

Classroom Activities Related to Field Work



Marine Food Chains

Level

4-5

Key questions

What is a predator?

What is prey?

Key outcome

Describe a food chain.

This activity can be done the other way round (and often is), but it is interesting to see if the original perceptions and understandings of marine science shown in the construction of the mobile can then be tested in the field.

Conventionally, we usually ask primary students to construct mobiles, but senior biology and environmental science students can find the physical activity of construction clarifies their thinking and provides variety to 'book learning'. Thus this activity can be done by Level 10 and above.

What you need

Pictures or outlines of marine animals, zoo plankton, algae/seaweed

String or fishing line

Pieces of wood

Glue or sticky tape

Optional: plastic sheets, felt/overhead projector pens

Scissors

What you do

(a) In the classroom

You can work in small groups. Make a mobile from the pictures (sheet on next page), using fishing line or dark cotton. Or, cut outlines of the various species, and cover them with dark paper or paint them the correct colours. Or, trace the outlines from a reference book and transfer these to plastic sheets or old plastic covers from folders or acetate sheets. These can then be coloured by using overhead projector pens or large felt pens. Include some invertebrates and algae and zooplankton. Make sure you put the top predator at the top! Suspend it from the ceiling.

(b) Prove the mobile is correct!

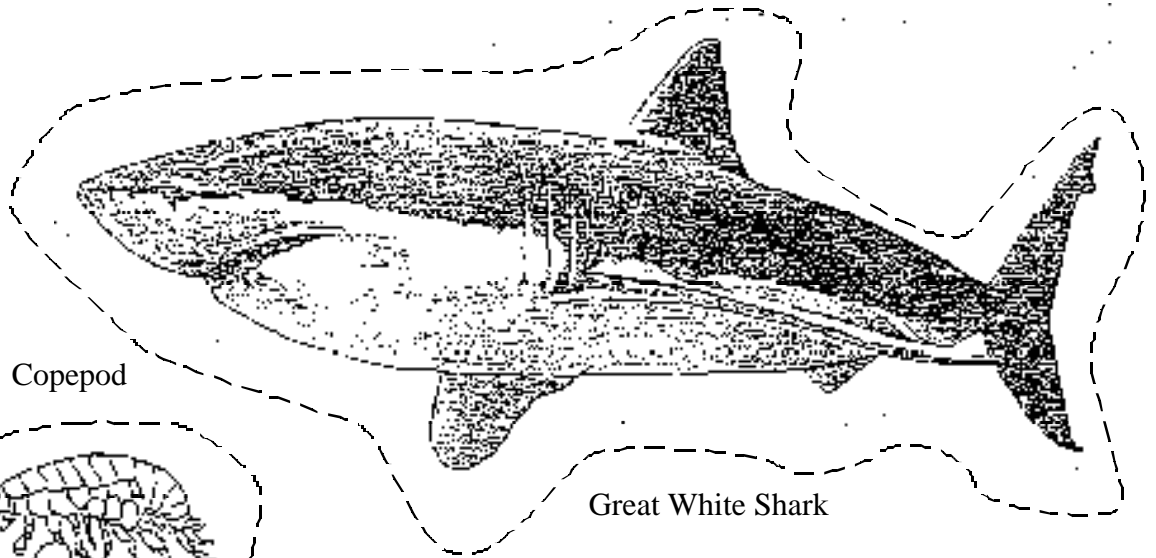
During a field study on the beach and rocky shore, you can check what eats what, especially if you see water washing over molluscs such as mussels or oysters or cunjevoi. Watch a crab scavenging. Watch a fisher: what bait is he/she using to catch which fish? What do the little fish in a rock pool eat? What are the birds eating?

If necessary, adjust the mobile back at school. Discuss what differences were found.

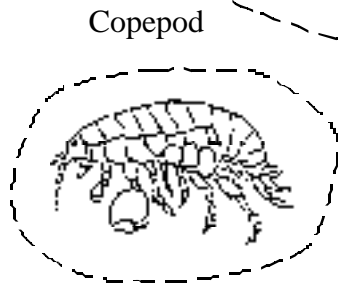
Adapted from Karen Wilson, Marine Discovery Centre, Woodbridge, Tasmania, and Moroney et al, *Coastal Activities for Primary Schools*.

