

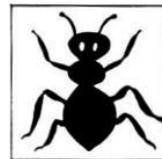
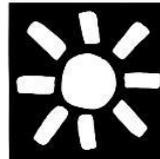
# Science and Social Studies

## Year 6 Term 3

### Student Book

#### TERM 3

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A Servant (4 weeks)		20



# God is Creator – Creators and Builders Part 2

## Spiders 1

### A good place to build a web

A spider is a creator and a builder. God has given the spider the ability to make the web, but the way she does it is left to the spider to decide.

A spider builds her home on the things she finds around her. Here are some of the things spiders build their webs upon. Write down any others that you can think of.

- twigs and branches
- leaves
- window frames
- ceilings and walls

Now draw some spiders webs built upon these things, and write the heading, "A good place for a spider's web".

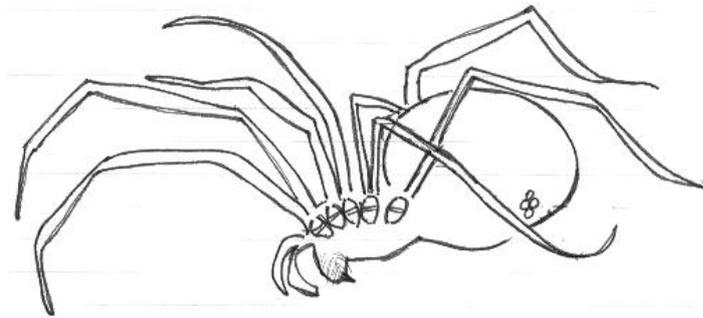


## Spiders 2

### Spider webs are sticky

The threads for the web come from the spider's body. Spiders' webs are built for catching flies or other insects for food. The spider waits in hiding and it feels if anything touches the web. When a fly is caught, the spider may wrap it up in sticky threads to take to its hiding place.

1. Why do you think spider's webs need to be sticky?
2. How does a spider catch its food?
3. At the end of a spider's abdomen is a factory for making silk. There are several nozzles called spinnerets. Draw a spider showing the spinnerets.



## Spiders 3

### Patient and diligent

If you brush away a spider's web from the corner of your ceiling, what will the spider do? Soon you will have to do your cleaning all over again. A spider never gives up building her home. We can learn from the example of a spider.

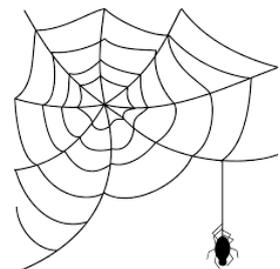
It is important to keep trying, even when you think you have ~~failed~~.

A spider doesn't take long to build a web. As soon as the web is damaged it eats the old one and spins a new one. It doesn't give up.

A spider works with patience and diligence. This means it puts in a lot of effort. We can learn about diligence from the spider. It is important to do a job well and keep going right to the very end of the job, just like the spider.

Have you ever seen two spiders working on the one web? No, this doesn't happen. A spider works by herself with patience and diligence.

1. How can we learn from the spider?
2. Write down something that *you* need to keep trying at.
3. Name a job that you have to finish on your own.

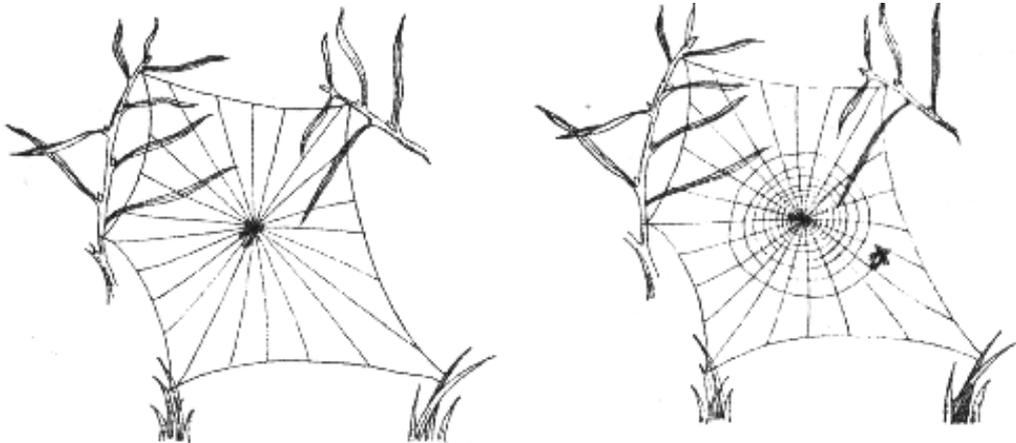


## Spiders 4

### How does a spider build a web?

Spiders' webs are strong and sticky. It is the lady spider who builds the web. First she chooses a good spot, and here she attaches the beginning of her web. Dangling on the end of the first thread, she now drops to the ground, or to a blade of grass, or a branch. Then she climbs back again, and waits for some wind to help her get across to something else, and so on until she has an outline for her web. Then she fills in the outline with threads running up and down, in every direction, all of them crossing one another like the spokes of a wheel.

Then she goes to the centre and takes the thread round and round in a spiral. Lastly, she goes over it again with a new sticky thread.



1. Two words to describe the spider's web: st and st
2. Who builds the web? Male or female?
3. After she chooses a good spot she dangles on the end of a \_\_\_\_\_ coming from her body.

## Spiders 5

### Designed by God

Do you know how many legs a spider has? A spider has eight legs. Spiders are not insects because all insects have six legs. Spiders are in a special family of their own called arachnids. There is another difference too. Insects have three parts to their bodies, but spiders have only two. Nearly all insects have wings but spiders have none.

