

6.1 The carbon cycle

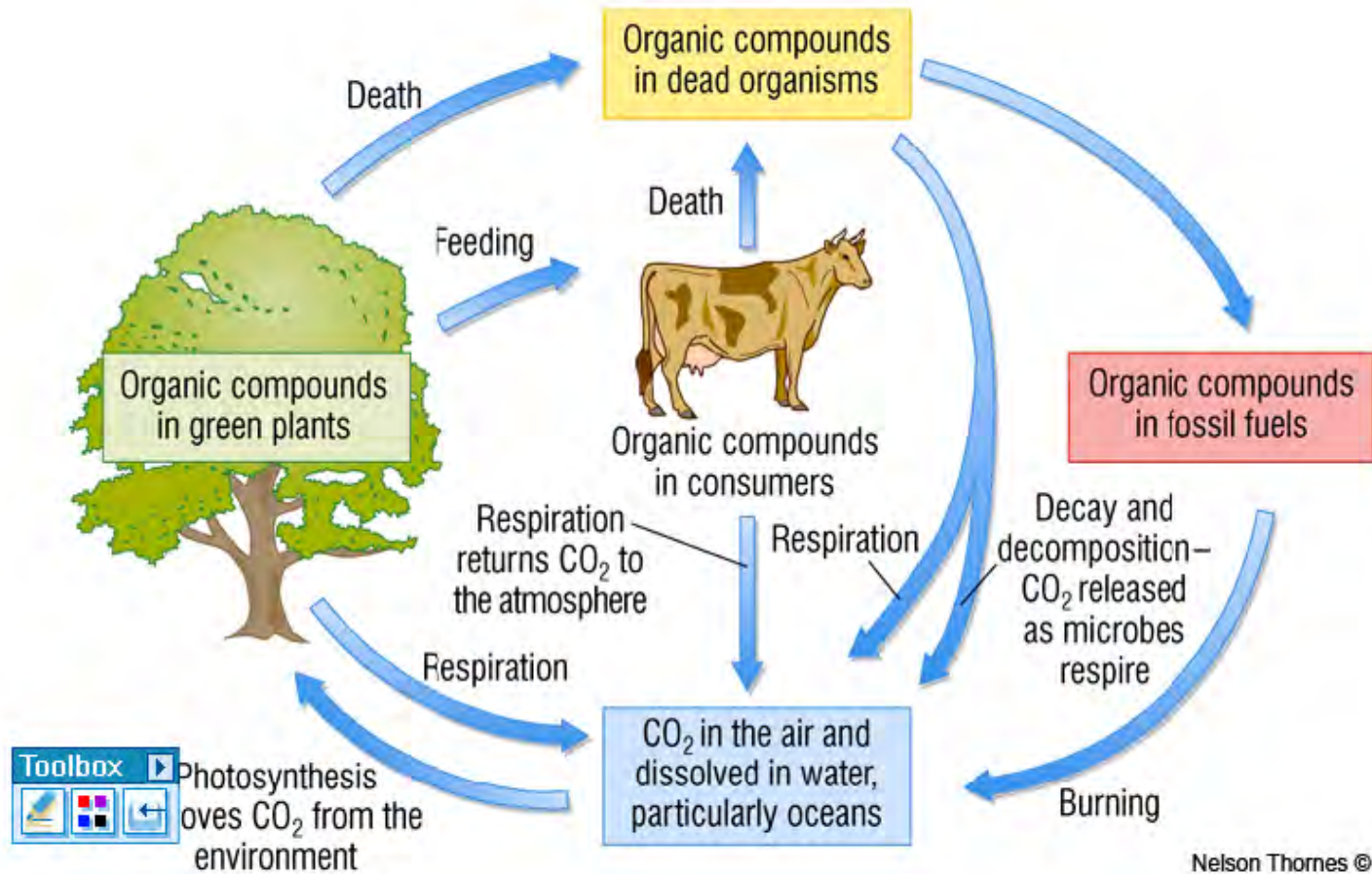
Learning objectives:

- List the processes involved in the carbon cycle
- Explain the role of bacteria and other saprobiotic/ saprophytic organisms in the carbon cycle

Recall of Carbon cycle

- 1 Describe the pathway of a carbon atom from air through you and back to the air. Include the names carbon compounds and processes
- 2 Explain how you can have a piece of dinosaur in you.

