

Matter cycles through ecosystems

Lesson 1.2

Matter cycles through ecosystems

1. All ecosystems need certain material.
2. Water cycles through ecosystems.
3. Carbon cycles through ecosystems.
4. Nitrogen cycles through ecosystems.

Matter Requirements & Cycles

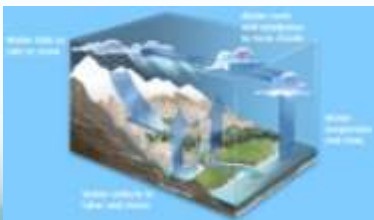
- Living things need certain materials, or matter, to meet their needs.
- This matter remains in the ecosystem, moving through it in continuous **cycles**, in which the matter changes form, but is never created or destroyed.

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Water Cycle

- All substances on Earth, including water, are repeatedly recycled.



Five processes make up the water cycle

Condensation

- Water vapor condenses to liquid in the atmosphere.



Five processes make up the water cycle

Precipitation

- Water falls back to Earth.



Five processes make up the water cycle

Transpiration

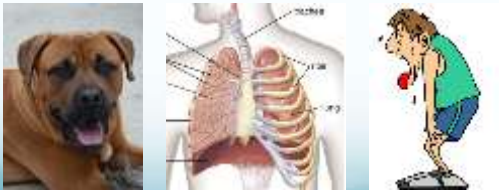
- Plants take up water in their roots and release it from their leaves.



Five processes make up the water cycle

Respiration

- Animals release water vapor as they exhale.



Five processes make up the water cycle

Evaporation

- Heat changes liquid water to gaseous water vapor, which rises into the atmosphere.

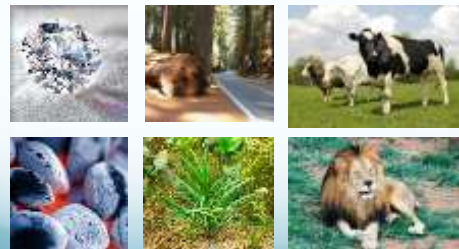


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Carbon cycles through ecosystems

- Life on Earth is based on carbon compounds.



The carbon cycle includes several different processes

Photosynthesis

- Removes carbon from the air.



The carbon cycle includes several different processes

Eating

- Animals obtain carbon by eating plants or other animals.



The carbon cycle includes several different processes

Respiration

- Plants and animals release carbon dioxide during respiration.



The carbon cycle includes several different processes

Combustion

- Carbon contained in fossil fuels and wood is released as carbon dioxide during combustion.



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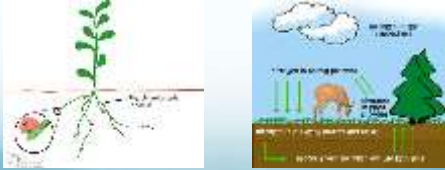
Nitrogen cycles through ecosystems

- Nitrogen is required for all life.
- Almost 78% of the air is nitrogen, but organisms cannot use nitrogen in gaseous form.



Nitrogen cycles through ecosystems

- In the nitrogen cycle, bacteria in soil and roots fix nitrogen by changing it from a gas to nitrate compounds that can be taken up by plants.



Review

- All ecosystems need certain material.
- Water cycles through ecosystems.
- Carbon cycles through ecosystems.
- Nitrogen cycles through ecosystems.

Skill Check

- Organisms in soil are an example of _____.
 - biotic factors
 - abiotic factors
 - combustion

Skill Check

- The amount of _____ available in an ecosystem affects the types and amount of plant life that will grow there.
 - light
 - water
 - soil

Skill Check

- Plants use energy from _____ to make sugars through photosynthesis.
 - respiration
 - combustion
 - sunlight

Skill Check

- Organisms in soil are an example of _____.
 - biotic factors
 - abiotic factors
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Skill Check

2. The amount of _____ available in an ecosystem affects the types and amount of plant life that will grow there.
- a) light
 - b) water
 - c) soil

Skill Check

3. Plants use energy from _____ to make sugars through photosynthesis.
- a) respiration
 - b) combustion
 - c) sunlight