Marine Food Chains

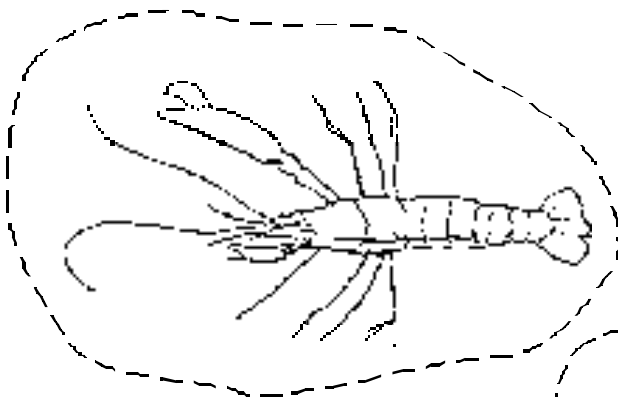
Make a mobile from the pictures below. Make sure you put the top predator on top!



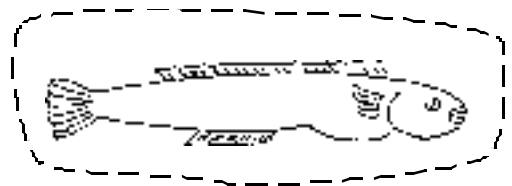
Great White Shark



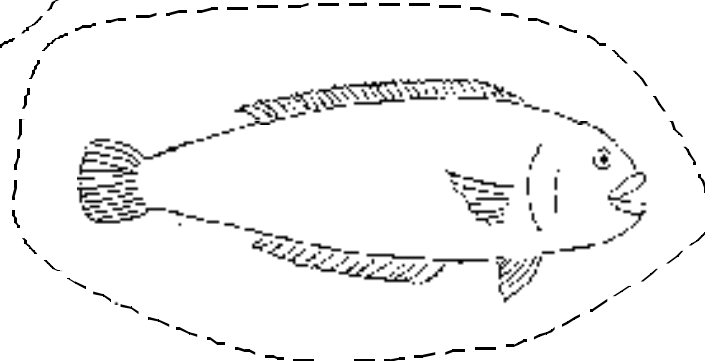
Copepod



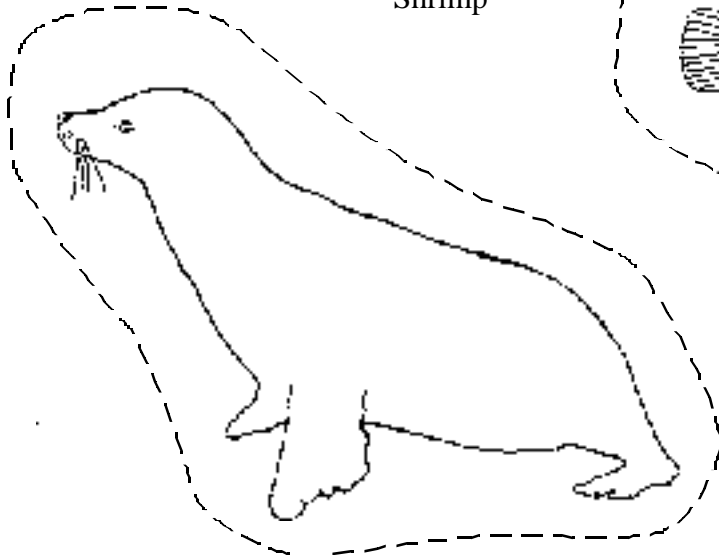
Shrimp



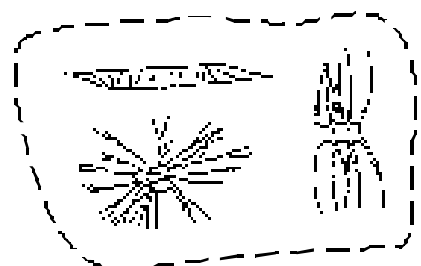
Fish



Fish



Fur Seal



Diatoms

Litter Trap Simulation

Level

5-7

Key question

How would you design, construct and test a model litter trap?

