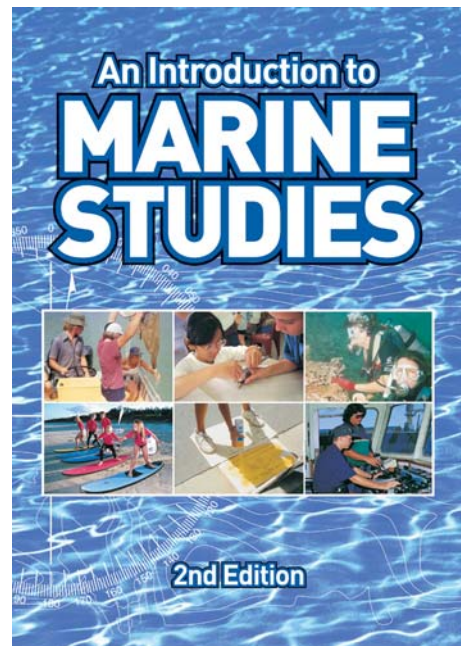


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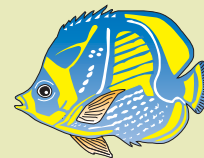
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## Ordering Information

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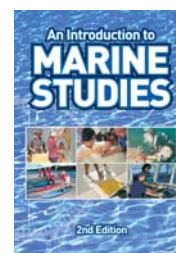
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## Sample workprogram and activity ideas

The workprogram below is a guide only for teachers attempting design a course in the middle school for 3 years. The book is suitable in senior courses for students who are not bound for university.

There are many ideas and activities from old Wet Paper books on our web site

[www.wetpaper.com.au/teacher](http://www.wetpaper.com.au/teacher)



<p><b>Year 1</b></p>	
<p>Introduction</p> <p>Ch 1 Water safety</p> <p>Ch 2 First aid</p> <p>Ch 23 Waves</p> <p>Ch 24 Tides and currents</p> <p>Ch 19 Oceans</p>	<p><b>Activity ideas</b></p> <p>Decorate the room with marine related gear from table on page 5</p> <p>Bronze star, pool safety, excursion to life saving club, voluntary marine rescue</p> <p>First aid certificate, ambulance visit to school, dangerous creature wall chart</p> <p>Wave tank experiments, surfing culture project, beach erosion project</p> <p>Reading a tide book, graphing tides, current meter design and experiments</p> <p>Make simple oceanographic equipment and test it in local creek or waterway</p>
<p>Ch 32 Shipwrecks</p> <p>Ch 3 Dangerous creatures</p> <p>Ch 31 Antarctica</p> <p>Ch 18 Weather</p> <p>Ch 7 Boating</p> <p>Ch 6 Sea water</p>	<p>Internet research, make a model ship, immigration, marine museum visit</p> <p>Design a dangerous creature, wall chart, power point presentation</p> <p>Assignment, internet research, ABC videos, humpback whale project</p> <p>Visit to weather station, emergency plan for severe storms and coastal bushfires</p> <p>Canoeing certificate, trip on a boat, navigation assignment, windsurfing, sailing</p> <p>Classroom experiments salinity, temperature, pressure, Cartesian diver</p>
<p><b>Year 2</b></p>	
<p>Introduction</p> <p>Ch 8 Snorkelling</p> <p>Ch 4 Maintaining equipment</p> <p>Ch 10 Making a surfboard</p> <p>Ch 11 Aquariums</p> <p>Ch 12 Underwater farming</p> <p>Ch 13 Crayfish</p>	<p><b>Activity ideas</b></p> <p>Decorate the room with marine related gear from chapters to be studied this year</p> <p>Snorkelling certificate, pool skills, rescue, underwater hockey games</p> <p>Repairs to surfboards, fishing rods, snorkelling gear</p> <p>Visit to a surf shop., industrial arts department, make a model surfboard</p> <p>Making and stocking an aquarium, class visit from aquarium shop, glass cutting</p> <p>Visit to aquaculture farm, rich task on export of aquaculture products</p> <p>Aquarium breeding, grow out pond construction, crayfish colour wall chart</p>
<p>Ch 25 Small sea creatures</p> <p>Ch 28 Trashing the sea</p> <p>Ch 29 Sea water quality</p> <p>Ch 30 Saving the sea</p>	<p>Plankton collection and net making, digital microscope collection</p> <p>Pollution experiments, community surveys, plastic bag studies, media study</p> <p>Laboratory experiments, waterwatch involvement, action based research</p> <p>Reef guardians, drain spraying, media project, seaweek display, worm farms</p>
<p><b>Year 3</b></p>	
<p>Introduction</p> <p>Ch 5 Living in the sea</p> <p>Ch 26 Animals without backbones</p> <p>Ch 27 Marine vertebrates</p> <p>Ch 14 Aquaculture farm designs</p> <p>Ch 16 Marine industries</p>	<p><b>Activity ideas</b></p> <p>Decorate the room with marine related gear from chapters to be studied this year</p> <p>Marine ecology excursion report, deep sea animal project, ecosystem wall mural</p> <p>Make a marine invertebrate, digital photograph collection</p> <p>Excursion to sea world, underwater world, marine aquarium</p> <p>Convert the school oval into a aquaculture farm project</p> <p>Visit to a marine industry, port, marina, boat building factory</p>
<p>Ch 17 Marine employment</p> <p>Ch 9 Fishing</p> <p>Ch 15 Food from the sea</p> <p>Ch 22 Coastal engineering</p> <p>Ch 20 Coastlines and marine life</p> <p>Ch 21 Estuaries and marine life</p>	<p>Work experience for one week in a local marine industry</p> <p>Build a fishing rod, bait bag, lobster pot, catching fish, make a tackle book</p> <p>Seafood cooking, visit to a fish marketing board</p> <p>Excursion to marina, port, groyne, canal estate, model making/ research project</p> <p>Rocky shore excursion, digital photograph collection, wall mural of zonation</p> <p>Mangroves or seagrass excursion, digital photograph collection, mangrove mud</p>

