Plant Adaptation and Bushfires **Answers**

1. During a bushfire, the ash from burnt wood provides nutrient-rich soil which helps seeds to germinate.

   a. True b. False

2. Some Australian orchids only flower after a fire.

   a. True b. False

3. What is germination?

   Germination is the first process of a seed becoming a plant, it's when the roots begin to grow.

4. What word describes the process of change that happens over time to help a plant or animal survive in its environment.

   Adaptation

5. What is a Xanthorrhoea?

   An Australian grass tree.

6. Complete the following sentences:

   a. Some Australian plants need **smoke** to germinate their seeds.

   b. Some Australian plants have developed a thick layer of **bark** to protect them from bushfires.

   c. Some Australian plants grow very **tall** to keep the important parts of the tree away from the flames of bushfires.

   d. Some Australian plants regrow from roots, bulbs or **rhizomes** that are protected underground.

   e. Some Australian plants flower best after a **bushfire**.

7. Write down three new words that you have learnt from this text and explain their meaning.

   a, b and c. Answers will vary

8. If you could change your body to better adapt to your environment, what would you change?

   Answers will vary

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4. What is germination?

   Germination is the first process of a seed becoming a plant, it's when the roots begin to grow.

5. What word describes the process of change that occurs over time to help a plant or animal survive in its environment?

   Adaptation

6. Explain how each of the following adaptation have occurred in Australian plants in order to survive bushfires:

   a. Adaptation 1: Germination. **Seeds germinate after exposure to smoke and/or heat.**

   b. Adaptation 2: Bark. **A thick layer of bark grows to protect the tree trunk.**

   c. Adaptation 3: Height. **Trees grow tall so that the important parts of the tree stay up high out of the fire.**

   d. Adaptation 4: Regrowth. **Plants regrow and grow new shoots after fire.**

   e. Adaptation 5: Flowers. **Some plants only flower after a bushfire.**

7. Write down three words that you have learnt from this text and explain their meaning.

   a, b and c. Answers will vary

8. If you could change your body to better adapt to your environment, what would you change?

   Answers will vary

9. Imagine being in a rainforest, look around you at the different types of plants. Can you think of ways in which rainforest plants have adapted to their environment?

   Examples may include but are not limited to:

   a. Large leaves to increase exposure to sunlight.

   b. Growing very tall to reach sunlight.

   c. Having shallow roots, so they don't get water-logged.

   d. Vines growing high into the canopy towards the sunlight.

Plant Adaptation and Bushfires **Answers**

1. Complete the following sentences:

    a. Some Australian plants need **smoke** to germinate their seeds.

    b. Some Australian plants have developed a thick layer of **bark** to protect them from bushfires.

    c. Some Australian plants grow very **tall** to keep the important parts of the tree away from the flames of bushfires.

    d. Some Australian plants regrow from roots, bulbs or **rhizomes** that are protected underground.

    e. Some Australian plants flower best after a **bushfire**.

2. What is germination?

    Germination is the first process of a seed becoming a plant, it's when the roots begin to grow.

3. How does the ash from the fire help with germination?

    The ash provides nutrients that helps to create a perfect environment for germination.

4. Explain the meaning of Sclerophyll.

    The word used to describe plants that are adapted for survival in extreme conditions.

5. What word describes the process of change that occurs over time to help a plant or animal survive in its environment?

    Adaptation

6. Explain five ways in which Australian plants have adapted to survive bushfires.

    1: Germination. Seeds germinate after exposure to smoke and/or heat.

    2: Bark. A thick layer of bark grows to protect the tree trunk.

    3: Height. Trees grow tall so that the important parts of the tree stay up high out of the fire.

    4: Regrowth. Plants regrow and grow new shoots after fire.

    5: Flowers. Some plants only flower after a bushfire.

7. Write down three words that you have learnt from this text and explain their meaning.

   a, b and c. Answers will vary

8. If you could change your body to better adapt to your environment, what would you change?

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10. In the box below, draw one of the adaptations described in the text.

    Drawings will vary

Plant Adaptation and Bushfires Questions

1. During a bushfire, the ash from burnt wood provides nutrient-rich soil which helps seeds to germinate.

    a. True

    b. False

2. Some Australian orchids only flower after a fire.

    a. True

    b. False

3. What is germination?

_____

_____

4. What word describes the process of change that happens over time to help a plant or animal survive in its environment.

