	School:		**Grade Level:**	**7**
	Teacher:		**Learning Area:**	**Science**
	Teaching Dates and Time:		**Quarter:**	**Fourth**
			Week:	**Week 5-Day 4**

I. CONTENT, STANDARDS AND LEARNING COMPETENCIES		***ANNOTATIONS***
A. CONTENT STANDARDS	The learners learn that: 1. Sunlight is the Earth's external source of energy.	
B. PERFORMANCE STANDARDS	By the end of the Quarter, learners use reliable scientific information to identify and explain how solar energy influences the atmosphere and weather systems of the Earth and use such information to appreciate and explain the dominant processes that influence the climate of the Philippines.	
C. LEARNING COMPETENCIES AND LEARNING OBJECTIVES	**Explain how energy from the Sun interacts with the atmosphere.** Lesson Objectives: 1. Describe the different layers of the atmosphere. 2. Differentiate the layers of the atmosphere in terms of temperature and altitude. 3. Explain the interaction of solar energy with the layers of Earth's atmosphere. 4. Describe the types of clouds.	
I. CONTENT		
Topic: Sun and the Earth's Atmosphere		
II. LEARNING RESOURCES		

A. OTHER LEARNING RESOURCES	● Pavico, Josefna et.al (2013). Exploring Life Through Science. Phoenix Publishing Inc. ● Pepito, Leah Joy Desamparado-Walan, (2020). Science – Grade 7 Learner's Module First Edition. DepEd – Instructional Materials Council Secretariat (DepEd-IMCS. Pasig City ● Sunshine Trees Green Free Photo. (n.d.). https://www.needpix.com/photo/download/52892/sunshine-trees-green-landscape-sunny-day-bright- white-clouds ● Atmosphere structure-en.svg - Wikimedia Commons. (2014, October 26). https://commons.wikimedia.org/wiki/File:Atmosphere_structure-en.svg ● Cloud types fr.svg - Wikimedia Commons. (2012, January 3). https://commons.wikimedia.org/wiki/File:Cloud_types_fr.svg#/media/File:Cloud_types_en.svg

III. TEACHING AND LEARNING PROCEDURE

BEFORE/PRE-LESSON PROPER

ACTIVATING PRIOR KNOWLEDGE	Lesson Review: Atmosphere Interactions with the Sun and Earth & Elements of Weather **1. The Atmosphere and Its Layers** The **atmosphere** is a protective layer of gases surrounding Earth. It interacts with the Sun's energy and affects weather patterns. The atmosphere is divided into five layers: • **Troposphere** – Closest to Earth, where **weather occurs**. • **Stratosphere** – Contains the **ozone layer**, which absorbs harmful UV rays.	

- **Mesosphere** – Burns up meteors before they reach Earth.
- **Thermosphere** – Produces **auroras** and absorbs high-energy radiation.
- **Exosphere** – The outermost layer, where satellites orbit.

2. How the Sun's Energy Interacts with the Atmosphere

- The **Sun is Earth's main energy source**, providing **heat and light**.
- Solar energy reaches Earth through **radiation** and is absorbed, reflected, or scattered by the atmosphere and surface.
- Heat is transferred in three ways:
  - **Radiation** – Direct transfer of energy from the Sun.
  - **Conduction** – Heat transfer through direct contact.
  - **Convection** – Warm air rises, cool air sinks, creating wind and weather patterns.
- The **greenhouse effect** traps heat in the atmosphere, keeping Earth warm. However, too much greenhouse gas can lead to **global warming**.

3. Elements of Weather

Weather refers to the short-term atmospheric conditions in a specific place. The **six main elements of weather** are:

- **Temperature** – How hot or cold the air is.
- **Air Pressure** – The force exerted by air on Earth's surface.
- **Wind** – Moving air caused by pressure differences.
- **Humidity** – The amount of water vapor in the air.
- **Precipitation** – Forms of water falling from clouds (rain, snow, sleet, hail).
- **Cloud Cover** – Affects sunlight and temperature changes.

