



Department of Fire and Emergency Services

Department of Biodiversity, Conservation and Attractions



# North West Bushfire Patrol

## Teachers' Guide Years 4 and up

*Building Disaster Resilience in Young People*



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## About North West Bushfire Patrol

*North West Bushfire Patrol* focuses on bushfire education within the Kimberley region. The program is WA Curriculum-linked and serves as a teaching resource from Year 4 upwards. The resource considers the Kimberley region's varied population, and all lessons are suitable to be used in both town and community schools.

The intended outcome of *North West Bushfire Patrol* is to raise students' awareness of bushfire and its consequences, whilst further developing a range of skills to help them respond to bushfire when it occurs.

Human risk from disaster is on the rise globally and children are amongst the most vulnerable to disasters.<sup>1</sup> The impact of disasters such as bushfire can be substantially reduced if the community is well prepared and equipped with the knowledge and skills of how to respond when a disaster occurs.

The Kimberley region is a vast area and the range of emergency services varies between larger towns and more remote regions. Volunteer organisations play a vital role in providing services to towns and communities throughout the Kimberley region. There is value in knowing your local area and what emergency services and volunteer organisations are available as this will influence how you teach certain parts of the program.

## Adding 'disaster' to your schools' resilience education program

Children and young people are recognised as a vulnerable group in a world in which we are experiencing a global increase in disasters<sup>2</sup>. The 2021 Children's Climate Risk Index (CCRI)<sup>3</sup> indicates that almost every child on Earth is exposed to at least one climate and environmental hazard, such as bushfires, heatwaves, cyclones, severe storms, earthquake and or tsunami.

*North West Bushfire Patrol* is a Disaster Resilience Education (DRE)<sup>4</sup> program aiming to provide opportunities for children and young people to identify and solve problems with respect to their own bushfire preparedness, at school and at home. A national survey<sup>5</sup> of children and young people in 2020 found that those surveyed felt they had learnt more about earthquakes in school than the natural hazards that present the most risk to them, that is, bushfire and flood. Children and young people surveyed wanted to know more about the

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<sup>1</sup> UNESCO & UNICEF. 2014. *Towards a Learning Culture of Safety and Resilience: Technical guidance for integrating disaster risk reduction in the school curriculum*. New York: UNESCO

<sup>2</sup> UNESCO & UNICEF, 2014. *Towards a Learning Culture of Safety and Resilience: Technical guidance for integrating disaster risk reduction in the school curriculum*. New York: UNESCO

<sup>3</sup> UNICEF, 2021. [The climate crisis is a child rights crisis: Introducing the Children's Climate Risk Index.](#)

<sup>4</sup> Australian Institute for Disaster Resilience (AIDR, 2021). *Disaster Resilience Education for Young People Handbook* [https://knowledge.aidr.org.au/media/8874/aidr-handbook\\_dreyp\\_2021.pdf](https://knowledge.aidr.org.au/media/8874/aidr-handbook_dreyp_2021.pdf)

<sup>5</sup> Australian Institute for Disaster Resilience (AIDR, 2020). *Our World Our Say: National survey of children and young people on climate change and disaster risk.*

actions they could take to be better prepared for bushfire and flood; and to be able to look after themselves, others and animals.

Bushfire education traditionally fits the Human and Social Science (HASS) curriculum in Year 5 Geography, with alerts and warnings covered in Year 6 in Science as a Human Endeavour. However, bushfire education is relevant to students across all years of schooling as part of your school's resilience education program within Health and Physical Education (HPE) and additionally within those areas focusing on 'place' and 'civics and citizenship' within the HASS curriculum.

From early childhood to adolescence, children learn about safe and unsafe behaviours and who can help them in an emergency; what strategies they can implement to keep themselves safe in different situations, and, put new skills into practice. They examine how to respond when peers are encouraging them to take unnecessary risks; and, collaborate with their classmates to come up with strategies they can use in emergencies or when they feel unsafe.

All these things form part of bushfire education and are included in Disaster Resilience Education (DRE) programs such as *North West Bushfire Patrol*.

## Links between home, school and community

Research into children and young people's experience of bushfire across Australia shows that the impacts of a bushfire disaster can be significantly reduced if communities are well prepared and equipped with the knowledge and skills to respond before and when a bushfire occurs.

*'This isn't just for young people, but I think they need to know the fire plans. Because there were a lot of people who did not have a fire plan and were just panicking.'*

(NSW Children & Young People's Experience of Disaster Report, 2020)

The NSW *Children & Young People's Experience of Disaster* report (2020)<sup>6</sup> found that young people want to be involved in bushfire planning and want to know that their parents, carers, school are well prepared and can remain calm in a bushfire emergency.

Adults (at school and at home) can provide opportunities for children and young people to be involved and encouraged to contribute to bushfire planning from as young as six years old. Meaningful activities can include participating in bushfire drills where children and young people take an active role, for example, putting together an emergency kit and/or their own personal 'grab bag'. When given the chance to contribute to bushfire planning and executing the plan, children and young people are less likely to be anxious and more likely to be prepared for a bushfire emergency.

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<sup>6</sup> Office of the Advocate for Children & Young People (NSW, 2020). *Children & Young People's Experience of Disaster*.

*North West Bushfire Patrol* provides a link between your school's bushfire risk management plan, your students' own family bushfire survival plans and uses a whole of school / community approach to help build disaster resilience across all years of schooling. It provides opportunities for schools to link into community initiatives such as Bushfire Ready; connect with their local government, community groups and their local fire and emergency services.

## **Children and young people's experience with fire**

Each of your students will have different experiences with fire. Some may be confident in lighting fires for cooking and heating purposes when camping or at home; and others will have little to no fire knowledge or skills. It helps to find out if any of your students have experienced the impact of bushfire as they could find this topic distressing.

## **Children and young people with a fascination for fire**

Some children and young people are fascinated by fire and either light unsafe fires or endanger themselves by getting close to fire. The DFES Juvenile & Family Fire Awareness (JAFFA) Program is available to support these children (aged 6-16) and their families.

The program is delivered in the family home by JAFFA-trained firefighters. JAFFA includes an interview with the parent(s) and child, as well as a personalised education session that helps the young person understand the consequences of playing with fire. JAFFA receives referrals from schools, parents/carers, WA Police and Juvenile Justice. Contact JAFFA on 9395 9488; email [jaffa@dfes.wa.gov.au](mailto:jaffa@dfes.wa.gov.au) or visit [www.dfes.wa.gov.au/jaffa](http://www.dfes.wa.gov.au/jaffa) to find out more.

## **North West Bushfire Patrol Learning Outcomes**

This program reflects an inquiry approach where students are directing their learning and applying it to their own location.

The key outcomes include:

- Identifying safe and unsafe behaviour with fire
- Understanding that fire is a tool for responsible adults who hold the knowledge and skills to use it
- Identifying unsafe fire times and risk
- Developing personal behaviours and strategies for staying safe when there is a bushfire
- Understanding how to respond to a bushfire
- Understanding the impact of deliberately lit bushfires

## Modules

North West Bushfire Patrol contains five modules:

Module One:	Understanding bushfire
Module Two:	Factors affecting bushfire
Module Three:	Impacts of bushfire
Module Four:	Fire Land Management
Module Five:	Responding to bushfire

Each module is structured as illustrated below:



**Module: Title of Module**  
**Subtitle**

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### **About this lesson**

- Overview of the lesson

### **Background information**

- Information needed to teach the lesson or complete activities
- May include links to online content, including images and video

### **Key messages**

- Key messages featured in the module

### **Learning outcomes**

- Student learning outcomes

### **Things you will need**

- What you will need to gather or organise for students to complete all of the module

### **Activity #:**

- Each module contains a number of activities

### **Extension:**

- Opportunities for students to apply the information further or extend their knowledge and understanding

### **In the community:**

- Opportunities for students to engage with their school community, home or local community and demonstrate what they have learned

## **Adapting *North West Bushfire Patrol* for high school students**

This resource was initially developed for students in Years 5 – 6 but can easily be adapted to suit students from Year 4 up to Year 12.

The activities listed below address key DFES messages and include understanding bushfire risk; bushfire behaviour; fire danger ratings; bushfire alerts and warnings; where to find information ([emergency.wa.gov.au](http://emergency.wa.gov.au)); understanding your school bushfire plan and making and practising a home bushfire survival plan.

### **Module One, Activity Three: Bushfire Prone Areas**

Students are able to identify if an area is bushfire prone and recognise areas of their community that are at risk of bushfire.

### **Module Two, Activity Two: Spot Bushfire Days**

Students are able to determine bushfire weather and times when it is safe to have a fire.

### **Module Two, Activity Three: Fire Danger Ratings**

Students are able to locate the current Fire Danger Rating for their local area and understand its purpose.

### **Module Five, Activity Two: Bushfire Warnings**

Students understand where to find information during a bushfire and know how to respond to a bushfire in order to keep safe.

### **Bushfire Preparation**

Use the My Bushfire Plan website ([www.mybushfireplan.wa.gov.au](http://www.mybushfireplan.wa.gov.au)) or App and encourage your students to develop a My Bushfire Plan with their families (best option) or on their own (good option). They can share their plans with one another (better option).

Short for time? If you have only time for one or two lessons, these are the most important messages:

- A small fire can become a big fire very quickly. Call 000 for fire so the fire can be extinguished quickly, understanding that in the Kimberley there may be some delay before responders arrive due.
- Bushfire plans save lives. Have a bushfire plan. Download the My Bushfire Plan App and work with your household/family put together and practise your bushfire plan. Include in your plan where you will go if there is a bushfire in your area.
- Know where to find accurate information about a bushfire. The accurate source for emergency alerts and warnings is Emergency WA ([emergency.wa.gov.au](http://emergency.wa.gov.au)). Emergency WA also includes information on Bushfire Danger Ratings, Total Fire Bans, planned burns and information about floods, cyclones and having hazards.
- Leave early. Do not wait for an emergency warning or a text to tell you when to leave.

## School and home bushfire plans

If your school is in or near a designated bushfire prone area, bushfires are a real risk to you, your students, your school buildings and grounds; as well as homes and infrastructure within your local community, including your students' homes. But you don't have to live close to the bush at risk. Burning embers can travel up to 5km or more ahead of a fire front, each one capable of starting a spot fire.

