

NAME: \_\_\_\_\_

**Classifying Matter by Physical Properties**







Mass- amount of matter in an object, measure with a triple beam balance  
 state of matter- matter can be a solid, liquid, or gas  
 magnetism- an object's ability to be attracted to a magnet; steel, iron, cobalt, and nickel are magnetic  
 relative density- if an object floats or sinks in water or compared to another substance; if an object floats it is less dense and if it sinks it is more dense  
 solubility in water- ability of a substance to dissolve; soluble or insoluble  
 ability to conduct or insulate thermal or electrical energy- metals are good conductors; plastic, rubber, wood, glass, and nonmetals are good insulators

**Constant Properties of Water**






boiling point- 100°C, changes from a liquid to a gas  
 melting point- 0°C, changes from a solid to a liquid  
 freezing point- 0°C, changes from a liquid to a solid

\*constant regardless of the amount of water or the current temperature

**Mixtures and Solutions**

<p><b>MIXTURES</b></p> <ul style="list-style-type: none"> <li>• does not dissolve</li> <li>• keeps properties</li> <li>• doesn't mix evenly</li> <li>• easy to separate</li> </ul>		<p><b>SOLUTIONS</b></p> <ul style="list-style-type: none"> <li>• dissolving</li> <li>• properties change</li> <li>• mixes evenly</li> <li>• difficult to separate</li> </ul>	
<p><b>Hand-</b> separate objects that are easy to pick out</p> 	<p><b>Magnet-</b> separate objects that are magnetic- steel, iron</p> 	<p><b>sieve or strainer</b> separate objects of different sizes</p> 	<p><b>float/sink</b> in water- separate objects of different densities</p> 
<p>Mixtures and solutions can be separated using their different physical properties</p>		<p><b>filter-</b> separate solid from liquid</p> 	<p><b>evaporation-</b> use to separate solutions</p> 

**Types of Energy**

















<p><b>mechanical energy-</b> energy of motion</p> 	<p><b>thermal energy-</b> heat energy: energy of movement of particles</p> 	<p><b>light energy-</b> energy that travels as waves and can be seen</p> 	<p><b>sound energy-</b> energy that travels as vibrations and can be heard</p> 	<p><b>electrical energy-</b> energy of moving electrons</p> 
--	--	--	--	---

**STAR PARTNER**  
**Quiz & L:**  
**Fri, 4/27**

**Safety**

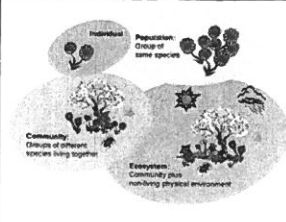
hazard- a possible source of danger  
 precaution- an action taken before to guard against possible danger  
 safety equipment- materials such as goggles, gloves, or protective clothing to keep us safe

**Scientific Instruments (Tools)**

<p>calculators and computers-organize data</p>		<p>spring scale- measures weight or force in grams or newtons</p>	
<p>microscopes and hand lenses- magnify small objects</p>		<p>graduated cylinders and beakers- used to measure volume in milliliters or liters</p>	
<p>cameras- record observations using images or video</p>		<p>hot plate- used to heat substances</p>	
<p>metric rulers and meter sticks- measures length or distance in meters or centimeters</p>		<p>magnets- piece of iron that exhibits magnetic properties</p>	
<p>Celsius thermometer- measures temperature in degrees Celsius</p>		<p>collecting net- used to collect living things like insects</p>	
<p>prism- a transparent geometric object that refracts light and separates it into the spectrum of colors</p>		<p>notebook- used to record data and observations</p>	
<p>mirror- a shiny surface that reflects light</p>		<p>timing devices (stopwatches)- used to record time</p>	
<p>pan balance and triple beam balance- measure mass in grams</p>		<p>terrariums and aquariums- habitats for living things</p>	

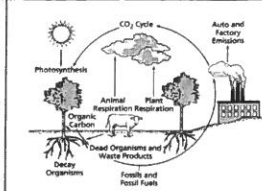
Name: \_\_\_\_\_

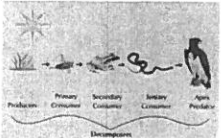
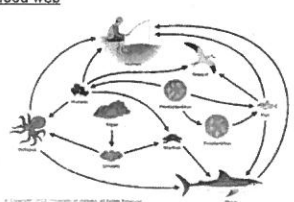

