

Structural adaptation 2: Featured creatures

Components

NAME	DESCRIPTION	AUDIENCE
	<i>Featured creatures</i> teachers guide	This guide provides information on how to use a presentation and fact sheet to explore adaptations in plants and animals.
	<i>Featured creatures</i> presentation	This presentation encourages students to explore environmental conditions of three environments and the characteristics a plant or animal needs to function in that environment.
	<i>Structures for survival</i> fact sheet	Students review background information on three featured organisms: rakali, the water-holding frog, and seagrass.

Purpose

To **Explore** structural adaptations of organisms, and investigate functions of these adaptations within a specified environment.

Outcomes

Students:

- investigate structural adaptations an organism requires to survive in a particular environment; and
- describe relationships between environment, structural adaptations and functions of these adaptations.

Activity summary

ACTIVITY	POSSIBLE STRATEGY
Students watch the presentation, <i>Featured creatures</i> .	whole class activity Teacher poses each question that appears and initiates class discussion.
Students review the fact sheet, <i>Structures for survival</i> .	groups or individually

Technical requirements

The presentation is provided in three formats: Microsoft PowerPoint, Apple Keynote and HTML. The guide and worksheet require Adobe Reader, which is a free download from www.adobe.com. The worksheet is also provided in Microsoft Word format.

Teacher notes

The presentation, *Featured creatures*, contains images of three environments: freshwater river system, ocean and desert. It also includes images of three familiar organisms: a rodent, a flowering plant and a frog.

Students are asked to consider where each of these animals and plants live, and if they are able to survive in all types of environments. Students discuss characteristics each organism might need to survive in the featured environment.

Teachers display the presentation and challenge students with discussion questions. These questions are designed to reveal student understanding of the concept of adaptation in the context of environment. Further questions and comments are included in the presentation notes and table below.

Encourage students to explore their ideas about the structural features of an organism, relative to the environment they inhabit.

SLIDE	NOTES
2	This slide introduces students to the concept that organisms inhabit a particular environment.
3	Students are encouraged to consider the characteristics that help plants and animals meet the challenges of their environment. Possible discussion points include how they obtain water and deal with changes in temperature.
4	Consider the attributes of a rat that enables it to inhabit many different environments, such as opportunistic, omnivorous, and adaptable. Discussion question: What do you notice about the environments rats inhabit? Answers may include: vicinity to humans, agricultural regions, and areas with high food availability.
5	Discuss the key conditions of a freshwater environment, such as temperature range, visibility, and food availability. Encourage exploration of the characteristics a rat would need to live in a semi-aquatic environment.
6	Consider the various environments of flowering plants. What features do these environments have in common? Answers may include: availability of sunlight, soil quality, and air (CO ₂) for photosynthesis. Students might consider what is in their own garden, or the local environment, and any limitations of flowering plant distribution.
7	Consider conditions of an oceanic or underwater environment, such as salinity, tidal forces, and limited light. What would a flowering plant need to survive under these conditions? Discussion might include how they anchor themselves and obtain nutrients.
8	Discuss the common features of environments where frogs are generally found, such as presence of water. Why are frogs found here?
9	Explore the conditions of this environment, including aridity and high temperatures. This is an environment with extreme wet and dry seasons. Encourage students to come up with some ideas that would help a frog to conserve water and maintain moist skin.

Associated SPICE resources

Structural adaptation 2: Featured creatures may be used with related SPICE resources to address the broader topic of structural adaptation.

DESCRIPTION	LEARNING PURPOSE
<i>Structural adaptation (sequence overview)</i> This learning pathway shows how a number of SPICE resources may be combined to teach the topic of structural adaptation.	
<i>Structural adaptation 1: Teeth, tails and talons</i> A card game engages student interest in structural features of Australian animals.	Engage
<i>Structural adaptation 2: Featured creatures</i> A presentation encourages students to explore environmental conditions of three habitats, and characteristics a plant or animal would need to survive there.	Explore
<i>Structural adaptation 3: Structure and function</i> A video explains adaptations in three organisms: rakali, water-holding frog and seagrass.	Explain
<i>Structural adaptation 4: Researching adaptations</i> In a series of podcasts, three scientists at The University of Western Australia explain their research into Australian animals and plants.	Elaborate

Image credits

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