Exploration and Navigation: Teacher's topic guide
God is Wise Year 8

Spiritual Awareness: God is a wise guide
We need His wisdom for guidance through life. Many of the early explorers trusted God to guide them on their journeys in search for new lands. Christians need to ask God for wisdom for every step they take.

Values: Our response to 'God is Wise'
- **Integrity**: Ask God and find out from the Bible: What is the right thing to do? Put this into practice
- **Wisdom**: Learn from people who are wise
- **Trust** in God to be a guide for the journey of life

Outcomes: Students will
- describe famous journeys of explorers though history.
- work with maps and trace journey routes.
- discover the means of guidance for early explorers.
- use a commercial compass and make a simple compass
- understand the preparations involved for journeys.
- sequence historical people and events
- appreciate the courage of early navigators
- appreciate that God's hand was upon early sea exploration

Biblical references: God is our guide
Bible stories and passages
The book of Exodus - God guided the Israelites on their journey to the Promised Land.
Exodus 13:21-22 Guided by fire and cloud.
Matthew ch 2- The magi were guided by the star and the scriptures; an angel guided Joseph through a dream to make the journey to Egypt, and later, back to Israel.
Proverbs 6:20-23 Do what your father tells you my son, and never forget what your mother taught you. Keep their words with you always, locked in your heart. Their teaching will lead you when you travel, protect you at night, and advise you during the day. Their instructions are a shining light; their corrections can teach you how to live.

Verses
Psalm 16:7 I praise the Lord because He guides me. Even at night I feel His leading.
Psalm 119:105 God's word is a lamp to our feet.
Proverbs 13:13 If you refuse good advice, you are asking for trouble; follow it and you are safe.
Proverbs 13:20 Keep company with the wise and you will become wise. It is good to take wise advice.

Key Questions
What is wisdom?
How do we know the right thing to do?
What important decision do we have to make in life?
What is a guide? When do we need a guide?
Which people do we look to guide us through the important decisions of life?
Who is the best guide through life?

Activities

Explorers and navigators (Land and Sea)

- Discuss reasons for undertaking journeys, past and present e.g. holidays, to help others, to ask for help, to bring news, exploration, trading.
- Compare modern methods of navigation to earlier ones.
- List different types of journeys e.g. on foot, by sea, road, air.
- Make a list of food that would be suitable to take on: a long journey by foot, a long sea journey.
- Trace the routes of early explorers on a world map. Discuss hazards of the journey and the necessary preparations.
- Research the history of some early navigators and explain how they used stars, the sun, sextants and maps for guidance.
- Conduct orienteering exercises using maps and compasses.
- Prepare a back-pack of things you would need to go on a two-day hike.
- Compare journeys over different terrains e.g. desert, rainforest, ice.
- Map the route of the longest journey you have ever undertaken. Mark towns / cites, rivers, highways, mountain ranges.
- Make a chart showing the development of ships from raft to modern ships.
- Classify ships according to their different functions.
- Study the sea voyages of Paul and draw the type of vessel he may have traveled on. Trace his journey on a map.
- Study the history of sea transport. Build model boats and miniature ports of different historical periods.

Assessment

1. Write a story or give an oral presentation on the journey of an early navigator/explorer and describe the impact this journey had on the history of your country.
2. What have I learned from the study of explorers…
    a. about God?
    b. about doing what God wants me to do?
    c. about the Bible?

Learning Connections

English: Read the biographies of explorers. Imagine you were aboard a ship on an early exploration expedition. Write your experiences in the form of a diary.
Science: Study the forces in the Creation that are used by man for moving ships and sledges
Thinking skills: Ships and navigation
Research cards: Sea voyages
Biographies: John Williams, James Cook

Values education Year 8: God is Wise
Time management

Wisdom is:

- Knowing how to make good use of your time
- Being organized
- Doing the most important things first (prioritizing)
- Not putting off the things that need to be done today (procrastination)

Activities

1. Prioritizing

Imagine that you are planning a birthday party for your best friend.
Make a list of all the jobs that need to be done to make it happen.
Now put numbers on the things in the list, starting with 1 as the most important thing to get done, and so on.

2. Procrastination

What is the problem with procrastination?

Procrastination is "the act of willfully delaying the doing of something that should be done."
Procrastination is putting off until tomorrow what could be done today

Why do we procrastinate?
Sometimes we are being lazy.
Sometimes our to-do list is so full that we get overwhelmed and end up doing nothing at all.
Sometimes we allow ourselves to get distracted, e.g. by social media
Sometimes we are fearful about the job to be done so we put it off. Perhaps we think we are not capable of doing the job.

Steps in time management:

1. You must really, truly WANT to manage your time well.
2. Practice the areas in which you are slow and inefficient, and get better at these areas.
3. Make a list of the things you need to do. Prioritize.

Good advice about time management from the Bible:
Proverbs 15:19; 18:9 Warnings against laziness
Colossians 3:23 Whatever you do, do it heartily as if for the Lord
James 4:13-14 Life is short. We don't know what tomorrow will bring. Do today what you can do today.

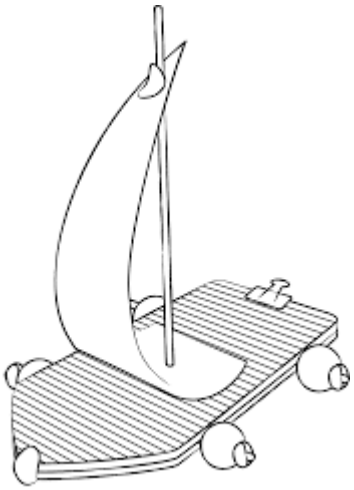
Art Year 8

Exploration and Navigation

God is Wise

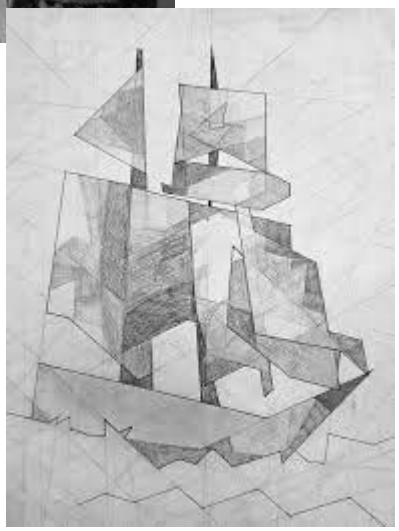
Biblical wall art and text: 'God is a wise guide'.
Your word is a lamp for my feet, a light on my path. Psalm 119:105
Illustrate the Biblical event found in Exodus 13:21-22, where the Israelites were guided by fire and cloud during their journey through the desert to the Promised Land.

Construction
Students can make models of rafts, canoes or sailing ships.



Painting and drawing
Realistic images

Abstract images
Students can study the shapes within a sailing ship and form a picture using geometric shapes.



Practical Science: Exploration and navigation

Make a compass

Make a compass that shows due North with surprising accuracy.

