

# Shipwrecked!



HM Bark Endeavour, Endeavour River 1770  
Courtesy Ray Parkin 1976

*'The Ship being quite fast upon which we went to work to lighten her as fast as possible which seem'd to be the only means we had left to get her off as we went a shore about the top of High-water – we not only started water but threw'd over board our guns Iron and stone ballast, Casks, Hoops staves oyle Jars, decay'd stores...*

11 June 1770

*The leak now decreaseth but for fear it should break out again we got the Sail ready fill'd for fothering the manner this is done is thus, we mix ockam & wool together, /but ockam alone would do/and chop it up small and then stick it loosly by hand fulls all over the sail and throw over it sheeps dung or other filth. ..the sail thus prepared is hauld under the Ships bottom by ropes .. while the sail is under the Ship the ockam is washed off and part of it carried along with the water into the leak and in part stops up the hole.'*

13 June 1770

Extracts from Cook's journals

## ABOUT THE EDUCATION RESOURCES

These resources should be used in conjunction with the education section of the HMB *Endeavour* Circumnavigation website at [www.endeavourvoyages.com.au](http://www.endeavourvoyages.com.au). Teachers may use these resources and the information on the website as stimulus material pre- or post-visiting the ship. They include content summaries, images and classroom activities for both primary and secondary students. Teachers may also adapt this material to create activities at a suitable level for their students. The activity outcomes link to various individual state and national syllabi and can also be used for a cross-curriculum approach. The icons in each unit identify the skills base for each activity:



To Write



To Do/ To Create



To Think



To Discuss



To Read



To Look at



To Make



To use the Computer



To Calculate



To Perform

The *Shipwrecked!* unit examines the shipwreck of Cook's *Endeavour* in June 1770 when it became trapped on a coral shoal. The ingenuity of the Captain and the crew - and a propitious plug of coral stuck in the bow below the waterline – meant the ship could limp to the beach and then a sheltered spot near what is now called Cooktown. This unit examines the event from its historical context: the logistics of sailing a Bark in the 1700s, the use of Mathematics as an integral part of naval life, the language used at the time and in modern usage, and the importance of studying coastal and maritime environments.

### CURRICULUM LINKS

ENGLISH

MATHEMATICS

HISTORY

HSIE/SOSE

SCIENCE

VISUAL ARTS

GEOGRAPHY

Curriculum links for the complete scope of the Education Resources are available on the *Endeavour* website under *Teacher Resources* [www.endeavourvoyages.com.au](http://www.endeavourvoyages.com.au)

# How it Happened



[http://en.wikipedia.org/wiki/File:Coral\\_Outcrop\\_Flynn\\_Reef.jpg](http://en.wikipedia.org/wiki/File:Coral_Outcrop_Flynn_Reef.jpg) Wikipaedia Commons

**The Great Barrier Reef** is one of the seven wonders of the natural world. A living entity, it stretches over 3000km (1800 miles) almost parallel to the coast, from near what is now the coastal town of Bundaberg, up to the northern tip of the continent. The reef, between 15 kilometres and 150 kilometres off shore is around 65km wide in some parts.

Cook had been nearly 1000 nautical miles inside the reef before he realized they were in danger from the increasingly common coral reefs and shoals. He had been coaxing the ship forward throughout these days, cautiously taking 'soundings' – measuring the depth of the water by swinging the 'leadline' day and night.

He turned the ship towards the sea, looking for a channel through the reef. But at 11pm on a clear and moonlit night of 11 June 1770, the ship stuck fast on a coral reef. The battle for survival lasted through days and nights of plugging, unloading and pulling. Six days later the ship limped into a nearby river mouth, named by Cook the *Endeavour River*.

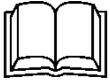
It would be seven weeks before the hull was sufficiently repaired to risk the journey to Batavia (modern Indonesia) for the vital reconstruction work needed before the *Endeavour* could attempt a journey home to England. It was during this time that the men made sorties into the bush for food. They and the scientists aboard continued their studies of the fauna and flora of the continent, including sighting and eating their first kangaroo.



