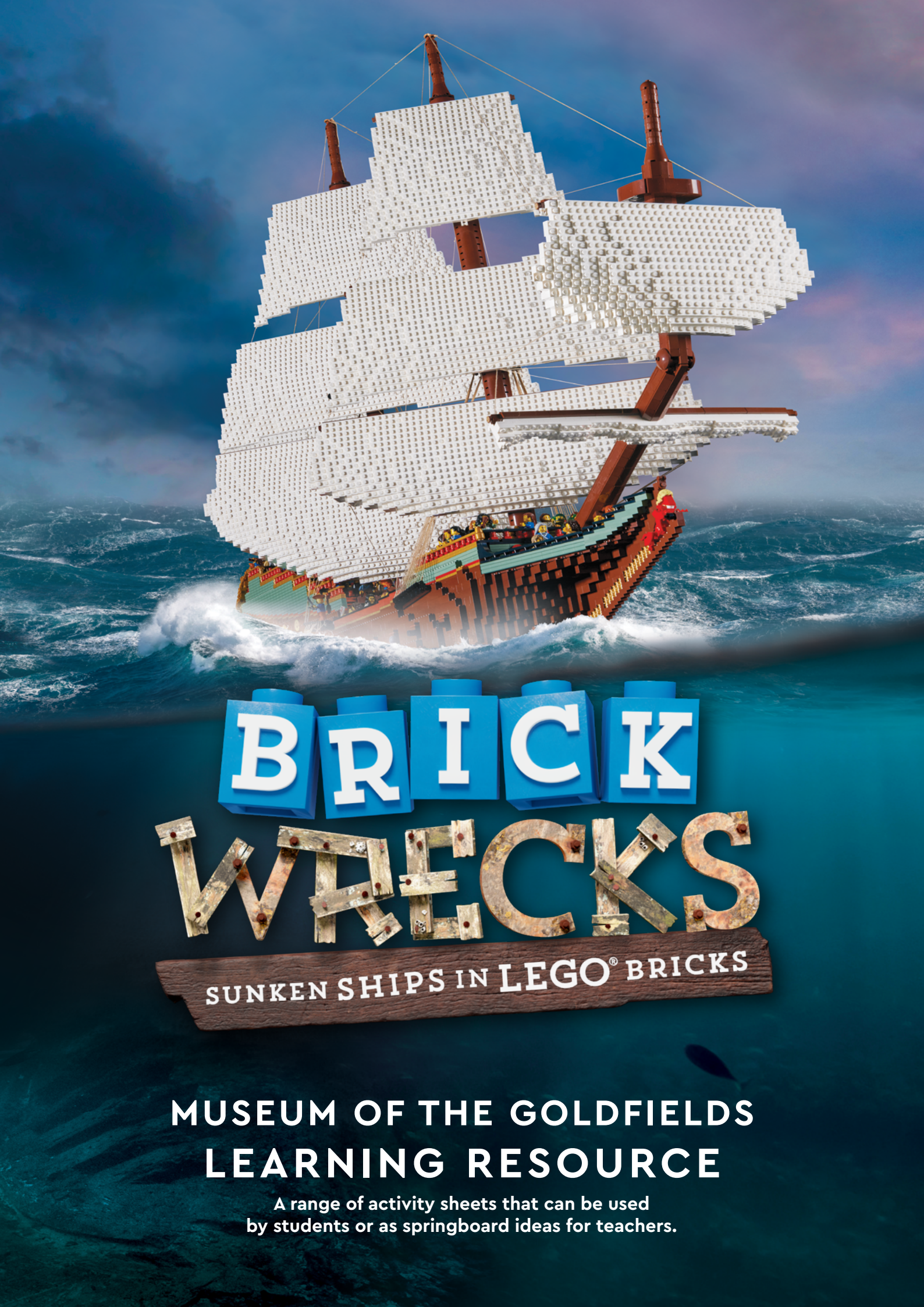


MUSEUM OF THE GOLDFIELDS
LEARNING RESOURCE

A range of activity sheets that can be used by students or as springboard ideas for teachers.

We recognise and respect the Traditional Owners of this Country and their connection to the lands, waters and skies.

GOVERNMENT OF WESTERN AUSTRALIA
WAM MUSEUM OF THE GOLDFIELDS
MUSEUM AUSTRALIAN NATIONAL MARITIME MUSEUM
brickman®
LEGO Certified Professional

CONTENTS

Introduction **4**

About the exhibition **5**

Exhibition key messages **5**

Exhibition themes for schools **6**

Exhibition summary **7**

How to explore the exhibition **11**

Indentity cards 11

Profession profiles 14

Back at school overview **19**

Model Building – Design and Technologies **23**

Maritime Archaeology – Science and HASS/History **25**

Maritime History – HASS/History **26**

Writing – English **31**

Sustainability – Cross-curriculum Priorities **33**

LEGO® extras **34**

Other resources **36**

Appendices **37**

Indentity cards 38

Building a model ship – Plan 43

Building a mode ship – Research 47

Building a model ship – Draw 48

Building a model ship – Gather 49

Building a mode ship – Test 50

Building a model ship – Record 51

Building a model ship – Build 52

Building a model ship – Use 53

Building a model ship– Evaluate 54

Curriculum links 55

INTRODUCTION

A partnership between Ryan "The Brickman" McNaught, the Western Australian Museum, and the Australian National Maritime Museum brings *Brickwrecks: Sunken Ships in Lego® Bricks!* to thousands of LEGO ® fans across Australia.

This learning resource can be used for teachers to familiarise themselves with the exhibition content, to plan how students explore and view the exhibition, and to follow the visit with related classroom activities.

The exhibition and its themes are suitable for Years 1–10 and can be linked to the following classroom topics:

- Design and Technologies – model building
- Science – testing materials and designs for model building
- Science – maritime archaeology
- History – ship journeys (from ancient through to modern times) and famous shipwrecks
- English – writing shipwreck accounts/stories in various genres

ABOUT THE EXHIBITION

From the watery depths! Discover the stories of eight extraordinary shipwrecks, revealed in incredible LEGO® model detail.

Ryan "The Brickman" McNaught, working with expert maritime archaeologists, brings to life eight* astonishing shipwrecks and their stories in this immersive exhibition.

Featuring large-scale LEGO® models of ships such as Western Australia's famous *Batavia*, the "unsinkable" RMS *Titanic* and the ill-fated HMS *Terror* and HMS *Erebus*, this exhibition uncovers the stories of the voyages, life aboard the ships, their watery demise and the shipwreck detectives who locate and document the wrecks.

Learn about trade, exploration, famous naval missions and more through the eyes of maritime archaeologists and model builders.

This engaging exhibition is perfect for school groups studying Design and Technology (model building), History (exploration/trade/migration/war) or Science (scientific aspects of model design and maritime archaeology). It can also be inspiration for students studying English, as the shipwreck stories are so fascinating, there are countless ways that they can be re-told.

* NB: Some regional Museum sites may not feature the complete exhibition.

EXHIBITION KEY MESSAGES

Shipwrecks are a unique record of human endeavour, engineering, trade and cultural dialogue, global politics and power, captured at a point in time.

Maritime archaeology is an active field that uses scientific techniques to survey, record, analyse and conserve shipwrecks.

Maritime history and archaeology can help uncover evidence about the story of the ship, its construction and purpose, and about the people on board.

LEGO® models represent the way archaeologists test theories and conduct research through the construction of 3D models, and the way museums use models to communicate with visitors.

EXHIBITION THEMES FOR SCHOOLS

Below is a brief outline of how this exhibition is a wonderful tool to reinforce Learning Areas in the Australian Curriculum

- **Creating and using models** – Design and Technologies

The process of considering the model's purpose, designing and building the shipwreck models are a central theme in the exhibition. The concept that models can be used for a variety of purposes and following a thorough design process is something that can be further explored in the classroom.

Models can be used to test ideas (Science) and to tell stories (History and English), so there is a flow-on from Design and Technologies into these other curriculum areas.

- **Maritime archaeology** – HASS/History and Science

Maritime archaeology has strong links to the Science and History learning areas.

From a scientific perspective, maritime archaeology uses science knowledge and skills for exploring, recording, analysing and conserving shipwrecks.

From an historical perspective, shipwrecks are like a 'time capsule' that represent technology, trade, culture and power. Students can learn more about history by examining and interpreting the sunken ships and the objects found on board.

- **Shipwrecks and history** – History and English

The exhibition includes shipwreck stories from thousands of years ago, through to the last few decades. This enables the students to visit several points in history, and to delve deeper into that period in time. Evidence from the wreck that reveals when the ship sank, and where it came from, helps the students to study that historical period and/or culture, and to find out more.

- **Shipwrecks and their stories** – English and History

By using the evidence left behind, the students can explore and experiment with the different ways that the stories can be told (for example as a diary excerpt, a letter, a factual essay, a newspaper article or an historical fiction).

- **Shipwrecks and sustainability** – Cross-curriculum Priorities

Shipwrecks, by their very nature of sinking to the seabed, can have a direct impact on the marine environment. In many cases, the ecosystem is able to recover and the wreck can often become a part of the underwater landscape in which sea animals can live, breed and shelter from predators.

In other cases, the wreck can do substantial damage, particularly when there is spillage of non-biodegradable cargo, such as plastics and oils. Students can use shipwreck stories to consider the environmental impact and plan ideas to help avoid or address these issues in the future.

EXHIBITION SUMMARY

The following pages contain a summary of the text panels and a brief description of the models, objects and interactives that are displayed.

This can be given to students or discussed as a starting point for further research.

Uluburun Wreck

Over 3,300 years ago, off what's now Turkey, disaster struck. A ship went down and goods worth around 350 million dollars in today's money sank to the seabed. Found by accident in 1982, the Uluburun wreck (named after its Cape Uluburun site, this ship name is not italicised as we don't know its real name, or if it even had one!) is one of the world's oldest underwater shipwrecks.

Its 20 tons of cargo from 11 different ancient cultures took more than ten years and 22,500 dives to recover, but also made the Uluburun wreck one of the greatest archaeological discoveries to date – along with Tutankhamun's tomb and Machu Picchu.