Many government schools at risk of bushfire are included on the Department of Education's Bushfire Zone Register and are required to have a Stand-alone Bushfire Emergency Plan. As over 90% of Western Australia is at risk of bushfires, a quick look at the DFES [Map of Bush Fire Prone Areas](#) is a good visual to show children and young people to help them understand their school, home, or local community risk<sup>7</sup>.

Having school and home bushfire plans are our greatest defence for students to stay safe in a bushfire emergency. It's a good idea to organise a whole-of-school bushfire drill when students are doing these modules. This helps cement the need to understand bushfire risk and the things we can do to keep ourselves safe. It's also an opportunity to link what students have learned at school and transfer this knowledge to the home environment by developing a bushfire plan at home.

A home bushfire plan can be created in under 15 minutes using the [My Bushfire Plan](#) website or companion App. The App provides one place to prepare, store, print and update a bushfire survival plan anytime, from any device. Plans can be digitally shared with the whole family.

Module Five (Responding to Bushfire) asks students to complete the **My Family's Bushfire Survival Plan worksheet** as a homework task. This is a particularly important component of the learning program as a bushfire plan will give families the best chance of surviving a bushfire. It is important to highlight that leaving early is always the safest option.

It is recognised that this activity may be difficult for some students where parents or guardians are unwilling or unable to participate. Instead encourage students to talk with classmates to decide the following:

- When will they know to leave their home?
- Where will they go?
- Which way will they go?

If a student's family is unwilling to engage in this activity, students can still be encouraged to create their own *My Bushfire Plan* on their own.

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<sup>7</sup> Over 400 government schools in bushfire prone areas are on the Department of Education's Bushfire Zone Register. A DFES Bushfire Risk Management Liaison Officer provides advice to government schools on bushfire plan development. It is not the role of career firefighters to aid in bushfire planning. Non-government schools may need to employ a fire engineer (or other expert) to assist them with their bushfire plans.



## Enriching the program (inviting guests and other options):

Inviting guests into the classroom is a great opportunity for students to ask questions of an expert. Students can gain a better understanding about local bushfire risks in their community; cultural and planned burning practices; environmental risks to plants, animals and the places they love; risks to homes, other buildings and infrastructure; and are able to share their own bushfire knowledge, skills and plans.

When inviting guests, communicate clearly with them before they visit to ensure they understand what you require and what they can expect. It may even be helpful to provide them with a list of students' questions if possible.

Guests can include:

- Local fire brigade (Career or Volunteer Fire and Rescue Service, Bushfire Brigade or Volunteer Fire and Emergency Service, Volunteer Fire and Rescue Brigades). Visit <http://www.dfes.wa.gov.au/contactus> to find links to DFES Offices and Fire and Rescue Service Stations<sup>8</sup>.
  - The purpose of a firefighter visit is to reinforce the key messages of North West Bushfire Patrol. The visit is also an opportunity for students to learn more about community helpers and find out what they do.
  - A firefighter visit is designed to be delivered to one class at a time. The effectiveness of the presentation relies on students being able to interact with the firefighter and is not suitable for a large audience.
  - The main role of most of the firefighters that come to your class is to fight fires. Whilst they may have some experience in working with young children, they will need your help to make sure their session goes well.
  - To ensure that all students benefit from this presentation, teachers are asked to take responsibility for their students' behaviour. There is a possibility the firefighters are on duty and could be called away to an emergency during the presentation.
  - The firefighters might bring a fire truck and arrange for your students to look through the fire truck and see a firefighter in their breathing equipment. This may not be possible nor suitable for all lessons.
- Local Aboriginal or Torres Strait Islander Elders to provide information about the seasons and traditional burning practices, as well as the importance of preserving and respecting Country.
- Your local Aboriginal Ranger Group
  - May be able to talk to students about fire management and their role fighting fires
  - May be able to show students some of the equipment they use.
- A representative from the DFES Kimberley or Kununurra offices.

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<sup>8</sup> Career fire stations serve most of the Perth metropolitan area including Mandurah and Rockingham and the regional centres of Geraldton, Kalgoorlie, Bunbury and Albany. Firefighters visit all Year 3 classes to deliver our Home Fire Safety program. Bushfire education visits are additional to their workload and visits may be limited.

- Local government representative (Community Emergency Services Manager, Fire Control Manager or Ranger)
- Parks and Wildlife volunteers to discuss impact of bushfire on native animals and habitats. (Visit the [Department of Biodiversity, Conservation and Attractions](#) to contact your local Parks and Wildlife office).
- Staff and family members who can share their own bushfire experiences and bushfire plans.
- Students from other schools who can share their stories with your students.

Other ways to further enrich the program include:

- A whole of school bushfire drill
  - Students could run the bushfire drill
  - Students could complete a critical analysis of the schools' bushfire plan and drill; suggesting improvements and presenting their ideas to staff
- Extension activities where students plan their own investigation and present their findings to an audience.
- Hosting an event where students can communicate what they have learned with their families, other students and broader school community, as well as guests who have formed part of their learning journey.



FOR A SAFER STATE

## Parent/Carer Information Sheet – FAMILY BUSHFIRE PLAN

Dear Parent/Carer

We are learning about bushfires in Western Australia, using a Department of Fire and Emergency Services (DFES) resource, *North West Bushfire Patrol*. Students have been asked to:

- **Complete a bushfire plan with their families (15 minutes).**

If you already have a bushfire plan, please go through it with them. If you can, test or practise some, or all of the plan together.

### **How to make a bushfire plan**

To get started, visit [mybushfireplan.wa.gov.au](http://mybushfireplan.wa.gov.au) or download the ***My Bushfire Plan*** App.

- The best plan is one that everyone in your household knows and has practised.
- Practising your bushfire plan helps reinforce the messages learnt in class, as well as increase each of your family members' safety before and during the bushfire season.

### **Where to find accurate bushfire information**

- You can find Bushfire Alerts and Warnings, Fire Danger Ratings, and information about Total Fire Bans at Emergency WA [emergency.wa.gov.au](http://emergency.wa.gov.au).

Kind regards

***'73% of children and young people in Australia\* want to know how to plan and prepare for bushfire'*** (\*73% of Australian children and young people surveyed, *Our World Our Say Youth Climate & Disaster Report*, World Vision, 2020)

## Additional Resources and Useful Weblinks

Department of Fire and Emergency Services (DFES)	<a href="http://www.dfes.wa.gov.au">www.dfes.wa.gov.au</a>
DFES Alerts and Warnings	<a href="http://www.emergency.wa.gov.au">www.emergency.wa.gov.au</a>
DFES Fire Danger Warnings (Emergency WA)	
DFES Bushfire Publications	<a href="http://www.dfes.wa.gov.au/safetyinformation/fire/bushfire/Pages/publications.aspx">www.dfes.wa.gov.au/safetyinformation/fire/bushfire/Pages/publications.aspx</a>
Emergency Alert	<a href="http://www.emergencyalert.gov.au/">www.emergencyalert.gov.au/</a>
Bureau of Meteorology (BOM)	<a href="http://www.bom.gov.au">www.bom.gov.au</a>
BOM Forecast Areas Map	<a href="http://www.bom.gov.au/wa/forecasts/map.shtml?ref=hdr">www.bom.gov.au/wa/forecasts/map.shtml?ref=hdr</a>
BOM National Weather Warnings	<a href="http://www.bom.gov.au/australia/warnings/index.shtml">www.bom.gov.au/australia/warnings/index.shtml</a>
Department of Biodiversity, Conservation and Attractions (DBCAs)	<a href="http://www.dpaw.wa.gov.au/management/fire">www.dpaw.wa.gov.au/management/fire</a>
Triple Zero Challenge	<a href="http://www.kids.triplezero.gov.au">www.kids.triplezero.gov.au</a>
Disaster Resilience Education for Young People (Australian Disaster Resilience Handbook Collection) – Australian Institute for Disaster Resilience (AIDR) (2021)	<a href="https://knowledge.aidr.org.au/collections/handbook-collection/">https://knowledge.aidr.org.au/collections/handbook-collection/</a>



## Curriculum Links

<b>HEALTH AND PHYSICAL EDUCATION: Personal, social and community health</b>			
<b>Year</b>	<b>Strand</b>	<b>Content Descriptors</b>	<b>Module</b>
Year 4	Being healthy, safe and active	<ul style="list-style-type: none"> <li>• Personal behaviours and strategies to remain safe in uncomfortable or unsafe situations</li> <li>• Strategies to ensure safety and wellbeing at home and at school</li> </ul>	Understanding Bushfire Factors Affecting Bushfire Behaviour
Year 5	Being healthy, safe and active	<ul style="list-style-type: none"> <li>• Reliable sources of information that inform health, safety and wellbeing</li> </ul>	Understanding Bushfire Factors Affecting Bushfire Behaviour
Year 6	Being healthy, safe and active	<ul style="list-style-type: none"> <li>• Criteria that can be applied to sources of information to assess their credibility</li> <li>• Situations in which emotions can influence decision-making: in peer group, with friends, with family.</li> </ul>	
Year 7	Being healthy, safe and active	<ul style="list-style-type: none"> <li>• Help-seeking strategies that young people can use in a variety of situations</li> <li>• Strategies to make informed choices to promote safety.</li> </ul>	
Year 8	Being healthy, safe and active	<ul style="list-style-type: none"> <li>• Skills and strategies to promote physical and mental health safety and wellbeing in various environments.</li> </ul>	
Year 9	Being healthy, safe and active	<ul style="list-style-type: none"> <li>• Skills to deal with challenging or unsafe situations</li> <li>• Actions and strategies to enhance safety – responding to emergency situations</li> </ul>	

