

SUMMER FIRE SAFETY

LESSONS FOR
YEARS 5 & 6

OVERVIEW

These fire safety lessons provide a definition of bushfire, grassfire and coastal scrub fire. It also provides a selection of bushfire activities on a selection of case studies (Black Friday 1939, Black Tuesday 1967, Ash Wednesday 1983 and Black Saturday 2009). Students will investigate how the fire started, the extent of damage and the impacts on people, livestock and the physical environment. Looking back at the history of fire provides us with an understanding of how fire safety has developed, and allows valuable reflection on what lessons have been learnt.

The *CFA Fire Ready Kit* is used as a guide resource. Students will review the components of the kit and discover its importance as a resource to help them and their family plan and prepare for fire. Students learn how using this kit can play a vital role in safety, during the event of relocation.

WHAT YOU WILL NEED

- [CFA Fire Ready Kit](#)
- Activity worksheet and your choice of case study

LESSON TOPICS

1. History of Fire
2. *CFA Fire Ready Kit*

CURRICULUM CONNECTIONS

This content has been mapped to the Victorian Curriculum. The Victorian Curriculum F-10 incorporates the Australian Curriculum and reflects Victorian priorities and standards.

Health and Physical Education	Investigate community resources and strategies to seek help about health, safety and wellbeing Plan and practise strategies to promote health, safety and wellbeing
Geography	Impacts of bushfires or floods on environments and communities, and how people can respond Elaborations <ul style="list-style-type: none">• explaining the impacts of fire on Australian vegetation and the significance of fire damage to human communities• researching how the application of principles of prevention, mitigation and preparedness minimises the harmful effects of bushfires or flooding• suggesting collective action in response to impact of floods on a community and describing the likely effects of this action on different groups of people Represent the location of places and other types of geographical data and information in different forms including diagrams, field sketches and large-scale and small-scale maps that conform to cartographic conventions of border, scale, legend, title, north point and source; using digital and spatial technologies as appropriate

Sourced from victoriancurriculum.vcaa.vic.edu.au August 2017.



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BUSHFIRES – A CASE STUDY

60 MINUTES

Material

Activity worksheet and your choice of case study.

Explain the following points:

- A bushfire is a freely, burning, uncontrolled and unplanned fire, which needs to be extinguished especially if it is threatening houses or people.
- Bushfires happen mostly during hot, dry, weather and can be caused by dry lightning storms, fallen power-lines or human activity such as – out-of-control campfires, sparking angle grinders or firebugs (arson).
- A grassfire is a fire that burns quickly through fine fuel.
- A coastal scrub fire is a very hot, fast moving and erratic fire that is fanned by ocean winds.

Activity

Hand out copies of the *Activity worksheet* and your choice of case study, and have students answer the questions provided. Alternatively, they can choose to conduct their own research of any major Australian fire if they have access to online resources.

After students have completed the questions, ask them how fires in Australian history have helped us become more fire aware. What have we learnt from them?

Suggested further activity

Students create a social media campaign on promoting bushfire awareness within their local communities. Again, using the context most appropriate to your surroundings - bushfire, grassfire or coastal scrub fire. The campaign should include details on fire danger signs, how to prepare their home and property early, as well as having a Bushfire Survival Plan. Students should aim to describe how these prevention, preparedness and mitigation actions can minimise the harmful effects of bushfire on the community.



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CFA FIRE READY KIT

60 MINUTES

Materials

[CFA Fire Ready Kit](#)

Ask students to answer the following questions using information provided in the *CFA Fire Ready Kit*.

Go through the *CFA Fire Ready Kit* together as a class. Explain that it has been put together with important fire safety topics and planning documents.

1. Which Fire Weather District do you live in?
2. Which type of environment do you live in? What can you expect?
3. How to Plan. What are some of the ten key decisions you should discuss with your family before the fire season?
4. What should an emergency kit contain?
5. What is radiant heat and how do you protect yourself against it?
6. What is the difference between the Fire Danger Rating and Total Fire Ban sign? What does each sign tell us?
7. What is ember attack?
8. Preparing your property. What are some of the things you can do to prepare your property?

Suggested further activities

1. Download the bushfire survival planning template - Leaving early at cfa.vic.gov.au and complete it at home with your family.
2. Visit and explore the VicEmergency website at emergency.vic.gov.au You can also download the VicEmergency app to your smartphone.



THE BLACK TUESDAY BUSHFIRES (TASMANIA 1967)



On February 7, 1967, Tasmania experienced the worst bushfires they had ever had, resulting in the highest numbers of lives lost and greatest damage to Tasmanian communities.