*A singular animal called kangaroo (sic) found on the coast of New Holland, 1792-1800*  
Engraving after George Stubbs (1724-1806)  
ANMM Collection

**Did you know? A nautical mile is the unit of measurement used at sea. It is a standard measurement of 6,080 feet or 1,852 metres.**

# The ship

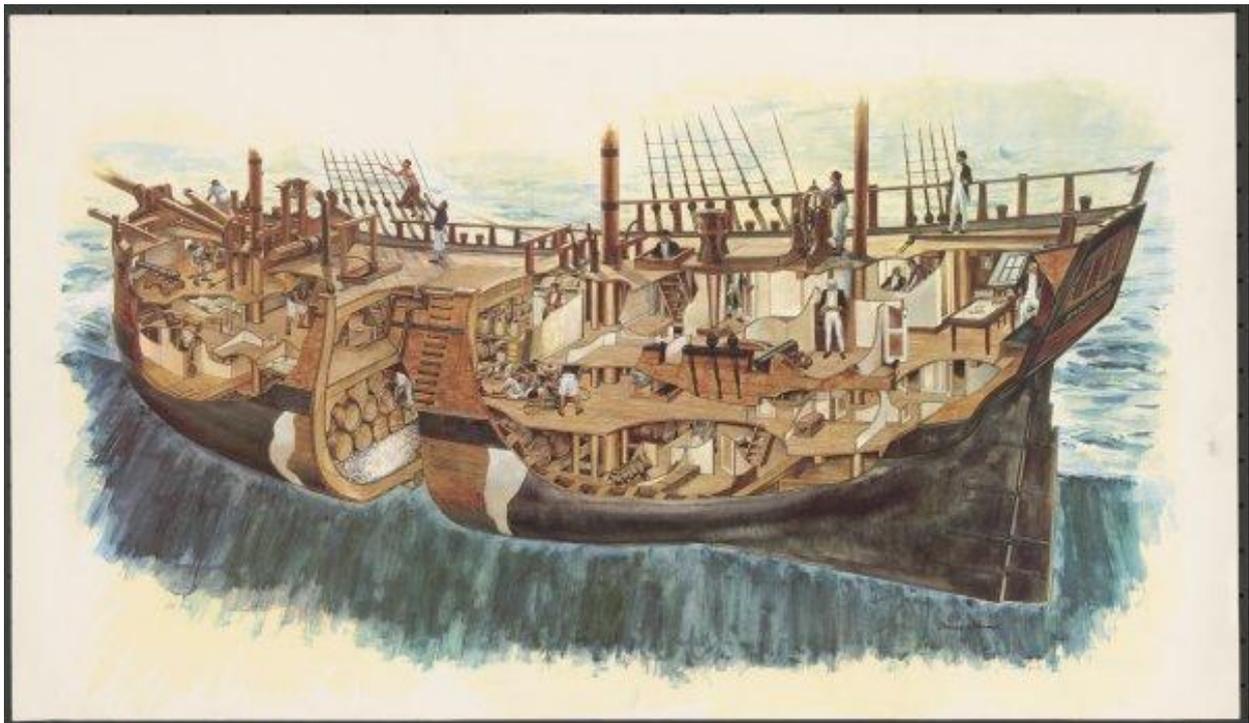


## BACKGROUND READING

*Endeavour* was a typical east coast collier with a bluff broad bow and had been built by Fishburn for Thomas Milner at Whitby, Yorkshire. In March 1768 at the time of purchase she was three years nine months old. Her length was 106 ft, and 97 ft 7 in. on her lower deck, with an extreme breadth of 29 ft 3 in. Her burthen was 368 71/94 tons. She was renamed *Endeavour* and registered as a bark, that is, a vessel without a figurehead and a straight stem. She was not a barque.

