Science Grade 7 Name: _____

Review: Sc7.1 Ecosystems

Terms

abiotic	species	range of tolerance
biotic	habitat	population
carnivore	herbivore	primary
food chain	individual	producer
community	omnivore	food web
consumer	organism	secondary
decomposer	photosynthesis	succession
ecosystem		

1. **_Ecosystem_____** : all the living (biotic) and abiotic factors of an environment
2. **_Biotic_____** : living or dead
3. **_Abiotic_____** : non-living
4. **_Habitat_____**: the place where an organism lives.
5. **__Species_____**: the kind of an organism; a group of organisms that look alike and can reproduce together.
6. **__Organism_____** : scientific term for a living being (whether plant, animal, microorganism)
7. **_Individual_____** : a single organism
8. **_Population_____** : a group of organisms of the same species that live in an environment
9. **_Community_____** : all the organisms, of all species, that live in an environment
10. **__Range of tolerance_____**: the limits of an abiotic factor, such as temperature, that an organism is able to tolerate and survive.
11. **__Herbivore_____** : eats plants
12. **__Carnivore_____** : eats animals
13. **__Omnivore_____** : eats plants and animals
14. **__Consumer_____**: an organism that does not make its own food but eats other organisms for food.
15. **__Producer_____**: an organism that makes its own food by photosynthesis.
16. **__Decomposer_____**: an organism that eats and decomposes dead organisms and waste.

17. __**Photosynthesis**_____: a process where plants use carbon dioxide, water, and energy from the sun to make their own food (sugar) and oxygen.

18. ___**Food chain**_____: a sequence of organisms that eat each other, showing the movement of energy from the producer (plant) to each consumer in turn.

19. ___**Food web**_____: a network of interconnected food chains in an ecosystem.

20. __**Succession**_____: changes over time in the species of plants and animals that live in an ecosystem.

21. ___**Primary**_____**:** succession: starts in a completely new environment such as bare, new volcanic rock.

22. ___**Secondary**_____**:** succession: occurs when an ecosystem reestablishes itself after a disturbance, such as a forest fire.

Questions

1. Explain the difference between biotic and abiotic factors, and give one example of each.

Biotic – Living or dead – any plants, trees, animals
Abiotic – non-living – water, sunlight, wind, temperature, rock

2. Name the four types of ecosystem in Newfoundland and Labrador that we studied in this unit.

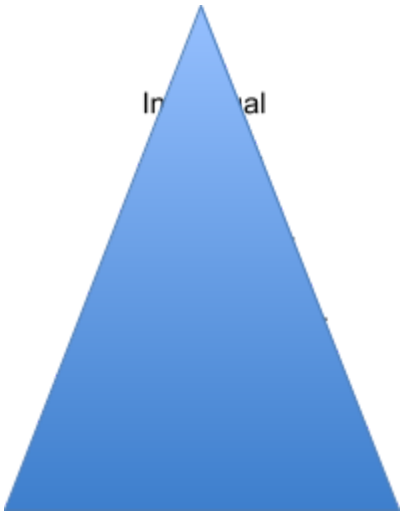
Ocean, Forest, freshwater, Arctic Tundra

3. Complete the table :

Type of ecosystem	3 abiotic factors important in this ecosystem	2 producers	2 consumers
Ocean	Rocky coastline Salt water Temperature	Seaweed Phytoplankton	Barnacles Jellyfish Cod, etc
Forest	Temperature Lack of sunlight on forest floor Water – Damp, bogs	Balsam fir, white birch, black spruce, mountain ash	Moose, caribou, black bear, lynx, red fox, pine marten, mink
Fresh water	Fresh water Temperature mud soil	Willows, tamarack, water plants, algae	Whitefish, sticklebacks, beavers, muskrats, ducks frogs, insects
Arctic tundra	Temperature – frozen ground Lack of precipitation Amount of sunlight	Low shrubs, moss, lichen, small flowering plants	Caribou, ox, wolves, hares, lemming

4. Explain the difference between an individual, a population, a community, and an ecosystem. You can use diagrams in your answer.

Individual – one organism
Species – organisms that look the same and can interbreed
Population - several individuals of the same species living together
Community – all organisms of all species living together
Ecosystem – all organisms and all abiotic conditions



5. Explain the difference between a producer and a consumer in an ecosystem, and give two examples of each.

Producer – makes its own food – plant – any plant example
Consumer – an organism that eats another organism. Can be an herbivore (rabbit, moose) an omnivore (eats plants and animals ex. bears, foxes) or a carnivore that eats only meat like owls and spiders.

6. What is photosynthesis? Give two reasons why animals in an ecosystem need plants to survive.

   How plants make their own food. They take:
   sunlight (energy) + CO_2 + H_2O → Food (sugar) and O_2

   All energy originally comes from the sun and plants are the only organisms that can make food with it. Ecosystems need plants for food and oxygen.