What you need:

- bowl of water (non-metal)
- sewing pin or needle
- magnet
- small piece of craft foam, cork, or cardboard
- Sticky tape

What to do:

1. Cut a small circle from a material that will float in water, e.g some craft foam, a cork or even a piece of cardboard.
2. The next step is to turn the sewing needle into a magnet. To do this, stroke the needle across the magnet about thirty to forty times. Be sure to stroke in one direction only, not back and forth. The needle will now be magnetized.
3. Next, place the needle on the circle of craft foam or cork, secure it with sticky tape and place it on top of the water. Try to place it in the center of the bowl, keeping it away from the edges. The needle will begin to slowly turn around and eventually the needle will point North and South. Check the accuracy of the home-made compass with a commercial compass

How it works:

Every magnet has a north and south pole. A compass is small magnet that aligns itself with the north and south poles of the Earth's magnetic field. As the needle is stroked across the magnet, it becomes magnetized because the electrons within the needle straighten up and align themselves with the magnet. The magnetized needle then aligns itself with the Earth's magnetic field when it is placed on top of the water.

Orienteering Study

You can use a homemade compass, or a regular one, to combine an orienteering activity with a nature study.

1. Find an area outside that you would like to work with. Use a compass to find magnetic north.

2. Once you've found the right direction, mark off a square with sides ten paces long: mark the starting point and go ten paces due north, then ten to the east, ten south, and ten paces west, using sticks or rocks to mark the corners. Identify plants and objects within the square.
4. Record all of your findings on a map, making sure to mark the directions and represent the square.

Practical Science: Exploration and navigation
Partner Directions

This direction game improves students' understanding of the directions north, south, east and west; helps them learn to read a compass; and improves communication skills.

What you will need:

- Paper, pencil
- Any object
- A compass

What to do

1. Each student draws up a map showing a list of directions that they will give to a partner. The directions will lead to a hidden object.
2. One person (the finder) is given a compass.
3. The person with the map hides the object, out of sight of the student with the with the compass.
4. The student with a compass will now try to find the object.
5. The student with the map must stand behind a line and give his respective partner the list of directions. For example, the directions could include to walk two steps north, then jump three times to the west and so on.
6. The partner with the compass must hear each direction and then use the compass to perform each step.
7. Once the hidden object is found, another pair can take a turn.

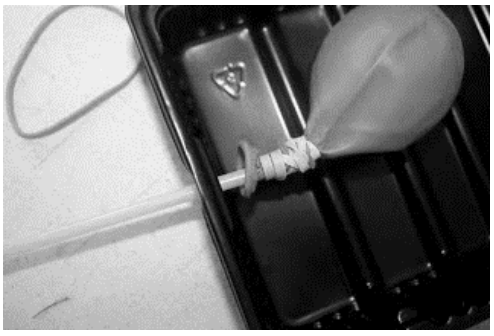
Practical Science
Balloon powered boat

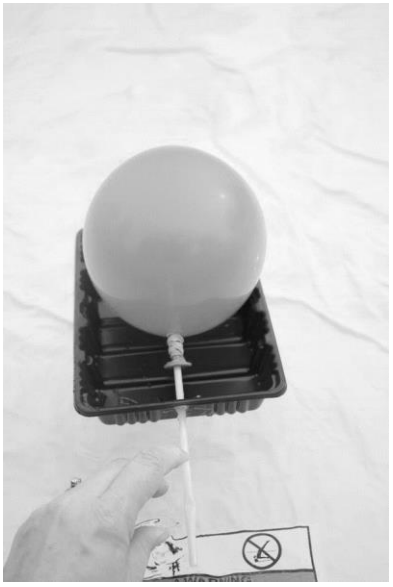
What you will need:

- container for the base of boat (e.g. a recycled food packaging tray with low sides and flat bottom)
- hole punch
- plastic straw
- rubber band
- balloon
- strong tape or hot glue
- large container of water

How to Assemble a Balloon Powered Boat

- Take the recycled tray.
- Use a hole punch to make a hole in one of the short sides of the boat.
- Take a balloon and rubber band. Attach the open end of the balloon to the straw with the rubber band.
- Stick the straw through the hole in the tray, (the balloon is on the inside of your boat).
- Tape the straw to the base of the boat, or secure it with a hot glue gun.
- Fill your container with water.
- Blow up the balloon holding the straw tightly, then release the boat in the water.





Practical Science

Tin foil boats

http://www.kids-fun-science.com/easy-science-experiment.html

In this easy science experiment, you will be designing a tin foil boat that will hold the greatest number of nails or marbles.

What you need:

- Tin foil
- Bowl
- Scissors
- Large heavy nails, or marbles
- Water

What to do

Cut a piece of tin foil 14 x 16 cm, (5 x 6) inches.

Fold up the sides of the boat so it will not sink and hold a cargo of nails.

Place the boat in the bowl of water. Begin adding nails for the boat's cargo.

See how many nails your boat can carry before it sinks.

Work in a group. See which one of you can create the boat that will carry the greatest amount of cargo.

Try different ways to distribute the weight of the nails on your barge so you can carry the maximum number.

Try another science experiment.

Create a boat out of tin foil that is 10 x 12 cm (4 x 5 inches). Make a prediction about how many nails you will be able to carry as cargo in this boat.

Create boats out of clay and see if you can make them float and carry cargo.

Science behind this experiment

There are two primary forces acting on this science experiment. The first force is gravity. Gravity is trying to pull the tin foil and nails downward. The force of buoyancy is pushing the boat toward the surface.

The gravitational force is determined by the weight of the tin foil and the weight of the nails in the boat. The force of buoyancy is the weight of the water displaced by the boat.

Your boat will continue to float as long as the force of buoyancy is greater than the force of gravity and you do not overload the boat so it will tip over or leak.

Practical Science
Why things float

People have been wondering why things float since olden times. According to legends the ancient Greek, Archimedes, conducted experiments to test why things float or sink. Here is what Archimedes discovered:

When an object is dropped into water, some of that water is displaced (pushed aside). At the same time, there is an upward force on the object called buoyancy. Buoyancy pushes the object up. This changes its weight. If the weight of the object is heavier than the amount of water it displaces, the object will sink. If the amount of water displaced is equal to the weight of the object, it will float.

So…an object will sink if it weighs more than the water it displaces.

Importance of the Principle
Archimedes principle is used in shipbuilding to ensure that ships will float. Ships are usually made of metal and have a hollow hull, which allows the water to be displaced evenly. The ship will sink down into the water only until the weight of the water it displaces is equal to the weight of the ship.

Let's try an experiment
Our fluid is water.
A cubic centimeter of water weighs 1 gram. So, in order to float, an item that weighs 1 gram must displace more than a cubic centimeter of water.

What you will need:
- A piece of modelling clay
- A container of water

First test: Will it float?
- Take a piece of modeling clay. Shape it into roughly a cubic centimeter. See if it will float.
- Record your results.

Second test: Will it float?
- Now, flatten out the same piece of clay and make a boat shape. A flat bottom with a lip around the edge works well.
- Place it onto the surface of the water. It should displace a lot more water this time and float.
- Record your results.

Why did it float?
Although the weight of the clay didn't change, the amount of water displaced did change.