The weather was extremely hot and dry in early February due to the early onset of summer. Several bushfires had already started across different areas of Tasmania.

The vegetation had already dried out due to a continuing drought. Green vegetation was minimal.

The first of the fires broke out in Southern Tasmania. Fires then raged across large areas including areas: Hamilton, Bothwell, D'Entrecasteaux Channel and Snug.

It was concluded that some of the fires were deliberately lit for the purpose of burning off. Later investigation found that out of 110 fires that happened, only 22 were accidental.



In the aftermath, in the town of Snug, a memorial for the bushfires was built. A plaque listing the names of those who lost their lives in the fire was inscribed and placed on a brick chimney.

Bushfire readiness information is also included on the memorial.

IMPACTED AREA	TOTAL DAMAGE
Loss of life	62
Livestock lost	62,000
Injuries	9,000
Left homeless	7,000
Financial	\$40 million
Destroyed land	2,640 square km
OTHER DAMAGE	
Environment	Forest and over 100 public structures
Vehicles	1500
Bridges	80
Power lines	4,800

ACTIVITY WORKSHEET – THE BLACK TUESDAY BUSHFIRES

Using the case study on *The Black Tuesday Bushfires (Tasmania 1967)*, provide your answers to the following questions:

01 Describe the weather conditions leading up to and on the day of the disaster.

02 How did the bushfires start?

03 What effect would burnt out bridges, cars and a loss of power have on a community?

04 Describe the characteristics of the bushfire.
Consider the type of fire, the size of the fire and how many occurred at the same time?

05 What damage was caused?
Consider the impact to people, livestock, the physical environment such as structural damage to the property as well as the impact on our natural environment.

06 Why is it important to build memorials after a disaster like Black Tuesday?
Research another memorial constructed after a major bushfire and present your findings to the class.

07 Research how long it took the natural environment to regrow after the Black Tuesday Bushfires.
Find out how Australian plants have adapted to living with fire.

ACTIVITY WORKSHEET – THE BLACK TUESDAY BUSHFIRES

ANSWER SHEET

01 Describe the weather conditions leading up to and on the day of the disaster.

The weather was extremely hot and dry in early February due to the early onset of summer.

02 How did the bushfires start?

It was concluded that some of the fires were deliberately lit for the purpose of burning off. Later investigation found that out of 110 fires that happened, only 22 were accidental.

03 What effect would burnt out bridges, cars and a loss of power have on a community?

Burnt out bridges and cars would make it difficult for people to move around and do things like buy food. A loss of power would mean they might not be able to cook, have hot water, have lights or electric heating or cooling.

04 Describe the characteristics of the bushfire.

Consider the type of fire, the size of the fire and how many occurred at the same time?

The 110 fires that burned on Black Tuesday affected 2,640 square kilometres of land.

05 What damage was caused?

Consider the impact to people, livestock, the physical environment such as structural damage to the property as well as the impact on our natural environment.

Sixty-two human lives were lost, 9,000 were injured and 7,000 people were left homeless in the Black Tuesday Fires. Eighty bridges, 1500 vehicles and 4,800 powerlines were damaged or destroyed as well as 100 public structures.

06 Why is it important to build memorials after a disaster like Black Tuesday?

Research another memorial constructed after a major bushfire and present your findings to the class.

Building memorials helps us remember the lives lost and keeps fire safety in our minds. If the community is involved it also helps them with the healing process.

07 Research how long it took the natural environment to regrow after the Black Tuesday Bushfires.

Find out how Australian plants have adapted to living with fire.

Research this online through both Black Tuesday and Australian vegetation websites.

THE ASH WEDNESDAY BUSHFIRES (VICTORIA & SOUTH AUSTRALIA 1983)



Fire burns towards the Australian Emergency Management Institute (AEMI), Mount Macedon.

Photo by: A Davis - Australian Emergency Management Institute



Between April 1982 and January 1983, Victoria was experiencing severe drought conditions and little rainfall, resulting in its driest period on record. On the 16th of February, a combination of dry grasslands and forests, very hot temperatures, low humidity and high wind gusts presented Victoria with a high bushfire risk. The temperature soared to 43 degrees Celsius on Ash Wednesday.

Around 180 bushfires began on 16 February 1983. The largest bushfires started in Victoria at Cudgee and Branxholme (near Warrnambool); around Mount Macedon; in the Dandenong Ranges; in Warburton and the Otways. Fires also broke out in South Australia, where 159,000 hectares of land in the Adelaide Hills and farming country in the south east of the state were razed.

