

God is Provider (Creation Day 3) Year 6

Plants, Soil and Earthworms

God has provided plants for food, clothing and shelter. In the original creation Adam and Eve and all animals ate only plants. God told Adam to cultivate the soil. Only after the Great Flood was man given permissions to eat meat.

Key Questions

How does God provide my food?

How can I thank God for my food?

What did God mean when He asked man to cultivate the soil?

What did the first human beings eat according to the Bible? (Gen 1:29)

When did mankind start eating animals?

What problems can there be in trying to grow good crops?

Where did weeds and pests come from?

Were they in God's original perfect creation?

Activities

Plants

- Discuss the differences between the characteristics of plants and animals.
- Make a table of the various classes of plants: algae, fungi, mosses, ferns, conifers, flowering plants
- Examine the properties of plants: leaves, roots, stems, flowers, seeds
- Study how plants produce food by photosynthesis.
- Conduct an experiment to determine the requirements for plant growth: soil, water, light, air
- Grow seeds. Observe, measure and report on the growth rates of plants
- Classify plants according to their uses: food, shelter, shade, clothing.
- Discuss which animals eat plants. Make a list of herbivores, carnivores and omnivores.
- Draw some food chains showing the role of plants in food chains.
- Grow a vegetable garden. Add compost to one section and note difference in performance.
- Study the healing properties of native plants. Make a chart to show how these plants can be used to treat illnesses.

Soil

- Collect samples of soil from a variety of sources and place in jars. Include sand, clay, loam, broken down compost.
- Study soil samples using sight, smell and touch. Use a magnifying glass.
- Classify / list soil types and explain how they were formed.
- Explain the difference between topsoil and subsoil.
- Make soil from rocks by scraping soft sandstone, shale or limestone.
- Find out how well plants grow in different soil types e.g. fertile garden compost, clay, sand.
- Discuss the practice of allowing land to be fallow.
- List some of the reasons for soil erosion. List ways of preventing soil erosion e.g. planting trees.
- Research the role of earthworms in making the soil suitable for plant growth.
- Keep some earthworms in a worm farm. Feed them with compost.

Value education Year 6

God is Provider

Stewardship

Stewardship is...

- looking after the things we are given
- looking after the things we own
- looking after God's creation
- looking after our own bodies

Looking after your things

What things do you own that are of value?

How did you get them?

Why should we look after them?

Caring for our home and community

You might think that 'pride' is a bad thing. Pride is bad when you are proud of yourself and think you are better than everyone else; when you look down on others and think of your own importance. However, having pride in your home and community is different. This is a good thing because it is another way of saying we want to look after our home and community. We do not want to see it littered or damaged. We want to keep our home looking clean and tidy, and help to make it a better place.

Looking after our world

Discuss some of these questions:

How is our world different today to the original Creation?

Why is the world as it shouldn't be?

Why should we care for the environment?

Divide a piece of paper into two halves. On one side draw 'the world as it should be'; on the other side draw 'the world as it shouldn't be but is'.

What does the Bible say?

Psalm 24:1 The earth is the Lord's

Psalm 8; Genesis 1:1 What does looking after the environment have to do with God?

Art Year 6

God is Provider

Plants

Biblical wall art: "Give thanks to the Lord for He is good." Psalm 107:1

Students add drawings of the things God has provided for us, including plant foods such as fruits, vegetables and grains.

Drawing

Students can draw the food served at the Passover meal.

Painting

Encourage students to look at the fine detail of flowers and leaves, and use these shapes as a basis for their art work. They should create the background first and then the plant detail on the background.

Collage

Tissue paper collage to create plants

Printing

Leaf prints as part of a design, on a painted background.



Practical Science 1

Potato shoot experiment

<http://www.kidspot.com.au/kids-activities-and-games/Science-experiments+10/Potato-shoot-experiment+10983.htm?>

What you need:

- a shooting potato (one that has little white shoots growing out of it)
- a shoe box
- scissors
- rocks

What to do:

Cut a small coin-size hole in the short end of the shoe box.

Put a handful of potting mix in the corner of the box opposite the hole you have made.

Lay the potato in the soil.

Put the rocks in the box with the potato to create 'obstacles'.

Put the lid on the box and put it somewhere where there is plenty of light.

After 4 weeks, open the box and you'll see that the potato shoot has made its way around and over the rocks to reach the hole where the sunlight is coming in.

Why?

Plants have cells that are sensitive to light and tell the plant which way to grow.

Plants will always grow toward the light.

The shoe box had a tiny hole of light and the potato shoot twisted until it reached the light.