The things found on board the Uluburun wreck tell us lots of information on lots of topics. They are a time-capsule of life over 3,000 years ago. We've learnt how the ship was made – they built the outer hull first, then added the framing skeleton inside using mortise-and-tenon joints, which lock together like LEGO®. We also know where its crew were from – personal items like tools, weapons and oil lamps show they came from the Southern Levant (today's Israel and Syria). Its cargo tells us loads of information about Bronze Age life, including trade, technology, manufacturing, international relations, tools, weapons and musical instruments.

Touch & Play This display includes a drag and drop cargo matching game.

Batavia

Batavia was on its maiden voyage when disaster struck, but had made it – to the other side of the world. *Batavia* left Holland in October 1628 carrying trade goods, chests of coins, building supplies and more than 330 people. It was taking them to its namesake Batavia (now Jakarta, capital of Indonesia), where VOC (Dutch East India Company) officers were planning to buy spices to take back to Europe.

Francisco Pelsaert commanded the fleet, above the resentful captain Jacobsz, who plotted a mutiny with second-in-charge merchant Cornelisz to steal the ship and all the money. But before they could attack, the ship hit a reef at the Houtman Abrolhos islands off Western Australia.

The survivors and some supplies were ferried to nearby islands, but there was little food or water. Pelsaert took the ship's longboat to the mainland to look for water, but having no luck, sailed the 3,000 km to Batavia for help.

Officially left in charge of the stranded group of survivors, Cornelisz seized the moment and took command of the supplies, weapons and survivors. In the weeks that followed, he and his followers murdered around 125 men, women and children. After dramatic conflict, Cornelisz was eventually captured by some of the soldiers he'd stranded on another island. When Pelsaert returned three months after leaving, he punished the murderers and rescued the survivors.

In the 1970s, archaeologists from the WA Museum began excavating the wreck of the *Batavia*, and later investigated the graves on the islands. Their ongoing research into the archaeological evidence both on land and underwater tells us more about this disaster.

This display includes some real objects from the Batavia, such as cannonballs, Beardman jug fragments and some coins. Also, students can see an underwater camera and can use blocks to build a stone portico.

Terror and Erebus

Royal Navy ships HMS *Terror* and HMS *Erebus* set off from England in May 1845 to search for a route around the top of North America into the Pacific – the 'Northwest Passage' through the Arctic. In July they visited the Whale Fish Islands off Greenland, and were spotted by some whaling ships near there. It was the last time the 129 explorers, led by Sir John Franklin, were ever seen by westerners.

Since then, more than 30 expeditions have hunted for them, but few found any trace. The clues they uncovered, from deserted campsites, cairns and graves, showed the ships became stuck, frozen into the sea ice, in September 1846. They were eventually abandoned when their surviving crew set off to find help. They never made it.

In recent years, searchers used modern technology to survey large areas, focusing on locations suggested in local Inuit oral histories. HMS *Erebus* was finally found in September 2014, HMS *Terror* two years later.

Both ships are remarkably intact, but weather and ice conditions only allow a short five-to-six-week window each year for researchers to visit. There are still many mysteries surrounding what happened to them. The search for answers continues.

This display includes an interactive where students can use a joystick control in an ROV simulation.

Titanic

On 10 April 1912, the world's largest ship, the 269-m-long RMS *Titanic*, set sail on a journey across the North Atlantic, from Southampton, England, to New York City. RMS stood for Royal Mail Ship, as it was contracted to carry post for the British Royal Mail.

Late at night on 14 April, *Titanic* hit an iceberg on its starboard side, and freezing water gushed in at 7,000 litres (about 45 bathtubs) a minute. It was designed to stay afloat if four of its forward inner-hull floatation compartments flooded, but researchers think the iceberg opened six of them. In just over two and a half hours, *Titanic* sank, and 1,496 passengers and crew lost their lives.

Titanic contacted other ships in the area by telegraph, but the closest vessel that answered was *Carpathia*, 93 km away. It arrived about four hours later and rescued the 712 survivors who'd made it into lifeboats. *Titanic* had only 20 lifeboats rather than the 48 that would be needed to save everyone on board. Most shipwrecked passengers floating in the icy ocean soon died from the cold.

Titanic was lost, but as one of the most famous shipwrecks in the world, and star of countless books and movies, it was never forgotten. Then, on 1 September 1985, a team led by oceanographer Robert Ballard and French explorer Jean-Louis Michel discovered the *Titanic* wreck about 600 km southeast of Newfoundland, Canada. They had been searching for over a week, towing a submersible camera on a sled behind their ship.

This display includes an interactive screen for students to explore the sinking.

Rena

At 236 m long, MV *Rena* was nearly 16 times the length of the Uluburun ship, and could carry a lot more cargo. Just after midnight on 5 October 2011, MV *Rena* ran at full speed (over 30 km/hr) straight into Otāiti, a reef 27 km off the coast of New Zealand. There it became stranded, tilted to one side, spilling pollutants into the sea. So began New Zealand's worst maritime environmental disaster.

Rena was carrying more than 1,300 shipping containers, eight of them full of hazardous materials, such as pesticides and strong acids, as well as 1,700 tonnes of heavy fuel oil (HFO) and 200 tonnes of marine diesel.

After the grounding, up to 350 tonnes of oil escaped, plus a lot of cargo from the containers, including plastic beads, latex gloves, packets of milk powder, timber and furniture. Drifting and submerged containers became shipping hazards. By 9 October, the oil slick spread 5 km from the wreck. The next day it began washing ashore, devastating wildlife. Eventually *Rena* broke in half and the back part slid off the reef and sank.

Modern technology may mean fewer ships are lost without trace, and more crews are rescued, but shipwrecks today can have a huge impact on our environment.

The *Rena* wreck site isn't an archaeology project (yet), but it still has lots to teach us.

This display includes an interactive screen where students can clean oil off a penguin.

Additional displays

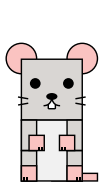
Other displays in the exhibition include LEGO® building tables, which students can explore in small, supervised groups.

How to use Farun

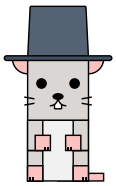
Farun is the official mascot of the *Brickwrecks* exhibition. He is a mouse (lots of mice and rats were found on ships in the past).

Farun's name means 'mouse' and 'runaway' in Arabic. The model of Farun is exactly one metre tall, so when students find him, they can use him to compare to their own height, and then as they explore the exhibition, they will see his scaled-down picture in diagrams of ships, which will help them to understand the size of the ship.

Farun also appears in text panels to help provide a student-friendly and humorous interpretation of the shipwreck stories.

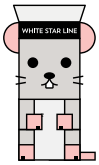


Uluburun

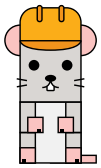


Batavia

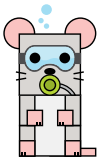
Terror and Erebus



Titanic



Rena



Maritime Archaeologist

HOW TO EXPLORE THE EXHIBITION

Below are some 'identity cards' that can be copied and given to students (either on a clipboard or as a lanyard). Each card contains some focus questions for the students to help them view and engage with the exhibition from a certain perspective.

If your class is studying a particular learning area, you may wish to give them all the same 'identity' to follow. If you are just coming to the exhibition for a more general visit, you may wish to let students choose their identity.

Also included are some profiles of real professionals in the field, so that you and your students can learn more.

MODEL MAKER

You are a model maker. Your mission today is to learn about building a model ship.

When you visit each display, answer these questions:

- What is this model's purpose e.g. to explain how the ship was wrecked, to show what life was like on board, to show how the ship operated, to explain how the wreck was explored?
- Does the model show what the ship was for e.g. cargo, exploration, warship or passengers?
- Does the model show how the ship was powered?
- Can you tell what materials the real ship would have been made from? How?
- What special LEGO® parts and minifigs have been used in a creative way?

MARITIME ARCHAEOLOGIST

You are a maritime archaeologist. Your mission today is to learn about exploring shipwrecks and their objects.

When you visit each display, answer these questions:

- How and when was this ship wrecked?
- How and when was the wreck discovered?
- What equipment and tools were used to find the wreck and explore it?
- What artefacts were on board? How did the sea water affect them? What can we learn from these objects?
- What challenges were experienced by the maritime archaeologists underwater?

MARITIME HISTORIAN

You are a maritime historian. Your mission today is to use shipwrecks to learn about the past.

When you visit each display, answer these questions:

- In what historical era did this ship sank? What do you know about the world at this time?
- Where was the ship from and where was it headed? How do we know?
- What objects were found on the ship? What can we learn from them?
- What does this wreck tell us about life on board the ship?

WRITER

You are a writer, and your mission today is to learn about the shipwreck stories.

When you visit each display, answer these questions:

- Where was this ship from? Where was it heading? What was it doing?
- When, why and how did it sink? What exactly happened? How do we know?
- Who were the witnesses/survivors? Collect names and details.
- If you had a camera, what images or footage would you capture of the wreck?
- What would make a good newspaper headline for this story?

SUSTAINABILITY EXPERT

You are a sustainability expert. Your mission today is to learn about the environmental impacts of shipwrecks.

When you visit each display, answer these questions:

- How was the ship made and powered?
- Was it an environmentally friendly ship?
- What would you do differently if you were in charge of this ship before and after it sank?
- Can you think about any short-term and long-term environmental impacts of the shipwreck?
- Can you see any sea life on pictures on the wreck?
- Do you think the rest of this wreck should be left alone or raised and conserved?

PROFESSION PROFILE

Model Builder (aka "The Brickman")

Ryan McNaught – aka "The Brickman" – has twin sons, and has for decades been playing with those little plastic bricks called LEGO®. Ryan is a LEGO® Certified Professional, one of only 14 in the world and the only one in the Southern Hemisphere.

Originally employed in the corporate world as a Chief Information Officer, Ryan's creativity was limited and bound by the constraints of his job. The ability to express and create through an unique medium such as LEGO® offered him an amazing opportunity; the ability to create something that both children and adults alike can be inspired by.

The Brickman team, led by Ryan, have built some of the worlds most detailed and largest LEGO® brick models. Having produced five globally touring exhibitions and hundreds of models for museums, galleries and shopping locations around the world, there really isn't anything that they cannot make out of LEGO® bricks.

Ryan said that collaborating on the *Brickwrecks* project reignited his childhood interest in shipwrecks. Here are some of the other things he has said about this exhibition:

"I remember visiting the remains of the Vasa wreck in Stockholm with my parents and was filled with awe. This opportunity to work with specialists from the Western Australian Museum and Australian National Maritime Museum reignited my passion.

