

Chapter Ten: Bacteria and Viruses

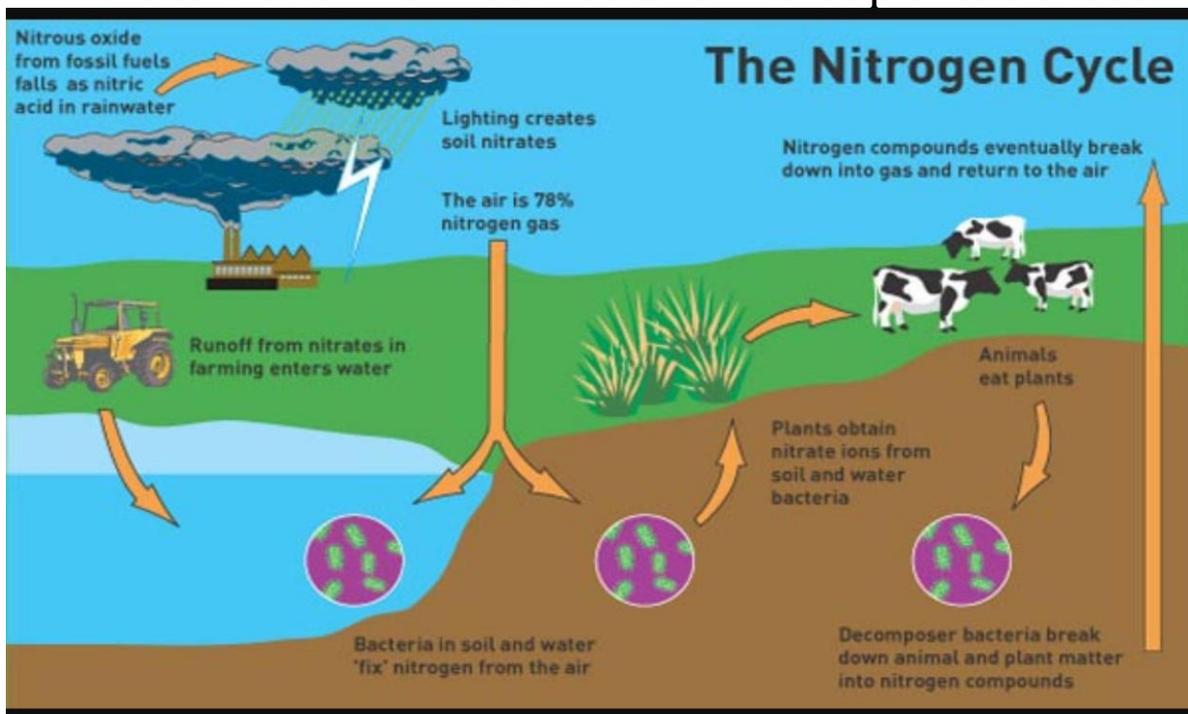
Section 2: Bacteria's role in the world

Bacteria lives in our water, our food, and our bodies.

- Strep throat (*Streptococcus pyogenes*) and a cavity in your tooth (*Streptococcus mutans*) are all bacteria.

Life could not exist without bacteria.

- Important to the health of Earth
- Recycle dead animals and plants.
- Play a role in the nitrogen cycle.
 - Plants need nitrogen to grow.
 - Nitrogen gas makes up 78% of the air (most plants can't take this gas in directly)
 - *Nitrogen fixation*: the process by which nitrogen gas in the air is transformed into a form that plants can use.



- Decomposer bacteria break down dead plant and animal matter which is used by other living things.

Bioremediation: the biological treatment of hazardous waste by living organisms

- Used to help fight pollution by cleaning up waste from industries, farms, and cities.
- Also used to clean up oil spills.

Many common foods are made with the help of bacteria.

- Ex. Cheese, yogurt, buttermilk, or sour cream
- Lactic-acid bacteria breaks down the sugar in milk (called lactose)
 - The bacteria change lactose into lactic acid.
 - Lactic acid preserves and adds flavor to the food.

Antibiotics: medicine used to kill bacteria and other microorganisms

- Made by other bacteria.
- Amoxicillin, Azithromycin (Z-pak – most common antibiotic in the US), and Penicillins

Genetic engineering: a process of changing the genes of bacteria or other living things.

- Scientists can now engineer bacteria to make many products, such as insecticides, cleansers, and adhesives.

Pathogenic bacteria: bacteria that cause disease.

- get inside host organism and take nutrients from the host cell – harm the host.
- occur in humans as well as in other organisms (such as plants) – protected with vaccines.