**teachers guide**

**Adaptations 4**

**Samphires**

# Components

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|  | NAME | DESCRIPTION | AUDIENCE |
|  | *Samphires*teachers guide | This guide shows how the concept of adaptations can be explained in the context of samphires. | teachers |
|  | *Surviving extremes*fact sheet | How do samphires survive in conditions that would kill most plants? This fact sheet describes and explains adaptations samphires have to cope with their environment. | students |
|  | *Rehabilitation site*worksheet | This worksheet presents a profile diagram of a lake for students to use in a group activity. | students |
|  | *Salt, sand and samphires*worksheet | This student worksheet contains questions about samphires and their adaptations that relate to the fact sheet and group activity. | students |
|  | *Researching samphires*fact sheet | This fact sheet profiles the work of two scientists at The University of Western Australia who are researching samphires and their uses. | students |

Purpose

To **Explain** how plants can have specific adaptations that enable them to live in particular environments.

# Activity summary

Outcomes

Students:

* understand that plants have structural and physiological adaptations that enable them to survive in particular environments;
* analyse data from graphs; and
* work as a group to analyse the relative importance of different adaptations.

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| ACTIVITY | POSSIBLE STRATEGY |
| Distribute copies of fact sheet, *Surviving extremes*, and worksheet, *Rehabilitation site*, to each group. If possible, print the worksheet A3 size. | groups of three |
| The teacher describes the activity to the class (see Teacher notes, below). | whole class |
| Students read fact sheet, *Surviving extremes*. Each group member reads a different section (the fact sheet contains three sections). | groups of three |
| Students report information they read, then work together to decide where different samphires live. Compile group results on worksheet, *Rehabilitation site*. | groups of three |
| Students answer questions on worksheet, *Salt, sand and samphires*. | individually |
| Discuss answers to both worksheets. | whole class |

# Teachers notes

The following scenario is one way to use the fact sheet.

An environmental group has decided to revegetate an arid area of the Goldfields in Western Australia left barren after mining and over-farming. The area includes a salt lake and a clay pan. Students work in groups of three to plan rehabilitation. Each person in a group receives information on one environmental condition: salinity, drought or flooding.

Groups are given information about the rehabilitation site and three samphire species available for planting. Students need to consider adaptations shown by each species of samphire, then work together to decide the best place to plant them.

Students are expected to have prior knowledge of plant photosynthesis and transpiration.

# Technical requirements

The teachers guide, fact sheet and worksheets require Adobe Reader (version 5 or later), which is a free download from [www.adobe.com.](http://www.adobe.com/) The worksheets are also available in Microsoft Word format

# Acknowledgements

Thanks to Winthrop Professor Tim Colmer (School of Plant Biology, UWA), Dr Kelly Shepherd (Herbarium of Western Australia) and Bindy Datson (Actis environmental Services).

Designed and developed by the Centre for Learning Technology, The University of Western Australia.

Production team: Jan Dook, Alwyn Evans, Jenny Gull, Sally Harban, Dan Hutton, Emma Pointon, Jodie Ween and Michael Wheatley. Thanks to Pauline Charman, Bob Fitzpatrick, Charmaine White and Wendy Sanderson.

Banner image: ‘*Tecticornia mellaria* male flowers’ by Bindy Datson, Actis Environmental Services, used by permission.

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# Associated SPICE resources

*Adaptations 4: Samphires* may be used in conjunction with related SPICE resources to study structural, physiological and behavioural adaptations.

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| DESCRIPTION | LEARNING PURPOSE |
| *Adaptations (overview)*This learning pathway shows how a number of SPICE resources can be combined to teach the concept of adaptations in plants and animals. |  |
| *Adaptations 1: Defining adaptations*An interactive quiz encourages students to differentiate between different types of adaptation: structural, behavioural or physiological. | **Engage** |
| *Adaptations 2: Emperor penguins*Students conduct experiments to model structural, physiological and behavioural adaptations of emperor penguins. | **Explore** |
| *Adaptations 3: Barrow Island marsupials*Students use a learning object to investigate adaptations of four marsupials that live on Barrow Island. | **Explain** |
| *Adaptations 4: Samphires*A profile diagram of a lake provides students with an opportunity to determine which species of samphire would be mostly likely to survive in particular locations. | **Explain** |
| *Adaptations 5: Diving adaptations*Students use a learning object to compare and contrast physiological, structural and behavioural adaptations of air-breathing diving animals. | **Explain** |
| *Adaptations 6: Freediving*Students watch a video of a human freediver and consider differences between acclimatisation and adaptation. Students review risks of diving associated with pressure. | **Elaborate** |