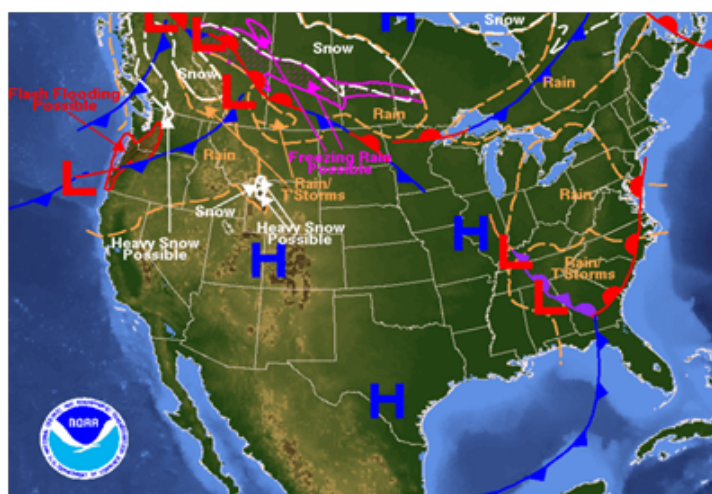


Weather Meteorology and Weather Maps

Meteorology is the study of processes in the Earth's atmosphere that cause different weather conditions. Meteorologists, such as TV weather specialists, try to predict what the weather will be. They study weather patterns and carefully observe temperature. They also consider other factors that affect weather like humidity, wind speed, and air pressure.

Today, meteorologists can use **satellite**¹ pictures to study the weather. Satellites can show fronts. A "front" is the edge between a cold **mass**² of air and a warm mass of air. The outer edge of a mass of warm air is called a "warm front." The outer edge of a mass of cold air is called a "cold front." Have you ever seen your weather forecaster describe the movement of fronts? Have you ever looked at a weather map? Here are the symbols that weather maps use to identify cold fronts and warm fronts:



¹ **satellites**- cameras in space that circle the earth and can take pictures of the atmosphere

² **mass**- a lump, piece, or amount of anything without any clear shape or size

Look at the warm front. Do you see the red half circles pointing up? They show that the air is rising. Remember that warm air always rises. The curved line represents the front of the air mass.

Look at the symbol for the cold front. See how the blue triangles on the curved line are pointing downwards? This means that the cold air is falling. Remember how cold air has more pressure than warm air, and it falls? The cold air is falling down and forcing the warm air to move up.

Cold fronts can cause thunderstorms. Thunder happens when warm air gets trapped beneath cold air and heats up the cold air really fast. This also creates lightning. Thunder and lightning actually happen at the same time. Thunder is the sound caused by lightning, and lightning is the flash we see. Did you know that light travels faster than sound? This is why you can see a boll of lightning before you hear the crash of thunder. If you count the seconds between a flash of lightning and a roll of thunder, you can **estimate**³ how many miles away a storm is. Every five seconds you count means that the lightning is one mile away.

³ **estimate**- a rough guess about the amount, distance, or cost of something

Name: _____

Date: _____

1. Look at where a cold front meets a warm front. The sets of arrows are pointing in opposite directions because:
 - a. They stand for air.
 - b. Cold air rises and warm air falls.
 - c. Warm air rises and cold air falls.
 - d. Air is moving.

2. The line between the arrows in the picture shows:
 - a. Where warm air and cold air meet
 - b. The outline of clouds
 - c. The place where clouds form
 - d. Temperature

3. Which of the following is not true about satellites?
 - a. Satellites show the movement of fronts.
 - b. Satellites take pictures of the Earth's atmosphere.
 - c. Satellites orbit the Earth.
 - d. Satellites are attached to the roofs of houses.

4. Which happens last in the sequence of a thunderstorm?
 - a. Warm air begins to rise.
 - b. Cold air moves in quickly.
 - c. The cold air rapidly changes temperature.
 - d. The warm air is trapped beneath the cold air.

5. This passage is mostly about:
 - a. Predicting the weather using fronts
 - b. How to become a meteorologist
 - c. The world's coldest cold front
 - d. The differences between warm and cold thunderstorms

6. If you see a flash of lightning and then count four seconds before you hear thunder, how many miles away from a storm are you?

7. What do meteorologists do?

8. The question below is an incomplete sentence. Choose the word that best completes the sentence.

Thunderstorms start _____ warm air gets trapped under cold air.

- a. before
- b. unless
- c. when
- d. maybe

9. Answer the following questions based on the sentence below.

When a meteorologist sees a cold front, she knows a thunderstorm is coming.

Who? a meteorologist

(knows) What? _____

When? _____

10. **Vocabulary Word:** estimate: make a guess about something using information.

Use the vocabulary word in a sentence: _____