_____

5. What is a Xanthorrhoea?

_____

6. Complete the following sentences:

    a. Some Australian plants need _____ to germinate their seeds.

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    c. Some Australian plants grow very _____ to keep the important parts of the tree away from the flames of bushfires.

    d. Some Australian plants regrow from roots, bulbs or _____ that are protected underground.

    e. Some Australian plants flower best after a _____.

7. Write down three new words that you have learnt from this text and explain their meaning.

   a. _____

   b. _____

   c. _____

8. If you could change your body to better adapt to your environment, what would you change?

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6. Explain how each of the following adaptations have occurred in Australian plants in order to survive bushfires:

    a. Adaptation 1: Germination.

    _____

    b. Adaptation 2: Bark.

    _____

c. Adaptation 3: Height.

_____

d. Adaptation 4: Regrowth.

_____

e. Adaptation 5: Flowers.

_____

7. Write down three words that you have learnt from this text and explain their meaning.

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4. Explain the meaning of Sclerophyll.

5. What word describes the process of change that occurs over time to help a plant or animal survive in its environment?

6. Explain five ways in which Australian plants have adapted to survive bushfires.

7. Write down three words that you have learnt from this text and explain their meaning.

   a. _____

   b. _____

   c. _____

8. If you could change your body to better adapt to your environment, what would you change?

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9. Imagine being in a rainforest, look around you at the different types of plants. Can you think of ways in which rainforest plants have adapted to their environment?

_____

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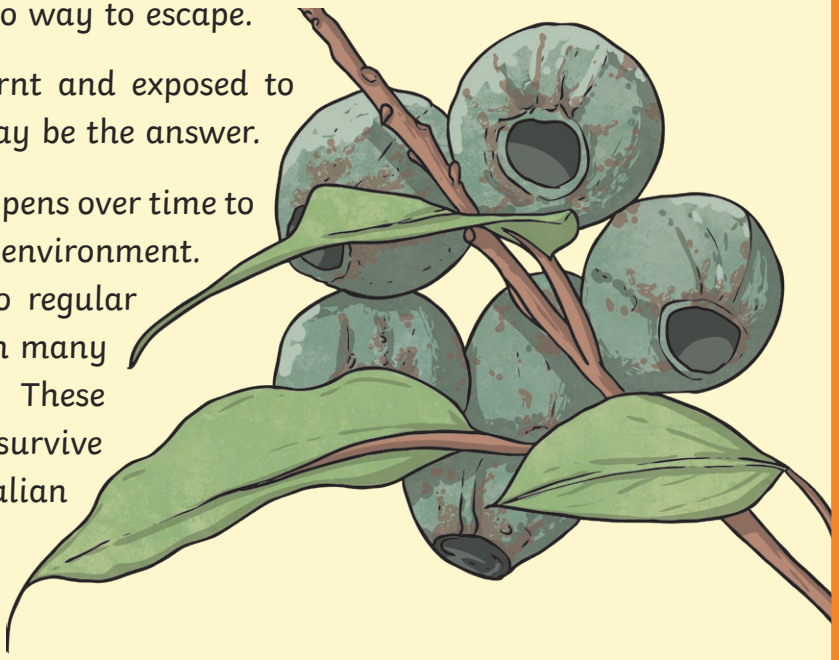
10. In the box below, draw one of the adaptations described in the text.

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.

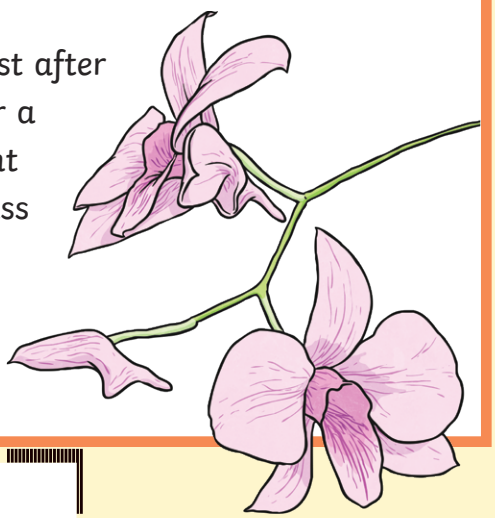
Adaptation 4: Regrowth

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.

