

## Biogeochemical Cycles

-unlike energy which "flows through" an ecosystem to eventually end up as heat, matter 'cycles' within all ecosystems

-matter on earth is considered either '*organic*' or '*inorganic*'

-matter can never be destroyed, it can only be changed in form.

Ex: wood burning

-three main cycles to be discussed

Water Cycle

Carbon Cycle

Nitrogen Cycle

Sep 26 - 7:03 PM

## *Carbon Cycle*

Photosynthesis and respiration



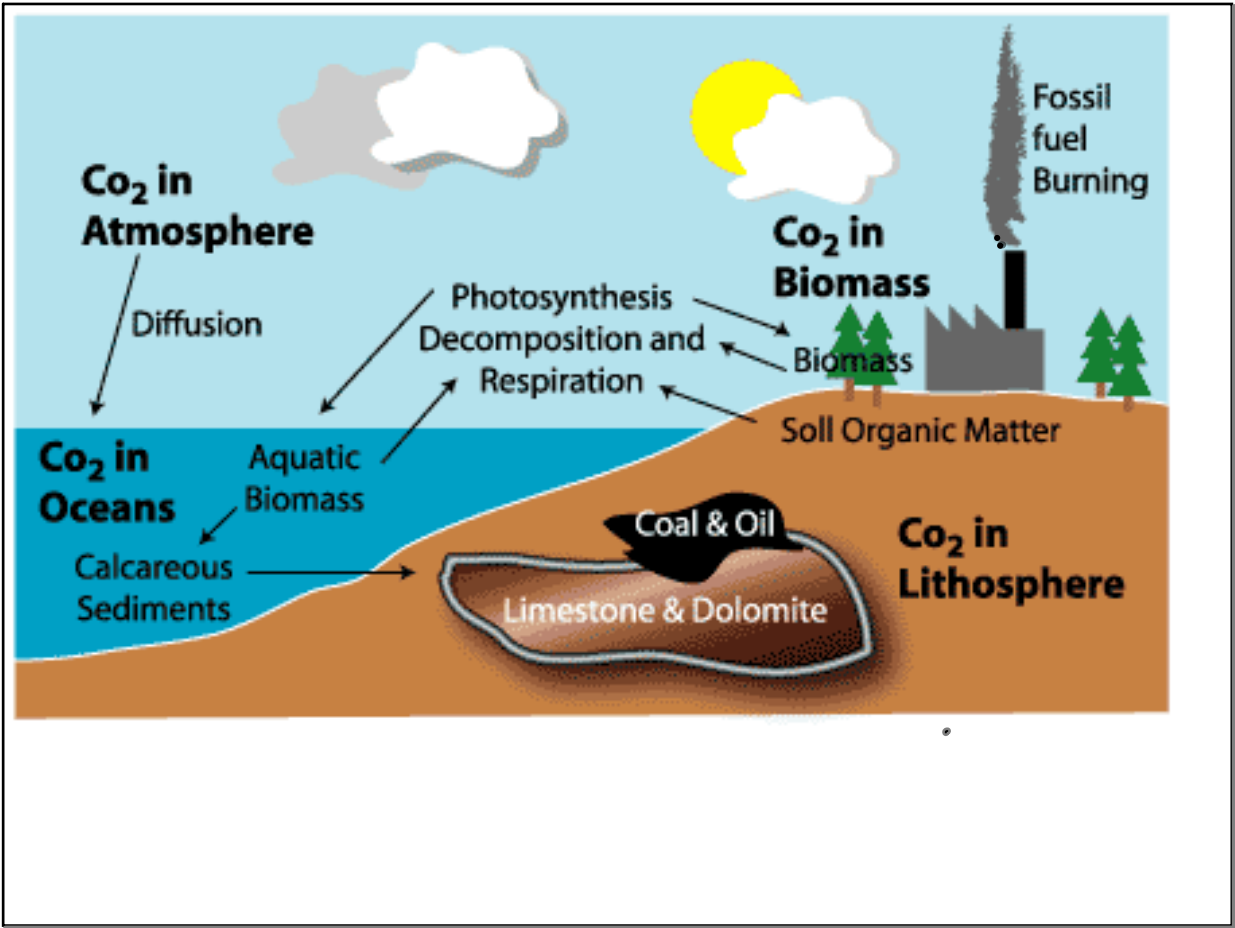
Inorganic carbon sinks

- carbon dioxide in the atmosphere
- dissolved carbon dioxide in the ocean
- calcium carbonate in shells of living creatures and limestone deposits