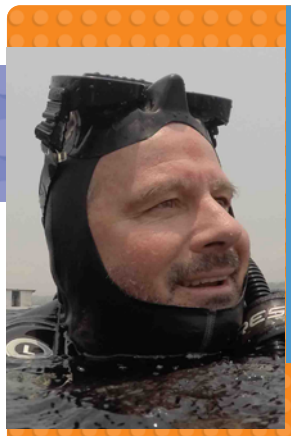
The models in Brickwrecks are built in so many different scales that it kept the team and me on our toes.

We really enjoyed finding out the actual stories behind these wrecks as well – we've found the more research we do, the better our LEGO® builds will be.

All up, the team spent over 1600 hours, used over 153,000 LEGO® bricks, and had
a tonne of fun bringing these models to life with lots of minifig details, hidden Easter eggs, as well as historical facts. We hope visitors have just as much fun exploring them as we did building them."

If you love LEGO® too, then perhaps this exhibition will inspire you to tell some amazing stories from history through building a model.

PROFESSION PROFILE



Maritime Archaeologist

Dr Ross Anderson is a maritime archaeologist at the Western Australian Museum.

Maritime archaeologists explore sites underwater or close to bodies of water, such as shipwrecks, sunken submarines, aircraft wrecks, submerged cultural sites, even sunken cities. They study sunken vessels and the objects that were 'on board' to learn about the story of that wreck (where it was from, what the ship was being used for and how it sank), and what life was like at that point in history.

In his job, Ross goes out on a special boat, uses SCUBA diving equipment (and sometimes special underwater vehicles called remotely operated vehicles or ROVs), takes photos (with waterproof cameras) of wreck sites, records the details of sunken objects and carefully brings some of those objects to the surface for research or museum collections. Back at the lab, he studies the objects, researches their history, and often passes them onto the conservation team to remove 'concretion' that has built up on the object, restore damage or to use special techniques to protect the objects from further deterioration.

What skills and knowledge did Ross need to get this job? He has a degree in History, a Postgraduate Diploma in Maritime Archaeology and a PhD in Archaeology. His degree in History helps him to know about the period of time the ship comes from to be able to guess what the objects on board might be. Science knowledge also helps Ross to understand how different materials are affected by sea water, and how they change when brought to the surface after decades or even centuries of being submerged.

The highlights of Ross' career include excavating the wreck of HMS *Pandora* (1791) on Queensland's Great Barrier Reef. Ross was also involved in finding the colonial whaling shipwreck *Cheviot* (1857) at Wilsons Promontory in Victoria; excavating the SS *City of Launceston* (1865) in Port Phillip, Victoria, which is the most intact steam shipwreck in Australia (it still had pots on the galley stove!); and finding and excavating the well-preserved wreck of the American whale ship *Samuel Wright* (1841) in Bunbury.

PROFESSION PROFILE

Maritime Historian

Dr Christine Porr is a curator and Collection Manager in the Maritime Heritage Department at the Western Australian Museum, with a focus on Maritime History.

Maritime history researches how people interacted with the sea, oceans and waterways, and how this has changed over time. Maritime historians study the history of ships and ship building, navigation, sea exploration, trade, navigation, lighthouses, fishing, whaling, pearling, maritime law, naval history, yachting and maritime art.

In Christine's job, she oversees the Maritime History collection by managing its storage and preservation, as well as the display of objects and new acquisitions. She researches artefacts and images to better understand our maritime past and how people interacted with the sea, the technology and science they used and how these relationships have changed. She also creates exhibitions by choosing objects that tell stories of our maritime past, while creating digital records like catalogues to add to the museum's collection of resources. Christine also looks at maritime related objects that people wish to donate to the Museum. An Acquisition Committee meeting carefully considers each donation. Some of these objects become part of the WA State Collection and a few very significant objects may even go on display for museum visitors to see.

What skills and knowledge did Christine need to get this job? She has a Masters degree in History and Art History and a PhD in Art History. Her research skills help her to study maritime objects and put them within the right context and time. Working with historical subjects and objects has taught her to be mindful and careful when handling old and delicate artefacts and the importance of preserving them for future generations.

Christine's career highlights include participation in creating exhibitions on the Bronze Age, crusaders and the Royal Australian Navy when HMAS *Sydney (*I) sank the German cruiser SMS *Emden* at Cocos Island in 1914. Christine has been studying the wreck of SMS *Emden* alongside maritime archaeologists to help tell this story.

PROFESSION PROFILE

Writer

Alex Kopp is a writer. She has written story books, non-fiction books, museum programs and educational resources (which a teacher might use to help them in the classroom).

Alex's second book, '*I hope it's pretty there*', has just been published this year and recounts the story of a family on board the Parmelia, heading to the new Swan River Colony in 1829. To write this book, Alex did a lot of research to find out about life on board a ship in the 1820s.

Alex used to be a teacher, so she uses her background to write educational resources about topics linked to heritage, culture, sustainability and social justice. Again, many of these topics require research in the real world.

Alex also worked at the WA Museum as an Education Officer, writing and running many school programs, including ones about shipwrecks! She says that both her books were inspired by handling and learning about objects that are part of the museum collections, as well as by the location of the museum itself.

When not writing, Alex likes to play... LEGO®! Originally from Poland, she had to leave all of her toys behind when leaving her home country. Her dad bought her a small box of LEGO® once she was over the border and she instantly fell in love. She now has a big collection of blocks, which she started growing even before she had children – two sons, one stepson, and about 20 foster children, all of whom loved to dive into the large colourful boxes and come up with imaginative creations and stories.

As a former school teacher, Alex used LEGO® to teach fractions and algebra, recreate war battles in history and inspire short story writing. "*There are just so many possibilities in each block*," she says.

PROFESSION PROFILE

Sustainability Representative

Wayne Walters is the Adopt A Beach coordinator at Perth Natural Resources Management (Perth NRM).

Wayne is an experienced environmental educator. His background includes teaching high school science and a variety of education and engagement roles across local government, Perth Zoo and the Western Australian Museum.

In Adopt A Beach, Wayne works with schools to look at how science can be put into action to help preserve and care for the coastal environment. Some of the activities that Wayne does with schools include beach clean-ups and the study of the objects that wash up on the beach. Biological objects such as shells, seaweed, cuttlefish etc., are classified and students consider their adaptations for survival and the human impacts on their environment.

Sometimes Wayne finds things on the beach that might come from ships or thrown off boats, like plastics that can be consumed by animals or things that can wrap around their bodies. These same sorts of things could also pollute the sea if they came off a shipwreck. The data from the beach clean-ups is added to the Australian Marine Debris Initiative (AMDI) database. It provides valuable information on where, when and what kind of marine pollution is showing up on our beaches.

Wayne also leads snorkelling tours along the Coogee Maritime Trail. The *Omeo* shipwreck is the 'centre piece' of this underwater trail. On this local shipwreck, just 25 metres off the shore of Coogee Beach, Wayne and his groups see sea animals like fish, cuttlefish, sea stars, crayfish, molluscs and corals. In this setting, Wayne is able to explain the importance of protecting both the marine life they encounter and the shipwreck itself, with respect to the Commonwealth Underwater Cultural Heritage Act 2018

Coogee Maritime trail has over 55 structures to guide snorkellers and divers along their aquatic voyage. These include reef pyramids, a swim through sea star sculpture, replica cannon, folding stock anchor (from the Swan River), sea lion sculpture, selfie porthole and more. The trail provides a safe habitat for the marine life and an engaging way to educate the public about our maritime heritage and amazing underwater biodiversity.

BACK AT SCHOOL

Now that your class has visited the exhibition, you can explore some ideas in the classroom. These ideas are organised into the same categories as the identities through which the exhibition was explored. Choose your focus areas and look through the activities to find ones that suit your class.

All activities are open ended to suit a wide range of year levels. Activities are linked to the Australian Curriculum. Links can be found in the table at the back of this document.

Model Building (Technology and Design):

These ideas are presented as a series of worksheets (found in the appendices), which can guide you and your students through the process of designing and building their own model ships.

Maritime Archaeology (Science and History):

These ideas span the Science and History curriculum areas and look at how shipwreck objects are affected by water, how they are found and how they are conserved.

Maritime History (History):

These activities delve deeper into the History curriculum, and examine how shipwrecks reveal information about the past. This section is divided up into year levels with corresponding History themes.

Writing (English and History):

Using an historical perspective, this section suggests a range of writing styles/genres that can be used to express the information that they have researched.

Sustainability (Cross-curriculum Priority):

These ideas consider the environmental impact of shipping and shipwrecks, and mainly link to aspects of the Science curriculum area.

LEGO® extras:

These activities can be used with school/class LEGO® kits or alternative building blocks in the classroom.

Design and Technologies

Use the sheets in the appendices to guide your students through the design process and encourage them to keep all the sheets, along with photos or pictures of each stage, in a design portfolio.

Here is a summary of the stages:

Building a model ship – Planning your model

Students use this page to decide the following:

1. What the purpose of their model will be:
    - To test a science concept, such as what shapes work best to keep a ship afloat, what is the best shape and sail design to make a ship sail fast, how do keels and rudders make a ship go faster? What sorts of things make a ship sink?
    - To create an interesting display, such as for the classroom or library, for a museum or a school science fair or to be shown online.
    - To help tell a story, for example it could be used in a puppet-style show or in a stop-motion animation film.
2. The type of ship their model will represent, for example: trading/cargo, exploration, war, passenger travel, leisure, science, fishing.
3. The real ships that will inform and inspire their model design.
4. The main features that their model will have, for example: Does the model need to be waterproof, float, be mounted for display?

Building a model ship – Researching your model

Students use this page to gather more information on the type of ship they are modelling and will choose one ship to research, finding out details such as its name, where and when it was built, what it was made from, how it was powered and what technology was on board.

Building a model ship – Draw a diagram of your model

Students use this page to plan a diagram, with all parts labelled, materials and scale considered.

Building a model ship – Plan materials, equipment and safety

This page will help students decide on the properties (eg malleable, sturdy, waterproof, floatable) and availability of the materials, as well as thinking about whether any of these materials require testing, and which materials are sustainable choices.

They will also consider the tools they will need to build the model, and any safety considerations required when building.