Thinking Skills Wise Yr 8

Ships and navigation 1 List 10 materials which are **not** used in the construction of a ship.	**Ships and navigation 2** What if: **The world fuel supplies were immediately halved.** List 5 consequences.
Ships and navigation 3 List 3 advantages and 3 improvements to: **a rudder**	**Ships and navigation 4** List attributes of both, then combine: **a tug boat** and **a crane.** Draw this new object (if possible).
Ships and navigation 5 Name 10 things that this picture could represent in regard to navigation. ▲ ▲ ▲	**Ships and navigation 6** How many ways can you: **propel a ship.** List at least 5 different ways.

Thinking Skills Wise Yr 8

Ships and navigation 7 Draw a cruise liner. Now redesign it by using the following steps: **B** – igger **I** – instead of **N** – nonsense **G** – et rid of **O** – ther uses	**Ships and navigation 8** Predict what a **Speed boat** Will look like in 100 years. Draw this boat (if possible).
Ships and navigation 9 Write down 10 different uses for: **A sunken wreck**	**Ships and navigation 10** **The Titanic is sinking!** Design an improved type of lifeboat that can be quickly and efficiently used in this event.
Ships and navigation 11 Name 5 things that a **steering wheel** and **a hull** have in common.	**Ships and navigation 12** The answer is **"Channel beacons".** Write down 5 questions.

James Cook

Biography

James Cook was born in 1728 and died in 1779. He was a British explorer and navigator. He made three voyages to the Pacific Ocean, discovering the east coast of Australia and the west coast of America.

As a teenager, he had a love for ships. When he was old enough he started working in in a shop. One day, the captain of a ship came into the shop and asked if James would like to learn to become a sailor. James was offered employment on a coal ship at one of the ports in England. He scrubbed the deck and painted the ship with special waterproof paint so that the ship wouldn't leak. He became very good at all the work sailors had to do. He also learned navigation, which was the skill of plotting the course of the ship across the sea.

He then decided to join the Royal Navy and became known for his excellent mapping skills. In 1760, he mapped the jagged coast of Newfoundland, Canada. In those days, the King needed people to go exploring so that they could discover new lands. The Royal Society was a society set up by the king, to hire people to go exploring. The Royal Society was very impressed with Cook's skills and in 1766, they hired him to travel to the Pacific Ocean to observe and record a transit of Venus across the Sun.

Cook's First Voyage (1768-1771)

Cook was given a boat called the Endeavour. On board the Endeavour were 71 crewmen. Twelve were soldiers who would protect the ship against pirates. Nine were naturalists whose job was to discover new plants and animals. The Endeavour left England in 1768, and sailed to in Tahiti where he built a small fort and observatory to study the planet Venus, as it traveled across the sky in front of the sun. This is called an eclipse.

Cook had also been asked to search for a great southern continent. The Royal Society believed that there could be a great continent between the equator and the South Pole, similar to the great continent of Europe in the north. Cook explored the South Pacific looking for the great continent, although Cook had some doubts as to whether is really existed. In fact, he proved that there was no such continent.

From Tahiti, he sailed to New Zealand, which until then had been visited by Europeans only once, by Abel Tasman in 1642. Cook mapped New Zealand's complete coastline, discovering Cook Strait which separates the North Island of New Zealand from the South Island.

Next, he went on to Australia, where he discovered its east coast. (Previously only the west coast of Australia had been discovered by Dutch explorers Dirk Hartog who landed in 1616 and William Dampier in 1699 who sailed along the western coast. Van Diemen's Land, now called Tasmania, had also been discovered by Abel Tasman in 1642.)

The site of his first landing on Australia's east coast was Botany Bay. This would later be the site of the first British colony in Australia. It was also the site of the first European contact with Australian Aborigines and the first European sightings of Australian plants and animals. Cook also discovered the Great Barrier Reef, in which his ship narrowly escaped running

aground. He then sailed through Torres Strait, between Australia and New Guinea, again becoming only the second European to do so (the first being a Spanish sailor in 1604).

Captain Cook would never allow swearing on his ship and on Sundays he asked the crew to wear clean clothes. Cook kept his crew members healthy. He insisted on good hygiene and the ship was kept very clean. Many sailors died in those days, due to a disease known as scurvy. It was caused by a lack of fresh fruit and vegetables, particularly Vitamin C in citrus fruits and other fruits. Captain Cook learned about the cause of scurvy and showed wise leadership in this regard. He forced his men to eat citrus fruits such as oranges and lemons, and they were punished if they did not comply.

The Endeavour sailed for Batavia, the capital of the Dutch East Indies, (now Indonesia), and anchored for some time to repair the ship. Batavia was known for its outbreaks of malaria, and much of Cook's crew contracted the disease. They had to return to England. The year was 1771.

Cook's journals were published upon his return and he became a hero among the scientific community. But among the general public, Captain Cook's botanist, Joseph Banks was a bigger hero. He had brought back with him samples of amazing new plants, and insects species and drawings of unusual animals.

Cook's Second Voyage (1772-1775)

On this voyage Cook became the first European to cross the Antarctic Circle in 1773. In his ship, the Resolution, he discovered South Georgia Island, an island off the coast of Antarctica. Cook almost discovered the mainland of Antarctica, but turned back north towards Tahiti to resupply his ship.

He then returned to England and was given an honourary retirement from the Royal Navy, but he could not be kept away from the sea. A third voyage was planned to find the Northwest Passage. The North-West passage was the passage of sea that we know today, between Siberia and Alaska. If a passage was found, ships could sail around the north of America to Europe. Cook would travel to the Pacific, around the Cape of Good Hope, and then north.

Third Voyage (1776-1779)

Having made two very long voyages before, Elizabeth, James Cook's wife, did not want him to go on a third voyage. Each voyage took well over a year. Already two daughters had died of sickness while Cook had been away, and now, with the birth of another son, Elizabeth wanted her husband to retire.

But Cook wanted to make just one last voyage. On this last voyage, he once again commanded the Resolution. In 1778 became the first European to visit the Hawaiian Islands, which he named the Sandwich Islands. From there he travelled east to explore the west coast of North America. He explored and mapped the coast from California all the way to Alaska.

As they traveled further and further north the conditions became extremely difficult. Their small ship was not made for such icy, hazardous conditions. All the time the crew kept thinking that they must get through before winter or else their ship would get stuck in the ice. Eventually they had to abandon their efforts. Cook decided to turn around and go south. They would try again after the big freeze was over. The next try was more successful. But again, they had to turn around and go south. By this time their ship was badly in need of repair. Cook decided to stop in Hawaii for a while to mend the mast.

They were given a wonderful reception by the Hawaiian people. In fact, they believed that Cook was a god which had been told about in their legends. The people bowed down and worshipped him. Then the high priest told the people that they must give the crew gifts of produce from the island in order to please the gods.

Finally, the mast was mended and Cook and his crew prepared to leave. The head chief was very pleased that they were leaving because they could not afford to give any more food, or they would not have enough for themselves.

Not far out to sea, the mast broke. They would need to find land again in order to repair it. One of the crew members acted as Cook's interpreter. He was familiar with the ways of the Hawaiian people and had learned some of their language. He knew how the chief was feeling about Cook and the crew. He knew that the chief would not be pleased if they returned. The interpreter tried to explain to Cook that they must not return to the island. They must find another island for repairing the ship.

