

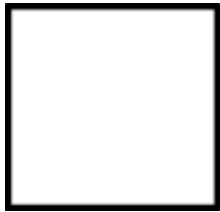
Substance - something made of matter
particle - molecule / atom

States of Matter – study guide

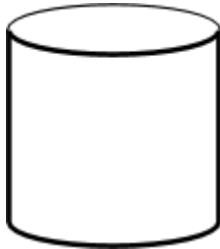
Spacing and motion of particles

A. In the objects below, draw a model of the spacing of molecules for each phase. Use small circles (o) to represent each molecule.

ice (solid)



water (liquid)



water vapor (gas)



Fill in the blanks with **solids**, **liquids**, or **gasses**

1. _____ have particles that are the closest together.
2. _____ change their volume according to the container.
3. _____ and _____ have particles that move around each other.
4. _____ have enough energy for the particles to move around, but do not change volume.
5. _____ can be compressed or expanded easily.
6. _____ have much less density than the other two.
7. List the three phases from the least amount of energy and motion to the most

least

most

Particle motion and energy

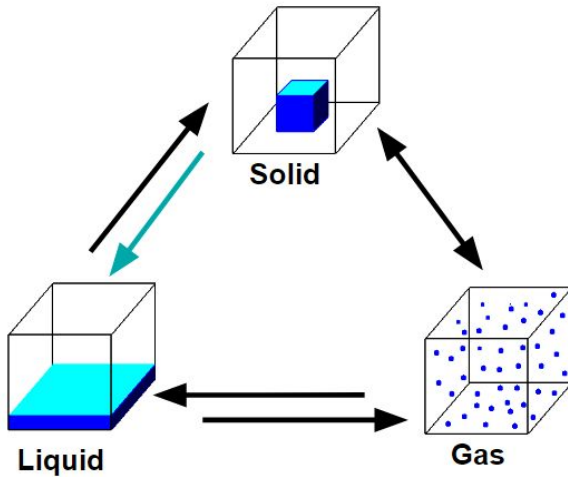
What happens to the molecules when water is heated?

What happens to the molecules when water is cooled?

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Changes of States

Label each arrow



Particle Spacing

Compare the spacing of molecules in a liquid and a solid.

Compare the spacing of molecules in a liquid and a gas.

Applying the Concepts – Use your knowledge of states of matter to answer these questions. Use extra paper to answer

1. It is a clear winter night. Not a cloud in the sky and **no chance of rain** for a couple of days. You go outside and notice that the grass is wet. It **hasn't rained** for a few days and there are **no sprinklers**. Why is the grass wet with dew?

2. When a hair dryer is used to dry hair, the hair dryer blows both heated air ~~and~~ quickly moving air onto the wet hair. Use your knowledge of states/phases of matter to describe why this combination of heat and blowing air are more effective at drying hair than just blowing air. In addition to writing, use a diagram to help you explain how the motion and spacing of particles is related to this problem.