

Make a Hygrometer and Measure Humidity

Name: _____

Date: _____

Student worksheet — *Answer key*

Word Bank

(when appropriate, use these words in your short answers)

- Evaporation
- Humid
- Humidity
- Hygrometer

DIRECTIONS: Answer the questions below.

1. A plate of water was left out in the class untouched for a week. There is [more / **less** / no] (circle the correct answer) water on the plate now.
2. Draw or write down what you think happened to the water.

There is no particular answer expected. The answers can give you some insight on the student's knowledge coming into the lesson.

3. In the table below, list at least three humid weather conditions and one dry weather condition.

Humid	Dry
Rain Hail Snow Sleet Fog Muggy	Dry weather

Make a Hygrometer—Page 2

Answer Key

DIRECTIONS: Follow the teacher's directions to build a hygrometer.

DIRECTIONS: Circle correct answers. Discuss reasons why this happens with your partner.

Fact: Hair strands expand (become longer) in humid air and contract (become shorter) in dry air.

4. When the hair expands, the pointer of the hygrometer [moves up / doesn't move / **moves down**]. Discuss why.

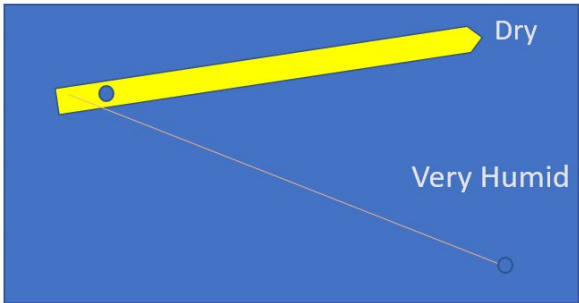
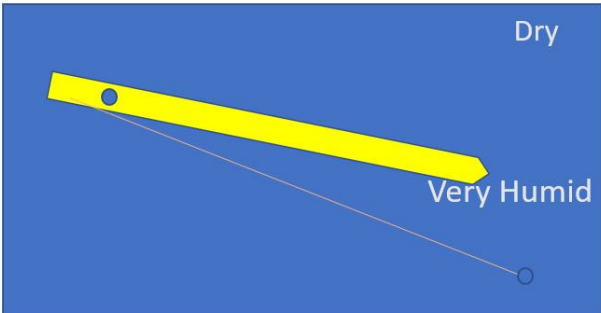
Explanation: If the hair is longer, it pulls less on the back end of the pointer. The back end goes up, and the pointy end rotates down.

5. When the hair contracts, the pointer of the hygrometer [**moves up** / doesn't move / moves down]. Discuss why.

Explanation: If the hair is shorter, it pulls more on back end of the pointer. The back end goes down, and the pointy end rotates up.

DIRECTIONS: Draw your expectations.