The following items were on board when she left England. The planning and supply of food was called *victualling* and the ship was supplied with 18 months worth of food including 17 sheep, 24 chickens, four pigs, two dogs and three cats and a goat for milk and cheese.

Almost 10,000 kilograms of bread in the form of biscuits, 4000 pieces of salted beef, 6000 pieces of salted pork, 5, 4000 litres of beer and 5,400 litres of spirits were also taken on board.



*Endeavour below decks*

© Dennis Adams Estate

Courtesy National Library of Australia

There were also 12 '4-pounder' cast iron cannon, 12 swivel guns and 12 tons of pig iron used as sailing ballast. The weight of each cannon was measured in \*hundredweight, quarters and pounds. Some of them were thrown overboard to help lighten the ship when it became stuck on the reef. The canon shown below was recovered in 1969 using Cook's original maps. The six cannon thrown overboard during the shipwrecked period weighed:

Cannon 1	*11-2-15	Cannon2	11-2-21	Cannon3	11-3-0
Cannon4	11-2-2	Cannon5	11-2-5	Cannon6	11-2-7



Original cannon from HMB *Endeavour*  
National Museum of Australia  
Photo ANMM



**ACTIVITY:** Research the use of the three small boats on board the *Endeavour* - a yawl, a pinnace and a longboat

HSIE/SOSE, History

Start with the following websites:

<http://www.theshiplist.com/ships/descriptions/yawl.htm>

<http://www.thefreedictionary.com/yawl>, <http://en.wiktionary.org/wiki/yawl>

<http://www.wisegeek.com/what-is-a-pinnace.htm>

<http://en.wikipedia.org/wiki/Longboat>



## ACTIVITY: Convert the measurements used above to metric using the following conversion tables

Maths, HSIE/SOSE, History

### IMPERIAL

Length	Area	Capacity	Weight
1 mile = 1760 yards	1 sq. mile = 640 acres	1 gal. = 4 quarts	1 ton = 20 cwt
1 mile = 8 furlong	1 acre = 4840 sq. yard	1 quart = 2 pints	1 ton = 2240 lb.
1 furlong = 10 chains	1 sq. yard = 9 sq. feet	1 pint = 4 gills	1 ton = 1.12 US ton
1 chain = 4 rods	1 sq. foot = 144 sq. inches	1 pint = 34.6774 inches <sup>3</sup>	1 cwt = 4 quarters
1 rod = 5 1/2 yards		1 gill = 5 fl. oz.	1 quarter = 2 stone.
1 yard = 3 feet		1 fl. oz. = 8 fl. drachms	1 stone = 14 lb.
1 foot = 12 inches		1 US gal = 0.8327 gal	1 lb. = 16 oz.
		1 US pint = 0.8327 pint	1 oz. = 16 drams
		1 US pint = 16 fl. oz.	1 oz. = 437.5 grains
		1 yard <sup>3</sup> = 27 feet <sup>3</sup>	1 US ton = 2000 lb.
		1 foot <sup>3</sup> = 1728 inches <sup>3</sup>	

### METRIC

Length	Area	Capacity	Weight
1 km = 10 hm	1 km <sup>2</sup> = 100 hectares	1 m <sup>3</sup> = 1000 litres	1 tonne = 1000 kg
1 km = 1000 m	1 hectare = 100 ares	1 litre = 1 dm <sup>3</sup>	1 kg = 1000 g
1 hm = 100 m	1 are = 100 m <sup>2</sup>	1 litre = 1000 cc	1 g = 1000 mg
1 m = 10 dm	1 m <sup>2</sup> = 100 dm <sup>2</sup>	1 litre = 1000 ml	
1 dm = 10 cm	1 dm <sup>2</sup> = 100 cm <sup>2</sup>		
1 cm = 10 mm	1 cm <sup>2</sup> = 100 mm <sup>2</sup>		