**SCIENCE: *Science Understanding***

<b>Year</b>	<b>Strand</b>	<b>Content Descriptors</b>	<b>Module</b>
Year 4	Earth and space sciences	<ul style="list-style-type: none"> <li>• Earth's surface changes over time as a result of natural processes and human activity</li> </ul>	Impacts of Bushfires Fire Land Management
	Biological Sciences	<ul style="list-style-type: none"> <li>• Living things depend on each other and the environment to survive</li> </ul>	Impacts of Bushfires Fire Land Management
Year 5	Biological Sciences	<ul style="list-style-type: none"> <li>• Living things have structural features and adaptations that help them to survive in their environment</li> </ul>	Impacts of Bushfires Fire Land Management
	Chemical Sciences	<ul style="list-style-type: none"> <li>• Changes to materials can be reversible; or irreversible</li> </ul>	Understanding Bushfire Impacts of Bushfires
Year 6	Biological Sciences	<ul style="list-style-type: none"> <li>• The growth and survival of living things are affected by physical conditions of their environment</li> </ul>	Impacts of Bushfires Fire Land Management
	Earth and Space Sciences	<ul style="list-style-type: none"> <li>• Sudden geological changes and extreme weather events can affect Earth's surface</li> </ul>	Impacts of Bushfires Fire Land Management

*Note: Science as Human Endeavour and Science Inquiry Skills are consistent across all lessons*

**HUMANITIES AND SOCIAL SCIENCE: *Civics and Citizenship***

<b>Year</b>	<b>Strand</b>	<b>Content Descriptors</b>	<b>Module</b>
Year 4	Government and Society	<ul style="list-style-type: none"> <li>• The purpose of government and some familiar services provided by local government</li> </ul>	Fire Land Management
Year 5	Roles, responsibility and participation	<ul style="list-style-type: none"> <li>• How regulations and laws affect the lives of citizens</li> </ul>	Understanding Bushfire Fire Land Management
		<ul style="list-style-type: none"> <li>• Why people work in groups to achieve their aims and functions, and exercise influence, such as volunteers who work in a community group</li> </ul>	Understanding Bushfire Impacts of Bushfires Fire Land Management

## HUMANITIES AND SOCIAL SCIENCE: Geography, Knowledge and Understanding

Year	Strand	Content Descriptors	Module
4	The Earth's environment can sustain all life	<ul style="list-style-type: none"> <li>The importance of environments to animals and people, and different views on how they can be protected</li> </ul>	Impacts of Bushfires Fire Land Management
5	Factors that shape the environmental characteristics of places	<ul style="list-style-type: none"> <li>The way people alter the environmental characteristics of Australian places</li> </ul>	Understanding Bushfire Impacts of Bushfires Fire Land Management
		<ul style="list-style-type: none"> <li>The impact of bushfires on environments and communities and how people can respond</li> </ul>	Impacts of Bushfires Fire Land Management

*Note: Humanities and Social Sciences skills are consistent across all lessons*

### Cross Curriculum Subjects

Mathematics: Measurement and Geometry, Statistics and Probability

English: Creating Literature, Expressing and Developing Ideas, Interacting with Others, Creating Text

### General Capabilities

Literacy, Information and communication technology capability, Critical and creative thinking, Personal and social capability, Ethical understanding, Intercultural understanding

### Cross Curriculum Priorities

Aboriginal and Torres Strait Islander histories and cultures, Sustainability



## Module One

# Understanding Bushfire

### About this Module

Students take part in a collection of activities designed to give them a basic understanding of bushfires. They are introduced to the science of fire and use real data from Kimberley fires to investigate different causes of bushfire. Students view an interactive map to identify areas of their community that fall within a bushfire prone area of Western Australia.

### Background information

Fire is a high temperature, chemical reaction which releases energy as heat and light. Another word often used is *combustion*. Fire requires three elements to be present for it to ignite and continue to burn: Oxygen, Heat and Fuel. The [fire triangle](#) is a simple model for understanding the necessary ingredients for fire. The fuel is the substance that is flammable or can burn and can be either solid, liquid or gas.

The heat can be:

- Direct flame
- Radiant heat or heat that is radiated across a space (for example, heat from an electric bar heater igniting clothes that aren't touching the heater but are too close)
- Conducted heat or heat that is transmitted from one object to another by direct contact (for example, a hot car exhaust touching grass and the grass catching on fire)
- Convected heat or heat that is carried through air currents (for example, in a house fire, hot air currents move around the house often igniting more combustible materials).

The oxygen comes from the air which means windy days are the most dangerous for fire.

A fire can be prevented or extinguished by removing any one of the elements in the fire triangle.

The [fire tetrahedron](#) represents the addition of a component – the chemical chain reaction. Once a fire has started, the resulting chain reaction sustains the fire and allows it to continue until at least one of the elements of the fire is removed. Foam can be used to deny the fire the oxygen it needs. Water can be used to lower the temperature of the fuel below the ignition point.

Fire is a natural part of our environment. It shapes the landscape through lightning and has been used as part of Aboriginal burning practices for thousands of years.

The term 'bushfire' describes any grass, scrub or forest fire that is burning out of control.





Whilst bushfires do occur naturally through lightning strikes, the majority of bushfires are caused by humans. These 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 before discarding
- Deliberate lighting of fires to clear land or with the intent to cause damage
- Flammable chemicals that are left in the sun or hot areas.

Whilst fires do occur naturally, the majority of fires are caused by humans. In the Kimberley the most damaging fires are those in the late dry season. This is because the fuel is dry and burns with more intensity. These are mostly either deliberately or accidentally lit. People are often unaware that campfires and vehicles can create sparks that can lead to a bushfire.

The cause of a fire can be:

- Accidental: A fire that starts without anyone meaning to start it
- Suspicious: It appears the fire has been lit on purpose but it is not possible to prove
- Deliberate: A fire that is lit or caused by a person on purpose, where it is not allowed to be lit.

In Australia, fire prevention measures are largely based on reducing fuels – by creating firebreaks, low intensity burning of forests, woodlands and grasslands (in cooler weather), and slashing of long grasses.

Another approach to preventing fires is through community education. With such a large number of fires resulting from the actions of people, community education around how to prevent fires is important.

## Key Messages

- Fire is a high temperature chemical reaction involving fuel, oxygen and heat.
- For a fire to be extinguished, one or more of the elements of fire must be removed.
- Whilst fires do occur naturally, the majority of fires are caused by humans.
- The majority of bushfires in WA's northwest are deliberately lit.

## Learning Outcomes

- Students understand that a chemical reaction involving fuel, heat, oxygen is needed for a fire to start and that the removal of one or more of these elements will stop it, or put it out.
- Students are able to explain what causes bushfires in the Kimberley region
- Students know how to respond appropriately when they see people playing with fire
- Students are able to identify if an area is bushfire prone.

## Things you will need

- Internet to access a [Fire Triangle image](#)
- Candle, 'safe' candle stick holder, matches or lighter to light the candle
- **Introduction to bushfires** slideshow
- **Bushfire Misconception** slideshow or printed cards
- **Fire Tetrahedron** worksheet
- **Bushfires Causes** Report
- **Fire Progression Photography** slideshow

## Tuning in activity: *Introduction to bushfire*

1. Use the **Introduction to bushfires** slideshow to prompt a class discussion about bushfire.
2. Brainstorm everything students know about bushfire, don't know about bushfire and what they would like to find out. Use the **Bushfire Misconceptions** slideshow (or cards printed from provided PDF) as a prompt.
3. Display information in a chart (similar to below) which can be referred to and updated as students work through each module. This can be a class, group, pair or individual chart.

What we know	What we don't know	What we would like to find out

4. Create a class wall chart to display words and terms that are used when learning about bushfire. A good place for teachers to start is to visit the DFES website [dfes.wa.gov.au/bushfire](http://dfes.wa.gov.au/bushfire).

## Activity One: *Fire Triangle*

1. While lighting a candle discuss candle safety and safety controls. Ask the pupils to think about what the candle needs to keep burning, (fuel, oxygen, heat).
2. Show students the [Fire Triangle image](#). Ask students to use the image to think about ways to stop the candle burning.
  - By putting water on the candle you are taking away the heat.
  - By smothering the candle you are taking away the oxygen.
  - When the candle has no more wax and burns right to the end there is no more fuel.
3. Discuss the following situations with reference to the fire triangle. Two sides of the fire triangle are given, (see teacher answer sheet for supporting information).

Fire	Fuel	Oxygen	Heat
Match struck on the side of a match box	Wood and chemicals on match	Air	
A tree is struck by lightning	Tree	Air	
A lit cigarette thrown out of a car window onto dry grass		Air	Lit cigarette
Sun shines through a glass bottle onto dry grass	Dry grass	Air	
A 4WD drives through spinifex grass	Spinifex	Air	

- Ask students to think about different ways fire fighters put out fires and which part of the fire triangle each method stops, (water is used to take away the heat, foam is used to smother the fire and remove oxygen, fire breaks are created to remove fuel).
- Use the **Fire Tetrahedron** worksheet to make fire triangle models to hang in the classroom.

### Activity Two: *Causes of Bushfires*

- Use the **Bushfire Causes** Report to discuss with students what is meant by:
  - Accidental
  - Deliberate/Suspicious
  - Weather conditions
- Working in small groups, get students to look specifically at the columns titled 'Kimberley' and 'Western Australia' and identify the following:
  - The two most common causes of bushfires in the Kimberley and in the whole of Western Australia – are the same? What might be an undetermined fire?
  - Which causes might be accidental?
  - How accidental fires might start?
- Show students the **Fire Progression Photography** slideshow to illustrate how small fires can become big fires very quickly, (see teacher answer sheet for supporting information).
- Read through the last slide of the **Fire Progression Photography** slideshow. In small groups, students should consider the scenario, decide how they would respond and act out the scene for their classmates.

### Activity Three: *Bushfire Prone Areas*

The Map of [Bush Fire Prone Areas](#) identifies land falling within, or partially within, a bush fire prone area of Western Australia. Any area highlighted in pink on the map is considered to be a bush fire prone area.

- Display the *Map of Bush Fire Prone Areas* and locate areas in and around your school that are bushfire prone.
- Ask the students, 'what does it mean if an area has been identified as bushfire prone?' (An area identified by the presence of and proximity to bush fire prone vegetation and includes both the area containing the bush fire prone vegetation and a 100-metre buffer zone immediately surrounding it).

3. With students, compare a bushfire prone area to one that isn't. (If you can, choose two areas that students are familiar with.) Discuss with students:
- What is the difference between the two?
  - Is the school in a Bushfire Prone area?
  - What areas of the community are Bushfire Prone?

## Extension

- Students use the scenario from Activity Two to create a picture book using an imaginative, yet persuasive text to explain an appropriate way to respond to the situation. This story could then be read to younger students.

