

Changeable weather

Most of the changeable weather for people living in the mid-latitudes comes from swirling masses of air called depressions. Weather maps show them very clearly.

Q1. Diagram A shows the kind of pattern you see on a weather forecaster's map. Write a single word in the centre of the diagram to say what kind of pattern it is.

Q2. What do the rings on the diagram tell us about the weather?

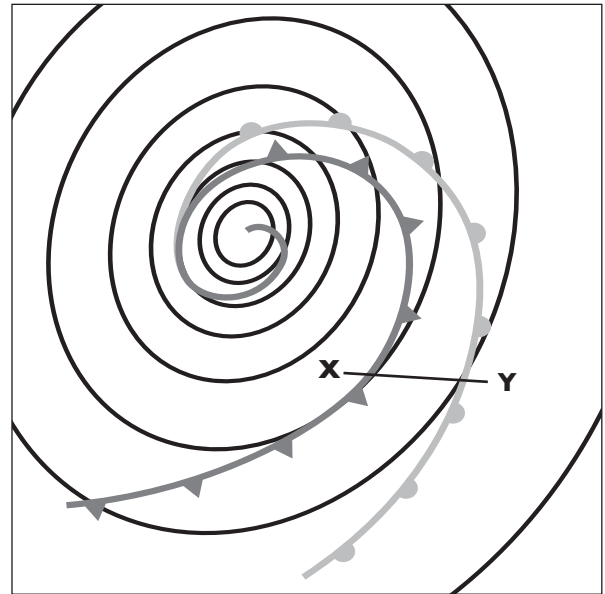
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Q3. On Diagram A, what are the two curved lines with semicircles and triangles on them?

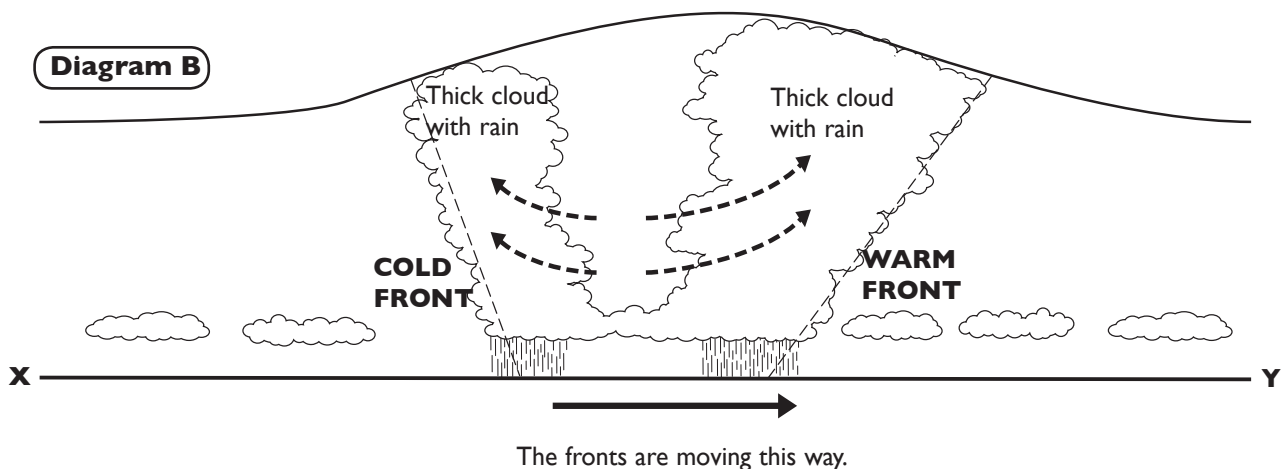
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Diagram A



.....**Q4.** Diagram B is a side view of a depression and shows where the cloud is thickest. Use this information to shade Diagram A to show where the thick cloud occurs on the map.

Diagram B



Q5. If you were standing in a place on the right of the side view and the fronts all moved to the right, how many times would it rain?

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Background

This worksheet is based on the familiar weather maps used by weather forecasters. If you study your local weather, you will inevitably use the weather forecasts and thus students will be exposed to the weather maps.

Mid-latitude depressions

Layer clouds are most commonly found in mid-latitude depressions, where warm air from tropical regions meets cold air from polar areas. The colder air is heavier than the warm air, and it hugs the ground, making the warm air ride over it, off the ground. The warm air begins to cool as it lifts off the ground, and eventually layer clouds form.

Explaining fronts and isobars

It is quite hard to grasp the idea of isobars and fronts. The concept of isobars is briefly introduced on page 28 of the student book (in the caption to picture ①).

We are trying to achieve the understanding that change is associated with the word 'LOW' and settled weather with the word 'HIGH'. In reality, weather is more complicated than this. This point is most easily made as part of a class discussion.

The worksheet tries to relate the closeness of the isobars to wind speed. The closer the isobars, the windier it will be. This relationship between isobars and contours has been made on pages 28 and 30.

The other important concept to get across is that fronts relate to cloud and rain. It is not so important to separate warm from cold front, or the fact that different clouds occur.

In case you get asked why the fronts are different slopes, the answer lies in the speed at which the warm air is pushed off the ground. The slope at the cold front is twice the slope at the warm front. So, whereas the air is lifted relatively gently at the warm front and gives thick layer cloud (nimbostratus), the air is lifted so quickly at the cold front that it often behaves in much the same way as the fast-flowing air rising on a warm day, giving widespread cumulus (cumulonimbus because it produces rain).

Video the weather forecast

One way to see lots of weather maps and hear the words LOW and HIGH often is to video the weather forecast from the TV. If children see the weather forecast in class, as opposed to at home, they can see it over and over again and compare the actual forecast to pages 28–31 in the student book. They can also be shown that depressions come in families. On the weather forecaster's chart they are often strung out, so you know that one period of changeable weather will be followed by another. Incidentally, families of depressions are directed by the high-level, fast-flowing air, called jet streams.

Answers

- Q1. LOW. This is a low pressure region, or a 'low'.**
- Q2. The isobars are close and so it will be windy.**
- Q3. Fronts (in fact, the line with semicircles is a warm front, the one with triangles is a cold front).**
- Q4. See the diagram. Essentially the cloud is thickest along the fronts.**
- Q5. Twice, because there is rain at each front.**

Diagram A

