

19.3 Nutrient cycles

Name: _____ Class: _____ Date: _____

Total: 8 marks

KEY WORDS nitrogen cycle 氮循环 • nitrogen fixation 固氮作用 • nitrate ions 硝酸根离子
• nitrification 硝化作用 • ammonium ions 铵离子

Objective

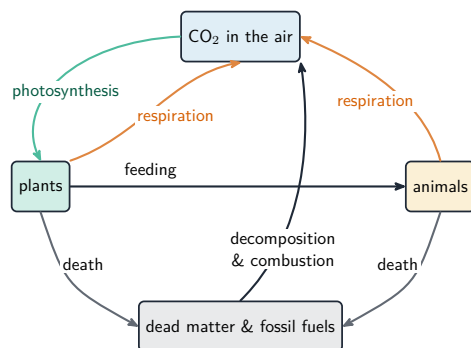
Build the skills to answer exam questions on **nutrient cycles** 营养循环 — the **carbon cycle** 碳循环 and the **nitrogen cycle** 氮循环.

You must be able to:

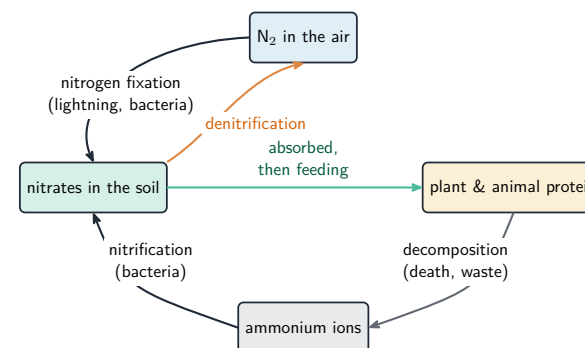
- describe the carbon cycle (photosynthesis, respiration, combustion, decay)
- describe the nitrogen cycle and the roles of microorganisms
- contrast nutrient recycling with one-way energy flow

1 Worked examples

■ Carbon and nitrogen cycles



Photosynthesis removes CO₂; respiration, combustion and decay return it



Microorganisms: decomposition, nitrification, nitrogen fixation, denitrification

2 Practice

2.1 Name the process that removes carbon dioxide from the air, and name one process that returns it. [2]

2.2 Name two processes that return carbon dioxide to the air. [2]

3 Exam-style questions

3.1 In the nitrogen cycle, bacteria that turn ammonium ions into nitrate ions carry out: [1]

A	B
C	D

- A nitrogen fixation
- B nitrification
- C denitrification
- D decomposition

3.2 The carbon cycle keeps carbon moving.

(a) Describe how carbon passes from a plant to a consumer. [1]

(b) Explain how burning fossil fuels affects the carbon cycle. [2]
