



Sea Chest Secret Activities

If you are seeking more information about the history behind a particular exhibit, check the *Sea Chest Secret* support notes (available from the exhibition venue on request). Listed below are practical activities, linked to different exhibits.

ART

Maori sculpture - *Carving Clue* exhibit

Polynesians had a rich cultural history of artwork, which some artisans continue today. They used materials available to them – usually wood, stone and shell - in their sculptures. The sculpture used in the *Carving Clue* exhibit is a Maori carving. See the *Carving Clue* support notes for more information (available from the exhibition venue). Also visit the following web sites for introductory information about Maori sculpture.

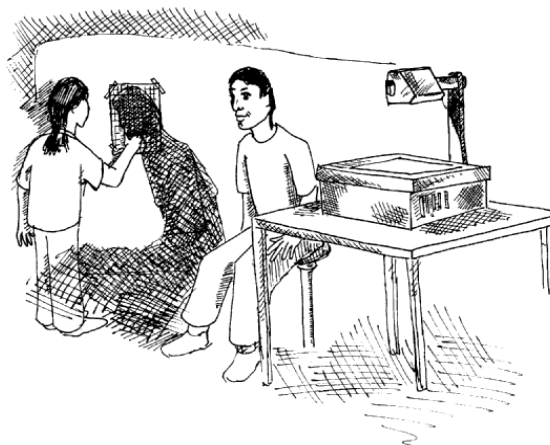
<http://www.carving.co.nz/A3MaoriDesign.PDF>; <http://www.art-pacific.com/index.htm>;

<http://www.carving.co.nz/> ; <http://www.aotearoa.co.nz/bones/howto.html>

<http://www.maori.org.nz/whakairo/panui/index.htm>

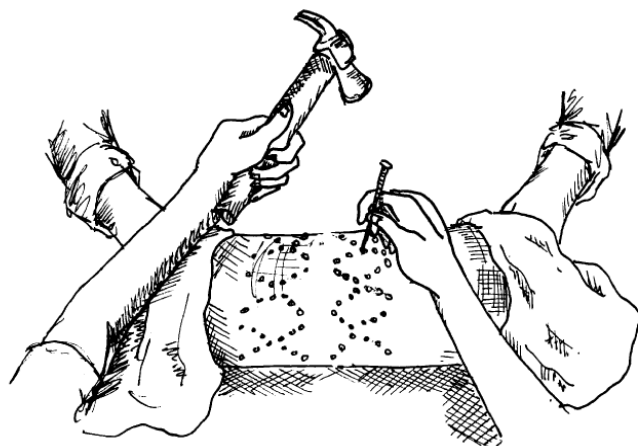
Create a silhouette – *Spot the Skipper* exhibit

Students can create their own silhouettes by tracing their profile shadow. Students should tape a large sheet of paper on a wall and have the subject sitting between the wall and a torch or overhead projector (see illustration below). You will need to experiment with the distance between the subject and the overhead projector. Another student then traces the subject's silhouette on a smaller grid graph paper. Plain paper may be used, but graph lines give students a better guide. Cut out the profile and paint it or trace onto black cardboard and cut out. Mount the silhouette onto white cardboard.



Punch tin lantern – *Bright Idea* exhibit

This activity is suitable for older students with teacher supervision. Collect old tin cans – preferably with smooth walls and no sharp edges. Fill them with water and freeze to create a solid surface to punch a nail into. Cut a piece of plain paper to fit around the outside of the can – use this as the template to draw the design. Tape the paper onto the can, and use a small, sharp nail and small hammer to punch the holes into the can. Let the ice melt, dry the can and place a small tea light candle inside to create the lantern effect. Warning – do not leave candles unattended or touch the can, which may be hot.



Lino prints – 18th century copper engraving for illustrations

During the late 18th century, artists used copper plate engravings to print their illustrations. The lines were carved out, leaving the channels to hold the ink. A similar effect to copper engravings can be obtained by doing lino prints. Lino squares, carving tools, rollers and show card ink are available through government supply offices or art/craft stores. The student needs to collect a leaf sample, shell, etc, try to sketch its outline onto a lino square and use a carving tool to scrape out the surrounding spaces and leaving raised lines of the drawing. Use a roller to cover the lines with ink, and press paper or material over the square to produce a print.

A cheaper method using polystyrene and pencil can be found at <http://www.ozemail.com.au/~bradmin/spiders/artcraft.htm>, although a negative rather than a positive image may be formed.

Ship figureheads – maritime art

Many ships from the 18th century had figureheads on their bows. The characters ranged from women and men to animals, mermaids, coat of arms, etc. Students can research the different types of figureheads found on ships or create their own character from clay or papier maché. HMB *Endeavour* did not have a figurehead, HMS *Resolution* had a white horse, HMS *Bounty* had a fully clothed female (<http://www.aquanet.com/maritime/topics/bounty1.jpg>) who was the wife of the original ship builder. See the following links for other examples. Please note many figureheads are topless females!