Key outcome

Describe and design an instrument to trap litter within bays and estuaries.

This material formed part of the workshop on Port Phillip Bay at Jervis Bay presented by Gayle Seddon, Department of Education, Victoria.

What you need

Pencil, paper

Appropriate materials for design and model

(paper, cardboard, pieces of wire, wire netting or fly netting, glue, plasticine, etc)

What you do

The scenario

The local water board or council has had difficulty in controlling the amount of litter entering the Bay through the local river. The old trap designs set across creek mouths and stormwater drains have been difficult and expensive to clean and maintain. The tidal changes have meant that the litter has escaped and floods have also washed much of the litter out to sea. Your task is to design, construct and test a model litter trap.

Design criteria:

- it can be a floating litter trap for rivers and creeks
- it can be a litter boom for rivers and creeks
- it can be a trash rack for drains
- it can be a trash rack for side entry pits
- it can't block the drain/creek and cause flooding upstream
- a major flood must be able to cross it
- it must not be labour intensive to clean
- it must be buoyant if in a creek.

Procedure

1. Investigate the problem, think about the type of litter trap you will design using the design criteria. List the materials you will need.
2. Design a plan for your litter trap on paper. Design how you will test your litter trap model. How will you create a creek or drain?
3. Construct your litter trap using your materials.
4. Evaluate your litter trap in the simulation creek or drain. Make recommendations for improved design. Modify your design and test again.
5. Check your local neighbourhood: would your design work in reality there?

Reference

Seddon, Gayle, 1995 *Litter Trap Technology* (Draft).

Pirates

Level

3-6

Key question

If you were a pirate, what things would be important to your survival?

Key outcome

Identify common seashore organisms, describing some of their characteristics and uses.

Adapted from Karen Wilson,
Marine Discovery Centre,
Woodbridge, Tasmania.

What you need

Field sheets

Clipboard

Pencil

What you do

Groups or individuals do the following:

1. Pirate Seashore Hunt (use copy of Seashore Hunt sheet)
2. Shiver me timbers, me hearties! What can we eat now we're shipwrecked? Watch out for scurvy! What can we eat here?

Complete this table.

Describe	Size, shape, colour	Sketch
Seaweed		
Shells		
Crabs		
Fish		
Birds		
Other		

3. Examine the weather by the sea (use copy of the 'Weather by the Sea' sheet).

4. Write your own story of buried treasure. Draw your own treasure map (use copy of Write Your Own Story sheet).

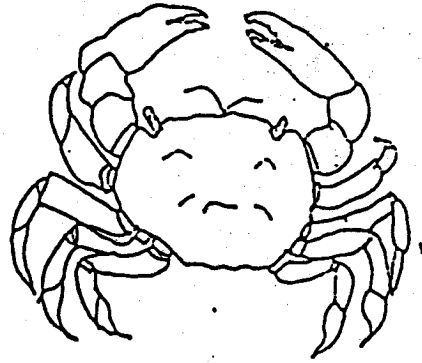
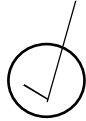
References

Brading, T. 1974, *Pirates and Buccaneers* Wayland Publishers.

