

Do you know how plants are similar to other living things, or what a plant needs to grow well?

This eBook answers these questions and more. Find out all about the life cycle of a plant and what you can do to keep plants healthy.

Twinkl Plants

Plants: Growing, Growing, Grown

GROWING, GROWING, GROWN

What Do Plants Need to Grow Well?



GROWING, GROWING, GROWN



Meet the Discovery Squad

Riz, Holly, Blake, Aisha and Harry are all great friends. They love to play, laugh and learn about the world together. Whatever the topic, if there are questions to be asked, answers to find or exploring to be done, the Discovery Squad is there to help. Join them as they find out more about plants in this non-fiction eBook.

HARRY

AISHA

BLAKE

HOLLY

RIZ



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PLANTS

Have you ever stopped and looked at how many plants there are in the world around you?



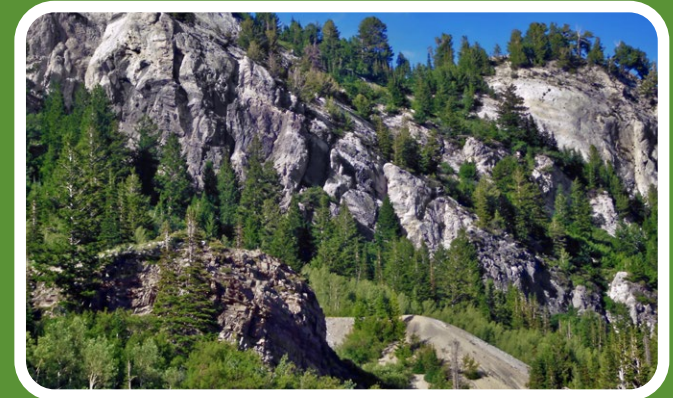
Even in places you might think there aren't any plants, some can still grow.



1



In fact, plants grow in nearly every habitat on Earth!



In this book, we will learn more about how plants grow, what they need to grow well and where in the world different plants grow best.

2

LIVING THINGS

Did you know that you and a plant are similar in lots of ways? Let's learn about the things that all living things have in common.

Growth

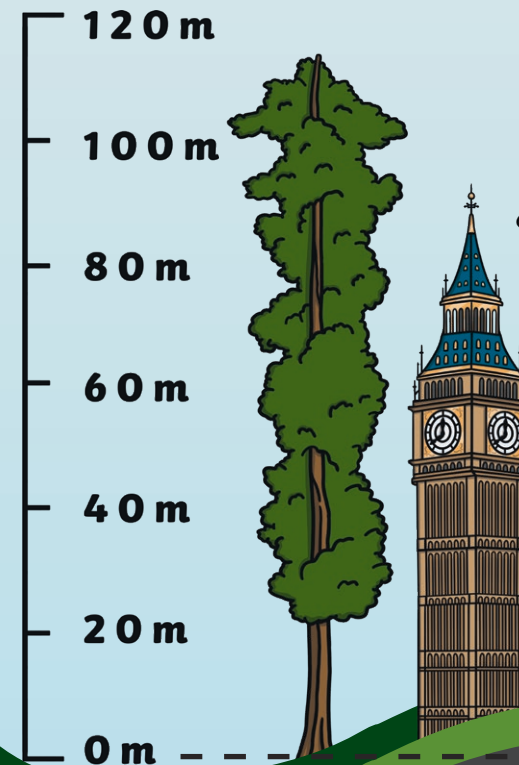
All living things grow. Think how much you have grown since you were a baby! Plants grow too. They can grow new leaves, grow taller and some can grow flowers and fruit. Some grow to be very small and some grow to be huge!



Did You Know ?

The tallest plant in the world is a coast redwood tree in Redwood National Park in California, USA.

Scientists measured it by climbing to the top of it and dropping a very long tape measure to the ground.



It measures over 116 metres tall - that's taller than Big Ben's tower!

Movement

What? Plants move?

Yes, they do! Sunflowers move their flowers so that they face the sun.



Sunflower

5

A Venus flytrap closes its trap when a fly lands in it.



Venus flytrap



Mimosa Pudica

When the touch-me-not plant (its proper name is *Mimosa pudica*) is touched, its leaves curl and droop.

6

Nutrition

Nutrition is what all living things need to grow and stay healthy.

Animals (including humans) get their **nutrition** from eating food.