Practical Science 2: Plants

Plant Seeds & Watch Them Grow

<http://www.sciencekids.co.nz/experiments/seedgermination.html>

Plant some seeds and follow the growth of the seedlings as they sprout from the soil while making sure to take proper care of them with just the right amount of light, heat and water. Have fun growing plants with this cool science project for children.

What you'll need:

- Fresh seeds of your choice such as pumpkins seeds, sunflower seeds, lima beans or pinto beans.
- Good quality soil (loose, aerated, lots of peat moss), if you don't have any you can buy some potting soil at your local garden store.
- A container to hold the soil and your seeds.
- Water.
- Light and heat.

Instructions:

1. Fill the container with soil.
2. Plant the seeds inside the soil.
3. Place the container somewhere warm, sunlight is good but try to avoid too much direct sunlight, a window sill is a good spot.
4. Keep the soil moist by watering it every day (be careful not to use too much water).
5. Record your observations as the seeds germinate and seedlings begin to sprout from the seeds.

What's happening?

Hopefully after a week of looking after them, your seedlings will be on their way. Germination is the process of a plant emerging from a seed and beginning to grow. For seedlings to grow properly from a seed they need the right conditions. Water and oxygen are required for seeds to germinate. Many seeds germinate at a temperature just above normal room temperature but others respond better to warmer temperatures, cooler temperatures or even changes in temperature. While light can be an important trigger for germination, some seeds actually need darkness to germinate, if you buy seeds it should mention the requirements for that specific type of seed in the instructions.

Continue to look after your seedlings and monitor their growth. For further experiments you could compare the growth rates of different types of seeds or the effect of different conditions on their growth.

Practical Science 3: Plants

Capillary action

<http://www.sciencekids.co.nz/experiments/escapingwater.html>

What you'll need:

- A glass of water
- An empty glass
- Some paper towels

Instructions:

1. Twist a couple of pieces of paper towel together until it forms something that looks a little like a piece of rope, this will be the 'wick' that will absorb and transfer the water (a bit like the wick on a candle transferring the wax to the flame).
2. Place one end of the paper towels into the glass filled with water and the other into the empty glass.
3. Watch what happens (this experiment takes a little bit of patience).

What's happening?

Your paper towel rope (or wick) starts getting wet, after a few minutes you will notice that the empty glass is starting to fill with water, it keeps filling until there is an even amount of water in each glass, how does this happen?

This process is called 'capillary action', the water uses this process to move along the tiny gaps in the fibre of the paper towels. It occurs due to the adhesive force between the water and the paper towel being stronger than the cohesive forces inside the water itself. This process can also be seen in plants where moisture travels from the roots to the rest of the plant.

Practical Science 4: Plants

Paper Petals

Give a paper flower a drink.

What you need:

- White paper
- Colouring pens
- Scissors
- Plate
- Water

Instructions:

1. Draw a flower shape onto a piece of paper.
2. Colour in the flower. Use which ever colours you like best.
3. Carefully cut around the petals of the flowers.
4. Carefully fold in the petals, one on top of the other.
5. Pour some water onto the plate, and float the flower in the middle. What happens?

How it works:

In dry weather, when flowers are short of water, they usually close up their petals. After a shower of rain, the petals will open up, just like those on your paper flower.

Practical Science 5: Soil

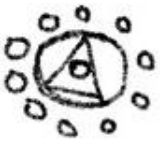
Soil Experiment 1

Conduct experiment to show the different types of soil particles. Place soil and water in a jar and shake. Allow soil to settle. Watch heavier particles settling first and lighter particles settling last.

Soil Experiment 2

Conduct experiment to show that soil contains air. Place soil in glass jar and slowly pour water over it. Observe rising air bubbles.

Thinking Skills Provider Yr 6

<p>Plants 1</p> <p>Invent 5 unusual ways of using fallen leaves.</p>	<p>Plants 2</p> <p>What if humans had roots like trees?</p> <p>List 5 problems with this.</p>
<p>Plants 3</p> <p>List 5 plants that should NEVER be planted in a school garden.</p>	<p>Plants 4</p> <p>Imagine what the world would be like without the colour green.</p> <p>Give 3 reasons why this would be a bad thing.</p>
<p>Plants 5</p> <p>Work out 5 different things that this picture could represent. It has to be something to do with plants.</p> 	<p>Plants 6</p> <p>The answer is God is the Creator.</p> <p>Write 5 questions.</p> <p>Clue: start questions with who or how.</p>

Jan and Antonina Zabinski

Jan Zabinski (8 April 1897 – 26 July 1974) and Antonina Zabinski (1908–1971) were a married Christian couple from Warsaw, Poland.

