

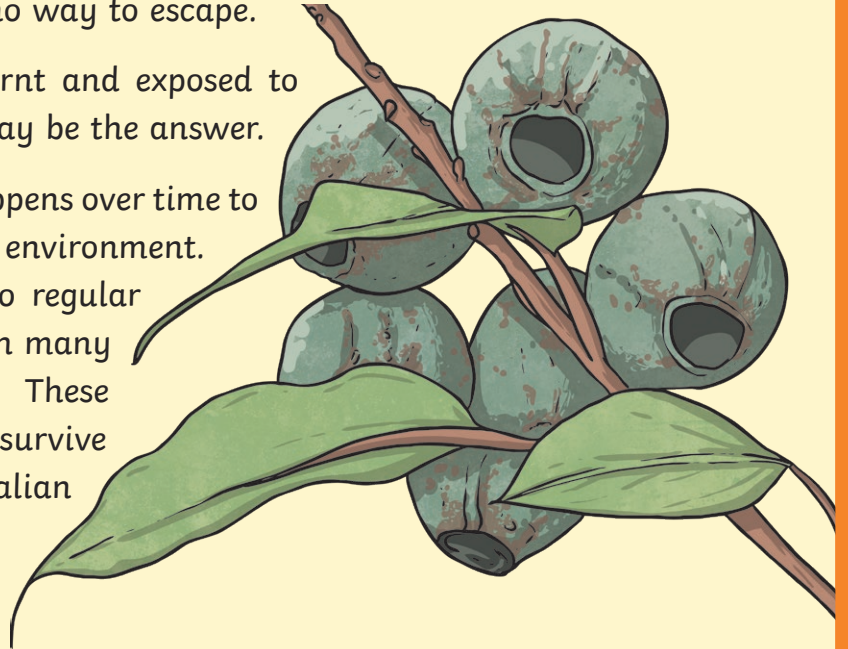
Plant Adaptations and Bushfires

During a bushfire, flames burn everything in their path, smoke fills the air and the heat is so strong it seems impossible that any living thing could survive. Most animals can escape by moving away from the heat, but plants cannot. They must face the full heat of the fire with no way to escape.

How can plants survive being burnt and exposed to such extreme heat? **Adaptation** may be the answer.

An adaptation is a **change** that happens over time to help a plant or animal survive in its environment.

Australian plants have adapted to regular bushfires, which occur naturally in many different parts of the country. These adaptations have helped plants to survive the harsh conditions of the Australian landscape.



Adaptation 1: Germination

Some Australian plants need to be covered by **smoke** before their seeds can germinate. Germination is the first process of a seed becoming a plant; it's when the roots begin to grow. Some Australian plants, like the banksia, hakea and eucalyptus, have seed pods that need heat to open. Once the pods open in the heat, they drop their seeds. Nutrient-rich ash from the fire makes the soil the perfect place for seeds to germinate.

Adaptation 2: Bark

Some plants have adapted to fire by growing a thick skin – or rather bark. Having **thick bark** or **layers of leaves** around the trunk of a plant protects from fire, and other dangers. The Australian grass tree (also known as a Xanthorrhoea) keeps its dead leaves around its stems. The dead leaves create a thick layer that provides protection and helps stop the plant becoming too hot or dehydrated during a bushfire.

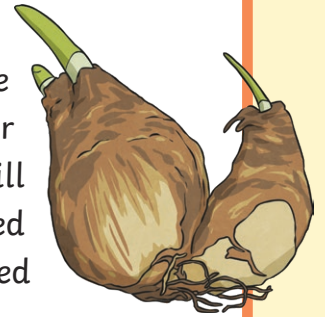


Adaptation 3: Height

Being tall can have its advantages, especially when it comes to fire. Some eucalyptus trees are very **tall**. They survive bushfires by keeping their leaves and other important parts out of harms way. Certain trees will also drop any dead branches they have. This means that there is less fuel to burn if a fire starts.

Adaptation 4: Regrowth

After a bushfire, there will be plants that **sprout** new growth. There are some eucalyptus trees that have special buds which lie **protected** under the bark. For other species, the roots, bulbs or rhizomes of the plant are protected underground. These plants still **regrow** even if the above-ground part of the plant is badly damaged by fire. A few banksia trees have swollen woody stem bases called **lignotubers** from which new shoots grow.



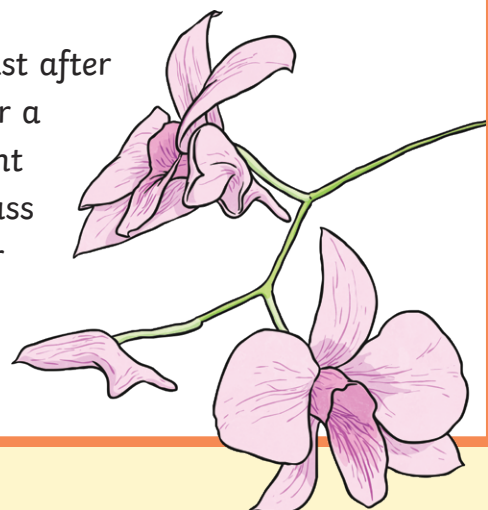
Did You Know?