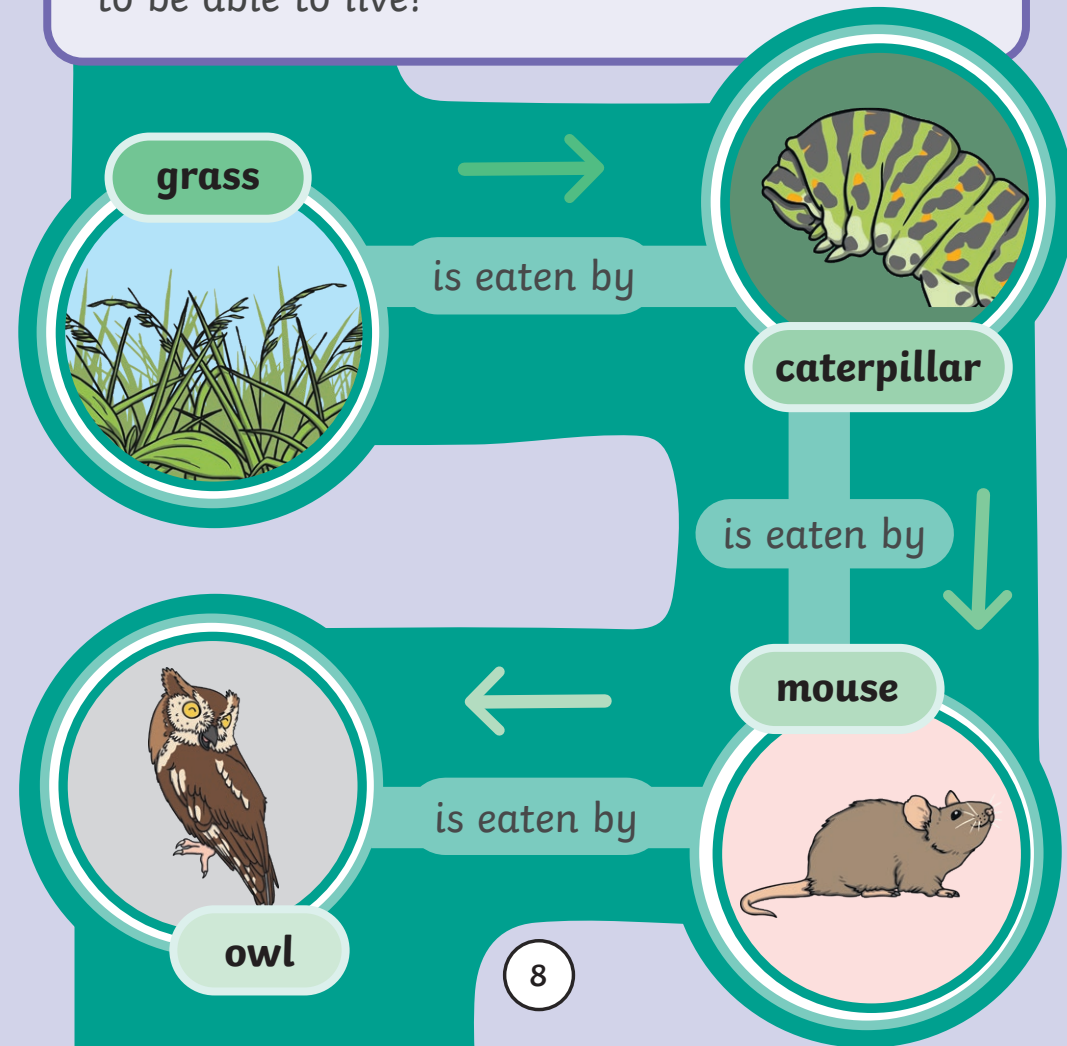
Plants don't need to eat food like we do because they make their own food. Their leaves catch sunlight to help to do this.

Plants can also get some **nutrients** from soil.

7

Many living things depend on plants to survive.

A food chain shows us how animals get the **nutrition** they need. Many food chains start with a green plant, which shows us that even carnivores (meat-eating animals) need plants to be able to live!



8

Waste Removal

Your body makes **waste** after it has used your food and drink to help you to grow and stay strong. How does your body remove the **waste** it doesn't need?

