

## How Do Molecules Move?

Heating matter results in greater movement of the molecules. What is different about the movement of atoms and molecules in a solid, a liquid, and a gas?

**In the solid phase**, the atoms/molecules move, but stay in the same position relative to one another. This means that they do not change from the position they are in next to each other. For example if atom #1 is above atom #2, they will stay that way. Although the atoms and molecules are not static or still, they don't move around or away from each other. They vibrate and stay in whatever position they are in.

**In the liquid phase**, the molecules move around and change position relative to one another while remaining in contact with each other. Another way to say it is that they are "always touching." Atom #1 and atom #2 can move around, and they might even drift apart, but the molecules in that liquid will always be touching each other. Atom #1 will always be touching some molecule, it just might not be atom #2.

**In the gas (or gaseous) phase**, the molecules spend almost all their time alone. Each molecule zips through empty space until it hits another one. Then they bounce off each other. Atom #1 and atom #2 may meet once and never meet again. Gases can expand and contract much more than solids and liquids because they are mostly empty space.

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