

# 8.1 Responses to the Environment

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Name: \_\_\_\_\_ Class: \_\_\_\_\_ Date: \_\_\_\_\_

Total: 11 marks

## Objective

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Build the skills to answer exam questions on **responses to the environment** —behavior.

### You must be able to:

- distinguish **innate** 先天 from **learned** 后天 behavior
- explain how behaviors improve survival and reproduction
- give examples (taxis, migration, learned responses)

## 1 Worked examples

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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.

### ■ Innate vs learned

- **Innate behavior** is **inherited** and present from birth (e.g. a spider spinning a web, reflexes).
- **Learned behavior** develops from **experience** (e.g. a rat learning a maze).

### ■ Behavior aids survival

Behaviors that help an organism find food, avoid predators, or reproduce raise its **fitness**, so they are favored by natural selection.

### ■ Examples

- **Taxis** —moving toward or away from a stimulus (e.g. moth toward light).
- **Migration** —moving seasonally to better conditions.
- **Learned** —associating a sound with food.

### ■ A worked judgement

A newly hatched sea turtle heading to the ocean without being taught is **innate**; a dog sitting on command is **learned**.

## 2 Practice

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Now apply the methods above.

**2.1** Distinguish innate from learned behavior. [2]

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**2.2** Give one example of innate behavior. [1]

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**2.3** How does helpful behavior spread in a population? [1]

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### 3 Exam-style questions

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**3.1** A behavior present from birth without being taught is [1]

- **A** learned
- **B** innate
- **C** random
- **D** impossible

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**3.2** Baby sea turtles crawl toward the ocean immediately after hatching.

(a) Classify this behavior. [1]

(b) Explain how such a behavior improves survival and could be favored by selection. [2]

**3.3** Explain the difference between innate and learned behavior, giving one example of each. [3]

## 4 Go further

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

- work through the **8.1 Responses to the Environment** lesson on the **Learn** page;
- read the **Responses to the Environment** section of the AP Biology handout on the **Know** page.

## Solutions

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**2.1** Innate behavior is inherited/present from birth; learned behavior develops from experience.

**2.2** Any one: reflex, web-spinning, sea turtle heading to the ocean.

**2.3** Individuals with the helpful behavior survive and reproduce more, passing on the behavior.

**3.1 B** —innate.

**3.2** (a) Innate. (b) Reaching the ocean quickly avoids predators on land, so turtles that do it survive and reproduce more, favoring the behavior.

**3.3** Innate is inherited and present from birth (e.g. a reflex); learned develops through experience (e.g. a dog trained to sit).