Toilets

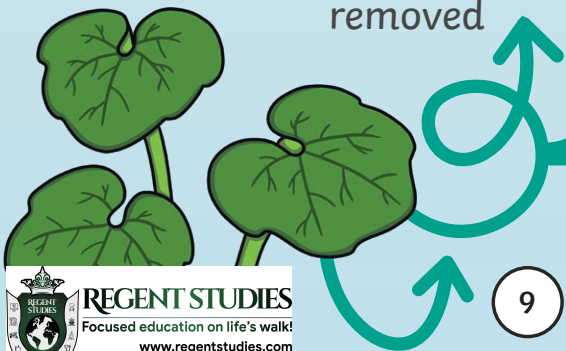


We call **waste** removal 'excretion'.

Plants need to remove their **waste** too! But plants don't eat food, so they don't **produce** the same type of **waste** that we do.

gases
removed

Instead, plants remove **gases** they don't need. They do this from their leaves.



9

Reproduction

Reproduce means to make more of something. Humans and other animals can **reproduce** by having babies.

Plants **reproduce** too. Seeds, bulbs and runners are used by different plants to help them to **reproduce**.

daffodil bulbs



dandelion seeds

strawberry
runners



10

LIFE CYCLE OF A BEAN PLANT

The seed is in the ground, waiting for the right **conditions** to grow.

After the seeds have been dispersed, some plants (such as the bean plant) die. Many others don't.

Seed dispersal is when the seed moves away from its plant. Seeds can be moved by the wind or by animals eating the fruit and dropping the seed in their poo!

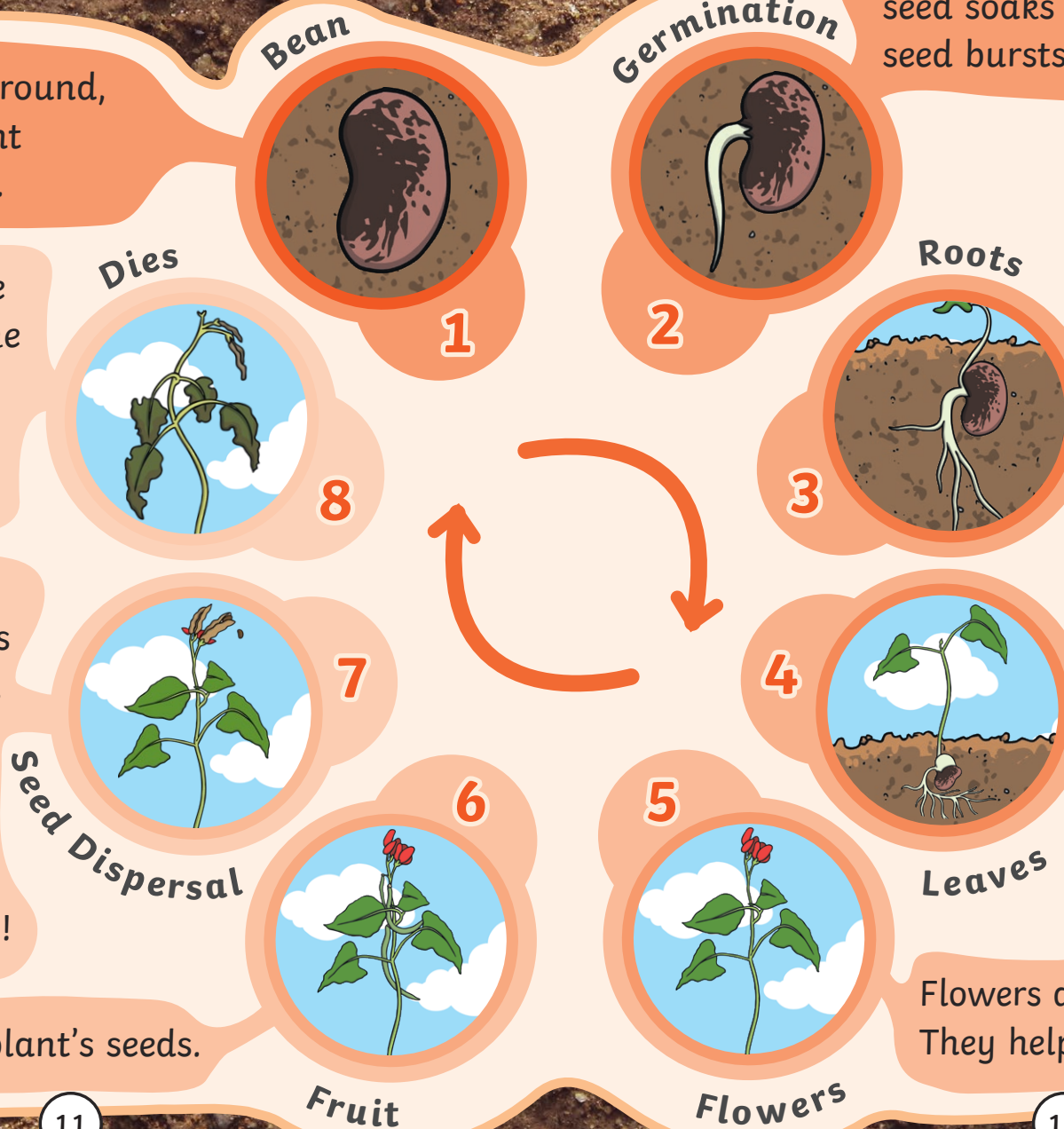
Fruit contains the plant's seeds.