7. Name three examples of decomposers. Explain why decomposers are necessary in an ecosystem.

Bacteria, Fungi, Worms
They break down dead plants, animals and waste (poop) to put nutrients back into the soil so it can be used again.

8. Give an example of a food chain with a minimum of 4 organisms from an ecosystem of Newfoundland and Labrador. Remember to start your chain with a producer, and use the direction of the arrows to show the movement of energy in the ecosystem.

Daisy → ladybug → grouse → wolf
Phytoplankto → zooplankton → shellfish → starfish

Many examples will do for this question.

9. Explain the difference between primary and secondary succession. Represent each type of succession by a series of simple sketches

Primary succession starts on bare rock

Bare rock→ lichens → small moss and ferns → small plants → shrubs → trees

Secondary succession starts after a disturbance for example fire or clear cutting

Small plants and grass → shrubs → small trees → large hardwood trees

10. Choose a human activity that affects the environment, and write a short paragraph to explain why we do this activity, and how it affects the environment.

Many possible answers.
We cut down trees to make homes, furniture, paper, firewood. That destroys habitats for many creatures. We want to preserve habitats so animals don't die and to preserve biodiversity. But this could have an economic impact ie. People who work in the industry could lose their jobs.
Another example we talked about in class was flooding for Muskrat Falls hydro development.

Case Study: Forest Ecosystem.

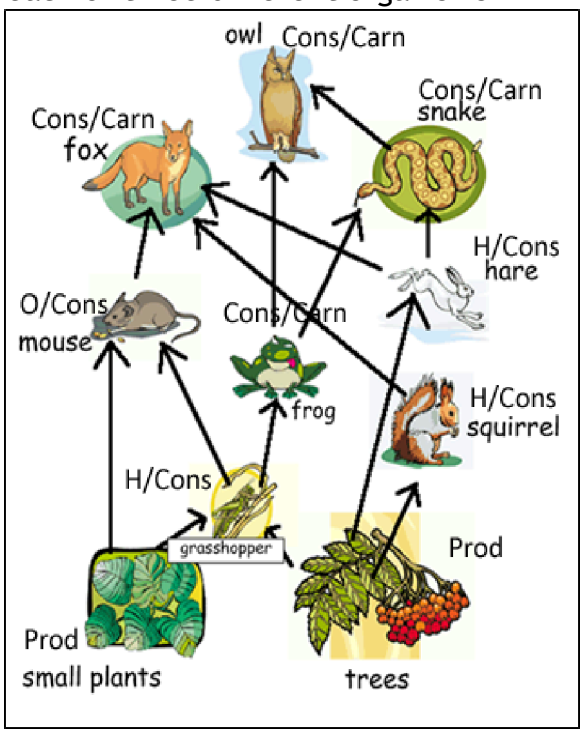
Study the forest food web shown, and answer the following questions.

1. Abiotic factors
   a. Name three abiotic factors that are important in a forest.

Lack of sunlight, temperature, water

   b. Choose one abiotic factors, and explain how it affects each of three different organisms in the forest.

Lack of sunlight affects the types of small plants that grow on the forest floor – only plants that need very little sun can grow.
Temperature – only plants that can live in cool temps in the summer.
Water – forests are very damp so plants must be able to tolerate very wet conditions



2. On the food web, label the different types of organisms as shown :
   - herbivores (**H**)
   - carnivores (**Ca**)
   - omnivores (**O**)
   - producers (**Prod**)
   - consumers (**Cons**)

3. According to this food web, what do mice eat?

Small plants and grasshoppers

4. Which organisms eat frogs?

Snakes, owls and foxes

5. Which organism eats three different organisms in this food web?

Fox

6. What is the longest food chain in this web?

Small plants→ grasshoppers → frog → snake → owl

7. Explain how the fox gets its energy directly from the sun.

Fox eat mice. Mice eat small plants. Small plants use energy from the sun to make their own food. If small plants didn't have sun to make food then there would be no food for the mice and therefore no food for the fox.

8. Suppose wolves are introduced in this ecosystem. Wolves eat hares, squirrels, and mice.

   a. Do you think the population of mice will increase or decrease? Why?

      Will decrease because the foxes and wolves will be competing for mice (and hares and squirrels)

   b. Do you think the population of plants will increase or decrease? Why?

      Population of plants will increase because there will be less mice eating them.

   c. Do you think the population of fox will increase or decrease? Why?

Fox population will decrease because there will be more competition for their food source. Ie the wolves will also be eating the hares, squirrels and mice.

