

Exercise walk-through

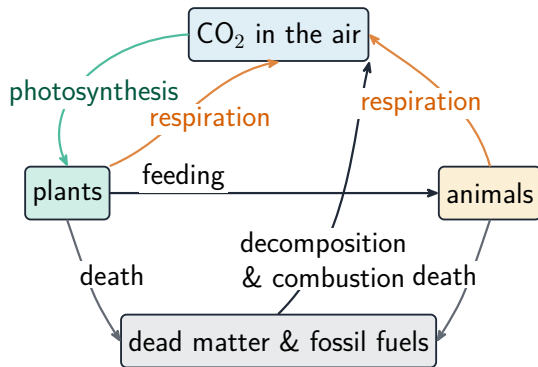
Nutrient cycles ■ 19.3

eXercise

You must be able to

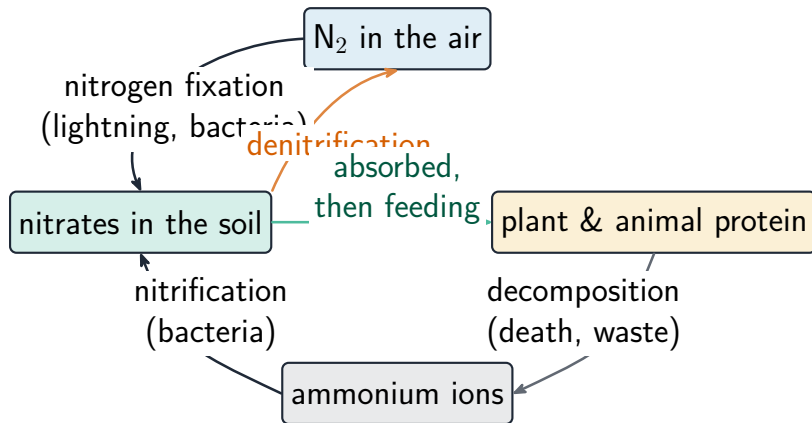
- describe the carbon cycle (photosynthesis, respiration, combustion, decay)
- describe the nitrogen cycle and the roles of microorganisms
- contrast nutrient recycling with one-way energy flow

Method — Carbon and nitrogen cycles



The carbon cycle

Method — Carbon and nitrogen cycles



The nitrogen cycle

Practice 2.1 ■ 1 mark

Name the process that removes carbon dioxide from the air.

Solution 2.1

Method: Carbon and nitrogen cycles

Worked steps

photosynthesis **B1**.

Practice 2.2 ■ 2 marks

Name two processes that return carbon dioxide to the air.

Solution 2.2

Method: Carbon and nitrogen cycles

Worked steps

respiration; combustion (burning) **B1** **B1**.

Exam-style 3.1 ■ 1 mark

In the nitrogen cycle, bacteria that turn ammonium ions into nitrate ions carry out:

A nitrogen fixation

B nitrification

C denitrification

D decomposition

Solution 3.1

Method: Carbon and nitrogen cycles

A nitrogen fixation

B nitrification 

C denitrification

D decomposition

Worked steps

B. Turning ammonium into nitrate is nitrification.

Exam-style 3.2 ■ 1 mark

The carbon cycle keeps carbon moving.

- (a) Describe how carbon passes from a plant to a consumer.
- (b) Explain how burning fossil fuels affects the carbon cycle.

Solution 3.2

Method: Carbon and nitrogen cycles

Worked steps

- (a) the consumer eats the plant (feeding) **B1**.
- (b) it releases carbon dioxide into the air **M1**, adding to the amount in the atmosphere **A1**.