Sclerophyll is the word used to describe plants that are adapted for survival in extreme conditions.



Adaptation 5: Flowers

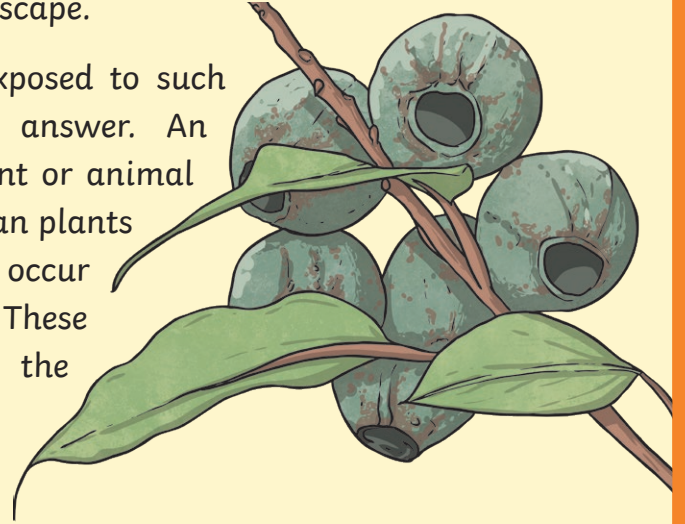
For some plants, the best time for flowering is just after a bushfire. Some native orchids only **flower** after a fire and **sprout** from bulbs which can lie dormant in the soil for up to 20 years. The Australian grass tree (Xanthorrhoea) produces **flower spikes** after a fire. In fact, it flowers so well after a fire that gardeners have been known to use a blowtorch to encourage flowering!



Plant Adaptation and Bushfires

During a bushfire, flames burn everything in their path, smoke fills the air and the heat is so intense it seems almost impossible that any living thing can survive. Most animals can escape by moving away from the heat, but plants cannot. They must face the full fury of the fire with no way to escape.

How can plants survive being burnt and exposed to such extreme heat? **Adaptation** may be the answer. An adaptation is a **change** that occurs in a plant or animal to help it survive in its environment. Australian plants have had to adapt to regular bushfires, which occur naturally in many different environments. These adaptations have helped plants to survive the harsh environment of an Australian bushfire.



Adaptation 1: Germination

Some Australian plants need to be exposed to **smoke** in order for their seeds to germinate. Germination is the first process of a seed becoming a plant, it's when the roots begin to grow. Some plants, like the banksia, hakea and eucalyptus have seed pods that require **heat** to open. Once the pods open in the heat, they drop their seeds. Nutrient-rich ash from the fire makes the soil the perfect place for the seeds to germinate.

Adaptation 2: Bark

Some plants have adapted to fire by developing a thick skin – or rather bark. Having **thick bark** or **layers of leaves** surrounding the trunk of a plant will provide protection when a fire comes. The Australian grass tree (also known as a Xanthorrhoea) keeps its dead leaves around its stems. The thick layers provide protection and help stop the plant becoming too hot or dehydrated.

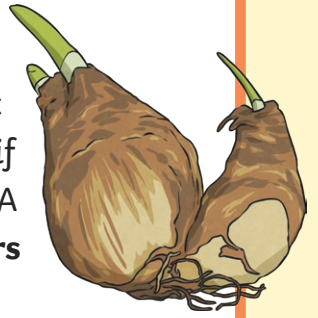


Adaptation 3: Height

Being tall can have its advantages, especially when it comes to fire. Some eucalyptus trees are very **tall**. They survive bushfires by keeping their leaves and other essential parts out of harms way. Certain trees will drop any dead branches they have quickly. This means that there is less fuel to burn if a fire does start around them.

Adaptation 4: Regrowth

After a bushfire, there will be plants that **re-sprout**. Some eucalyptus trees have special buds which are **protected** under their bark. For other species, the roots, bulbs or rhizomes of a plant can be shielded underground. So, these plants still **regrow** even if the above-ground part of them has been badly damaged by fire. A few banksia trees have swollen woody stem bases called **lignotubers** from which new shoots can grow.



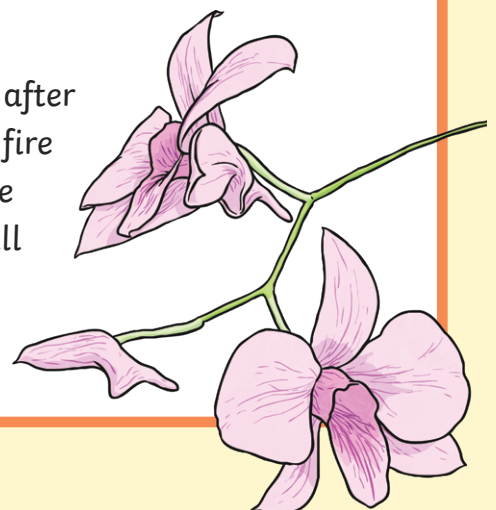
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Adaptation 5: Flowers

For some plants, the ideal time for flowering is just after a bushfire. Some native orchids only **flower** after a fire and **sprout** from bulbs which can lie dormant in the soil for up to 20 years. The Australian grass tree will produce **flower spikes** after a fire. Flowers so well after a fire that gardeners have been known to use a blowtorch to encourage flowering!