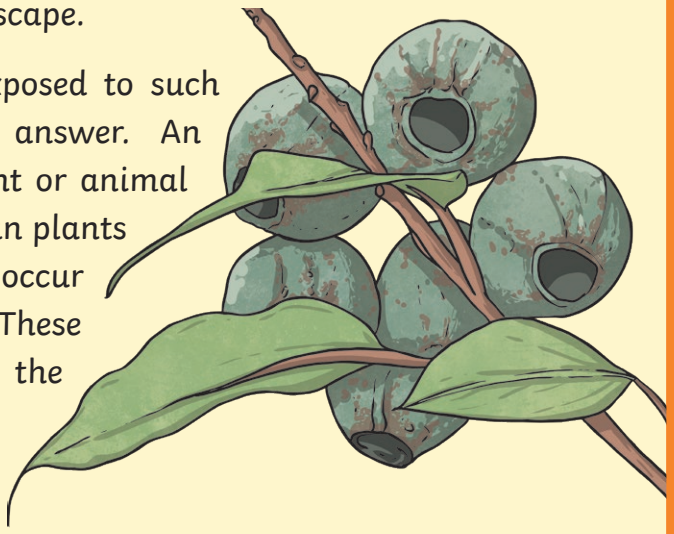
Adaptation 5: Flowers



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 adaptation 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

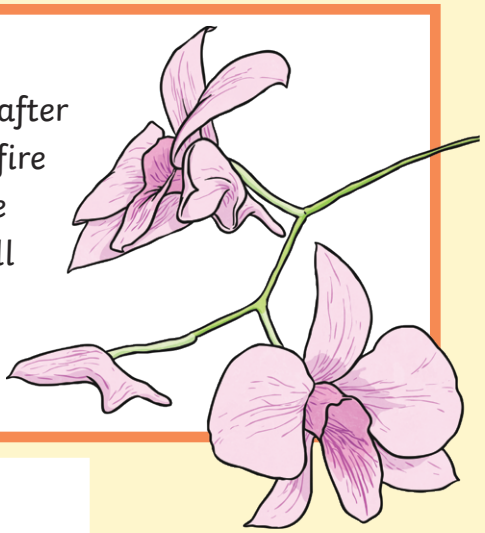
After a bushfire, there will be plants that **re-sprout**. Some eucalyptus trees have special buds which are **protected** under their bark. For other species, the roots, bulbs or rhizomes of a plant can be shielded underground. So, these plants still **regrow** even if the above-ground part of them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

Did You Know?

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

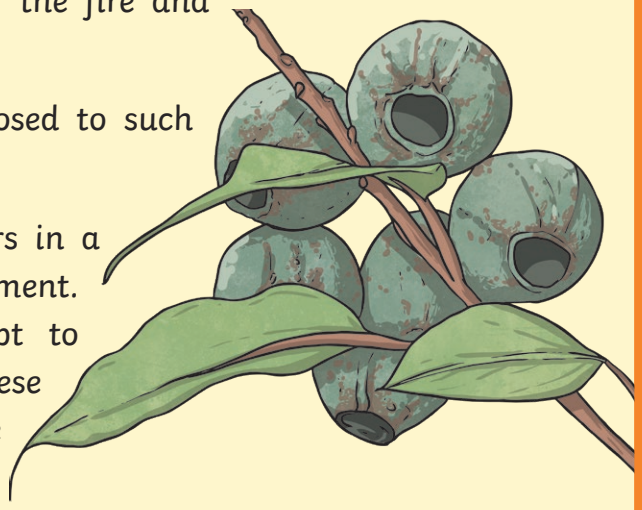
Adaptation 5: Flowers

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

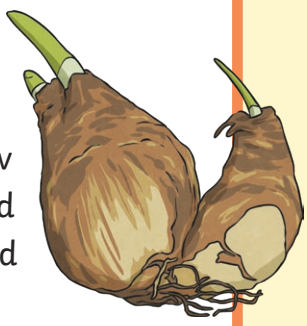
Some plants have adapted to fire by developing a thick skin, or bark. Having thick bark or layers of leaves surrounding the trunk of a plant provides protection from fire. The Australian grass tree (also known as a Xanthorrhoea) keeps its dead leaves around its stems. The thick layers provide thermal 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

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. In fact, it flowers so well after a fire that gardeners have been known to use a blowtorch to encourage flowering!