4. The Water Cycle and Its Impact on Weather

	The **water cycle** is powered by the Sun and plays a key role in weather formation: 1. **Evaporation** – Water turns into vapor due to heat. 2. **Condensation** – Vapor cools and forms clouds. 3. **Precipitation** – Water falls back to Earth as rain, snow, or hail. 4. **Collection** – Water gathers in oceans, lakes, and rivers. **5. Importance of Studying the Atmosphere and Weather** ● Helps in **weather prediction** and preparation for storms, droughts, and climate changes. ● Raises awareness of **climate change and environmental issues**. ● Helps people understand how **human activities impact the atmosphere** (e.g., pollution, deforestation). **Review Questions** 1. Which atmospheric layer is responsible for weather changes? 2. How does the ozone layer protect living things? 3. What are the three ways heat is transferred in the atmosphere? 4. What are the six main elements of weather? 5. How does the Sun's energy drive the water cycle?	
LESSON PURPOSE/INTENTION	**Lesson Purpose: Types of Clouds** **Purpose of the Lesson:** **Help to understand the different types of clouds and how they are related to weather conditions. By learning about**	

cloud formations, students will develop the ability to observe the sky and predict possible weather changes.

Specific Learning Objectives:

1. Identify and describe the different types of clouds based on their appearance and altitude.
2. Explain how clouds form and their role in the water cycle.
3. Differentiate the three main cloud groups: cirrus, cumulus, and stratus clouds.
4. Predict weather conditions based on cloud types.
5. Understand the importance of clouds in regulating Earth's temperature and precipitation.

Relevance and Application:

- Knowing cloud types helps students predict the weather and prepare for daily activities.
- Understanding clouds supports knowledge of the water cycle and weather patterns.
- Learning about clouds increases awareness of how atmospheric conditions affect the environment.

1. Cloud Matching Game (Classroom Activity)

📌 Materials: Cloud picture cards, cloud type labels (Cirrus, Cumulus, Stratus, Nimbus).

✅ How to Play:

- Mix up the cloud picture cards and name labels.
- Students work in pairs or groups to match each cloud picture with its correct name and weather description.
- The team that gets the most correct matches wins!

1.

2.

ANSWER
1.CIRRUS
2.CUMULUS
3.STRATUS
4.NIMBUS

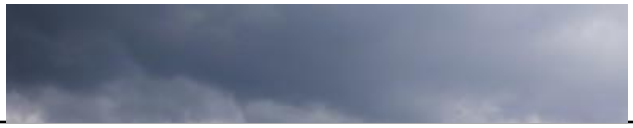
	3.  4. 	
LESSON LANGUAGE PRACTICE	**Vocabulary: Types of Clouds** **Cloud –** A mass of tiny water droplets or ice crystals suspended in the atmosphere. 	

Cirrus Clouds – Thin, wispy clouds found at high altitudes, often indicating fair weather but can signal a change in weather.

Cumulus Clouds – Fluffy, white clouds with a cotton-like appearance, usually indicating good weather.

Stratus Clouds – Low, gray clouds that cover the sky like a blanket and often bring drizzle or light rain.

Nimbus Clouds – Dark, thick clouds that produce rain or storms.



Cumulonimbus Clouds – Towering clouds associated with thunderstorms, heavy rain, and sometimes hail.

Altostratus Clouds – Mid-level clouds that create a grayish layer, often leading to precipitation.

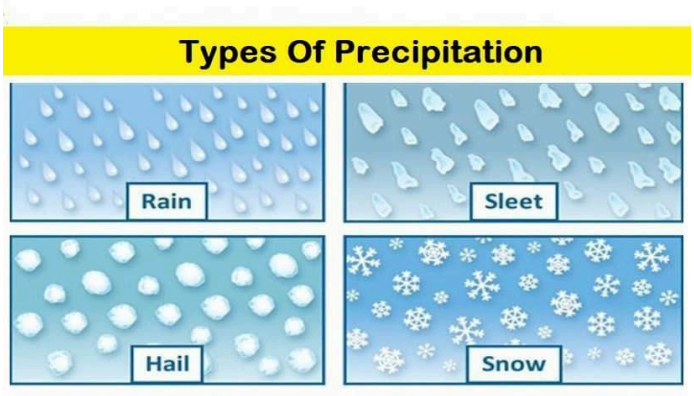
Altocumulus Clouds – Small, white, or gray clouds found at mid-altitudes, often seen before a storm.