## In the Community

- Ask students to design a poster informing community members how to prevent accidental bushfire. Place these posters around the school grounds and community.
- If your school is in a bushfire prone area it should have a bushfire emergency plan in place. Organise to conduct a school drills in response to a bushfire and involve students in reflecting how effective the drill was.





## Module One: Understanding Bushfire Teacher Answer Sheet

### Activity One: Fire Triangle

#### Fire Triangle Table

Fire	Fuel	Oxygen	Heat
Match struck on the side of a match box	Wood and chemicals on match	Air	<i>Friction of match on match box</i>
A tree is struck by lightning	Tree	Air	<i>Lightning</i>
A lit cigarette thrown out of a car window onto dry grass	Dry Grass	Air	Lit cigarette
Sun shines through a glass bottle onto dry grass	Dry grass	Air	<i>The glass bottle focuses the sun's heat</i>
A 4WD drives through spinifex grass	Spinifex	Air	<i>Sparks from the car's exhaust pipe; heated resin from grass stuck to the bottom of the vehicle</i>

### Activity Two: Causes of Bushfires

#### Fire Progression Photography Slideshow

Slide	Content	Answers
2 - 14	Fire Progression	A small fire can become a large fire very quickly. Take note of the time stamp to highlight this.
15	Scenario	Possible student responses <ul style="list-style-type: none"> <li>• Discouraging their friend from lighting a fire, by explaining the possible consequences</li> <li>• Taking the matches or lighter away from their friend and giving them to an adult</li> <li>• Walking away and encouraging others to do the same, showing or telling their friend they have no interest in such a 'stupid' idea</li> <li>• Telling an adult that a fire has been lit</li> <li>• Calling Triple Zero straight away.</li> </ul>





## Module Two

# Factors Affecting Bushfire Behaviour

### About this Module

Students use data from Kimberley bushfires to identify when bushfires are more likely to occur in the region and use this information to determine bushfire weather and times when it is unsafe to have a fire. Students are then introduced to the concept of Fire Danger Ratings as a tool to tell people when it is not safe to light a fire.

### Background information

Bushfires can happen all year round, but usually occur in the driest and hottest months when fuel (such as leaves, twigs and grass) is at its driest. In the Kimberley region, the most damaging bushfires are those in the late dry season.

The Bureau of Meteorology produced a [map](#) to show the fire seasons across Australia. Wind, temperature, humidity and rainfall are weather elements that affect how bushfires behave. Low relative humidity, high winds and lack of rain all contribute to increased fire danger.

Sunshine and high temperatures make fuel very dry and easy to burn. Strong winds force the fire along, by providing the fire with more oxygen. Wind also promotes the rapid spread of fire by blowing embers kilometres ahead of the main bushfire, creating new fires ('spotting' or 'spot fires').

Changes in wind direction can turn a bushfire in a new direction, causing the flames to go from being under control to out of control within minutes. These conditions can push a bushfire towards houses or a town and put firefighters and local people in danger.

In Australia there is a system of assessing the "fire danger" called [Fire Danger Ratings](#). The Bureau of Meteorology issues fire weather warnings each day to alert the public when conditions are likely to be dangerous. Fire agencies in each jurisdiction then determine the Fire Danger Rating for each location.

The Fire Danger Rating gives you an indication of the possible consequences of a fire if one was to start. The higher the fire danger rating the more dangerous the fire conditions will be if a fire were to start.

There are six categories in the Fire Danger Rating, ranging from Low-Moderate to Catastrophic. Low-Moderate is at the lowest end of the scale. In these conditions, fires are most likely to be controlled and most homes will provide safety. At the other end of the scale the 'Catastrophic' rating indicates the worst conditions for a bush or grass fire. If a fire starts and takes hold in these conditions, it will be extremely difficult to control and will take significant firefighting resources and cooler weather to bring it under control. Homes are not designed or constructed to withstand fire



in these circumstances so it is safest to leave early for a place of low bushfire risk (away from bushland areas).

Understanding the Fire Danger Rating categories and what they mean and how different weather conditions influence the fire danger rating helps us to make decisions about what to do if a bushfire starts.

When the rating is low you may only need to monitor conditions and leave for a safer place if necessary. As the rating increases the threat from a bushfire increases. Leaving early for a safer place on days of Severe, Extreme and Catastrophic weather conditions will be the safest option. It is also advised to avoid camping or travelling in remote areas in these weather conditions – even if there is no bushfire – as once ignited a bushfire would move very fast in these conditions.

It is very important that people stay alert to their surroundings, regularly checking for signs of smoke or fire. When a bushfire starts people must not ‘wait and see’ but instead move to a safer place, away from the fire.

Fire Danger Ratings apply for the entire 24 hour period and are issued each day by the Bureau of Meteorology. They are publicised by the Department of Fire & Emergency Services when there is a rating of Severe, Extreme or Catastrophic. The Fire Danger Rating for your area can be found on [EmergencyWA \(www.emergency.wa.gov.au\)](http://www.emergency.wa.gov.au).

Fire Danger Ratings are important as they provide us with information about when it is safe to light fires in the open air. Campfires for cooking and any other activities that could start a fire, may be prohibited on days where the Fire Danger Rating is very high, severe, extreme or catastrophic. This is known as a Total Fire Ban. Total Fire Bans are declared on days when fires will be difficult to control and most likely to threaten lives and property. The decision to put a ban in place is based on the weather forecast. You can check if your local government has a ban on the EmergencyWA website.

## Key Messages

- Bushfires can start at any time, but are most dangerous and harder to control at certain times of the year. We call this the ‘bushfire season’.
- Bushfire season in the Kimberley is during the dry season, from July to November.
- Hot and dry weather and strong winds all increase the chance of a bushfire spreading quickly.
- The Fire Danger Rating tells you what type of fire weather is forecast and the risk from fire once it starts.
- The threat of bushfire increases the higher the Fire Danger Rating. Fires on days that the Fire Danger Rating is Very High, Severe, Extreme and Catastrophic are likely to take hold, move very fast and will be difficult for firefighters to bring under control.
- Campfires, ‘burning off’ or fires for cooking are prohibited on days where the Fire Danger Rating is very high, severe, extreme or catastrophic.

## Learning Outcomes

- Students are able to explain when bushfires are most likely to occur in the Kimberley region.
- Students are able to determine bushfire weather and times when it is safe to have a fire.
- Students are able to locate the Fire Danger Rating for their local area and understand its purpose.

## Things you will need

- Internet to access and display the [Fire Seasons Across Australia](#) map from the Bureau of Meteorology and play the [ember attack video](#)
- **Kimberley Bushfires Cause** Report and graphing paper
- **Weather Conditions** illustrations
- **Fire Danger Rating** slideshow

## Activity One: *When Bushfires Occur*

1. Ask students to recount what makes a fire safe or unsafe.
2. Explain that there are times during the year when it is unsafe to have a fire.
3. Students use the **Kimberley Bushfires Cause** Report to graph the total number of fires in each month. On completion of the graphs discuss:
  - What months are bushfires most common?
  - What months do bushfires rarely happen?
  - Why do you think this is so?
4. Introduce the term 'bushfire season' using the students graphs.
5. Use the [Fire Seasons across Australia](#) map from the Bureau of Meteorology to discuss with students how Kimberley bushfire seasons compare with those in other parts of Western Australia and in other states and territories. Emphasise that at any time of the year, there is always somewhere in Western Australia in bushfire season.

## Activity Two: *Spot Bushfire Days*

1. Using the **Weather Conditions'** illustrations explain how weather can be dangerous for bushfires, making sure students understand dry and windy conditions are the most dangerous for bushfires, (see teacher answer sheet for supporting information). For each illustration ask students to:
  - Describe the weather and environmental conditions they see in each illustration
  - Decide if the conditions increase or decrease bushfire danger
2. After viewing the images review the following with students
  - If you require fire for reasons like heat or cooking, who should be the person to light it? (Responsible adult)

- What weather conditions might make this fire unsafe? (hot windy weather)
  - How do we make sure the fire does not become unsafe? (never leave it unattended, always have an adult present, consider the weather conditions before lighting the fire)
3. Introduce the concept of embers and spot fires. (Embers are burning twigs, leaves and pieces of debris that are carried by the wind. Spot fires are fires started by the travelling embers). This means that with strong winds, a bushfire can spread further and faster due to the embers starting spot fires. Strong winds can be very dangerous during a bushfire).
  4. Explain that an ember attack occurs when embers are carried by the wind and land on or around people and structures. View the [ember attack video](#) filmed during the Canberra bushfires in 2003 to help explain this concept.

### Activity Three: *Fire Danger Ratings*

1. Use the **Fire Danger Rating** slideshow to introduce the Fire Danger Rating scale, (see teacher answer sheet for supporting information).
2. Using the first image, ask students;
  - Have you seen this sign before? Where?
  - What do you think the colours mean?
  - How do you think the sign keeps us safe? (Tells us when it is not safe to light a fire, tells us the higher the fire danger rating, the more dangerous a fire will be if it starts)
3. As you are working through the images, have students guess what the likely Fire Danger Rating would be for each set of conditions (more than one answer is possible). Explain that measurements are taken of various factors to determine the rating for a day. Measurements include temperature, wind speed, fuel load and humidity.
4. Using the last slide, explain that a day's bushfire rating helps us to understand how safe/unsafe it would be to light a fire, and how big a fire will be (or how fast it will spread) if one is lit. The Fire Danger Rating can also help us make decisions about what to do if there is a fire.
  - At what Fire Danger Rating would it be unsafe for anyone to light a fire, including a campfire or a fire for cooking?
  - What could they do if someone was lighting a fire during an unsafe time?
5. Using the [Emergency WA site](#), show students what the fire danger rating is for that particular day. Use the days' weather conditions to discuss the reason for the rating on that day.

Note: For remote communities it may be more valuable for students to complete the Seasonal Calendar activity in Module 4 of the lower primary program.

## Extension

- Students create an imaginative, yet informative text about a Kimberley Bushfire. The story must contain information about, where it started, the cause, the time of year, the weather conditions and fire danger rating on the day. The information should be in line with what they learnt about factors affecting bushfire behaviour.

