Specific Heat

Specific heat is not temperature. It is a physical property that measures how much energy is needed to increase the temperature of a substance.

Imaging walking on a beach on a hot day during the middle of the summer. The sand feels very hot but the water feels cool. Now imaging walking on the same beach at night. The sand feels very cool but the water feels relatively warm.

Water has a high specific heat. It takes a lot of energy to get hot but once it is hot, it takes a long time to cool. Sand on the other hand, gets hot very quickly and cool very quickly. Because of this, sand has a low specific heat.

Can you think of any other substances that have a high specific heat or a low specific heat?

Let’s do a quick demonstration to test the specific heat of a copper rod and a glass rod.

State of Matter:

Melting verse Freezing Point and

Evaporation verse Condensation Point

State of matter is a physical property of a substance that describes whether it is a solid, liquid, or a gas.

All matter has a different melting point, freezing point, evaporation point, and a condensation point.

Melting verse freezing point of matter is typically the same temperature. For example, water will melt or freeze at 32 degrees F or 0 degrees C.

Evaporation verse condensation point of matter is typically the same temperature. For example, water will evaporate or condense at 212 degrees F or 212 degrees C.

Can you find the above information for a substance such as Mercury?

Look at the Element card for Mercury in the bin.

Watch the video on Discovery Education, “States of Matter.” (3:10)

Electrical Conductivity

Conductivity is a physical property which measures the ability of a substance to allow energy to pass through it.

There are several types of conductivity including electrical conductivity and thermal conductivity.

Electrical conductivity is a measurement of how well electricity can pass through matter.

Thermal conductivity is a measurement of how well heat can pass through it.

Metals are highly conductive while nonmetals are not conductive at all.

Matter that is not conductive at all are typically known as insulators.

Can you think of objects that would be highly conductive of energy?

Can you think of substances that would make good insulators (not conductive)?

Chemical verse Physical Properties

At station 9, you will look at the substances in the bags to complete the section.

Label the following items at station 9 either chemical or physical change.

Explain why for each.

Name 2 other examples of physical change.

Name two other examples of chemical change.

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