Building a model ship – Testing and recording

These pages help students to go through the scientific method of testing properties of materials, shape, movement, cargo and more. A template is provided to enable students to write their question, prediction, materials, testing methods, observations and evaluation.

Building a model ship – Build your model

A checklist is provided to help students finalise their plans and record things as they build.

Building a model ship – Evaluate your model

A range of questions are provided to help students evaluate if the model's purpose was achieved, and if the appearance, features and materials met expectations.

Using the models

Once students have built their model, they can display it or use it for testing or demonstrating ideas. Below are some ideas for how students can interpret, use or add to their models:

- What would people learn from your model? Can you write some interpretive text as if it was a museum display? Who is your audience? If you have recently been to a museum, look at some of the photos to get an idea of how to write labels and text panels for a display.
- Search online for more information on your chosen ship. You might find some photos or paintings. You may discover passenger lists or a captain's log. Can you add a backdrop, some figurines or some extra items on board to your model that helps bring it to life?
- Find out about the crew on your ship. Add small figures to your ship models doing the different jobs. What skills would they have and how would they come in handy if the ship was wrecked?
- Turn part of your model into an internal cutaway: Look at how social class is expressed on the ship – what different people were on board and where did they work/eat and sleep? How can you depict this in a model?

- Can you use your model to tell a story? Use it like a 'stage' to move the ship or the people on it. You may even wish to use small figures (e.g. LEGO® or plasticene) to make a short stop-motion animation film?
- Add ideas for making the ship safer in the event of a shipwreck. For example, lifeboats, flotation devices, beacons, safety rations kit, etc.
- Develop some ideas to prevent future shipwrecks. For example, watertight compartments, better storage for cargo, stronger materials on the hull, etc.
- Include electrical energy (small circuits) to make the ship move or create light on board.
- Make a large 'iceberg' out of a balloon (there are example lessons for this online if you search for 'iceberg balloon experiment') or another container filled with water. Use your model to explore how the ship might encounter the iceberg.

Science and HASS/History

The activities below can be adapted to various year levels by studying shipwrecks in the relevant historical period.

Job description:

What is a maritime archaeologist? Do some online research (use maritime museum websites as a starting point) and write a job description for one, including a list of the skills needed. Include a diagram of their outfit and equipment. What special equipment is required for extreme conditions e.g. ice, deep, dark, storms, sharks, etc.? Once you have written your job description, swap with a partner and 'apply' for each other's jobs with a letter of application and a resume.

Diving design:

Design the ultimate diving suit or Remotely Operated Vehicle (ROV) for a maritime archaeologist. Consider all the challenges you found out about in the exhibition e.g. visibility, buoyancy, warmth, etc. Get inspired by researching existing outfits/machines but also the features of deep-sea creatures. Draw your design, or even make it out of recycled materials.

Submerged:

Maritime archaeologists find lots of objects that have been affected by their time underwater. Put different materials under water for a week and discuss the effects it would have for centuries. Include metal nails, food, pieces of wood, written letters, coins etc. Put some sand in the bottom of your water and bury some objects underneath. After a week, compare the state of the buried items to the ones that were simply submerged. Compare the results from fresh water to water that has been heavily salted. What do you observe? Which materials do you think would survive well in a centuries-old shipwreck? Now do some research and find out what happens to different materials if they are submerged in water for years or centuries.

Money matters:

Coins are one of the most interesting things that can be found on an old shipwreck. Brainstorm the information that coins can give us (from the materials they were made from, the way they were made, where they are made and the country they are from, how they are dated, which rulers are depicted, what other images are on them). Find out how they are affected under water (google 'coin concretion shipwrecks') and how they are conserved when discovered. Design your own coin. What would you put on it? Do you think we will have coins in 20, 50, 100 years?

Pick a bone:

Bones from animals and humans are also found on some shipwrecks. In some instances, skeletons are found nearby a shipwreck (on land near where the ship sank, such as on the islands near the *Batavia* wreck). What can we learn from looking at skeletons? Consider things like height, gender, DNA, teeth, broken bones, diet and facial features. Imagine a person from one of the shipwrecks you are studying and using a standard picture of a skeleton, trace the outline and then add some features like missing teeth, broken bones, to identify that person.

On objects:

Research a shipwreck and the items on board. Where are they from? How can you tell? Where are the materials from? How can we find out an object's origin today and in the past? Research shipwrecks and objects found on board and the clues they give you.

Tiny things:

Sometimes very small items can be found on shipwrecks, such as a mouse jaw found on the Uluburun wreck. Find five to ten tiny objects that can all fit inside a match box. What do they tell us about our world today?

Exploring ethics:

When shipwrecks are discovered, who do they 'belong to'? Who should keep the objects found on the wreck? Hold a class debate on two opposing views on this and then find out about wreck protection and the different laws that exist. Hold other discussions and debates on things like: Should items on a shipwreck be brought to surface or left where they are? If brought to the surface, should we try and repair/restore or conserve things or should we keep them as they are?

HASS/History

Year 1–2 History and Geography (can also be used for Year 3)

Brickwrecks ship links:

All

Ships in the past:

Choose a shipwreck from the past and look closely at the design of the ship (what it is made from, how it is powered, how navigation works on the ship) and compare to a modern ship or another modern form of transport such as a bus, a car or a plane. Make a class list to discuss these differences.

Objects in the past:

Explore images of museum objects from shipwrecks (using online sources or photos taken from museum visit). Find or draw pictures of something from today that is used for the same purpose. Talk about the similarities and differences. How have changes in technology changed how this object is made or used?

Looking after history:

Shipwreck sites are often looked after carefully to make sure that the wreck is not damaged by other ships and boats, or by divers who explore the wreck. Imagine you have found a new shipwreck site. What rules would you make so that small boats and divers do not damage the wreck? Talk about this as a class and write the rules on the board. Why is it important that we look after shipwrecks?

What we can learn:

After investigating shipwrecks and the objects on board, make a list of all the things that we can learn by exploring a shipwreck, for example where the ship came from, when it sank, who was on board, etc. Use pictures or lists of shipwreck objects to help with ideas e.g. a dated menu from the Titanic shows what people ate before the ship sank, a cannonball tells us the ship sometimes needed protection.

Then and now:

Looking at a map of the world, hold a class discussion on why there are more shipwrecks from the past than there are today. Talk about things like the fact that people used to have to travel further to get certain things that were not available in their own country. Also talk about plane travel as an option that did not exist in the past centuries. Talk about how ship design, on-board technology and navigation has improved, resulting in less shipwrecks.

Year 4 History

Brickwrecks ship links:

HMS *Batavia* (wrecked 1629)

Big companies:

The *Batavia* was a Dutch trade ship from the Dutch East India Company (VOC). Find out about the VOC and the other major trading companies during the 17th and 18th Centuries, such as the British East India Company. How and why did they start? How did trade impact on exploration and ship technology? Why was it important that faster trade routes (such as the Brouwer route) were found? How did these new routes change how and where ships were wrecked?

Trade fair:

What was on the *Batavia* and other trade ships of that time? Research all of the things that were traded in the 17th Century such as spices, textiles, ceramics, foods, jewellery, etc. Find out what countries these items were from and mark these locations on a map. Use this as an introduction to why trade ships had to travel so far and why many shipwrecks are from this era. Discuss how the distance travelled to obtain items affected their cost. Source these items from home or make models of them in class and set up a trade market. Create copies of coins to trade the items.

Finding your way:

Learn about the history of navigation and the tools used to navigate. Include finding out about how Aboriginal peoples and other cultures use the sun and stars for navigation. Turn your research into a timeline. For each technique or tool, draw a picture and write down what it can and can't do. Think about how each one might result in a shipwreck (for example, tools that only reveal latitude don't tell ships how far east or west they are travelling, ships can 'run into' coastlines). Use materials to make simple versions of some of these tools e.g. simple magnetic compass, lead line, log line, etc.

Impact of encounters:

Before permanent European settlement, many interactions with Aboriginal and Torres Strait Islander peoples were brief sightings or fleeting encounters. However, there still would have been impacts made on these peoples as a result of these interactions. Brainstorm all of the possible impacts, for example: how Aboriginal or Torres Strait Islander peoples may have felt when they saw European ships arriving; anything that might have been left behind such as fires and campsites set up by explorers, remnants of shipwrecks, etc.; as well as the longer-term impacts of the mapping and naming of these areas on Aboriginal and Torres Strait Islander peoples.

First contacts:

Some early contacts between Europeans/ Americans and the Aboriginal and Torres Strait Islander peoples in Australia and other First Nations peoples of other places in the world have occurred as a result of shipwrecks. Some shipwrecks along the WA coast included the *Batavia* (1629) the *Vergulde Draeck* (1656) and the *Zuytdorp* (1712). Compare Inuit oral histories of *Terror* and *Erebus* (1845) to the Aboriginal stories of Dutch wrecks from the 1600s and 1700s. Find out what evidence actually exists of these encounters and what people have theorised over the years.

Mutiny mayhem:

The planned mutiny on the *Batavia* (1629) and the mutiny on the *Bounty* (1789) both led to some very famous Australian shipwreck stories (*Batavia* wreck and *Pandora* wreck). Compare these two mutiny stories by making a table of facts. Choose the one that you find most interesting and write a newspaper article or a script for a live report on it.

On objects:

Research a range of shipwrecks between the 1500s and the late 1700s. Find images of objects found from these wrecks.

Investigate:

What is the object? What was it made from? How was it used? Who owned/used it? What does it tell us about that time? Make a poster comparing the objects to their modern equivalent.

Year 5 History

Brickwrecks ship links:

HMS *Terror/Erebus* (wrecked 1845)

Local lore:

Colonial shipwrecks contain a wonderful time capsule of information. Research one of the following ships that got wrecked or almost wrecked off the coast of WA, including the *Parmelia*, *Marquis of Anglesea*, *Eglinton*, *James Matthews*. Find out who was on board, how and why the ship was wrecked, and what happened afterwards. Use the information you found to make a poster, write a report or a digital display or a newspaper article.

Early migrants:

Find out some of the reasons why early migrants came to live in Australian colonies in the 1800s. Include specific groups of people who made a large contribution to the colony, such as Japanese pearl divers in Broome, Chinese gold miners in Qld, Vic, NSW and WA. Find out more about the journey of these people as they came to Australia to find work in these industries.