Jan was a zoologist; Antonina was an animal lover. They started the zoo in Warsaw, Poland in 1935. The zoo attracted many visitors. The animals were well cared for, and Antonina had a special gift with animals.

In 1939, the German army under Hitler occupied Poland. Hitler wanted the zoo for two reasons. Firstly, he wanted to take the best animals to Germany for breeding and genetics experiments. Secondly, he wanted to convert the zoo property into a factory to make weapons for the war.

German planes were sent to bomb Warsaw. The zoo was bombed. Many animals were killed, and many escaped. The ones that escaped were shot. Jan and Antonina set to work and made repairs to the broken animal cages to provide places for the remaining animals. But the German army soon came again and told them that the zoo was now the property of the Nazi Germany, and all the remaining animals had to be shot, except for a few that they would take to the German zoo for breeding. Now the zoo had no animals.

Meanwhile, Hitler was carrying out his evil master plan. He wanted to kill all Jews living in Europe. There were many at that time living in Germany and Poland. Hitler had ordered all Jews to leave their homes and move into settlements of poorly built housing called a 'ghettos'. The living conditions were terrible, with overcrowding, poor sanitation, and little food or water. Many died of sickness or starvation.

The ghettos were only the first stage of Hitler's evil plan. Soon there would be no ghettos at all. All the ghettos would be destroyed and the Jews would be taken to concentration camps. Concentration camps were work camps with even more terrible conditions. Most of the Jews in these camps died.

Jan and Antonina knew of Hitler's plan. Their best friends were Jews and they lived in the Warsaw ghetto. Jan and Antonina wanted to help their friends by getting them to come and live with them. The problem was, any Polish person found with Jews living in their house would be shot. Jan and Antonina wanted to save as many Jews as they could. But how could they do this? They came up with their own plan.

They convinced the German officials to allow them to convert the zoo into a pig farm, instead of converting it into a factory to make weapons. The pig farm could provide meat for the German soldiers. Jan explained that he would need food for the pigs, and he could get food by collecting the food scraps from the ghetto. The German authorities agreed to the plan.

Antonina got busy and made hiding places for Jews in their basement and also converted animal shelters into hiding places.

Pigs were brought into the zoo to be cared for by Jan, who would make daily trips in his truck to the ghetto to collect the scraps. Each time, he would rescue two or three people, by getting them to lay down at the bottom of the truck. Then he would tip out the buckets of scraps on top of the people lying in the truck. They were covered with scraps, and when they passed through the checkpoint for inspection, all the German guards saw

was a pile of vegetable scraps. When they arrived back at the zoo, the rescued Jews quickly got out of the truck and ran through an underground tunnel to Antonina who found them a hiding place.

The Jews hiding in the basement and in the animal shelters were Antonina's guests. She fed them and clothed them, and looked after them. Every day, they had to be extremely quiet from early morning until midnight. At midnight, the German guards came off duty, so this is when the guests could come out of hiding and eat and drink... then back to their hiding place at dawn, when the guards were back on duty.

Antonina used her piano as a signal to alert the guests of danger. She would keep watch from her window, and if she saw German guards coming, she would play her piano, so that the guests would know to keep very quiet and still.

In 1944 there was a battle between the German troops and members of the Polish resistance. Jan was part of this group. In the battle, he was shot in the neck, although not killed. He was taken hostage, leaving Antonina to care for the house and the guests. For at least a year she had no word of Jan. She did not know whether he was dead or alive.

When the war came to an end in 1945, Jan returned from the Prisoner of War camp. He was reunited with Antonina and their two children. They worked hard to rebuild the zoo. The Jewish guests moved on to rebuild their lives as well. Over a period of three years, from 1942 to 1945, Jan and Antonina saved hundreds of Jews.

On October 30, 1968, a tree planting ceremony was held at Yad Vashem, a world Holocaust remembrance centre in Israel, honoring them as *Righteous Among the Nations* for their heroic rescue of Jews during World War 2.

The Warsaw zoo still exists today and receives many visitors.

Discussion

Throughout history, the Jews have been under attack. Satan knows that God has a special plan for the Jews in the future history of the world. Satan does all he can to stop God's plan, and he will do so until one day he will be thrown into the lake of fire and destroyed.

Throughout history Satan has worked through various people, to try to destroy the Jews. Hitler has so far been the most evil of these. He murdered around 6 million Jews in an event in history called the Holocaust.

Although the Jews have suffered much, they have not been destroyed, and after World War 2 those who survived the Holocaust returned to the Middle East to reclaim their own land, Israel. God's plans cannot be destroyed by Satan, God, in His wisdom, has used the willing hearts of Christian people, such as Jan and Antonina, to fight for the Jews. God used Christians to save Jews during the Second World War.