### IMPERIAL to METRIC

Length	Area	Capacity	Weight
1 mile = 1.609 km	1 sq. mile = 2.59 km <sup>2</sup>	1 gallon = 4.5461 litres	1 ton = 1.016 tonnes
1 yard = 0.9144 m	1 acre = 0.4047 hectares	1 US gallon = 3.785 litres	1 lb. = 0.4536 kg
1 foot = 0.3048 m	1 acre = 4046.86 m <sup>2</sup>	1 pint = 0.5683 litres	1 oz. = 28.3495 g
1 inch = 25.4 mm	1 sq. yard = 0.8361 m <sup>2</sup>	1 cu. inch = 16.3871 cm <sup>3</sup>	1 US ton = 0.9072 tonnes
	1 sq. foot = 0.0929 m <sup>2</sup>		
	1 sq. inch = 645.16 mm <sup>2</sup>		

### METRIC to IMPERIAL

Length	Area	Capacity	Weight
1 km = 0.6214 miles	1 km <sup>2</sup> = 0.3861 mile <sup>2</sup>	1 litre = 0.22 gal.	1 tonne = 0.9842 ton
1 m = 1.0936 yards	1 km <sup>2</sup> = 247.105 acres	1 litre = 0.2642 US gal.	1 tonne = 1.1023 US ton
1 m = 3.2808 feet	1 hectares = 2.4711 acres	1 litre = 1.7598 pint	1 kg = 2.2046 lb.
1 mm = 0.0394 inches	1 m <sup>2</sup> = 10.7639 feet <sup>2</sup>	1 m <sup>3</sup> = 219.969 gal.	1 kg = 35.274 oz.
	1 mm <sup>2</sup> = 0.0016 inches <sup>2</sup>	1 m <sup>3</sup> = 35.3147 feet <sup>3</sup>	

### TEMPERATURE

deg. C to deg. F	deg. F to deg. C
deg. C x 9/5 + 32 = deg. F	(deg. F - 32) x 5/9 = deg. C

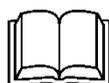
Conversion table an extract from Taylormade.com.au



### ACTIVITY: Using primary sources

HSIE/SOSE, History, Maths

1. Cook's log states that they '*threw'd over board our guns Iron and stone ballast, Casks, Hoops staves oyle Jars, decay'd stores...*'
2. Look up Cook's journal extracts at [http://southseas.nla.gov.au/index\\_voyaging.html](http://southseas.nla.gov.au/index_voyaging.html)
3. **Primary source material** does not always answer every question but consider the following:
  - A. Add together the known weight of these items which were thrown overboard in order to lighten the ship during the battle to save it when stuck on the coral reef.
  - B. Using Cook's journal extracts, compare this total weight to Cook's 'reckoning' in his logs.



### ACTIVITY: Discussion

HSIE/SOSE, History, English

The following website provides excellent source material for this discussion.

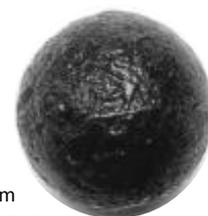
[http://www.nma.gov.au/collections/collection\\_interactives/european\\_voyages\\_to\\_the\\_australian\\_continent/empire/endeavour\\_runs\\_aground/dr\\_john\\_hawkesworths\\_account/](http://www.nma.gov.au/collections/collection_interactives/european_voyages_to_the_australian_continent/empire/endeavour_runs_aground/dr_john_hawkesworths_account/)

**Consider your measurements** from the last activity - How accurate are these estimates? What other items on the vessel could be discarded? For example: the food remaining – animals, stores, water. According to Cook's logs, they would only have three months worth of stores AFTER they left the Endeavour River.



