

Grade 8 Science Final Exam Study Guide 2014

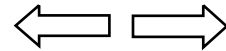
Pangaea- the name of the supercontinent that existed millions of years ago; means “all land”

continental drift – theory proposed by Alfred Wegner that states that continents have moved slowly to their current locations on Earth.

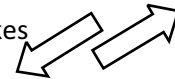
convergent boundaries - when two plates collide; form mountains, subduction zones



divergent boundaries – when two plates move apart; form rift valleys, mid-ocean ridges



transform boundaries – when two plates slide past one another; may cause earthquakes



LAYERS OF EARTH	CHARACTERISTICS
crust	outermost layer of Earth, made of hard rock, thinnest layer
mantle	largest layer of Earth, divided into 3 parts: lithosphere, asthenosphere, lower mantle convection currents in the mantle cause the Earth's plates to move
outer core	hot liquid layer, movements in outer core create Earth's magnetic field
inner core	hot, dense, solid layer, made of mostly iron and nickel

3 Layers of the Mantle



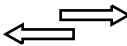
lithosphere- solid, made of hard rock

asthenosphere- solid, made of soft rock

lower mantle- solid, made of hard rock

Ages of Rocks	-youngest rocks are found at mid-ocean ridges -oldest rocks are farther away toward the continents
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3 TYPES OF FAULTS

Type of Fault	Stress	Stress Motion	Direction of land movement
Normal	tension		downward
Reverse	compression		upward
Strike-slip	shearing		little upward or downward movement

- **earthquake**- the shaking and trembling that results from the movement of rock beneath Earth's surface
- **focus**- the point **beneath the Earth's surface** where rock that is under stress breaks and triggers an earthquake
- **epicenter**- the point **on the Earth's surface** directly above the focus
- **silica**- a compound made up of oxygen and silicon particles; the more silica content, the more explosive the volcanic eruption
- **extrusion**- lava that hardens on the earth's surface; always younger than the rocks below it
- **intrusion**- magma that cools and hardens in a mass of igneous rock below the earth's surface; always younger than the rock layers around and beneath it

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- **matter** = anything that has mass and takes up space.
- **pure substance** = a single kind of matter that is pure, meaning that it always has a specific makeup. Ex.) table salt and sugar
- **physical property**- any characteristic of a substance that can be observed or measured without changing the composition of the substance (ex. density, hardness, melting point, boiling point)
- **chemical property**- any property that produces a change in the composition of matter (ex. ability to burn, ability to combine, or react, with other substances)

weight = a measure of the force of gravity on an object; can change- depends on location Ex.) earth vs. moon

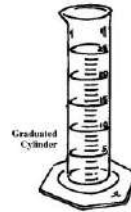
mass = a measure of the amount of matter in an object; **does not change**

- triple beam balance
- SI unit is the kilogram
- scientists prefer to measure by mass rather than weight because mass doesn't change



volume = the amount of space that matter occupies

- graduated cylinder for liquids
- ruler using the formula $L \times W \times H$ for regularly shaped solids
- water displacement for irregularly shaped solids
- Units include: liquids- L, mL and solids- cm^3



density = relates the mass of a material in a given volume

- $D = M/V$
- Units include: g/cm^3
- density of water = $1 \text{ g}/\text{cm}^3$
- if something has a density greater than $1 \text{ g}/\text{cm}^3$, it will sink in water.
- if something has a density less than $1 \text{ g}/\text{cm}^3$, it will float in water.

SI unit for length = meter

- **fossil**- imprints, remains, or traces of once-living organisms that have been preserved; usually found in sedimentary rock
- **species**- a group of organisms with members that reproduce among themselves in their natural environment
- **evolution**- change in the hereditary features of an organism over time
- **natural selection**- process by which individuals that are better adapted to their environment are more likely to survive and reproduce than other members of the same species.
 - **overproduction**- most species produce more offspring than can possibly survive
 - **competition**- food, space, other resources are limited causing direct or indirect competition



ecology = the study of the interactions between organisms and their environment

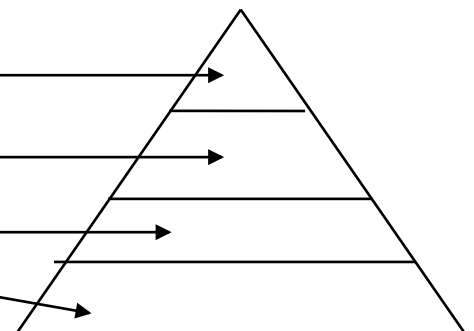
organism = one member of a species

population = organisms of one species living together in the same place at the same time

community = different populations living together and interacting in the same place at the same time