<http://www.shipsstore.com/DPT-FOR.shtml> ; <http://seagifts.com/seagifts/shipfig.html>;

<http://www.nauticalsupplyshop.com/products/figureheads.htm>;

<http://www.donaldsduckshoppe.com/donhead.htm>;

ENVIRONMENTAL SCIENCE

Press a plant – *Pressing Problem* exhibit

Collect leaves that differ in shape, texture and colour. As leaves are collected, make notes on the date, area, soil type, etc. Collect large amounts of newspaper. Place the leaves between blotting paper, surrounded by 60 to 80 sheets of newspaper. Place on a solid surface (such as a bench top) and lay a rectangle of chipboard or plywood on top so bricks or heavy books can be used to press down on the leaves. Leave for one to two weeks or until leaves appear dry. Flowers may be pressed in the same way. These can be arranged and taped onto cardboard with labels to present as a science project, or used in craftwork.

Library research project topics could include Carl Linnaeus (who invented the classification system of using two Latin words to name an organism); natural historians such as Charles Darwin, John Gould or Sir Joseph Banks; native plants in your area; the history of natural history illustration, etc.

Footprint frenzy – *Tracks Through Time* exhibit

Footprints are easiest to see in the morning or late afternoon when the shadows are long (allowing shadows to accentuate the print). Students can look for footprints in your local environment and try to identify them. *Tracks, Scats and Other Traces – A Field Guide to Australian Mammals* by Barbara Triggs is a useful resource. The best areas to look for footprints are in creek and dam banks, roadside, dried out puddles, claypans and beaches.

Within the classroom, students can make casts of their own feet using trays of wet or dry sand, mud, soil, etc and plaster of Paris. Notice the difference in quality of tracks and where the pressure seems to be greatest. Students can also find pictures of tracks and carve images of them from half a potato, making prints on paper with acrylic paint, etc. Do animals with hooves make different tracks? Watch footage of different animals (eg nature documentaries) and observe how animals have different gaits. Is there a difference in leg placement when animals walk or run? Would footprints be different if the animal is running or walking?

Pearl inspection – *Delve Deep* exhibit

The *Delve Deep* exhibit deals with pearl oysters and their environments. See *Delve Deep* support notes for information about the pearl oyster and how pearls are formed.

Collect old abalone shells and observe under a binocular microscope. How many colours can be seen? How do the colours change when the shell is moved around? This lining on the abalone shells is known as nacre. Does the nacre react with vinegar? Can it be easily scratched with a sharp implement?

MARITIME HISTORY

Semaphore flags – *Captain's Code* exhibit

Semaphore signals use two flags, both having red upper corners and yellow lower corners. By moving the arms into certain positions, a message can be spelt out. Students can use the Internet to access the interactive activities below, or make their own flags and spell out messages on a sports field, while other students in the class try and decipher the message. The links below also indicate the arm positions for different letters and numbers so students can compose their message. The *Captain's Code* support notes also list the letters and arm positions.

<http://museum.gov.ns.ca/mma/signalflags/index.html>

<http://www.envmed.rochester.edu/wwwrlp/flags/flags.htm>

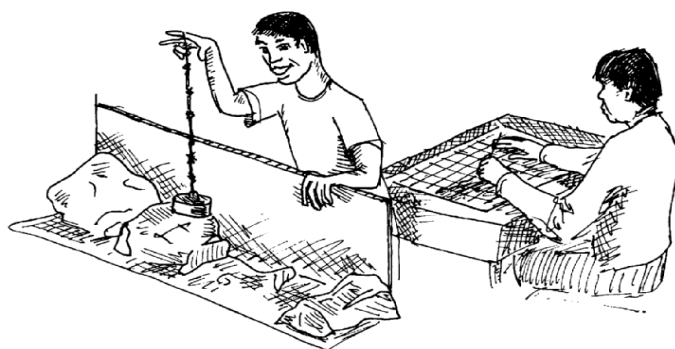
Have a coloured print of signal flags on display (go to <http://www.sacdelta.com/signal-flags.htm> for signal flag shapes and colours). One student can colour in signal flags to represent a message – other students in the class can try to work out the message. Similarly, a dozen small human figures with movable arms and legs can be attached to a notice board, holding a semaphore flag in each hand (go to <http://museum.gov.ns.ca/common/scripts/flags.pl> for semaphore positions). Move each different person so a message is displayed and students can try to decipher it.

Maritime Archaeology – *Restore the Relic* exhibit

Students can bring in dirt encrusted items (eg bottles) dug up from the ground or riverbed. Gently chip the bulkier dirt away with a blunt knife. Use a weak solution of citric acid (to reduce the concretion) and describe the artefact in a written report.