Insects change in some way before they take their adult shape. Think about a caterpillar and how it changes to a butterfly. Little spiders, however, hatch straight away from the egg.

Although spiders do not change shape, they do grow bigger. To do this, they burst out of their hard skins, and grow new ones.

1. What is the difference between spiders and insects?
2. What happens to a spider's skin when the spider grows?



We read in the Bible: *Ask the animals, and they will teach you that God's hand can be seen in all His marvelous creation. (Job 12:7)*

## Spiders 6

### A house for spiders

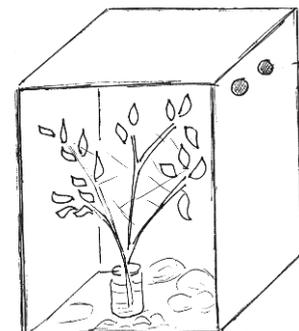
You can easily keep a house spider for a short time in a big glass container with air holes in the lid. Give it some water, somewhere to shelter and some insects for food.

What spiders eat

Spiders like their food to be alive when it is caught in the web, so you will have to catch small flies for them. They need water too, so sprinkle some spots of water on the home occasionally. Spiders are carnivorous. That means they eat meat, and might even eat each other!

The spider sucks juices from the insects and leaves the bodies. It can last a long time without food. You might see your spider spin a web. It is a good idea not to put two spiders together in the same jar, because female spiders will eat male spiders if they get a chance!

1. What do you need to make a spider house?
2. What do spiders eat?
3. How do they eat their food?
4. Why shouldn't you put two spiders in the same jar?



## **Spiders 7**

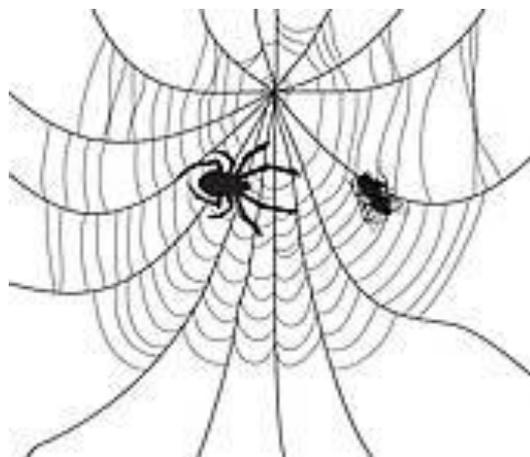
### **Spiders help us.**

Spiders seem rather nasty creatures because they eat insects, but really, they are a help to gardeners. The spiders keep down the insect population, which would otherwise eat our flowers and vegetables. If there were no spiders, there would be too many insects.

Spiders also help us because they eat many insects that are harmful to humans. Think about flies, which eat our food and carry germs, and also insects which suck our blood and can carry disease.

Do you think that spiders had poisonous bites and ate insects when God first created them? No. In God's perfect creation, there was no killing. It was only when people disobeyed God, that killing began. Let's think about how the spider lived at the very start of creation. All spiders and insects must have eaten plants, but maybe not the ones that humans ate, because all creation was in perfect balance and there were no pests and diseases.

1. How do spiders help us?
2. Did spiders kill insects in God's perfect creation?
3. When did spiders start to kill insects?



## Spiders 8

### A spider's body

A spider has eight legs. They are hairy and jointed, and end in curved claws. The claws have teeth like a comb on the inside. The claws help to hold food. Spiders also use their claws as combs for cleaning themselves. A spider has no antennae like an insect. Instead it has *palps* which are joined to the mouth parts. They are like arms and hands to a spider. Spiders use their palps for feeling and touching.



*Copy and fill the gaps:*

Palps to a spider are like \_\_\_\_\_ to an insect.

Palps to a spider are like \_\_\_\_\_ to a human.

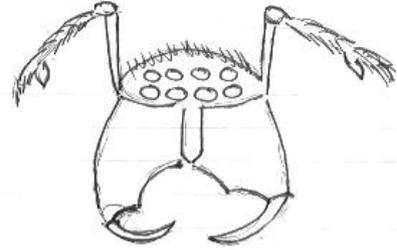
A spider usually has eight eyes. They are simple eyes that shine like jewels. People think that some spiders can see colours! A spider has to keep watch for prey. With so many eyes it can see in many directions. A spider also needs to watch out for enemies. A spider is always *alert*. Christians need to be alert too.

1. Read 1 Peter 5:8 and find out why Christians need to be alert.
2. Why do you think a spider needs so many eyes?
3. Think of some enemies that spider has.
4. Describe the way a spider might move if a fly flew past its web?

## Spiders 9

### A spider's head

Here is a drawing of a spider's head. The palps are the furry arms used for felling and touching. There are poison fangs and eyes. Draw the head and label the palps, the eyes and the fangs



2. A sense of smell is important to a spider:  
for catching prey  
for male spiders when trying to find a lady spider

3. A good sense of hearing is also important to a spider. A spider feels vibrations in the air through the hairs in its body. There are stories of spiders letting themselves down from ceilings to listen to music. They may think it is the buzzing of an insect. Why is hearing important to a spider?

4. All spiders have fangs for injecting poison into their prey, but very few spiders are dangerous to humans. When a spider catches its prey, it sticks its fangs into the prey, and instantly kills it with poison. A spider doesn't really eat its prey. It sucks out the juices from the body of the insect, and leaves just an empty skin. Name something that is prey to a spider.

