NOTES-CYCLES chapter 2-1 NAME _____HR___

A) Cycles in the Earth System

1) _____- A place where matter and/or energy are _____

2) _____**Cycle**- Movement of water into and out of the _____, _____, _____, and _____

a) _____- Water changing from a liquid to a gas and flying up into the atmosphere

b) _____- Water changing from a gas to a liquid and becoming visible (cloud formation)

c) _____- Any form of water that falls to Earth from clouds

d) _____- Water vapor released by plants

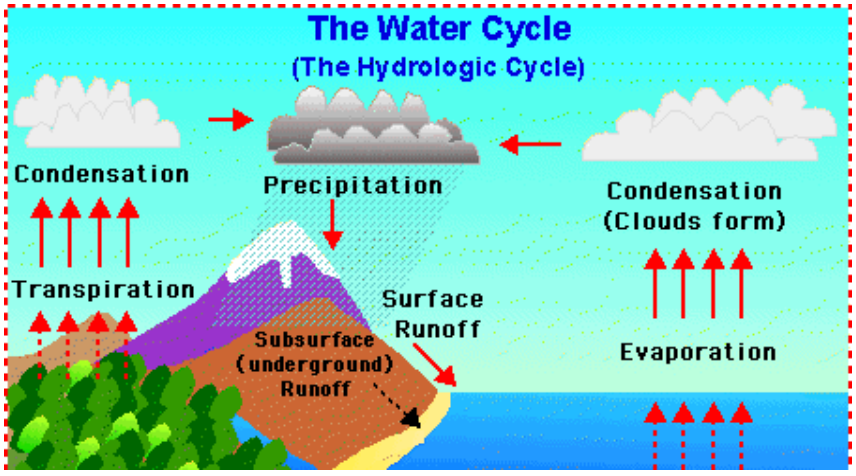
e) _____- Water soaking into the ground

f) _____- Water soaking into plant roots

g) _____- water moving across impermeable land

h) _____- water breathed out of creatures

I) _____- water coming out of creatures as solid or liquid waste



3) _____**Cycle**- Movement of carbon into and out of the geosphere, hydrosphere, atmosphere, and _____

a) _____ + _____- Process of eating. Food (carbohydrates, fats, and proteins) is full of needed carbon atoms

b) _____- Process whereby creatures get rid of solid and liquid waste (contains carbon)

c)_____- Process where plants take carbon dioxide out of the air to make glucose, a carbohydrate ($C_6H_{12}O_6$).

d) _____- Process where glucose is broken down to release energy and carbon dioxide and water is released back into the atmosphere.

e) _____- The breakdown of dead matter (contains carbon) into simpler substances like carbon dioxide and water which is then released back into atmosphere. It is bacteria doing cell respiration.

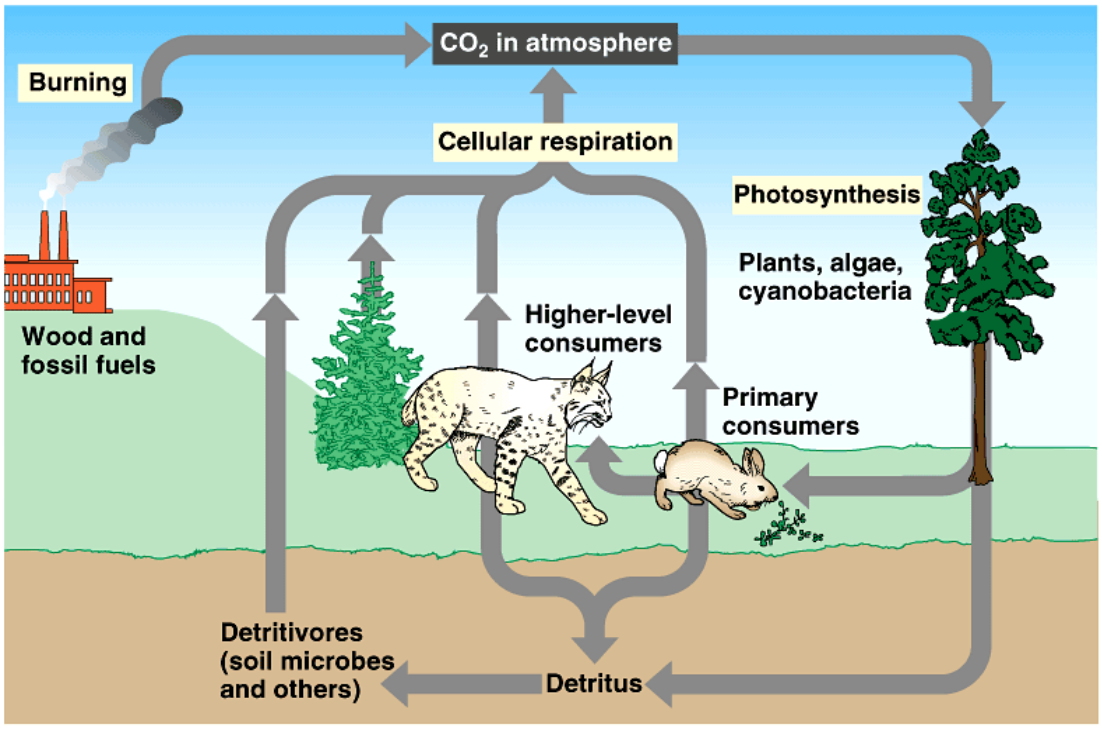
f) _____- the removal of fossil fuels (carbon filled) from the Earth

g)_____- Burning (especially carbon-filled fossil fuels) which results in the release of carbon dioxide and water back into the atmosphere.