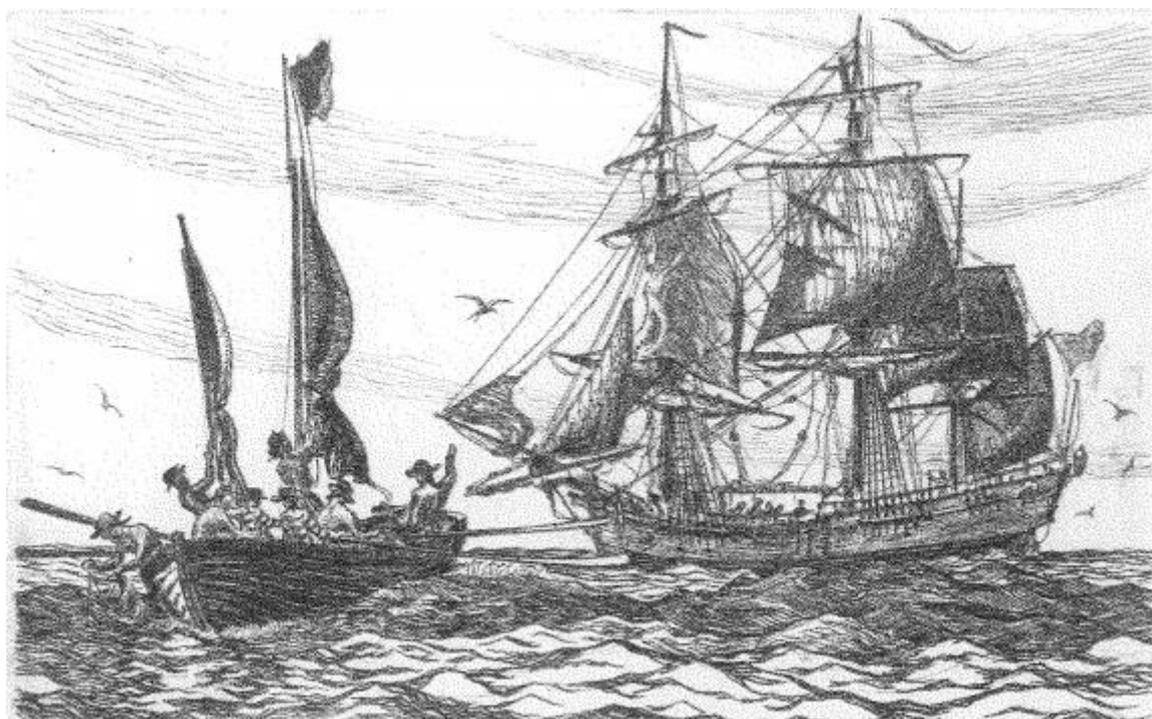
Ballast, piece of kentledge from the HMB *Endeavour*  
ANMM Collection

**Other considerations:** What would be made of IRON on these types of ships – tools, anchors, ballast, etc. How vital were these items to the running of the ship?



Cannonball excavated from  
the wreck of the *Batavia* 1629

# Nautical Language



*Endeavour's boat signals a hazard!*

Courtesy Ray Parkin 1971



## ACTIVITY: Using nautical language of Cook's time

English, History, HSIE/SOSE

**Research** the terms **fothering** (the process Cook used to get the ship to the beach) and **careening** (the process of getting the ship on its side to clean and repair it).

Use the following websites which cite primary source information:

[http://southseas.nla.gov.au/index\\_voyaging.html](http://southseas.nla.gov.au/index_voyaging.html)

[http://www.nma.gov.au/collections/collection\\_interactives/european\\_voyages\\_to\\_the\\_australian\\_continent/empire/endeavour\\_runs\\_aground/dr\\_john\\_hawkesworths\\_account/](http://www.nma.gov.au/collections/collection_interactives/european_voyages_to_the_australian_continent/empire/endeavour_runs_aground/dr_john_hawkesworths_account/)

Fothering and careening are two specific maritime words that are not generally used in everyday language. Look at the words and phrases on the next page. Have you heard of them before? What do they mean? Are there any other words or expressions you can think of that might be from another time?

