

Warmup:

Study Notes/Questions

The Phosphorus Cycle

Phosphates are important molecules in living things. DNA and RNA have sugar phosphate backbones

Animals have phosphates in shells, bones, teeth

Cell membranes are made of phospholipids (fat molecules with phosphate attached)

Energy in all organisms stored in ATP (adenosine triphosphate)

Sources of Phosphate

All phosphate originates from weathering of Sedimentary and metamorphic rocks. (There is no phosphate in the atmosphere)

Phosphate ions dissolve in water, get absorbed by producers then eaten by consumers

The Short and Long Cycle

Short Cycle

When organisms die and decompose the phosphates are released and dissolve in water and are available to producers again

Long Cycle

When organisms die and decompose in the ocean, the phosphates and other elements sink to the bottom and are covered in sediments

These sediments eventually become sedimentary rocks and the phosphates remain trapped until a geological event exposes them to weathering.

4.5 The Phosphorous Cycle

Study Notes/Questions

Mycorrhizae - symbiotic fungus on roots of most plants

- increases solubility of phosphate so more available

Human activities add phosphate to ecosystems in several ways

- commercial fertilizers
- animal manure used to enrich soil
- out from sewage treatment plants and industrial waste

Summary: (two to three sentences summarizing this section)

Self-Reflection
Questions:

1. Describe one thing that you knew about this topic before today.

2. Describe one thing you learned about this topic today.

4.5 Activity

1. Name three places where phosphorus is found in living things.
2. What is the original source of all phosphorus?
3. Explain the role of weathering and the rock cycle in making phosphorus available for living organisms.