Nimbostratus Clouds – Thick, dark clouds that cover the sky and bring continuous rain or snow.

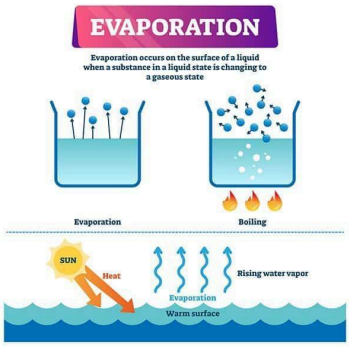
Fog – A cloud that forms near the ground, reducing visibility.

Condensation – The process of water vapor cooling and changing into tiny droplets, forming clouds.

Precipitation – Any form of water (rain, snow, sleet, or hail) falling from clouds to the Earth's surface.

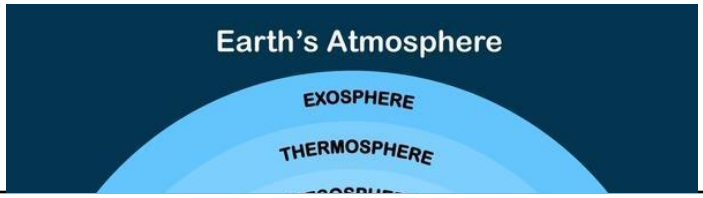


Evaporation – The process of water changing from liquid to gas, leading to cloud formation.



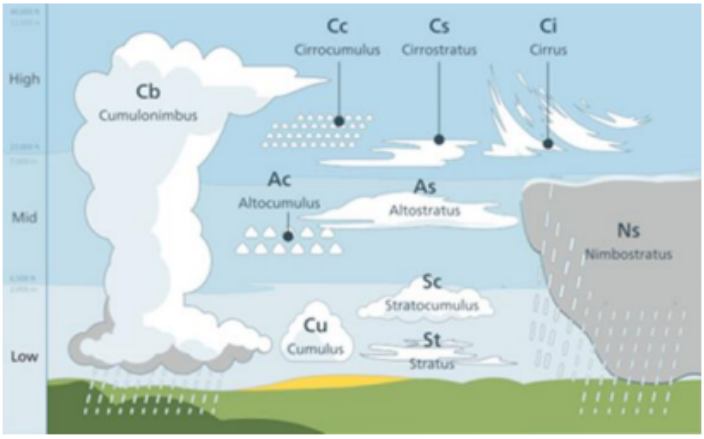
Weather – The condition of the atmosphere at a specific place and time, influenced by cloud cover.

Atmosphere – The layer of gases surrounding Earth, where clouds and weather patterns form.



DURING/LESSON PROPER		
READING THE KEY IDEA/STEM	**Introduction: What Are Clouds?** Clouds are collections of tiny water droplets or ice crystals that form in the atmosphere. They are **important in weather prediction** because different types of clouds indicate different weather conditions. The **formation of clouds** happens when warm air rises, cools, and condenses into tiny droplets around dust or other particles in the air. This process is called **condensation**, which is part of the **water cycle**. **The Three Main Cloud Groups** Clouds are classified based on their **appearance and altitude**. The three main cloud groups are: 1. **Cirrus Clouds (High-Level Clouds)** ○ Appearance: Thin, wispy, and feathery. ○ Altitude: Found at high altitudes (above 20,000 feet). ○ Weather Indication: Usually signal **fair weather**, but can indicate that a change in weather is coming. 2. **Cumulus Clouds (Mid-Level Clouds)** ○ Appearance: Fluffy, white clouds with a cotton-like shape. ○ Altitude: Found at middle altitudes (6,500–20,000 feet). ○ Weather Indication: Usually **fair weather**, but when they grow taller, they can develop into storm clouds. 3. **Stratus Clouds (Low-Level Clouds)** ○ Appearance: Gray, flat, and spread out like a blanket. ○ Altitude: Found at low altitudes (up to 6,500 feet). ○ Weather Indication: Often bring **drizzle, light rain, or foggy conditions**. **Special Cloud Types** Some clouds have special characteristics and are named based on their altitude and weather effects: 1. **Cumulonimbus Clouds** ○ Tall and dark clouds with an anvil shape.	

