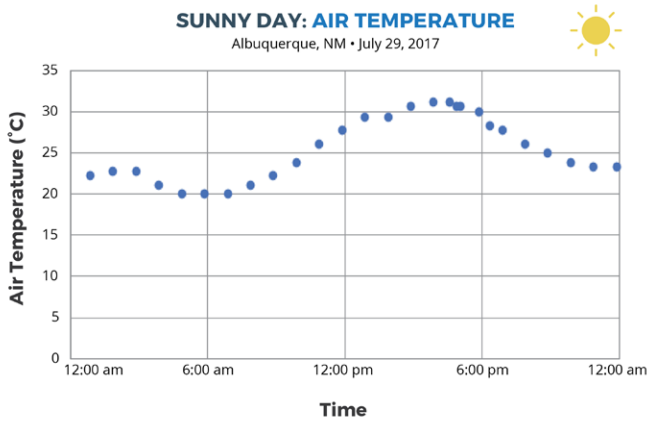
Name Period Date

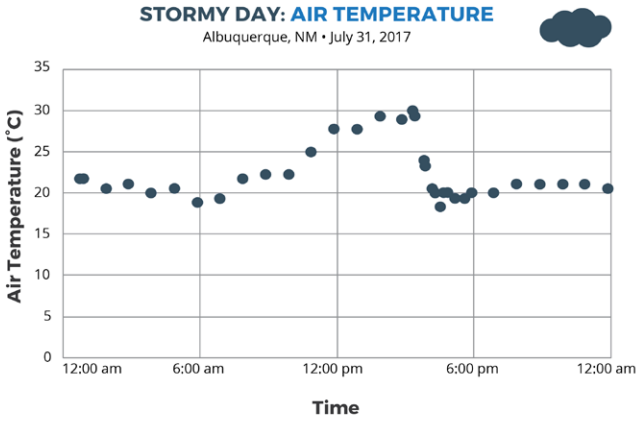
LESSON 4

# What is different about a sunny day and a stormy day?

**STEP 1: Compare air temperatures on a sunny day and a stormy day.**
Do stormy days have a different pattern than sunny days? Answer the questions using the graphs of temperature data below.

1. Describe the sunny day pattern.




2. Describe the stormy day pattern.

3. Looking only at the temperature data, when do you think the rain happened, and why? Circle where the rain begins on the stormy day graph.

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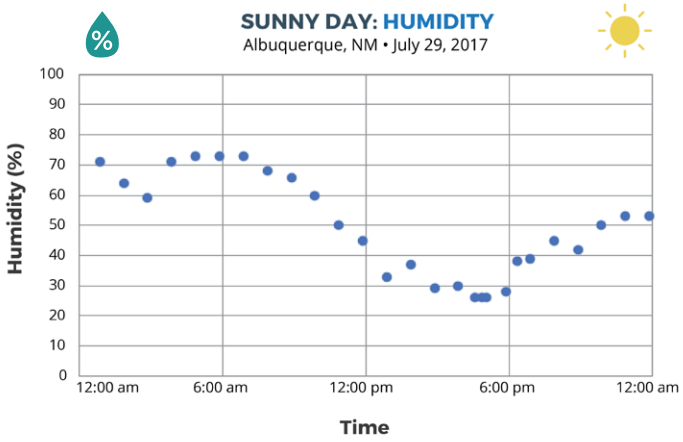
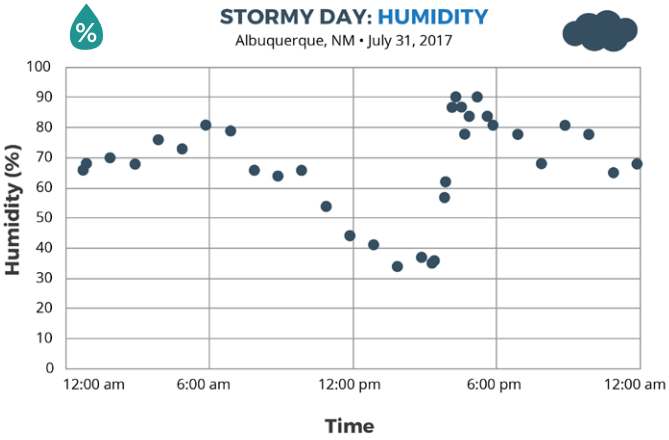
# What is different about a sunny day and a stormy day?

**STEP 2: Compare the humidity on a sunny day and a stormy day.**
Humidity is the amount of water vapor in the air. If the humidity is 100%, then the air cannot take in any more water vapor (and you are probably in a cloud). If the humidity is less than 100%, then the air could take in more water vapor. Warm air has the energy needed to evaporate more water than cold air. That's why a hot and humid day is more common than a cold and humid day. When humidity is low, people say that the air is dry because it doesn't have much water vapor.

Do stormy days have a different pattern than sunny days? Answer the questions using the graphs of humidity data below.

1. Describe the sunny day pattern.




2. Describe the stormy day pattern.

3. Circle where the rain begins on the stormy day graph. Considering both air temperature and humidity, what pattern do you think creates the highest chance for storms to form?

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# What is different about a sunny day and a stormy day?

**STEP 3: Make a storm in a bottle.**
Using what you know about temperature and relative humidity, create a model of a sunny day and a stormy day using clear bottles with different contents.

1. Draw what you put inside each of your bottles. Label the materials that you added.


2. Turn on the lamp (to represent the Sun) and observe the bottles for 20 minutes. Add your observations about the temperature and humidity of each bottle to the pictures above. Use the data table on the next page to record temperature and humidity changes in your bottles.

3. **Discuss the following questions with your peers:**

- Did the sunny day bottle match what you expected? If not, what happened?
- Did the stormy day bottle match what you expected? If not, what happened?
- Using evidence from the bottles and the temperature and humidity data, what conditions are best for storms?

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**Measure the temperature with your thermometer and record. Look for evidence of humidity, such as condensation on the inside of the bottle, and make notes about it in the table below.**

| | SUNNY DAY BOTTLE | | STORMY DAY BOTTLE | |
|---|---|---|---|---|
| MINUTE | TEMPERATURE (˚C) | HUMIDITY | TEMPERATURE (˚C) | HUMIDITY |
| 2 | | | | |
| 4 | | | | |
| 6 | | | | |
| 8 | | | | |
| 10 | | | | |
| 12 | | | | |
| 14 | | | | |
| 16 | | | | |
| 18 | | | | |
| 20 | | | | |

3. **Discuss the following questions with your peers:**

- Did the sunny day bottle match what you expected? If not, what happened?
- Did the stormy day bottle match what you expected? If not, what happened?
- Using evidence from the bottles and the temperature and humidity data, what conditions are best for storms?