Azim Premji University

WORKSHEET: WHAT CAN YOU LEARN FROM A PAPER THERMOMETER MODEL?

Aim:

To become familiar with temperature scales on a liquid thermometer by learning how to:

- Find the range of a thermometer.
- Read the thermometer scale correctly.
- Find the smallest temperature difference that can be read on the scale.
- Note the correct units used for the reading.

What you need:

Your paper thermometer model

What to do:

A) Learn about scales of a thermometer: Observe the thermometer. You will see two scales marked on it. Can you name them?

- The scale shown with °F is called the ..... scale.
- The scale shown with °C is called the ..... scale.

B) Learn about the range of a thermometer: Observe the Celsius scale:

- What is the lowest temperature shown on this scale?
- What is the highest temperature shown on this scale?
- What is the range of this thermometer in degrees Celsius?

Can you find the range of this thermometer in degrees Fahrenheit?

C) Learn about the smallest value that the thermometer can show: On the Celsius scale:

- You will see some evenly spaced bigger marks with numbers. What is the temperature difference between any two consecutive bigger marks?
- You will see many divisions (shown by smaller marks) between any two consecutive bigger marks. How many such divisions can you see?
- How many degrees does each small division show?
- The smallest value that this thermometer can read in degrees Celsius is .....

Can you find the smallest value that this thermometer can read in degrees Fahrenheit?

D) Practice reading the scale:

Some temperatures are given in the table on the next page.

1. Move the thermometer strip to show the given temperature on your paper model. Remember to pay attention to the units and use the appropriate scale.
2. Read the same temperature on the second scale and enter your reading in the table below. Remember to read the scale with your eye directly in line with the mark you are reading.
3. Take turns with your friend. One of you can set the temperature with the strip on the first scale and the other can read the second scale.

	Temperature in °Celsius	Temperature in °Fahrenheit
 Average normal temperature of the human body		98.6°F
 Normal body temperature for a chicken	41°C	
 Temperature of melting ice	0°C	
 Maximum temperature in your town/village yesterday		
 Normal body temperature for a dog		102°F

Think about and discuss:

1. Can you use a thermometer which has the same range as your paper model to measure the following? Why or why not?
   a. 100 °C, the temperature of boiling water?
   b. 102 °F, the body temperature of a dog?
   c. The temperature at your school on a hot summer day?
2. Set the slider of your paper model at a particular marking on the scale. Then, look at the marking from different positions (above and below the position at which your eye would be directly in line with the mark) and write down your reading. Do you get the same reading? Why or why not?

i wonder...
Rediscovering school science

Contributed by:
Kavita Krishna, who has worked for two decades as a Science, Technology, Engineering, and Mathematics (STEM) educator in rural India and the UK. She can be contacted at: kavitak2006@gmail.com.