STAAR-partner  
Quiz #2  
Fri, 5/4

Interdependency in Ecosystems	
<p>Organisms <b>interact</b> and <b>depend</b> on other organisms and the non-living elements in an ecosystem to survive</p> <p>living + non-living = ecosystem</p> <p>a <b>habitat</b> is the place where an organism lives in an ecosystem</p> <p>an organism's <b>niche</b> is its role or job in its ecosystem</p>	

Changes to Ecosystems		
<p><b>Changes from Natural Disasters</b>- fires, earthquakes floods, volcanoes, climate changes over time</p>	<p><b>Changes by Organisms</b>- organisms building homes (nests, dams, etc.), overgrazing due to overpopulation</p>	<p><b>Changes by Humans</b>- destroying habitats to build, pollution, introducing foreign species, hunting</p>
<p><b>Effects</b>- organisms overcome and survive, move and find new habitats, slowly adapt over time, or die</p>		

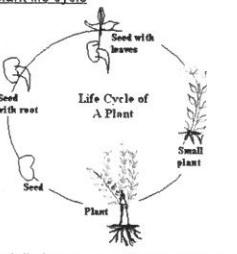
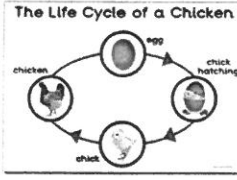
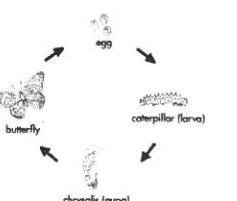
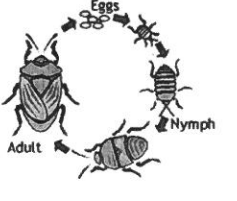
Transfer of Energy in Ecosystems	
<p>Energy is transferred (or passed on) through an ecosystem from organism to organism</p>	<p>All this energy that is transferred starts from the sun.</p> <p>Plants take the energy from the sun and turn it into a form that other organisms can use</p>

Carbon Dioxide- Oxygen Cycle	
<p>Plants need CO<sub>2</sub> to make food through photosynthesis and give off O<sub>2</sub></p>	
<p>Animals need O<sub>2</sub> for respiration (breathing) and give off CO<sub>2</sub></p>	









<p><b>Producers</b> are use the sun's energy to make food through photosynthesis</p> <ul style="list-style-type: none"> <li>plants including grasses, trees, flowers, bushes, etc.</li> </ul>	<p><b>food chain</b></p> 
<p><b>Consumers</b> are organisms that consume (or eat) other organisms to obtain energy</p> <ul style="list-style-type: none"> <li><b>herbivores</b>- consumers that eat only producers (plants)</li> <li><b>omnivores</b>- consumers that eat only other consumers (animals)</li> <li><b>omnivores</b>- consumers that eat both plants and animals</li> </ul>	<p><b>food web</b></p> 
<p><b>Decomposers</b> are organisms that break down dead organisms</p> <p>Mould, bacteria, and some insects</p>	<p><b>energy pyramid</b></p> 

Adaptations	
<p><b>adaptation</b>- a characteristic or behavior of an organism that helps it survive</p>	
Purpose	Examples
Obtain food, energy or water	<ul style="list-style-type: none"> <li>beaks and talons of hawks and eagles</li> <li>long sticky tongues of frogs to eat</li> <li>shallow or deep roots of plants to get water</li> <li>large leaves of plants to get sunshine</li> <li>herbivores have large flat teeth for chewing plants</li> <li>carnivores have sharp teeth for tearing meat</li> </ul>
Protection	<ul style="list-style-type: none"> <li>thorns on plants to keep organisms from eating</li> <li>poisonous leaves to keep predators from eating</li> <li>odor of skunks and other organisms</li> <li>camouflage or mimicry to hide from predators</li> <li>hard shell of turtle or armadillo to protect and hide</li> </ul>
Water conservation	<ul style="list-style-type: none"> <li>scaly skin of lizard</li> <li>thick waxy leaves that prevent loss of water</li> <li>thick trunks and branches of cacti to store water</li> </ul>
Movement	<ul style="list-style-type: none"> <li>birds have light bones to fly</li> <li>water birds have webbed feet to swim</li> </ul>
Hearing or Seeing	<ul style="list-style-type: none"> <li>owls have sensitive ears to help find prey</li> <li>eagles and hawks have excellent eye-sight to see prey</li> </ul>