When the **conditions** are right, the seed soaks up water and swells. The seed bursts open as it **germinates**.

The roots start to grow down into the soil. They help to keep the plant in the ground and also take in water and **nutrients**. A tiny shoot grows up from the seed.

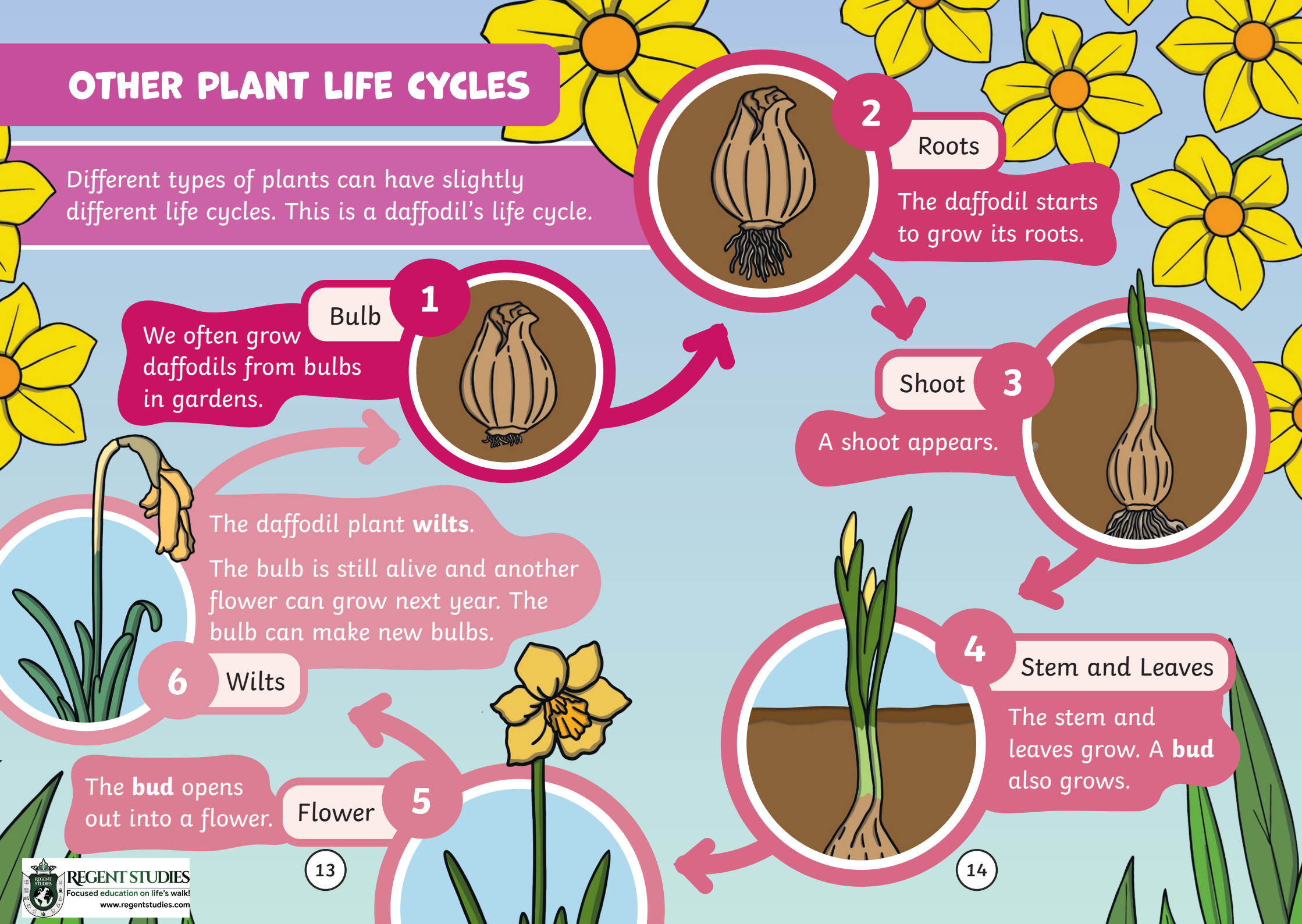
Once the shoot is big enough, leaves grow. The plant can make its own food when it has leaves.