River Sounding – *Can You Fathom It?* exhibit

Navigators used lengths of rope with knots tied at regular intervals to map the land under the water (eg riverbeds). This can be adapted to the classroom, using string with knots every 2 or 5 cm and a small metal washer to weigh the string. Create a rocky landscape on one side of an aquarium tank and cover the side with paper. Students drop the string down until it touches a rock – counting the number of knots released and mapping the depth on a piece of graph paper.



Also – view the *map the ocean floor* activity at <http://familyeducation.com/article/0,1120,24-8998-1,00.html> which uses shoe boxes, graph paper and skewers.

Test for vitamin C – *Scurvy Science* exhibit

Students can research the development of antiscorbutic foods to prevent vitamin C deficiencies and scurvy on long sea voyages. Also – see *Scurvy Science* support notes for information.

The web site <http://www.rohmhaas.com/company/plabs.dir/exp12.htm> has a titration experiment using an iodine-cornstarch solution to detect the level of vitamin C in different foods. The greater the concentration of vitamin C, the more drops are required before the solution becomes colourless. Students can test the vitamin C content of foods commonly taken on sea voyages (lemon/lime juice, salted beef, dry biscuits, rice, green vegetables, etc). Alternatively, they can test lemon juice everyday for a few weeks. They should find that the vitamin C concentration decreases over time, as it is greatly unstable, particularly when exposed to sunlight. The breakdown of vitamin C was a particular problem on long sea voyages.

Ship shape – general interest

Use sheets of foil to form hull shapes from old sailing ships. HMB *Endeavour* had a squarish shaped base, other ships had deeper 'v' shaped hulls. Try floating the foil in water – loaded and unloaded. Which shapes work best? What is meant by displacement of water? Experiment with different shaped sails (square, triangular, round) on a model boat – use a hair dryer to blow the ship across a tray of water.

History of Tattoos - *Tattoo Clue* exhibit

The vast majority of sailors wore tattoos from the late 18th century onwards. Check the following web sites for historical information on tattoos in Asia, Polynesia and sailing cultures and superstitions.

<http://www.mariner.org/exhibits/tattoo/exhibit01.htm> ;

<http://www.culture.co.nz/ta-moko/index.htm>.

After researching patterns and meanings, students can design their own Polynesian style tattoo design and create a stamp (from lino print, potato half and ink), along with a description of the inspiration for their design.

Knots – general interest for maritime history

The following links provide excellent instructions for tying different marine knots – some are animated to clearly show the method: <http://ws1.coopfish.siu.edu/knots.htm>;

http://www.marine.com.au/bk_knots.htm; <http://www.sacdelta.com/safety/knots/>

Students can use rope to tie a particular knot attach it to a board with accompanying descriptions of the name of the knot, its strengths and weaknesses and where it is commonly used. Or – knots can be suspended from the roof for decorative effect.

Pendulum Action - *Tests of Time* exhibit

Before the chronometer was developed, ships carried pendulum clocks which did not fare well on moving ships. Create a pendulum from a length of string (about 80 cm long) with a mass attached to one end. Tie the other end of the string to a fixed point. Students can experiment with the time it takes the pendulum to complete 10 swings, with changing string length and changing mass.

Is the swing of the pendulum affected if its anchor point is moved? Imagine how a pendulum clock would have coped on a moving ship.

Washing in salt water and fresh water - *Out to Dry* exhibit

Clothes washed in salt water take longer to dry. Students can experiment with salt water of different saltiness, soaking and drying equal sized squares of 100% cotton in the water and drying them in the Sun. Do all pieces of material dry at the same rate?

INTERACTIVE CLASSROOM DISPLAY – PRIMARY CLASSROOMS

When returning to your classroom after visiting *Sea Chest Secret*, you may like to revise the exhibition:

- the countries visited,
- James Cook and William Bligh,
- the three ships HMB *Endeavour*, HMS *Resolution* I and II and HMS *Bounty*,
- Pacific cultures,
- methods of navigation, etc.

An interactive display can be set up in your classroom, where students research a particular topic associated with the exhibition (use the exhibit description list as a memory jogger). The interactive display is likely to take up a corner of the room and require materials to build and computers to produce graphic labels and titles. These displays would be manipulated by students rather than form purely static displays.

For example:

- cardboard rolls can be used as mock binoculars.
- If students perform the *River Sounding* activity above, it can be left for other students to use.
- Students can carve animal footprints from potato and create their own animal tracks in a tray of moist, fine-grained sand.
- Create cardboard sailors with movable arms and semaphore flags in their hands. Students can move the arms around to spell different words (similar to the *Captain's Code* exhibit).
- Stick a world map onto a whiteboard. Create magnetic 'ships' labelled HMB *Endeavour*, HMS *Resolution* I, HMS *Resolution* II and HMS *Bounty*. Use the support notes document titled *Voyage Dates and Destinations* for students to track where each ship sailed.