## Spiders 10

### Amazing builders

All that God has made is wonderful, and reflects His character. Just as a painting tells us something about the person who painted it, so nature can be studied to see what it tells us about God. The world which God has made has patterns and designs in it. All these things did not come about simply by chance. God is a God of order and He made things this way.

Some animals are amazing builders. Shellfish, ants, bees and termites build complex homes. Birds build nests. Both small and large animals make burrows.

God has provided all these animals with the ability to make these things. The spider is able to spin complex webs. Spiders are different from insects because they have eight legs, not six, and no spiders have wings. Baby spiders look like adults and don't go through the larva stage. Spiders have eight tiny eyes. Baby spiders spin webs and are not taught by their parents. God has given spiders some program, which we might call *instinct*, (which means we don't know how or why it works).

1. How do spiders know how to spin webs?
2. Make a table to show the difference between spiders and insects.

Spiders	Insects

## Spiders 11: How baby spiders are born

Male spiders are usually smaller than female spiders. This means that they face the risk of being mistaken for prey and eaten! When it comes time for mating, the male spiders use many kinds of tricks. Some male spiders vibrate the female's web with a special rhythm to tell her that they are not to be mistaken for food. Other types of male spiders give the female a present to distract her attention. The present is an insect wrapped up in silk. Some clever male spiders suck up the food from the insect first, then spin the insect shell into a pretty silk cocoon for the female. When she finally gets it open she is in for a surprise because there is nothing to eat! Then the female spider gets angry and might kill the male spider!

As a result of mating, the female spider lays a group of eggs. She hides these under leaves of bark. Sometimes she makes a silk box for them. Baby spiders can make thread soon after they born. Some can use their thread like a kite to carry them away on the air from the nest.

Do you think that our Father who has provided so many things for the spider to enable it to live, has done an even better job providing for us?

*Are you not much more valuable than them to God? (Matthew 6:26)*

1. What does a male spider do to attract a female spider?
2. How does the female spider hide her eggs?
3. What special thing can baby spiders do as soon as they are born?

## Spiders 12: How a spider catches prey

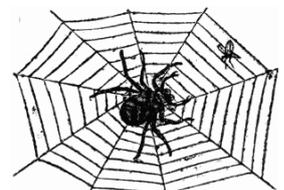
The spider can keep very still and sit in the centre of the web, or in a hide-out made of leaves woven together on the side.

The spider moves on the dry parts of the web, not the sticky part, so that it doesn't get caught. Also, the spider moves on the underside of the web, and by hanging upside down, keeps free from the sticky thread.

The spider knows if it has caught something because the web's spokes are tight and vibrate if something is caught. It is similar to us holding a fishing line. When a fish is caught we feel the line move. A big fish moves the line a lot more than a little one, so we know its size. A spider, in a similar way, knows the size of what has been caught in the web.

If the insect caught is big, the spider runs over and spins a lot of threads around it. Many spiders can inject poison to kill the insect. The spider eats the soft part on the insect and throws the shell away.

1. Why does the spider sit very still in the centre of the web?
2. How does a spider know if it has caught something?
3. What happens to the web if a big insect is caught?
4. What does the spider do after it catches an insect in the web?



# God is Wise – Health and Fitness

*God created us and gave us each person an amazing body, which we can take care of, using wise principles for good health.*

## Processed food 1: Chemicals

The world around us is made of chemicals. All food is made of chemicals. Chemicals are the “stuff” that something is made from. Chemicals can be safe or unsafe. They can be helpful or harmful. They can be good or bad.

Man-made chemicals are the problem chemicals. They are often sprayed on the fruit or vegetables to keep the bugs away. These chemicals are not good for us so we should always wash our fruit and vegetables before we eat them.

Chemicals are added to processed foods, to make them last longer (preservatives), to make them look or taste better (artificial colourings and flavourings) or to change the texture. These are called food additives. We are told that all food additives are safe because they have been tested for safety. But the truth is, some food additives have a bad effect on the health of some people. Some children have allergies and other have their concentration is upset by certain additives. No one really knows what the long-term effects might be. Eating natural foods is always better!

1. What is a chemical?
2. Are all chemicals bad?
3. What are the three types of food additives?
4. What do these additives do to the food?
5. Name two foods that contain food additives.
6. How can we avoid eating food additives?

## Processed food 2: Food additives

Food additives are substances that are added to food.

Here are a few of the most common food additives that may not be so healthy:

### Preservatives:

Used to make the product last longer.

*Found in:*

bread, cakes and biscuits

in vegetable oils, chips and fried foods

in some fruity drinks and soft drinks

in some sausages

in processed meats like ham and bacon

### Colours:

These are made from man-made dyes

*Found in:*

Sweets, icing, ice-cream, drinks

### Flavours:

Used to make a product taste spicier or saltier

*Found in:*

instant noodles, savoury snacks, pies, take-away food, sweets, and drinks

*Make a chart of processed foods. Make three columns with the three headings. Draw and label foods in each column.*

## Processed Food 3: Food Labels

If we want to know the truth about the packaged food we eat, then we must find out what's in it. All processed packaged food should have a list of ingredients. We can read the labels to find out more about the ingredients.

Collect information from food wrappers and food packets. Look at the ingredients list. Write the name of the product you are investigating. Give comment on how healthy the food is.

Read the food labels and choose products without additives.

Does it have any food additives?

Name of product	Food additives
Rice	no
Biscuits	yes



## Processed Food 4

### Processed food and learning ability

Many popular processed foods are actually preventing children from doing their best in learning at school. Loaded with sugars, chemicals, salt and bad fats, many popular processed foods can cause children to be tired, unfocused, fidgety, and sick. This not only impact students' performance, but also influences their behavior and moods.