Flowers attract bees and insects. They help the plants to make fruit.



OTHER PLANT LIFE CYCLES

Different types of plants can have slightly different life cycles. This is a daffodil's life cycle.



Bulb

1

We often grow daffodils from bulbs in gardens.



2

Roots

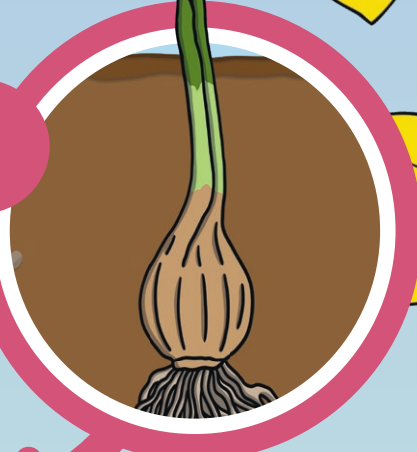
The daffodil starts to grow its roots.



Shoot

3

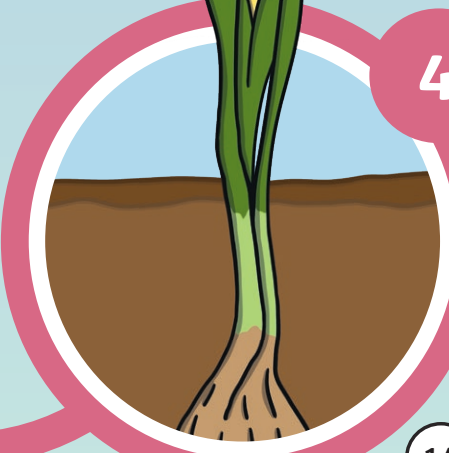
A shoot appears.



4

Stem and Leaves

The stem and leaves grow. A bud also grows.



Flower

5

The bud opens out into a flower.



6

Wilts

The daffodil plant wilts.

The bulb is still alive and another flower can grow next year. The bulb can make new bulbs.



This is an oak tree's life cycle.

Seed

1



Even a huge oak tree begins as a tiny seed. Oak trees produce fruit called acorns which contain the seeds to grow new oak trees.

2

Seedling



The acorn **germinates** and a **seedling** starts to grow.

3

Sapling



The **seedling** grows bigger and becomes a sapling (a young tree).

5

Seed Dispersal



Animals, such as squirrels, help to disperse the acorns.

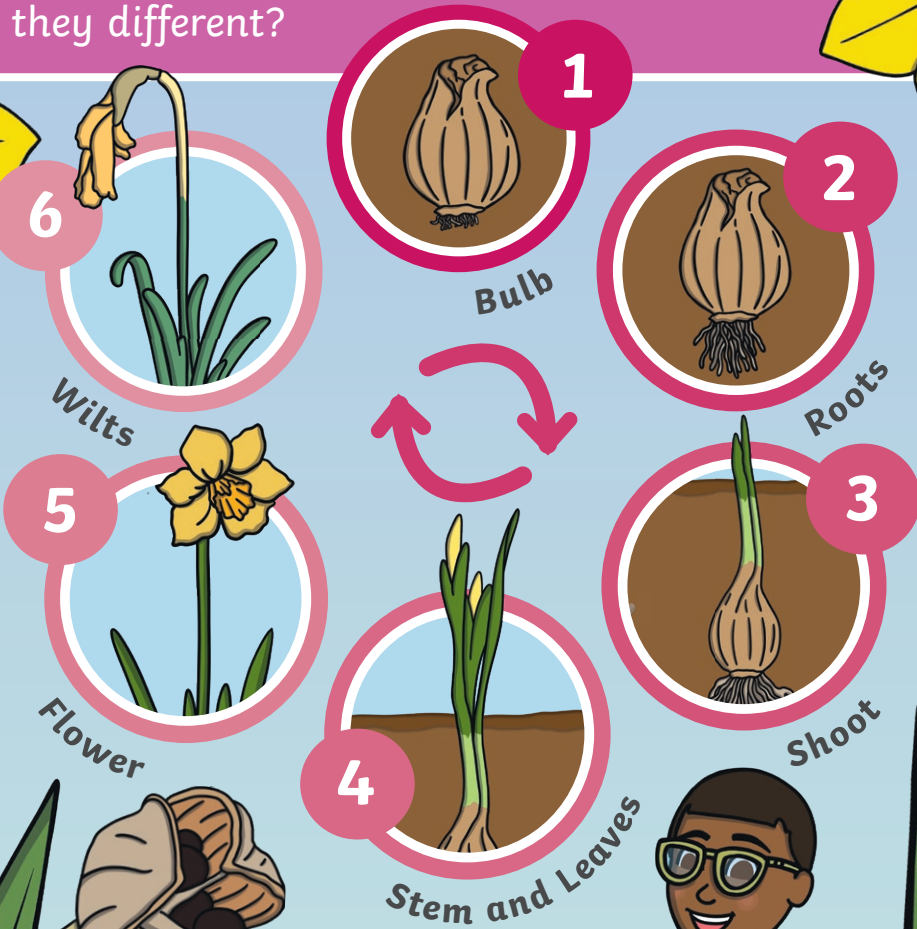
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Oak Tree