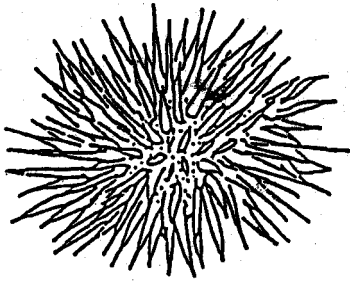
Pirate Seashore Hunt



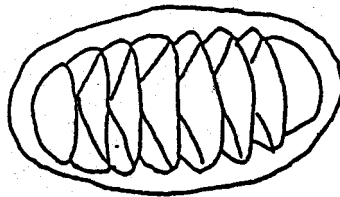
Tick



Crab



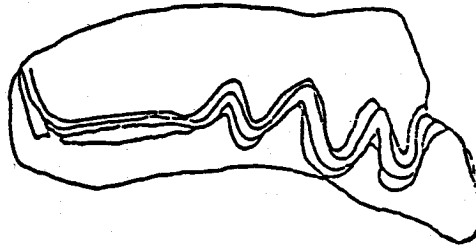
Sea urchin



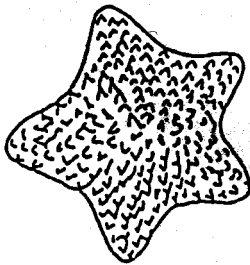
chiton



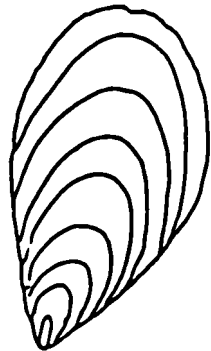
Snail



Oyster



Sea star




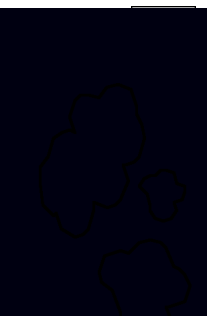
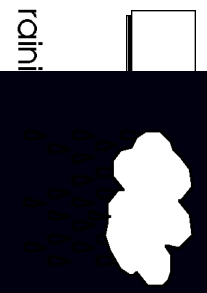
Mussel





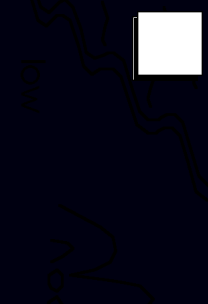
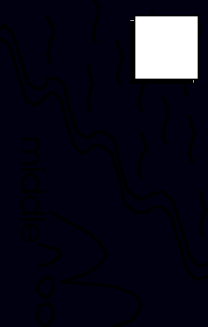
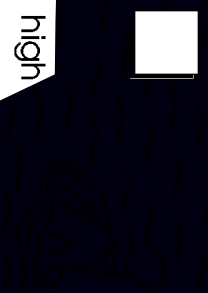
**Draw
something else**

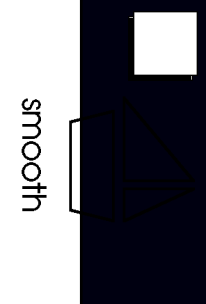
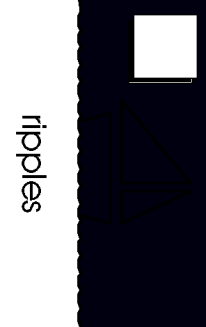



Weather by the Sea

Sky	<input type="checkbox"/> sun 	<input type="checkbox"/> rain 	<input type="checkbox"/> rain 
------------	--	--	---

Wind	<input type="checkbox"/> still 	<input type="checkbox"/> wind 
-------------	---	--

Tide	<input type="checkbox"/> 	<input type="checkbox"/> 	<input type="checkbox"/> high 
-------------	---	--	---

Sea	<input type="checkbox"/> smooth 	<input type="checkbox"/> ripples 	<input type="checkbox"/> white caps 
------------	---	---	---