#### Lack of Energy and Focus

French fries, sugary foods, cheeseburgers, chicken nuggets, packets of crisps and similar snacks can lower students' brain power.

High sugar and refined white flour in these foods cause glucose in our blood to reach a high, after which there is a 'crash', when the body has low glucose and begins to shut down as it processes. It leaves us feeling tired and unable to think properly. A regular diet of high sugary foods can result in damage to kidneys, eyes, blood vessels, and nerves.

<https://www.publicschoolreview.com/blog/how-diet-and-nutrition-impact-a-childs-learning-ability>

1. Name some popular processed foods that are not good for our health.
2. What are the problem ingredients in these popular processed foods?
3. Why are these ingredients such a problem? (List 3 reasons)
4. What is the 'crash' the body experiences after the high of too much sugar?
5. Draw a diagram of to show what happens in the blood when we eat a lot of sugar. (Show the high and low).

## Processed Food 5: Good fats, bad fats

#### *Bad fats:*

Fast food and junk food usually contain bad fat. Let's find out what bad fats are.

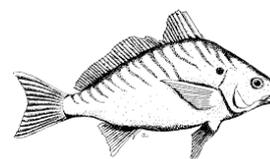
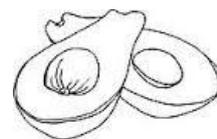
Vegetable oil in plastic bottles have been processed with heat. The oil then cools and gets heated again in cooking. These oils are not good for our health. We don't see the effects straight away, but over time bad fats can cause health problems.

Margarine is another example of a heat processed oil and is a bad fat. However olive oil is an exception. It is a good oil because can withstand heat.

We find heat-processed vegetable oils in foods cooked in oil. Chips, crisps, deep fried foods and pastries are examples.

#### *Good fats:*

Butter, olive oil, coconuts, avocados, nuts, fish



*Make a list of good fats and a list of bad fats.*

## Processed food 6: White salt

White salt, used in most processed foods, is called refined salt, and contains no goodness. If we could get salt straight from the sea, that salt would contain minerals that are useful to our bodies.

*Where do we find white table salt?*

Apart from on the table, it's in potato crisps, most breakfast cereal, tinned foods, cracker biscuits, bought bread, tomato sauce, hamburgers, sausages, hot dogs and many other foods.

*What can I eat instead?*

Avoid junk food and processed foods and eat real food.

*List some healthy foods that you could make or buy:*



## Processed food 7: Sugar

Although this comes from natural sugar cane, it is no longer natural once it has been processed. This type of sugar is called refined sugar, unlike the sugar you would find naturally in a piece of fruit. People who eat a lot of sugar have less energy and can catch colds more easily.

*Where do we find it?*

Refined sugar is found in sweet foods and soft drinks. It is also added to many other foods, like tinned foods, sauce, bread, cakes and biscuits.

*What can I eat instead?*

Eat fruit in which there is natural fruit sugar. The body can use this type of sugar more easily.

Sugar comes from a plant called sugar cane. The stalk of the plant, which looks a bit like bamboo, contains a very sweet liquid. This is natural sugar and has nutrients. However, very few people eat sugar in this way.

The sugar we use as food today is a white crystal substance that can cause damage to our bodies because:

- People eat sugar in large quantities.
- Babies and toddlers are given sugary drinks, and they want to keep having it.
- People cannot stop eating it. (addicted)
- Sugar causes tooth decay.
- Sugar is the main cause of diabetes.
- Sugar weakens our immune system, so that we catch colds more easily.
- Sugar can make us feel tired.
- Sugar can cause people to gain weight.

*Make a poster, "Eat less sugar" and give 4 reasons why.*

## **Processed food 8**

### **My personal eating plan**

Make up a personal plan for improving your diet for one week. Decide which foods you are going to cut out, or cut down on, and which foods you are going to eat more of. Remember to include drinks too. Write down your plan. Include the date. Review your plan after a week and write a report on how well you stuck to your plan.

*This is what I plan to eat for:*

**Breakfast:**

**Lunch:**

**Evening meal:**

**Snacks:**

**Drinks:**

*After one week...*

I think that my diet over the last week has been:

- the same as before
- a little healthier
- very healthy

I think my diet was healthier than before because....

OR I could have done better if I had .....

**Thinking Skills**

<p><b>Food and nutrition 1</b></p> <p>Work out 10 things that this picture could represent in regard to food.</p> 	<p><b>Food and nutrition 2</b></p> <p>Design 5 unusual ways of encouraging young children to eat healthier food.</p>
<p><b>Food and nutrition 3</b></p> <p>Name 10 healthy foods that you have NEVER eaten.</p>	<p><b>Food and nutrition 4</b></p> <p><b>What if a single pill could replace your daily food intake?</b></p> <p>Give 10 different consequences.</p>
<p><b>Food and nutrition 5</b></p> <p><b>School canteens should not sell junk food.</b></p> <p>Give 5 good reasons for this.</p>	<p><b>Food and nutrition 6</b></p> <p>Predict a type of cooking appliance that will be used in family homes 100 years from now.</p> <p>Draw it (if possible).</p>

# Piri and Maki

Biography



As a young man living in a village on Rarotonga, Piri had a bad reputation as a drunk and a trouble maker. He had gone to the mission school as a lad and had learned to read and write. But after he left school he got in with a group of young men who had found out from some Tahitians how to make orange beer from fruit growing in the bush. They got involved in drunken parties. Things got worse when the trading ships brought in other alcoholic drinks, and there were serious problems with bad behaviour amongst the young men. Piri was regarded as a ring-leader in the brewing of orange beer, and of course drinking it. So he was often caught and made to pay fines for law-breaking.

