

Name: \_\_\_\_\_

# Three States of Matter

by Leslie Cargile

Let's take a walk into an imaginary kitchen. There are ice cubes in the freezer, water running from the faucet and steam rising from a pot of boiling water. We will turn off our pretend faucet so we don't waste water. What do these three things all have in common?



Simply put our imaginary kitchen shows us the three different states of matter. Matter makes up everything that is in our universe. Atoms join together making molecules. Molecules stack together in different ways to make the three different states of matter; solids, liquids and gases.

Solids are easy to think about. The chair you're sitting in is a solid. The floor you walk on is solid. Pretty much everything that has a defined shape is a solid. The molecules of solids are like a box full of oranges stacked tightly together, so tight that they can't move.

Liquids include the water you drink, or the oceans that roll around the earth. A liquid will take the shape of whatever you put it in. Think of a beanbag chair that is missing some of its' stuffing. It will roll around, but it stays together. The molecules of a liquid are close and stick together, but not so close that they can't slide around each other. If you pour water from one container into another without spilling, you will have the same amount of water.

Gases are different than the other two states of matter. They are very loosely attached, some escaping their bonds and disappearing. If we were back in our imaginary kitchen and we tried to catch all of the steam molecules, we would find it nearly impossible.

Heat can affect the state of matter. Let's take an imaginary ice-cube and set it on our stove in a pot. Turn the imaginary heat on. Soon the heat has melted our ice cube into a puddle of water. Leave the heat on a little while longer and our puddle of water will evaporate into the air. Even though you can't see the water, it's not gone. It turned into water vapor, which is a gas in the air around you.

Try it out with the help of an adult and see what happens. Can you catch all of your steam and turn it back into an ice-cube? Probably not, but add some food coloring to a pitcher of water and then fill an ice tray. What you will have is an exciting afternoon exploring the worlds of solids, liquids, and gases.

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- Atoms that are joined together are called...
  - liquids
  - molecules
  - shapes
  - solids
- What shape is a liquid?
  - sphere
  - circle
  - solid shape
  - the shape of its container
- What happens to water when it evaporates?
  - It turns into a solid.
  - It turns into a gas.
  - It turns into an atom.
  - It disappears.
- What causes water to evaporate?
  - warm temperatures
  - cold temperatures
  - electricity
  - food coloring
- How are molecules in a solid different from molecules in a liquid?
  - Molecules in a liquid are more tightly packed than molecules in a solid.
  - Molecules in a liquid cannot move, but molecules in a solid can.
  - Molecules in a solid are more tightly packed than molecules in a liquid.
  - Molecules are loosely packed and easily turn into steam.
- List two examples of solids, liquids, and gases.

solids - \_\_\_\_\_

liquids - \_\_\_\_\_

gas - \_\_\_\_\_