The bushfires started in a number of ways including power lines and arson (fires being deliberately lit). The Victorian fires burnt an area almost twice the size of metropolitan Melbourne, around 200,000 hectares and a huge number of people lost their homes, possessions, stores, equipment, machinery and stock.

The majority of the Ash Wednesday fires were brought under control by the end of the day. Some fires took two to eight hours to control, while others took a couple of days. Accessibility to the fires played a large part in how quickly fires were brought under control. Fires in mountainous areas were often more difficult to put out due to difficulties in moving the fire vehicles in close enough to the fires. In some areas, there was

no road access into the fire. The fine fuels in grasslands burned quickly while the forested areas burnt slower, but for longer, and were much hotter. Both these fire types are hard to control.

A study was conducted into the 32 people (excluding firefighters) who died in Victoria. It showed that 25 were outside their homes and several of them died in vehicles while trying to escape. It was found that delaying leaving until the last minute was a common cause of death.

IMPACTED AREA	TOTAL DAMAGE
Loss of life	75
Livestock lost	340,000 sheep and 18,000 cattle
Injuries	2,676
Financial	\$400 million (around \$1.3 billion today)
Destroyed land	210,000 hectares
OTHER DAMAGE	
Environment	82,500 hectares of public land and over 127,500 hectares of private land burned in Victoria and South Australia
Structures	3700 buildings including 2400 homes (2,000 in Victoria)

ARE YOU FIRE READY?

ACTIVITY WORKSHEET – THE ASH WEDNESDAY BUSHFIRES

Using the case study on The Ash Wednesday Bushfires (*Victoria and South Australia 1983*), provide answers to the following questions:

01 What are the four things that presented Victoria with a high fire risk on Ash Wednesday?

02 How do you think powerlines could start a fire? How could this be prevented?

03 Why did some of the fires take so long to control? Why are forest fires hard to control? Why are grassfires hard to control?

04 What damage was caused by the fires?

Think about the impact to human and animal life as well as the damage to buildings and the natural environment.

05 More than 200,000 hectares was burnt in Victoria and South Australia during the Ash Wednesday Fires. If the Melbourne Cricket Ground (MCG) is around 2 hectares – how many times bigger was the area affected by the fires?

06 What was considered a common cause of death in the fires? What message are we now given if we know there is a high risk of bushfire?

ACTIVITY WORKSHEET – THE ASH WEDNESDAY BUSHFIRES

ANSWER SHEET

01 What are the four things that presented Victoria with a high fire risk on Ash Wednesday?

Drought dried out grasslands and forests, very hot temperatures, low humidity and high winds presented Victoria with a high bushfire risk.

02 How do you think powerlines could start a fire? How could this be prevented?

Powerlines hitting each other due to high winds or branches can cause sparks. Burying powerlines or making sure trees are trimmed clear of them can help prevent fires.

03 Why did some of the fires take so long to control? Why are forest fires hard to control? Why are grassfires hard to control?

Fires in mountainous areas were often more difficult to put out due to difficulties in moving the fire vehicles in close enough. In some areas, there was no road access into the fire. Some of the fires were also along the coastal scrub areas. Fires in forested areas are hard to control because they burn hot and for a long time due to the amount of the fuel. Grassfires move very quickly making them hard to control.

04 What damage was caused by the fires?

Think about the impact to human and animal life as well as the damage to buildings and the natural environment.

Seventy-five people died and 2,646 were injured. 358,000 sheep and cattle were lost and 520,000 hectares of land was affected. 3700 buildings including houses and outbuildings such as sheds were also lost in the fires.

05 More than 200,000 hectares was burnt in Victoria and South Australia during the Ash Wednesday Fires. If the Melbourne Cricket Ground (MCG) is around 2 hectares – how many times bigger was the area affected by the fires?

The area of the fire was 100,000 bigger than the MCG.

06 What was considered a common cause of death in the fires? What message are we now given if we know there is a high risk of bushfire?

Delaying leaving until the last minute before the fire arrived was a common cause of death. We are now told if we plan to leave, we should leave early.

THE BLACK FRIDAY BUSHFIRES (VICTORIA 1939)



The Glen Guest House at West Healesville, destroyed by the Black Friday fires

Courtesy of Department of Environment and Primary Industries, Victoria



The scene of destruction at Omeo following the Black Friday bushfires

Courtesy of Department of Environment and Primary Industries, Victoria

In early 1939, several years of drought had caused Victoria to be extremely dry and ready for fire. Several fires had started in early December the previous year and continued to burn through January. On 13 January 1939, on what became known as Black Friday, several fires joined into a massive front that spread along the coast south west of Melbourne and across mountainous north-east Victoria killing 36 people and burning huge tracts of land.