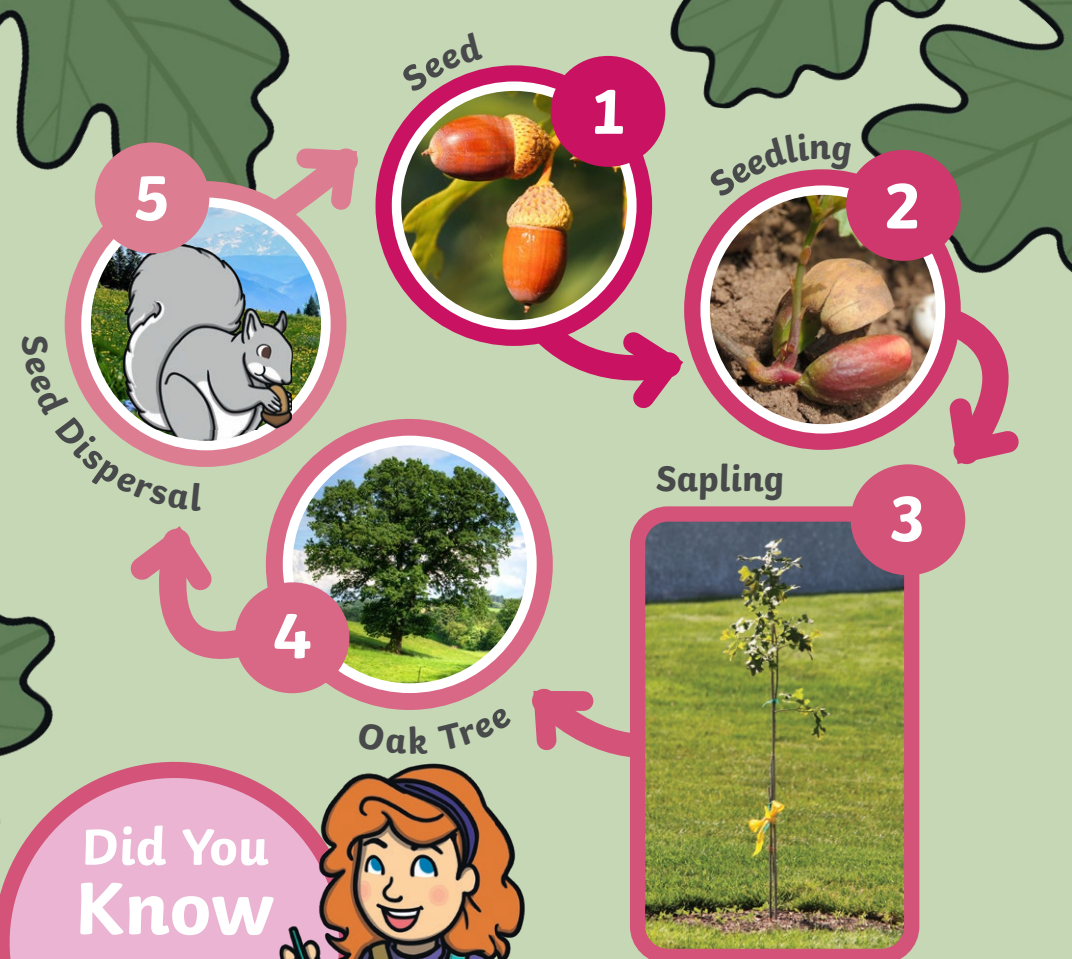
The sapling continues to grow and eventually becomes a fully-grown oak tree. The oak tree produces flowers and then acorns (the fruit).

