

AIM | What happens when air masses meet?

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Warm and cold air masses do not mix. When warm and cold air masses meet, they *collide*. The masses “battle” each other. The meeting causes many weather changes.

The boundary between two air masses is called a *front*. One kind of front is called a *warm front*.

A WARM FRONT FORMS WHEN A MOVING WARM AIR MASS PUSHES AGAINST A COLD AIR MASS.

The warm air of the front pushes *upward*. It flows over the top of the cooler air mass.

Many clouds form along a warm front. They may reach out for 1,600 kilometers (1,000 miles) or more.

At first there are only thin cirrus clouds high in the sky. Then stratus clouds move in. *Slowly*, the clouds become lower and lower. Finally, it rains. If the temperature is low enough, it snows.

Precipitation along a warm front is even and steady. It keeps falling until the front passes. It may last a few days. Then the weather becomes clearer and warmer.

WHAT A WARM FRONT LOOKS LIKE

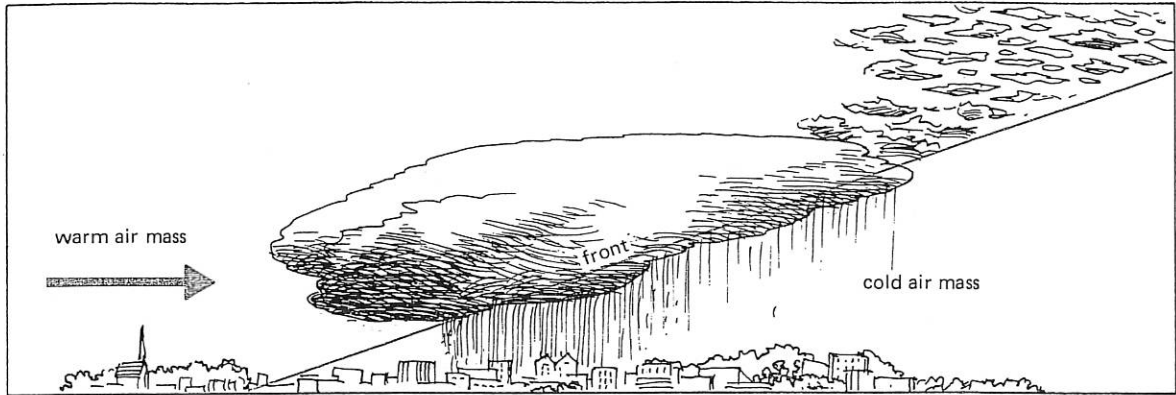


Figure A

Figure A shows a warm front. Find the two air masses. The warm air pushes upward and flows over the cold air. Many clouds form where the two air masses meet.

See for yourself how a warm front brings weather changes slowly.

What To Do

1. Get a thin piece of paper. Tracing paper would be best.
2. Put your paper over Figure B and trace it.
3. Now put the traced drawing over Figure C, lining up the x's.
4. Slowly, move the tracing to the right over Figure C until the y's match up.

Now imagine yourself to be at spot y. What would you see? What would you feel?