## Match the meaning

These terms remain from the days of sailing ships like *Endeavour*. **Draw a line** to link them with their correct meaning. Each phrase derives from a nautical term or situation. Write a sentence using each phrase as it is used in colloquial language today. You may have to research what the terms mean to help you! Can you think of more nautical terms that have come into the English vernacular?

Phrase	Meaning
<i>To be a dogsbody</i>	to have no connection with the matter concerned
<i>Dead as a dodo</i>	a person who cannot make up his mind
<i>Round the bend</i>	a coloured cotton scarf, worn on the head or neck
<i>To have no bearing on</i>	to be a little bit crazy or mad
<i>To beat about the bush</i>	someone who has to fetch things, do unpleasant duties
<i>Off and on</i>	long dead, finished with (in American usage, a dodo is a fool)
<i>To be chock-a-block or chockers</i>	to drop whatever one was doing and leave immediately
<i>To cut and run</i>	turning or shifting in another direction
<i>A bandanna</i>	sometimes it is, sometimes it isn't
<i>Bang-on</i>	to revive interest in a worn-out topic
<i>To flog a dead horse</i>	right on the mark or correct
<i>To veer away</i>	a morning or afternoon tea break
<i>To have a smoko</i>	Bossun's warning not to get drunk on leave – to mind your pints & quarts (of alcohol)
<i>To be in the doghouse</i>	to be in disfavour with someone
<i>Mind your Ps &amp; Qs</i>	The cat o' nine-tails punishment whip was kept in a cloth bag until it was required
<i>Let the cat out of the bag</i>	full up, fed up, not able to take any more





### ACTIVITY: Using Colloquial Language and Slang

English, History, HSIE/SOSE

**Colloquial Language** is the everyday spoken language that most people use in ordinary communications. Colloquial language is informal. Where formal language requires us to say: “How do you do?” in greeting, colloquial language allows us to say “Hi!” Remember that the English language is always changing. Words are still being added from new technologies. Other words remain in the language – changed or unchanged in their meaning – from our past.

**Slang** is colloquial language that is spoken and understood by a sub-group in the population. The words used in slang are often very short-lived: they become popular for a while, then are discarded. Standard words are sometimes given slang meanings.

1. **Write a page from a journal account** of the *Endeavour* shipwreck using at least five of the phrases from the chart on page 9. Use other colloquial language and slang that might have been appropriate in 1770.
2. **Write the same account** in 20<sup>th</sup> century English. Imagine you are sailing on the harbour and your boat capsizes. Are you able to use any of the phrases you used in your 1770 account? For something different try writing this account as a media interview.

In colloquial language, if you empathise you ‘put yourself in someone else’s shoes’.

Joseph Banks’ extract below conveys the sense of danger that the *Endeavour* and its’ crew were in.

*The dreadfull time now approach'd and the anziety in every body's countenance was visible enough:*

*the Capstan and Windlace were mann'd and they began to heave: fear of Death now star'd us in the face..*

An extract from Joseph Banks’ journal 11 June 1770

1. **Choose an experience** that you have had and explain it as vividly and accurately as you can so that any reader should be able to empathise with you.
2. **You may choose to write a poem or a piece of prose.**  
Including dialogue is optional. Your aim is to convey what you felt so clearly that the reader may share it with you. Afterwards, read your description to the class.

# About the ports



## ACTIVITY: How deep is the water?

HSIE/SOSE, Science, Maths, Geography

**Look up** the depth of water for each port on the School's landing page of the *Endeavour* replica's circumnavigation website [www.endeavourvoyages.com.au](http://www.endeavourvoyages.com.au)

This will be vital for the *draught* of the ship – that is, the vertical depth of the immersed part of the ship. Remember in Cook's time there were no wharves or other *mooring* points. The ship had to *weigh anchor* and use the boats to reach the shore.