Plants 1

God gives life to plants

Student activities

In the beginning God made the heavens and the earth. On the first day He separated the light from darkness. There was night and day. There was no sun yet, but God was the light. On the second day God divided the water and land. There was now soil for plants to grow in, and water to keep the plants alive. But the plants were not on the earth yet. On the third day God created plants. On the third day the earth had everything that plants needed:

- *Light and warmth (God was the light)*
- *Air*
- *Soil*
- *Water*

Parts of a plant

Draw a plant, show and label these parts:

Roots

Most plants have roots. Their roots go into the soil and hold them in the ground. Roots get food and water for the plant. The food and water come from the ground. Some roots are long and thick. Some roots are short and thin.

Why does a plant have roots?

Leaves

Most plants also have leaves. Leaves are nearly always green. Food is made in the green parts of the plant.

Where does the plant's food come from? (two answers)

Stems

Stems grow up from the roots. They take food and water to the leaves. They lift up the leaves into the sunlight.

Why do stems need to be strong?

Flowers, seeds and fruit

These allow a new plant to grow.

Plants 2

Food and water for life

Plants need food and water to keep them alive. Their food is sugar which they make in their leaves. People need food and water to stay alive too. But we don't just need food and water that goes into our stomachs. We need a type of food and water we cannot see. The Bible is *like* a food because it helps us get through life, just as food helps us get through the day. The Bible has the information we need for eternal life. 1 Peter 2:2 tells us that just as new born babies love milk, we should love God's word, the Bible, because by learning from it, we can *grow* into the people that God wants us to be.

Why is the Bible important for life?

Plants need water to stay alive

Plants need water. If a plant does not get water it will die. Jesus told us about a different kind of water. It is called the water of life. You cannot see it. It is something you have to pray for. It's a special something that Jesus gives you when you really love him. It is the Holy Spirit, which can live in us. Just as plants need water to stay alive, we need the Holy Spirit to help us through life. The Holy Spirit is God's spirit. He helps us do what Jesus would do. (John 4:7-29)

What is the water of life that Jesus gives?

Plants 3

Plants need air to stay alive

We know that the leaves of a plant make food for the plant. The plant uses sunlight to make the food. The leaves also help the plant get air. A plant breathes with its leaves and its stalk, a bit like we breathe with our lungs. Some plants have thick leaves. Some plants have thin leaves. A plant cannot live without air. People cannot live without air. But if a person wants to live forever in Heaven, then they must have Jesus. Jesus is just as important as air.

How does a plant breathe?

Plants need stems to stay alive

Some plants are big and some are small. A plant is held up by its stalk or stem. But if it is a very big plant, like a tree, the stalk is called a trunk. Grapes grow on grape vines. The branches of the vine grow out from one main thick stem. Jesus said that he is the true vine. He is like the main stem of the vine, and we are the branches. He holds us up and helps us through life when we stay connected to him. We can read about this in John 15 verses 5-10.

What is the job of the stem?

Why do the leaves need to be held up?

What is the stem of a tree called?

What is the stem of the grape plant called?



JESUS
is the vine,
we are the branches

Plants 4

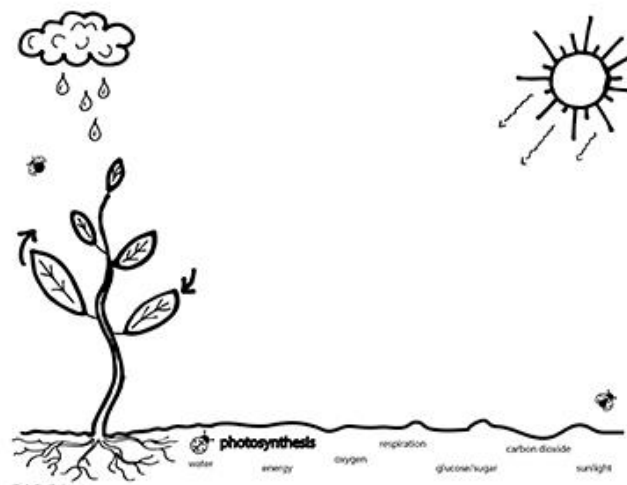
How plants make food

All living things need energy to live, and energy comes from food. But, have you ever seen plants munching on food? No. Plants get their energy in a different way. They use *photosynthesis*. Here's how it works:

Plants take water from the soil through their roots. The water goes to the leaves. The leaves take carbon dioxide (a gas) from the air into the plant. The carbon dioxide mixes with the water. The green part of the plant, called chlorophyll, traps the energy from the sun. Energy from the sun helps the plant make food in the leaves. The food is a sugar called glucose. The glucose is plant food. It gives the plants energy to grow.