h) _____- The spontaneous movement of CO_2 in the air into lakes and oceans. (from an area of high concentration to an area of low concentration)

g) _____- The creation of shells (full of carbon) from the dissolved CO_2 in sea water

i) _____- The creation of carbon filled rock (limestone) from the shells of dead marine organisms



4) _____Cycle- Movement of nitrogen into and out of the geosphere, hydrosphere, _____, and biosphere

a) _____- Process of eating, and the only way creatures can get their nitrogen. Nitrogen in food is needed to make _____, _____, _____, _____ , etc. Nitrogen in the air _____be breathed in and used by animals because it is in the wrong form.

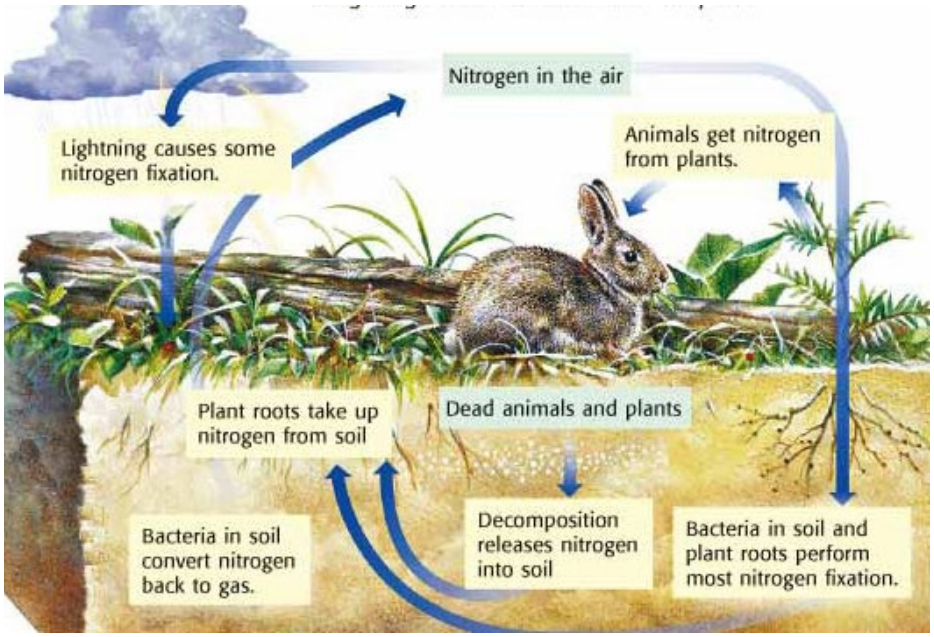
b) _____- the elimination of liquid and solid waste. Both are high in _____.

c) _____- bacteria break down dead organisms releasing nitrogen into soil or air

d) _____- denitrifying bacteria in the soil turn nitrogen into triple bonded N2 (_____) and release it into the air

a) _____/ AKA _____- turning nitrogen into a _____form (NO2, NO3) so plants can assimilate it through their roots. Happens in the soil. Lightning and bacteria can perform this process.

b) _____ - nitrogen soaking into the roots of a plant



6) Many Cycles with many connections

a) Each cycle is _____in many ways, for example, nitrogen phosphorus, and carbon are carried by _____in parts of the water cycle.

7) What happens if _____ _____of these substances are found in one place?

a) Too much _____and _____causes _____ _____ AKA (_____ _____)
   a. In spring nitrogen/phosphorus rich fresh water (caused by all the _____ farmers use) creates a _____layer above the saltwater
   b. Oxygen is now unable to _____with the salt water
   c. The nitrogen and phosphates cause excessive algae growth (**eutrophication**)
   d. Algae _____and sink to the bottom where they _____
   e. Decomposers use up all the _____ (doing cell respiration)
   f. All creatures _____, or _____away if they can

b) Too much _____caused the disaster at Lake Nyos
   a. A pocket of _____was beneath the lake
   b. It leaked _____ _____ (CO_2) into the water, changing it into carbonic acid.
   c. This made it an _____lake because it was saturated with carbon dioxide.
   d. On August 21, 1986, possibly as the result of a landslide, Lake Nyos suddenly emitted a large cloud of CO_2, which _____1,700 people and 3,500 livestock in nearby towns and villages.

c) Too much carbon in the air is causing _____ _____
   a. excessive carbon is released into the air due to _____of fossil fuels
   b. the extra carbon is a _____gas which traps heat like a blanket
   c. over time the overheating atmosphere causes the _____to get warmer