

Landscapes, Life & Fire

The Challenge

To create solutions to reduce the impacts of bushfires on landscapes and life

Bushfires have affected the Australian continent for millions of years. Some Australian native plants and animals have adapted to cope but others suffer, along with humans during the annual bushfire season.

Conversely, Australian Aboriginal people use fire to expertly manage the local landscape and to assist with sourcing food. Increasingly, the way Indigenous people use fire is being included in modern methods of landscape management to prevent bushfire catastrophes.

The effects of bushfires encompass both our natural and built environments. This STEM Project will focus on proposing solutions to reduce impacts of bushfires on landscapes and life.

Find Out More and Get Thinking

In this section of the project, you need to find out some background information about the issue of bushfires and how they affect Australian people, plants and animals (as well as people across the world). Your teacher will ask you some stimulus questions that you will need to do some research to answer.

Included on the next page is a worksheet that may help you to organise your research findings.



Santos & ESWA supporting earth science education



Some tips for researching on the internet:

- Make sure you fully understand what it is you are trying to find out before you start your research.
 - You need to understand what all of the words in a question or statement mean so look them up if you don't.
 - o If you're still stuck ask your peers or your teacher.
- Try to use websites that are written by trusted sources.
 - o Those ending in .gov, .org or .edu are usually reliable.
- Always find your information on more than one reliable website or source. If it only appears on one website, how do you know that the information can be trusted?
 - Wikipedia can be edited by anyone (even you!) so it may be a good starting point but cross check any information you get from there!

Background Information

Use the suggested websites to answer the following questions. If you use another website, record it next to the question numbers at the end of this section. Copy and paste the full URL and the date you used it.



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1. What is a bushfire? What causes them?

Suggested site:

• https://www.natgeokids.com/au/discover/geography/physical-geography/what-is-a-bushfire/

2. What is the **fire triangle**? What are the **three** things **needed** for a fire to burn?

Suggested site:

• https://www.coolaustralia.org/curious-kids-how-do-bushfires-start/

3. How do fires **behave** in **hilly** or **mountainous** areas compared to **flat** areas?

Suggested site:

• https://www.dpaw.wa.gov.au/management/fire/fire-and-the-environment/48-fire-behaviour





4. What is soil? What are the different layers in soil? Suggested sites:

- https://youtu.be/ljW7jbCulGo https://youtu.be/Q4UDqP3_AwY
- https://www.youtube.com/watch?v=if29mjcd5bc
- https://easyscienceforkids.com/all-about-soil/

5. What are the **living things** in **soil humus** and what is their '**job**'? Suggested sites:

- https://www.nationalgeographic.org/encyclopedia/humus/
- https://www.soils4teachers.org/biology-life-soil
- https://www.sciencelearn.org.nz/resources/890-what-is-in-soil
- https://education.abc.net.au/home#!/media/104056/soil-healthy-dirt-makes-healthy-plants

6. What **effect** do **bushfires** have on **soil**? What **parts of the soil** can be affected?

- https://www.abc.net.au/gardening/impact-of-fires-on-soil/11951568
- http://vro.agriculture.vic.gov.au/dpi/vro/vrosite.nsf/pages/soilhealth_toolbox_farmers_fire
- https://www.soilscienceaustralia.org.au/wp-content/uploads/2020/01/202003-FACT-SHEET-Soil-fire-impacts-and-management.pdf





7. What is **erosion**? Why does this happen after a bushfire? What **other effects** can **erosion** cause?

Suggested sites:

- https://kids.kiddle.co/Soil_erosion
- https://www.nationalgeographic.org/encyclopedia/erosion/
- https://blog.csiro.au/the-relief-of-rain-after-bushfires/

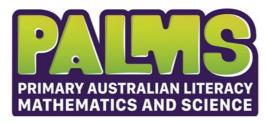
8. What are **weeds**? Why are weeds a **problem** in **areas** recovering from bushfires?

Suggested sites:

- https://www.naturalresources.sa.gov.au/kangarooisland/land-and-water/fire-management/Bushfires_and_weeds
- https://theconversation.com/pulling-out-weeds-is-the-best-thing-you-can-do-to-help-nature-recover-from-the-fires-130296

9. How have some banksia plants adapted to recover from bushfires? What do their seed pods need to open?

- https://en.wikipedia.org/wiki/Ecology_of_Banksia
- https://www.goldcoast.gld.gov.au/documents/bf/remarkable-world-plants.pdf





10. What other ways have **Australian plants adapted** to cope with **regular bushfires**? E.g. Why is some tree **bark** so **thick**?

Suggested sites:

- https://www.youtube.com/watch?v=Z4Ur8ky-Q2I&t=177s
- $\underline{ \text{https://www.bgpa.wa.gov.au/about-us/information/research/seed-conservation/smoke-to-sow-and-grow} \\$

11. How do **Aboriginal people** use **fire** to **manage** their local environment? Suggested sites:

- https://www.abc.net.au/news/2020-01-09/indigenous-cultural-fire-burning-method-has-benefits-experts-say/11853096
- https://www.youtube.com/watch?v=UJKdZpRbzMk

12. What are the **health hazards** of bushfire **smoke**? Suggested sites:

• https://healthywa.wa.gov.au/Articles/S_T/Smoke-hazard-from-bushfires





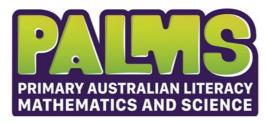
13. How are firefighting trucks designed to protect firefighters during bushfires?

Suggested sites:

- https://youtu.be/KxG1sUxR_6c
- https://www.youtube.com/watch?time_continue=1&v=40NQSjkRWi8&feature=emb_logo
- https://blog.csiro.au/fire-truck-burnovers/

14. How can you make a building fire resistant? What should you think about in the design and the materials it is built from?

- https://www.thefifthestate.com.au/innovation/residential-2/how-to-design-your-house-forfire-resistance-and-sustainability/
- https://www.abc.net.au/news/2019-12-29/houses-need-to-be-built-to-withstandbushfires/11809934
- https://www.architectureanddesign.com.au/projects/houses/addressing-a-national-problemkarri-fire-house-by#
- https://www.dfes.wa.gov.au/safetyinformation/fire/bushfire/BushfireManualsandGuides/D FES Bushfire-Homeowners Survival Manual.pdf





15. What special **clothing** do **firefighters** wear to **protect** them from **fire**? What **materials** is the clothing made from?

Suggested sites:

- https://www.fire.nsw.gov.au/page.php?id=164
- https://youtu.be/74wm6I06BQA
- https://www.oakharbor.org/fire/page/what-does-firefighter-look
- https://en.wikipedia.org/wiki/Bunker_gear
- https://www.london-fire.gov.uk/museum/history-and-stories/firefighters-uniforms/

16. What is a **bushfire resistant garden**? Which **species** of **plants** are best at resisting fire?

- https://www.stateflora.sa.gov.au/the-australian-garden/why-choose-native-plants/bushfire-resistance
- https://apsvic.org.au/fire-resistant-and-retardant-plants/
- https://blog.csiro.au/five-tips-for-replanting-after-bushfires/
- https://sophiespatch.com.au/2020/01/03/bush-fire-garden-recovery/





Other websites used

O Mer Websites used	
Question	Website URL & date
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