## In the Community

- Work with students to help them find the location of the fire danger rating signs in their community. Find out who is responsible for changing the signs and learn more about their role in the community.
- Students can make a class Fire Danger Rating sign using cardboard and paint to be displayed in a prominent location of the school. Each morning, the teacher and students visit the Emergency WA site to find out the current fire danger rating in their location. Students can be assigned the task of 'fire monitor,' which involves changing the rating on the school sign. To make this an ongoing project, invite other classes to get involved in the process.





## Module Two: Factors Affecting Bushfires Teacher Answer Sheet

### Activity Two: Spot Bushfire Days

*Weather Conditions Illustrations*

Image	Season	Description
1	Wet Season	Clouds and rain. Lots of long green grasses and shrubs, green tree frog
2	Early Dry Season	Hot sunny clear day, no wind. Grass still long but starting to dry out, dragonfly
3	Dry Season	Hot sunny clear day, no wind. Less grass, very dry grass, shrubs and trees, Frill-neck lizard. Increases bushfire danger, dry plants burn very quickly.
4	Dry Season with wind	Hot sunny clear day, strong winds. Less grass, very dry grass, shrubs and trees, Frill-neck lizard. Increases bushfire danger significantly, wind makes fire spread very quickly.

### Activity Three: Fire Danger Ratings

*Fire Danger Ratings slideshow*

Slide	Season	Answers
1	Introduction slide	Signs are generally found on the side of a main road at the entry into a town or community. It tells us when it is not safe to light a fire. It also tells us that the higher the fire danger rating, the more dangerous a fire will be if it starts.
2	Wet Season	Low/moderate. Fires less likely to start, if they do, they are likely to be contained/controlled quickly and most homes will provide safety.
3	Early Dry Season	High/Very High. If fires start, they are likely to be contained/controlled quickly and most homes will provide safety.
4	Dry Season	Very High/Severe. Expect Hit dry conditions. If a fire starts and take hold, it may be uncontrollable. Do not light campfires.
5	Dry Season (with strong winds)	Sever/Extreme/Catastrophic. Expect extremely hot, dry and windy conditions. If a fire starts and takes hold, it will be uncontrollable, unpredictable and fast moving. Do not light campfires.
6	When not to light fires	Reinforce the message that you should not light fires in the open air if the Fire Danger Rating is Very High or above. If the fire escapes and spreads it will be difficult to control and may threaten lives and property.



## Module Three

### *Impacts of Bushfires*

#### **About this Module**

Students learn that bushfires have mostly negative consequences that impact both community members and the local plants and animals.

#### **Background information**

Bushfires impact on our community in lots of different ways. They have an obvious devastating impact for those immediately affected by fire but they also have a huge impact on our economy, infrastructure, firefighters and the environment.

Bushfires regularly threaten homes and businesses, forcing people to evacuate often through thick smoke and showering embers. This frightening experience is made worse by not knowing when they can return or whether their home, business or personal belongings have been lost to bushfire.

People have been killed or seriously injured during bushfires. There were 173 people killed and 414 people injured in the 2009 Black Saturday fires in Victoria. Death and injury have lasting impacts on a community.

Bushfire is an essential element of the Kimberley environment. Many plants require fire for germination. Most Kimberley plant and animal species are well adapted to survive a fire in the landscape. However, changing fire patterns resulting in frequent hot bushfires can cause widespread and sometimes irreversible damage to bush land, resulting in habitat loss and contributing to the loss of rare and endangered species. Bushfires also cause the release of greenhouse gases, large volumes of smoke and ash, and can result in a localised change in weather.

Public infrastructure suffers in bushfires. Bushfires damage or destroy valuable bridges, roads, rail and power lines. Whilst businesses and community members suffer the inconvenience of interrupted access, government and industry money is diverted from other areas to repair them. Some businesses cannot function and lose money due to the lack of electricity or closed road networks. Tourism suffers as amenity is lost immediately after the fire. The financial impact to business can be from:

- Interruption to cash flow
- Loss of sales
- Increases to insurance premiums
- Loss of market as people move out of the area.

Agricultural losses by pastoralists are another impact of bushfires. Loss of livestock and having to euthanise injured cattle is heartbreaking. Bushfires destroy feed for any remaining cattle, and replacing feed can cost pastoralists hundreds of thousands of dollars.

Bushfires create large volumes of smoke and ash, which can have a massive impact on human health – with the greatest impact being on people with existing heart and lung conditions, the elderly and the very young. Smoke and ash also impact on industry, interrupting aviation flight paths and stop the passage of road trains carrying essential goods.

Suppressing bushfires has a massive impact on firefighters. Firefighters work long hours in hot, smoky and dangerous conditions. There is an ever-present risk of injury or accidents to firefighters at the fire scene or during travel en-route as they drive through heavy smoke. The vast majority of firefighters in regional Western Australia are volunteers. These men and women give up their time to save the lives of others out of a sense of community spirit. Firefighting takes them away from their families for lengthy periods, exposes them to huge risks, and results in loss of income as they take time away from their money-making enterprises.

## Key Messages

- Bushfires have a largely negative impact on our community.
- We can all lessen the impact of bushfire by preparing well before the bushfire season and responding quickly when there is a bushfire.
- Bushfires, especially late season ‘hot’ fires, can significantly impact plant and animal populations.
- Hot fires and cool fires affect plants and animals in different ways.

## Learning Outcomes

- Students understand that bushfires have a largely negative impact on our community.
- Students understand that community members can prepare for bushfires to lessen the impacts.
- Students understand the impacts of fire on the natural environment and identify how differing fire patterns have differing impacts on plant and animal populations.
- Students use interview techniques to investigate bushfire knowledge and experiences of local community members.

## Things you will need

- **Bushfires and the Community** video
- **Flora and Fauna Fact Files** slideshow
- **Habitat Photographs**

## Activity One: *Consequences of Fire*

1. Explain that bushfires impact on our community in lots of different ways
2. Ask students, “why might people live or work in an area that is prone to bushfire?”
3. As a class, view the **Bushfires and the Community** video.
4. Split students into small groups and ask them to:
  - List/discuss all the negative consequences of hot fire.
  - List/Discuss how different community members prepare for bushfires

## Activity Two: *Fire in the Bush*

1. Display the **Flora and Fauna Fact Files** slideshow. While showing the images, talk about the local animals and plants that students identify and what techniques (adaptations) they might use to survive a fire, (see teacher answer sheet for supporting information).
2. Display the **Habitat photographs**
  - What are the similarities and differences?
  - What time of year do students think each photo was taken? Why?
  - What has happened to the plants in each picture?
  - Comparing the patchy and hot burns, in which area do you think plants will grow back fastest? Why?
3. Discuss how animals would find food and shelter in each environment. Discuss how predators such as kites and feral cats are attracted to fires to prey on escaping animals and how burnt ground provides them with plenty of easily available food.
4. What might happen to a population of animals if their home is burnt consistently every year? Would the plants that form their habitat be able to withstand the fire? Which plants could/couldn't? Compare how the early season 'cool' burn ('patchy burn image') and the late season 'hot' burn would impact animals and plants differently.
5. Students choose one Kimberley animal or plant to research (examples could include Northern quoll, Frilled-neck lizard, Black kite, Gouldian finch, Spinifex mouse, Northern cypress pine, Pindan wattle, Pandanus, Darwin woollybutt). Students should find out where they live, what they eat, and if they are vulnerable or endangered. How does the species respond to fire? How might their habitat be affected? Could fire threaten the survival of this species?

## Activity Three: *Interviews in the Community*

1. Direct students to come up with a list of their own interview questions to investigate bushfire knowledge and experiences of local community members. Remind students that it is important to ask questions that are answered with more than a simple yes or no so that they can draw out information. Interviewees should be encouraged to describe and explain.

## Extension

- Students use the questions from Activity Three to interview a chosen person in the local community. This could be someone at home or at school, an adult or a child. Students should take care to acknowledge other people's points of view (particularly if they differ from what students are learning in class).

## In the Community

- With permission from the interviewee, students share their interview findings with the school community.



## Module Three: Impacts of Bushfires Teacher Answer Sheet

### Activity Two: *Fire in the Bush*

#### *Animals Flora and Fauna Fact Files Slideshow*

Slide	Image	Information
1	Introduction	<ul style="list-style-type: none"> <li>• Fire is an integral part of the Kimberley landscape,</li> <li>• Fire at different time of year (hot fires v cool fires) affect plants and animals in different ways,</li> <li>• Many plants need fire to survive, and other plants and animals are adapted to survive cool fires.</li> </ul>
2	Spinifex	<ul style="list-style-type: none"> <li>• The oils in spinifex means it gets very hot as it burns, with flames of up to 2-3m in height,</li> <li>• New shoots grow back quickly, providing food for animals such as wallabies,</li> <li>• Older, denser clumps ('hummocks'), which offer protection for many small animals, take many years to grow back (frequent hot fires can prevent them from growing back).</li> </ul>
3	Grassland Melomys ( <i>Melomys burtoni</i> )	<ul style="list-style-type: none"> <li>• This small mammal lives along creek lines and in vine thickets and monsoon forest ('dry rainforest'),</li> <li>• Builds a nest in shrubs, tree hollows or long grass using grass and dry leaves, some live in short burrows or dig out hollows in leaf litter,</li> <li>• Small mammals that live in dense vegetation, hollows and burrows are usually protected from a cool fire, greener plants along the creek line also limit fires in the area, but these animals may not be able to survive hot fires.</li> </ul>



