

(Edited version for public review)

1.2 Act 2

Hot and Cold

1. It has been proposed that water might be made out of very tiny particles that tend to stick to each other. How are these small particles similar to tiny magnets?
2. Think back to when you touched a water droplet with a soapy toothpick. What happened? Did the water still behave like small magnets?
3. How does adding a droplet of food coloring or dye to a cup of water give evidence that water particles are moving? Explain.
4. The first frame below shows some food coloring (dye) particles that have just been added to a cup of water. Fill in the next two diagrams to show what will happen to the dye as time goes on.



5. Based upon your observations, are particles moving faster in cold water or in hot water? How do you know?

6. Based on your observations and the animations, fill in the blanks with the words *increases* or *decreases*.

Heating a substance _____ particle motion.

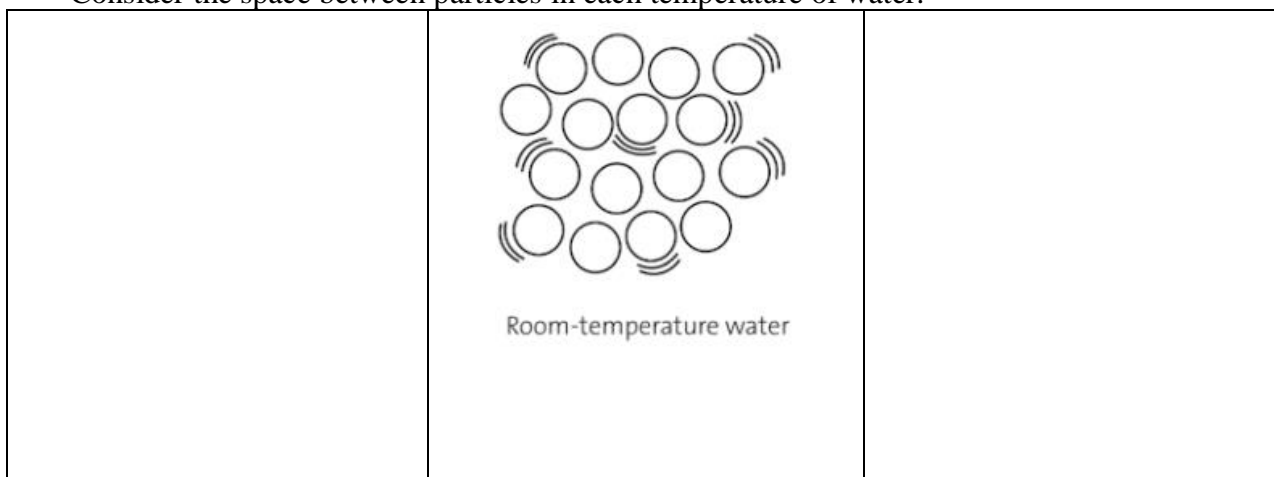
Cooling a substance _____ particle motion.

As particle motion increases, the space between particles _____

As particle motion decreases, the space between particles _____

7. Using circles to represent water particles draw a model of the particles in *cold* and *hot* water.

- Use motion lines to show the speed of the particles.
- Consider the space between particles in each temperature of water.



8. Let's say that you measure exactly 100 milliliters ...

(Additional materials available in members' resources)