**March 23 Predicting Weather Stations 5-6**

**Station 5: Reading about Meteorologists**

Directions: Read the text below, then answer the multiple-choice questions.

1 Imagine being glued to the television watching your favorite show. A newsperson breaks in, saying, "We are sorry to interrupt your local programming. The National Weather Service has just issued a severe thunderstorm warning for the following counties…" A weather map fills the TV screen. The severe weather message scrolls across the bottom of the screen as the newsperson delivers information about the oncoming storm. If this fires up your curiosity, you should pay particular attention to the person who just took over your TV show.

2 The newsperson is a meteorologist. Meteorologists do not break into your TV show just to annoy you. They track a storm and determine its severity before interrupting. Warning you and the viewing area of its approach is all part of their job. Meteorologists may have to work into the night to ensure the public has the latest information about dangerous storms.

3 The path to being a meteorologist begins in college. Interested students must study meteorology, the science of Earth's atmosphere, weather, and climate. A meteorologist needs a college degree in meteorology. By predicting the weather on a daily basis, this science affects almost everyone's life every single day.

4 By the time you see a meteorologist on the local evening news, she has already been hard at work. She has studied wind speed, areas of high and low pressure, precipitation patterns and temperatures. All this information is necessary to give accurate accounts of the weather in your town and surrounding areas. As you start a new day, you should prepare for the weather conditions that you might face. As with anything involving Earth, sometimes a weather forecast might not be 100% accurate. Maybe the meteorologist predicted sunny skies, but a rain shower pops up in the late afternoon. This doesn't mean that the meteorologist didn't do a good job. Mother Nature can sometimes be a bit tricky to predict, even for a meteorologist.

5 Some meteorologists have the excitement of being on TV and predicting the weather or warning you about storms. Others study how storms such as tornadoes and hurricanes form. Meteorologists analyze past weather patterns and use current technology such as satellites in space, which give them instant readings of current weather systems. Meteorologists seek ways to predict violent storms in order to save lives with a more advanced warning system.

6 Meteorologists are also concerned about Earth's environment. They develop computer-based models that predict how human activity might affect Earth's weather in the future. Climate change is becoming an important issue that needs immediate attention. With increasing global temperatures, weather patterns will continue to become more dangerous. Meteorologists try to educate people about activities that contribute to climate change.

7 Next time you watch the evening news, pay attention to the meteorologist. The person giving you the forecast is someone with a career in Earth science. A meteorologist helps predict atmospheric, weather, and climate conditions on Earth. If this sounds exciting, then a career in meteorology may be the choice for you!

**1.** Which statement best describes a meteorologist?

**A** A person who gives information about the weather

**B** A person who studies weather and climate conditions on Earth

**C** A person who studies Earth

**D** A person who studies meteors in space

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**2.** Meteorologists study how tornadoes and hurricanes form. What are they hoping to learn?

**A** Meteorologists hope to be able to predict violent storms faster and save lives by creating a more advanced warning system.

**B** Meteorologists hope to be the first to go inside a tornado.

**C** Meteorologists hope to learn how to stop a tornado or hurricane before it starts.

**D** Meteorologists want to be able to track violent storms.

3. Complete the following analogy:

COACH : FOOTBALL PLAYS : : METEOROLOGIST : _____

**A** SEDIMENT

**B** WRITING

**C** SUN

**D** PRECIPITATION PATTERNS

4. Why is being a meteorologist an important career?

**A** Meteorologists give news forecasts.

**B** Meteorologists help people prepare for the weather on a daily basis.

**C** Meteorologists aren't really important in determining what the weather will do.

**D** Meteorologists like to chase storms.

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5. What is the main point of paragraph 6?

**A** Meteorologists are involved in studying how catastrophic weather events affect the environment.

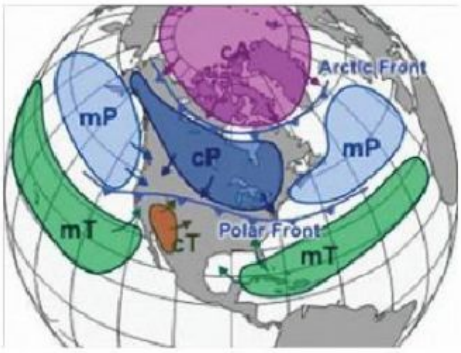
**B** Meteorologists must earn a college degree and get specialized training.