When plants take carbon dioxide from the air, they release oxygen (the main gas in the air). Animals and humans use this oxygen to breathe and grow. We breathe out carbon dioxide, which the plants use. Too much carbon dioxide in the air would not be good for us, but that's OK because the plants need it and use it. That keeps the air fresh.

1. What are four things a plant needs to make its food?
2. How do plants help us to breathe and grow?
3. How do plants help to keep the air fresh?



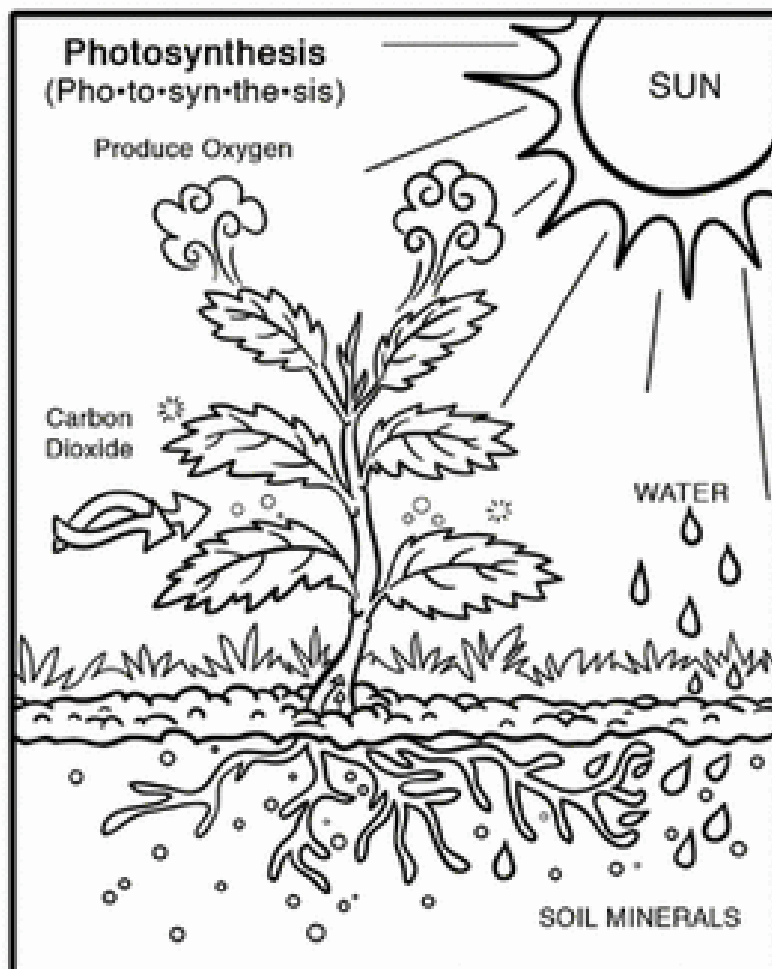
Photosynthesis

“Photo” means “light” and “synthesis” means “to make”; so, photosynthesis is the way plants make food for themselves using light.

The food is made in the green parts of the plant, like the leaves. The green part of the plant contains a green substance called “chlorophyll” which makes food for the plant when the sun shines on it.

The leaves have little pores (openings) which take in a gas called carbon dioxide from the air. The roots take up water from the ground. The chlorophyll changes the water and carbon dioxide into food the plant needs. This food is a kind of sugar called glucose. The whole process of making food is called photosynthesis. While this is happening, the leaves give off a gas called oxygen.

Isn't God amazing! The oxygen part of the air we breathe is what we need to stay alive. When we breathe in, our bodies use oxygen in the air, and then we breathe out the waste gas called carbon dioxide. Carbon dioxide is not good for us, but perfect for plants. Plants use it to make fresh air for us!



Rewrite the following, filling in the missing words. Choose from the words at the bottom of the page.

Leaves help to make _____ for the plant.

They contain a green substance called chlorophyll.

The leaves take in a gas called _____.

The roots take in _____ and other substances from the ground.

The _____ changes the water and carbon dioxide into the food that the plant needs. The food is a kind of sugar called _____.

This whole process of making food is called _____.

While this is happening, the leaves give off a gas called _____.