Science Grade 7 Name: _____

Review Sc7.2: Heat and Temperature

Terms

bimetallic strip	convection	particle
heat	convection current	radiation
specific heat capacity	expansion	solid
kinetic	evaporation	sublimation
condensation	melting	temperature
deposition	gas	thermometer
thermal conductor	thermal insulator	thermoscope
conduction	liquid	thermostat
freezing	matter	heat transfer
contraction	molecule	

1. _Thermometer_____ : an instrument for measuring temperature
2. _Thermoscope_____: an instrument that shows temperature changes but does not measure the degrees.
3. thermal __expansion_____ : when the volume of a substance gets bigger as it gets hotter
4. thermal __contraction_____ : when the volume of a substance gets smaller as it gets colder
5. __bimetallic strip_____: a thin strip made of two different metals, which curves when heated or cooled because one metals expands and contracts more than the other with temperature.
6. __thermostat_____: an instrument for controlling the temperature of a house or appliance.
7. ___matter_____ : anything that has mass and occupies space
8. __solid_____ : state of matter that keeps its shape and volume
9. __liquid_____: state of matter that keeps its volume but changes shape to fit the container.
10. __gas_____: state of matter that changes its shape and volume to fill the container.
11. __molecule_____ or _particle_____ : the smallest « grain » of a substance that can exist; too small to be seen even with the most powerful microscopes
12. __kinetic_____ energy : energy of motion
13. __sublimation_____: change from solid to gas.
14. __deposition_____: change from gas to solid.
15. __condensation_____ : change from gas to liquid
16. __evaporation_____ : change from liquid to gas

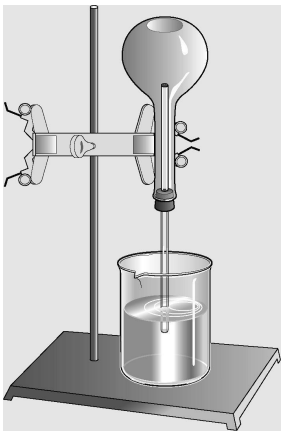
17. __freezing_____ : change from liquid to solid
18. ___melting_____ : change from solid to liquid
19. __heat transfer_____: when heat energy goes from a hot to a cold object.
20. __conduction_____: when heat is transferred by collisions from one molecule to the next.
21. __convection_____: when heat is carried by currents in a gas or a liquid.
22. __radiation_____: when heat travels through a vacuum or transparent substance.
23. __convection current_____: circular currents in a liquid or gas caused when the warmer liquid or gas rises, and the colder one flows downward.
24. __thermal conductor_____ : a substance that lets heat move through easily
25. _thermal insulator_____ : a substance that does not transfer heat easily

Chapter 4: Temperature

1. Complete the table. Know these situations/temperatures for the test.

Situation	temperature
Freezing point of water	0 °C
Room temperature	20 °C
Body temperature	37 °C
Boiling point of water	100 °C

2. Look at the diagram of the gas thermoscope.



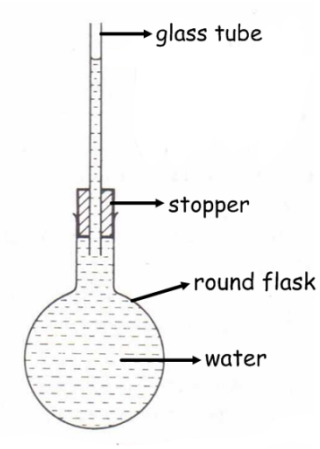
   a. What happens if the air in the flask is heated? Explain why.

As air in the top flask is heated, it expands, because the molecules have more energy, are vibrating more and therefore take up more space. This will push the liquid in the tube down.

   b. What happens if the air in the flask is cooled? Explain why.

As air is cooled, it has less energy and takes up less space because the molecules are vibrating less, and move closer together (contract) The liquid in the tube will go up.

3. Look at the diagram of the liquid thermoscope.



a. What happens if the water in the flask is heated? Explain why.

As water is heated, it gains energy, and takes up more space (expands). The water level in the tube will go up.

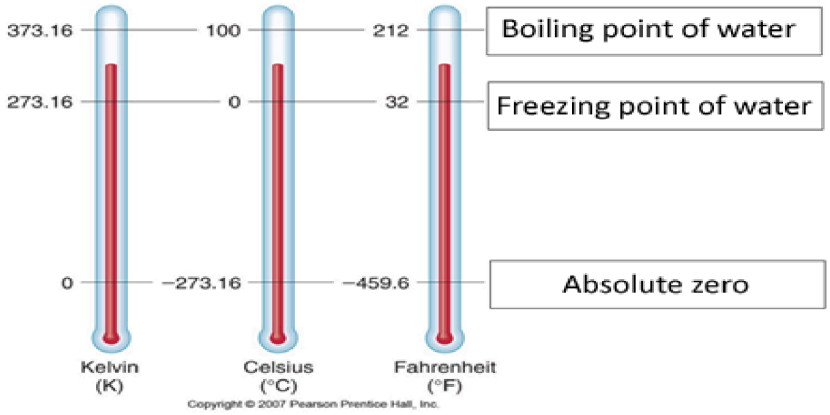
b. What happens if the water in the flask is cooled? Explain why.