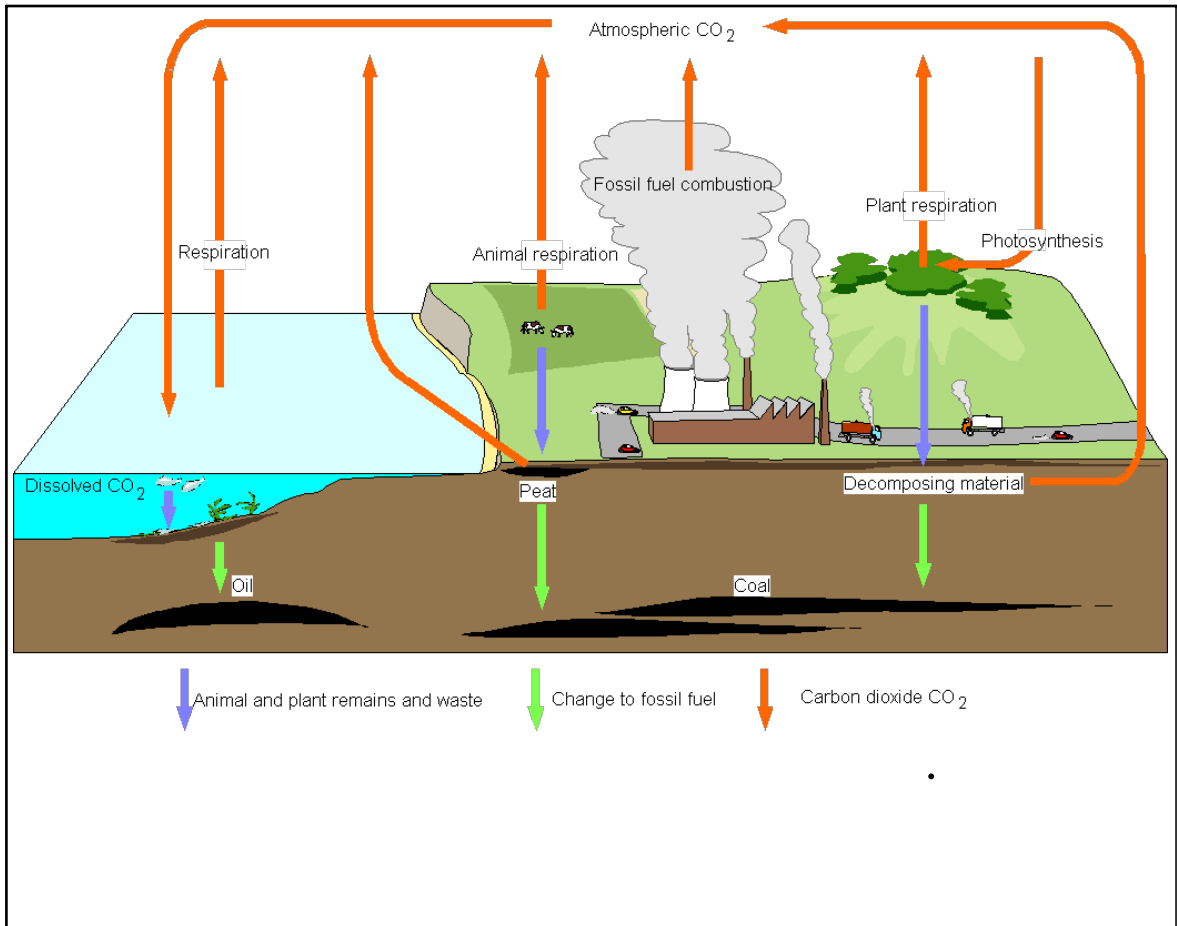
Organic carbon sinks

- bodies of living things
- peat bogs
- fossil fuel deposits

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Carbon cycle

## Nitrogen Cycle

- nitrogen gas makes up 79% of the atmosphere
- we cannot use it as gaseous N, since it is very stable and not very reactive
- must be supplied to organisms in the form of a nitrate ion