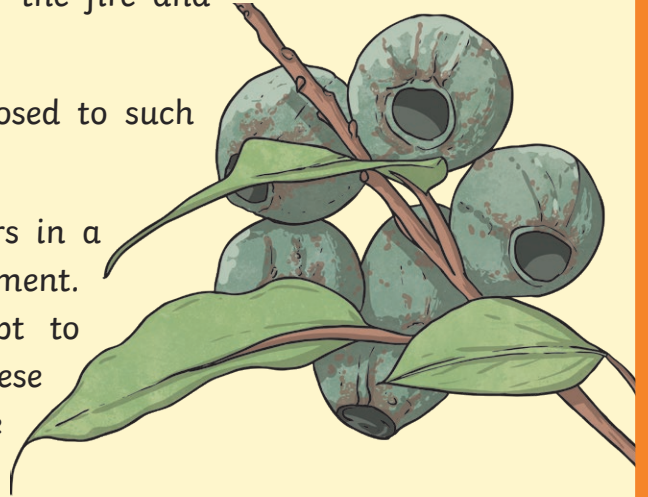


Plant Adaptation and Bushfires

During a bushfire, flames consume everything in their path, smoke engulfs the air, and the heat is so intense it seems impossible that any living thing could survive. Many animals escape bushfires by moving away from the heat, but plants cannot move. They must face the full fury of the fire and somehow survive.

How can plants survive being burnt and exposed to such extreme heat? Adaptation may be the answer.

An adaptation is a genetic change that occurs in a plant or animal to help it survive in its environment. Native Australian plants have had to adapt to intense bushfires, which occur regularly. These adaptations have helped plants to survive the harsh environment of an Australian landscape.



Germination

Some Australian plants require the chemicals found in smoke to make their seeds germinate. Germination is the initial process of a seed becoming a plant; it's when the roots begin to grow. Some plants like the banksia, hakea and eucalyptus have cones or woody capsules that require heat to open. Once the cones open in the heat as they can drop their seeds. Nutrient-rich ash from the fire enriches the soil to create the perfect place for the seeds to germinate.

Thermal Insulation

Some plants have adapted to fire by developing a thick skin, or bark. Having thick bark or layers of leaves surrounding the trunk of a plant provides protection from fire. The Australian grass tree (also known as a Xanthorrhoea) keeps its dead leaves around its stems. The thick layers provide thermal insulation, help stop the plant becoming too hot or dehydrated and protect the more fragile stem from direct fire.

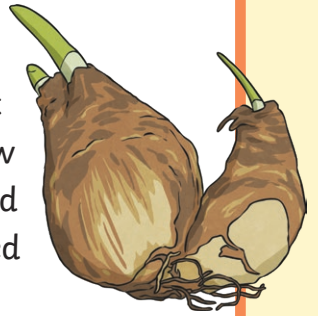


Height

Being tall can have its advantages, especially when it comes to fire. Some eucalyptus trees have tall crowns. They survive bushfires by keeping their leaves and other essential parts out of harms way, high up in the canopy. Certain trees drop any dead branches they have quickly, which means that there is less fuel to burn if a fire does start around them.

Regrowth

After a bushfire, there will be plants that re-sprout. Some eucalyptus trees have special buds which are protected under their bark. For other species, the roots, bulbs or rhizomes of a plant can be shielded underground. This enables these plants to regrow even if the above-ground part of them has been badly damaged by fire. A few banksia trees have swollen woody stem bases, called lignotubers, from which new shoots can grow.



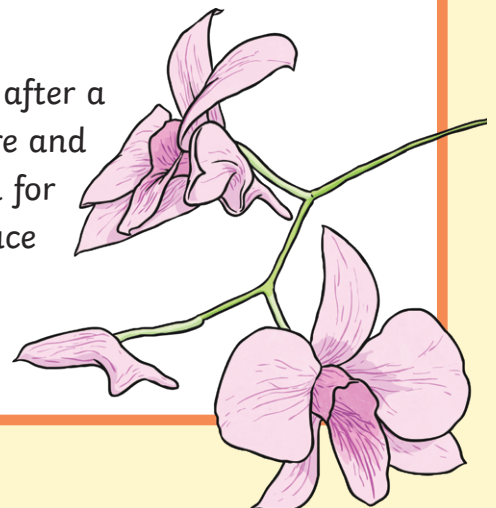
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Flowers

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