Inherited Traits vs. Learned Behaviors	
<p><b>Inherited Trait</b>- a physical characteristic you are born with</p> <ul style="list-style-type: none"> <li>color of eyes</li> <li>height</li> <li>color of fur or skin</li> <li>leaf shape</li> <li>color of flower</li> <li>type of seeds</li> </ul>	<p><b>Learned Behavior</b>- a behavior you learn</p> <ul style="list-style-type: none"> <li>reading or writing</li> <li>going to a certain location</li> <li>looking for food</li> <li>animal doing a trick</li> <li>animal learning how to hunt or how to build a nest</li> </ul>

Life Cycles	
<p><b>life cycle</b>- the sequence of stages or changes in the life of an organism</p>	
<p><b>Plant life cycle</b></p> 	<p><b>direct development</b>- develop through slowing growing but keeping the same basic features</p> 
<p>adult plant produces seeds and cycle repeats</p>	<p>examples- most mammals, birds, and reptiles</p>
<p><b>complete metamorphosis</b>- organism's appearance changes drastically at each of its 4 growth stages</p> <p>egg, larva, pupa, adult (ELPA)</p> 	<p><b>incomplete metamorphosis</b>- organism changes appearance slightly at each of its 3 growth stages</p> <p>egg, nymph, adult (ENA)</p> 
<p>examples- butterflies, beetles, moths</p>	<p>examples- grasshoppers, dragonflies, cockroaches</p>

**Earth Changes**

Agents of Change		Type of Landforms
<b>weathering</b> -the breaking down of rock into sediment 	weathering-break it, break it	<b>delta</b> - a fan shaped deposit of sediment at the mouth of a river 
<b>erosion</b> -the movement of sediment from one place to another 	erosion- move it, move it	<b>canyon</b> - a v-shaped valley eroded by a river 
<b>deposition</b> -the laying down of sediment 	deposition- drop it, drop it	<b>sand dune</b> - a mound or hill of wind blown sand 
wind, water, and ice are agents of weathering, erosion, and deposition 		<b>U-shaped valley</b> - valley created by movement of a glacier 

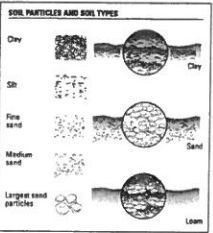
**Slow vs. Rapid Changes to Earth's Surface**

<b>Slow Changes</b> - weathering, erosion, deposition; creation of canyons, valleys, deltas, mountain formation
<b>Rapid (fast) Changes</b> - volcanic eruptions, earthquakes, tsunamis, landslides, floods

**Constructive vs. Destructive Forces**

<b>Constructive Forces</b> - forces that build up the land; examples include deposition, delta formation, sand dune formation, mountain formation, volcano formation	<b>Destructive Forces</b> - forces that tear down the land; examples include weathering, erosion, formation of canyons and valleys, earthquakes, landslides, volcanic eruptions
--	---

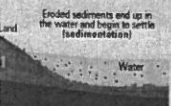
**Soil**

Types of Soil Particles	SOIL PARTICLES AND SOIL TYPES
<b>clay</b> - tiny particles, hold lots of water, smooth and sticky	
<b>silt</b> - small particles, holds water pretty well, smooth	
<b>sand</b> - larger particles, does not hold water well, gritty	
<b>humus</b> - rich dark organic nutrient rich oil that supports plant life	

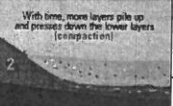
**Sedimentary Rocks**

**sedimentary rocks**- formed when layers of sediment are pressed together and harden over time examples- limestone, coal, shale, sandstone