In the week leading up to Black Friday, several fires were already burning and around 75 per cent of Victoria was affected by fire. Many bushmen and graziers, thinking they would protect themselves from the oncoming blaze, set fire to the bush and grassland. With the hot, dry conditions these fires quickly got out of control and added to the huge fire fronts that would follow. Three days before Black Friday, the majority of the mountain ash forest that makes up the Great Dividing Range was ablaze.

When Black Friday came, the temperature soared to 45.6°C in Melbourne. The hot dry conditions that had previously dried out the vegetation made the humidity levels (the amount of moisture in the air) very low. This, coupled with strong northerly winds, made the fires extremely dangerous and difficult to control. In the fires that followed, many towns, such as Warrandyte (now a suburb of Melbourne) were badly damaged. Others, such as, Narbethong, Noojee, Woods Point, Nayook West and Hill End were completely destroyed. Some were never rebuilt.

These were the second largest fires the state has ever known (the largest being Black Thursday 1851). A Royal Commission headed by Judge Stretton found the cause of the fires to be due mainly to 'careless burning', saying the fires were 'lit by the hand of man'. Many of the recommendations of the inquiry, such as the building of fire towers, the making of fire trails and controlled burning, are still in use today. The creation of CFA in 1944 was, in part, due to this disaster.

IMPACTED AREA	TOTAL DAMAGE
Loss of life	36 (71 total over January 1939)
Financial	\$750 million (estimated)
Destroyed land	2,000,000 hectares
OTHER DAMAGE	
Environment	575,000 hectares of reserved forest and 780,000 forested Crown land destroyed
Structures	Approximately 1300 buildings lost. More than 1000 homes, 69 sawmills, many businesses, farms and other buildings.

ACTIVITY WORKSHEET – THE BLACK FRIDAY BUSHFIRES

Using the case study on *The Black Friday Bushfires (Victoria 1939)*, provide answers to the following questions:

01 What was the main cause of the Black Friday Bushfires?

02 How do strong winds affect a bushfire?

03 Compare the Black Friday Fires (2,000,000 hectares burnt, 36 lives lost) to the more recent 2009 Black Saturday Fires (450,000 hectares burnt, 173 lives lost). Why were there more lives lost in 2009 when less land was affected?

04 What did Judge Stretton mean when he said the fires were 'lit by the hand of man'?

05 What were four of the important measures that came out of the Black Friday Bushfires?

06 What is one thing we do now on high fire danger days to stop people lighting fires outdoors?

ACTIVITY WORKSHEET – THE BLACK FRIDAY BUSHFIRES

ANSWER SHEET

01 What was the main cause of the Black Friday Bushfires?

Bushmen and graziers set fires to protect themselves which got out of control in the bad conditions.

02 How do strong winds affect a bushfire?

Strong winds fan the flames of a bushfire (by adding oxygen).

03 Compare the Black Friday Fires (2,000,000 hectares burnt, 36 lives lost) to the more recent 2009 Black Saturday Fires (450,000 hectares burnt, 173 lives lost). Why were there more lives lost in 2009 when less land was affected?

There were more people living in, or near, bush areas in 2009 compared to 1939.

04 What did Judge Stretton mean when he said the fires were 'lit by the hand of man'?

Judge Stretton meant that people lit the fires.

05 What were four of the important measures that came out of the Black Friday Bushfires?

Four important measures that came after the Black Friday Bushfires were fire towers, fire trails, controlled burning and the creation of CFA.

06 What is one thing we do now on high fire danger days to stop people lighting fires outdoors?

On hot summer fire days we have Total Fire Bans where no fires can be lit in an open area.

THE BLACK SATURDAY BUSHFIRES (VICTORIA 2009)



Fires around Taggerty, Feb 2009

On February 7, 2009, Victorians awoke to what was to be the hottest day on record (46.4°C recorded in Melbourne). After three consecutive days above 43°C the bush was tinder dry.

On the previous day, the then Premier John Brumby had issued a warning that it was to be the 'worst day of fire conditions in the history of the state' and people needed to 'exercise real common sense tomorrow.' He was to be proved right.

