

# Formative Quiz: Biological Diversity

Time: 25 min. 6 questions.

## Instructions

Answer all six questions in the space provided or in your notebook. Show your reasoning for the numeric question, and use complete sentences for the short-answer questions. This quiz checks your understanding of reproduction, variation, symbiosis and human impacts on species diversity before we move on to the unit test.

## Questions

1. A remora fish attaches to a shark and feeds on scraps of food the shark leaves behind, gaining a benefit from this association. The shark receives no benefit and experiences no harm from the remora's presence, so its health and hunting behaviour are unaffected. Which type of symbiotic relationship does this describe?

- A) Mutualism
- B) Commensalism
- C) Parasitism
- D) Predation

([Outcome](#))

2. Explain, using one example, how variation within a species can help that species survive when environmental conditions change. ([Outcome](#))
3. True or false: A scar a person receives from a childhood injury is a heritable characteristic that can be passed on to their children. ([Outcome](#))
4. A body cell of an onion plant has 16 chromosomes; in the onion's reproductive tissue, meiosis produces sex cells. During meiosis, this cell forms sex cells (gametes). How many chromosomes will each gamete contain? ([Outcome](#))
5. Which of the following is an example of asexual reproduction?

- A) A bee pollinating a flower
- B) Two dogs mating to produce puppies
- C) A yeast cell budding off a new cell
- D) Fertilization of a human egg by a sperm cell

([Outcome](#))

6. Name one strategy that governments or organizations use to reduce the loss of species diversity, and briefly describe how it helps protect species. ([Outcome](#))

## Curriculum coverage

| Question | Outcome alias |
|----------|---------------|
| 1        | Outcome       |
| 2        | Outcome       |
| 3        | Outcome       |
| 4        | Outcome       |

|   |         |
|---|---------|
| 5 | Outcome |
| 6 | Outcome |

## Answer key

1. **B) Commensalism.** The remora gains food from the shark's leftovers while the shark is neither helped nor harmed, which matches the definition of commensalism, since only one organism benefits and the other is unaffected by the relationship ([Outcome](#)).
2. **Sample answer:** Variation such as disease resistance means that when conditions change (for example, a new disease spreads), some individuals with the resistant trait survive while others do not, allowing the species to continue ([Outcome](#)).
3. **False.** Scars result from injury during a person's life and are not encoded in their genetic material, so they cannot be passed on to offspring, unlike heritable traits such as eye colour ([Outcome](#)).
4. **8 chromosomes.** Meiosis halves the parent cell's genetic material to form sex cells, so a 16-chromosome cell produces gametes with 8 chromosomes each ([Outcome](#)).
5. **C) A yeast cell budding off a new cell.** Budding is a mechanism of asexual reproduction, while pollination, mating and fertilization all involve sexual reproduction ([Outcome](#)).
6. **Sample answer:** Zoos breed endangered populations in captivity to increase their numbers before reintroducing them to the wild, which helps prevent extinction ([Outcome](#)).