



The Marine Life of Australia's temperate coastal waters

Teachers' Notes

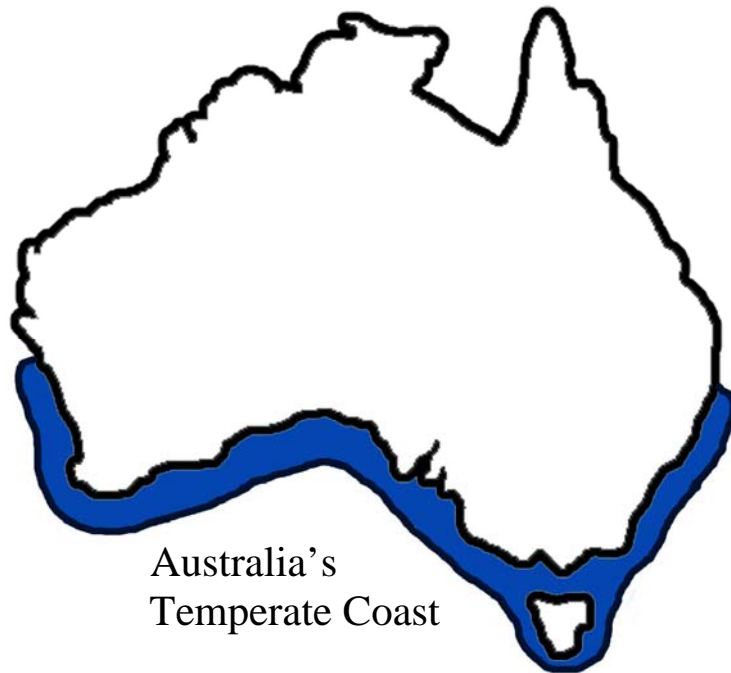
K (Prep) - 6

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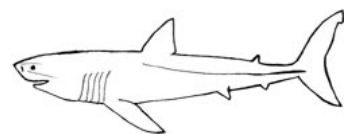
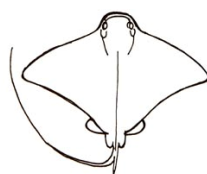
INTRODUCTION

Australia's temperate coast extends from southern Western Australia through South Australia, Victoria and Tasmania to central NSW. This area is home to more than 1,500 fish species and countless invertebrate animals. It is estimated that a staggering 90% of all plants and animals found here are endemic, (unique) to the region.



These coastal waters are made up of many different marine habitats such as intertidal rockpools, rocky reefs, kelp forests, estuaries and the open ocean. Some marine creatures are found in all areas but most prefer a specific habitat.

Using interactive video, the ***Beneath Southern Seas*** presentation explores this amazing region. We look at the huge diversity of marine life, at ecosystems and the food chain as well as camouflage, predation and reproduction. The presentation also explores human activities around our oceans such as pollution and getting food from the sea. We suggest student activities for caring for our local marine life.



SOME ACTIVITIES FOR BEFORE THE PRESENTATION

1. Ask whether the students have explored a rockpool. What sort of animals did they see there? (sea urchins, starfish, anemones, crabs, small fishes)
2. Ask the students what they know of their local marine region. For example:

Name some different sorts of fish?	(Prompt them with "Finding Nemo" fishes) Sharks, rays, clownfish, eels, wrasses, leatherjackets, flatheads etc.
Name some marine mammals?	Whales, Dolphins, seals and sea lions.
Name some dangerous sea creatures?	Sharks, jellyfish, blue bottles, blue-ringed octopus, spiky sea urchins, toad fish.

3. Ask the students to draw some of the sea creatures they have seen while at the beach. What do these animals feed on? What feeds on them?

SURVIVAL IN THE SEA

The presentation features marine animals using camouflage and other survival methods. Ask the students to think about how different marine creatures survive in the ocean.

