

Haines Study Guide: Semester one study guide

Density: The amount of mass in a given unit of volume.

Freezing Point: The temperature at which a liquid changes to a solid.

Gas: Expands to fill any available space. Particles are further apart and move quickly.

Liquid: Takes the shape of its container. Particles are close together but move around.

Mass: The amount of material in a substance.

Melting Point: The temperature at which a solid changes to a liquid.

Solid: Has a definite volume and shape. Particles are close together and vibrate in place.

Temperature: The amount of energy in a substance.

Volume: The amount of space a substance takes up.

Atom: smallest unit of matter that still retains the properties of an element, building block of all matter. Atoms are always in motion.

Conduction: Energy is passed from atom to atom through direct contact.

Conductor: A material that conducts heat or electricity well.

Convection: Process by which, in a fluid or gas being heated, the warmer part of the mass will rise and the cooler portions will sink.

Electromagnetic waves: A form of energy that can move through the vacuum of space.

Heat: Energy flow due to a temperature difference. Energy flows from high to low.

Insulator: A material that does not allow heat or electrons to move through it easily.

Radiation: Transfer of energy by electromagnetic waves without touching.

Temperature: A measure of the average energy of motion of the particles of a substance. More motion more temperature.

Thermal Energy: The total energy of motion in the particles of a substance.

Know different examples of conduction, convection and radiation

Layers of the Atmosphere:

Atmospheric Pressure: The amount of pressure one feels due to the mass of the atmosphere

Exosphere: Outer most layer of the atmosphere. Very few air molecules. Space is beyond the exosphere.

Ionosphere: Located within the mesosphere and the thermosphere. It is a layer of electrically charged particles.

Mesosphere: Shooting stars can be seen here.

Ozone layer: A layer of O_3 molecules, highest concentration of ozone is found in the stratosphere.

Stratosphere: contains highest levels of ozone

Thermosphere: known for its high temperatures

Troposphere: Lowest level of the atmosphere. Contains 99% water and 75% of all gases.

Water Cycle:

Condensation: water vapor cools and becomes a liquid.

Evaporation: a process at which molecules at the surface of a liquid absorb enough energy to change to the gaseous state.

Groundwater: water that is in the ground.

Precipitation: when water in the form of ice, rain, sleet, hail or snow falls to Earth.

Runoff: When precipitation hits the ground, it is either absorbed, or it flows over the surface of the Earth.

Transpiration: The water that plants give off as part of their respiratory process.

Water cycle: The continuous process by which water moves back from Earth's surface to the atmosphere and back.

Water vapor: Water in its gas form.

Air Mass:

Continental Polar: cold and dry, describing a cold dry air mass that forms over land in polar regions.

Continental Tropical: describing a warm, dry air mass that forms over land in tropical regions.

Equatorial: Near the equator

Fronts: Four major types, cold, warm, stationary, occluded.

Maritime Polar: cold and humid air mass forms over icy oceans in polar areas.

Maritime Tropical: A type of air mass that is warm and humid and usually forms over the ocean in tropical areas.

Occluded fronts: A warm air mass that is caught between two cooler air masses.

Stationary Front: Where a cold and warm air mass meet, but neither can move.

Weather tools:

anemometer: a tool that measures wind speed.

Barometer: a tool that measures air pressure

Rain gauge: a tool that measures the amount of rain that falls.

Wind vane: a tool that shows which direction the wind is coming from.

Thermometer: a tool that measures air temperature.

Severe Weather:

Cyclone: a swirling center of low air pressure

Doppler Radar: a radar tracking system that tracks how fast the wind is moving.

Extreme weather: severe or unusual weather conditions such as hurricanes, tornadoes, and blizzards.

Eye: a calm spot at the center of a storm

Eye wall: the strongest winds of a hurricane surrounding the eye.

Fujita scale: a scale that tells how severe a tornado is based on wind speed and damage being caused.

Funnel cloud: a cone shaped cloud

Saffir-Simpson Scale: A measurement system used to rate hurricanes according to their intensity

