

Meteorologists

Cross-Curricular Focus: Earth Science



Meteorology is the scientific study of the weather. The scientists who specialize in this area are called **meteorologists**. Their job is to collect data, make observations about the data and interpret the data. To interpret means to say what they think the data means. Their goal is to make informed predictions about what kind of weather we can expect.

Most weather systems in the United States move from the west to the east. Meteorologists track weather patterns to the west. Then they can be reasonably sure of the kind and severity of the weather that is approaching the areas that lie to the east.

Technological advances over the years have made the work of the meteorologists more and more respected. Over time, their ability to make accurate predictions has increased. Using computers, meteorologists are able to design and print weather maps. The maps show approaching weather patterns and how they are likely to behave when they reach us. They are filled with colorful symbols that show the different strengths and temperatures of wind, cloud formations, and storm systems.

Doppler radar stations provide meteorologists with radar images of weather all over the United States. They make it possible to anticipate weather systems sooner, and to understand how strong they are. Weather balloons are sent up into the higher levels of the atmosphere to gather data and take pictures. Satellites relay weather data from high above Earth down to reporting stations.

In addition to their high-tech computers and radar systems, meteorologists have some basic weather instruments that have been around for many years. We are all familiar with the first one: a thermometer. A thermometer allows us to measure the air temperature using either the Celsius or Fahrenheit scale. The United States mostly uses the Fahrenheit scale. An anemometer is used to measure the speed of the wind as it blows. A weather vane, or wind vane, is used to show the direction the wind is blowing. A barometer measures air pressure. In spite of all these tools, there is always a little bit of mystery involved in the weather.

Name: _____

Answer the following questions based on the reading passage. Don't forget to go back to the passage whenever necessary to find or confirm your answers.

1) Which direction do most weather systems move in the United States?

2) Do you think it is easier or harder than it used to be to be a meteorologist? Explain your thinking.

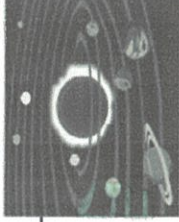
3) Name two technologically advanced tools that a meteorologist uses.

4) What is the central idea of this reading passage?

5) What is an anemometer?

The Inner Planets

Cross-Curricular Focus: Earth Science



Earth is just one of the planets in our solar system. Planets are large bodies that rotate around the sun. They reflect its light and warmth. The planets that are located closest to the sun are made out of rocky material. They are relatively small and heavy. In contrast, the planets that are farther away from the sun are much larger. They are formed of light gases. All planets follow a certain path around the sun. They are held a specific distance from the sun by the sun's strong gravitational force.

The inner planets, or those closest to the sun, are Mercury, Venus, Earth and Mars. Even though these planets are all small and rocky, they have more differences than they have things in common.

Because Mercury is the closest to the sun, the side that faces the sun gets as hot as 427° Celsius. At the same time, the side that faces away from the sun is a freezing -173° Celsius. Mercury also has a slower rate of rotation than Earth. Days and nights on Mercury are much longer than ours. The extreme temperatures alone make it a very unlikely place for life. With an atmosphere too thin for human breathing, it's obvious that people won't be living on Mercury any time soon.

The next planet from the sun is Venus. Below clouds of sulfuric gas lies its 96% carbon dioxide atmosphere. That might be nice for a plant, since a plant "breathes" carbon dioxide, but not for a person. If you managed to survive the atmosphere, the surface of the planet is hot enough to melt solid metal. In addition, the pressure of the air would be strong enough to crush you.

You are probably most familiar with Earth because it is your home planet. It has the perfect conditions for life. Earth's atmosphere and oceans help control the trickiest part of making a planet life-friendly: temperature. Earth is the only planet known to have liquid water.

Mars is the fourth farthest from the sun. Mars has been studied and photographed more than any other planet besides Earth. Some people think it may be possible for life to exist there. Although scientists have not been able to find actual water on Mars, there seems to be evidence of water erosion on its surface. Its canyons and mountains are very similar to those found on Earth. The main difference is that there is no plant life. Some scientists believe that Mars may have been very much like Earth until something happened that made the water supply evaporate.

Name: _____

Answer the following questions based on the reading passage. Don't forget to go back to the passage whenever necessary to find or confirm your answers.

1) What keeps planets rotating a specific distance from the sun? _____

2) Earth is the only know planet to have what important feature? _____

3) Why is the atmosphere of Venus more friendly to plants than humans? _____

4) Why is there such a the huge difference in temperature between the two sides of the planet Mercury? _____

5) Do you think that people will ever be able to colonize other planets in the future? Why or why not? _____