As water is cooled, it has less energy, takes up less space, contracts. Therefore the water level in the tube will go down.

4. Name the three temperature scales we studied in this unit.

Celsius, Farenheight, Kelvin

5. Look at the diagram with the three temperature scales. Answer the questions below.



a. Write the significance of the temperatures indicated in the boxes.

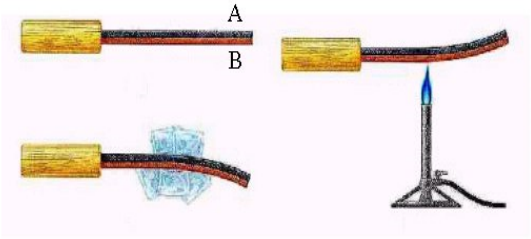
b. What temperature is the absolute zero in degrees Fahrenheit? _-459.6 ºF_____

c. What is the temperature of boiling water in kelvin? __373.16 ºK____

d. What is the freezing point of water in Fahrenheit? _32 ºF____

e. Think: what is the temperature of the human body in kelvin? _273 + 38 = 310 ºK____

6. Look at the diagram of the bimetallic strip and explain why it curves when it is heated or cooled.



A bimetallic strip is made up of 2 metals fused together. When they are heated, the different metals expand at different rates so the strip bends.

Chapter 5: Particle Theory

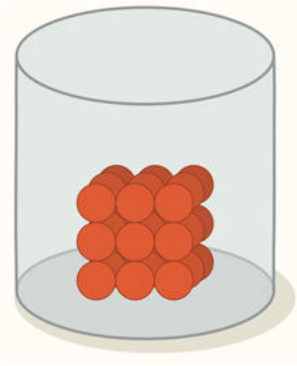
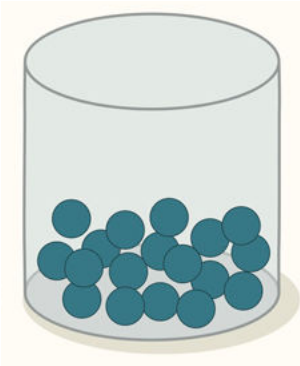
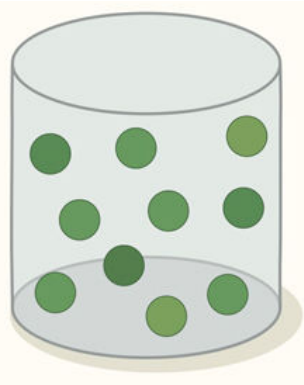
7. State the 5 points of the particle theory.

S - There is SPACE between particles
T – All matter is made of TINY PARTICLES
A – There are ATTRACTIVE FORCES between particles
M – Particles are always MOVING
P – PARTICLES OF ONE SUBSTANCE are the same but different than the particles of another substance.

8. Name the three states of matter

Solid, liquid, gas

9. Complete the table :

	solid	**liquid**	**gas**
shape	Fixed	Takes the shape of the bottom of its container	Expands to fit the container shape
volume	Fixed	Fixed	Expands to fit the container shape
distance between particles	Don't have the energy required to overcome the attractive forces, close together	Have enough energy to overcome some attractive forces so are, loosely held together	Have lots of energy to overcome attractive forces – very loosely held together – lots of space between particles
movement of particles	Vibrate in place	Slide past one another	Very quickly
diagram of particles			

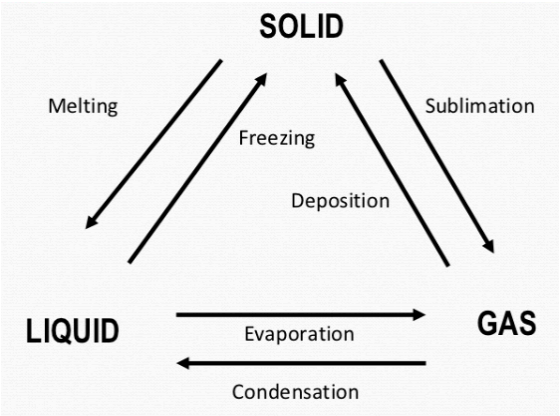
10. What is kinetic energy? How does the kinetic energy of particles change with temperature?

Kinetic energy is the energy of movement. Temperature is a measure of the average kinetic energy of the particles of a substance. If temperature increases, particles move more. If temperature decreases particles are moving less.

