

Complete
Canadian 
Curriculum



Grade
7

Science

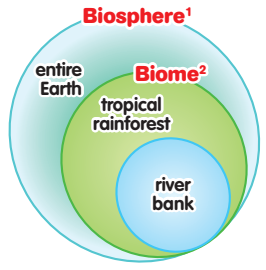


Popular Canada

Ecosystem

The system of interaction between living and non-living things in an area is called an ecosystem. Ecosystems can be any size, with smaller ecosystems found inside larger ones.

Interactive Ecosystems



- 1:** including all land surface, water, atmosphere, and living things
- 2:** a large area defined by similar plants, animals, weather patterns, and its landforms

There are biotic and abiotic elements in an ecosystem.

Biotic Elements

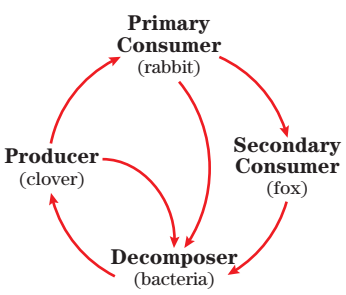
- living members
- having lived members
e.g. plants, animals

Abiotic Elements

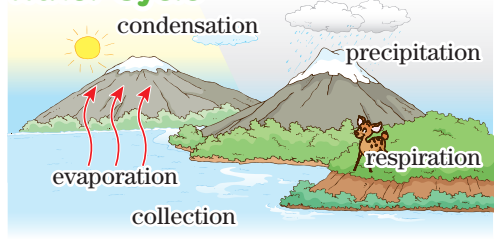
- non-living members
- never having lived members
e.g. soil, water

Food Cycle

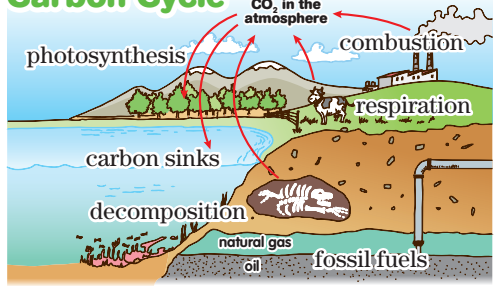
The food cycle is made up of producers, consumers, and decomposers.



Water Cycle



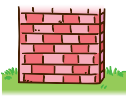
Carbon Cycle



Structures


Structures are things with a definite size and shape. Human-made structures are based on structures found in nature. Structures can be made of one part or many parts and can be classified as the following:

Solid Structure




- mostly matter
- made of more than one part
- the parts are stacked or piled close together

Frame Structure



- a framework that supports other parts of the structure

Shell Structure




- protective
- blocks entry or exit

Forces on Structures

Structures are made to withstand forces. There are different types of forces.

External Force

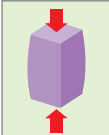
An external force of weight upon a structure is a load.



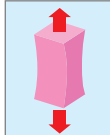
a live load
one that is not part of the structure itself

a dead load
the weight of the structure itself


Internal Force



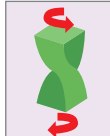
Compression Force
occurs when a load pushes upon a structure



Tension Force
a force that pulls



Shear Force
where different parts of the structure press in opposite directions



Torsion Force
the twisting of an object in opposite directions

The Particle Theory of Matter

The particle theory of matter describes what makes up all matter. Particles of matter behave in different ways, depending on the state of the matter.



Solid

particles are closely packed together



Liquid

particles are close together and can move freely past one another

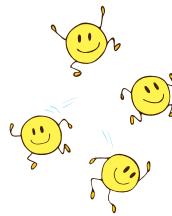


Gas

particles are far apart and can move freely from place to place

Particle Theory of Matter

- All matter is made up of tiny particles.
- Particles are always moving.
- There are spaces between particles.
- Heat causes particles to move faster.



Heat

Heat, also called thermal energy, is the energy in the particles of a substance. It is a result of the vibration of particles. It can be transferred from one substance to another.

Major Heat Producers

- chemical energy
- mechanical energy
- electrical energy
- nuclear energy
- geothermal energy
- solar energy

Transmission of Heat



Conduction – heat is transferred from one substance to another through direct physical contact



Convection – heat is transferred when warmer and less dense liquid or gas moves upward to make way for colder and denser liquid or gas



Radiation – heat travels through air (or space) from an object that radiates heat to another that absorbs it