But Cook would not listen to this wise advice. He did not see anything wrong with returning just for a few days. So back to the island they went. The chief was angry. The crew had outstayed their welcome. Also, it was now obvious to the high priest that Cook could not have been a god after all. They had given all their produce away to someone who was not really a god.

"Three days," Cook explained to the chief through the interpreter. "We will be away from here in three days."

However before three days were up they fell into the hands of the Hawaiian warriors. There was a great massacre at the water's edge. Cook was speared to death. Those who could climbed aboard the ship and headed out to sea, but Cook's dead body lay floating in the shallows. Many of the crew were speared along with him.

Although Cook had been a great sea captain on previous voyages, and had made wise decisions, this final unwise decision was the death of him. Although he was a captain, he should have listened to the person who had more wisdom that he did regarding the ways of the Hawaiian people.

Activities: Draw a basic outline of a world. Trace Cook's three voyages. Use a different coloured line for each voyage.

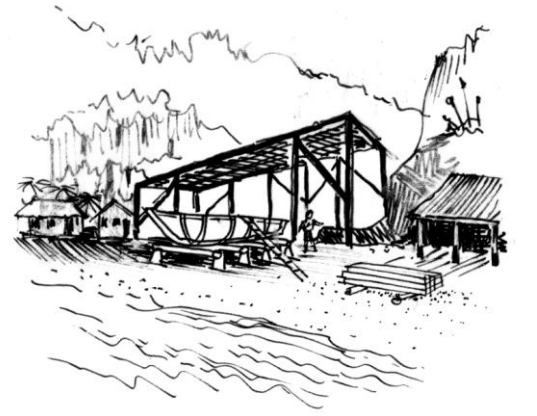
First voyage:
England → Cape Horn → Tahiti → New Zealand (around both islands) → Australia's east coast (Sydney and Barrier Reef) → Torees Straight (between Norther Australia and New Guinea) → Indonesia → South of Madagascar → Cape of Good Hope → England.

Second voyage:
England → Cape of Good Hope → New Zealand → South Georgia Island (just north of Antarctica) → Tahiti and circling the South Pacific twice → Cape Horn → England.

Third voyage:
England → Cape of Good Hope → South of Australia → New Zealand → Tahiti → Californian coast → Alaska → south of Alaska then back to Alaska again →Hawaii.

John Williams

Biography



John Williams was born in the year 1796. His home was at Tottenham in London and he played there happily with his sisters. He was very clever with his hands and he was always making things for them. When he was still a boy he read the journals written by Captain Cook telling of his adventures in the South Seas on his voyage of 1772. John made a ship in his garden and he and his sisters and their friends sailed away on imaginary voyages among the coral islands. When he was twelve years old he had to leave school and start work. He was made apprentice to an ironmonger so that he could learn to use his clever hands skillfully. He had to serve customers in the shop but, whenever he could, he went into the blacksmith's shop behind and watched the brawny workmen hammering the red-hot metal on the forge in a shower of sparks. Then, when the day's work was done and the blacksmith shop was deserted, john went in to practice by himself. He used old bits of iron to fashion nails and tools and during his seven years' apprenticeship John grew into a fine blacksmith. He grew tall and strong too, a fine young man.

But all was not well with John. No longer would he go to church on Sunday evenings with his family. Instead, he mixed with a gang of rough young men who wasted their time hanging around the streets, and wasted their money on drink. One Sunday evening John was waiting for them in the street when the wife of his master came along, on her way to church. "Come with me, John," she invited. He went with her unwillingly, but he soon felt at home again in church. And it was during that service that John realized he wanted to give his whole life to God. He never missed church again. Once the preacher spoke of the South Sea Islands that everyone was talking about through Captain Cook's discoveries.

"Some people will tell you how happy these islanders are in their simple ways," he said. "But our missionaries tell a different story. These people live a savage life, worshipping their cruel gods. They kill their little children to please their idols and they sacrifice men on their stone altars to please Oro, their god of war. They live to fight and to kill and they eat their enemies. Is this the good and happy life?"

John Williams never forgot those words. He would go where Captain Cook had gone and find adventure in the service of his Master. John studied hard and offered himself to the London Missionary Society which had been set up in 1795 to take the Good News of Jesus to the South Pacific. In the year 1816 John Williams set sail in a little sailing ship called the Harriet. He was twenty years old and his wife, Mary, a year younger. It was a long voyage

round to the other side of the world. John loved to be with the sailors helping them with the sails and the ropes; By the time the year's voyage was over, he knew everything about sailing a ship.

In 1817 John Williams landed on the island of Tahiti (then one of the Society Islands), where King Pomare and his people had become Christians. One day a message came from King Tamatoa of the island of Raiatea. "Please send teachers to my people," he asked. Before long, John set sail with his wife and another missionary. Raiatea was the biggest of the Society Islands, discovered by Captain Cook. John and Mary set off with their six-month-old baby, and the Islanders greeted them with welcome symbols of hot cooked pig and a large dish of yams.

John Williams found the people happy and friendly. But since they had given up fighting and killing, the men had become lazy. Several families lived together in one long thatched house built on poles. John Williams decided to build his own house. He used coral to make cement and white paint. His house had seven rooms and when it was finished, he made furniture for it. Soon the men of the island were copying him, while John Williams learnt their language. He translated the Gospel of Luke into their language and made copies of it on his small printing press. John and Mary taught 300 children in the new school and the people met together to worship God in the new church they had built. One man asked John "Williams, when I go into the bush to pray, what should I pray? My words are, 'O Jehovah, give me your word in my heart - all your word, and cover it up there so that it will not be forgotten'. When John heard these words, tears came to his eyes, and he believed that the gospel had truly come to the island of Raiatea.

Before long, King Tamatoa and the people were taking the Good News to other islands nearby. On one island, the people came to his house and asked him to sit outside near the path. John wondered what they wanted, and thought that they wanted him to preach or explain something in the Bible. But when he went out there was a great crowd of people and each one had something in his hand. Could you guess what they had? Well, when John had taken his seat, they all marched past in a long line, and each one put an idol at his feet. The smallest idol was more than one metre long. This was their way of saying that they would no longer worship idols. John Williams was never content to stay in one place. He studied the charts of Captain Cook, eager to take the Gospel to islands where the Christian message of peace and goodwill had never been heard. He made the long voyage to Sydney in Australia and chartered a sturdy ship for his work. In the Matamua he sailed back to Raiatea and then set off to find Rarotonga, one of the Cook Islands mentioned on the charts. The anxious captain wanted to turn back, for food and water were running dangerously low But John Williams would never give up. At last the island of Rarotonga came into View and John Williams went ashore with the people who had come with him from Raiatea to teach the islanders. King Makea seemed to welcome them but that night they were attacked and had to flee back to the ship. Papeiha, one of the native teachers, insisted on going back to the island. John Williams sailed away with a heavy heart but he knew he must not stop Papeiha. He must go on training native teachers so that they could take the Gospel to their own people.

It was not until 1826, four years later, that John Williams returned to Rarotonga. How delighted he was to find that the people had burned their idols and followed Papeiha in the worship of God and in the Christian way of peace. Soon he was busy teaching and preaching, building schools and churches, and translating parts of the Bible into the Cook Island language.