Exploration excursions:

The *Terror* and *Erebus* were wrecked when trying to find a new sailing route through the arctic. Use this map as a springboard to create a timeline of European exploration of Australia en.wikipedia.org/wiki/European_maritime_exploration_of_Australia

Year 6 History

Brickwrecks ship links:

RMS *Titanic* (wrecked 1912)

Migrant stories:

Titanic had many migrants on board. Can you find out and retell one of their stories? Present your findings in the form of a letter, a diary entry, a model of a suitcase or short play. Find other migrant stories, for example, people who came from overseas to live in your home city/state. Learn as much as you can about their journey to their new home and write another piece about their experience. Some examples of migrant stories can be found here: museum.wa.gov.au/explore/stories-shore-stories-sea

Continental connections:

There are many connections that Australia had with other countries between 1900 and 2000. Research some of the shipwrecks in Australian waters that happened in your state in the 20th century. Record where each ship was coming from and why they were travelling on a map of the world (mark each route with a coloured line showing the country of origin and the site of the wreck. Along the line, write the date and the reason for the journey). Search online for "List of shipwrecks of Australia" to find a starting point. How many different reasons can you find for travel by ship to and from Australia?

Year 7 History

Brickwrecks ship links:

Uluburun ship (wrecked approximately 3,300 years ago)

Mapping matters:

Using a map to describe the pattern of movement of humans "out of Africa" and across other continents over time and looking at the types of evidence of these movements (for example, stone tools, human remains and cave paintings). Consider what parts of this movement may have required vessels to cross bodies of water.

Cultural connections:

The cultures and heritage of Aboriginal and Torres Strait Islander peoples of Australia can be traced back for tens of thousands of years. Find out the sustainable ways that Aboriginal and Torres Strait Islander peoples have made watercraft. Look at your local area and talk about what resources you could use (do not actually use them). How would you know or find out if these materials are native plants? How could you know if these materials have the right properties to make a safe and reliable vessel? Use this link to find out more: sea.museum/2016/12/15/australias-first-watercraft

Long ago:

Choose an ancient shipwreck and research to find out what daily life was like at the time, what materials and technology were being used, how far away the key materials used to make things came from, and what the trade patterns were like at the time. For example: the Uluburun ship was likely on its way to Greece. Look at Mycenaean Greece around 3,300 years ago (at the end of the Bronze Age) and find out about the changes in civilisation, trade and technology at that time.

Preserving the past:

There are several different ways that objects from ancient times can be preserved. Compare the ways that ancient tombs, volcanic eruptions and shipwrecks have preserved artefacts from ancient cultures from more than 3000 years ago. You might like to use the following as specific examples to compare in a table: The eruption of Vesuvius over the city of Pompeii nearly 2000 years ago, the sinking of the Uluburun ship around 3,300 years ago and the construction of the tomb of Tutankhamun, also around 3,300 years ago. How did each event preserve objects from the past? When and how was each one rediscovered? What objects were found to be preserved and what can we learn about the past from each?

Year 9 History

Brickwrecks ship links:

RMS *Titanic* (wrecked 1912), HMAS *AEI* (wrecked 1914) – see WA Maritime Museum display

Revolution:

Investigate how the Industrial Revolution and the years afterwards changed shipping to and from Australia between 1750 and the mid to late 1800s. Create a timeline with images of ships during that time and make notes of how materials and power sources changed. How did these changes affect shipwrecks?

Convict transport:

Find out about the conditions on board convict transport ships in the 1800s. Draw a picture of a cross section of a ship with convicts on board. This link might be a good starting point for research: nla.gov.au/research-guides/convicts/the-voyage . Once the cross sections have been drawn by all class members, talk about what might have happened if any of these ships became wrecked.

Titanic impact:

Find out about the Australians who were on board the *Titanic*. How were their lives impacted? Find and read some articles about how the sinking of the Titanic changed the world. Discuss these ideas in class.

War subs:

The loss of the HMAS submarines *AEI* and *AE2* provides an insight into wartime shipwrecks. Use these links as a starting point to find out more, locate as much information as you can and then present your information in a timeline from the events leading up to the sinking of both vessels and the discovery of both: museum.wa.gov.au/research/research-projects/archaeology/hma-submarines-aei-and-ae2 sea.museum/2018/09/18/ae1-found

Year 10 History

Brickwrecks ship links:

MV *Rena* (wrecked 2011)

War ships:

The World War II encounter between HMAS *Sydney* (II) and the disguised German raider HSK *Kormoran* off the Western Australian coast stands as Australia's most tragic naval disaster. 81 men from *Kormoran* were killed and 318 survived. The lives of all 645 men on *Sydney* were lost. For more than 66 years, the location of the two ships remained a mystery. In 2008, the Finding Sydney Foundation and shipwreck expert David Mearns found the wrecks in deep water located off WA coast around Shark Bay. Find out more about these wrecks here and present your findings as a news report or speech. museum.wa.gov.au/sites/default/files/Deep_Light_Learning_Resource_2020.pdf

Trade today:

Look at modern trade routes for ships and compare them to past trade routes. How and why have they changed? Use maps to create a display that demonstrates the evolution of trade routes. Find a map showing various shipwrecks and see if they align with any of the trade routes from the past. Then find out how many trade/cargo ships have sunk since the 1970s and how/why they sank.

Sustainable shipping:

Research a shipwreck or shipping disaster from the past three decades and present it as a verbal or written news report to the rest of the class. Consider the impact of shipping disasters such as the *Rena* and investigate governmental laws and guidelines and responses to prevent them. Summarise the main points in a poster. Visit the Australian Maritime Safety Authority as a starting point. amsa.gov.au/

WRITING

English

The activities below can be adapted to various year levels by studing shipwrecks in the relevant historical period.

Oral history:

Learn about how oral histories are passed down through generations and how they are recorded. Using found items or recycled materials, make a replica or model of a suitcase of items carried by a passenger on a chosen ship (for example, *Titanic*). Write a script for an oral history, describing the event of a shipwreck, and use props to perform it.

Captain's journals:

Research captain's journals and what they can tell us about the wrecks. Find out about life on board a ship, the roles of the crew, the equipment that they used and the things they encountered and saw. Think about how they might describe their own shipwreck and the events that surrounded it. Look at examples like Pelsaert's journal from the *Batavia* museum.wa.gov.au/maritime-archaeology-db/maritime-reports/batavia-journal-francisco-pelsaert and write your own version of a captain's journal.

Passenger diary:

A passenger's diary might look very different to a captain's journal. They would be filled with personal details, and whilst they might contain some information about the events on a ship, they might also leave out large chunks of information or present a very biased point of view. As a class, decide on a specific shipwreck, such as the *Titanic*. Find out about the ship and the events leading up to the wreck. Each person can research a different surviving passenger on board. For some people there might not be much information. Write some diary entries of the chosen person, outlining the days before and after the wreck.

Letters:

Letters are a very important first-hand account of events such as shipwrecks. Shipwreck survivors often wrote to their loved ones describing the terrifying or exciting experience they had in surviving the event. Search online to find some examples of letters written by shipwreck survivors (search for "shipwreck survivor letters") and then research a famous shipwreck and write your own letter. You may wish to do an image search of these letters and then write with calligraphy pens for an authentic effect. Try also to look at the letter format and language used at the time of the wreck so you can imitate it.

Report it Part 1:

News reports are usually aimed at presenting the most accurate facts of an event, but this is not always the case, especially if you are relying on witness accounts to write your piece. Create a mock disaster scenario in the classroom (for example, ask another teacher, without prior warning, to burst into the room, drop a whole pile of papers or the like). After the event, collect a variety of eyewitness accounts for the students about what happened, what the teacher said, what they were wearing, etc. Compare each student's version of the event. What facts are varied? What does this tell us about historical accounts?

Report it Part 2:

Write a news report on a famous shipwreck by imagining that you arrive at the scene of the wreck or the place where survivors are arriving after being rescued. Consider different points of view, how you get your information, who you interview, the tone and purpose of your piece. For background information, search online for news of shipwrecks and Trove for articles about the older wrecks (try searching for the term 'wrecked' under 'Newspapers and Gazettes'). Also see if you can find any letters that describe shipwrecks and think about how individuals describe the event.

Just the facts:

News reports can often be biased and can reflect the opinions or views of the writer or the people they interview. Other articles or papers, such as those found in scientific or historical journals or encyclopedias, are more careful about only including the facts, often backed up with solid evidence. Research a famous shipwreck using the best sources you can find (e.g. museum websites, government websites or encyclopedias) and write a factual article or essay using whatever structural requirements you usually use in your classroom.

Graphic stories:

Some shipwreck stories, like an account of the *Batavia* wreck, are also told in pictorial form. The engravings of this retelling can be found here: museum.wa.gov.au/research/research-areas/maritime-archaeology/batavia-cape-inscription/batavia (check these details before sharing with students to decide if the content is suitable as it is quite a horrific story). Research the story of one of the wrecks and re-tell it in pictorial form. It could be presented as small artworks or like a comic strip or graphic novella.

Persuasive texts:

A famous shipwreck from 1852, the *Birkenhead*, off the coast of South Africa, ignited the practise of 'women and children first' when it came to rescuing shipwreck survivors. This idea was perpetuated when the *Titanic* sank, but it has since been said that in most cases, shipwreck survivors tended to either fend for themselves or only help their nearest and dearest. Do you think that women and children should be saved in a shipwreck first? Write a persuasive text with your point of view.

Coded stories:

Morse code has often used by people in shipwreck situations. Learn how Morse code works and then imagine how you would send a signal for help. Write a message for help. Think about how to get an accurate, but succinct message across. What other types of signals could be used by shipwreck survivors, in the sea, on a lifeboat, on a remote island or on the ice?

Cross-curriculum Priorities

Animals afloat:

What animals are (and were) on board ships and why? What clues do they leave behind? How would they be of use in a shipwreck (e.g. as food for survivors)? Can you find stories of animals discovered in a shipwreck or animals that have survived shipwrecks? Investigate the current discussions on live animal exports and what people are saying about this. Are there more sustainable and ethical ways that animals can be transported on ships?

Animals underwater:

Research the teredo (shipworms) and other animals that can affect shipwrecks. Create a short report or poster on your findings. Find out more about how sea creatures are affected by, and live amongst, shipwrecks. Make a diorama of sea animals that have integrated a shipwreck into their habitat.

