



Bushfire lesson plan

The bushfire lesson plan provides teachers and students with an opportunity to pinpoint bushfire dangers around the home. It asks students to study the simple house plans for the Hot House and to identify the bushfire dangers around the house.

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Australian Institute for
Disaster Resilience

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Bushfire lesson plan

The bushfire lesson plan provides teachers and students with an opportunity to pinpoint bushfire dangers around the home. It asks students to study the simple house plans for the Hot House and to identify the bushfire dangers around the house.

Objectives

Participating in this lesson will help students to:

- develop an awareness of protecting property against bushfires
- develop their research skills and begin to explore a wider variety of sources
- express their learning by writing a report.

Required resources

- 'The Hot House' activity sheet
- Coloured pencils or markers

Please note: This lesson can be modified to incorporate other Learning Areas and to meet the needs of the students and specific content taught.

LEARNING AREAS

The learning areas for this lesson plan include:

- Geography
- History
- Humanities and Social Science
- Maths
- Science
- Health and physical education
- The Arts
- English
- Technologies.

Lesson steps

The Hot House activity

1

Provide small groups with a copy of 'The Hot House' activity sheet.

2

Ask students to read the information about the house and study the plan, then identify the areas that could present bushfire hazards. This can be done using coloured pencils or textas.

3

Students will use the information and questions on the activity sheet to write a bushfire preparation report about the Hot House.

My bushfire project

Provide students with a copy each of the 'My bushfire project' activity sheet. Students are to research the bushfire history in their local region. Encourage them to use a variety of resources for information, for example, community or family members, the Internet, and their local or state emergency services. Students are to create individual projects based on their choice of a major Australian bushfire, including all the points listed in their assignment sheet together with an interactive map that shows the location of some of Australia's worst bushfires.

About bushfires

During most summers, Australia will experience a significant bushfire event that can devastate lives, the environment and impact the suburban fringes of major cities.

Bushfires

Unlike the common practice of back burning, wildfires or bushfires are fires that are unmanaged and burn uncontrollably. A bushfire can burn quickly and be devastating if not detected and extinguished. In the drier seasons, the dangers of a bushfire occurring are very high. They can be caused by lightning, deliberately lit or started accidentally. A bushfire can destroy homes and buildings, devastate crops, and threaten the lives of people and animals.

There are a number of bushfires that come under the disaster banner, including:

- Victoria, 2009, in which 173 lives were lost. This is now referred to as Black Saturday.
- South Australia and Victoria, 1983, which claimed 76 lives and was named Ash Wednesday.
- Southern Victoria, 1969, when 23 people lost their lives.
- New South Wales, 1968, in the Blue Mountains and coastal region, where 14 lives were lost.
- Hobart and Southern Tasmania, 1967, where 62 people perished.
- Victoria, 1939, known as Black Friday, when 71 lives were lost.

Grass fires

Bushfires in Australia occur either as a grass fire or forest fire. These usually occur on grazing and farm land, although they may take place in remote scrub country, and can claim lives or destroy fences, livestock and buildings.

Forest fires

Australia's forests are largely made up of eucalypt trees that once alight are very difficult to control and extinguish due to the high amounts of flammable vapour from their leaves. This causes large fireballs in the upper storey of the forest and large clouds of smoke that blanket the ground and make aerial observations difficult.

Causes of bushfire

Bushfires can be caused deliberately or accidentally. Some of these causes are:

- leaving a fire unattended (at a camp, barbeque)
- having an open fire on a dry windy day
- small flames resulting from glass bottles or mirrors that become a larger fire
- failing to put out a cigarette or match properly
- deliberate lighting of fires with the intent to cause damage, which is known as arson
- flammable chemicals that are left in the sun or hot areas.

Ways to control bushfires

Bushfires are fought by trained volunteer firefighters and Emergency Service personnel who have access to the appropriate equipment. Helicopters and light aircraft are used to observe the fire. They can help to:

- determine the direction the fire may take
- decide where to make firebreaks
- locate nearby homes, businesses, other buildings and livestock.

All of these observations allow the state and territory emergency services to better understand the fire and devise useful plans for evacuation.

Water planes are used to control and extinguish spot fires (small fires which jump ahead of the main fire front) using a technique called water bombing.

Bulldozers are another effective piece of firefighting equipment and are used to create emergency firebreaks. Back-burning an area just before the bushfire season is an effective strategy to minimise the chance of a bushfire.

Did you know?