4	Pindan Wattle ( <i>Acacia tumida</i> )	<ul style="list-style-type: none"> <li>• Grows right across the Kimberley, flowering in the dry season. Many traditional uses - seeds can be ground into flour, wood used for spears, and bark made into string.</li> <li>• Grows back readily after fire from 'seed banks' in the ground (fire stimulates the seeds to germinate). Often grows back in 'thickets' after fire.</li> <li>• Frequent hot fires can kill off the wattle before the new plants mature and produce more seed, meaning it dies out in that area as there is no seed left in the ground (the 'seed bank' is all used up).</li> </ul>
5	Chameleon Dragon ( <i>Chelosonia brunnea</i> )	<ul style="list-style-type: none"> <li>• This dragon lives on low branches and fallen logs, low to the ground, in the savannah woodland,</li> <li>• Most reptiles are able to shelter from cool fires under rocks or logs, which act as 'heat shields' or by hiding out in tree tops, some lizards shelter from hot fires in termite mounds,</li> <li>• The clear ground after a fire gives Chameleon dragons and other lizards, such as frill-necked lizards, makes it easy to spot prey (usually insects and other small lizards).</li> </ul>
6	Darwin Woollybutt ( <i>Eucalyptus miniata</i> )	<ul style="list-style-type: none"> <li>• Common tree in open woodland, mature trees withstand fire,</li> <li>• Saplings may die in hot fires, and older trees with hollows (inset) may be destroyed if embers get into the hollow and catch alight (the hollows are often also homes for animals),</li> <li>• Like many Eucalypts, the Woollybutt 'resprouts' after fire, meaning new green shoots grow out of the base and other parts of the tree (see the bright green leaves growing out of the black trunk in the main picture). Ask students to look out for this next time they are in the bush, it is very common to find trees that have resprouted.</li> </ul>
7	Black Kite ( <i>Milvus migrans</i> )	<ul style="list-style-type: none"> <li>• One of three species of kite found in the Kimberley, they eat both live prey (small lizards, mammals and insects) and carrion (dead animals),</li> <li>• Kites are often seen in large numbers hovering above fires, ready to catch animals as they try to escape the fire and to pick up the remains of any animals killed by the fire,</li> <li>• Other animals that are attracted to fires and recently burnt areas in search of prey include Northern Quolls, Frilled Lizards ('Frillnecks') and feral cats.</li> </ul>

## Activity Two: *Fire in the Bush*

### *Habitat Photographs*

Image	What it shows	Description
1	Unburnt	Green area at the end of the wet season. No recent fire activity.
2	Cool fire/ 'Patchy burn'	A prescribed burn at the end of the wet season. Green grass and cooler weather slow the spread of the fire. The fire only burns small patches at a time, but together these small burnt areas reduce the fuel load to reduce the likelihood of late season hot fires.
3	Hot fire	Late season bushfire. Covers a larger area, removing all vegetation (plants) and leaving bare soil.



## Module Four

# Fire Land Management

### About this Module

Students learn how fire patterns have changed over time with different management strategies, and how different people and organisations have different roles in fire management. Students learn how land managers monitor the impacts of fire on plants and animals and use these skills to monitor an accessible local area of their choice.

### Background information

Savanna environments, including those of Northern Australia, are amongst the most fire prone areas in the world. High summer rainfall stimulates the growth of dense stands of annual grasses which dry out, or 'cure', in the dry season, providing a large amount of dry, well aerated fuel. Fires in this type of vegetation can burn intensely over huge areas, especially where the landscape is flat and there are few 'fuel-free' rocky areas to slow down the fire.

Prior to human habitation, almost all fires were started by lightning, resulting in infrequent burning of large areas of land. Following the arrival of Aboriginal people, fire was used for many reasons including hunting, management of fruiting plants for food and medicine, ease of travel, and cultural and ceremonial purposes. Frequent burning of smaller areas resulted in a much more fine-scale 'mosaic' (pattern of burnt areas in the landscape) that continued to support most of the native fauna species.

From the early twentieth century onwards, traditional burning practices across the Kimberley have been largely replaced with burning for pastoral goals such as promoting green feed, clearing areas for ease of mustering, and controlling cattle movement. Traditional Aboriginal use of fire has become increasingly rare since the 1960s when large numbers of Aboriginal people were moved off pastoral leases and into towns. As a result of these cumulative changes, fire regimes have altered towards a pattern of extensive and destructive mid to late dry season bushfires repeatedly occurring in the same areas about every 1-3 years. These fires burn large areas of vegetation and limit the development of long unburnt patches. Today, up to one third of the Kimberley (13 million hectares) is burnt every year through a combination of planned early season planned burns and unplanned mid and late season bushfires.

Considering that fire needs fuel, oxygen, and heat to burn, the only factor that can be reasonably controlled by humans is fuel. Just as home owners can remove excess fuel from around their houses in preparation for the start of the bushfire season, land managers may reduce fuel loads through strictly controlled planned burns. In the Kimberley, the Department of Biodiversity, Conservation and Attractions, and the Department of Fire and Emergency Services work with local government, the Australian Wildlife Conservancy, pastoralists, Aboriginal ranger groups, traditional



owners, and other stakeholders to conduct joint planned burning programs across the region. In deciding which areas will be burnt, fire managers consider factors such as fuel density, time since the last fire, types of vegetation and terrain, and key areas of value. The fires are calculated to carefully remove excess fuel early in the fire season so as to minimise the likelihood of destructive late season fires, thus reducing the impact of bushfires on property and promoting the preservation of biodiversity.

Whilst planned burning programs have minimised the impact of fire across the Kimberley landscape over the past decade, compared to the fire patterns from much of the twentieth century, it is impossible to replicate natural, pre-human, fire mosaics due to human habitation and land use across the region. Property, economic, and cultural values must be considered alongside biodiversity values when determining ideal fire patterns.

Ongoing research into the impact of fire on native plant and animal species is conducted by a range of government and independent institutions to provide an insight into the effectiveness of present fire management strategies.

By learning more about the way fire works, and the impact it has on our Kimberley plants and animals, we can gain an understanding of the need for proper fire management strategies, and the consequences of starting fires either deliberately or accidentally at times of high fire danger.

## Key Messages

- Fire patterns in the Kimberley have changed over time.
- Many different organisations work together to manage fire in the Kimberley.
- Land managers must consider economic, cultural and biodiversity values when deciding on appropriate fire management techniques.
- Fire managers develop the skills, knowledge and experience to use fire as a tool early on in the year to prevent catastrophic wildfires later in the year.
- Hot fires and cool fires affect plants and animals in different ways.

## Learning Outcomes

- Students understand how fire regimes have changed over time, from pre-human to Aboriginal to current fire regimes.
- Students identify key personnel involved in fire management in North West Australia and are aware of some of the skills, knowledge and experience required when taking responsibility for fire management.
- Students understand that cultural values, biodiversity and the economy are all considered when fire management strategies are developed.
- Students understand how the impact of fire on the natural environment is monitored and how this ongoing research shapes burning practices.

## Things you will need

- **Leaders in Fire** video
- **Fire Mosaics** slideshow
- **Knowing Fire** slideshow
- **Citizen Science Vegetation Transect** worksheet

## Activity One: *Past to Present*

1. Use the following discussion points to introduce the topic:
  - If there is a building on fire in your community or town, whose job is it to put it out?
  - What about bushfires?
  - Do any students have family members, friends or other people they know who help to put out fires? This might be as rangers, volunteer fire fighters, or others involved in fire management.
2. Review how and why fires start, and how the potential impact of fire varies according to time of year (fire season) and fire danger.
3. Using the **Fire Mosaics** slideshow, display the historic fire patterns on the smart board. Explain what the grey, black and white areas mean, (see teacher information sheet for supporting information).
4. Discuss different causes of fires during each of these periods, and reasons why the patterns for each are so different. Ask students:
  - What's happening in each diagram?
  - Why are these patterns so different?
  - What do you think were the main causes of fire at each point in history?
  - How might the impact of a fire now be different from 30 000 or 100 000 years ago? Discuss permanent structures, changes in population, cultural and economic value.
  - Which patterns would do the most damage?
  - Which would be best for plants and animals?
5. Display the 2003-2007 and 2008-2012 Fire Mosaic images (21<sup>st</sup> century fire patterns) on the smartboard.
6. Explain that traditional owners, rangers, fire scientists and station managers have been working together to manage fire better across the Kimberley.
7. Ask students:
  - Where does the map show?
  - What are the main differences between the pictures? How have the patterns changed?
  - Why might fire managers be trying to change fire patterns in this way?
  - Which of the three historic patterns do they look most like?
  - How might they make these changes?
8. Use coloured magazine or newspaper pages to create collages representing one of the fire mosaics discussed (or allocate different mosaics to different groups). Ask each group to explain what their mosaic means.

## Activity Two: *Whose Responsibility is Fire*

1. Students watch the **Leaders in Fire** video to learn about different roles in fire management.
2. Discuss:
  - Different roles of different individuals
  - Reasons why these adults are able to work safely with fire
  - Possible future career paths for working in fire management

## Activity Three: *Fire Futures*

1. Show students the **Knowing Fire** slideshow to see how land managers monitor the impacts of fire on plants and animals. Why is this information useful? How can land managers use this information? (See teacher answer sheets for supporting information).
2. Identify a piece of land close to your school. Ideally this area would be close to the school, or a popular recreation area or roadside bushland that has been frequently burnt in past years and is likely to be burnt again (either in controlled burns or illegally lit fires).
3. Visit your chosen study area to complete the **Citizen Science Vegetation Transect** worksheet, (see teacher information sheet for supporting information). If you are not able to take the class out on an excursion, consider surveying an overgrown corner of the schoolyard.

## Extension

- To extend on Activity three, compare how the site changes over the course of the year. This can be due to seasonal changes, impacts of fire, or other factors. You may like to put the photos you've taken as part of the assessment into a book or slideshow showing the area over time, to share what you have discovered and allow future classes to continue your project.

## In the Community

- After conducting Activity Two, students do some research to find out who the 'Leaders in Fire' are in their community. These leaders could be invited in to speak to students directly about their role in fire land management.