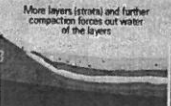
1. Eroded sediments end up in the water and begin to settle (sedimentation)




2. With time, more layers pile up and press down the lower layers (compaction)



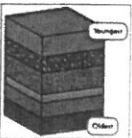
3. More layers (strata) and further compaction forces out water of the layers



4. Salt crystals glue the layers together (cementation) Rock mass formed is sedimentary

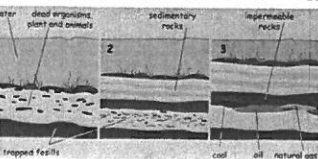


Layers of Sediment + Pressure + Millions of Years = Sedimentary Rock



**Fossil Fuels**

**fossil fuel**- non-renewable resource formed from remains of dead organisms

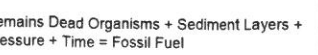


examples are coal, petroleum (oil), and natural gas

fossil fuels take millions of years to form and form in sedimentary rock

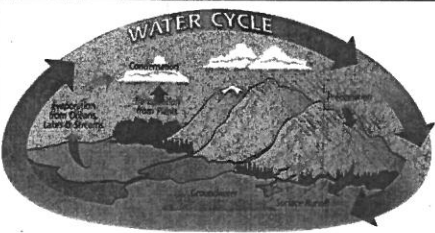
burning fossil fuels releases energy from the sun stored in the dead living things

remains Dead Organisms + Sediment Layers + Pressure + Time = Fossil Fuel



**Water Cycle**

**water cycle**- the continuous movement of water between the earth's surface and atmosphere that recycles water



The sun is the driving force of the water cycle that provides energy for evaporation to happen.

name: \_\_\_\_\_

**Fossils**

**fossil**- the preserved remains or traces of a living thing from long ago ; formed when an organism is buried in sediment and slowly hardens into rock or is trapped in tar, ice, or sap

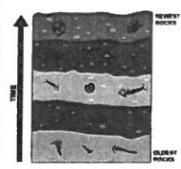
fossils give evidence of past living organisms

- what organisms ate
- what organisms looked like
- what organisms lived
- how organisms moved
- how life on earth has changed over time

fossils give evidence of past environments

- what the climate was like in the past- warm or cool, dry or wet
- what type of environment is was in the past- forest, ocean, swamp, desert, etc.
- how the environment has changed over time

fossils are found in sedimentary rock



STAAR-part 2  
Quiz # 3  
Fri, 5/11

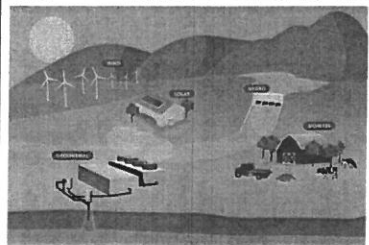
**Natural Resources**

<b>renewable resources</b> - resources that can be replaced	<b>non-renewable resources</b> - resources that are being used faster than can be replaced
examples- wind, water, solar, wind, geothermal, biofuels	examples- fossil fuels (oil, coal, natural gas), minerals, soil

**Alternative Energy Resources**

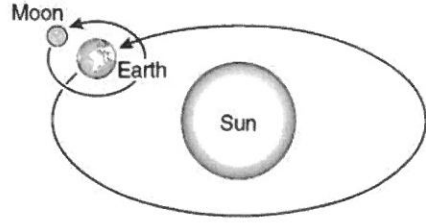
We must conserve nonrenewable energy resources such as fossil fuels, which are running out and find alternative energy resources that are renewable

**solar energy**- energy from the sun  
**wind energy**- energy from moving air  
**hydroelectric**- energy from water  
**geothermal**- energy from heat inside earth  
**biomass**- energy from living things



name: \_\_\_\_\_

STAAR-  
partner  
Quiz #4 -  
Tues, 5/16

Movement of Earth, Sun, and Moon	
<p>The earth rotates or spins on its axis every 24 hours causing the day and night cycle. This also causes the sun to appear to move across the sky as well as the moon and stars.</p>	
<p>The earth revolves around the sun every 365 days or 1 year.</p>	
<p>The moon rotates on its axis and revolves around the sun.</p>	