How sea feels

<input type="checkbox"/> warm 
--

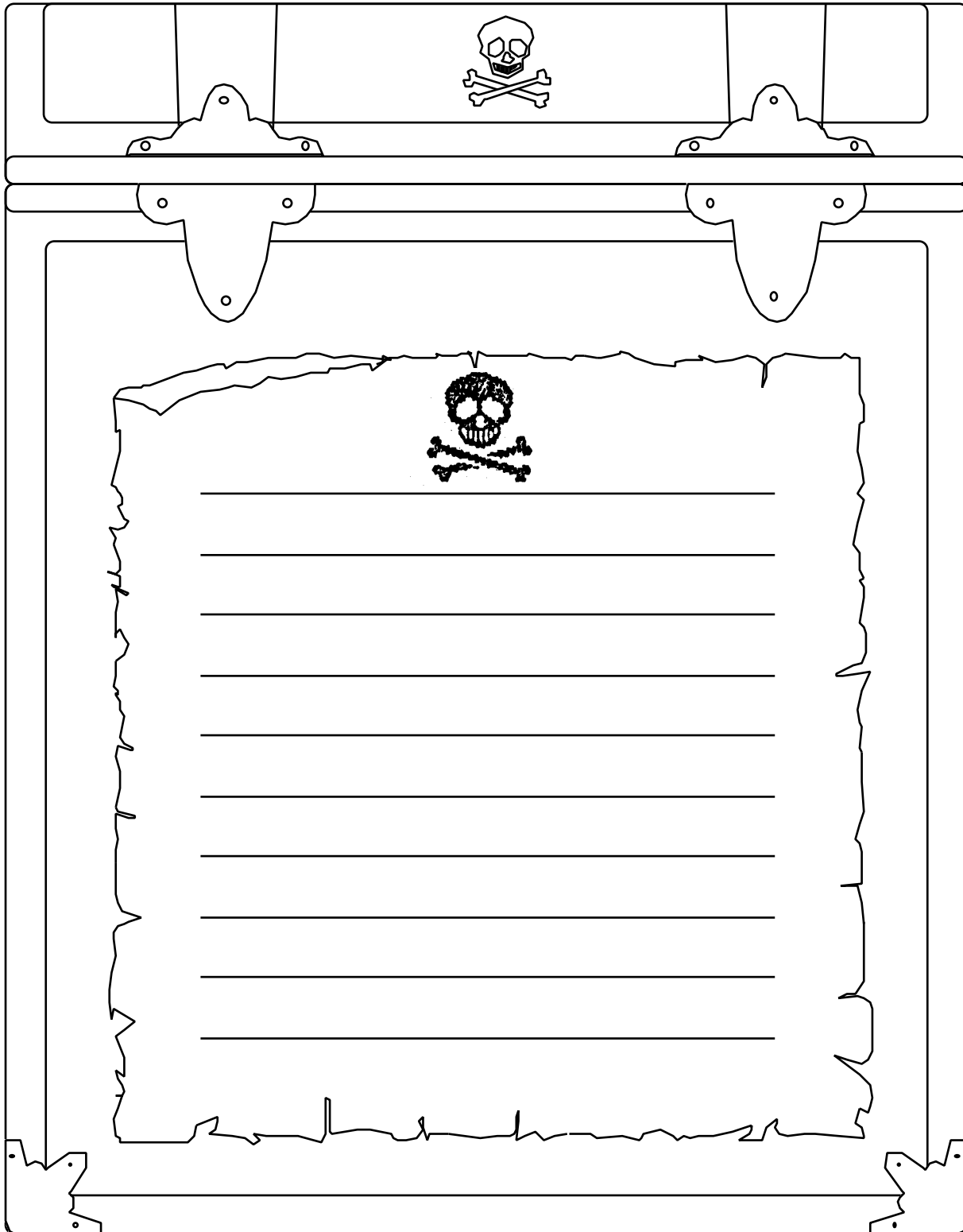
<input type="checkbox"/> cold 

tick box

Date _____

Pirates

Write your own story about buried treasure and how it got in the chest



What does the secret code say if A=1, B=2, C=3, etc. to 26.

(13,5,5,20 1,3,5 1,20 13,1,14,19 18,15,3,11)

Whales in Poetry and Song

Level

5

Key Question

How can we express our feelings about whales?

Key outcome

Utilise poetry and song to understand whales.

Adapted from the Gould League, Kelly Tartlon's Underwater World, New Zealand, and the Marine Discovery Centre, Woodbridge, Tasmania.

Though whales are not soft and cuddly, many Australians are drawn to them, and wish to express their feelings about them. This activity represents a unit of work which can be utilised for other large marine animals.

What you need

Pen and paper

Resources on whales (video, pictures, reference books, leaflets from the Australian Whale Foundation)

What you do

(a) Write a poem

- Write a haiku (a Japanese poem) following this method

First line – five syllables, answers the question *where*.