“We’ll have to come down harder on these young fellows,” the authorities decided. “Piri is one of the worst. We need to get him under control.”

So Piri at the age of twenty became a target for the authorities, who kept a close watch on him.

“It’s that missionary’s fault,” Piri muttered, “he’s the one who turned the authorities against me. One of these days I’ll get that man and kill him with my own hands!”

A day came when Piri had been drinking heavily. This was going to be Piri’s day of revenge. He grabbed a garden spade and made for the missionary’s house. Fortunately his friends saw what he had in mind and went after him with sticks and a rope. Piri had just reached the veranda of the house when they seized him and in spite of his struggles, tied him up with the rope. His friends took him away and kept him at the coast for a few days. When he had sobered up he began to think about his behaviour. “How stupid I’ve been to go on like that. The missionary did nothing to me yet I nearly killed him. It’s the beer that made me so stupid. I promise I’ll never drink another drop.”

Piri went to see the missionary. "I'm sorry I've been behaving so badly," he began. "I can see that living the Christian way is the only thing that will help me."

"You're right, Piri," the missionary agreed. "You come to the worship services on Sundays and to the Bible classes through the week and you will learn to know God. Then you'll find out how He can help you live a good life."

Piri did this and became a strong Christian. His greatest desire was to tell those who weren't Christians the wonderful stories of Jesus. He entered the Training School on Rarotonga where he spent four years being prepared for work as a Bible teacher. At the end of that time the missionary came to him. "Piri, there is a group of Cook Islanders living in Samoa. They need someone to care for them spiritually. Would you and your wife like to go and be their Bible teacher?"

Piri and his wife agreed to go and they spent some time together there. But one day his wife became ill and never recovered. Piri was left alone to carry on the work in Samoa.

Meanwhile, far off to the west, in the New Hebrides (Vanuatu), a party of teachers had been left on Tanna to try to establish a mission station. This was one of the seven attempts to follow up the fatal visit of John Williams and his party to the New Hebrides in 1839. All the party except two of the teachers' wives had died of fever. Maki was the name of one of these women.

"I'm afraid of what they might do with us now our husbands are dead," Maki said to the other woman.

"Yes, so am I," she agreed. "The chiefs might fight over which one of them will take us. Then who knows what will happen to us?"

But a kindly old chief saw the difficulty they were in. "You two come home with me," he offered, "I'll look after you. You can be like my own daughters."

"Thank you so much," they said with great relief, "we'll be happy to live with you and care for you."

The women knew that the mission ship came to visit the out-stations regularly.

"I wonder if the ship will come today?" they would say each morning. Then, no matter how ill they were from fever, they would climb the hill at the back of the village to watch for the hoped-for sails to appear on the horizon. But day after day they returned disappointed to the village.

Then one day Maki was left alone, for the other widow died of fever. Maki waited two years and had given up all hope of ever seeing her home island again, when one day as she watched from her lookout on the hill; she could see a speck on the horizon.

"Could that be the mission ship?" she wondered, "Perhaps I'll be able to go home after all."

She watched the ship approach and when she saw people being lowered into the small boat she rushed down to the beach to meet them.

"Oh! I thought you'd never come. I thought you had forgotten about us!" And she told them the sad story of their mission party. They, in turn, told her why she had to wait two years for the ship to come. "The ship has been to England and back since we left

your party of teachers here. We're sorry you had to wait here so long. We'll leave in the morning and take you home to your island, Mangaia."

The elderly chief who had guarded Maki so kindly was broken-hearted at losing his adopted daughter and ran beside her to the boat, weeping bitterly. Maki was grateful to him and thanked him for his care of her. Nevertheless she was so relieved to be returning home.

When they reached Samoa the ship's captain said to Maki, "You'll have to leave this ship here and wait for a smaller one to take you to Mangaia."

It was during this time in Samoa that Piri and Maki met. Maki never did get home to Mangaia as she married Piri and together they continued to serve the Cook Islanders in Samoa.

"I hear the missionary society is preparing to take a team of teachers to British New Guinea, (now called Papua New Guinea). They want to establish mission stations in villages all along the south coast." Piri had rushed home to tell Maki the news.

"I believe God wants me to go with them, Maki. I've always wanted to go to people who haven't yet heard about Jesus. Would you come with me, Maki?"

Maki was willing to go wherever her husband went, so Piri went to see the leaders of the missionary team, Mr. Murray and Mr. Wyatt Gill.

"Please will you take us with you in the team going to British New Guinea," Piri pleaded. For a long time my heart has been with the lost people of these other islands. Please may we join you?"

The two leaders were so impressed at the eagerness of Piri's request that they agreed to take them along with the five other couples in the group. The leaders explained to the team what the mission's plan was. "New Guinea has a long coast line on the south side. We will find villages where the people are willing to have you live with them and we'll leave you there to teach them about Jehovah God and Jesus His Son."

Piri and Maki were placed at Boera, a little distance north along the coast from Port Moresby. Unfortunately a number of the teachers became ill with malaria and other fevers. Some of them died, so the mission brought those who were left to live in Port Moresby. Piri and Maki encouraged the teachers.

"Always remember to pray," Piri would tell them. "And always remember that Jesus is very near. He will help you if you ask Him."

Piri frequently traveled around the coast westwards with the missionary James Chalmers on his many journeys, visiting the mission teachers and always searching for further villages where they could place teachers. He helped Chalmers by making friends with the village people who trusted him. Chalmers received a welcome because Piri was with him.