For example:

Animal:	Protection:
Sea urchins	Have sharp spines
Turtles	Have a hard shell covering their body
Crabs	Hermit crabs use a seashell to protect their soft body. Weed crabs use the weed for camouflage.
Stingrays	Have a venomous barb on their tail
Octopus	Are experts at hiding in tiny holes and under rocks, they also can spurt ink.
Fishes	Schooling - Trevally, baitfish Camouflage - Seadragons, flounder Spines - Lionfish, pufferfish Taste repulsive - Stinkfish

STUDENT MARINE WORKSHEET Page 1 of 3

POLLUTION

1. HOW LONG DOES IT TAKE FOR THESE TO BREAK DOWN IN THE OCEAN?
(Fill in the numbers...)

APPLE CORE



___ weeks

DISPOSABLE NAPPY



___ ___ years

DRINK BOTTLE



___ ___ years

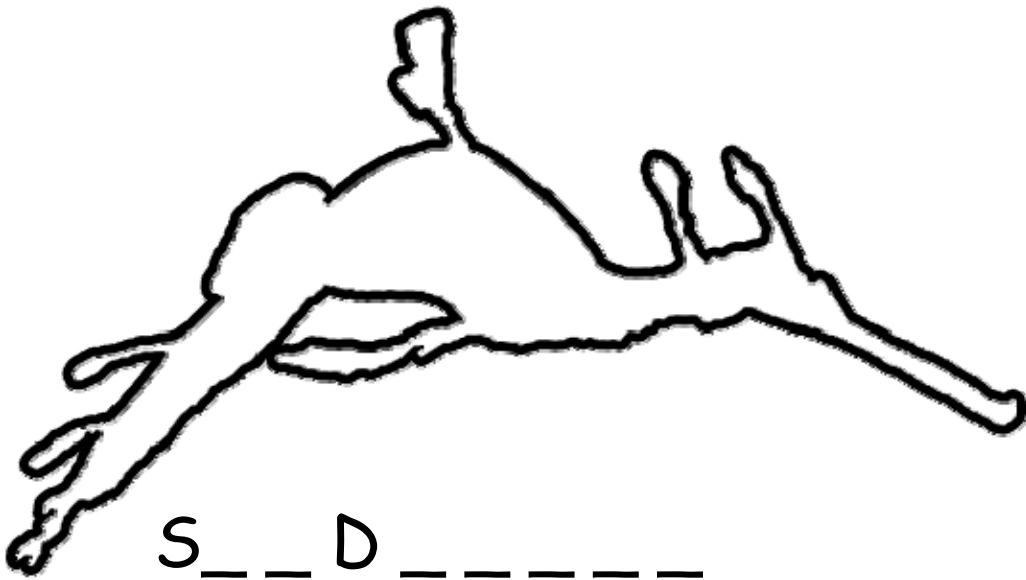
2. Draw pictures of rubbish that can harm the marine life in our oceans
(eg. cigarette butts, drink cans and plastic bags.)

3. THE EFFECT OF STORMWATER ON OUR OCEANS

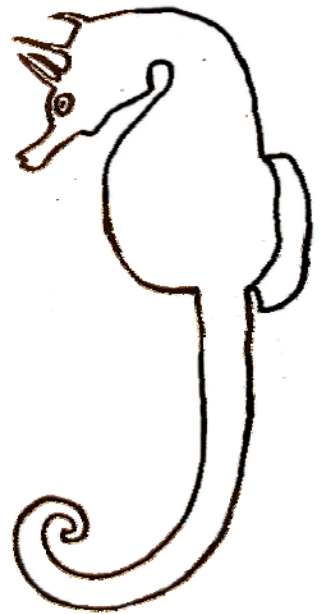
(Fill in the missing letters...)