John Williams in Rarotonga

There was a small group of Rarotongans at Raiatea who were learning the Christian way. They wanted teachers to go to Rarotonga to share the Gospel with their friends and families. But no-one from the London Missionary Society staff had actually located Rarotonga, knowing only that it was somewhere to the south of the Tahitian Islands where they were then stationed.

In 1823 Williams set out from Raiatea in a trading vessel to try to locate Rarotonga. He also had with him a number of teachers and their wives, including some Rarotongans, whom he had trained at Raiatea. On this trip he was seeking islands where he could place the teachers. His policy was to first meet with the village chiefs of an island.

"I have trained teachers here who are willing to stay in your village and teach your people about the Creator God and Jesus His Son," he would say. "Would you supply them with food until they can produce enough from their own gardens, and provide a house where they can live, until they build their own?"

If the chiefs were willing, then the teacher and his wife would be left there to become part of the island community and teach them about God and His Son, Jesus. John Williams promised he would visit once or twice a year to see how they were getting on and give them some encouragement.

One teacher who was with John Williams on this trip was Papeiha, a fine Christian and a good teacher. He and his friend Vahapata had worked together on the island of Aitutaki and the people had responded well to the Gospel message. When the ship reached the island of Mangaia they sailed around it, searching for an entrance through the reef.
"I can't see any gap in the reef where the ship could get through," said the captain, "we may have to by-pass this island."
Papeiha came forward. "I'm a strong swimmer. I could swim ashore and see if the people are friendly." he offered.

John Williams agreed and Papeiha dived in to the sea, swam through the uncertain waters over the reef and in towards the shore. When he was within a few metres of the beach he noticed that all the men on shore were carrying spears.
"I come in peace," he called to them, "I mean no harm to any of you. Tie up your spears in bundles. That will tell me you don't intend to hurt me."

Papeiha waited until all the spears were tied up, then he waded ashore. Addressing the village chiefs, he explained that there were two teachers and their wives on the ship, who were willing to stay and live with them. They would like to teach them, if they wished to learn, about God the Creator and Jesus His Son.

The chiefs and their villagers appeared to be in agreement and all seemed to be proceeding peacefully. Papeiha swam back to the ship and reported to John Williams, “The chiefs and the village people are happy for us to bring the two teachers and their wives to settle amongst them and teach them the Christian Gospel.”

“Very well,” said John, “Papeiha, at high tide, you go with the two teachers and their wives in the small boat to introduce them to the chiefs. We’ll send some trade goods with you as gifts for the chiefs. Gather all your things together and be ready for high tide.”

The mission team landed in the small boat which came in to shore on the in-coming tide. Their possessions had just been landed when the villagers caught sight of the trade goods. The temptation was too great. Suddenly they attacked the mission party and grabbed all their possessions, and the trade goods. They were taken by such surprise that they barely escaped with their lives.

Papeiha and the teachers made a hasty retreat in the small boat back to the ship.
“It seems we are not welcome in Mangaia at the moment. We will have to come back to them at a later date,” John Williams decided.

The ship next visited the island of Atiu, where Chief Roma came on board. The teachers from Raiatea spoke to him about the Christian message.
“We would like to tell you about the Creator God and His Son, Jesus,” they said.” Would you like to hear about Him? “

Chief Roma was very interested and listened keenly to what the teachers told him.
“Please tell me more,” he would say. “I want to know all about your God.”
When he became a worshipper of God he asked the missionaries, “What about the idols I’ve served all these years? I don’t worship them or serve them anymore.”
“If they’re no use to you, you could throw them away,” responded the missionaries, knowing that this was a decision Roma had to make for himself. He thought about it for only a short time before he agreed to throw them away and serve only the true God.

John Williams was talking with Roma one day. “Do you see those two small islands across the water over there?” said Roma, pointing to two islands on the horizon, “I’m the chief of those islands as well as Atiu.”
“If you’re their chief, you could go and tell the people there about the true God,” suggested John Williams. Roma agreed and became a missionary to his own people, telling them what he had learned from the teachers on the ship. He did this so successfully that the people of both islands embraced the Christian faith.

“We would like to leave teachers with you here at Atiu to continue the Christian teaching,” John Williams said, when they were preparing to leave on the next stage of their journey, “but there are none available from the people we have on the ship. We will send a teacher to you after we return to Raiatea.”

Chief Roma and his people were disappointed, but God had His own way of providing teaching for these new believers. A canoe, with Christians on board, was returning from Tahiti to Raiatea when it was blown off course by a severe storm. They were driven about the ocean for six weeks, during which time they suffered badly from hunger and thirst. Eventually they sighted land and came ashore on Atiu, where Chief Roma took care of them.

"A ship called here not long ago," Roma told the weary travelers, "There were people on board who taught us to worship the Creator God and His Son, Jesus. We've thrown away the idols we used to serve."

Weary as they were from being carried about on the ocean for six weeks, the Raiateans were excited to learn that they had been washed up on an island where the people wanted to learn more about the Christian way of life. As soon as they had recovered enough from their ordeal they began to share their Christian teaching with the new Christians on Atiu. Day by day the Raiateans helped these villagers to understand more of what it meant to be a Christian.

There were some villagers who had not been wholehearted in their change away from idols to the Christian way, but these people observed the loving way the Raiatean Christians lived among them and they said, "Now we know this religion is true; these people have not come here to deceive us. They really love us and love each other. They were driven by the waves of the ocean. They have their books with them, and the God to whom they prayed has preserved them. The Christian God is the true God. We will serve Him with all our hearts His way is a way of peace."

Before John Williams left Atiu with the remainder of his team of teachers, Roma gave him correct directions to find Rarotonga: south-west by west, as it proved to be, and "a day and a night's sail". But for several days they were blown about by contrary winds. Their food supply was seriously short, and the ship's captain came to John Williams early one morning to say, "We must give up the search for Rarotonga and turn back to Raiatea, or we'll all be starved."

John replied, "Could we continue the search until eight o'clock? If we don't see the island by then we'll turn for home."

Four times in the next few hours Williams sent a crew member up the mast to scan the horizon for sight of land, but there was only ocean to be seen. Time was slipping by, everyone was anxious. It was just half an hour before the agreed time to give up the search when, for the fifth time, the boy ascended the mast. But this time there was the cry, "There's the land we've been looking for! There's Rarotonga!" Suddenly the gloom turned to joy and thankfulness to God for bringing them safely to the island they had been seeking.

A canoe with Papeiha and a Rarotongan, who had been brought back on the ship from Aitutaki, went ashore and received a good welcome. The family of the returned Rarotongan was pleased to welcome him home. An island chief went on board ship and found his own cousin among the group who had returned to Rarotonga.

Papeiha spoke to the chief. "We have come from Raiatea where we learned about the Christian way of life. Would you give us permission to leave some teachers here with you?

They would teach you the Christian way of worshipping God. Your brothers who came back to you with us will tell you about it."

The chief and villagers discussed the matter among themselves for a while, then the chief said, "We agree to your teachers living with us to teach us the Christian way."
All seemed to be very promising as the teachers spent the night on the ship preparing their things ready to disembark in the morning. However, in the morning a more powerful chief arrived just as they were coming ashore. He looked at the party of teachers and their wives and pointed out one of the women. "I want her for myself. She will be my wife. Give her to me!"

