

3.1 Generalist and Specialist Species

Name: _____ Class: _____ Date: _____

Total: 10 marks

Objective

Build the skills to answer exam questions on **generalist and specialist species**.

You must be able to:

- distinguish a **generalist** 广食性 from a **specialist** 狭食性 species
- link each to a broad or narrow **niche** 生态位
- predict which copes better with change

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.

■ Generalists vs specialists

- A **generalist** has a **broad niche** —eats many foods, lives in many habitats (e.g. raccoon, cockroach).
- A **specialist** has a **narrow niche** —depends on specific foods or conditions (e.g. panda eating bamboo, koala eating eucalyptus).

■ Coping with change

Generalists tolerate environmental change well because they have alternatives. **Specialists** are more vulnerable —if their one resource declines, they cannot switch.

■ Stable vs changing environments

Specialists often thrive in **stable** environments (efficient at their niche); generalists do better in **changing** or disturbed environments.

■ A worked prediction

If a forest is disturbed, a generalist raccoon adapts easily, but a specialist panda struggles because its bamboo may be lost.

2 Practice

Now apply the methods above.

2.1 Does a generalist have a broad or narrow niche? [1]

2.2 Give one example of a specialist species. [1]

2.3 Which type copes better with environmental change? [1]

3 Exam-style questions

3.1 A specialist species is most vulnerable to [1]

- **A** a stable environment
 - **B** loss of its specific resource
 - **C** having many food options
 - **D** abundant resources
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3.2 A panda eats almost only bamboo, while a raccoon eats many foods.

(a) Classify each as generalist or specialist. [2]

(b) Explain which is more likely to survive habitat disturbance. [2]

3.3 Explain why specialists can outcompete generalists in a stable environment. [2]

4 Go further

You are now ready for the real exam questions on this subtopic:

- work through the **3.1 Generalist and Specialist Species** lesson on the **Learn** page;
- read the **Generalist and Specialist Species** section of the AP Environmental Science handout on the **Know** page.

Solutions

2.1 Broad.

2.2 Any one: panda (bamboo), koala (eucalyptus).

2.3 Generalists.

3.1 B —loss of its specific resource.

3.2 (a) Panda = specialist; raccoon = generalist. (b) The raccoon (generalist) —it can switch foods/habitats, while the panda depends on bamboo and cannot adapt easily.

3.3 In a stable environment the specialist is highly efficient at using its particular resource, so it outcompetes the less-efficient generalist for that niche.