- South-eastern Australia includes areas which are prone to the most severe and frequent wildfires in the world.
- A fire front is the leading edge of a moving fire.
- Most firefighting deaths have occurred following a sudden change in wind direction. In bushfires, radiant heat from flames, dehydration and asphyxiation from smoke are the major killers.
- In drier seasons the fire danger is much higher.
- On 7 February 2009, the Black Saturday bushfires in Victoria became Australia's most damaging bushfires with an estimated cost of \$1 billion and the loss of 173 lives.
- On 21 January 1997, over 250 bushfires burnt across Victoria as the temperature soared to 41.2°C. Over 40 homes were destroyed in the Dandenong Ranges, near Melbourne.
- The 1994 eastern seaboard fires in New South Wales burnt about 800,000 hectares of land including sections of Sydney suburbs and 40 national parks.
- In 1982/83 south-east Australia experienced severe drought conditions. On 16 February 1983, Victoria and South Australia experienced a very dry, hot and windy day. In Melbourne the temperature reached 43°C with relative humidity of six per cent. The Ash Wednesday bushfires erupted on this day. These fires claimed 76 lives and had a total estimated cost of \$975 million.

Bushfires: Be prepared

As bushfire season approaches, it is important to ensure that you have taken the necessary steps to protect yourself, your family and your property from danger. Well-prepared homes are better protected from bushfires.

Planning for a bushfire

The bushfire season in Australia is usually during summer and autumn, but in the north of Australia it is during the dry season, which is in winter. Before the bushfire season, it is important to take steps to protect your home for the coming season.

Steps to take when planning for the bushfire season

- Store all flammable material clear of the house (wood, paint, chemicals, fuel, piles of newspaper/paper).
- Remove rubbish from the gutters, rake the dry leaves and dispose of them thoughtfully, and also trim hedges and mow all grass.
- Fit wire screens to doors, windows and vents. Enclose all gaps, roof eaves and under the house.
- Keep a ladder handy for roof access inside and outside.

- Have an emergency survival kit and make sure your family can access it.
- Create a household plan to either leave early or to stay and protect the property during a bushfire. Include this plan in the emergency kit with emergency numbers and practice plan regularly.
- Check that you are insured for bushfire.
- Mark all water sources as this assists fire services should they need them. Ensure all hoses reach the house and garden.

Some local government authorities have regulations referring to the control of the planning and building of home and other buildings in bushfire prone areas. This includes having mandatory firebreaks around the house, installing water-pumps, the use of specific materials, and boundaries surrounding the buildings.

Research your local emergency services websites to locate an appropriate Emergency Survival Kit.

STUDENT ASSIGNMENT

The Hot House

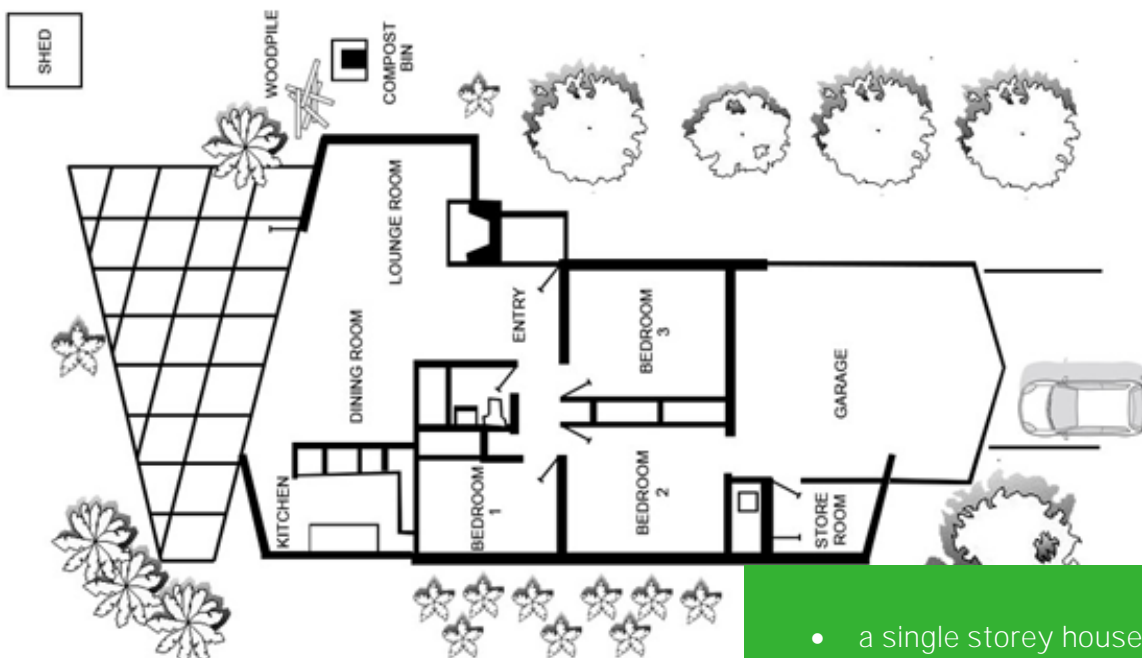
Student name:

Date / /

Write a 'Bushfire preparation report' about the house pictured below. To begin you will need some facts about the house.

Get the facts

The Hot House is:



- a single storey house
- made of timber and has a tiled roof
- surrounded by a wooden paling fence

Around the yard of the Hot House, there is:

- a garden shed out the back where the lawn mower is stored
- a woodpile and compost bin next to the living room
- mum's car parked out the front of the garage
- four dead trees on the right-side of the house
- a big gum tree out the front yard
- two rows of small native plants with mulch around them on the left-side of the house.

Now you have all the facts about the Hot House, identify and mark all the bushfire dangers on the plans. The following questions will help you identify the dangers and write the report.

Time to investigate!

What are the main fire dangers around the house?

How do the trees and native plants near the home affect the safety of the house?

Can you recommend a better place for the woodpile and compost bin?

Is the car a fire threat? Is it better to put it in the garage or leave it where it is? Why?

Do you think that the wooden fence is a fire hazard or would it stop flying embers from entering the yard? Justify your choice.

What can this family do to protect their home from a bushfire?

If you lived here, what would be the first thing you would do if there was a bushfire approaching?

STUDENT ASSIGNMENT

My bushfire project

Are you in a bushfire prone region?

Research the bushfire history in your region. You can search newspaper articles, ask community or family members, research using the internet or contact your local state and territory emergency services.

The projects on this page will help you understand:

- how bushfires are caused
- the devastation communities face during and after a bushfire
- ways to survive during a bushfire
- how to better prepare your home and family should you be caught in a bushfire.

You can do one or more of the projects (check with your teacher).



What has your community done to be prepared for bushfires?
What else could your community do to be prepared?

Research a major bushfire occurrence in Australia

Use different sources to research bushfires and your chosen fire, including:

- books
- newspaper articles about the event
- your local museum
- the internet
- community members and your family.

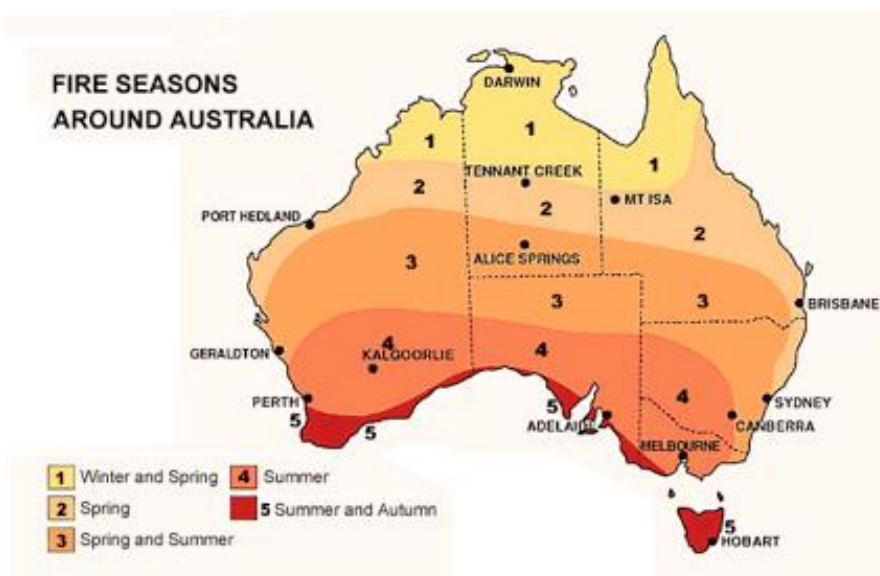
In your project, you may want to highlight:

- where the fire started
- what caused it (was it an accident or deliberately lit?)
- where and how it spread
- the damage it caused
- how long it burnt
- what happened to the person who lit the fire (if it was deliberately lit).

These are just some points that you can use in your project. Present the project to your teacher and share it with your class and family.