**C** Meteorologists are involved in studying how human activity affects the environment and weather patterns.

**D** Predicting weather patterns is only a small part of a meteorologist's job.

**Station 6: Air Masses and Weather**

Directions: As you read the paragraphs below, write a one sentence summary beside each paragraph.




Several types of air masses influence the United States. Air masses located over water are called *maritime* (m). They tend to be more humid than *continental* air masses (c), which are located over land. Air masses near the equator are called *tropical* (T). They tend to be warmer than *polar* (P) or *arctic* (A) air masses, which are nearer the poles.

**Air Masses and Fronts**

Air moves across Earth's surface in huge volumes called *air masses*. Each air mass possesses a characteristic temperature (warm or cool), pressure (high or low), and moisture content (humid or dry). In various combinations, these properties can change the weather where the air mass flows.

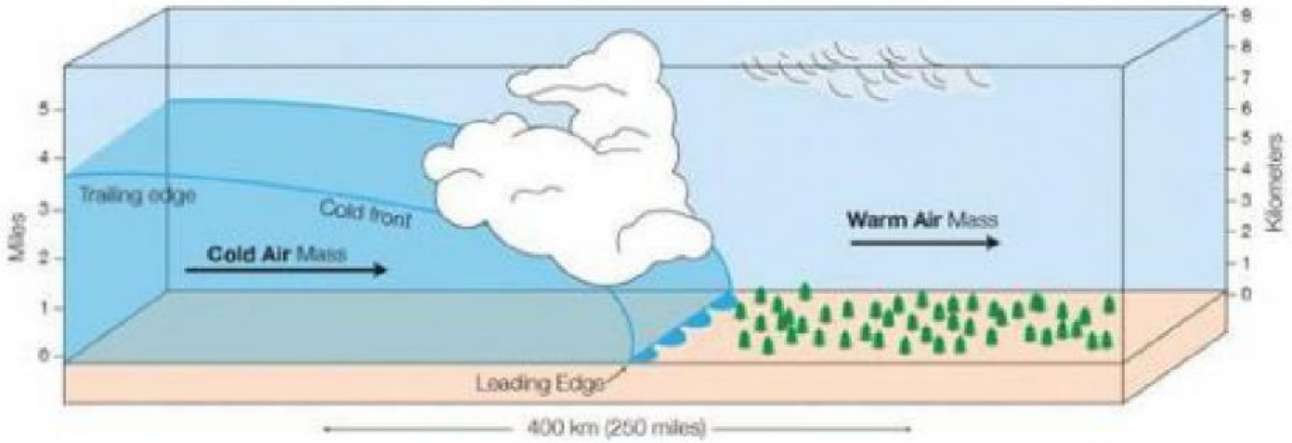
Paragraph 1 Summary:

The leading edge of an air mass is called a *front*. A front is also the boundary between two air masses, where weather often changes. Weather scientists, or *meteorologists*, identify three major kinds of front: cold fronts, warm fronts, and stationary fronts.

Paragraph 2 Summary:

A *cold front* is the leading edge of a cold, dry air mass that pushes against a mass of warm air. Because cool air is denser, it flows beneath the warm air at a cold front. This collision between cold and warm air masses often produces strong storms followed by fair weather. On a weather map, a cold front is usually indicated by blue triangles, as you can see on the next page. The triangles point in the direction of the front's movement.

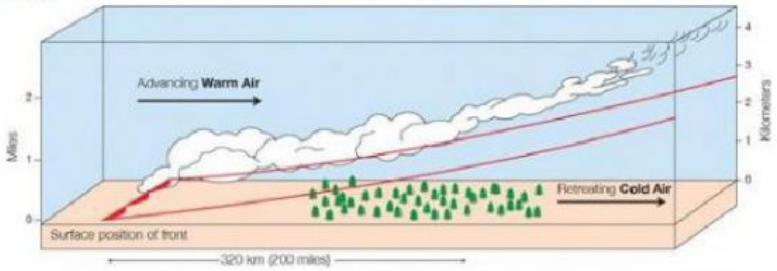
Paragraph 3 Summary:




At a cold front, a cold air mass forces itself beneath a warm air mass.

