**teacher guide**

**Life in the Solar System 1:**

**Conditions for life**

# Components

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|  | NAME | DESCRIPTION | AUDIENCE |
|  | *Conditions for life*teacher guide | The guide provides information on how to use the PowerPoint presentation in this resource. | teachers |
|  | *Conditions for life*presentation | This presentation is used to engage students’ interest in conditions that support life on Earth. | students |

Purpose

To **Engage** students’ interest and encourage inquiry about environments that support life.

# Activity summary

Outcomes

Students:

* compare features and differences in a number of environments, and
* describe factors that affect the diversity of life within a particular environment.

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| ACTIVITY | POSSIBLE STRATEGY |
| A teacher-led activity uses the presentation, *Conditions for Life*, to engage students. It compares images of different environments on Earth in order to raise questions about requirements for life as we know it. | teacher-led presentation |
| Discussion | teacher-led, whole group |

# Technical requirements

The presentation is provided in Microsoft PowerPoint and Adobe PDF formats. The guide requires Adobe Reader which is a free download from www.adobe. com.

# Using the presentation

The presentation, *Conditions for life*, contains images of environments including: Antarctica, cave, coast, city, desert, mountain, rainforest, woodland and volcanic pool. It also includes a single image of the surface of Mars.

The image of Mars is **not** labelled. This brings out our predisposition to Earth-like habitats (in this case, students may identify it as a desert environment).

Further exploration of this image will occur in *Life in the Solar System 2: Exploring environments*.

Teachers display the presentation and, while moving from image to image, challenge students with a number of discussion questions. These capture students’ understanding of factors contributing to the existence of life on Earth.

While displaying the images suitable discussion questions include:

* What name is commonly used to describe this environment?
* What forms of life might be found in this environment?
* What environmental factors affect the abundance of life in this environment?
* What common features exist in all images, and how do they characterise life on Earth?

# List of images

* Lemaire Channel, Antarctica (photo by Frank Wheatley)
* Jenolan Caves, New South Wales (photo by Paul Ricketts)
* Namib Desert (photo by Tjeerd Wiersma, CC-BY-2.0, commons.wikimedia.org/wiki/Image:Namibian\_Desert.jpg)
* Forest, New South Wales (photo by Paul Ricketts)
* Perth city skyline at night (photo by Paul Ricketts)
* Rottnest Island coastline (photo by Paul Ricketts)
* Karri forest, Margaret River, Western Australia (photo by Paul Ricketts)
* The Eastern Hills, Mars, photographed by Mars Rover *Spirit* (NASA/JPL, photojournal.jpl.nasa.gov/catalog/ pia05593)
* Blue Mountains, New South Wales (photo by Paul Ricketts)
* A volcanic pool in Yellowstone National Park (photo by James Taylor, used under licence from Stock.xchng, [www.sxc.hu/photo/800999)](http://www.sxc.hu/photo/800999%29)

# Associated SPICE resources

*Life in the Solar System 1: Conditions of life* may be used in conjunction with related SPICE resources.

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| DESCRIPTION | LEARNING PURPOSE |
| *Life in the Solar System*This learning pathway combines a number of SPICE resources to address the topic of the search for life in the Solar System. |  |
| *Life in the Solar System 1: Conditions for life*A presentation challenges students to think about where life is found. | Engage |
| *Life in the Solar System 2: Exploring environments*Students explore different environments to compare surface conditions and abundance of life. | Explore |
| *Life in the Solar System 3: Planetary atmospheres*Students compare atmospheric conditions on various bodies in the Solar System. | Explain |
| *Life in the Solar System 4: Life under extreme conditions*Life exists in extreme environments on Earth, which suggests that it may also be found in unknown environments in space. | Elaborate |

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Web: spice.wa.edu.au Email: spice@uwa.edu.au Phone: (08) 6488 3917

Centre for Learning Technology (M016) The University of Western Australia

35 Stirling Highway

Crawley WA 6009