

Warm Fronts, Cold Fronts, and How to Read the Map

Name: _____

Date: _____

Class: _____

Read the lesson at myweatherrock.com/journal/explainers/warm-and-cold-fronts (or the printed copy), then answer below.

Remember

An air mass is a huge body of air that has sat somewhere long enough to take on that place's temperature and moisture. A front is the boundary where two of them meet. A cold front wedges under the warm air ahead of it and shoves it up fast, so its weather is short, sharp, and followed by clearing. A warm front slides up a long shallow ramp over the cool air ahead, so its weather arrives a day early as thickening clouds and settles in as steady rain. On the map: blue triangles for cold, red half circles for warm, both pointing the way the front is moving.

Questions

1. What is a front?

- ☐ A. A band of heavy rain
- ☐ B. The boundary where two different air masses meet
- ☐ C. The center of a storm

2. Why does a cold front produce short, sharp weather while a warm front produces long, steady weather?

- ☐ A. Cold air holds more moisture
- ☐ B. The wedge lifts warm air fast over a narrow strip; the ramp lifts it gently over hundreds of miles
- ☐ C. Warm fronts only happen at night

3. The clouds have spent all day arriving high and thin, then lowering and thickening. What is coming?

- ☐ A. A warm front
- ☐ B. A cold front
- ☐ C. A stationary front

4. On the map, the blue triangles along a front point:

- ☐ A. Toward the cold air behind it
- ☐ B. North, always
- ☐ C. In the direction the front is moving

5. What is an occluded front?

- ☐ A. A front that has stopped moving
- ☐ B. A cold front that caught up to a warm front and lifted the warm air off the ground
- ☐ C. A front with no weather along it

In your own words

Yesterday the clouds arrived high and thin, then lowered and thickened all day until a steady rain set in overnight. Which kind of front visited, and how do you know it was not the other kind?

Answer key (for the teacher)

1. What is a front?

B. The boundary where two different air masses meet — A front is the boundary between air masses of different temperature and moisture. The rain is a frequent consequence, not the definition.

2. Why does a cold front produce short, sharp weather while a warm front produces long, steady weather?

B. The wedge lifts warm air fast over a narrow strip; the ramp lifts it gently over hundreds of miles — Advancing cold air drives under warm air and throws it up fast. Advancing warm air climbs a shallow ramp over the cold air ahead. Fast narrow lift means brief violence; slow wide lift means patient rain.

3. The clouds have spent all day arriving high and thin, then lowering and thickening. What is coming?

A. A warm front — That slow lowering schedule is warm air sliding up the ramp, announcing a warm front as much as a day ahead. Cold fronts send a wall, not a schedule.

4. On the map, the blue triangles along a front point:

C. In the direction the front is moving — The symbols on any front point the way it is headed, which means they point at whoever gets the weather next.

5. What is an occluded front?

B. A cold front that caught up to a warm front and lifted the warm air off the ground — Cold fronts move faster than warm ones. When one catches the warm front ahead of it, the warm air mass gets hoisted entirely aloft, and the map draws the result in purple.