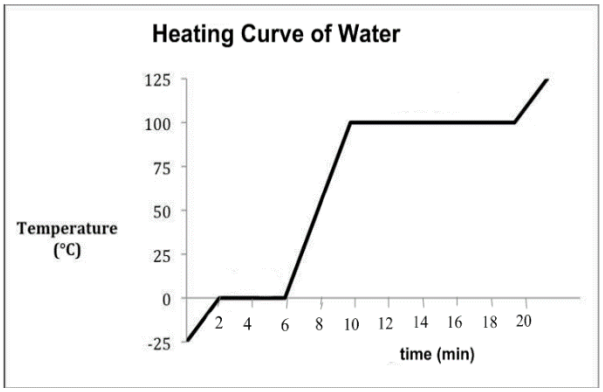
11. Use particle theory to explain why substances expand when they are heated, and contract with they are cooled.

Particles are always moving and there is space between particles. When particles heat up, they move faster and therefore take up more space (expand). When particles cool, they move slower, and take up less space (contract).

12. Draw a labelled diagram to show the 6 changes of states.



13. Look at the heating curve of water.



For each of the following time periods, say whether the water is in the solid, liquid or gas state:

a. between 0 and 2 minutes : _Solid_____

b. between 2 and 6 minutes : _Solid and liquid (melting)_

c. between 6 and 10 minutes : _Liquid_____

d. between 10 and 18 minutes : _Liquid_____

e. after 20 minutes : _Gas_____

Chapter 6: Heat Transfers

14. Name and explain the three modes of heat transfer, and give an example of each.

Conduction – happens in a solid – particles vibrate and collide with the particles next to them, transferring kinetic energy. Ex. metal pots for cooking, ice pack on a sore knee.

Convection- happens in a liquid or gas. When warm fluids (liquid or gas) heat up, they expand and rise. Cool fluids contract and move down (sink). Ex boiling water, sea breezes, air in a room is warmer at the ceiling than the floor.

Radiation occurs in a vacuum, there are no particles involved. Electromagnetic waves carry energy from a source to an object. Ex sun and fire.

15. Why does convection happen in liquids and gases, but not in solids?

Because the particles in a solid cannot move around like they can in a liquid or gas.

16. What is a convection current? Give an example.

A liquid or gas heats up, expands (gets less dense) and rises. It will eventually cool and fall. This creates a current when it happens over and over again. Ex. sea breeze, boiling water, home heating radiator.

17. What colour absorbs the most heat by radiation? __Black_____

18. What is the difference between a thermal insulator and a conductor? Give an example of each.

An insulator does not let heat pass through easily. Ex pink house insulation, Styrofoam, plastic or silicone pot handles, thermos and wood. A conductor lets heat pass through easily. Ex metal pots

Science Grade 7 Name: _____ HR: _____

Sc7.3: Unit Review

Chapter 7: Substances and Mixtures

Terms

mixture	**homogeneous mixture**	**solution**
heterogeneous mixture	**mechanical mixture**	**pure substance**

1. _Pure substance_____: contains a single substance, so only one kind of particles.
2. _mixture_____: contains two or more substances, so two or more types of particles.
3. __heterogeneous mixture_____, also called __mechanical mixture_____: a mixture where you can see the different substances (either just with your eyes, or with a microscope) because particles of some substances stay clumped together.
4. __Homogeneous mixture_____, also called __solution_____: a mixture where you only see one thing, because the particles of the different substances are so completely mixed together.

Questions

1. Explain the difference between a pure substance and a mixture.

Pure substance – only one type of particle.
Mixture – more than one type of particle.

2. Complete the table to compare homogeneous and heterogeneous mixtures.

	homogeneous mixture	**Heterogeneous mixture**
Also called….	Solution	Mechanical mixture
Can you see different substances in the mixture?	No	yes
How are the particles mixed together?	Completely mixed	Can see chunks
If it is a liquid or a gas, does light go straight through it, or is it scattered?	Straight through	scattered
Does it show the Tyndall effect?	no	yes

3. Classify each substance as either a pure substance, a homogeneous mixture, or a heterogeneous mixture. Justify your answers.

Substance	**Classification** (pure substance, homogeneous mixture, or heterogeneous mixture)	**Justification**
Pizza	Heterogeneous	Mixture of different veg, meat, bread, and you can see chunks.
Distilled Water	Pure substance	Only one type of particle
Vinegar	Homogeneous mixture	Particles completely mixed, no visible chunks. No Tyndall effect.
Milk	Heterogeneous mixture. Mixture of mixtures	Particles can be seen under a microscope. Ie milk solids, fats. It also contains water and sugar.