On one of his trips, Chalmers stopped at Boera, Piri's village, to spend the night. "The small boat is safe on the beach," Piri assured Chalmers. "The people here are trustworthy."

In the morning Chalmers went to his small boat to find the rowlocks were all missing. Piri and Maki happened to be on the beach.

"The rowlocks have been taken from the small boat, Piri," Chalmers told him. "How do you think we can get them back?"

Maki stormed through the village demanding the return of the rowlocks. "Whoever has those rowlocks had better bring them back at once or there will be big trouble," she threatened. But no one owned up.

Piri called the village chief and head men to a meeting in Piri's house. "Those rowlocks must be returned," Piri told them quietly, "I want you men to go through the village and speak to everyone. You must bring them back."

The head men went to everyone, but still no-one produced any rowlocks. Piri grew angry.

"I told Mr Chalmers you people are honest, that you'd never steal anything. Now you've shown us I was wrong. Someone has stolen Mr. Chalmers' property and I want it returned at once. Every house will be searched thoroughly. No-one is allowed to leave the village until the rowlocks are returned."

Piri was so angry the people knew he meant what he said. Then, along came a village woman, the rowlocks in her hand. "I found these on a path in the village," she said, looking very guilty.

Everybody knew that wasn't true, but at least James Chalmers had his rowlocks back and could proceed with his journey. Piri and Maki were on a trip around the coast to Motumotu when Piri became ill. He recovered a little and said to Maki, "I think I am strong enough to travel back to Boera."

They set off in their canoe, deciding to travel to Port Moresby for treatment. But Piri died on the way. Only three months later Maki died. They rest side by side on the hill behind the village at Boera, two faithful servants of the Lord.

Adapted from: *James Chalmers, His Autobiography and Letters*, Richard Lovett, The Religious Tract Society, London.

# God is A Servant – Transport, Tools & Machines

God has placed special forces in the creation that can be discovered and used to help us.

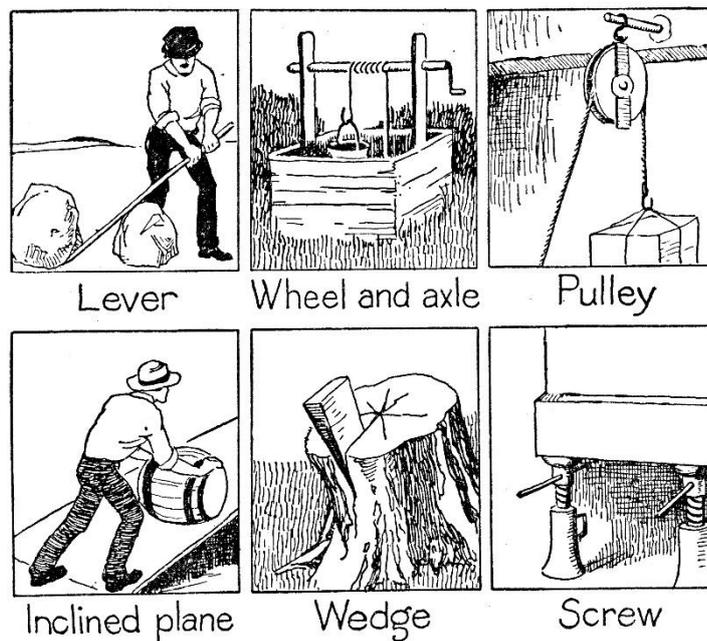
Transport, tools and machines can be used to help spread the Christian message.

## Simple machines 1

### The six simple machines

Simple machines can be used to make work easier. They can change the direction of movement and can lessen the amount of work needed for moving things.

Although people had been using simple machines in earlier times, scientists like Galileo and Da Vinci identified the six simple machines we have today: pulley, screw, wheel & axle, lever, wedge, and inclined plane. Most modern machines use one or more of these six simple machines.



Draw the six simple machines and explain how they are being used in each picture.

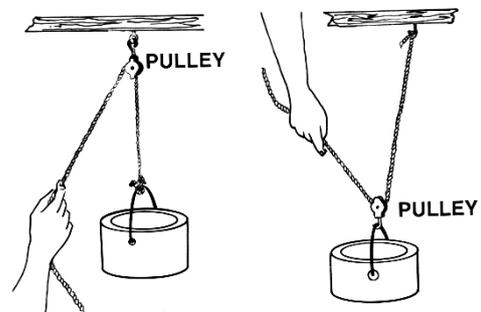
## Simple machines 2

### Pulleys

A pulley is a simple machine that uses a rope over a wheel, or a tree branch or similar. When one side of the rope is pulled down, the other side goes up. The direction of movement is changed, and the load is easier to lift.

Here are some examples:

- a flag pole
- an old fashioned well where a bucket was pulled up by a rope
- pulleys in construction work
- window blinds and sails on a ship that get hoisted up.



Draw and name two pulleys in action.

### Simple machines 3

#### Wheel and axle

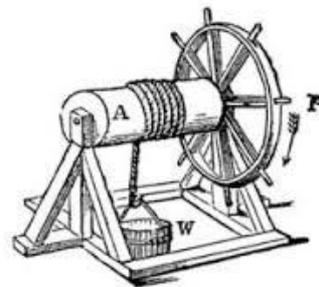
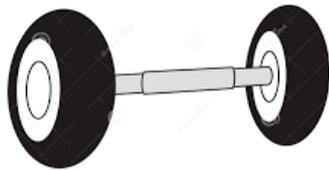
The wheel and axle is a machine used to help move heavy things. It is a large wheel with an axle connected at the center of it. When the wheel is spun the axle spins with it.