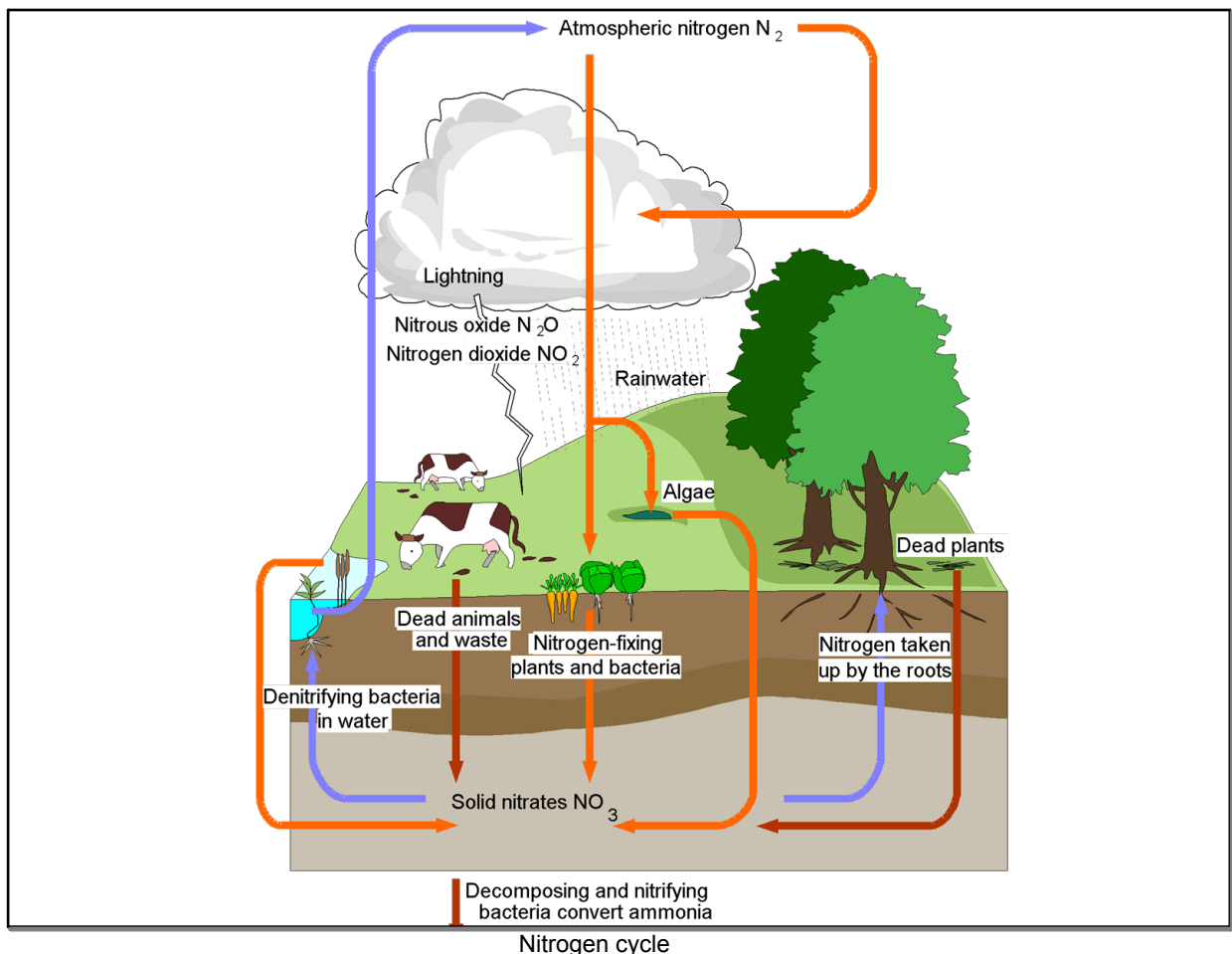
## Nitrogen Fixation

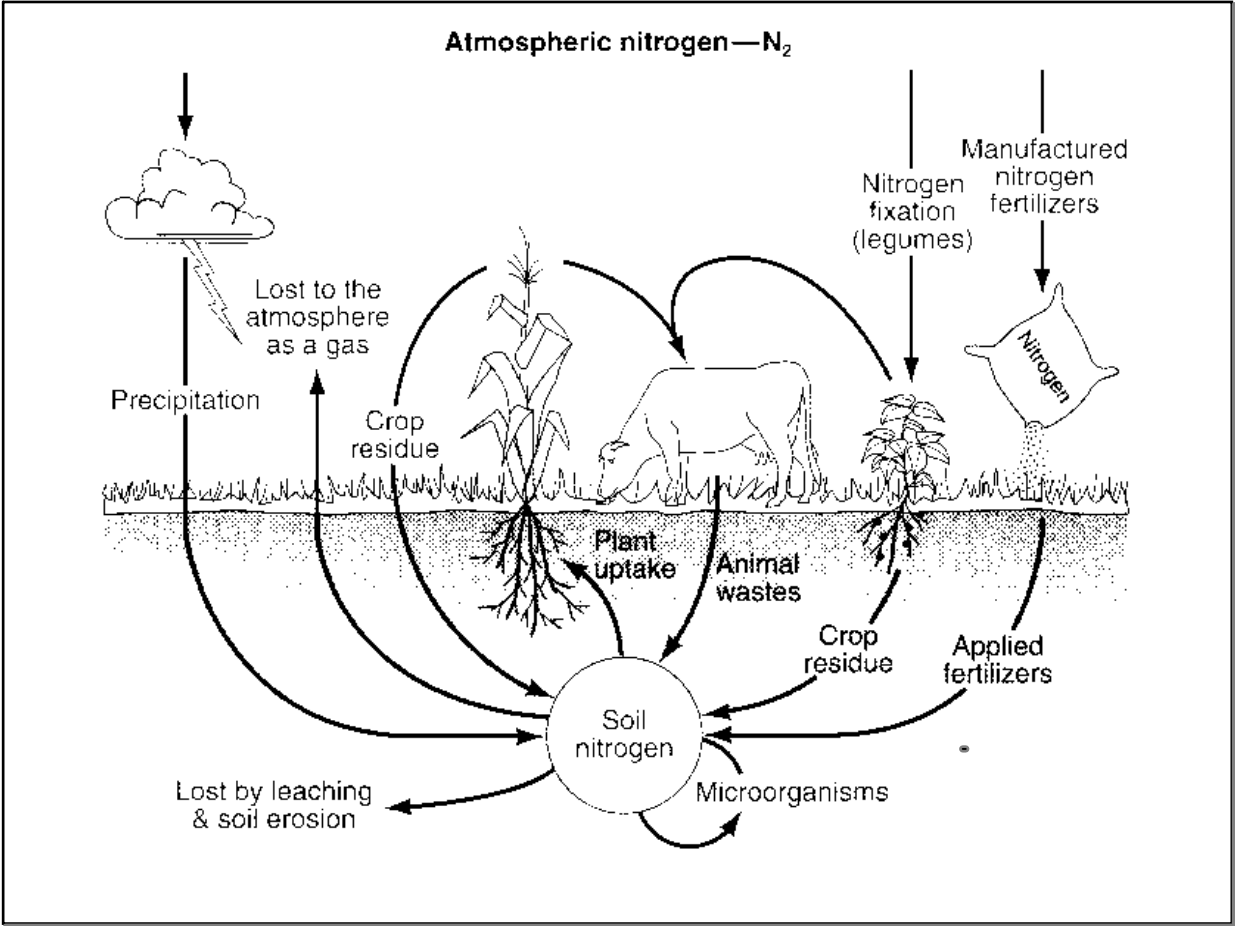
- some nitrogen is *fixed* in the earth's atmosphere by lightning
- most of the fixation occurs through bacteria
- legumes are included in crop rotations to restore nitrogen from previous crop