Chapter 8: Solutions and Solubility

Terms

Concentration	**Insoluble**	**Solubility**	**Solute**
Concentrated	**Non-saturated**	**Soluble**	**Solvent**
Dilute	**Saturated**	**Solution**	

1. __solution_____: a homogeneous mixture composed of a solvent and one or more solute.
2. __solute_____ : the substance which is dissolved in the solvent
3. __solvent_____: the substance that dissolves the solute; the substance that is in greater amount in the solution.
4. ___soluble_____substance: a substance that can dissolve in a particular solvent.
5. __insoluble_____substance: a substance that CANNOT dissolve in a particular solvent.
6. __dilute_____solution: a solution that contains little solute for the amount of solvent.
7. ___concentrated_____solution: a solution that contains a lot of solute for the amount of solvent.
8. ___concentration_____: a measurement of the amount of solute for the amount of solvent in a solution
9. ___solubility_____ : the maximum concentration of a solute that is capable of dissolving in that solvent (how well something dissolves)
10. ___saturated_____solution: a solution that contains the maximum concentration possible of that solute.
11. __unsaturated_____solution: a solution that contains LESS THAN the maximum concentration possible of that solute.

Questions

1. Explain the relationship between the three following terms: a ***solution***, a ***solvent***, a ***solute***.

A solution is a mixture of a solvent and a solute.

2. Complete the following table :

Solution	Which substance is the solvent? How do you know?	Which substance is the solute? How do you know?
Bronze is an alloy containing 88% copper and 12% tin.	Solvent is copper because there is more of it. 88%	Tin is the solute because there is less of it. 12%
Antifreeze contains ethylene glycol and coloring dissolved in water.	Water is solvent because it says "dissolved in"	Ethylene glycol and colouring are the solutes

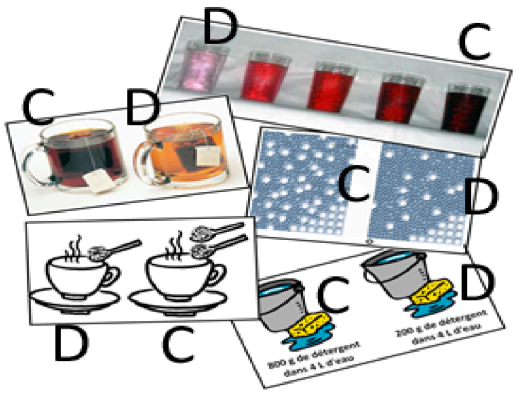
3. Name two substances that are insoluble in water : __sand_____, __oil_____

4. Name two substances that are soluble in water : __sugar_____, ___salt_____

5. Describe what happens to the sugar molecules when a sugar crystal dissolves in water.

Sugar molecules are attracted to water molecules allowing them to dissolve.

6. In each of the pictures on the right, write C next to the most concentrated solution, and D for the most dilute.



7. Rosalind Franklin gradually adds sugar to 1 litre of water, 100 g at a time. At first the sugar crystals dissolve, but after 3200 g, no more sugar dissolves.
    a. At what point is the solution saturated?

At 3200g/l it is saturated and no more sugar will dissolve. There will be sugar grains left at the bottom.

    b. During what time is the solution unsaturated?

When there is less than 3200 g/l of sugar in the water. Sugar will be gone after stirring. There will be none left at the bottom.

Chapter 9: Separating Mixtures

Terms

paper chromatography	**filtration**	**magnetism**
flotation	**hand sorting**	**evaporation**
distillation		

1. _hand sorting_____: to separate a mixture by hand, one piece at a time.
2. _magnetism_____: separation method using a magnet to pull out metal pieces from a mixture.
3. _flotation_____: separation method using water to float some substances while others sink.
4. _filtration_____: separation method using a filter that retains large particles while letting smaller ones through.
5. ___Evaporation_____: separation method where one substance evaporates into the air while others do not, and remain in the original container.
6. ___distillation_____: separation method where a liquid solution is heated to evaporate one component, then the vapor is collected and condensed to recover the pure liquid.
7. ___paper chromatography_____: a method for separating coloured substances from a mix, using paper and a solvent.

Questions

1. Complete for each separation method

Separation Method : **Hand Sorting**
Explain how it works Mechanical sorting. Physically picking out bits.
One example of a mix you might separate by this method Nuts and bolts, smarties from trail mix.
Does this method separate heterogeneous mixtures, homogeneous mixtures, or both? Heterogeneous

Separation Method : **Magnetism**
Explain how it works Use a magnet to separate something magnetic (metal) from non-metal
One example of a mix you might separate by this method Iron filings and pencil shavings
Does this method separate heterogeneous mixtures, homogeneous mixtures, or both? Heterogeneous

Separation Method : **Flotation**
Explain how it works Add water and one of the substances will float where it can easily be skimmed off.
One example of a mix you might separate by this method Wood chips from rocks. Ping pong balls from golf balls. Oil from water.
Does this method separate heterogeneous mixtures, homogeneous mixtures, or both? Heterogeneous

