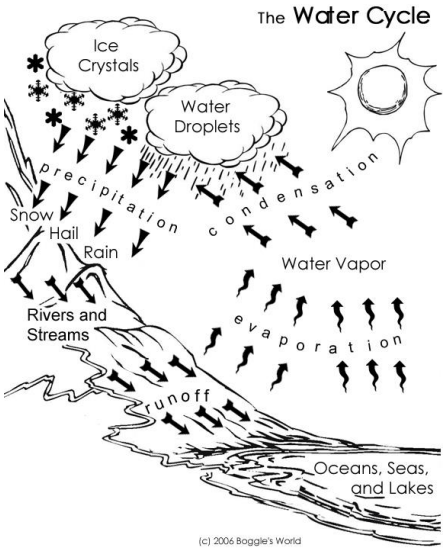
SNC 1DI Date: _____

Cycling of Nutrients

- Except for the few asteroids that arrive on Earth from space, the amount of matter on Earth is _____
- All _____ is made up of elements in combinations, and since the elements on this planet are not new they must be recycled
- This recycling of _____ occurs between the biotic factors and the abiotic factors of an ecosystem
- Sometimes this exchange is quick, and sometimes the elements can be locked into a _____ for a long time (i.e. glaciers, rocks etc)

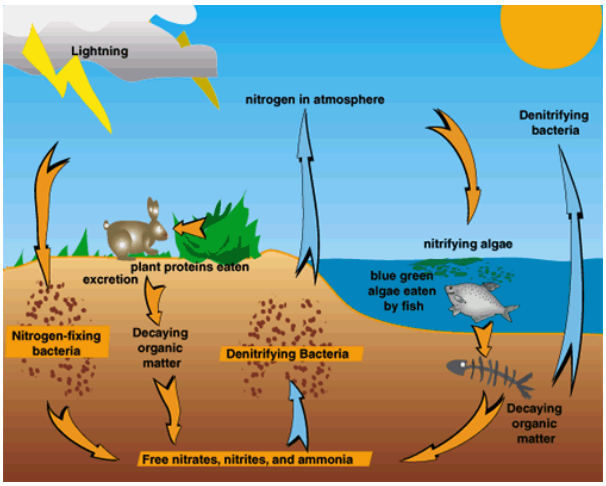
THE WATER CYCLE



- Water _____ (or is released as water vapour from plants in a process called _____) and rises in the atmosphere
- At a higher, cooler altitude the water vapour _____ into rain/ice/snow and falls to the surface as _____
- Water on land will eventually _____ into streams/ponds/lakes/oceans or _____ into the soil to join up with other ground water and/or be taken up by roots of plants

THE NITROGEN CYCLE:

- _____ of our atmosphere is made up of _____ (N_2), however plants and animals cannot use nitrogen in this form
- _____ is a process that converts unusable nitrogen gas into a useable form, and can occur in two main ways:
  1. _____ – the energy from lightning can convert the nitrogen gas (N_2) in the air directly into nitrates (NO_3). They then dissolve in rainwater, and are absorbed by plants.
  2. _____ – found on the nodules of roots of plants and in soil/water. These bacteria convert nitrogen gas into ammonia (NH_3).
     _____ – take ammonia and turn it into nitrites (NO_2) and then nitrates (NO_3).



- Once the nitrates are absorbed by plants, animals eat the plants and eventually change the nitrates into _____
- the waste can be used by _____ and turned back into nitrates again
- Other bacteria can turn nitrates back into _____, which returns to the atmosphere

CARBON CYCLE

- Most of the carbon on Earth is locked up in _____ (i.e. plants, fossil fuels, oceans, animals etc.)
- the remainder is generally found as molecules of _____
- most carbon is recycled through _____ and _____

Photosynthesis:

- Occurs in _____ (which have a chemical in their leaves called _____)
- Chlorophyll captures _____ and turns nutrients in the plant into stored chemical energy (_____)
- the waste product is _____

carbon dioxide + water → sugar + oxygen

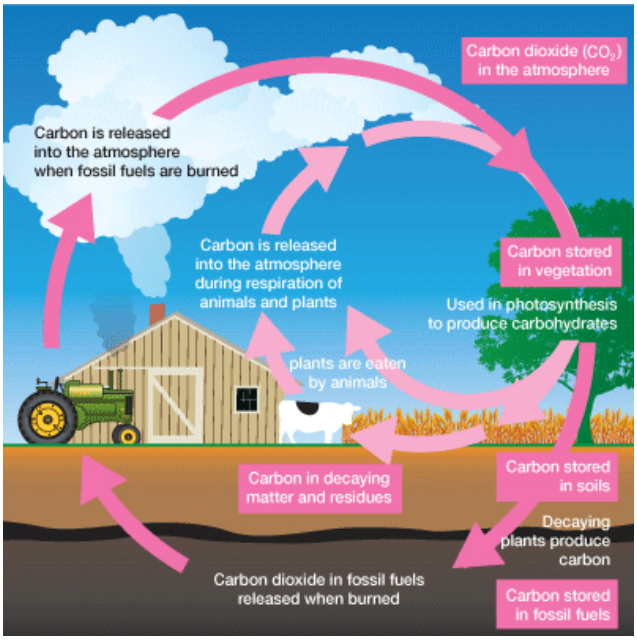
CO_2 H_2O $C_6H_{12}O_6$ O_2

Cellular Respiration:

- occurs in _____ and _____ to make energy for performing daily functions
- the waste products are _____ and _____

sugar + oxygen → carbon dioxide + water

$C_6H_{12}O_6$ O_2 CO_2 H_2O



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