Examples of wheel and axle:

- a wheel barrow
- a car
- roller skates

Write a list of machines that use the wheel and axle. Add two things that are not on the list above.

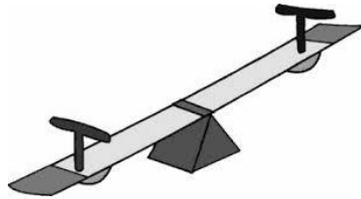
Draw two things that use the wheel and axle.



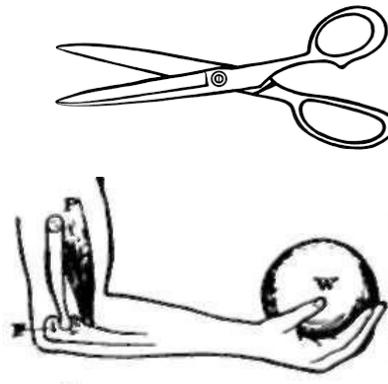
## Simple machines 4

### Lever

A lever is a machine with a board or bar that is fixed on a support called a fulcrum. The fulcrum is a pivot point. Find the pivot point on this see saw.



By changing how much of the board (or bar) is on each the side of the fulcrum it can be made more difficult or easier to lift a weight. If you push down on the long side it will be easier to lift something on the short side.

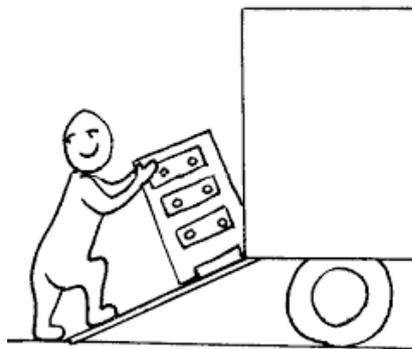
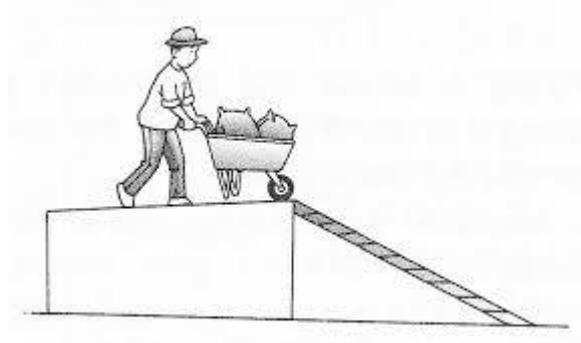


Draw three different types of levers and explain where the fulcrum is.

## Simple machines 5

### Inclined plane

An inclined plane, also known as a ramp, is a flat supporting surface tilted at an angle, with one end higher than the other. It is used to help raise or lower objects more easily by allowing them to move diagonally instead of up and down.



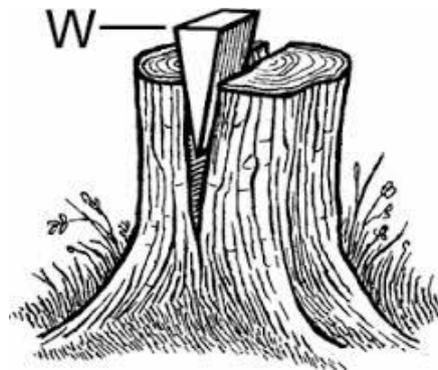
1. How would the man in the first picture get his sacks down if he didn't have the ramp?
2. How would the man in the second picture get his chest of drawers into the van if he didn't have the ramp?

## Simple machines 6

### The wedge

A wedge is triangle shaped. It can be used to stop or hold things in place. When a wedge is pushed under a door, the diagonal edge pushes up against the bottom of the door and holds it still.

An axe is an example of a double-wedge. It is also triangle shaped. It is used to split wood or separate things. When the triangle is pushed down, its two sides push out diagonally.



1. Give examples of two types of wedges and draw them doing work.
2. How do they make the work easier?

## Simple machines 7

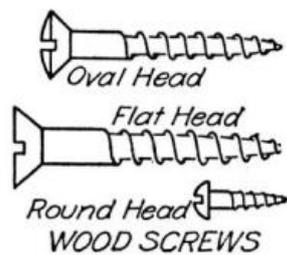
### A screw

A screw is a nail-shaped rod with threads spiraling down it. A screw twists as it goes into wood, but it goes in straight. It stops turning because of the head.

### Examples of screws:

A corkscrew

A bolt



1. Draw different kinds of screws.
2. Why is a screw sometimes stronger than a nail?

## Simple machines 8

### Machines in the Bible

1. Here are some machines used in Bible times:

A sling shot

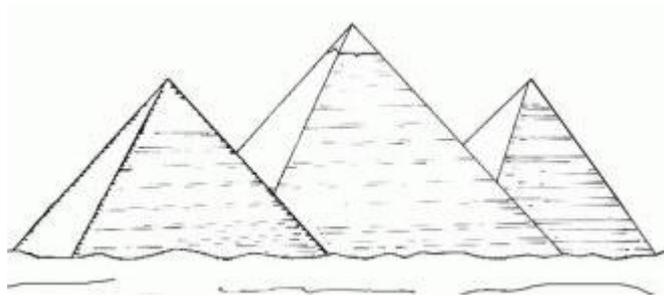
An axe

A bow and arrow

A chariot

Explain where in the Bible these machines were mentioned. Explain what type of machine they are and how they were used.