- Carbon dioxide
- Glucose
- Sucrose
- Starch
- Glucose
- Carbon dioxide
- Photosynthesis
- Condensation reaction
- Hydrolysis
- Condensation reaction
- Digestion
- Respiration



Mineral ions/nutrients

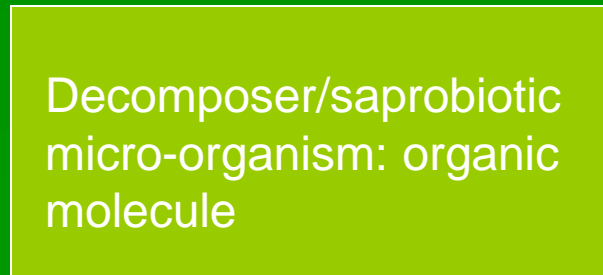
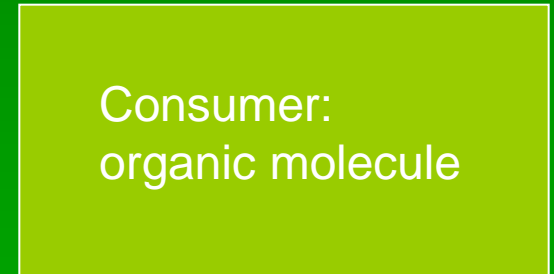
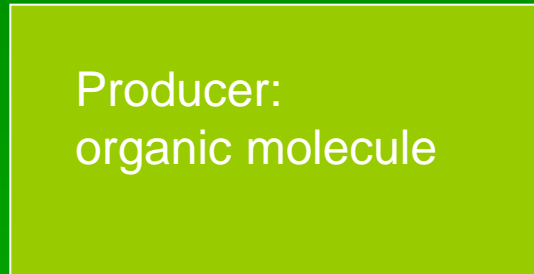
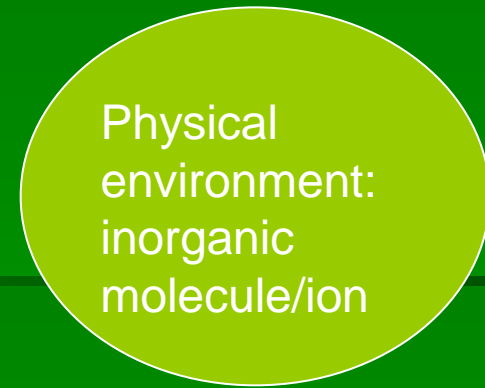
- There is a quantity of each mineral on the Earth.
- At any one time aof each element is in an inorganic form in the environment (....., or substrate) and an organic form in living or dead/decaying organic material.
- To provide a constant supply of elements such as carbon and nitrogen they must be

Nutrient cycles – the basic sequence

- Nutrient taken up by (plants) as simple molecules.
- The producer the nutrient into complex molecules.
- When the producer is by a(animal), the nutrient is assimilated into its body.
- The nutrient passes along the when these animals are eaten by other consumers.
- When producers and consumers die, the complex molecules are broken down by saprobiotic micro-organisms into the original simple form. The cycle is complete.

Nutrient cycle framework

Link with arrows and name the processes



Carbon cycle

Key points

- Carbon is in all biological It is the basic building block for
- Main source, only 0.04% of atmosphere, hence turnover is
- Removed from air by organisms.
- Returned to air by all organisms
- Rate of return carbon dioxide greater at night because all organisms and no for
- Oxygen levels higher and carbon dioxide levels lowest on a summer's day because
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- Global increase in carbon dioxide levels due to two main human activities:
- Combustion of fossil fuels (*explain*)

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- Deforestation (*explain*).....

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The role of the decomposers.

- These are saprobiotic organisms e.g.and They feed on bodies and organic waste. They digest the complex carbohydrates, proteins and lipids with extracellular, absorbing the smaller soluble molecules by The carbon in the dead organic matter is released as carbon dioxide as the decomposers
- If decay is prevented, conditions are not suitable for the saprobionts e.g. cold, oxygen free, or acidic, the organisms may become into coal, peat or oil.
- Calcareous (*containing calcium carbonate*) shells, bones and teeth do not and over millions of years become sedimentary rocks such as and The carbon returns to the atmosphere as the rocks are weathered.

The role of the oceans

- The oceans contain 50 times more carbon dioxide than the atmosphere. It acts as a buffer. Explain how the oceans moderate the atmospheric carbon dioxide content.

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Carbon cycle

Fill in the boxes/circles