In Australian cities near the coast, like **S** __ __ __ __ __, Melbourne and Adelaide when it **R** __ __ __ **S** a lot of the water washes into the **D** __ __ __ __ **S** and finally makes its way to the **S** __ __. Any rubbish lying in the street like aluminium **C** __ __ __, ice cream **W** __ **A P** __ **E** __ **S** or cigarette **B** __ __ __ __ are carried with the stormwater and can end up in the ocean. This rubbish **P** **L L U** __ **E** __ our **M** **R** __ **N** __ habitat and can harm animals such as **F** __ __ __ and marine mammals like dolphins and **W H** __ **L** __ __. We can reduce this **P** __ __ __ __ __ __ __ by being careful not to drop **R** __ __ __ __ **S H** in the streets.

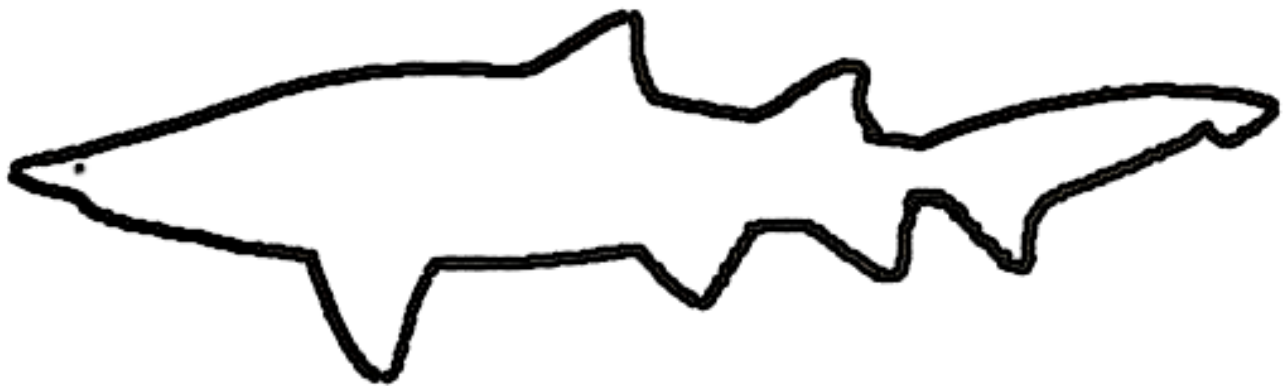
COLOUR-IN AND NAME THE SEA CREATURES BELOW



