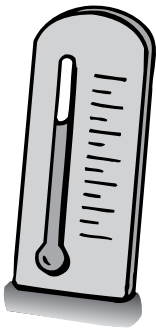


Making a Weather Station

WHAT YOU NEED



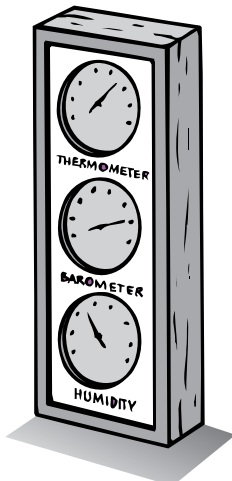
outdoor thermometer



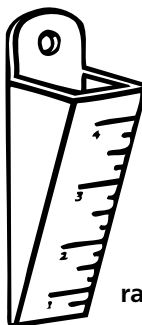
wind sock



address of a person or class in a town about 500 km to the east or west of your school



barometer



rain gauge

Find Out

Do this activity to see if there are patterns in the weather.

Process Skills

- Predicting
- Measuring
- Observing
- Communicating
- Interpreting Data
- Experimenting

Time

- One hour the first day
- Ten minutes twice a day for three weeks
- Half an hour on the last day of the third week
- Half an hour a week or two later



WHAT TO DO

1. **Write** to a person (or a class) in a town about 500 km to the east or west of your school. Arrange with the person or class to keep a chart like the one you will keep. Agree on a starting day.
2. Choose a place outside, and set up the thermometer, wind sock, and rain gauge. Make sure to choose a safe place. Put the barometer in your classroom in a place where it won't be disturbed.
3. **Set up** three charts on which you will record your observations. Use one chart for each week.
4. **Observe** the weather and check the instruments each morning and afternoon for three weeks. Try to observe at the same time each day.
5. **Record** your observations of the weather on your chart. Write down whether it is sunny, rainy, cloudy, and so on.
6. After three weeks, put a red X on each day when you recorded windy, cloudy, or rainy conditions. Put a blue X on each day when you recorded dry, clear weather conditions.
7. Use your chart and **predict** what type of weather will occur on the next day.
8. Mail a copy of your chart to the other person or class, and have them mail a copy of their chart to you. Compare your data with theirs.



Prediction: _____

Weather Information					
Week:	Temperature	Wind Direction	Precipitation	Air Pressure	Other Conditions
Day 1 Morning					
	Afternoon				
Day 2 Morning					
	Afternoon				
Day 3 Morning					
	Afternoon				
Day 4 Morning					
	Afternoon				
Day 5 Morning					
	Afternoon				

Conclusions

1. Did you see any patterns in the weather on your chart and on the other chart?

Answers will vary, such as it is usually warmer in the afternoon or it rains more in the morning. Students should notice similarities between the weather on different days in the different locations.

2. Is there a time of day when you can expect it to be warmest or coolest?

Answers will vary. Probably the afternoons will be warmer.

3. Does the time of day seem to have any effect on wind direction?

Answers will vary.

4. Do the wind directions that you recorded relate in any way to the weather recorded by the other group?

Answers will vary. Students should notice that weather conditions will move in the same direction that the wind is blowing.

New Questions

1. Why might it be helpful to know about weather in different locations?

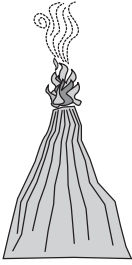
Accept all reasonable answers. For example: to help you predict what type of weather you can expect.

2. Write a new question you have about using weather data to predict weather patterns.

Accept only reasonable questions.



Name _____



ACTIVITY

Making Magic with Air

Part A

What happened when you put the jar in the plastic box?
The paper towel remained dry.

Part B

What do you **predict** will happen when you turn the jar upside down?
Answers will vary.

What happened when you took your hand away from the cardboard?
The cardboard stuck to the mouth of the jar; no water leaked out.

Part C

What do you **think** will happen when one balloon is popped?
Answers will vary.

What happened when you popped one balloon?
The end with the remaining balloon dropped.

Name _____

Conclusions

① In Part A, why doesn't water fill up the glass and get the paper wet?
Because air has volume and takes up space, water cannot enter in the same space as the air, and so, the paper remains dry.

② How can you **explain** what happened in Part B?
Answers will vary but may include that air pressure outside the jar is greater than the pressure inside.

③ In Part C, which end of the ruler dropped? What property of air caused this to happen?
The end with the remaining balloon dropped. This shows that air has mass.

Asking New Questions

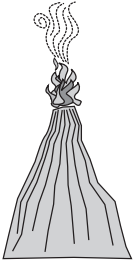
① Which property of air causes your ears to pop?
pressure

② Which property of air helps you keep a bicycle tire inflated?
Because air takes up space, it exerts pressure and inflates your bike tires.

Activity Journal

Lesson 2 • Water Cycle and Clouds

Name _____



ACTIVITY

Making a Cloud

What happened to the water on the chalkboard?

The water evaporated.

How does the outside of the jar or cup look?

Answers will vary.

Record what you see on the outside of the jar or cup.

Answers will vary. At some point, condensation will form on the outside of the jar.

After 10 minutes

After 20 minutes

After 30 minutes

Name _____

Conclusions

① What did you **observe** when you wiped the chalkboard with the wet towel?
It dried rapidly.

② What did you **observe** after you poured the water into the jar?
It was dry on the outside. Some moisture might have condensed on the glass.

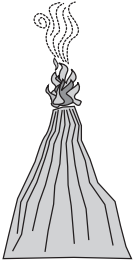
③ What did you **observe** after you added ice to the jar?
Ice water chilled the glass or plastic, and moisture condensed on the outside of it.

Asking New Questions

① In the jar of ice and water, where did the water on the outside of the jar come from?
The water on the outside of the jar came from water vapor in the air surrounding the glass.

② **Predict** what would happen to the water around the bottom of the jar if you let it sit for two days.
The water around the bottom of the jar would evaporate if left for two days.

Name _____



ACTIVITY

Making a Barometer

Make a bar graph to **record** your **observations** in the space below.

How do your results compare with the results from the other groups or with the newspaper or TV weather reports?

Answers will vary. Students should find that some of their observations were similar to newspaper or TV reports. If group results are similar or different, have students discuss why.

Name _____

Conclusions

- ① What happened to make your barometer **record** a high pressure on the card?
The balloon moved downward into the can.

- ② What type of weather did you see on days with high air pressure? What type of weather did you see on days with low air pressure?
Answers will vary but might include on days with high pressure, there was nice weather; on days with low pressure, the weather was rainy or stormy.

- ③ On the basis of your observations, can you **predict** what weather conditions will be on the fifth day?
Answers will vary depending on data.

Asking New Questions

- ① What connection did you notice between air pressure and temperature?
Warm air is less dense with lower pressure. Cold air is more dense with higher pressure.

- ② What type of reading would you expect from your barometer if warm air were to move into your area?
Warm air has less air pressure. If the air is warm and moist, the barometer reading will be lower. Sunny weather could make it read higher.