## Denitrification

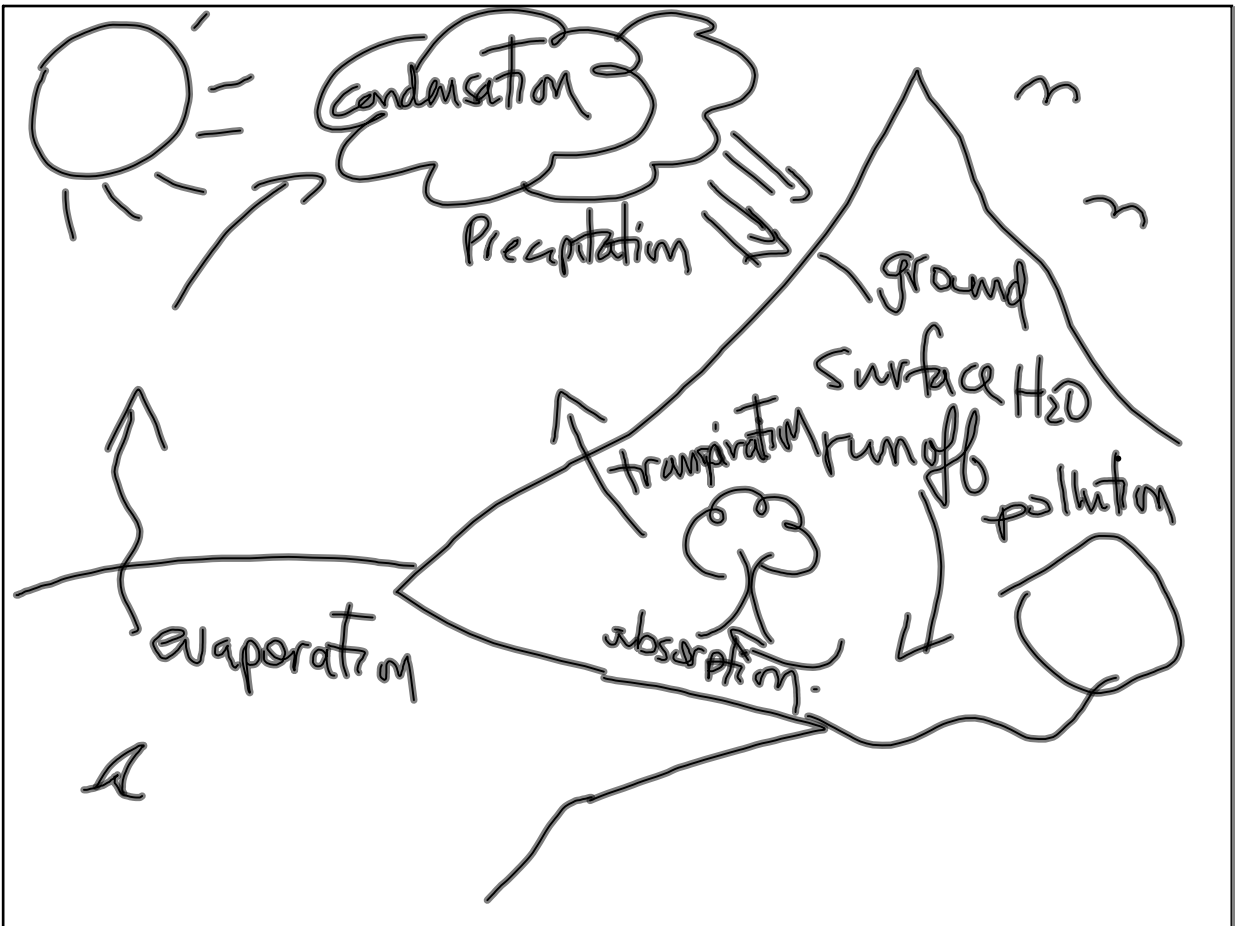
- bacteria release nitrogen gas to the atmosphere thru the decay process

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