Missing words: (jumbled order)

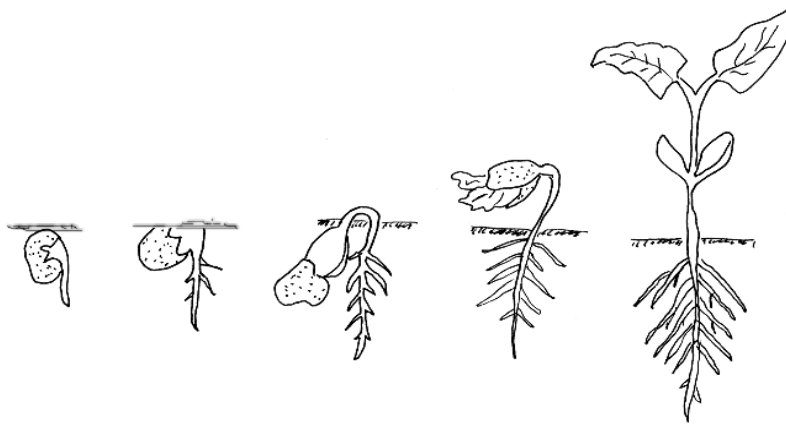
oxygen, carbon dioxide, photosynthesis, water, food, chlorophyll, glucose

Make an equation for photosynthesis:

_____ + _____ with sunlight → _____ + _____

Plants 5

Plant a bean seed



Draw the diagram and label it using the words in bold words below.

Stage 1: the skin splits and soaks up moisture. Then a little white **root** appears. The root points down and pushes down through the soil.

Stage 2: a white **shoot** pushes upwards into the air.

Stage 3: tiny **hairs** grow out from the root and these suck in water and food from the soil.

Stage 4: two thick leaves from the seed. These are called the **seed-leaves**. They give food to the plant.

Stage 5: The plant grows **true leaves** and can make its own food.

1. *Copy and choose the correct word:* The root grows (up / down)
2. How does a seed take in moisture at first?
3. How does the seed take up moisture later on?
4. What do the see-leaves do?
5. What can the plant do once it grows true leaves?

Plants 6

Seeds are different shapes and sizes

Nearly all the plants around us started as seeds. Seeds are different shapes and sizes, but they are alike in two ways.

- A seed always contains the young plant, called the *embryo*. It is inside the seed.
- The seed contains food for the young plant to live on, before it can make its own food.

Draw some seeds you know to show their different shapes. Try to draw them the right size too. Here are some examples: pea, apple, pumpkin, tomato, bean, orange, watermelon, lettuce.

Copy:

Seeds are alike on two ways:

- a) The seed contains the _____ .
This is called the em _ _ _ _ .
- b) The seed contains a supply of _____ .

Why does the embryo need food from the seed?

Draw this seed and label the embryo.



Plants 7

Seeds have a hard coat

If you look at a seed closely and feel it, you will notice that it is hard and dry. The hard coat protects the young plant inside from hard. On the outside of the seed you will see a little scar. This is where it was attached to the stalk while it was growing on the parent plant. On the hard coat you will also find a little hole. It is here that the water gets into the seed when it is planted.

Why did God give seeds a hard coat?

Ephesians 6 says "Put on the whole armour of God so that you may stand against the arrows that the devil fires at you."

What is a hard coat that we can put on to protect us from fiery darts of evil?

Copy:

The little scar on the outside of the seed is where it was _____
to the stalk when it was growing on the _____ plant.

Draw some peas growing in a pod. Show the little stalks attaching the peas to the pod.

Copy:

The little hole on the hard coat of the seed is where the _____
gets into the seed.



Plants 8

Germination

When a seed starts to grow into a plant, we say that it has germinated. Before it can do this it must have three things: water, warmth and oxygen. Yes a seed needs oxygen just as we need it. The oxygen comes from the air in between the soil particles. The water comes from the moisture in the soil, and of course the warmth comes from the sun.

1. We say that a seed has germinated when

2. Add "ion" and "ing" to make words:

germinat _ _ _

germinat _ _ _

3. Before a seed can _____ it needs three things:

a)

b)

c)

4. A seed gets oxygen from the _____. Draw the soil showing small particles with air between them.

5. How does a seed get the moisture it needs for germinating?

6. How does a seed get the warmth it needs for germinating?

Plants 9

How seeds travel

Think about what would happen if seeds didn't travel. What do you think would happen if seeds dropped to the ground only directly below the plant?

Seeds have special devices for making them travel faster through the air. Here are some:

- a) wings
- b) bits of fluff
- c) parachutes

Find out which seeds have these devices, then draw and name them. Make a collection if you can.

Seeds have another way of traveling. They can get a ride on people or animals. These seeds can have:

- a) bristles
- b) hooks
- c) gluey coats

Find out which plants have these, draw and name them.

Some seeds travel by floating on the sea or down a river. It may be the fruit that floats, and the seeds get a ride inside the fruit. Coconuts do this.

Find out which fruits or seeds float. Draw and name them.

