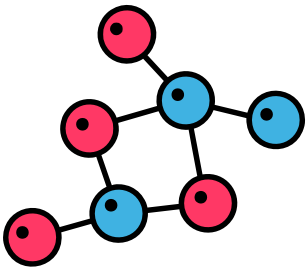
# States of Matter Game



This game is great for demonstrating the different types of molecular action in the three states of matter. Because it involves physical activity, it's also a fun game to play when the weather is too hot, cold, or wet to go outside!

**Introducing the Game**

Before playing the game, review the three states of matter and how molecules behave differently as matter heats up or cools down. Refer to these examples:

- Solids - Molecules are tightly packed and move slowly, staying in a rigid formation. (Ice would be an example of matter in a solid state.)
- Liquids - As solid matter is heated, the addition of energy causes molecules to move more quickly and spread apart. (Water is a liquid.)
- Gases - With the addition of more heat, the molecules move even faster and spread even farther apart. (Steam is the gaseous form of water.)

**Playing the Game**

1. Tell students that they are going to role play water molecules in each of the three states of matter. Before starting, they need to move to an open space in the room or push in all the chairs and clear some space to move in the room. Check the room for electrical cords on the floor or other obstacles. Be sure to tell students to stay clear of computers, LCD projectors, Smartboards and any other fragile equipment.
2. Students begin by standing in place with their arms at their sides or crossed over their chests. Explain that unlike real molecules, they are not allowed to touch each other or any object in the room. If they touch something or someone, they have to sit out for a few minutes. Designate an area for this.
3. To begin, tell them that they are "solid" particles of ice and can move side to side but must stay in the same area since solids keep their shape.
4. Announce that they are getting warmer and the ice is beginning to melt and become a liquid. They should begin walking around the room, mixing and mingling, but are not allowed to touch anything.
5. After a few seconds, say that they are getting even warmer and are beginning to change into steam, the gas form of water. This stage has to be monitored very carefully because they will try to run and bump into each other. Anyone who touches another person or object in the room is out.
6. To control the movement of your student "molecules," tell students that they are heating up or cooling down as they change state. Or simply announce different states of matter and have them move accordingly.