEd-BLR), Learners Material First Edition 2017, Pasig City Philippines

IV. ACTIVITY PROPER

When the Sun's energy reaches earth, the atmosphere intercept it first. Certain gases such, as ozone and water vapor, directly absorbed the small part of the Sun's energy. Some of it is reflected back to Earth's surface and space by clouds.

However, the earth's surface absorbed most of the radiation. When the radiation is absorbed by the Earth, it becomes warm. The absorbed energy is transformed into heat energy which plays an important role in regulating the temperature of the earth's crust, surface waters, and lower atmosphere.

Activity 1. Sun's Energy and Layers of the Earth's Atmosphere

Directions: Study the illustration below and answer the questions that follow. Write your answer in the answer sheet.

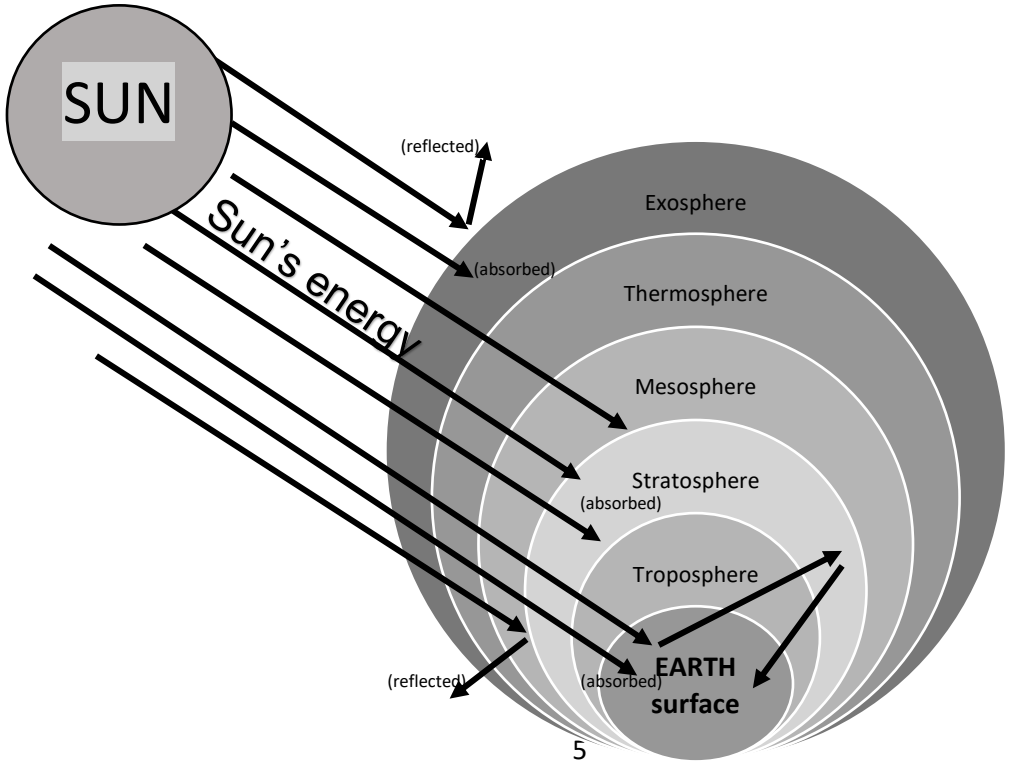

Figure 1. Sun's energy interaction with the different layers of the Earth atmosphere

Guide Questions:

1. In Figure 1, what do you think happens on the sun's energy when it passes through the exosphere?

_____
_____

2. In Figure 1, what do you think happens on the sun's energy when it passes through the stratosphere?

_____
_____

3. Given the illustration, discuss how the sun interacts with the layers of the atmosphere.

_____
_____

V. REFLECTION

After learning how energy from the Sun interacts with the layers of the atmosphere

I think…

_____
_____

I believe…

_____
_____

I feel…

_____
_____

I will…

_____
_____

KEY ANSWER

Guide Answers

1. Sun's energy is either absorbed or reflected back in space. Some energy can penetrate through the layer.

2. Some of the sun's energy can easily penetrate through the stratosphere. Some energy are either reflected back or being absorbed by gases within the ozone layer. Some energy that had passed through this layer are trapped inside.

3. As the sun's energy reaches earth, it is intercepted first by the atmosphere. A small part of the sun's energy is directly absorbed, particularly by certain gases such as ozone and water vapor.

Some of the sun's energy is reflected back to space and some are trapped.

Most of the radiation, however, is absorbed by the earth's surface.