Create an interactive map

Design an interactive map that highlights some of Australia's most disastrous bushfires. Before you start on your project, think about some interactive resources you can use (small 3D images, flaps, questions, multimedia resources, animation etc.). Share this map with your class and teacher.



This map shows that northern Australia's bushfire season is during winter and spring, for central Australia it is spring and summer, and for southern Australia it is summer and autumn. You can use your map to also show what season is the most active for bushfires where you live.

Real life bushfire stories

Australia is prone to bushfire during the summer months. Below are some examples of major bushfire disasters. You can research many other fires, including ones that have occurred near you.

Black Saturday



DATE :
February 2009



LOCATION :
Victoria

The Black Saturday bushfires were a series of bushfires that ignited or were burning across Victoria on and around Saturday 7 February 2009 during extreme bushfire weather conditions. These bushfires resulted in Australia's highest ever recorded loss of life from a bushfire.

As a result of the Black Saturday bushfires:

- 173 lives were lost
- over 400 people were injured
- more than 2000 homes were lost
- countless animals were killed
- more than 450,000 hectares of land was burnt
- an estimated \$1 billion of damage was done.

Eastern Victorian Alpines



DATE :
January 2003



LOCATION :
Victoria

On 8 January 2003 lightning struck the Victorian Alps. This resulted in 87 fires across the State's north-east.

The majority of the fires were able to be extinguished, but eight were too large to be controlled. These remaining fires eventually joined to become a fierce fireball that swept through the Victorian ranges. This would be the largest bushfire in Victoria since Black Friday in 1939.

State and Territory Emergency Services fought the fires for 59 days before they were able to get them under control.

Damage from the bushfire included:

- more than 40 homes destroyed
- 1.3 million hectares were burnt
- approximately 9000 animals and livestock killed or had to be destroyed due to their injuries.

Mornington Peninsula and Dandenong Ranges



DATE :
January 1997



LOCATION :
Victoria

From 19 - 21 January 1997, a series of devastating bushfires broke out in Victoria. Temperatures exceeded 40°C and strong winds fanned the flames. These bushfires affected the following areas:

- Mt Eliza
- Melbourne
- Mt Martha
- Arthurs Seat
- Mornington Peninsula
- Dandenong Ranges
- Ferny Creek
- Upwey
- Kalorama.

Forty-three homes were destroyed and another 45 damaged. Unfortunately, three people were killed and 40 were injured.

Eastern Seaboard



DATE :
January 1994



LOCATION :
New South Wales

January 1994 was a hot, dry month. Fires broke out in the north of New South Wales and dry winds acted as a catalyst and caused the fires to spread.

Meanwhile, more fires were breaking out on the east coast as far south as Batemans Bay. These fires were fuelled by winds that blew for three weeks and forced people to evacuate their homes, leaving 20,000 volunteer firefighters to fight 800 bushfires.

The fires were most serious in the Hunter Valley, Sydney and the Blue Mountains and caused great losses, including:

- the loss of four lives – three of whom were firefighters
- 120 people injured
- nearly 1000 people homeless
- thousands of native animals and hundreds of livestock lost
- approximately 800,000 hectares burnt
- the loss of habitat in 40 national parks.

Ash Wednesday



DATE :
February 1983



LOCATION :
South Australia and Victoria

South Australia and Victoria were coming to the end of a hot, dry summer in February 1983 when small fires broke out across the two States. The bushfires crossed the New South Wales border on 1 February 1983 and fires continued to break out and flare across South Australia and Victoria.

By 16 February, the bushfires had destroyed buildings, forests and agricultural land. The fires became known as the Ash Wednesday bushfires, and resulted in:

- the loss of 76 lives
- destruction of 2400 homes
- destruction of more than 3700 buildings
- the loss of livestock and wildlife
- the burning of more than 520,000 hectares.

Related links

The Bushfire Threat (BoM website)

<http://www.bom.gov.au/weather-services/bushfire/about-bushfire-weather.shtml#threat>

Major Bushfires in Victoria (Victorian Gov't website)

<https://www.ffm.vic.gov.au/history-and-incidents/lancefield-cobaw>

Geoscience Australia Sentinel Hotspots

<https://sentinel.ga.gov.au/#/>



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Australian Institute for Disaster Resilience

ADDRESS

370 Albert Street, East
Melbourne VIC 3002

CONTACT

p : +61 3 9419 2388
e : enquiries@aidr.org.au

WEBSITE

www.aidr.org.au