Second line – seven syllables, answers the question *what*.

Third line – five syllables, answers the question *when*.

The three lines together make a complete sentence (17 syllables altogether).

Some examples:

Near a frozen land
Dark giants of the sea
Surge under southern lights.

In a choppy sea
Tiny plankton squirming upwards
Winter snow upon us.

(b) Compose a whale song

Whales in Poetry and Song

- Use syllables to express ideas about whales and marine life.
- Try a name, for example, *Chris-tine*.
Where are the natural breaks? Think about 'Octopus', *Oc-to-pus*.
- Sing it if you find it difficult as this might help you. The last sound is usually strong, for example, '*In-div-id-ual*'.

Select some words expressing your feelings about whales and sing them using the syllables.

If a recording or CD ROM on whales is available, play some whale songs.

(c) Do some research into whales

- What is flensing?
- What parts of the whale have been or still are used, and what for?
- How was whaling first carried out?
- How did it change over the past 100 years?
- Does whaling still occur in Australia, or elsewhere, and, if so, in which countries?
- Who has tried to stop whaling?
- Should we protect whales, and, if so, why?

References

Gould League of Victoria publish stickers, posters and simple texts and stories about whales.

Water Activities for Primary Students

Level

1-4

Key question

Why does the boat move?

Key outcome

Manipulate and process common materials, using equipment safely.

These activities may be done in any order, with small groups or pairs. With younger children, strict supervision of these activities involving water is required.

Sail - A - Boat**What you need**

Milk carton (pre-cut in half)
Straw/biro
Balloon
Rubber band

What you do

Cut a milk carton in half. Put an old biro in one end (or a straw). Attach a balloon to the biro (or straw) with a rubber band. Blow up the balloon and release the vessel in the marine pool.

Key question

What do we know about eels?

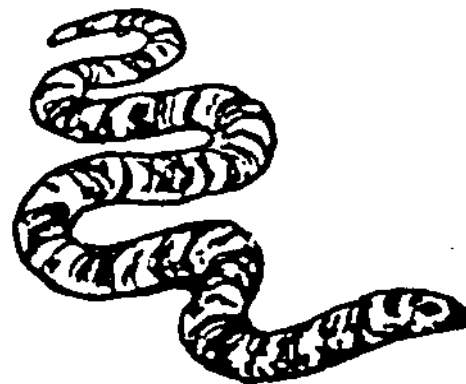
Key outcome

Using imagination to develop understanding about eels.

An Eelie Adventure Story

“As midnight struck, the murky depths slowly revealed the long, velvety wavering body of Conger eel ... ”.

Complete a story telling the adventures of this slippery individual.



Adapted from the Great Barrier Reef Marine Park Authority Aquarium, Townsville, the Marine Discovery Centre, Woodbridge, Tasmania, and Bill MacIntyre, Massey University, New Zealand.

Water Activities for Primary Students

Key question

How can we package bait?

Key outcome

Prepare, design and justify selection of the preferred option for a bait box.

Designing an Environmentally Friendly Bait Box

What you need

Paper and pencil

What you do

Design an environmentally friendly bait box, using the following characteristics:

- Must be able to be frozen.
- Must be able to transport fish.
- Must be made of a substance that is bio-degradable.
- Must not have anything on it that will endanger marine life.
- Must be cheap.
- Must be lightweight.

If you have time, let the children come up with the characteristics themselves.

Key question

What is different about fish from different levels of the water column?

Key outcome

Understand activity rates of different fish.

Activity levels in the Sea

What you do

There are different species of fish inhabiting different levels in the water column.

From a large aquarium or pool, choose one type of fish each from the bottom, mid-level and surface and find a way to measure their activity rates.

Give an explanation which accounts for the way fish, with an apparently low activity rate, might be able to catch their food.

From your observations of the flathead and their activity rate, suggest the most suitable method of fishing.

Adapted from Kelly's
Tarlton's Underwater World,
NZ; and the Marine
Discovery Centre,
Woodbridge, Tasmania.