	- Can reach high into the atmosphere. - Indicate **thunderstorms, heavy rain, lightning, and even tornadoes**. <ol start="2"> **Nimbostratus Clouds** - Thick, dark gray clouds that cover the sky. - Produce **continuous rain or snow**. **Altocumulus Clouds** - Small, puffy clouds found at mid-level altitudes. - Indicate warm, humid weather and can signal a **storm is coming**. **Altostratus Clouds** - Grayish-blue clouds covering most of the sky. - Bring light rain or snow. **Fog** - A cloud that forms near the ground. - Reduces visibility and usually occurs in the morning or after rain. **Why Are Clouds Important?** Clouds play a crucial role in: ✅ **Regulating Earth's temperature** by reflecting sunlight and trapping heat. ✅ **Providing precipitation** (rain, snow, sleet, hail) necessary for life. ✅ **Indicating weather changes** to help in weather forecasting. **What Did We Learn?** - Clouds are **formed by condensation** and classified based on **shape and altitude**. - The **three main types of clouds** are **cirrus, cumulus, and stratus**. - Special clouds like **cumulonimbus** and **nimbostratus** are linked to storms and heavy rain. - Observing clouds helps predict the **weather**!	

DEVELOPING and DEEPENING UNDERSTANDING OF THE KEY IDEA/STEM	**Explicitation (Day 4)** Let the learners answer the riddle. Never resting, never still. Moving silently from hill to hill. It does not walk, run or trot. All is cool where it is not. What is it? I float high above, sometimes white, sometimes gray, I bring **Worked Example** Have the students take a look outside and look at the clouds. If the weather is not suitable for observations, show pictures of the different types of clouds. Let the students describe the clouds according to appearance. Determine which clouds are cumulus, stratus, and cirrus. **Lesson Activity** Analyze the illustration of clouds at different altitudes. and use the illustration to identify the types of clouds asked below.  **Guide Questions:** **1.** What are the thick, dark clouds that cover the sky at low to middle altitudes and bring continuous, steady precipitation? **2.** What type of cloud is often associated with fair weather and has a fluffy, white appearance?	Answer key: Sun, Clouds The teacher needs to explain the characteristics of each cloud to deepen the concept. The teacher may discuss that clouds are formed within specific layers of the atmosphere, primarily the troposphere, which is the lowest layer where weather phenomena occur. Different types of clouds form at different altitudes within the troposphere, depending on factors such as temperature, humidity, and air currents.