How are the life cycles of a daffodil and an oak tree similar to one another? How are they different?



As well as making new bulbs from their bulb, daffodils can also make seeds and grow from them.

Did You Know ?



Did You Know ?

Oak trees can live for hundreds of years. When a very old oak tree dies, it **decomposes** and becomes a tree stump. Insects help the stump to **decompose** by eating the wood. As the tree **decomposes**, it adds **nutrients** to the soil which helps other trees to grow well.



WHAT DO PLANTS NEED TO GROW WELL?

Plants, like all living things, need the following things to help them to grow well.



Water

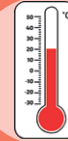
Plants need water to survive and cannot grow well without it.



Light



Without sunlight, plants cannot make their own food to help them to grow well.



The Right Temperature

Different plants grow better in different temperatures, but they all need their own correct temperature to grow well.

If it is too hot or too cold for them, they won't be able to grow well.



Space



Plants need space to grow. If there are too many plants in one place, it will be too crowded and they will not get enough of the things that they need. Too many other plants will be using those things too!



Air

Plants need **gases** called carbon dioxide and **oxygen** to survive. These can be found in the air.

WHAT HAPPENS IF PLANTS DON'T GET THE THINGS THEY NEED?

Water

Without water, seeds won't start to grow at all.

If a grown plant doesn't get enough water, its stem and leaves will droop. Often, its green leaves will turn yellow or brown and look dry, and eventually the plant will die.



However, plants can be given too much water! Different plants need different amounts of water and if they get too much then they can also become **wilted** and unhealthy, or even die.

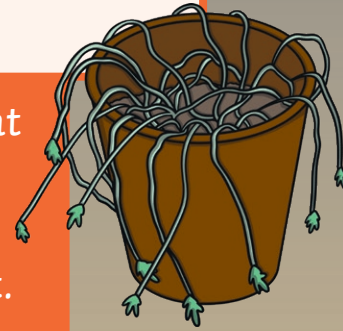


21

Light

Without sunlight, plants cannot make their own food and so do not get the full **nutrition** they need. Most seeds can begin to grow without light because they have a small store of food inside.

If young plants don't have light while they are growing, most will grow very tall and weak as they try to look for sunlight. Without it, they will die.



Did You Know?



Some seeds, such as poppy seeds, do need light to germinate. Their seeds are not planted in the ground, but are scattered on top of it instead so that the light can reach them.

22


WHERE DO PLANTS GROW?

Did you know that plants can grow in most **habitats** on Earth?

Rainforests

Rainforests are very wet and warm places because they are close to the **equator**, where there are warm temperatures and lots of rain.

They only cover a small amount of the Earth, but rainforests are home to over half of the world's **species** of plants and animals.

Key  = rainforest



The Amazon rainforest is home to more different types of animals and plants than any other place on Earth!

Why do many plants grow so well in rainforests?

As well as having lots of rain and a warm temperature, rainforests also have plenty of sunlight and enough space for many plants to grow well.

Did You Know



Cocoa trees grow wild in rainforests because the plant needs a warm temperature and plenty of water. The cocoa tree's fruits are called cocoa pods. They contain seeds that are used to make chocolate!

Deserts

Deserts are very hot during the day, very cold at night and very dry. Because of this, it is more difficult for most types of plants to grow well.



However, some types of plants have adapted to live there.

Joshua tree



The Joshua tree grows in desert areas in the USA and northern Mexico.

25

The jade plant grows in South Africa. It has fleshy, waxy leaves like many other desert plants. These leaves help it to hold water for a long time, so that it doesn't need very much rain.

jade plant



Did You Know ?

The living stone plant (or 'pebble plant') grows in southern Africa. Its two leaves are full of water, which helps it to survive in this dry, hot **habitat**. These unusual plants avoid being eaten by thirsty animals because their leaves look so much like rocks!