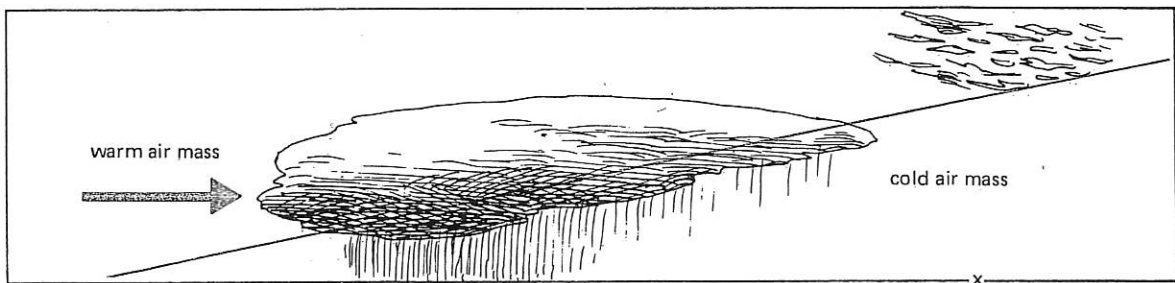


Figure B^y

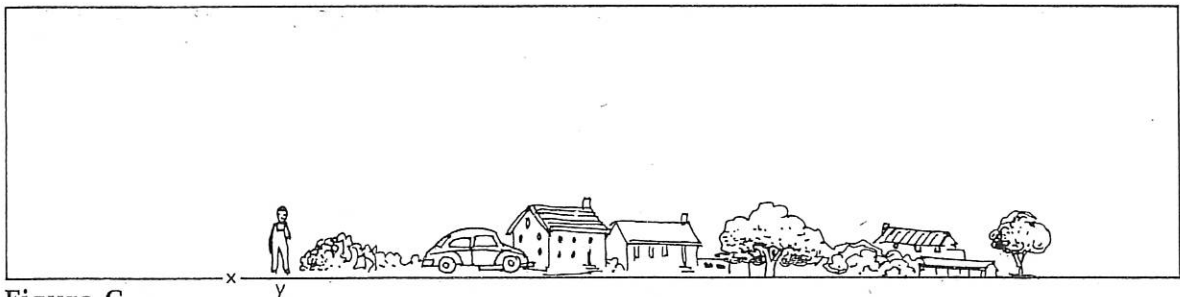


Figure C

WARM FRONT ON A WEATHER MAP

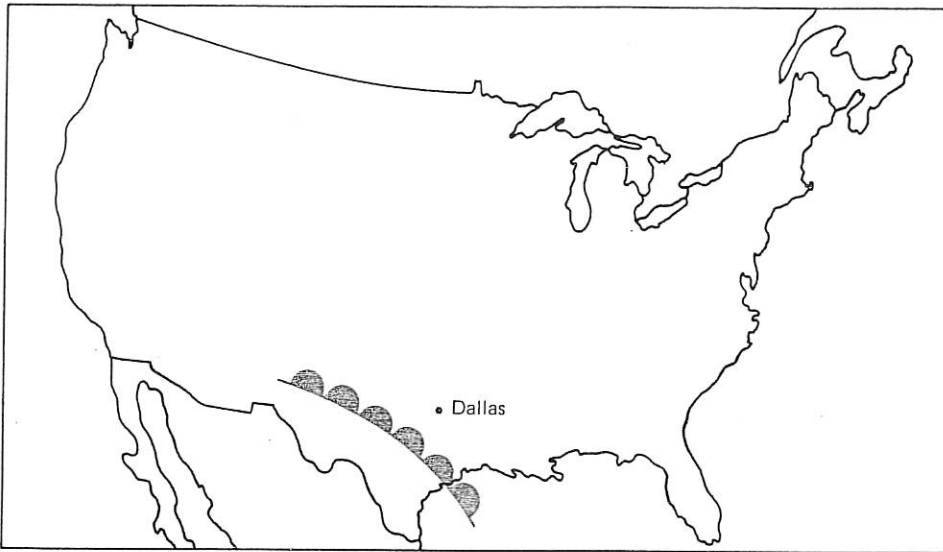


Figure D


The symbol for a warm front is . Figure D shows what it looks like on a weather map.

The warm front on this map is moving towards Dallas. Its speed is about 24 kilometers (15 miles) per hour. Dallas is 240 kilometers away.

In how many hours will the warm front reach Dallas? _____

COMPLETING SENTENCES Complete the sentences with the choices below.

darker
many weather changes
front passes
rain or snow

boundary
lower
warm front


“battle each other”
clear and warmer
clouds

1. A front is the _____ between two air masses.
2. When warm air and cold air meet, they _____.
3. A front brings about _____.
4. A warm air mass that pushes a cold air mass is called a _____.
5. A warm front forms many _____.
6. The clouds along a warm front slowly become _____ and _____.