	3. Which type of cloud is characterized by a uniform layer or sheet covering the sky, often resulting in overcast conditions? **4.** What are the towering clouds with extensive vertical development, often associated with thunderstorms, heavy rain, and lightning? **5.** Which type of cloud is thin and wispy, composed of ice crystals, and typically found at high altitudes? **6.** What are the mid-altitude clouds that appear as gray or blue-gray sheets covering the sky and often precede storm systems? **7.** What type of cloud is characterized by rounded masses or rolls and often appears in clusters or patches at mid-altitudes? **8.** Which cloud type is low-altitude and forms in layers or patches with a mix of cumulus and stratus characteristics?	**Answer Key:** 1. Nimbostratus clouds 2. Cumulus clouds 3. Stratus clouds 4. Cumulonimbus clouds 5. Cirrus clouds 6. Altostratus clouds 7. Altocumulus clouds 8. Stratocumulus clouds
AFTER AFTER/POST-LESSON		
MAKING GENERALIZATIONS AND ABSTRACTIONS	**Learners' Takeaway** Complete the sentence cloze by choosing the correct answer from the given word bank The 1) _____ is composed of gases that surround the Earth, providing oxygen for life and protecting the planet from harmful solar radiation. The 2)_____ is the lowest layer of the atmosphere, where weather phenomena occur, while the 3)_____ is above it and contains the ozone layer. Next, the 4)_____ extends higher into the atmosphere, where temperatures decrease with altitude. The 5)_____, located above the mesosphere, contains charged particles and is responsible for auroras. Finally, the outermost layer, the 6)_____, gradually transitions into outer space. As altitude increases in the atmosphere, temperatures generally 7)_____ in the troposphere, 8)_____ in the stratosphere due to the presence of the ozone layer, then 9)_____ again in the mesosphere, and finally 10)_____ in the thermosphere due to absorption of solar radiation. atmosphere decrease exosphere increase mesosphere thermosphere troposphere stratosphere **Reflection on Learning** Instruct the learners to read the statement and assess their skills and knowledge using the color of traffic lights.	**Answer Key:** 1. atmosphere 2. troposphere 3. stratosphere 4. mesosphere 5. thermosphere 6. exosphere 7. decrease 8. increase 9. decrease 10.increase Teachers may use online tools or applications to present the learners' takeaways.

	Ask them to shade the box with an appropriate color that describes their skills and understanding of the concepts **No, I cannot do it.** **Yes, I can do it alone.** **Yes, I can do it and apply my learnings.** after the lesson. **Statements** / **Before the lesson** / **After the lesson** 1. I can describe the different layers of the atmosphere. 2. I can differentiate the layers of the atmosphere in terms of temperature and altitude. 3. I can explain the interaction of solar energy with the layers of Earth's atmosphere. 4. I can describe the different types of clouds	
EVALUATING LEARNING	**Directions:** Read each question carefully and choose the best answer. Encircle the letter of your choice. The correct answers are provided below. **1. Which type of cloud is thin, wispy, and found at high altitudes?** a) Cumulus b) Stratus c) Cirrus d) Nimbostratus **2. What type of cloud looks like fluffy cotton balls and usually means fair weather?** a) Cumulus b) Stratus c) Cumulonimbus d) Nimbostratus **3. Which cloud type covers the sky like a blanket and often brings drizzle or light rain?** a) Cirrus b) Cumulus	**ANSWER** **1.C** **2.A** **3.C** **4.A** **5.B** **6.C** **7.C** **8.C** **9.B** **10.B**

c) Stratus
d) Altocumulus

4. What cloud type is associated with thunderstorms and heavy rainfall?
a) Cumulonimbus
b) Cirrus
c) Altostratus
d) Fog

5. Which type of cloud forms near the ground and reduces visibility?
a) Stratus
b) Fog
c) Altocumulus
d) Cirrus

6. What cloud type is dark and thick, producing continuous rain or snow?
a) Cirrus
b) Cumulus
c) Nimbostratus
d) Altocumulus

7. If you see altocumulus clouds in the morning, what kind of weather might follow?
a) Clear and sunny skies
b) Light drizzle
c) A thunderstorm later in the day
d) Heavy snow

8. What do cirrus clouds usually indicate about the weather?
a) Rain is coming soon
b) A hurricane is approaching
c) Fair weather, but possible weather changes
d) A thunderstorm will occur in an hour

9. Which cloud type has a towering shape and can produce strong winds, lightning, and even tornadoes?
a) Stratus
b) Cumulonimbus
c) Altostratus
d) Cirrus

10. What is the main process that causes clouds to form?
a) Evaporation
b) Condensation
c) Precipitation
d) Radiation

ADDITIONAL ACTIVITIES FOR APPLICATION OR REMEDIATION (IF APPLICABLE)		
REMARKS		
REFLECTION		

Prepared by:

_____

Subject Teacher

Reviewed by:

_____

Master Teacher/Head Teacher