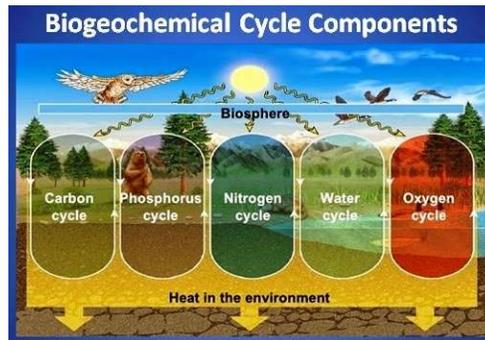


The Nitrogen cycle (and how we screwed it up)



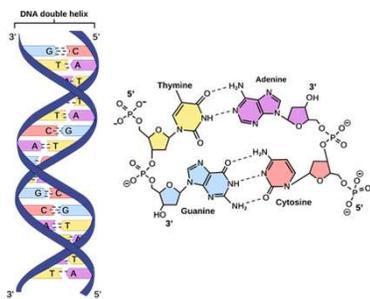
1

What are biogeochemical cycles?



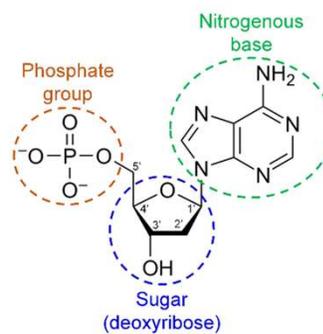
2

What 'life materials' that we have discussed require Nitrogen?



3

Nitrogenous Bases! Every section of DNA requires Nitrogen atoms!

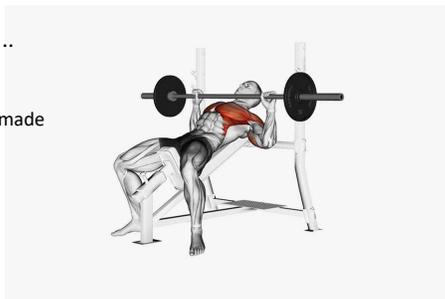


4

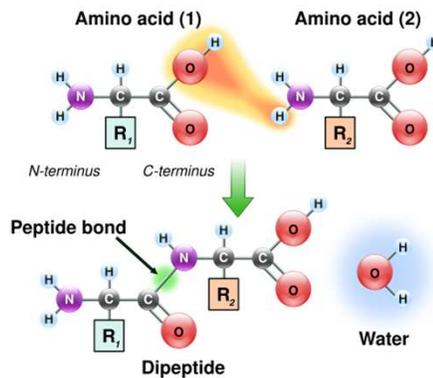
What other material of life requires Nitrogen?

Proteins! ...

Which are made of...???



5



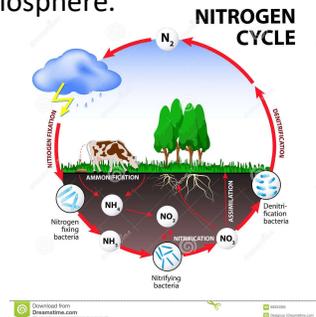
6

So where is Nitrogen found in nature?

7

Lets start with the atmosphere. Nitrogen is cycled through the atmosphere and earth's biosphere.

Nitrogen
Oxygen
Carbon Dioxide
Methane
Water Vapor
Everything else



8

So this conversation then is about HOW living things on Earth acquire the Nitrogen they need?

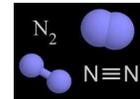


Can't we just breath it in?

NOPE!

9

Discovered in 1772



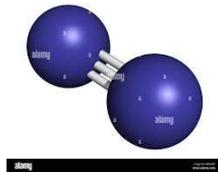
EXHIBITION OF THE LAUGHING GAS.
The Nitrous Oxide, or Laughing Gas, was discovered by Dr. Priestley, who produced it by abstracting a part of the Oxygen from the Nitric Oxide. It is composed of an equal part of Oxygen and Nitrogen. Before the time of the Humphrey Lectures, it was considered impossible to take by some very interesting experiments, to prevent fire, which is to be expected; he also wrote a work, entitled, "Remarks on the Nitrous Oxide." It is now called Laughing Gas in account of the very extraordinary qualities produced in those who breathe it, who then does laughing, dancing, jumping, eating, reading, and (but not yet been) fighting are amongst the prominent effects developed by persons under its influence. The following

10

Nitrogen gas has a triple bond! One of the strongest chemical bonds in nature!

In order for living creatures to be able to use it, it first must be broken down into individual atoms..

And nature only give us two pathways to do this..



11

We'll continue next time

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