Science 14

Unit D: Matter and energy in the environment

Matter loops and energy moves on

Matter in a grassland

- Carbon in a grass leaf can become carbon in a hare and later carbon dioxide in the air.
- Sunlight that built that leaf leaves the food chain as thermal energy at each step.

A matter cycle and one-way energy

- A matter cycle returns water, carbon, oxygen, or nitrogen to a form life can use again.
- One-way energy flow starts at sunlight and leaves as thermal energy at each step.

Key terms

biosphere

The part of Earth where life exists, including organisms and the air, water and soil they use.

matter cycle

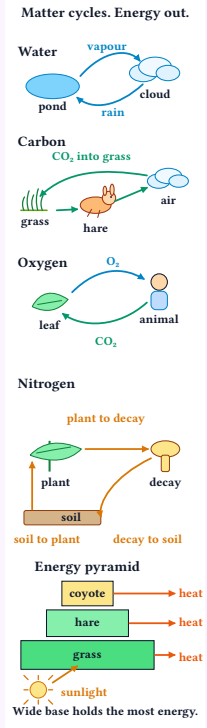
A pathway that returns carbon, water, oxygen or nitrogen to a form living things can use again.

one-way energy flow

The movement of energy from sunlight into living things and onward as thermal energy that leaves each step.

Four loops, one energy arrow

- Water, carbon, oxygen and nitrogen each return through living things and the environment.
- Energy enters from the Sun and leaves as thermal energy, so the flow keeps a direction.



One carbon atom

- A plant builds the atom into food and a hare takes it in.
- Respiration or decay returns it to the air as carbon dioxide.

Carbon after the coyote

- Respiration and decay return carbon to the air.
- The pathway continues after the coyote.

Four cycles and one mover

- Name the four matter cycles from this lesson.
- Name one living thing that moves carbon along a cycle.

Matter cycles and energy flow

- Matter charts name water, carbon, oxygen or nitrogen and the organism that moves each one.
- The energy arrow starts at sunlight and ends as thermal energy at each step.