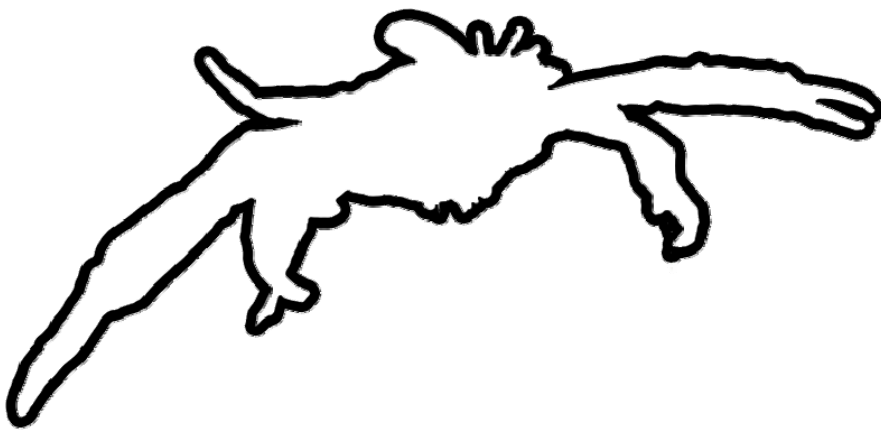
S _ _ D _ _ _ _ _



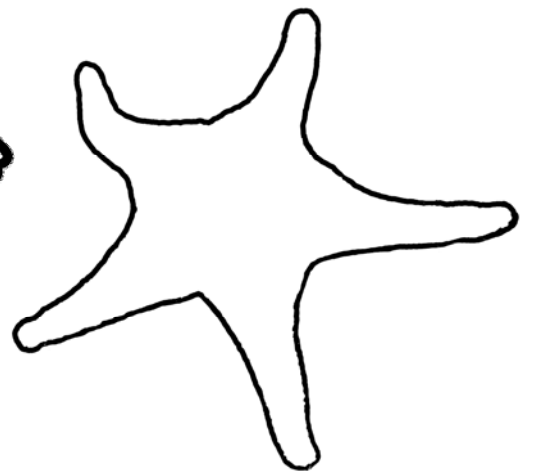
S _ _ H _ _ _ _ _



GREY NURSE S _ _ _ _ _



C _ _ B



S _ _ _ F _ _ _ _

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FIND THE HIDDEN WORDS

K E L P F I N S E A L D
P E A R L O S H A R K O
U L R F I S H E S R O L
R O C K P O O L E S C P
S C R A P S E L P S E H
E T A N E M O N E T A I
A O B E R U R C H I N N
H P S U N M A R I N E W
O U C S E A S L U G S A
R S A L T W A T E R I V
S Q U I D E T W H A L E
E G G P S T O R M Y T S

Can you find all these words hidden above?

KELP
EEL
STINGRAY
CRABS
SILT
ROCKPOOL
SEASLUG
WET
SQUID
EGG
RAY
NET

SHARK
STORM
OCTOPUS
SEAL
MARINE
SALTWATER
FISHES
DOLPHIN
SLIP
FIN
SUN

WHALE
PEARL
SHELL
URCHIN
WAVES
ANEMONE
OCEAN
FLIPPER
SEAHORSE
SCRAPS
SHOE

When you have found all the words use to left-over letters to finish the phrase.

“The oceans deserve _____”

SOME QUESTIONS FOR AFTER THE PRESENTATION

Camouflage	
What are some of the ways that crabs protect themselves?	Hermit crabs use shells for protection, while decorator crabs cover their bodies with seaweed to help them hide.
How does the puffer fish protect itself?	It sucks in water and blows up like a balloon making itself look bigger.
How does the little dumpling squid hide from predators?	It buries itself in the sand.
Where do stargazers like to spend most of their time?	Buried under the sand with just their eyes poking out.
Feeding	
How do goatfish search for food in the sand?	They stir up the sand using the little spines that protrude from just below their mouths.
What technique does the anglerfish use to catch food?	It waits for a little fish to come close, and then gulps it down in one mighty mouthful!
Behaviour	
Why do some fish swim in schools?	For protection from predators –there's safety in numbers.
What is so special about seahorse reproduction?	The male rather than the female seahorse looks after the babies and gives birth.
Do newborn seahorses get looked after by their parents?	No. From the moment they are born they must survive on their own.
How long does a baby Port Jackson shark spend inside its shell before hatching?	18 months
Protecting the marine environment	
What does it mean when a marine animal is protected?	This means laws are in place to protect that animal. Fishing for, collecting or keeping the animal as a pet may be against the law.
What are Marine National Parks and why do we have them?	MNPs are specific marine areas declared by the Government. They are set up to help protect marine plants, animals and habitats in their natural state for the benefit of the environment and to provide a buffer against potential environmental impacts.
What sort of pollution runs into the sea after heavy rain?	Cigarette butts, milk cartons, paper, oil from the car, dog poo.

What are some of the things we can do to reduce the amount of pollution going into the ocean?