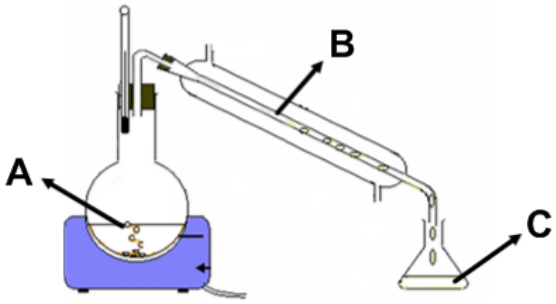
Separation Method : **Filtration**
Explain how it works Filtration works by using the size of the objects to separate them. The smaller objects fall through holes and larger objects stay in the filter.
One example of a mix you might separate by this method Spaghetti noodles from water in a colander. Rocks from soil in a sieve.
Does this method separate heterogeneous mixtures, homogeneous mixtures, or both? Heterogeneous

Separation Method : **Evaporation**
Explain how it works Heat mixture until the solvent evaporates leaving the solute behind.
One example of a mix you might separate by this method Water and sugar solution. Salt and water solution.
Does this method separate heterogeneous mixtures, homogeneous mixtures, or both? Homogeneous.

Separation Method : **Distillation**
Explain how it works Heat the solution, collect the vapour, and cool it until it becomes liquid again. Use a distillation apparatus.
One example of a mix you might separate by this method Separate water from dirt in unclean water.
Does this method separate heterogeneous mixtures, homogeneous mixtures, or both? Homogeneous.

2. Look at the distillation apparatus below. Explain what is happening in each of the three places indicated.

A. Solution is boiled
B. Vapour is collected and cooled in the condenser
C. Distilled liquid is collected.



Science Grade 7 Name: _____ HR : _____

Revision Sc7.4: The Earth's Crust

Chapter 10: Rocks and Minerals

Definitions

rock cycle	magma	rock
extrusive	metamorphic	parent rock
igneous	mineral	sedimentary
intrusive	metamorphic rock	
lava		

1. _Rock_____: a piece of the Earth's Crust, composed of two or more minerals
2. _Mineral_____: a pure, naturally occurring, inorganic, solid substance.
3. __Igneous_____rock: a rock formed when molten rock cools and hardens.
4. ___Lava_____: molten rock coming out of a volcano
5. __Magma_____: molten rock under the surface of the Earth.
6. __Intrusive_____rock: type of igneous rock formed when magma cools slowly under the surface of the Earth.
7. __Extrusive_____rock: type of igneous rock formed when lava comes out of volcano and cools quickly.
8. _sedimentary_____rock: a rock formed when layers of sediments harden because of compaction and cementation.
9. __metamorphic_____rock: a rock formed by the transformation of pre-existing rock by heat and pressure.
10. _parent rock_____: a rock before it is transformed by heat and pressure.
11. _metamorphic rock_____: a rock after it has been transformed by heat and pressure.
12. _Rock cycle_____: process where rocks are constantly, though slowly, being transformed.

Questions

1. What is the difference between a rock and a mineral?

Rock – a mixture
Mineral – pure substance

2. Name 6 properties of minerals that can be used to identify them.

Colour, lustre, streak, hardness, cleavage, fracture

3. Luster :
   a. What word describes the luster of glass?

Glassy

   b. What word describes the luster of a metal?

Metallic

   c. What word describes the luster of a piece of chalk?

Dull

4. What is the difference between cleavage and fracture? Name one mineral example of each.

Cleavage – breaks along flat surfaces ex. mica
Fracture – breaks roughly or with jagged edges ex. coal obsidian

5. Name the three families of rocks, describe how they are formed, and give one example of for each.

Sedimentary – compaction and cementation of sediments. Shale sandstone, conglomerate, limestone

Igneous – cooling of molten rock. There are two types: 1. Intrusive: forms below ground. ex gabbro and granite. They have large crystals because of slow cooling. 2. Extrusive: forms above ground. Ex basalt, obsidian, scoria. They have small crystals (or none) because of fast cooling.

Metamorphic – parent rocks undergo heat, pressure and hot water over a long period of time. Ex slate (from shale) and marble (from limestone)

6. What is the difference between magma and lava?

Magma is molten rock below the surface of the earth.
Lava is molten rock above the surface of the earth.

7. Name the two types of igneous rocks, and explain the differences between them: where they are formed, what type of molten rock are they formed from, and how fast they cooled. Name one example of each.

Intrusive – forms below earth's surface from magma. Cools slowly, large crystals ex granite.
extrusive – forms above earth's surface from lava. Cools quickly, small crystals ex basalt.

8. Which type of igneous rock has the largest crystals? Explain why.

Intrusive because it cools so slowly that the crystals have time to form.

9. Name three examples of sediments.

Mud, sand, gravel.