6. Draw how you expect your hygrometer to look in dry and humid conditions.

Prediction	
Dry Conditions	Humid Conditions
	

Make a Hygrometer—Page 3

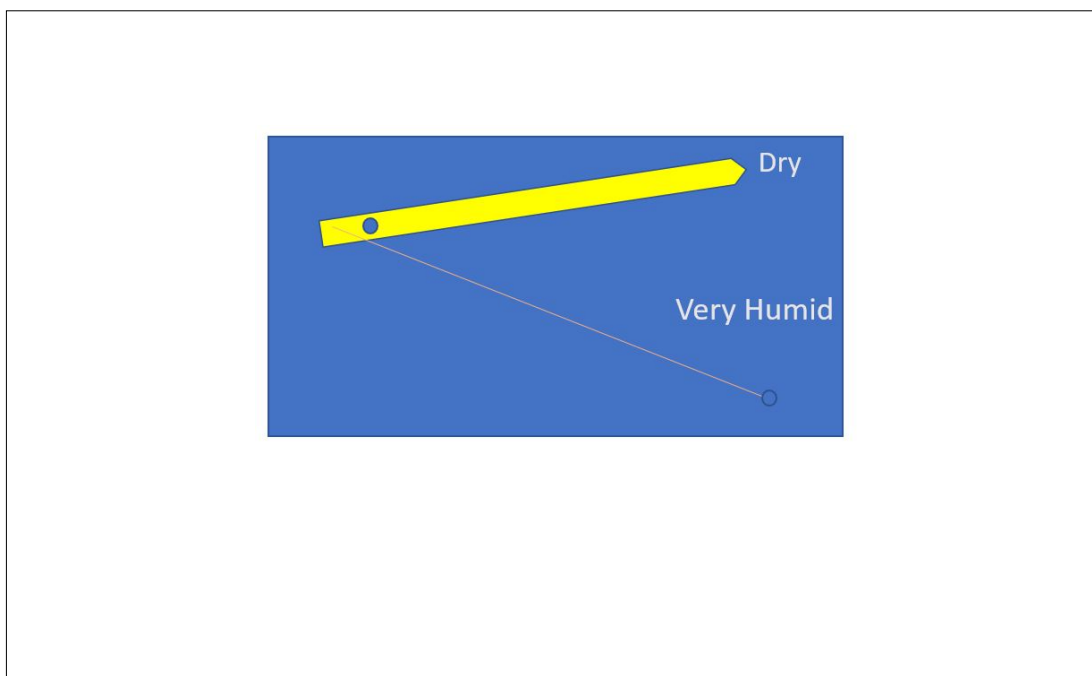
Answer Key

DIRECTIONS: Circle the words that match your experiment and observations.

Note: students may have the answers for questions 7 and 8 in reverse order.

7. I measured [humid / **dry**] conditions first. I used a bag with a [wet sponge or towel / **hairdryer**] to create these conditions.

- The pointer rotates (**up** / down]. This happens because the air around the hair [**dries** / becomes moist], so the hair [expands / **contracts**] and pulls (**more** / less] at the pointer.
- Make a drawing of how the hygrometer looks in these conditions.



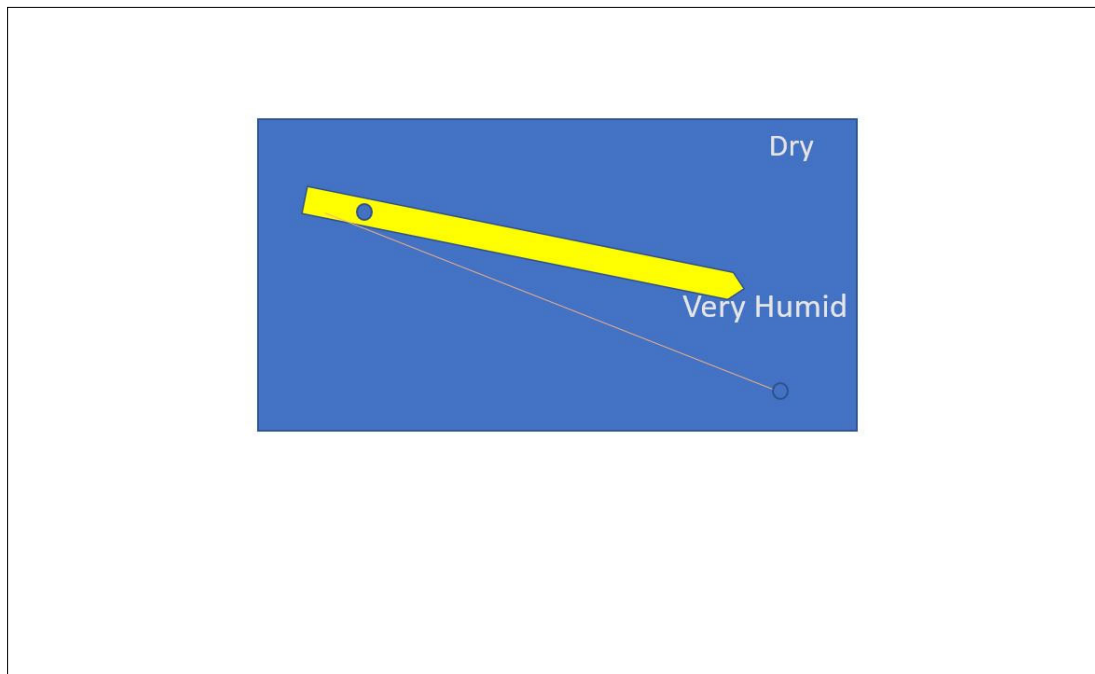
- Is this what you expected (see question 3 and 4)? If it is not, why do you think it is different?

The answer depends on what the student predicted.

Make a Hygrometer—Page 4

Answer Key

8. I measured [humid / dry] conditions second. I used a bag with [wet sponge or towel / hairdryer] to create these conditions.
- The pointer rotates [up / down]. This happens because the air around the hair [dries / becomes moist], so the hair [expands / contracts] and pulls [more / less] at the pointer.
 - Make a drawing of how the hygrometer looks in these conditions.