A *warm front* is the leading edge of a warm, humid air mass that pushes against a mass of cold air. Because warm air is less dense, it flows over the cold air at a warm front. This collision between warm and cold air typically produces overcast skies and rain. On a weather map, a warm front is represented by red half-circles. The rounded portions of the half-circles point in the direction of the front's movement.

Paragraph 4 & 5 Summary:



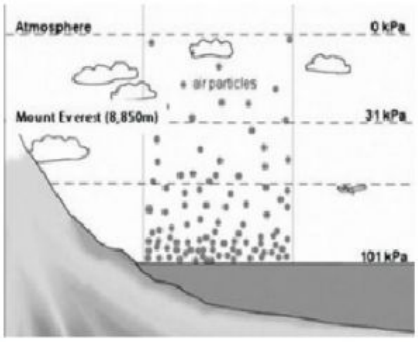

At a warm front, a warm air mass rises above a cold air mass.

Sometimes a front may stall over an area. Such a front is called a *stationary front*. On a weather map, a stationary front is represented by alternating red half-circles and blue triangles that point in opposite directions. The weather at such a front tends not to change for as long as the front stays in place. Stationary fronts usually produce long periods of rain.

## Air Pressure and Weather

*Air pressure* refers to the weight of a column of air over a particular location on Earth. Denser air masses exert greater pressure because they contain more particles of air per unit volume. On a weather map, high- pressure air masses are labeled with the word "high" or the letter "H." Low- pressure air masses are labeled with the word "low" or the letter "L." Each type of air mass is associated with certain kinds of weather:

- Low-pressure air masses usually produce stormy weather.
- High-pressure air masses usually produce calm, clear weather.
- Low-pressure air masses contain winds that flow counterclockwise and upward toward the center of the air mass.
- High-pressure air masses contain winds that flow outward from the center of the air mass in a clockwise direction.




Particles of cool air sink toward Earth's surface, creating areas of high pressure. Particles of warm air rise into the atmosphere, creating areas of low pressure. The air pressure at the top of Mt. Everest (measured in kPa, or kilopascals) is more than three times lower than at Earth's surface.

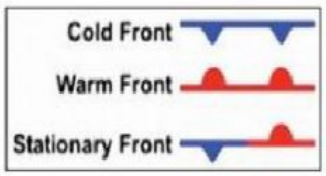
Paragraph 6 Summary:

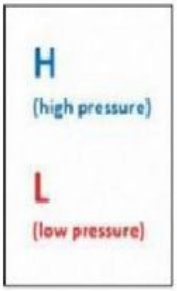
**Weather Maps**

A weather map provides data about current weather conditions at a particular location. It also shows the movements and characteristics of air masses in that location. Meteorologists use these data to forecast upcoming weather conditions.

Paragraph 7 Summary:

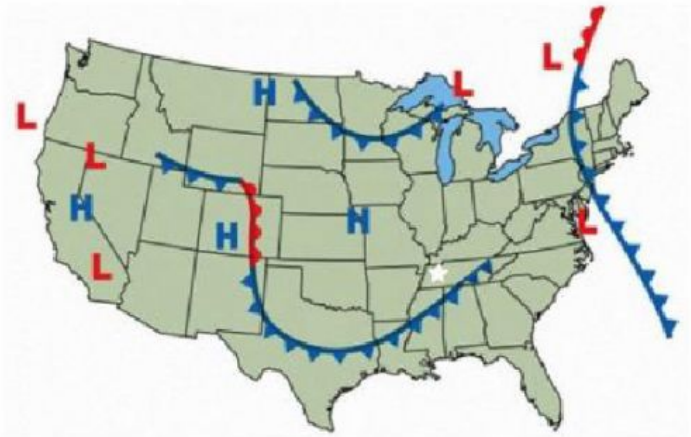
A weather map contains symbols, numerals, and words or letters that describe such factors as temperature, air pressure, wind speed and direction, cloud cover, fronts, and types of weather such as rain, snow, fog, thunderstorms, and hurricanes. Some of these symbols are below.




## Try Now

Examine this weather map. Locate the part of Tennessee marked with a star. Then answer the questions on the next page.




| Questions | Answers |
|---|---|
| 1. Is this part of Tennessee experiencing high or low pressure? | |
| 2. What kind of front is this part of Tennessee experiencing? | |
| 3. Based on this information, what kind of weather do you think this part of Tennessee is experiencing? | |