## Module Four: Fire Land Management Teacher Answer Sheet

### Activity One: Past to Present

#### Fire Mosaic Images

Slide	Image	Description
1	Introduction slide	<ul style="list-style-type: none"> <li>Fire mosaics show how recently different areas of land were burnt. Managing fire in a different way will change the pattern of the mosaic.</li> </ul> <p><i>Photo – Wet season aerial planned burn at Purnululu National Park, you can see the patchy burnt areas in amongst the green – you could introduce the term ‘mosaic’ like the patterns made with tiles, but this is the landscape being ‘tiled’ with burnt and unburnt areas.</i></p>
2	Historic fire patterns	<ul style="list-style-type: none"> <li>What’s happening in each diagram?  <i>Prehuman – infrequent hot fires covering large areas</i>  <i>Aboriginal – frequent cool fires covering smaller areas</i>  <i>European – frequent hot fires covering large areas</i> </li> <li>Why are these patterns so different? <i>Humans influence fire patterns with different burning techniques</i></li> <li>What do you think were the main causes of fire at each point in history? <i>Pre-human – Lightning. Aboriginal – Deliberate early season cool burns. European – Deliberate and accidental</i></li> <li>How might the impact of a fire now be different from 30 000 or 100 000 years ago? Discuss permanent structures, changes in population, cultural and economic value. <i>Less people, lower risk to lives. No permanent structures at risk of bushfires and no economic impact.</i></li> <li>Which patterns would do the most damage? <i>European Fire Regime</i></li> <li>Which would be best for plants and animals? <i>Aboriginal Fire regime.</i></li> </ul>
3	2003/07 and 2008/12 (21 <sup>st</sup> Century fire patterns)	<ul style="list-style-type: none"> <li>Where does the map show? <i>North Kimberley</i></li> <li>What are the main differences between the pictures? How have the patterns changed? <i>Less burning in recent times, mosaic pattern in recent times similar to what Aboriginal people used to do.</i></li> </ul>

	<ul style="list-style-type: none"> <li>• Why might fire managers be trying to change fire patterns in this way? <i>Protect animal habitats, improve plant populations, look after country</i></li> <li>• Which of the three historic patterns do they look most like? <i>Aboriginal pattern</i></li> <li>• How might they make these changes? <i>Early season planned burns. Only burn agreed areas at agreed times. Everyone works together (rangers, Parks and Wildlife, DFES, station managers, traditional owners, scientists).</i></li> </ul> <p><i>Since 2007, fire managers in the Kimberley have started using early cool season planned burns to try and prevent the likelihood of late season bushfires starting (and reduce their impact if they do start). Smaller areas are burnt, with different areas burnt each year, rather than burning out the same area each year to prevent the spread of potential fires.</i></p>
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### Activity Three: Fire Futures

#### Knowing Fire slideshow

Slide	Image	Description
1	Introduction	Purnululu National Park ranger using a 'drip torch' to put in a planned burn at the end of the wet season.
2	Photo monitoring	The same area is photographed every year, so scientists can compare how the habitat is changing.
3	Vegetation (plant) transects	Scientists record what plant species they find along a set 50m line, noting how dense the vegetation is and what impacts they observe, such as fire, pest animals, weeds or litter. They return to the same location each year to compare any changes.
4	Animal trapping 1	Scientists use different kinds of traps to trap different kinds of animals. These funnel traps often catch reptiles, like this <b>Orange nape snake</b> . Scientists record measurements from each animal they catch before releasing them. The researchers return to the same location for at least 3 years to collect 'baseline data', or a starting record of all the species that are found in an area. If they then come back to the area in the future years they can compare their results with this baseline data, and will look at impacts like fire and feral animals to understand how and why animal populations might have changed.
5	Animal trapping 2	These 'Elliott traps' capture small mammals, like this <b>Common rock rat</b> , and reptiles.
6	Nest boxes	In burnt out areas, animals such as this <b>Black-Footed Tree Rat</b> and its babies make their homes in any shelter they can find, including

		these nest boxes. Scientists can learn about what animals live in an area by checking who has been living in their nest boxes.
7	Camera traps	These can be left in place for a long period of time (3 months or so is common). They catch animals which might go into hiding if there are people around. They also don't need people to go out and check them every morning and afternoon, so are easier to use in more remote areas.
8-19 (optional)	Camera trap sequence	This little slideshow, featuring an <b>Olive python</b> , a couple of <b>Bandicoots</b> , and an unlucky <b>Brush-tailed Rabbit Rat</b> , demonstrates some of the sorts of events scientists catch on camera. This took place in Prince Regent National Park in June 2017.

### Activity Three: *Fire Futures*

#### *Citizen Science Vegetation Transect Worksheet*

**Aim:** To examine the kinds of plants that grow at your chosen site, while considering fuel loads and the impact of fire in the area, along with any other present impacts. When visited repeatedly, you can learn about how your site changes over time. This information can then be used to change the way the area is managed, if necessary.

#### **Resources:**

Student	water bottle, pencil, clipboard, 'Vegetation transect recording sheet'.
Small group	tape measure (or a 10m string knotted at 1m intervals)
<i>Optional</i>	<i>camera/s, GPS, ID books and/or apps</i>

#### **Method:**

1. Have students fill out the information at the top of the worksheet on arrival at the site. Talk through the rest of the worksheet if you haven't done so already.
2. Discuss with students the different classifications used on the recording sheet, pointing out plants in the nearby area as examples:
  - Grasses** – Thin leaves growing straight out of the ground (includes spinifex),
  - Herbs** – Small plant that is not woody,
  - Shrubs** – Small woody plants (up to 4m), with multiple stems,
  - Trees** – Woody plant with a single main stem (trunk), grows to 4+m in height.
3. Hand out the tape measures and let each group walk a set number of paces (eg 30 steps) in a different direction. Depending on the number of supervisors you can set how far apart they are. The further apart, the greater the data you will collect. Try to include as much variety as you can (eg a rocky area, a grassy/wooded area, an area near a creekline). Where you are

unable to split the class, consider working off different sides of an open space, such as a picnic area or car park, so students are still visible but cover a larger area.

4. Students lie out their tape measure or string in a straight line, heading outwards from their starting point (so each group's line is going outwards like a spoke in a wheel). Students may want to place their water bottles at the start and end of their line to make it more visible. *If you have a camera, take a photo from the start of the line, looking towards the end of the line. If you have a GPS, let students mark the start and finish points of their line and record the coordinates.*
5. Students carefully examine each metre of their transect and tally (eg IIII II) how many grasses, herbs, shrubs and trees they find in each metre. Include anything growing within 50cm of either side of the line (don't forget to look up so you can include overhanging trees). Leave the averages for back in class.
6. Students try to name three (or more) of the main plant species they found along their transect. Generic names like 'Eucalypt', 'wattle', 'spinifex' are fine if you don't know the species name. Many plants are difficult to identify to a species level unless they are displaying both flowers and seeds, so don't get too caught up in trying to identify them. Some students may know language names or traditional uses, this information can also be recorded. Alternatively, you could take photos of the 3 most common plants found along the transect and leave it at that (include photos of the whole plant, a close up of the leaves, and any flowers and/or seeds).
7. Students complete the back page of the worksheet, looking at any impacts or interesting features found within 1m either side of their transect line.

#### **Analyse and use your data (back in class):**

1. Have each group average their transect data.
2. Combine data from different groups to create an overall average for the site, then present this information in a graph or chart.
3. Discuss with students how they can display and share the information they gathered regarding impacts. Are there any impacts that stood out? Do students want to share this data with their community or with land managers? Is there anything students themselves can do to minimise these impacts?
4. Schedule your follow up visit to observe change over time. If it's not possible to return the class to the site, consider asking someone from the school community to return and take photos for you, or if another class is visiting ask them to help collect data.
5. Compare data from subsequent visits to observe how the area changes. Let students present this data (graphs, charts, photo books), and hypothesise the cause of change. Over time, students may also observe the effect of any changes in management or projects students themselves have implemented.

## Additional resources:

<p>Identification books and cards</p>	<p><i>A Guide to Plants of Inland Australia</i>, Philip Moore, Reed New Holland, 2005.</p> <p><a href="#">Kimberley Weed Guide</a> (ID cards), Environs Kimberley.</p> <p><i>Tracks, Scats and Other Traces</i>, Barbara Triggs, Oxford University Press, 2004.</p> <p>There are many local guides for Kimberley plants and animals that include language names and traditional uses, ask your local ranger group or Parks and Wildlife office for advice.</p>
<p>Drawing plants</p>	<p><a href="https://parksaustralia.gov.au/botanic-gardens/pub/topdraw.pdf">https://parksaustralia.gov.au/botanic-gardens/pub/topdraw.pdf</a></p>
<p>Conducting transects</p>	<p><a href="https://library.dbca.wa.gov.au/static/FullTextFiles/011430.pdf">https://library.dbca.wa.gov.au/static/FullTextFiles/011430.pdf</a></p>



## Module Five

# *Responding to Bushfire*

### About this Module

Students learn how to respond to a bushfire emergency by engaging in discussion and role play. Students learn about the bushfire warning system and how to access it and take part in activities that enable them to think about how to prepare and plan for a bushfire emergency.

### Background information

Bushfire is a real risk to anyone who lives near bush, scrub or long grass. On hot and windy days, a bushfire can start suddenly and take hold very quickly, without time for firefighters to issue a warning. Staying alert to your surroundings on hot, dry, windy days and knowing what to do when there is a bushfire can make a real difference in saving lives.

Fire emergencies should be reported immediately as fire spreads quickly. Children should not try to put out a fire. Instead children must tell an adult immediately that there is a fire. If there is no adult around, children must call the emergency telephone number zero, zero, zero (Triple zero) to alert the Fire Service of the fire.

If your community is not serviced by a fire brigade, talk with your school admin team and the community board to decide on the best way to alert adults of a fire in your community and surrounding area. It may be that students are encouraged to tell someone at the shop, office, or ranger base (make sure that whoever you are sending the children to knows what to do and who to call in this situation).

Even if the child is involved in lighting a fire, it is really important they tell an adult or call Triple Zero. The quicker an unsafe fire is reported, the quicker firefighters can start trying to put it out and keep people safe.

Firefighters in the Kimberley are volunteers who do not live at the Fire Station. There may be a longer delay before the fire truck can respond to the fire, as firefighters travel from home or work to the Fire Station. If you see smoke or fire, do not delay in calling Triple Zero. Children must not wait near the fire until the fire truck arrives. They must move as far away from the fire as they can, telling an adult as soon as possible.

During a bushfire, emergency services will provide as much information as possible through a number of different channels:

- DFES website at [www.dfes.wa.gov.au](http://www.dfes.wa.gov.au)
- Emergency WA alerts and warnings at <https://www.emergency.wa.gov.au/>
- DFES emergency information line on 13 DFES (13 3337)
- DFES twitter feed at [www.twitter.com/dfes\\_wa](http://www.twitter.com/dfes_wa)
- ABC local radio broadcasts





There are three levels of warning. These change to reflect the increasing risk to your life and the decreasing amount of time you have until the fire arrives.