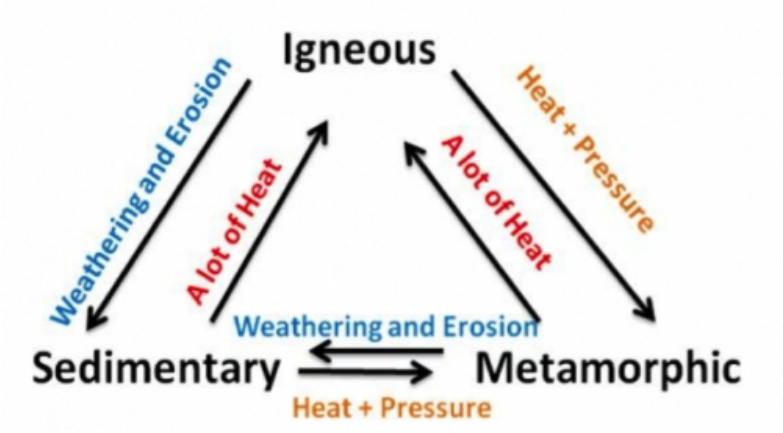
10. Why do sedimentary rocks form in layers?

Water, wind etc. move sediment until it finally settles. More sediment settles on top of it and forms visible layers called beds.

11. What is the connection between a « parent rock » and its « descendant rock»?

The parent rock undergoes heat, pressure and hot water over a long period of time to form the metamorphic rock.

12. Draw a diagram to represent the rock cycle.



Chapter 11: Plate Tectonics

Definitions

Convergent	Mantle	Plate tectonics
Convection current	Inner core	Transform
Crust	Outer core	Earthquake
Divergent	Plate	Tsunami
Richter scale	Seismograph	Volcano

1. __inner core_____: central part of the Earth, probably solid and formed mostly of the metals iron and nickel.

2. __Outer core_____: Second layer of the earth from the center, probably liquid and formed mostly of molten iron and nickel.

3. __mantle_____: third layer of the earth from the center, formed of semi-liquid magma.

4. __crust_____: surface layer of the Earth, formed of solid rocks.

5. __plate tectonics_____: a theory that states that the crust of the Earth is formed of rock plates floating and moving slowly on the magma of the mantle.

6. __plate_____: a large section of the Earth's crust.

7. __convergent_____: two plates moving towards each other.

8. __divergent_____: two plates moving away from each other.

9. __transform_____: two plates sliding against each other.

10. __convection current_____: circular movement in a fluid, caused when hotter, less dense fluid floats up while colder, denser fluid sinks down.

11. __earthquake_____, when the surface of the earth shakes – sometimes violently and with great damage.

12. __tsunami_____: a large, destructive ocean wave caused by an underwater earthquake.

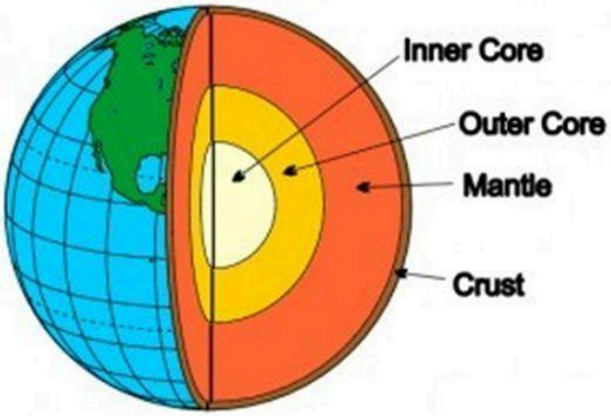
13. __seismograph_____: an instrument for detecting and measuring earthquakes.

14. __Richter scale_____: a scale for describing the strength of an earthquake.

15. ___volcano_____: a type of mountain that can erupt and produce lava, gases, and ashes

Questions

1. Draw a labelled diagram of the structure of the Earth, showing the four layers, and describe each layer.



- **Crust** = thin, rocky outer layer
- **Mantle** = properties of solid but flows slowly
- **Outer core** = liquid nickel and iron
- **Inner core** = solid liquid and iron

2. What is the theory of plate tectonics?

Earth's crust is broken into pieces called plates that are always moving.

3. What makes tectonic plates move?

Convection currents in the mantle move the plates.

4. Explain how the movement of tectonic plates causes earthquakes.

Forces are built up between the plates in earth's crust, when the plates move, that is an earthquake.

5. Explain how the movement of tectonic plates causes volcanoes.

At plate collision zones layers can get forced down and melt because of the pressure.
Where plates separate, molten rock flows up to the surface (ex Mid-Atlantic Ridge)
Where plates are thin, lava can be forced up through cracks in the crust.

6. Explain how the movement of tectonic plates causes mountain chains.

Folding happens at convergent boundaries where plated collide.
Faulting happens where there is a break in rock layers and it is too brittle to fold cause by squeezing or stretching of the earth's crust.
Volcanic eruptions – magma is forced up by pressure inside the earth.