

2.7 Ecological Succession

Name: _____ Class: _____ Date: _____ **Total: 10 marks**

KEY WORDS primary 初级演替 • ecological succession 生态演替 • lichens 地衣
• pioneer species 先锋物种 • secondary succession 次级演替

Objective

Build the skills to answer exam questions on **ecological succession**.

You must be able to:

- distinguish **primary** 初级演替 and **secondary succession** 次级演替
- describe **pioneer species** 先锋物种 and the **climax community** 顶极群落
- order the stages of succession

1 Worked examples

Study these first. Each one shows the method for a question type used later — follow the steps and you can do the Practice and Exam-style questions yourself.

■ Primary vs secondary succession

- **Primary succession** — begins on **bare rock** with no soil (after a volcano or glacier retreat); very slow.
- **Secondary succession** — begins where soil **already exists** (after a fire or abandoned farm); much faster.

■ Pioneer species

The first colonizers are **pioneer species** (lichens, mosses in primary; fast-growing weeds/grasses in secondary). They begin building/enriching soil.

■ The sequence

Pioneers → grasses → shrubs → fast trees → slow trees, ending in a stable **climax community** that persists unless disturbed.

■ A worked ordering

After a forest fire (soil remains): grasses → shrubs → pine trees → oak forest (climax). This is **secondary** succession.

2 Practice

Now apply the methods above.

2.1 What is the main difference between primary and secondary succession? [1]

2.2 What are pioneer species? [1]

2.3 What is a climax community? [1]

3 Exam-style questions

3.1 Succession that begins on bare rock with no soil is [1]

- | | |
|---|---|
| A | B |
| C | D |
- A primary succession
B secondary succession
C a climax community
D eutrophication

3.2 A farm field is abandoned and slowly becomes a forest.

(a) State whether this is primary or secondary succession, with a reason. [2]

(b) Order the stages: shrubs, grasses, mature forest, weeds. [2]

3.3 Explain why secondary succession is faster than primary succession. [2]