Once again trouble broke out as the chief and the mission team argued over the unfortunate woman. "I'm afraid we'll have to give up the plan to land teachers here at present," said John Williams, "we can't leave them here when there is a risk to their lives."

They were about to return to the ship in the small boat when once again Papeiha courageously stepped forward.
"I'm willing to stay here and teach the Rarotongans about the Christian way," he offered. "Maybe they will kill me, maybe they will let me live, but I will land among them. Jehovah God is my shield. I am in His hands."

The chiefs agreed to this arrangement, so Papeiha stayed alone. His only request was that they send him a helper from Raiatea, his friend Tiberio. Papeiha was not entirely friendless there, as the six Rarotongans who had returned from Aitutaki on the ship were all Christian believers. They promised to help him. Tiberio arrived in due course and within a year the whole population of the island had renounced the worship of their idols and begun to learn about God the Creator and Jesus His Son.

More than four years had passed since John Williams left Papeiha and Tiberio on Rarotonga and now, in 1827, he and another missionary with six Tahitian teachers were on board a trading vessel bound for Rarotonga. The intention was for the missionary and the six Tahitian teachers to stay at Rarotonga to establish a teaching institution there. John Williams's wife and two little boys accompanied them. "We will stay at Rarotonga long enough to help establish the training institution," John Williams told his wife, "then we will return to Raiatea on the first trading vessel that comes this way."

Weeks passed, the new missionaries had settled in well, the Bible school was under way and John Williams was searching the horizon every day for any sign of a ship coming in to their harbour, for he was now anxious to return to Raiatea. But time passed with not a vessel to be seen that would transport them. Rarotonga was not on the main routes of the trading vessels, so ships were infrequent.

John Williams leaves Rarotonga
"I can't stay here forever," thought John Williams, "What can I do?"
Being very practical as well as very creative, John Williams began to do the impossible. He set to work to build a ship. Here he was on a remote island in the Pacific, with only the minimum of tools, a little experience in boat building, from his time at Eimeo when he first arrived in

Tahiti. There were no materials at hand except the trees in the forest and no plans on paper for the design of the ship. What he did have was a great vision and determination to have his own vessel to enable him to evangelise these other islands he constantly thought about. He also had the labouring help of the village people whom he paid with the usual trade goods.

First he had a large open shed built of bush materials, making the roof higher than normal to avoid sparks getting into the highly flammable coconut leaf thatch. His anvil was a huge block of volcanic rock. The bellows were a fantastic invention using air in the same way as water is drawn up and thrown out in a pump. Two long, heavy pieces of iron-wood worked the bellows that blew the air to keep the fire burning steadily. It took thirty men to work the bellows continuously, half of them working and half resting.

He used pick-axes, an adze, old hoops of iron and a hoe to make anchors and a rudder. He made some nails on the forge from scrap iron, but as there wasn't enough metal he also made wooden pegs to hold the vessel together.

The young men climbed the coconut trees for coconuts, then split them and tore out the fibre which was used to caulk up the gaps between the wooden planks. The women were set to work to weave pandanus sails. First, they gathered the long pandanus leaves from the bush, boiled them in a large pot, and laid them out on mats to dry in the sun. When the leaves were ready the women gathered in a group to weave them into large sails.

The village men cut down suitable trees in the forest to be split into lengths for the hull of the ship. Williams constructed a lathe to shape the timbers, and a machine to spin the ropes and cords from plant fibres. In four months, they had achieved the impossible and completed the "Messenger of Peace", a vessel of about sixty tons, and were ready to take the ship on a trial run. There was great rejoicing and praise to God who had enabled them to complete the ship under such impossible conditions.

Now John Williams was considering his next step.
"It's a long way to Raiatea. If I take the ship there first there may be trouble. I need to take it a shorter distance for a trial run somewhere closer."

After discussing it with the chiefs who knew the islands of the area, they set out for Aitutaki, about 150 miles away. The trial voyage proved most satisfactory. The weather fortunately was kind to them and the ship performed well in the water.

On his return to Rarotonga Williams spoke to the crew, "This ship is good enough to take the trip back to Raiatea. Get everything ready and we'll leave as soon as possible."
John Williams went to his home. "My dear, "he said to his wife, "our days of waiting are over. We can pack up our things and go back to Raiatea on the Messenger of Peace."

Mrs. Williams was as relieved as her husband that they could return to Raiatea and they were able to leave with their two little boys in a couple of days. Fortunately the weather was favourable so that they had a fair trip. Even so, by the time they arrived at Raiatea the Messenger of Peace looked much the worse for wear. John Williams looked at the long strips

of coconut fibre caulking that had come adrift from between the planks and were now hanging like festoons down the sides of the ship.

"What a blessing that the Lord of the wind and the waves was watching over us on our voyage" he thought. "If there had been rough weather; all the caulking would have dropped out of the timbers. Then the rough seas would have broken up the hull completely and we would all have been lost. Thank you, Lord for Your protection."

John Williams was able to purchase canvas to make more durable sails and proper oakum for caulking, so that the vessel was more sea-worthy for later trips. Nevertheless, the construction of the Messenger of Peace on Rarotonga was a miracle of creativity and determination.

John Williams was excited at having his own ship. Now it was possible for him to plan visits to the other island groups in the vicinity without having to depend on the arrival of trading vessels. He visited the Leeward and Windward Islands, the Hervey group and others further west.

Wherever he travelled he followed the same method. He prepared and trained a team of Tahitians to be evangelists and teachers who joined him on the ship. Then he would speak to the chief of the island he had chosen to visit, asking him, "Do you want to have teachers in your island who will teach you about the Creator God and His Son, Jesus Christ?" If the chief said," Yes." the next question was, "Are you willing to receive them with their wives into your village, provide them with a house to live in, land for their food garden, and food from your gardens, until such time as they can harvest their own crops?" Provided the chief agreed to this, two of the Tahitian teachers with their wives would be left there to begin their task of evangelism and teaching. Williams also used his ship to make visits back to the teachers from time to time, to help and encourage them.

As the people took on the Christian faith their way of life changed. Peace came where there had been inter-tribal war; cleanliness and better health where there had been dirt and sickness; the heathen idols were burned as the people began to worship God the Creator Spirit. Truly John Williams had been prophetic in naming his ship the "*Messenger of Peace*."

During the next several years his eyes and his mind were on other groups of islands further to the west. First he visited Samoa, leaving teachers at several points to continue sharing the Gospel. From Samoa he visited Tonga. The people he had trained worked in Tonga and Fiji.

John Williams still had the vision to extend into the islands further west.
"I believe the islands of the New Hebrides would be the best place to establish a mission. From there we could reach out into New Guinea, New Caledonia and other island groups in the vicinity," he thought to himself. He was forever planning ways to reach out westwards to those unreached islands.

In 1837 John Williams and his family sailed to England where he told the church people about the "*Messenger of Peace*", why he built it and how he built it. The story aroused so much

interest that people gave enough money to purchase a new, larger boat to replace the "*Messenger of Peace*".

The new ship, the "*the Camden*", would make it possible to venture further west than they had been before. On their return voyage from England to Raiatea John Williams spent much time thinking and planning missionary trips to the western Pacific Islands. He was refreshed and ready to set out on this extension of the mission's work.