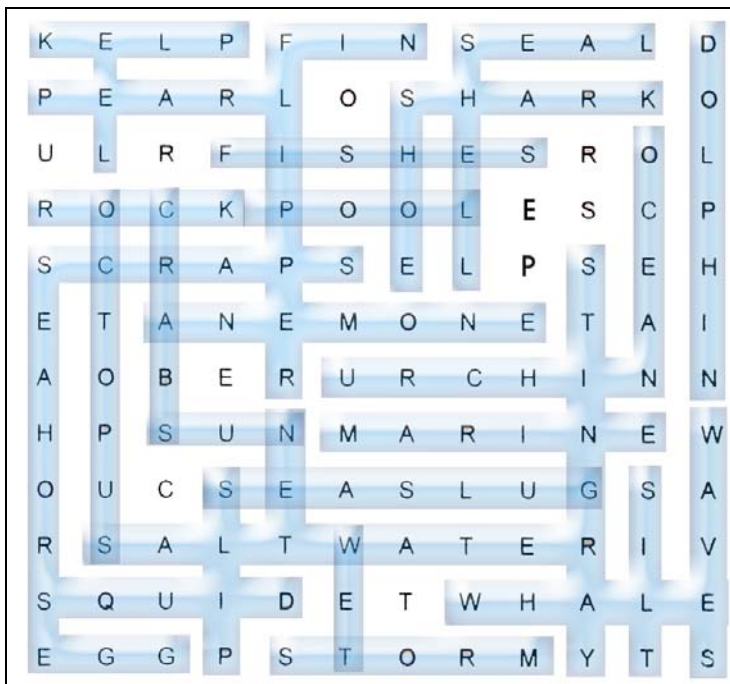
- Don't litter.
- Clean up dog poo.
- Don't pour oil down the drain.
- Wash the car on grass rather than on the street.

VISITING AN INTERTIDAL ROCKPOOL

When visiting a rock platform, always wear protective footwear, a hat and sunscreen. Also be careful when handling any creatures especially (see table below):

Sea urchins	The have shape spines and you might get spiked
Crabs	Even little crabs have strong nippers and can pinch hard!
Anemones	These are very delicate animals that should be looked at but not touched.
Barnacles	Cover the rocks in rockpools and are very sharp! It is easy to get a cut and scratched from them.
Octopuses	All octopuses have a beak that can bite you. The Blue ringed octopus is highly venomous, so it should be left completely alone if your find one.

Find the hidden words answers:



Hidden words:

“The Oceans deserve OUR RESPECT”

REFERENCES

Books

Australian Marine Life by Graham Edgar
Published in 2000 by Reed New Holland

Coastal Fishes of South-Eastern Australia by Rudie Kuitert
Published in 2000 by Gary Allen P/L

Australia's Southern Shores by Harry Breidahl
Published in 1997 by Lothian P/L

DVDs

Beneath Southern Seas. www.beneathsouthernseas.com.au

THE INTERNET

GENERAL MARINE INFORMATION

Marine Education Society of Australia	www.mesa.edu.au
Introduced Marine Pests	www.marine.csiro.au/crimp
Reef Education Network	www.reef.edu.au
Australian Marine Conservation Society	www.amcs.org.au
National Parks Association – Marine	www.marine.org.au
FISHES	
Australian Museum's Fish website	www.amonline.net.au/fishes/
Seahorses	www.projectseahorse.org
Grey Nurse Sharks	www.fisheries.nsw.gov.au/conservation/species/grey-nurse/home-grey-nurse.htm
Australian Shark Attack File	www.zoo.nsw.gov.au/content/view.asp?id=126
MARINE INVERTEBRATES	
Seaslugs	www.seaslugforum.net/
Squid, octopus and cuttlefish	http://www.cephbase.utmb.edu/
Bioluminescence	www.lifesci.ucsb.edu/~biolum/
Molluscs	http://www.amonline.net.au/invertebrates/mal/
Crustaceans	http://www.amonline.net.au/invertebrates/cru/index.htm
Build your own squid	http://squid.tepapa.govt.nz/build-a-squid/interactive
Marine Mammals	
Whales	http://dkd.net/whales/ www.whaleresearch.org/
Dolphins	http://www.southwest.com.au/~kirbyhs/dolphins.html
Seals	http://www.zoo.org.au/animal_page.cfm?area_id=48&zoo_id=1&animal_id=89

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