Discuss:

• Which objects in our Solar System travel around other objects?
• What do you think the climate in your region depends on?
You will:
• understand how the Earth, the Moon and the Sun are related.
• recognize the Moon phases.
• identify the Earth’s spheres and their characteristics.
• differentiate between weather and climate.
• describe the Earth’s climate zones and their characteristics.
• understand how organisms adapt to different climates.

Module Project
Plants in a Greenhouse!
Let’s make a greenhouse for plants to grow.
1. Observe the images below. With a partner, describe what you see. Use words like hot, cold, rainy, windy, sunny, cool, snowy or cloudy.

2. Listen to the meaning of the Key Words and match.

Key Words
1. precipitation
2. temperature
3. weather
4. climate
5. wind
6. humidity
Are Weather and Climate the Same Thing?

Weather describes the conditions of the atmosphere at a specific place and time. These conditions include temperature, cloud cover, humidity, wind, precipitation, sunlight and rain. The weather can change quickly. On the same day, it can rain for one hour and then it can become sunny and clear.

Climate describes the weather of a place over a long period. Climate can change, but it happens slowly over the years. The difference between weather and climate lies in time: weather describes the short-term conditions of the atmosphere, while climate describes the long-term atmospheric conditions of a region.

Hot or Cold?

The climate of a place is partially determined by its position in relation to the Sun. The part of the Earth that is closest to the Sun is called the Equator. Places close to the Equator have hotter climates than those farther away from it. Temperature is one of the factors that influence the climate of an area. For example, tropical climates have an average temperature of 18°C, while polar climates have temperatures below 10°C.

Why Do We Use Umbrellas?

Rain is a kind of precipitation. Precipitation is any form of water, liquid or solid, that falls from the sky. Snow, sleet and hail are all types of precipitation that consist of frozen water.

Observing

3. Listen to the description and write the words that complete the diagram.

Science Facts

Sweat has a cooling effect when it evaporates on the body. However, when you sweat in a very humid place, the air is so full of water vapor that there is very little space for sweat to evaporate and cool you down.

Feeling Hot and Sticky?

Humidity is the amount of water vapor in the atmosphere. Humidity is high when there is a lot of water vapor in the air. You may feel hot and sticky in places where humidity is high.
Why Does My Kite Fly?

**Wind** is moving air. We can’t see it, but we know it is there when it makes tree leaves move. Wind is caused by differences of pressure in the atmosphere, which occur because the air heats up unevenly. Warm air tends to move upwards and cold air tends to move downwards. This attempt to equalize pressure causes wind.

While warm air moves upwards, cold air moves downwards, occupying the space the hot air left. This movement is what causes wind.

**Wind and Weather Phenomena**

Wind can be soft like a summer breeze or become very strong in a hurricane. Wind can also be very destructive. It is an important element of dangerous storms such as tropical cyclones and tornadoes. These phenomena usually occur in places with high humidity and that undergo drastic temperature changes.

The air temperature in two places may be the same, but sometimes one of them seems colder. This is due to wind chill, which happens when our body temperature goes down as cold wind passes by. That’s why sometimes a place feels colder than it really is.

Comparing and Contrasting

4. Go back to the texts of this lesson and complete the following Venn diagrams.

<table>
<thead>
<tr>
<th>Climate</th>
<th>Both</th>
<th>Weather</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image1.png" alt="Climate Diagram" /></td>
<td><img src="image2.png" alt="Both Diagram" /></td>
<td><img src="image3.png" alt="Weather Diagram" /></td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Precipitation</th>
<th>Both</th>
<th>Humidity</th>
</tr>
</thead>
<tbody>
<tr>
<td><img src="image4.png" alt="Precipitation Diagram" /></td>
<td><img src="image2.png" alt="Both Diagram" /></td>
<td><img src="image5.png" alt="Humidity Diagram" /></td>
</tr>
</tbody>
</table>

Measuring

Use a **thermometer** to **measure** the temperature of two different amounts of **water** (20 ml and 60 ml) poured in **2 different plastic containers**. Place both samples under direct sunlight for 20 minutes and then **measure** their temperature again.

Which sample of water warmed up faster? What does the quantity of water in a sample have to do with how fast it warms up?
I Want to Be a Scientist

Mini Lab

Water and Temperature Working Together

You Need
1. plastic wrap
2. 2 thermometers
3. 2 large glass jars
4. tree leaves
5. dark soil
6. sand
7. scissors
8. water

Experimenting
What is the relationship between water and the temperature of planet Earth? Let’s make an experiment to find out.

How to Do It
1. Half-fill the jars, one with sand and the other one with dark soil. Place the same amount of tree leaves in each jar.
2. Add water to the jar with dark soil (just enough to make the soil wet.)
3. Put a thermometer inside each jar. Make sure you can read both of them.
4. Cover the jars with plastic wrap.
5. Place the jars outdoors, under direct sunlight if possible, and read the temperature of each jar in the morning, at noon and in the evening for two days.

Explain Your Results
1. What differences were there between the temperatures of both jars as days went by?
2. What climate is similar to the jar with sand? Why?
3. What role do Sun and water play in the experiment? How are they related?

Reading a Map

5. Read about meteorologists and follow the instructions. Meteorologists tell you what the weather will be like on a certain day. They use computers to predict or forecast the weather. In a weather report, you can see different symbols that represent the meteorologists’ predictions.

a. Observe the weather forecast map for different cities in South America and answer:
   • What will the weather be like in Santiago de Chile and in Buenos Aires?
   • What will the weather be like in Brasilia and in La Paz?

b. Color and cut out the symbols in the Cutout Page. Practice being a weather reporter. Take turns telling the class what the weather will be like in different cities around the world.

Weather Symbols

thunderstorms  windy  cloudy  clear and sunny  snow  rainy  partly cloudy