## Planning a unit of work - assignment contracts

In his 1983 book *Frames of Mind*, Howard Gardner introduces us to the concept of multiple intelligences. To help all our students to learn, the teacher can plan lessons to reach as many of these intelligences as possible. The table below is an adaptation of one given by Ralph Pirozzo. It combines Blooms taxonomy with the concepts of seven different ways learners think.

To plan a unit, you could set a learning contract which can have a number of different options.

- Option A — Choose a minimum of 2 activities from each column → 14 activities
- Option B — Choose a minimum of 2 activities from each row → 12 activities
- Option C — Complete all activities that have been shaded (see examples) → 15 minimum activities

### ASSESSMENT OPTIONS

Select 12 or more tasks from Columns 1, 2, 3 etc, then assign points and set criteria (Knowledge and understanding) etc. Set a number of points to finish with and shade core activities eg, you must finish with 40 points, 21 have been shaded as compulsory.

#### Example: Chapters 26 and 27

Gardner's intelligences Seven ways to complete this unit	Knowing Describe, find, list, locate, name, relate, state, tell, write <b>1 point</b>	Understanding Convert, draw, describe, distinguish, express, interpret, match, outline, restate, translate, apply <b>2 points</b>	Applying Calculate, classify, construct, complete, examine, illustrate, record, report, show, solve, use <b>3 points</b>	Analysing Analyse, arrange, categorise, compare, contrast, distinguish, examine, explain, identify, investigate, separate, survey <b>4 points</b>	Creating Compose, research, create, design, devise, estimate, formulate, imagine, improve, invent, plan, predict, propose, conduct <b>5 points</b>	Evaluating Argue, assess, choose, debate, decide, determine, evaluate, discuss, judge, justify, prioritise, rate, recommend, verify <b>6 points</b>
1. Verbal/linguistic (I enjoy reading, writing and speaking)	Locate the animal you want to study in Chapter 26 or 27 and state why you have chosen it.	Draw your selected animal and describe its external appearance.	From the animals in the hat provided by your teacher, draw one and classify it to species level.	Write 6 similarities and 6 differences between two animals in the same phylum in one A4 page.	Write a poem/brief skit to describe how this animal feeds or reproduces.	Write 4 of the animals adaptations and rate it's chances of survival from pollution.
2. Maths/logical (I enjoy working with numbers and science)	Count the number of external features on the animal.	Construct a food web showing the trophic relationships of the animal and possible predator-prey relationships.	Explain in clear logical steps how the animal moves .	Decide if the animal is radially or bilaterally symmetrical or another form.	Design another way the animal could defend itself from predators using chemicals. Explain how they may work.	Decide if the animal lives in a population and determine the habitat size.
3. Visual/spatial (I enjoy painting drawing and visualising)	Paint a colour illustration of the animal showing clearly its external features.	Use a map of hypothetical bay to show where the animal would live. Explain your reasoning.	Prepare a map of Australia to show the distribution of the animal.	Compare the external features of the animal with one from a different phylum.	Make a model of the animal and paint it explaining your choices.	Prepare a map of the continental shelf and decide and label the distribution of the animal.
4. Body/kinaesthetic (I enjoy doing hands on activities)	Mime the movements of how the animal could defend itself from a possible predator.	Describe what could be in an invertebrate board game.	Prepare a museum mount of the animal (microscopic, embedded or preserved).	Analyse the pleopod of a mantis shrimp and work out how it can move at the speed of a .22 calibre bullet.	Make a diorama of the animals habitat to show parts of the food chain.	Evaluate the performance of a group members poem/rhyme/song/rap.
5. Music/rhythmic (I enjoy making and listening to music)	Recall a song about a marine animal, record it and play it in class.	Make a chant using invertebrates with the same name eg 1,2,3 we love the sea, sea star, sea urchin, sea cucumber.	Convert the words from a song into a story board interpreting the lyrics.	Select some music for a play on the octopuses garden.	Write a song/rap to describe how an invertebrate moves or reproduces.	Review the music of any students work prior to presentation and make a written report.
6. Interpersonal (I enjoy working with others)	In a pair, present a power point or story board/flip card presentation on the life history of a marine invertebrate.	As a group, select any marine invertebrate discussed and make a summary chart.	As a group, select any marine invertebrate discussed and explain using visuals, its role in its habitat.	Make a summary chart comparing an arthropod and a mollusc.	Make a set of back labels for a Who am I game	In a pair evaluate the author's interpretation of any marine animal from Chapters 26 and 27.
7. Intrapersonal (I enjoy working by myself)	Copy and colour in the tree of marine life in Chapter 26.	Make a drawing of a prawn labelling all parts.	Examine any of the case studies and report on their intended purpose.	Analyse all of the appendages of a crab and explain their functions.	Create a model of an echinoderms tubed foot so you can show how the animal uses it.	Find a brochure, museum model or aquarium display and evaluate how the information has been communicated.

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