7. A warm front brings steady and even _____.
8. Precipitation along a warm front continues until the _____.
9. After a warm front passes, the weather becomes _____.
10. The symbol for a warm front is _____.

FIND THE PARTS Figure E shows a warm front.

Find the parts listed below. Write the correct letter on each space and fill in the blanks.

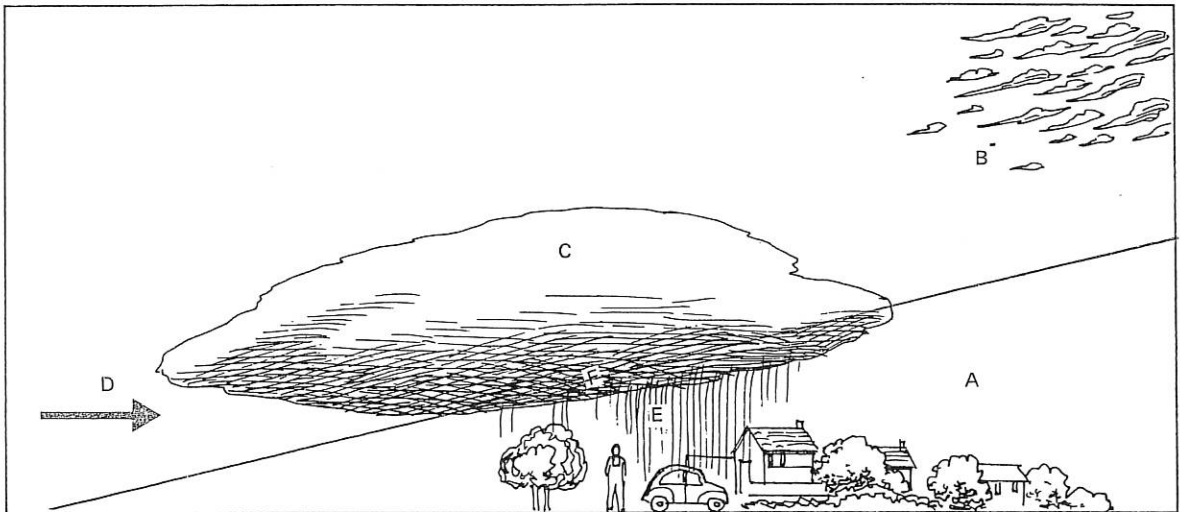



Figure E

1. warm air mass _____
2. cold air mass _____
3. warm front _____
4. cirrus clouds _____
5. stratus clouds _____
6. area of precipitation _____
7. The warm front is moving from _____
left to right, right to left
8. A warm front changes weather _____
slowly, quickly
9. Usually, precipitation from a warm front lasts _____
only a few hours, several days
10. After the warm front passes, the weather becomes _____
colder, warmer

MATCHING Match the two lists. Write the correct letter on the line next to each number.

- | | | | |
|----------|---|----|---------------------------------|
| 1. _____ | warm front | a) | boundary between two air masses |
| 2. _____ | cold air and warm air | b) | kinds of precipitation |
| 3. _____ |  | c) | pushes against a cold air mass |
| 4. _____ | rain and snow | d) | do not mix easily |
| 5. _____ | front | e) | warm front symbol |

TRUE OR FALSE Write T on the line next to the number if the sentence is true. Write F if the sentence is false.

1. _____ Warm and cold air masses mix easily.
2. _____ The border between air masses is called a front.
3. _____ In a warm front, warm air pushes against cold air.
4. _____ A warm front brings many clouds.
5. _____ A warm front causes fast weather changes.
6. _____ The first clouds you see along a warm front are stratus clouds.
7. _____ The last clouds you see along a warm front are stratus clouds.
8. _____ Cirrus clouds are rain clouds.
9. _____ Cirrus clouds warn of coming rain or snow.
10. _____ Precipitation along a warm front lasts a few hours.

REACHING OUT

A passing warm front changes air pressure. Does a passing warm front increase or decrease air pressure? (Hint: In Aim 5, you learned how temperature changes the weight of air.)