26

The prickly pear cactus grows in North and South America and the Caribbean. The plant's spikes help to keep hungry animals away!

prickly pear cactus



How do these leaves compare to other leaves you have seen?

The Arctic

Very cold, windy places such as the Arctic only have plants that have **adapted** to be able to survive there. Many types of Arctic plants can even grow under a layer of snow!

Arctic poppy



The Arctic poppy has a cup-shaped flower that follows the sun, just like a sunflower does. This helps it to get all the sunlight it needs and to stay warmer.

prairie crocus

The prairie crocus also grows in the Arctic. It is small, so can grow without much soil, and grows close to the ground to protect it from the wind.



Oceans

Plants that grow in the ocean need sunlight like all other plants, so only grow in water that sunlight can reach. Plants that grow deeper in the water, where it is darker, have **adapted** to need less light.

Oceans provide homes and important **nutrition** for ocean animals.



Neptune grass is a flowering plant that grows in shallow water so that it can get plenty of sunlight. It provides a home for many animals and also helps to hold sand in place, which is important for creating beaches.



Plants that grow underwater still need the **gases** that plants growing on land get from the air (**oxygen** and carbon dioxide) - they get these from the water.

Did You Know
?

WHAT WE KNOW ABOUT PLANTS

Plants can grow almost anywhere on Earth, from school playgrounds to tropical rainforests, baking hot deserts, deep oceans and even the freezing cold Arctic!

Plants are all similar in that they need water, air (carbon dioxide and **oxygen**), light, the right temperature and space to grow.



Plants start as small seeds or bulbs and grow bigger. They grow stems, leaves and sometimes, fruit and flowers. They **reproduce** to make new plants.

Plants can be very different to one another too! Some are tiny, whereas some grow to be very big. Some need lots of light to grow, whereas some have adapted to only need a little bit.

Plants are important to all life on Earth. They help to give all animals (including humans) the **oxygen** they need in the air they breathe.

Plants provide homes and **nutrition** for animals in many different places across the world.

Next time you're outside, look around you. How many different plants can you see?

QUIZ

1. Name two things that all living things have in common.
2. What is nutrition?
3. What is waste removal?
4. Name all five things that plants need to grow well.
5. What happens if a seed doesn't get water?
6. Why do plants need sunlight?
7. Why do plants need space to grow?
8. Describe the life cycle of a bean plant.
9. Name one plant that can grow somewhere hot and dry.
10. Explain one way that a plant has adapted to live in the cold Arctic.

Answers: 1) Two from: growing, moving, nutrition, reproduction and waste removal. 2) Nutrition is what all living things need to grow and stay healthy. 3) Waste removal is what living things do to remove the things they don't need. 4) Plants need water, sunlight, air, the right temperature and space. 5) If a seed doesn't get water then it won't germinate. 6) Plants need sunlight to make their own food. 7) If too many plants are in one place, they can't get enough of the things they need. 8) First the roots and shoot grow, then leaves, then flowers and then fruit. The seeds disperse and the cycle starts again. 9) One from: jade plant, prickly pear cactus, Joshua tree, living stone plant (pebble plant). 10) One from: The Arctic poppy has a cup-shaped flower that follows the sun to help it to get all the sunlight and warmth it needs. The prairie crocus is small, so can grow without much soil, and grows close to the ground to protect it from the wind.

GLOSSARY

- adapted** if a living thing is adapted to its habitat, it has special features that help it to survive there
- bud** a small part of a plant that develops into a flower, leaf or shoot
- conditions** the things around something that can affect it (temperature is part of the conditions that can affect plants)
- decompose** break down into very small parts - a tree decomposes into the soil when it dies
- equator** an imaginary line around the middle of the Earth that shows how it is divided into two equal parts ('hemispheres')

- gases** air is a mixture of gases, including oxygen and carbon dioxide
- germinate/germination** the process by which seeds begin to grow into plants
- habitat** the natural place that something lives in
- nutrition/nutrients** getting the right food needed for growing and staying healthy
- oxygen** needed by animals and plants to live, found in the air we breathe
- produce** to make something
- reproduce** when living things make new living things of the same kind
- seed dispersal** the movement or spread of seeds from a parent plant

GLOSSARY

- seedling** a young plant growing from a seed
- species** a kind or sort of something - a way of grouping things that have many similarities
- waste** waste is made of things that are no longer needed
- wilt** to become weak, droopy and begin to bend towards the ground

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There's More to Discover

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