- **ADVICE:** a fire has started but there is no immediate danger. This is general information to keep you informed.
- **WATCH AND ACT:** a fire is approaching and conditions are changing. There is a possible threat to lives and homes. You need to start taking action now to protect you and your family.
- **EMERGENCY WARNING:** you are in danger and need to take immediate action to survive as you will be impacted by fire.

Emergency Alert is another way of warning people about bushfires, floods and severe weather emergencies in (or near) their community. Emergency Alert is the national telephone warning system used by emergency services to send voice messages to landlines and text messages to mobile phones within a defined area about likely or actual emergencies.

Students may receive these calls (when answering their home phone) or as text messages (on their personal mobile phone) and there is no opt out option. It is important to explain to children what to do if they receive an emergency warning call or message.

If a child receives an emergency warning on their mobile phone while they are at school, they must tell a teacher straight away and follow the emergency procedures in place at their school. If they receive this message while home alone, they must find and tell a responsible adult (for example a neighbour), follow the directions of the message and move to a safer place. Children can call Triple Zero if an adult is not available to assist.

People should not rely on receiving a warning message on their phone before they act. When there is a bushfire alert or warning, it is very important that people pay attention to their surroundings, regularly checking for signs of smoke or fire. When a bushfire starts people must not 'wait and see' but instead move to a safer place, away from the fire.

If a child is home alone and unable to move to a safer place then they need to shelter in their home. To ensure best chance of survival they would need to:

- Stay in the house
- Make sure all doors and windows are closed
- Soak towels and rugs in water and lay them along the inside on your doors that lead outside
- Soak woollen blankets and keep them next to you to protect you from the heat
- Shelter in the room furthest from the approaching fire
- Get down low
- Drink plenty of water
- If your house catches on fire and the conditions inside become unbearable, leave through the door furthest from the approaching fire and go to an area that has already been burnt

It is a common misconception that a policeman or firefighter will call or knock on doors to tell the community a bushfire is coming and the need to evacuate. This is highly unlikely to happen. Not hearing a warning does not mean there is no threat. One of the best ways to know if there is a bushfire is to stay alert – look around, smell the air, listen for sirens – especially on high fire danger days.

Not everyone thinks clearly in an emergency. A written and well-practiced bushfire survival plan is one way to help safely carry out what needs to be done during a bushfire. A bushfire survival plan needs to include preparing an emergency kit before the bushfire season, and deciding what to do if a bushfire occurs in your area.

DFES encourage residents to make a [My Bushfire Plan](#) with family and friends as the first step to prepare for a bushfire. This can be done on the website or using the My Bushfire Plan App. Plans take approximately 15 minutes to complete and can be shared easily with others.

## Key Messages

- All people living near bush areas must remain alert to their surroundings
- If children see an unsafe fire they should tell an adult immediately.
- Fire emergencies should be reported immediately by calling Triple Zero (000)
- Never call Triple Zero (000) for fun or a prank. There are serious consequences for you and for other people who might be in need of help.
- DFES issues warnings during a bushfire. Bushfire warnings tell us when a bushfire has started and what actions we need to take.
- It is a good idea for families to develop a bushfire survival plan to help them take action and avoid last minute decision making.

## Learning Outcomes

- Students understand where to find information during a bushfire.
- Students understand the need to plan for and respond to a bushfire in order to keep safe.
- Students demonstrate how to phone zero, zero, zero (Triple Zero) in an emergency and respond to the operator's questions and/or learn how to get help if 000 is not available in their remote location.

## Things you will need

- **Bushfire Warning** slideshow
- **My Emergency Grab Bag** worksheet
- **My Family's Bushfire Survival Plan** worksheet

## Activity One: *Calling for Help*

1. Lead students in a guided discussion about how to get help in an emergency
  - What should you do if you see an unsafe fire?
  - Who can you ask for help?
  - Is there a phone number you can call in an emergency? At this stage, introduce the 000 number, if students haven't come up with it themselves.
2. Talk to students about why they should never call Triple Zero as a prank/joke.
3. Remind students that they must always call for help from a safe location, not near the fire.
4. As a class, list all the things an emergency operator will ask. These will include, their name, location, type of incident, description of incident. Even if students are seeking help from other sources (ie if their community doesn't have a 000 response), they will still need to be able to provide this information.
5. Explain that location might be different to your personal address. If a student doesn't know the address of their current location they might need to describe where they are and what they see.
6. Using images from picture books or photographs of your local community show a particular setting. Practice with students how to describe a location using descriptive words like, size, colour, shape.
7. Now head outside and take students to different locations at the school. Get student to describe the locations – what we can see, what things look like and where different things are.
8. Working in pairs, students take part in a Triple Zero role play using the script below. Students taking turns to be either the caller or the Triple Zero operator.
  - “You have dialled emergency triple zero your call is being connected.”
  - “Emergency. Police, Fire, Ambulance?” [Student responds]
  - “What town and state is the emergency in?” [Student responds]
  - “Connecting Fire.”
  - “Fire Emergency. What is the exact address of the fire?” [Student responds]
  - “What's your name?” [Student responds]
  - “Can you describe where the fire is?” [Student responds]
  - “What is your nearest crossroad or landmark?” [Student responds]
  - “Firefighters are being sent to that address.”

Note: For remote communities, without a fire station, the priority will be for students to tell an adult rather than contacting Triple Zero.

## Activity Two: *Bushfire Warnings*

1. Ask students, “how do you know a fire has started?” They may see or smell smoke or see or hear a bushfire warning.
2. Discuss with students how they might see or hear a warning (social media, radio, tv, land line or mobile phone emergency alert, through family or teachers).
3. Use the **Bushfire Warnings** slideshow to teach students about the different levels of bushfire warnings, (see teacher answer sheet for supporting information).

4. Show the children how to find warnings on the [Emergency WA](#) web site. Are there any current Bushfire warnings in the Kimberley region or other regions of WA?
5. Show the children how to find the local emergency services station on a radio. You can find your local emergency radio station by visiting the [ABC radio](#) website.

**Modified Activity:** For students with low literacy skills, use only the first five slides of the Bushfire Warnings slideshow. These photographs visualise that the changing levels reflect the increasing risk to life and the decreasing amount of time there is until the fire arrives. Explain to students what each warning level means and what actions they should take at each one, (see teacher answer sheet for supporting information). Students can then draw pictures to represent the appropriate meanings and actions at each warning level.

Note: *The bushfire warning messages found within the **Bushfire Warnings** slideshow have been adapted from the general public warnings to simplify the language and identify actions that students can undertake. To view the messages found in the general public warnings please visit the [DFES website](#)*

### Activity Three: *Get Packing*

1. Ask students to brainstorm what they might need to take with them if they have to leave their home in an emergency bushfire situation. Consider the difference between 'needs' and 'wants'.
2. Using the **My Emergency Grab Bag** worksheet, ask students to draw the items they would like to take with them if they had to leave their home in a hurry. Some questions to consider:
  - What would you take if you had 1 hour to prepare? What about 10 minutes? What about 1 minute?
  - Do you know what important documents are and where they are kept?
  - How could you protect this information ahead of time?
  - If you needed to leave your home for a long time what would you need? (e.g. torch with spare batteries, candles, food and water for everyone – including babies and pets, medication, hygiene, clothing).
3. Get students to compare their drawings, are there any similarities/differences? What are they?
4. Reinforce that leaving early is always the best option.

### Extension

- [Emergency Alert](#) is the national telephone warning system used by emergency services to send voice messages to landlines and text messages to mobile phones within a defined area about likely or actual emergencies. It is possible for students with mobile phone to receive these and there is no opt out option. Get students to investigate emergency alerts and research the following:
  - When Emergency Alerts are used
  - What the message will say
  - Why you should not rely on receiving a warning message on your phone before you act

## In the Community

- Send children home with the My Family's Bushfire Survival Plan Worksheet. Encourage them to work together with their family to identify the following:
  - How will they know when it is time to leave?
  - Where will they go?
  - How will they get there?
  - What will they take?

Students should return their completed worksheet to school for discussion.

Note: This activity may be difficult for some students where parents or guardians are unwilling or unable to participate. Instead encourage students to discuss their bushfire plan with other classroom students and include the following points in their discussions:

- When will they know to leave their home?
- Where will they go?
- Which way will they go?

The [My Bushfire Plan](#) website will help with this task.



## Module Five: Responding to Bushfire Teacher Answer Sheet

### Activity Two: *Bushfire Warnings*

#### *Bushfire Warnings Slideshow*

Slide	Image	Description
1	Introduction	During a bushfire, community alerts and warnings are issued when bushfires start and for bushfires that threaten lives and property. They give us important information about the fire and what actions we need to take for each one. There are 4 levels, <i>Advice, Watch and Act, Emergency and All Clear.</i>
2 - 5	Introduction to Bushfire alert levels	The photographs allow students to visualise and better understand that the changing levels reflect the increasing risk to life and the decreasing amount of time there is until the fire arrives. The most important thing to remember is that leaving early is always the safest option. The longer you wait, the greater the risk to your life.
6	Bushfire Level – Advice	Ask students: <ul style="list-style-type: none"> <li>• What adults could they tell? <i>parents, neighbours, teachers</i></li> <li>• Where would you look for more information? <i>social media, radio, television, through other people</i></li> <li>• Where is a safer place? <i>away from the fire and anywhere outside the warning area</i></li> </ul>
7	Bushfire Level Watch and Act	Explain that if they have not already left for their safer place they should do so now.
8	Bushfire Level Emergency	Explain that it is important that they do not find themselves in this situation as they should have already left during the Watch and Act level. Keeping up to date with information will help avoid this. Note: <i>If students wish to discuss what to do in the event they receive an emergency warning, more information on actions to reduce risk to life can be found in the modules background information.</i>
9	Bushfire Level All Clear	Explain that sometimes fires can reignite so they should continue to look for more information in case this occurs.
10	EmergencyWA	Show students how to find warnings on the <a href="#">Emergency WA</a> web site. Point out a coloured area that indicates a warning zone. Reinforce that a 'safer' location is a place outside this area and you should move to any place outside the coloured zone when leaving your home due to a fire.
11 - 13	Test your knowledge	Students practice their bushfire levels knowledge.

Note: The bushfire warning messages found within the **Bushfire Warnings** slideshow have been adapted from the general public warnings to simplify the language and identify actions that students can undertake. To view the messages found in the general public warnings please visit the [DFES website](#)