Clean it up:

Spillage of non-biodegradable cargo can create a devastating environmental impact of shipwrecks. Learn about the impact of objects that sink, especially large items such as cars. Brainstorm some ideas for an oil spill clean-up system or a system for cleaning up other items that have fallen from a cargo ship.

Sustainable seas:

Develop some ideas for ships that are more sustainable on and off the seas. Consider the materials they are made from, how they move and how cargo can be stored safely to avoid spillage in the event of an accident.

Air or sea:

Teenage climate activist Greta Thunberg travelled from Plymouth in England to New York City in 2019 by zero-carbon-emissions sailboat instead of by plane. Compare the environmental impact of travelling from one place to another by ship versus by a plane. Show results of your research graphically or on a comparative table.

LEGO® EXTRAS

These ideas can be used with class LEGO® kits or with similar small building blocks.

Mini model:

Create a miniature version of the LEGO® shipwreck model that you saw at *Brickwrecks*. Consider NPU (nice part usage) when using LEGO® (or any other materials) to make models.

Float this idea:

In small teams, make a LEGO® ship that floats. Whose ship stays afloat the longest? What about if you add 'cargo'? Which one moves the best/fastest?

Reconstruction race:

Split class into groups of three students. Using LEGO®, each group makes a ship together. Take a photo of each creation. Then rotate, so that each group has a new ship. Using that model, re-enact a shipwreck event which 'destroys' the ship. Then rotate groups again. Each group now has to be the 'maritime archaeologists' and re-build the ship based on what they find. Compare each reconstruction to the photo of the original.

Arch-ival:

Find pictures of the stone portico (archway) found on the *Batavia* shipwreck. Make a portico out of LEGO®.

Parts and pieces:

Look at a collection of LEGO® parts and a diagram of a ship. Sort pieces into what parts of the ship they would be best suited to.

Minifig mission:

Tell the story of a LEGO® minifig exploring the Museum OR of exploring a shipwreck. What do they discover from their pint-sized perspective?

With the fish:

Use LEGO® to build a sunken shipwreck scene for an old (or new) fish tank. Display your tank in the school office or library.

Can you dig it:

Use LEGO® bricks and bury a structure in your school sand pit to do a dig for a buried underwater shipwreck. Use a grid to mark the site out. Record what you find (make sure you count the bricks at the start so you can find them all!)

Dots and dashes:

Use short and long LEGO® bricks to make a Morse code message for a partner.

Balancing ballast:

The *Batavia* carried around 8000 bricks on board as ballast. Make a model ship out of recycled materials and experiment with the best place to put the LEGO® bricks to balance the ship and keep it stable.

Express yourself:

Put a variety of LEGO® minifigs in a bag and get students in pairs to pull one out and write a story of how that character survived a shipwreck – focus on character and facial expressions.

Instructions, instructions:

Write instructions on how to build a simple boat out of LEGO®. Get a partner to build it using your instructions. Then do it again, using diagrams. Get a different partner to build it. Do it again using verbal instructions. What worked best?

Accessory stories:

Sort through a bag of LEGO® accessories – imagine they are found on a shipwreck. What are they on the ship for? Make up a story for each object.

OTHER RESOURCES

Contact our customer service team on 9021 8533 to discuss how you can incorporate these programs into a *Brickwrecks* visit.

visit.museum.wa.gov.au/goldfields/education

Online resources:

These pages on our website also contain a lot of useful information that can be used for further research:

museum.wa.gov.au/immerse/

museum.wa.gov.au/marine-maritime-studies-student-resources/year-12-unit-3

museum.wa.gov.au/marine-maritime-studies-student-resources/

museum.wa.gov.au/marine-maritime-studies-student-resources/year-11-unit-1/

museum.wa.gov.au/explore/hmas-sydney-ii-introduction/history-hmas-sydney-ii/legal-protection

museum.wa.gov.au/explore/sydney

museum.wa.gov.au/explore/education/shipwrecks/deep-light-learning-resources

APPENDICES

Indentity cards	38
Building a model ship – Plan	43
Building a mode ship – Research	47
Building a model ship – Draw	48
Building a model ship – Gather	49
Building a mode ship – Test	50
Building a model ship – Record	51
Building a model ship – Build	52
Building a model ship – Use	53
Building a model ship– Evaluate	54
Curriculum links	55

MODEL MAKER

You are a model maker. Your mission today is to learn about building a model ship.

When you visit each display, answer these questions:

- What is this model's purpose e.g. to explain how the ship was wrecked, to show what life was like on board, to show how the ship operated, to explain how the wreck was explored?
- Does the model show what the ship was for e.g. cargo, exploration, warship or passengers?
- Does the model show how the ship was powered?
- Can you tell what materials the real ship would have been made from? How?
- What special LEGO® parts and minifigs have been used in a creative way?

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- Can you tell what materials the real ship would have been made from? How?
- What special LEGO® parts and minifigs have been used in a creative way?

MARITIME ARCHAEOLOGIST

You are a maritime archaeologist. Your mission today is to learn about exploring shipwrecks and their objects.

When you visit each display, answer these questions:

- How and when was this ship wrecked?
- How and when was the wreck discovered?
- What equipment and tools were used to find the wreck and explore it?
- What artefacts were on board? How did the sea water affect them? What can we learn from these objects?
- What challenges were experienced by the maritime archaeologists underwater?

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- How and when was this ship wrecked?
- How and when was the wreck discovered?
- What equipment and tools were used to find the wreck and explore it?
- What artefacts were on board? How did the sea water affect them? What can we learn from these objects?
- What challenges were experienced by the maritime archaeologists underwater?

MARITIME HISTORIAN

You are a maritime historian. Your mission today is to use shipwrecks to learn about the past.

When you visit each display, answer these questions:

- In what historical era did this ship sank? What do you know about the world at this time?
- Where was the ship from and where was it headed? How do we know?
- What objects were found on the ship? What can we learn from them?
- What does this wreck tell us about life on board the ship?

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- What does this wreck tell us about life on board the ship?

WRITER

You are a writer, and your mission today is to learn about the shipwreck stories.

When you visit each display, answer these questions:

- Where was this ship from? Where was it heading? What was it doing?
- When, why and how did it sink? What exactly happened? How do we know?
- Who were the witnesses/survivors? Collect names and details.
- If you had a camera, what images or footage would you capture of the wreck?
- What would make a good newspaper headline for this story?

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- Who were the witnesses/survivors? Collect names and details.
- If you had a camera, what images or footage would you capture of the wreck?
- What would make a good newspaper headline for this story?

SUSTAINABILITY EXPERT

You are a sustainability expert. Your mission today is to learn about the environmental impacts of shipwrecks.

When you visit each display, answer these questions:

- How was the ship made and powered?
- Was it an environmentally friendly ship?
- What would you do differently if you were in charge of this ship before and after it sank?
- Can you think about any short-term and long-term environmental impacts of the shipwreck?
- Can you see any sea life on pictures on the wreck?
- Do you think the rest of this wreck should be left alone or raised and conserved?

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- Do you think the rest of this wreck should be left alone or raised and conserved?

BUILDING A MODEL SHIP: PLAN

Your model's purpose

People build models for all sorts of reasons. Here are a few examples below.

To test a science concept, such as:

- What shapes work best to keep a ship afloat?
- What is the best shape and sail design to make a ship sail fast?
- How do keels and rudders make a ship go faster?
- What sorts of things make a ship sink?

To create an interesting display:

- For your classroom or library
- For a museum or a school science fair
- To be shown online

To help tell a story:

- To be used in a puppet-style show
- To be used in a stop-motion animation film

What is the purpose of your model ship?

Write your ideas here:

BUILDING A MODEL SHIP: PLAN

The type of ship

There are lots of different types of ships. Your design will depend on what the ship (in real life) is used for. (If your model is just to test a concept, like the best shape or sail design, this stage is not as important, but it could still help).

- Trading/Cargo: Taking lots of trade items to or from another country
- Exploration: Exploring a new part of the world
- War: Protecting your country at sea
- Passenger travel: Taking people (such as migrants) from one place to another
- Leisure: Taking passengers on a fun cruise
- Science or Research: Investigating marine life, ocean patterns or shipwrecks
- Fishing: Catching deep sea fish

What type of ship will your model be? Write your ideas here:

BUILDING A MODEL SHIP: PLAN

Your model's inspiration

You will need to do some research to help you design your ship. Finding images of real ships an important part of your design process. Answering these questions will help you find the right images.

Is it a model of a real ship that you have been researching? OR Is it a made-up ship that just looks similar to ships from a certain time?

What year or time period did your model ship come from (eg 3,000 years ago, 1700s, 1912)?

Is your ship a sailing ship, a steamer or an engine-powered ship?

Make a list of your research sources here (eg books, websites, real life ships, etc). Use the next activity page to carry out your research.

BUILDING A MODEL SHIP: PLAN

Your ship's features

When planning your model, you will need to think about all the questions you have answered, like your model's purpose, the type of ship and your model's inspiration, to decide on some major features for your model.

- Does your model need to be waterproof?
- Does your model need to float?
- Does your model need to be mounted on something for display?
- Does your model need to move (or have some moving parts)?
- Is the appearance of your model important (if just being used to test an idea, then perhaps it does not need to 'look good')?
- Will your model need a storage container?

Using the space below, make a list of some of the other features that you would like your model to have:

BUILDING A MODEL SHIP: RESEARCH

Researching your model

You will now need to do some research to find some ships that are similar to the one you want to model. Here are some ideas:

- Choose a ship from the *Brickwrecks* exhibition that you were interested in and search online for some information on what it was made from, how it was powered and how it looked.
- Use these links to find the names of ships that have sunk. This will give you the name and type of ship eg "Three-masted iron sailing barque" which you can then do an image search for online.

  museum.wa.gov.au/research/departments/maritime-archaeology/wreck-finder
  museum.wa.gov.au/explore/month-shipwrecks

From your research, choose ONE ship which you can use as your inspiration for your model.

What is the name of the ship you are basing your model on?

What year was it built?

In which country was it built?

What materials was it made from?

How will you replicate these materials in your model?

How was it powered?

How will you demonstrate or show this on your model?

What technology was on board?

How will you demonstrate or show the technology on your model?