By mid morning fierce northwesterly winds, greater than 100 kilometres per hour, were fanning fires that had begun days earlier in Central Gippsland and Bunyip State Park. Then, before midday, powerlines fell in Kilmore East. It was the beginning of what became known as the Kilmore East Fire – a series of fires that raged across the dry mountain ash forests of the Kinglake Ranges – finally meeting with the Murrundindi fire. Several other bushfires also burned across the state including those fires in Bendigo, Bunyip, Churchill, Dargo and Beechworth. In all, around 400 separate fires were recorded on the day. Some of these were suspected to be arson (deliberately lit fires).

Black Saturday became Australia's worst fire disaster, claiming 173 human lives and directly affecting over 78 communities. More than 19,000 CFA members were involved in frontline firefighting, incident management and support.

In the aftermath of Black Saturday, people in Australia and around the world donated over \$400 million dollars and mountains of goods and clothing to help the survivors.

Further resources:

<http://www.cfa.vic.gov.au/about/black-saturday/>

<https://www.emknowledge.gov.au/resource/482/2009/bushfire---black-saturday-victoria-2009>

IMPACTED AREA	TOTAL DAMAGE
Loss of life	173
Livestock lost	Over 11,800 head of livestock
Wildlife loss	approx. 1 million animals
Injuries	414
Left homeless	7,562 people displaced
Financial	\$4.4 billion
Destroyed land	450,000 hectares burnt
OTHER DAMAGE	
Environment	Nearly 100,000 hectares of parks damaged
Agricultural loss	62,000 hectares of grazing pasture, and 32,000 tonnes of hay and silage
Business loss	Over 55 businesses destroyed
Electricity	Supply disrupted to 60,000 residents
Structures	Over 3,500 (houses, sheds, commercial and community buildings)

ARE YOU FIRE READY?

ACTIVITY WORKSHEET – THE BLACK SATURDAY BUSHFIRES

Using the case study on *The Black Saturday Bushfires (Victoria 2009)*, provide your answers to the following questions:

01 What do you think Premier John Brumby meant when he said people should ‘exercise real common sense tomorrow’? Think about what you have learned about ‘common sense’ in bushfire survival planning.

02 Describe the weather conditions leading up to, and on the day of, the disaster. How do you think this affected what happened on Black Saturday?

03 How did the Kilmore East fire start? Why do you think it spread so quickly?

04 What could be done to prevent fires like that at Kilmore East from occurring in the future?

05 What damage was caused by the fires? Think about the impact to human and animal life as well as the damage to buildings and the natural environment.

06 What was the response of Australians and people overseas to the crisis? Why do you think they responded in such a way?

Research opportunity

Using the links below find out how the natural environment recovered from the fires. What does this tell us about the Australian bush?

<http://www.australiangeographic.com.au/topics/science-environment/2011/02/gallery-black-saturday-bushfires-the-aftermath>

<http://www.sbs.com.au/shows/costa/tab-listings/detail/i/1/article/6392/Bush-Regeneration>

<http://www.hphpcentral.com/article/after-the-fires>

ACTIVITY WORKSHEET – THE BLACK SATURDAY BUSHFIRES

ANSWER SHEET

- 01** What do you think Premier John Brumby meant when he said people should ‘exercise real common sense tomorrow’? Think about what you have learned about ‘common sense’ in bushfire survival planning.

John Brumby meant we should carry out our fire plan – if we were going to leave, we should leave early and if we were going to stay and defend, we should be prepared.

- 02** Describe the weather conditions leading up to, and on the day of, the disaster. How do you think this affected what happened on Black Saturday?

There were three days over 43°C and the day itself was 46.4°C. The bush was very dry and there were strong winds. This caused the fires to spread quickly and burn very hot.

- 03** How did the Kilmore East fire start? Why do you think it spread so quickly?

The Kilmore East Fire was caused by falling powerlines. The strong wind, low humidity and dry vegetation caused it to spread quickly.

- 04** What could be done to prevent fires like that at Kilmore East from occurring in the future?

Burying powerlines could prevent similar fires but this is very expensive.

- 05** What damage was caused by the fires? Think about the impact to human and animal life as well as the damage to buildings and the natural environment.

One hundred and seventy three lives were lost in the Black Saturday fires, with 414 others documented as injured. Over 11,800 livestock were killed and 1 million wild animals. 450,000 hectares of land were burnt, 3,500 structures were lost and over 55 businesses were destroyed.

- 06** What was the response of Australians and people overseas to the crisis? Why do you think they responded in such a way?

People donated over \$400 million dollars and a great amount of clothing and other goods. They felt sorry for the people who had lost so much. Many Australians understand the damaging power of bushfires.