## Create a pie chart



**Step 1:** Look up the depth of water for each port

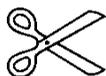
**Step 2:** Design a colour chart like the one on this page – a different colour to represent a different depth of water. You will need to add more colours as you discover a greater variety of depths and/or change the span of depth

	3-4m
	4-5m
	5-6m
	6-7m

**Step 3:** Each port will be one piece of the pie – think about the best way to show each port. Transfer the accurate colour and depth onto your copy of the map of Australia.

## Did you know?

The colour of the ocean changes with the depth of the water and the make-up of the sea bed



### ACTIVITY: Create a landscape

Visual Arts, HSIE/SOSE, History, Geography



*A Direct South View of the Town of Sydney taken from the brow of the hill leading to the flagstaff, 1798*  
James Heath (1757-1834)  
Courtesy National Library of Australia

1. **Create a wall chart** using written descriptions, images of the landscape/buildings / plants/people from your chosen port from then and now.

*A topographic map is a graphic representation of the surface features of a place or region on a map, indicating their relative positions and elevations. The elevations are shown by using contour lines.*

2. How would you describe the *topography* of the port today?  
How has it changed since early times?
3. **Draw a topographic map** of the port area where the Endeavour replica is moored.
4. **Add a Glossary** of landscape terms to your chart that reflects the terms you have used in this exercise.

Banksias were among the native Australian plants encountered by scientists aboard *Endeavour*. They are named after the botanist Joseph Banks.



## RESOURCES FOR FURTHER READING AND RESEARCH

<http://www.theshipslist.com/ships/descriptions/yawl.htm>  
<http://www.thefreedictionary.com/yawl>,  
<http://en.wiktionary.org/wiki/yawl>  
<http://www.wisegeek.com/what-is-a-pinnacle.htm>  
<http://en.wikipedia.org/wiki/Longboat>  
<http://www.teara.govt.nz/en/1966/ships-famous/2>  
[http://southseas.nla.gov.au/index\\_voyaging.html](http://southseas.nla.gov.au/index_voyaging.html)  
[http://www.nma.gov.au/collections/collection\\_interactives/european\\_voyages\\_to\\_the\\_australian\\_continent/empire/endeavour\\_runs\\_aground/dr\\_john\\_hawkesworths\\_account/](http://www.nma.gov.au/collections/collection_interactives/european_voyages_to_the_australian_continent/empire/endeavour_runs_aground/dr_john_hawkesworths_account/)  
<http://www.endeavourvoyages.com.au/>  
<http://www.answers.com/topic/topography#ixzz1I22HI7mD>  
<http://www.merriam-webster.com/dictionary/topography>  
<http://www.aus-emaps.com/topo.php>  
<http://nla.gov.au>  
<http://www.teara.govt.nz/en/1966/ships-famous/2>  
[http://southseas.nla.gov.au/index\\_voyaging.html](http://southseas.nla.gov.au/index_voyaging.html)

The Papers of Sir Joseph Banks (<http://www.sl.nsw.gov.au/banks/>)  
 Ansted, A (1991) *A Dictionary of Sea Terms* Brown, Son & Ferguson Ltd, Glasgow,  
 Brunton, P (1998) *The Endeavour Journal of Joseph Banks*, Harper Collins, Sydney  
 Beaglehole, J.C. (ed), (1999) *The Journals of Captain James Cook*, Woodbridge Boydell, Sydney  
 Callegari D., (1994) *Cook's cannon and anchor: the recovery and conservation of relics from HMB Endeavour*, Kangaroo Press, Sydney  
 Jeans, PD (1993) *Ship to Shore* ABC-CLIO, California  
 Macarthur A, and Longley J, (1997) *Endeavour Souvenir Brochure*, Hadlow, Kent  
 Macarthur, S (1997) *His Majesty's Bark Endeavour: the story of the ship and her people*, Angus & Robertson, Sydney  
 Marquart K.H., (1995) *Captain Cook's Endeavour*, Conway Maritime, London  
 Parkin R., (1997) *HM Bark Endeavour*, Melbourne University Press,  
 Robson J., *The Captain Cook Encyclopaedia*, Chatham Publishing, London

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