What are some of the main parts of the ship and what is their purpose? E.g. keel, rudder, sail, etc.

Draw a rough sketch of the ship on the back of this page, labelling as many parts as you can.

BUILDING A MODEL SHIP: DRAW

Draw a diagram of your model

For your ship model, use this page (or additional pages) or a digital drawing application/program to create a planning diagram.

What are the parts of the ship that you can label? Find diagrams to get ideas and use words like: deck, hull, hold, bow, bowsprit, stern, keel, tiller, rudder, mast (foremast, main mast), sail.

What materials was the real ship made from and what materials could you make them from in a model? Include both in your diagram labelling.

The real ship is made from:

My model will be made from:

What scale will your ship model be? Find out how big the ship was in real life and choose the best scale:

1:50 (1cm = 50cm) may work well for a ship like the Uluburun ship, which was 15m long

1:100 (1 cm = 1m) may work well for a ship like *Batavia*, which was 46m long

1:500 (1 cm = 5m) may work well for a ship like *Titanic*, which was 269m

My ship's scale will be:

BUILDING A MODEL SHIP: GATHER

Plan materials, equipment and safety

For your ship model, decide what materials you will use to make it. You will need to think about what you need and what you have available to you.

What properties are required for the materials that you use? Tick the boxes next to each word:

- ☐ Malleable/mouldable
- ☐ Sturdy
- ☐ Light
- ☐ Waterproof
- ☐ Easy to join/attach
- ☐ Floatable

What materials can you obtain at school/home? Tick the ones that you can use. Place a star next to materials that can be recycled.

- ☐ Cardboard/ boxes/tubes/milk cartons
- ☐ Light wood/pop-sticks
- ☐ Aluminium foil/foil containers
- ☐ Recycled plastic bottles/containers
- ☐ Plasticene/dough
- ☐ Papier-mâché

Are there any materials you need to test? Use the Testing and Recording sheets to do this.

What tools might you need to use to manipulate your materials:

Cutting tools e.g. scissors, Stanley knives:

Adhesives e.g. glue, tape, hot glue gun:

What safety considerations do you think need to be considered? e.g. cutting carefully, using hot glue gun safely, etc.

Gather your materials and equipment ready to build.

BUILDING A MODEL SHIP: TEST

Testing and recording

There are various things you can do to test your model as you build it. Read these questions below and then use the next sheet to test and record your findings.

Testing materials:

Think about what you will be using your model for and decide if you need to test any materials. Choose one or more questions below to guide your testing:

- Which materials are waterproof?
- Which materials are malleable (can be moulded into shape)?
- Which materials float?
- Which materials are strong enough to take weight? (if you plan to fill your ship with "cargo")
- Which materials are strong enough to avoid damage?

Testing shape:

Once you have decided on your materials, you may wish to test various shapes to make sure you have the best one for your model. Choose one or more questions below:

- Which shapes float for the longest?
- Which shapes move fastest through water?
- Which shapes hold the most weight?

Testing movement:

After you have your basic shape, you can test some different things to see if they make your ship move faster.

- Which sail designs make the ship move fastest?
- Which keel or rudder shapes make the ship move fastest?

Testing cargo:

Find something to represent cargo (e.g. marbles, metal washers, LEGO® bricks) and test the best placement to keep your ship balanced and floating.

- Which part of the ship is the best place to place cargo?

Testing shipwrecks:

Think about some things that might cause a shipwreck and test some ideas to think about what might happen in this event.

- Which "surfaces" cause the most damage to my ship?
- What designs can prevent my ship from sinking (explore design ideas to create and test watertight compartments)?

BUILDING A MODEL SHIP: RECORD

Testing and Recording Sheet
Question:
Prediction:
Materials required:
Test 1: **Observations:**
Test 2: **Observations:**
Test 3: **Observations:**
Evaluation:

BUILDING A MODEL SHIP: BUILD

Build your model

Now for the fun part!

Before you build your ship, make sure you have completed the following:

- Decided my model's purpose
- Decided on the type of ship
- Researched the type of ship I am building
- Included any features my ship needs
- Drawn a labelled diagram of my ship (and decided my model's scale)
- Planned and gathered the materials I need to build my ship
- Tested the materials, shape, movement or cargo

You are ready to build your ship!

You might like to make some drawings or take photos along the way.

You also might like to record any changes on your original diagram or in the space below:

BUILDING A MODEL SHIP: USE

Use your model

Once you have built your model, you can now display it or use it. Here are some ideas:

- What would people learn from your shipwreck? Can you write some interpretive text as if it was a museum display? Who is your audience? If you have recently been to a museum, look at some of the photos to get an idea of how to write labels and text panels for a display.
- Search online for more information on your chosen ship. You might find some photos or paintings. You may discover passenger lists or a captain's log. Can you add a backdrop, some figurines or some extra items on board to your model that helps bring it to life?
- Find out about the crew on your ship. Add small figures to your ship models doing the different jobs. What skills would they have and how would they come in handy if the ship was wrecked?
- Turn part of your model into an internal cutaway: Look at class structure – what different people were on board and where did they work/eat and sleep? How can you depict this in a model?
- Can you use your model to tell a story? Use it like a 'stage' to move the ship or the people on it. You may even wish to use small figures (eg LEGO® or plasticene) to make a short stop-motion animation film?
- Add ideas for making the ship safer in the event of a shipwreck. For example, lifeboats, flotation devices, beacons, safety rations kit, etc.
- Develop some ideas to prevent shipwrecks in the future. For example, watertight compartments, better storage for cargo, stronger materials on the hull, etc.
- Include electrical energy (small circuits) to make the ship move or create light on board.
- Make a large 'iceberg' out of a balloon or another container filled with water. Use your model to explore how the ship might encounter the iceberg.

Write your idea for how you will use your model below:

BUILDING A MODEL SHIP: EVALUATE

Evaluate your model

Now it is time to evaluate your model ship. Use these questions below to write some comments. Then come up with some of your own criteria to evaluate your model:

My model achieved the original purpose that I set for it:

My model looked like the type of ship I was building:

My model had all the features that I needed to make it work or to tell its story:

My model and my labelled diagram looked similar:

My materials all worked how I wanted them to on my model:

My model helped me to test the things I wanted to test:

Write some ideas here on what else you wanted to achieve with your model:

CURRICULUM LINKS

The following links can be made between the classroom activities and the Australian Curriculum.

DESIGN AND TECHNOLOGIES

Year	Content Descriptions	Activity
1–2	**Knowledge and Understanding** Identify how people design and produce familiar products, services and environments and consider sustainability to meet personal and local community needs (ACTDEK001) Explore how technologies use forces to create movement in products (ACTDEK002) Explore the characteristics and properties of materials and components that are used to produce designed solutions (ACTDEK004) **Processes and Production Skills** Explore needs or opportunities for designing, and the technologies needed to realise designed solutions (ACTDEP005) Generate, develop and record design ideas through describing, drawing and modelling (ACTDEP006) Use materials, components, tools, equipment and techniques to safely make designed solutions (ACTDEP007) Use personal preferences to evaluate the success of design ideas, processes and solutions including their care for environment (ACTDEP008) Sequence steps for making designed solutions and working collaboratively (ACTDEP009)	**Model Building:** All activities

Year	Content Descriptions	Activity
3–4	**Knowledge and Understanding** Recognise the role of people in design and technologies occupations and explore factors, including sustainability that impact on the design of products, services and environments to meet community needs (ACTDEK010) Investigate how forces and the properties of materials affect the behaviour of a product or system (ACTDEK011) Investigate the suitability of materials, systems, components, tools and equipment for a range of purposes (ACTDEK013) **Processes and Production Skills** Critique needs or opportunities for designing and explore and test a variety of materials, components, tools and equipment and the techniques needed to produce designed solutions (ACTDEP014 Generate, develop, and communicate design ideas and decisions using appropriate technical terms and graphical representation techniques (ACTDEP015) Select and use materials, components, tools, equipment and techniques and use safe work practices to make designed solutions (ACTDEP016) Evaluate design ideas, processes and solutions based on criteria for success developed with guidance and including care for the environment (ACTDEP017) Plan a sequence of production steps when making designed solutions individually and collaboratively (ACTDEP018)	**Model Building:** All activities
5–6	**Knowledge and Understanding** Examine how people in design and technologies occupations address competing considerations, including sustainability in the design of products, services, and environments for current and future use (ACTDEK019) **Processes and Production Skills** Recognise the role of people in design and critique needs or opportunities for designing, and investigate materials, components, tools, equipment and processes to achieve intended designed solutions (ACTDEP024) Generate, develop and communicate design ideas and processes for audiences using appropriate technical terms and graphical representation techniques (ACTDEP025) Select appropriate materials, components, tools, equipment and techniques and apply safe procedures to make designed solutions (ACTDEP026) Negotiate criteria for success that include sustainability to evaluate design ideas, processes and solutions (ACTDEP027) Develop project plans that include consideration of resources when making designed solutions individually and collaboratively (ACTDEP028)	**Model Building:** All activities

Year	Content Descriptions	Activity
7–8	**Knowledge and Understanding** Analyse how motion, force and energy are used to manipulate and control electromechanical systems when designing simple, engineered solutions (ACTDEK031) Analyse ways to produce designed solutions through selecting and combining characteristics and properties of materials, systems, components, tools and equipment (ACTDEK034) **Processes and Production Skills** Critique needs or opportunities for designing and investigate, analyse and select from a range of materials, components, tools, equipment and processes to develop design ideas (ACTDEP035) Generate, develop, test and communicate design ideas, plans and processes for various audiences using appropriate technical terms and technologies including graphical representation techniques (ACTDEP036) Select and justify choices of materials, components, tools, equipment and techniques to effectively and safely make designed solutions (ACTDEP037) Independently develop criteria for success to evaluate design ideas, processes and solutions and their sustainability (ACTDEP038) Use project management processes when working individually and collaboratively to coordinate production of designed solutions (ACTDEP039)	**Model Building:** All activities
9–10	**Knowledge and Understanding** Investigate and make judgements on how the characteristics and properties of materials, systems, components, tools and equipment can be combined to create designed solutions (ACTDEK046) Investigate and make judgements, within a range of technologies specialisations, on how technologies can be combined to create designed solutions (ACTDEK047) **Processes and Production Skills** Critique needs or opportunities to develop design briefs and investigate and select an increasingly sophisticated range of materials, systems, components, tools and equipment to develop design ideas (ACTDEP048) Develop, modify and communicate design ideas by applying design thinking, creativity, innovation and enterprise skills of increasing sophistication (ACTDEP049) Work flexibly to effectively and safely test, select, justify and use appropriate technologies and processes to make designed solutions (ACTDEP050) Evaluate design ideas, processes and solutions against comprehensive criteria for success recognising the need for sustainability (ACTDEP051) Develop project plans using digital technologies to plan and manage projects individually and collaboratively taking into consideration time, cost, risk and production processes (ACTDEP052)	**Model Building:** All activities

