Measuring Cylinders

Reading and Comparing the Temperature on the Thermometer

You can show different temperatures on a thermometer in both degrees Fahrenheit and degrees Celsius.

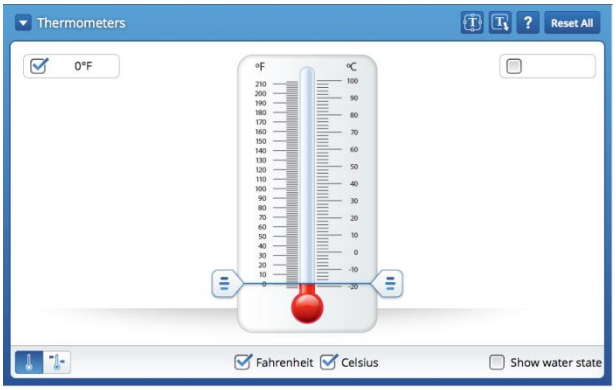
- You can check and uncheck the boxes on the bottom of the workspace to show or hide degrees Fahrenheit or degrees Celsius.
- You can show the change or difference between two temperatures by toggling to Difference mode  .

Practice Using the Thermometer

1. Find the temperature in degrees Celsius when it is 82° Fahrenheit.

   Check and uncheck the boxes on the workspace.

   - Make sure both the Fahrenheit and Celsius boxes are checked in the bottom shell.
   - Uncheck the box that shows the Celsius temperature located in the upper-right corner of the workspace.



2. Drag the  up to 82° Fahrenheit.
   - The upper-left corner of the workspace should display  .
3. Estimate the temperature in degrees Celsius on the thermometer.
   - Focus on the right side of the thermometer, which shows the degrees in Celsius. The temperature is where the line crosses the thermometer or the point where the thermometer is filled in red.
4. Check the box in the upper-right corner of the workspace so that the temperature in degrees Celsius displays to so you can check your estimate.

   The temperature should read close to  .

Measuring Cylinders

Exploring Different States of Water

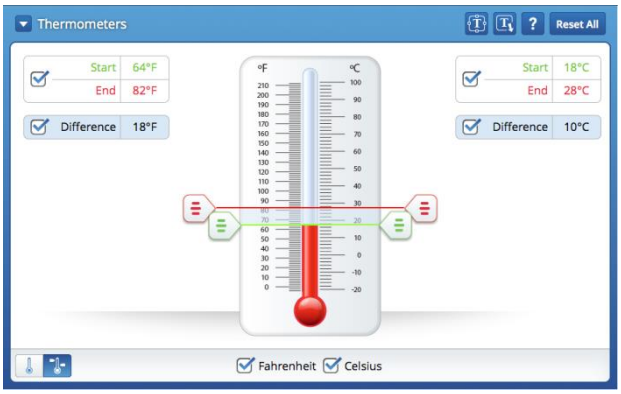
See how water changes at different temperatures.

1. Click the "Reset All" button in the top shell above the workspace. Then click OK.
2. Check the "Show water state" box.
3. Drag the up and down to see at what temperature water freezes and boils.

Finding the Difference between Two Temperatures

If the temperature during the day rises from 64° Fahrenheit to 82° Fahrenheit, what is the change in temperature in both Fahrenheit and Celsius?

1. Find the difference between two temperatures.
   - Click the "Reset All" button in the top shell above the workspace. Then click OK.
2. On the bottom shell, toggle to Difference mode .
3. On the left side of the Thermometer, drag the up to 64° Fahrenheit.
   - Then, drag the up to 82° Fahrenheit.



4. The difference in temperature in degrees Fahrenheit and degrees Celsius from the start temperature to the end temperature is now displayed.

   The change in degrees Fahrenheit is Difference 18°F.

   The change in degrees Celsius is Difference 10°C.

Measuring Cylinders

Solving Capacity Number Stories and Word Problems

To view the containers mode, change Thermometers to Containers by clicking the down arrow from the top shell.

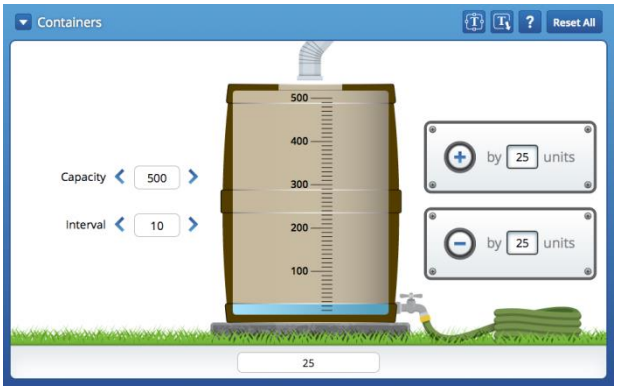
The workspace provides an automatic check system.

You can show the capacity of water in a container as water is added or taken away at different intervals.

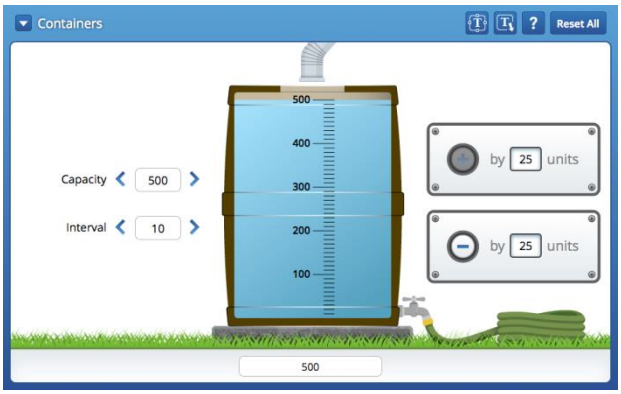
- You can add water to the container by clicking ⊕.
- You can take away water from the container by clicking ⊖.
- You can change the capacity of the container by clicking ‹ or › next to "Capacity".
- You can change the markings on the container by clicking ‹ or › next to "Interval".

Practice Using the Container

For a 500-unit container, how many hours will it take to fill the container if water is pumped in at a rate of 25 units per hour?



1. Adjust the settings to best fit the situation.
   - Click on › next to "Capacity" to change the capacity from 100 to 500.
   - You can also change the interval of the marks shown on the container. The choices are 5, 10, or 50. An interval of 10 will have a mark at every 10 units going up to 500 units.
   - Change the number in the box that has the ⊕ button by clicking inside the units box. Using the keypad, insert the number 25, then click the Enter button.
   - You may want to also enter the same number (25) in the units box of the ⊖ button to double-check your answer later.
2. Fill the container with water until you reach 500 units.



- Click  as many times as needed to reach the top of the container (500 units). When the water reaches the maximum capacity, the  button will be disabled.
- Keep track of how many times you click the  button. This will give the number of hours it takes to fill the container.

3 Drain the container of water until the container is empty.

- Click  as many times as needed to reach the bottom of the container (with no water shown).
- A good way to check your answer from Part 2 when you filled up the container with water is to keep track of how many times you click the  button. The number of  clicks and  clicks should match if each is set to the same number of units (25).