

## 5<sup>th</sup> Grade - Lesson 1.1

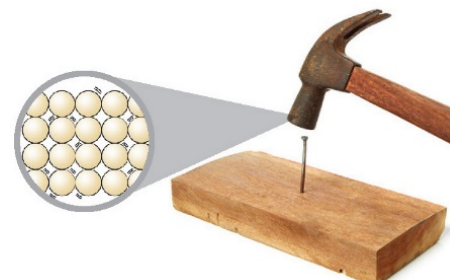
### Matter is Made of Tiny Particles

#### Teacher Background

All matter on Earth is either solid, liquid, or gas. The main difference between solids, liquids, and gases is the strength of the attraction between the atoms and the molecules they are composed of.

#### Particles of a solid

In a solid, the atoms or molecules that make up the solid have such strong attractions for one another that they cannot slide past one another. They are in fixed positions but they do vibrate back and forth. The atoms or molecules in a solid have such strong attractions that solids can withstand impacts and are harder to break apart than liquids.



#### Particles of a liquid

In a liquid, like water, the molecules have relatively strong attractions for one another, but not as strong as the attractions between the atoms or molecules of a solid. This attraction keeps the molecules very close together. Although the molecules in a liquid are attracted to one another, they are in constant motion and can slide past one another. It is this strong attraction between water molecules that causes a drop of water to stay together.



#### Particles of a gas

A gas is very different from either a solid or a liquid. In a gas, the molecules are hardly attracted to each other at all. That's why the molecules of a gas are so far apart compared to the molecules of a liquid or a solid. In fact, water as a gas (water vapor) takes up over 1,000 times more space than the same number of water molecules as a liquid. Since the molecules of a gas are so much farther apart than the molecules of a liquid, a gas can be compressed a lot more than a liquid.