By 1839 he had a number of Tahitians trained as teachers ready to venture into unknown islands with the Christian message. With two other white missionaries on board they set sail in the Camden, heading west from Tahiti. Their aim was to reach the New Hebrides where they would investigate the possibility of establishing a mission station which would be a spring-board for working in New Guinea and New Caledonia.

On the way they called at Samoa, meeting the teachers and pastors they had trained at Raiatea. The Christian community in Samoa was growing in numbers as well as in understanding of the Christian way of life. They spent a few days with the Christians there, worshipping, teaching and feasting, enjoying wonderful fellowship together. After a brief stop at Rotuma, north of Fiji, they set out westwards for the New Hebrides.

As *the Camden* was approaching Tanna, at the southern point of the New Hebrides group, they wondered how the islanders would the islanders receive them. Would they be friendly, or not? Next morning a group went ashore in a small boat to visit the people and ascertain what kind of welcome they could expect. To their great relief they were welcomed gladly and showered with gifts of yams, pigs and coconuts. Plans were made for two of the Tahitian teachers to be left there in the future.

They sailed on later the same day and stood off the island of Erromanga, Vanuatu, ready to land early the next morning. Encouraged by the happy reception at Tanna, Williams was keen to go ashore and test the attitude of the people of Erromanga. A group of Erromagan men in a canoe approached the ship but stayed at a distance, too timid to come any closer. The missionary party in the ship's small boat rowed further along the shore, some villagers following them on land. One member of the party, Mr. Harris, ventured on shore to look around, without any adverse reaction from the villagers. Thinking it was safe, John Williams followed.

Mr. Harris had been exploring a small stream when suddenly he burst out of the bushes yelling, "Run!" He was followed and struck down by a group of villagers who clubbed him to death. John Williams ran for the sea, but stumbled on the stony beach, which gave the men time to catch him, club and spear him to death also. The others of the missionary party left in the small boat escaped to the ship. The ship's captain and the team left on the ship had watched in horror as they saw John Williams and Harris so suddenly and unexpectedly taken from them.

They saw the villagers drag the bodies into the bushes. Next day a small group from the ship went back to the shore in the small boat hoping to find the remains of their friends to return to Raiatea, but they found only the remains of a cannibal feast.

What a sudden and tragic end to the life of such a great man of God! But "the blood of the martyrs is the seed of the church" and when the tragic news of Williams's death reached England it stirred up another wave of active interest in the cause of missions to the Pacific.

It was some years later that missionaries were told the reason why John Williams and Harris were killed. Not long before *the Camden* visited Tanna and Erromanga a trading vessel had called in there. The sandal-wood trader on board had ruthlessly killed the son of a chief of Erromanga, and the killing of John Williams and Harris was a 'pay-back' for that. For these villagers all white men were 'the enemy' and must be killed.

Although the London missionary society made seven more attempts to establish teaching centres on Tanna, twenty years were to pass before a successful Christian work was established in the New Hebrides (Vanuatu). John Paton from Scotland was the courageous missionary that God used to turn the people of Tanna to Himself.

Timeline of John Williams:
1790 – born
1817 – travelled to Society Islands, (Tahiti) and worked as missionary on island of Raiatea
1821 - travelled with Tahitians to Aitukaki. From here travelled with Tahitians to Rarotonga and learned their language. (Aitukaki and Rarotonga are part of the Cook Islands.)
1834 – returned to Britain to print the New Testament in Rarotongan
1839 – visited New Hebrides (Vanuatu), with missionary friend Mr. Harris. Both were killed and eaten on the island of Erromango

Activities
1. Find Tahiti on a map. Trace the journey with your finger from England to Tahiti.
2. What was Tahiti called in those days?
3. Trace the journey from Tahiti to Sydney.
4. Find Rarotonga. Trace your finger from there to Samoa and then to Vanuatu (formerly New Hebrides). Can you find the island of Erromanga?
5. Make a list of all the Pacific Islands John Williams visited, using the name of the islands as they are today.
6. How old was John Williams when he died?

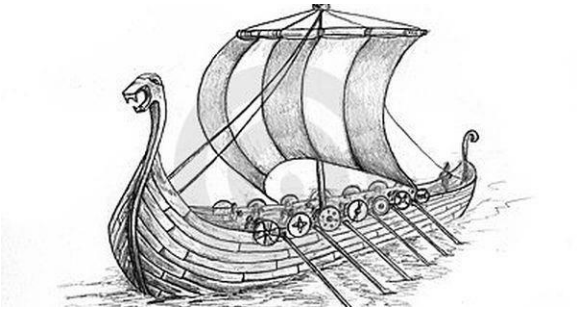
Sea voyages 1
The Vikings

Student activities

The Vikings were pirates from the Scandinavian countries of Norway, Sweden and Denmark.

The Vikings traveled the seas of between AD 700 to 1100. They traveled to countries such as Britain and Ireland. Some went to fight and steal treasure. Others settled in new lands as farmers, craftsmen or traders. The Vikings also made discoveries of new lands: Iceland, Greenland and North America.

They used the sun and stars for navigation. They also carried with them a cage of ravens. When they thought they were near land they would release the ravens. If the ravens returned, they knew they were not near land. If they didn't return, they knew that land was close by.



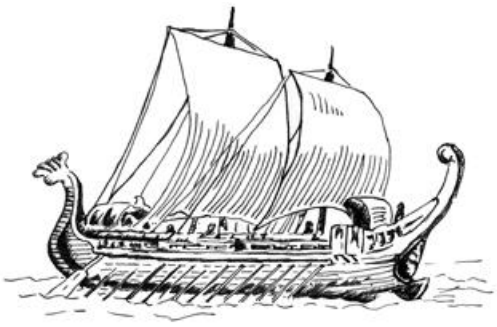
1. Draw and describe the Viking's boat in words.
2. How was the boat propelled? (2 ways)
3. Where else in history is there a recorded information about releasing birds to find out whether land was near?

Sea voyages 2
The Phoenicians

The Phoenicians were the people that came from the lands we know today as Syria, Lebanon and Northern Israel. They were masters of sea travel covering great distances in their ships of trade and war. History records from the 6th Century BC show that they were the first people to travel to the Atlantic coasts of Africa and Europe. Jonah would have traveled on one of these ships.

When making short trading trips they traveled close to the coast, keeping land in sight. Most nights and during bad weather they chose to bring their ships in to protected areas along the coast. Trading trips on the Mediterranean took place almost totally between March and October when weather conditions were best.

For longer voyages that required sailing in the open ocean, they used the stars. They would maintain the right direction by observing the "Phoenician Star" and now known as Polaris or the North Star.



1. Draw a map of the Mediterranean and show where the Phoenicians lived.
2. What did the sailors do in bad weather?

Sea voyages 3
Pacific Polynesians

Polynesian navigators used a whole range of techniques including use of the stars, the movement of ocean currents and wave patterns caused by islands and atolls, the flight of birds, the winds and the weather.