SCIENCE

Year	Content Descriptions	Activity
1	**Science Understanding: Chemical Sciences** Everyday materials can be physically changed in a variety of ways (ACSSU018) **Science Inquiry Skills – All** **Science as a Human Endeavour: Use and Influence of Science** People use science in their daily lives, including when caring for their environment and living things (ACSHE022)	**Model Building:** Testing and recording **Maritime Archaeology:** Job description
2	**Science Understanding: Chemical Sciences** Different materials can be combined for a particular purpose (ACSSU031) **Science Understanding: Physical sciences** A push or a pull affects how an object moves or changes shape (ACSSU033) **Science Inquiry Skills – All** **Science as a Human Endeavour: Use and Influence of Science** People use science in their daily lives, including when caring for their environment and living things	**Model Building:** Testing and recording **Maritime Archaeology:** Job description
3	**Science Inquiry Skills – All** **Science as a Human Endeavour: Use and influence of Science** Science knowledge helps people to understand the effect of their actions (ACSHE051)	**Model Building:** Testing & recording **Maritime Archaeology:** Job description
4	**Science Understanding: Chemical Sciences** Natural and processed materials have a range of physical properties that can influence their use (ACSSU074) **Science Understanding: Physical Sciences** Forces can be exerted by one object on another through direct contact or from a distance (ACSSU076) **Science Inquiry Skills – All** **Science as a Human Endeavour: Nature and development of Science** Science involves making predictions and describing patterns and relationships (ACSHE061) **Science as a Human Endeavour: Use and influence of Science** Science knowledge helps people to understand the effect of their actions (ACSHE062)	**Model Building:** Testing & recording **Maritime Archaeology:** Job description

Year	Content Descriptions	Activity
5	**Science Inquiry Skills – All** **Science as a Human Endeavour: Nature and development of science** Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena and reflects historical and cultural contributions (ACSHE081) **Science as a Human Endeavour: Use and influence of Science** Scientific knowledge is used to solve problems and inform personal and community decisions (ACSHE083 – Scootle)	**Model Building:** Testing & recording **Maritime Archaeology:** Job description
6	**Science Understanding: Chemical Sciences** Changes to materials can be reversible or irreversible (ACSSU095) **Science Inquiry Skills – All** **Science as a Human Endeavour: Nature and development of Science** Science involves testing predictions by gathering data and using evidence to develop explanations of events and phenomena and reflects historical and cultural contributions (ACSHE098)	**Maritime Archaeology:** Submerged; Money matters, Pick a bone **Model Building:** Testing and recording **Maritime Archaeology:** Job description
7	**Science Inquiry Skills – All** **Science as a Human Endeavour: Use and Influence of Science** Science knowledge can develop through collaboration across the disciplines of science and the contributions of people from a range of cultures (ACSHE223)	**Model Building:** Testing & recording **Maritime Archaeology:** Job description
8	**Science Inquiry Skills – All** **Science as a Human Endeavour: Use and Influence of Science** Solutions to contemporary issues that are found using science and technology, may impact on other areas of society and may involve ethical considerations (ACSHE135) People use science understanding and skills in their occupations and these have influenced the development of practices in areas of human activity (ACSHE136)	**Model Building:** Testing & recording **Maritime Archaeology:** Job description
9	**No strong links**	
10	**No strong links**	

HASS/HISTORY

Year	Content Descriptions	Activity
1	**History** Differences and similarities between students' daily lives and life during their parents' and grandparents' childhoods (ACHASSK030) **Geography** The natural, managed and constructed features of places, their location, how they change and how they can be cared for (ACHASSK031)	**Maritime History** Year 1–2 Activities
2	**History** The history of a significant person, building, site and/or part of the natural environment in the local community and what it reveals about the past (ACHASSK044) The importance today of a historical site of cultural or spiritual significance in the local area, and why it should be preserved (ACHASSK045) How changing technology affected people's lives (at home and in the ways they worked, travelled, communicated and played in the past) (ACHASSK046) **Geography** The way the world is represented in geographic divisions and the location of Australia in relation to these divisions (ACHASSK047) The influence of purpose, distance and accessibility on the frequency with which people visit places (ACHASSK051)	**Maritime History** Year 1–2 Activities
3	**No major links in this year level for HASS**	**See Year 1–2 Activities for inspiration**
4	**History** The journey(s) of AT LEAST ONE world navigator, explorer or trader up to the late eighteenth century, including their contacts with other societies and any impacts (ACHASSK084) Stories of the First Fleet, including reasons for the journey, who travelled to Australia, and their experiences following arrival (ACHASSK085) The nature of contact between Aboriginal and Torres Strait Islander Peoples and others, for example, the Macassans and the Europeans, and the effects of these interactions on, for example, people and environments (ACHASSK086)	**Maritime History** Year 4 Activities

Year	Content Descriptions	Activity
5	**History** The nature of convict or colonial presence, including the factors that influenced patterns of development, aspects of the daily life of the inhabitants (including Aboriginal Peoples and Torres Strait Islander Peoples) and how the environment changed (ACHASSK107) The reasons people migrated to Australia and the experiences and contributions of a particular migrant group within a colony (ACHASSK109)	**Maritime History** Year 5 Activities
6	**History** Stories of groups of people who migrated to Australia since Federation (including from ONE country of the Asia region) and reasons they migrated (ACHASSK136) **Geography** Australia's connections with other countries and how these change people and places (ACHASSK141)	**Maritime History** Year 6 Activities
7	**Overview of the ancient world** The theory that people moved out of Africa around 60 000 BC (BCE) and migrated to other parts of the world, including Australia (ACHASSK164) The evidence for the emergence and establishment of ancient societies (including art, iconography, writing tools and pottery) (ACHASSK165) Key features of ancient societies (farming, trade, social classes, religion, rule of law) (ACHASSK166) **Investigating the ancient past** How historians and archaeologists investigate history, including excavation and archival research (ACHASSK167) The range of sources that can be used in an historical investigation, including archaeological and written sources (ACHASSK168) The methods and sources used to investigate at least ONE historical controversy or mystery that has challenged historians or archaeologists, such as in the analysis of unidentified human remains (ACHASSK169) The importance of conserving the remains of the ancient past, including the heritage of Aboriginal and Torres Strait Islander Peoples (ACHASSK171) **The Mediterranean world** The significant beliefs, values and practices of ancient Greece, Egypt or Rome, with a particular emphasis on ONE of the following areas: everyday life, warfare, or death and funerary customs (ACHASSK174) Contacts and conflicts within and/or with other societies, resulting in developments such as the conquest of other lands, the expansion of trade, and peace treaties (ACHASSK175)	**Maritime History** Year 7 Activities

Year	Content Descriptions	Activity
8	**Overview of the ancient to modern world** The nature and significance of the Industrial Revolution and how it affected living and working conditions, including within Australia (ACOKFH016) The nature and extent of the movement of peoples in the period (slaves, convicts and settlers) (ACOKFH015) **Mongol expansion** The consequences of the Mongol expansion, including its impact on life in China during and after the Mongol conquest and contributions to European knowledge and trade routes (ACDSEH079)	**Maritime History** Year 8 Activities
9	**Overview of the making of the modern world** The nature and significance of the Industrial Revolution and how it affected living and working conditions, including within Australia (ACOKFH016) The nature and extent of the movement of peoples in the period (slaves, convicts and settlers) (ACOKFH015) **The Industrial Revolution** The technological innovations that led to the Industrial Revolution, and other conditions that influenced the industrialisation of Britain (ACDSEH017) The population movements and changing settlement patterns during this period (ACDSEH080) **Movement of peoples** The influence of the Industrial Revolution on the movement of peoples throughout the world, including the transatlantic slave trade and convict transportation (ACDSEH018) Experiences of slaves, convicts and free settlers upon departure, their journey abroad, and their reactions on arrival, including the Australian experience (ACDSEH083) Changes in the way of life of a group(s) of people who moved to Australia in this period, such as free settlers on the frontier in Australia (ACDSEH084) The short and long-term impacts of the movement of peoples during this period (ACDSEH085) **World War I** The places where Australians fought and the nature of warfare during World War I, including the Gallipoli campaign (ACDSEH095)	**Maritime History** Year 9 Activities

Year	Content Descriptions	Activity
10	**World War II** Experiences of Australians during World War II (such as Prisoners of War (POWs), the Battle of Britain, Kokoda, the Fall of Singapore (ACDSE108) The impact of World War II, with a particular emphasis on the Australian home front, including the changing roles of women and use of wartime government controls (conscription, manpower controls, rationing and censorship) (ACDSEH109) **Migration experiences** The waves of post-World War II migration to Australia, including the influence of significant world events (ACDSEH144) **The environmental movement** Responses of governments, including the Australian Government, and international organisations to environmental threats since the 1960s, including deforestation and climate change (ACDSEH128)	**Maritime History** Year 10 Activities

ENGLISH

Year	Content Descriptions	Activity
All	**Language** Text Structure and Organisation; Expressing and Developing Ideas **Literacy: Creating Texts** The natural, managed and constructed features of places, their location, how they change and how they can be cared for (ACHASSK031)	**Writing** All

CROSS CURRICULUM PRIORITIES SUSTAINABILITY

Year	Content Descriptions	Activities
All	**Language** O1.2: All life forms, including human life, are connected through ecosystems on which they depend for their wellbeing and survival. 01.5 World views are formed by experiences at personal, local, national and global levels, and are linked to individual and community actions for sustainability. O1.8: Designing action for sustainability requires an evaluation of past practices, the assessment of scientific and technological developments, and balanced judgements based on projected future economic, social and environmental impacts.	**Sustainability** Animals afloat; Animals underwater **Air or sea** **Clean it up** Sustainable seas; Air or sea