Some seeds can act like rockets. As soon as they are ripe, the cases enclosing them become dry and brittle and snap open. The seeds shoot out in all directions.

Find out which seeds act like a rocket. Draw and name them.

Plants 10

God is a Provider

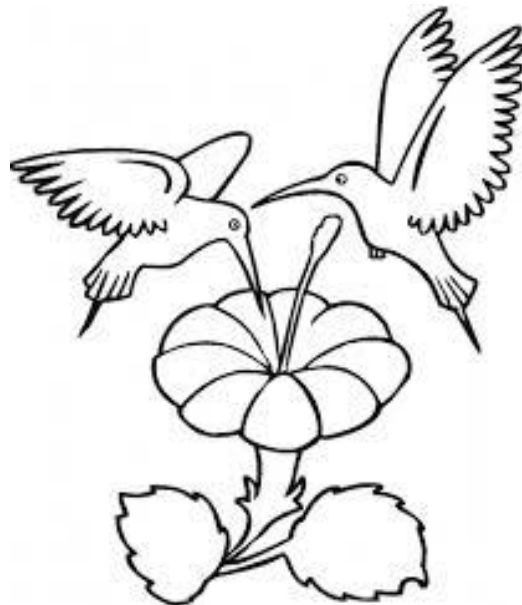
We can see how God has planned for new plants to grow from seeds. God provides everything the seed needs, even before it can make food for itself. God provides for new born babies too, by giving them milk to drink from Mum. Babies cannot get food for themselves, so God provides.

How does God use the following to provide for you? (Write one sentence for each.)

- a) parents
- b) plants
- c) animals
- d) the sun
- e) the earth
- f) the sky

God looks after his creation. He says, "Look at the flowers. Aren't they dressed in beautiful colours? I look after them. Look at the birds. They don't make their own food but I look after them. And I look after you, so don't worry about anything!"
(Matthew 6:25 – 31)

How do you know that God will look after you?



Plants 11

Plants we eat: Roots, stems and seeds

Carrots are roots. Because root vegetables grow underground, they absorb a great amount of nutrients from the soil.

Some vegetables that grow underground are swollen parts of underground stems called tubers. Examples of these are potato, taro, yams and taro.

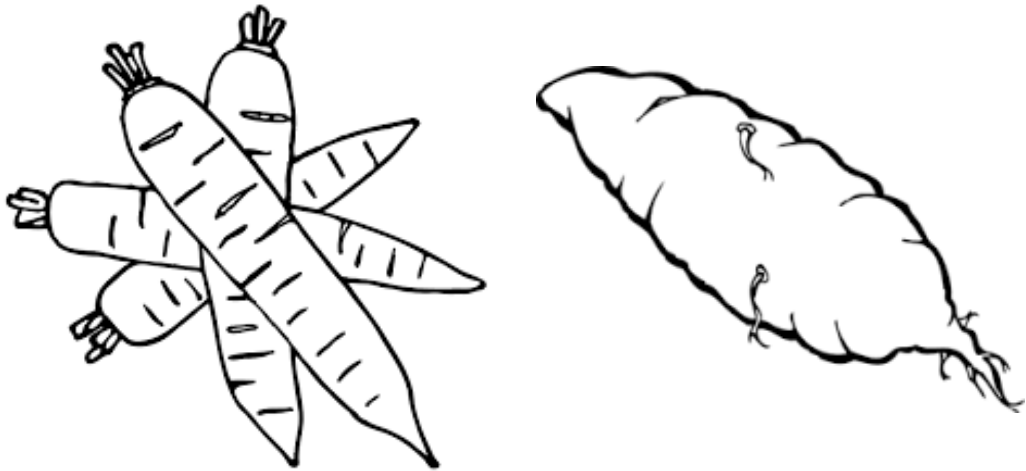
Onions and garlic grow underground too but are actually bulbs.

Sugar cane is an example of a stem foods growing above the ground.

Draw and label some roots and stems that we eat. Draw them growing underground or above ground.

There are many seeds that we eat. Seeds are found inside the fruit. For example, wheat, rice, corn, beans, peas and even coconuts are seeds. Nuts are also seeds from fruits.

Draw and label some seeds that we eat.



Plants 12

Plants we eat: leaves, flowers and fruits

Some of the leafy vegetables are cabbage, spinach, lettuce, coriander. The green leaves have many nutrients.