2. In the time of Moses, the Israelite slaves worked on building the Great Pyramids of Egypt. The slaves had to transport huge block of stone to the top of the pyramids. What kind of machines do you think they may have used? Draw a picture to explain, and label your drawing.



### 3. Machines can help us serve the Lord

God created us with intelligence. Over history, scientists have discovered the energy principles built into God's creation, and used these principles to develop machines.

*Explain how machines can help us serve the Lord and spread the Gospel.*

**Thinking Skills Servant Yr 6**

<p style="text-align: center;"><b>Tools, machines and technology 1</b></p> <p>Invent a “supertool” that can fix all household problems.</p>	<p style="text-align: center;"><b>Tools, machines and technology 2</b></p> <p>List 10 ways that technology and machines can <b>serve</b> by helping to spread the Gospel.</p>
<p style="text-align: center;"><b>Tools, machines and technology 3</b></p> <p>What will a computer look like 100 years from now?</p> <p style="text-align: center; margin-top: 20px;">Draw it.</p>	<p style="text-align: center;"><b>Tools, machines and technology 4</b></p> <p>Place the letters A-Z down the side of a page.</p> <p style="margin-top: 20px;">For each letter name a tool or machine that assists us.</p>
<p style="text-align: center;"><b>Tools, machines and technology 5</b></p> <p>Draw a screw driver. Now redesign it using the following steps:</p> <p><b>B</b> – igger</p> <p><b>I</b> – nstead of</p> <p><b>N</b> – onsense</p> <p><b>G</b> – et rid of</p> <p><b>O</b> – ther uses</p>	<p style="text-align: center;"><b>Tools, machines and technology 6</b></p> <p>What if all tools were banned.</p> <p>Write down 10 possible consequences.</p>

**Thinking Skills Servant Yr 6**

<p><b>Tools, machines and technology 7</b></p> <p>Brainstorm 10 ways we can use machines to help people.</p>	<p><b>Tools, machines and technology 8</b></p> <p>Write down 4 disadvantages of computers. Now work out an improvement for each of these.</p>
<p><b>Tools, machines and technology 9</b></p> <p>Create a new machine using: <b>pliers</b> and <b>a lawn mower</b></p>	<p><b>Tools, machines and technology 10</b></p> <p>All machines in the world have suddenly broken down.</p> <p>Give 3 interesting explanations.</p>
<p><b>Tools, machines and technology 11</b></p> <p>Design a power tool that can work in an alternative way in the case of power failure.</p>	<p><b>Tools, machines and technology 12</b></p> <p>Design a clean, efficient and economical means of transport for the future.</p>

# William Booth

## Biography

Before Jesus came, people lived in 'darkness'. This did not mean that it was dark all the time. It meant that people were suffering from sadness and guilt. They felt guilty for their sin. They felt distant from God because of the original separation that took place in the Garden of Eden.

However the prophets promised that a 'light' was coming. The light was a symbol of hope. The light was to be Jesus. Just as a light lights up the darkness, Jesus would bring hope to a world of sorrow. There would now be a chance for people to be free from guilt. Jesus could forgive them.

When Jesus grew up and started His work, He announced to everyone that He was the light promised from long ago. Jesus said, "I am the light of the world".

Jesus told all those who followed Him that they too could be lights. A Christian can be a light by bringing the Good News to others. Those who do this are called missionaries.

In England in the 19th century lived a man who felt God calling him to bring light to people in darkness. His name was William Booth. In 1855, after marrying his wife Catherine, he decided to become a church minister. However, he soon felt dissatisfied with preaching to the well-dressed people in churches. His heart went out to the poor people on the streets of London. These were the people who really needed to hear God's word. Perhaps they felt too ashamed to enter the beautiful church buildings.

William decided to erect a tent and hold a meeting for them. Many came to see what it was all about. Some were drunk and the meetings were often noisy. William also preached on the streets outside the pubs. Many would leave the pubs to listen to him. In days when there was no TV or radio, many people would come out to hear street preaching. However, some did not like the preaching. They did not want to receive God's forgiveness. They laughed and threw things at William.

William cared particularly for the poor. He knew that he must do more than just tell them the Good News. He must show them God's care by helping them in a practical way. In those days there were many poor people in England. Most people received a very low wage and often one family had to sleep in one room. Many could not afford beds, nor adequate food or clothing. Many were so depressed about their poverty that they turned to drink. Drinking was a huge problem, even for children.

William decided to set up a 'soup kitchen'. He collected unwanted vegetables from the market, and unwanted bones from the butcher. With these ingredients, he and his wife made soup and served it to the hungry. Soon William had many helpers. Together they decided that they were like an army. They were soldiers for God, fighting against a world of poverty and suffering. They became known as the 'Salvation Army' because they preached the Good News...that Jesus came to save people from sadness and guilt. They told people how they could receive God's forgiveness and begin a new life as a follower of Jesus.

## Activities

1. Make a list of ways in which we can receive news today.
2. How do you think news would have been spread in Bible times?
3. How did people receive news in the 19<sup>th</sup> century?
4. How did William proclaim the Good News of Jesus?
5. How did he show the love of Jesus?
6. What is the Good News?
7. Who is the **light to the world**, promised in the Old Testament? (Read Isaiah 42:6-7 and Isaiah 60:1).
8. Read Matthew 5:13-14. How can Christians be lights to the world?
9. Find out what the Bible says about 'feet' which carry the Good News. (Romans 10:14 and Ephesians 6:15).
10. Draw a set of foot-prints and write one of these Bible verses inside the foot-prints. You will need one foot-print for each word.