

Why the Wind Blows

Name: _____

Date: _____

Class: _____

Read the lesson at myweatherrock.com/journal/explainers/why-the-wind-blows (or the printed copy), then answer below.

Remember

Wind is air moving from higher pressure toward lower pressure. Three forces decide what it actually does: the pressure gradient force pushes it, the Coriolis force bends it right in the Northern Hemisphere and left in the Southern, and friction with the ground drags on it. Push and bend alone would send the wind running parallel to the isobars forever. Friction is what makes air spiral into lows, which forces that air to rise, which is the whole reason a low on the map means clouds.

Questions

1. What starts the wind in the first place?

- ☐ A. The rotation of the Earth
- ☐ B. A difference in air pressure between two places
- ☐ C. Friction with the ground

2. The isobars on a map are packed very close together. What does that tell you?

- ☐ A. The wind will be light
- ☐ B. The wind will be strong
- ☐ C. Nothing about wind, only about rain

3. In the Northern Hemisphere, the Coriolis force deflects moving air:

- ☐ A. To the left
- ☐ B. To the right
- ☐ C. Straight down

4. Why does low pressure usually mean clouds and rain?

- ☐ A. Low pressure air is colder
- ☐ B. Friction spirals air inward, and since it cannot pile up it has to rise, cool, and condense
- ☐ C. Low pressure pulls moisture up out of the ground

5. You stand outside with your back to the wind in Ohio. Where is the low pressure?

- ☐ A. Behind you
- ☐ B. To your left
- ☐ C. To your right

In your own words

Two weather maps show the same two pressure centres, but on the second map the lines between them are packed much closer together. Predict how the wind differs, and explain why.

Answer key (for the teacher)

1. What starts the wind in the first place?

B. A difference in air pressure between two places — The pressure gradient force is the starter. Rotation and friction only decide what the wind does once it is already moving.

2. The isobars on a map are packed very close together. What does that tell you?

B. The wind will be strong — The closer the isobars, the quicker the pressure changes, and wind speed is directly proportional to that pressure gradient.

3. In the Northern Hemisphere, the Coriolis force deflects moving air:

B. To the right — Right in the Northern Hemisphere, left in the Southern. Combined with the push, that sends wind parallel to straight isobars with high pressure on its right.

4. Why does low pressure usually mean clouds and rain?

B. Friction spirals air inward, and since it cannot pile up it has to rise, cool, and condense — Mass cannot pile up in one spot, so converging air rises. Rising air cools, condensation exceeds evaporation, and cloud forms.

5. You stand outside with your back to the wind in Ohio. Where is the low pressure?

B. To your left — Wind runs with high pressure on its right in the Northern Hemisphere, so with the wind at your back the low is on your left. Friction near the ground skews this a little, but it holds well enough for a parking lot.