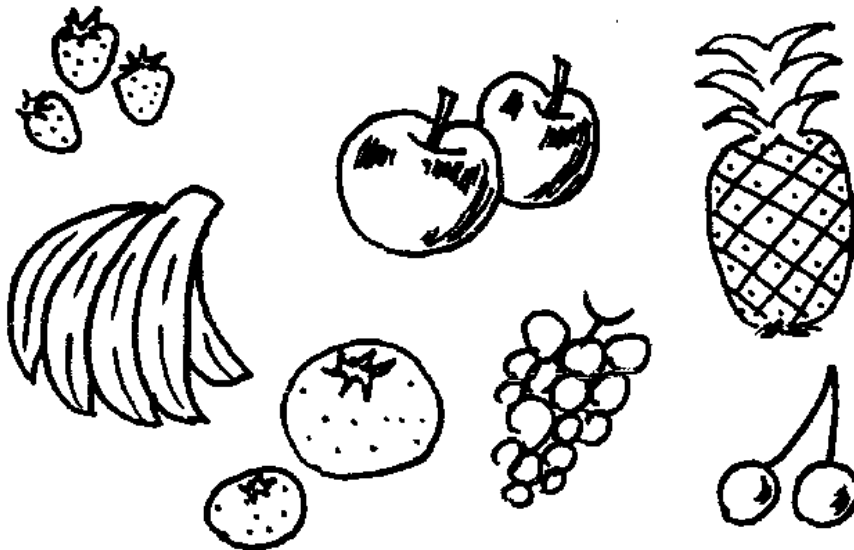
Broccoli and cauliflower are examples of the flower of the plant.

Draw and label some vegetables that are actually leaves or flowers.

There are many fruits that God has provided for us to eat. Did you know that tomatoes and pumpkin are technically fruits? We call them vegetables because they are not sweet like mangoes and pineapples.

There are many sweet fruits: pineapple, mango, papaya, bananas, guava, bread fruit, apples, pears, oranges, lemons, berries and many more.

Draw and label some fruits that we eat.



Plants 13: The Plant World

Scientists divide plants into two groups.







1. The plants that produce seeds to make new plants
2. The plants that do not produce seeds.

Plants that make seeds are plants with flowers and cones.

Plants that do not make seeds have other ways of making new plants. Ferns for example, make fronds, which drop on the ground to make new ferns. Potatoes have underground stems. Parts of the stem develop tubers, which are food stores for the plant. The potato we eat is a tuber. It has 'eyes' which grow shoots and make new plants. Moss and mushrooms do not make seeds. Find out how they produce new plants.

Make a chart of the two kinds of plants.

Put "plants that produce seeds" on one side and "plants that do not produce seeds" on the other side. Draw pictures and write a sentence about each plant you choose.

<p style="text-align: center;">Dandelion</p> <p>My yellow flower opens in the morning and closes in the evening.</p> 	<p style="text-align: center;">Fern</p> <p>My leaves are called fronds. I do not have cones or flowers.</p> 	<p style="text-align: center;">Fir Tree</p> <p>My leaves are needles. My seeds form in cones.</p> 
<p style="text-align: center;">Pine Tree</p> <p>My seeds fall out from between the scales of my cones.</p> 	<p style="text-align: center;">Tomato</p> <p>My small flowers develop into tomatoes that carry my seeds.</p> 	<p style="text-align: center;">Moss</p> <p>I grow on rocks or logs. I do not produce seeds.</p> 

Plants 14: How earthworms help us

Worms that live in the ground are some of our most useful helpers. You know how important it is to loosen-up the soil before planting? Earthworms help us by loosening up the soil for us.

First the earthworm burrows down into the soil, and then he eats large quantities of it. He eats pieces of decaying leaves and plant material that are useful to him as food. The soil and decaying matter pass through the earthworm and comes out as fine crumbly material called 'castings'.

When an earthworm burrows into the earth making little tunnels, the earth walls don't cave in. This is because the earthworm has special glands that give off a special cement. As he chews his way through the soil the cement sticks to the walls of his tunnel. An earthworm can dig and gobble two and a half metres in four days! The tunnels important to plants because air can get into the roots, gases can escape from the soil and rainwater can drain away.

1. What very important job does the earthworm do for us?
2. How does an earthworm loosen up the soil?
3. Draw and name some of the decaying (dying) matter in the soil that would be good food for an earthworm. Think of a compost heap.
4. How does the soil look when it comes out of the earthworm?

Earthworm questions and answers

1. How far can an earthworm dig and gobble in four days?

Answer: two and a half metres

2. Why are the tunnels important to plants?

Answer: air can get into the roots, gases can escape from the soil and rainwater can drain away.

3. What are the two colours that earthworms can be?

Answer: reddish brown or grey

4. What is the job of the red earthworm?

Answer: to bring good soil to the top of the ground.

5. What is the job of the grey earthworm?

Answer: To release his soil underground.

6. Where would you find a lot of worms together?

Answer: In a compost heap or where there is lots of dead plant material