ecosystem = communities and the abiotic factors that affect them

habitat = the place where an organism lives



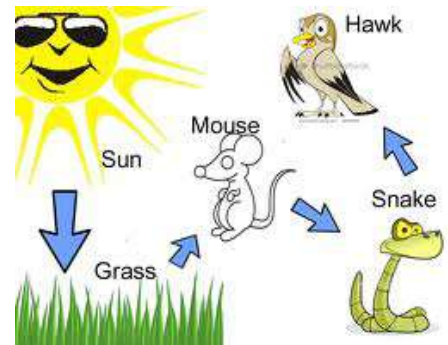
producer = source of all the food in an ecosystem; can make its own food through photosynthesis

consumer= an organism that obtains energy by feeding on other organisms

scavenger= a carnivore that feeds on the bodies of dead organisms

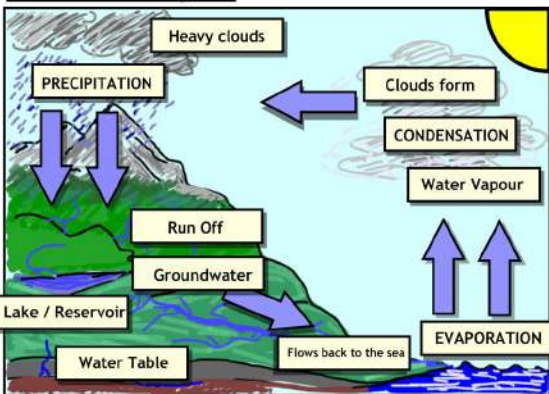
decomposer= organism that breaks down wastes and dead organism to return the raw materials to the ecosystem

food chain= a series of events in which one organism eats another and obtains energy; producers are always the first link in a food chain.



photosynthesis= a process that uses water, carbon dioxide, and light energy to produce oxygen and glucose

The Water Cycle



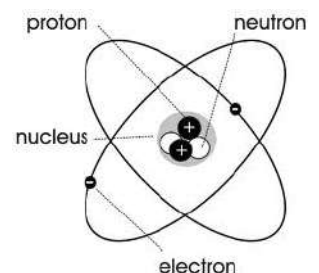
→ **evaporation**- the process by which molecules of liquid water absorb energy and change into a gas

→ **condensation**- the process by which a gas changes to a liquid

→ **precipitation**- rain, snow, sleet, hail

- **kinetic energy** = energy of motion. Ex.) ball rolling down a hill
- **potential energy** = stored energy of position. Ex.) stretched rubber band
- **reference point**= a place or object used for comparison to determine if something is in motion
- **speed**=the distance an object travels per unit of time; the rate of change of position. Can be used to describe an object's motion; can be fast or slow. $\text{speed} = \text{distance} / \text{time}$
- **acceleration**= the rate of change of velocity or the rate of change of speed and/or direction; includes speeding up, slowing down, and turning.
- **deceleration**= when an object is decreasing in speed; slowing down

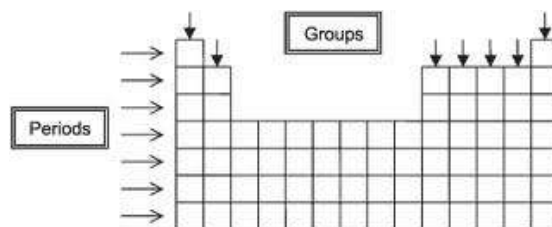
- **atom** – smallest building block or smallest part of all matter
- **nucleus** – center of atom – contains protons and neutrons
- **electron cloud** – area outside of nucleus that contains electrons; surrounds the nucleus
- **# of protons = # of electrons**





SUBATOMIC PARTICLE	CHARGE	LOCATION	MASS
proton	positive (+)	in nucleus	1 amu
neutron	neutral (no charge)	in nucleus	1 amu
electron	negative (-)	in electron cloud	1/2000 of an amu

Name _____ Per _____ Date _____

- **period:** row of elements; elements change gradually and predictably \longleftrightarrow
- **group:** column of elements; **also known as a family**; elements share similar properties \updownarrow



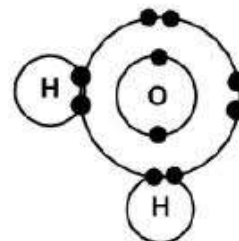
CHARACTERISTICS OF METALS

ductile:	can be drawn out into wires	
malleable:	able to be hammered into thin sheets; bendable	

ionic bond= the bond that holds ions close together; formed when one atom gains an electron and one atom loses an electron; formed between a metal and a nonmetal



covalent bond= the bond that forms when two or more atoms share electrons
ex.) H_2O ; usually form between two nonmetals



Water: 2 hydrogen atoms sharing electrons with 1 oxygen atom