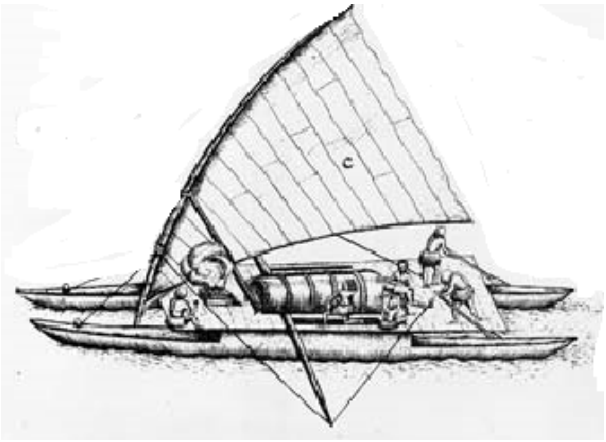
Bird observation

Long-distance Polynesian voyaging followed the seasonal paths of bird migrations. A voyage from Tahiti, the Cook Islands to New Zealand might have followed the migration of the long-tailed cuckoo.

On his first voyage of Pacific exploration, Captain James Cook had the assistance of a Tahitian navigator, Tupaia, who drew a chart of the islands within a 3,000-km radius (to the north and west) of his home island of Ra'iatea. Tupaia had knowledge of 130 islands and named 74 on his chart.

His grandfather and father had passed to Tupaia the knowledge as to the location of the major islands of western Polynesia and the navigation information necessary to voyage to Fiji, Samoa and Tonga.

Draw a Polynesian boat and describe it in words.



Sea voyages 4
European exploration

British, Spanish, Portuguese and Dutch explorers made major discoveries in the 15th – 18th centuries.

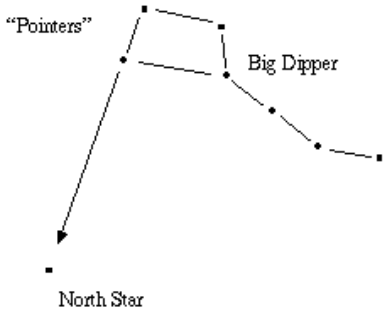
Christopher Columbus (Italian) discovered America in 1492, commissioned by the King of Spain.
Dirk Hartog (Dutch) discovered the West Coast of Australia 1616.
Abel Tasman (Dutch) discovered Australia's Southern island, Tasmania, in 1642.
James Cook (English) discovered the East Coast of Australia 1770.
James Cook discovered South Georgia Island, just to the north of Antarctica in 1774.
Roald Amundsen (Norwegian) was the first to reach the South Pole 1911.

Draw an early European sailing ship and describe it in words.

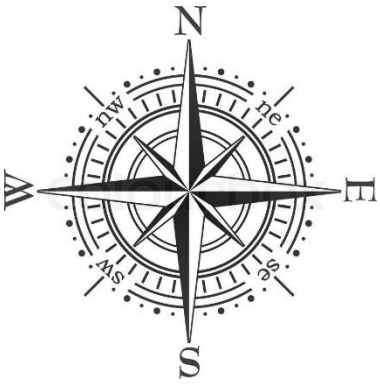
Sea voyages 5
Early methods of navigation

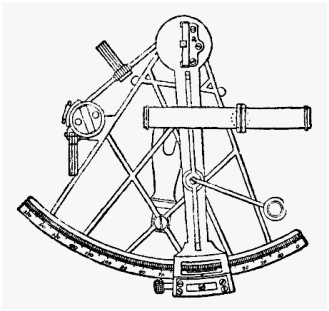
Sailors from many parts of the world used the North Star, also called Polaris, as a sign post in the sky. It is a fixed star and true north can be found directly under this star.

The northern star is always just near the “Saucepan” (Southern Hemisphere), or “Big Dipper (Northern Hemisphere).



European explorers developed instruments to guide them. These were the compass, which always points north, and the sextant which was used to find the angle of the sun or stars above the horizon.





1. Draw the North star and the “Big Dipper”. Where would you find the Big Dipper?
2. Draw the North star and the “Saucepan”. Where would you find the Saucepan?
3. Draw a compass and a sextant and say what they are used for

Sea voyages 6
Mapping

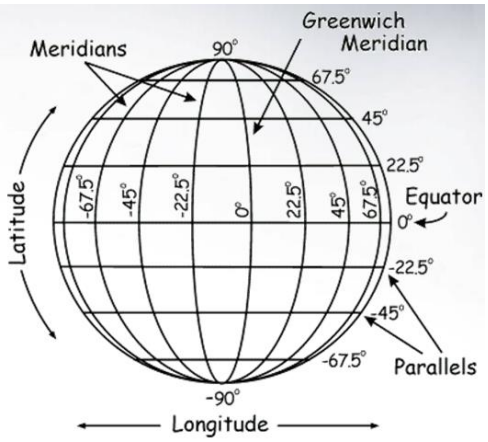
The early Greeks developed a system of showing where you are on a map, by parallel horizontal and vertical lines, which we now call latitude and longitude.

The horizontal lines are lines of latitude. Each degree of latitude is approximately 111 kilometers apart, although there is little variation as the earth is not perfectly round as it is shaped slightly like an egg.

The vertical lines on the globe are known as longitude. They all come together at poles and are widest at equator i.e.at the middle of the earth. Greenwich in England is at zero-degree longitude.

Degrees of longitude and latitude are divided into minutes and seconds. Every degree has 60 minutes and every minute has 60 seconds.

Early explorers could calculate latitude by the position of the sun, but to calculate latitude they needed an accurate clock.



Find out the latitude and longitude of the place you live.

Sea voyages 7
Facts about ships

- Large watercraft are generally called ships.
- Smaller watercraft are generally called boats.
- They are designed to float on water, whether it be in lakes, rivers or seas.
- Boats and ships serve a variety of purposes including transport, recreation, fishing, sporting competition and military operations.
- Some boats are human powered, including kayaks, canoes and gondolas.
- Sailboats are propelled by wind and sails.
- The tall upright post on a sailboat is called a mast.
- Motorboats are propelled by engines.
- Cargo ships carry goods between ports around the world.
- The hull is the main body of a boat or ship.
- Starboard and port are nautical terms which describe the right (starboard) and left (port) sides when facing the front (bow) of a ship or boat.
- The rear part of a ship or boat is called the stern.

1. What is the difference between a ship and a boat?
2. Draw and label some different kinds of boats.
3. Draw a ship and label the parts of the ship.

Sea Voyages 8
How do boats move?

There are a large number of different ways to move the ship through the water:

Oars – the first source of ship propulsion ever developed. They rely on the strength of the person in the boat to pull the boat along, and are normally only seen on smaller boats which are easier to propel. Not great to move a large container ship

Sail – uses the wind to propel a boat through the water. Great when there's wind about. Awful on a bright calm day

Paddle steamers – use large paddle wheels to push a boat through the water.

Propeller – the most common form of ship propulsion today. They can operate on their own or in groups of two or three, and are normally mounted in a fixed position on the ship.

For the ship to move, the propeller needs a source of power, or an engine. This is normally placed in the centre of the ship low down as it can be very heavy. To connect the engine to the propeller, a propeller shaft can be used, providing a physical link.

Draw four different kinds of boats and show how they are propelled. Use words to help you describe each drawing.