- Is this what you expected (see question 3 and 4)? If it is not, why do you think it is different?

The answer depends on what the student predicted.

Make a Hygrometer—Page 5

DIRECTIONS: Record your observations.

9. Determine the humidity at different locations.
- Use words (e.g., "Dry" or "Somewhat dry") to describe the humidity level.
- Record your observations in Table 1.
- Remember to fill in the date.

The observations will vary depending on local conditions.

Table 1. Humidity observations		Date: _____
Location	Humidity level	Drawing of the hygrometer

Make a Hygrometer—Page 6

Answer Key

DIRECTIONS: Use your observations to answer the following question.

10. The air in the classroom is [more / about the same / less] humid (circle the correct answer) than the air outside.

The correct answer depends on local conditions.

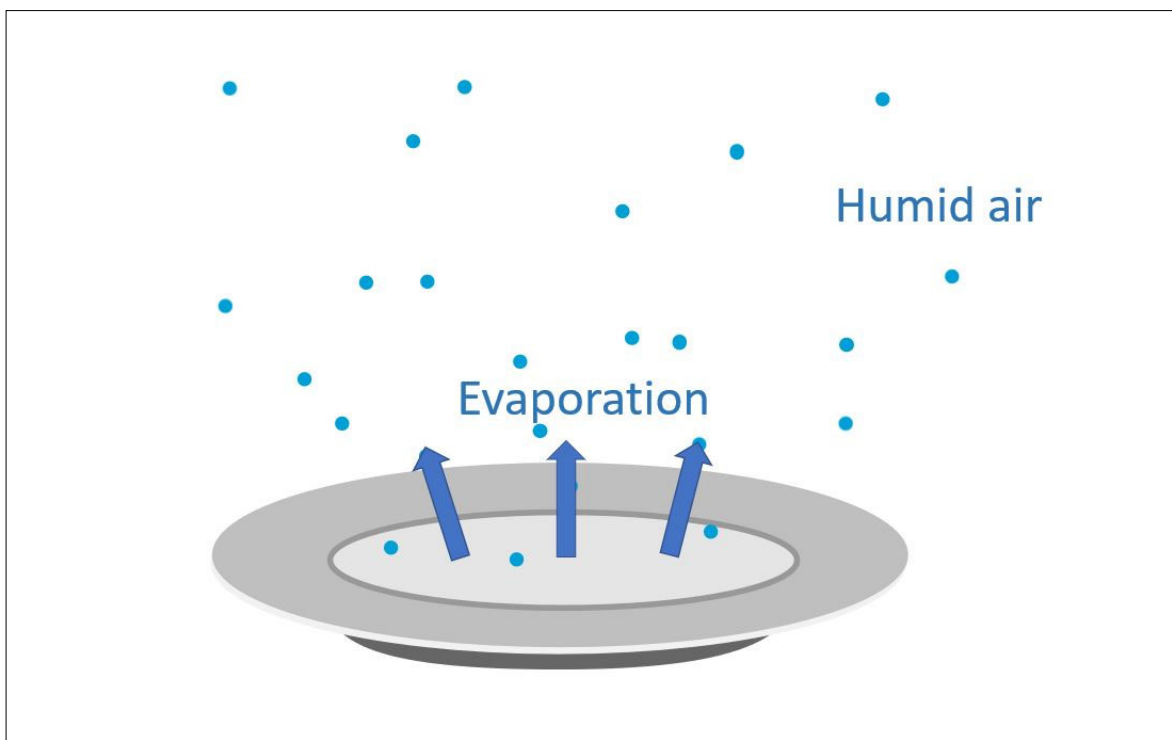
DIRECTIONS: Use what you have learned to answer the following questions.

11. A plate of water was left out in the class untouched for a week. There is [more **less / no**] (circle the correct answer) water in the plate now.

12. Draw what happened with the water? Use words from the word bank to label your drawing.

A possible drawing is provided below.

Students' drawings might look very different.



Make a Hygrometer—Page 7

Answer Key

13. Draw evaporating water on the picture provided. Draw it everywhere it happens.

A possible drawing is provided below.

Students might draw evaporation differently.

Students might draw evaporation from the snowcapped mountain. Technically, water vapor released from a solid form of water (like ice or snow) is called sublimation. Sublimation also increases the humidity.