

# SEA WORLD'S PROJECT NEPTUNE

“WORLD OF THE SEA” EDUCATIONAL PROGRAMME



Surfers Paradise  
Queensland  
Australia



## TEACHER'S BOOKLET

## ***Project Neptune***

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*PO Box 190*  
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**(075) 321055**

*Dear Teachers,*

Project Neptune is an activity based, student project programme which seeks to enhance students' knowledge, skills and attitudes about the sea.

If students come to Sea World and do nothing but have a day out, the educational significance is totally lost. This type of student is welcome to come but will not participate in project work and therefore have to pay full price.

This year, thirty five student projects have been developed with the assistance of local schools, their teachers and students.

The projects range in ability levels from Grade 3 to Grade 12. The emphasis is on the student participating in project work while at Sea World.

It is hoped that the information gathered by the students in the project and their subsequent reports, will spark some interest in students for further study or enrich work already completed in class.

Many of the projects could also form the basis for the training of teachers at a tertiary level, and indeed, could be the start of some independent research or employment. After all, many of us will acknowledge that our career paths were shaped at some time by a single event or interest during our school lives.

Our educational philosophy is one based in the belief that these projects are just a start. Perhaps, there may be improvements to be made, and over the years, as teachers and students use projects, they will get better and better.

Our cost is an across the board \$8 per student for students who participate in the educational programme. This charge includes entry for the entire day, printed projects and assistance while at Sea World.

We welcome your suggestions for improvements and if we have made any mistakes we would gladly hear from you so that we can correct them in future revisions.

*Fabian Fay*

**Dr Fabian Fay**  
**Director of Educational Programmes**

**May 1987**



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## **How Project Neptune Works**

### **Initial contact**

This is usually by letter or phone to the Project Neptune Officer:-

*PO Box 190  
Surfers Paradise , 4217. Phone: 075 321055*

Once contact and a booking has been made the school will receive:

- (a) a master copy of all the projects and the teacher's booklet*
- (b) a student/teacher's booklet*

The student/teacher's booklet is a collection of the most up to date material on the animals of the sea which avoids the teacher spending many hours in the library researching.

### **Before school visit**

The school then sends to Sea World its project order form (page 6), so that the projects can be made ready for handing out when the students arrive. This must be done at least *one week prior to the visit*.

*It is essential that the students, assisted by their teachers, study the projects prior to the visit.*

The projects should be photocopied for the students to this end.

### **The day of the visit**

Schools come to Sea World and pay at the main gate. Please make cheques payable to Sea World. Students are then met by the Project Neptune Officer and will receive their projects.

The teacher then supervises the projects the students have selected and monitors their progress during the day.

When leaving, students will receive a Project Neptune booklet, poster and questionnaire.

### **After the school visit**

A list of follow up activities is given on pages 12-15.

A suggested marking scheme is detailed on page 10, as well as other ideas for your class room.

If you would like to send your suggestions for improvement, or write new activities yourself, please let us know.

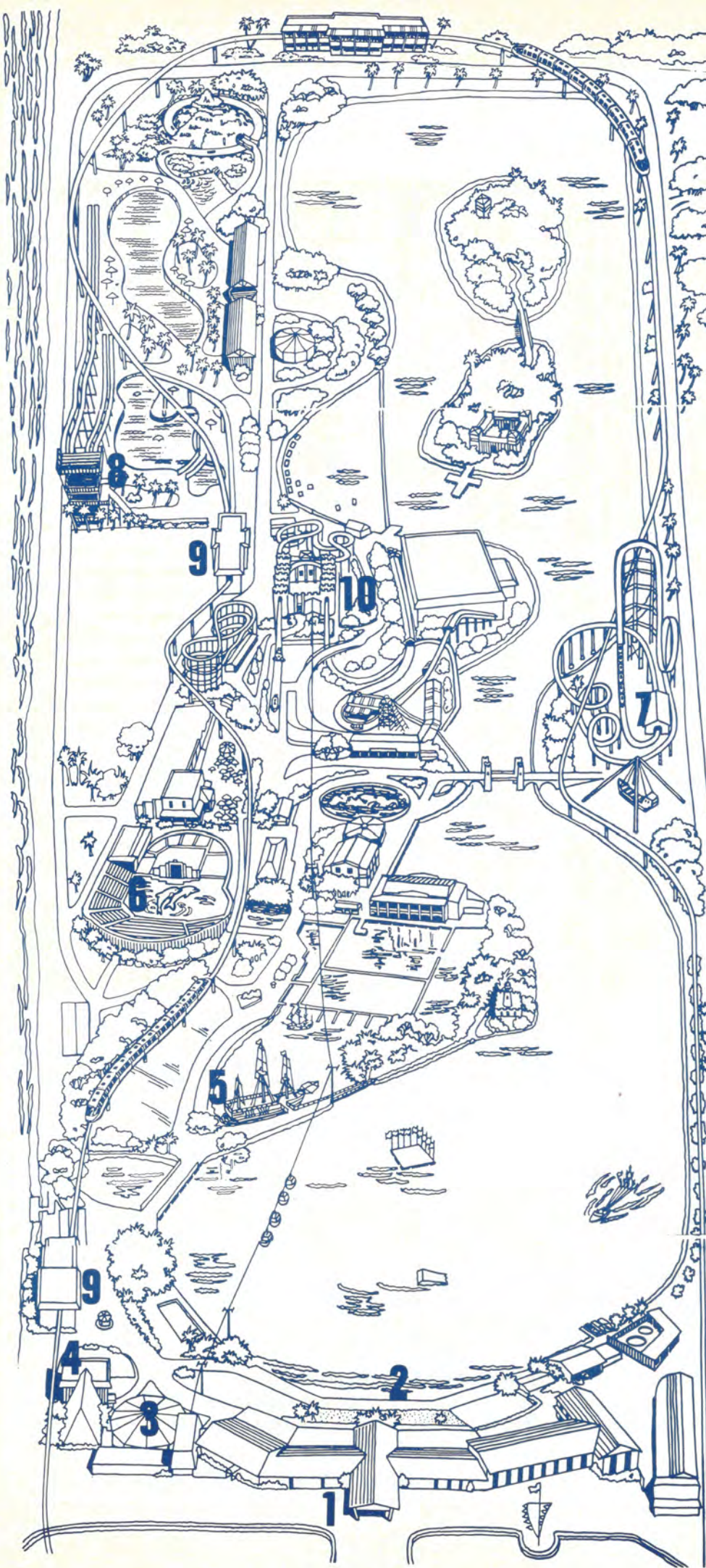
### **Syllabus and concept match**

A match between common syllabus topics, the projects and concepts is detailed on page 16.

**Map of  
Sea World**

**Educational Areas**

1. Entrance
2. Johnson Water Ski Show
3. World of the Sea Aquarium
4. World of the Sea Theatre
5. Endeavour
6. Qantas Marine Stadium
7. Corkscrew
8. Water Slide
9. Monorail Stations
10. Captain Kid's Castle



## List of Student Projects

No:	Name:	Recommended :	Time Req:	Venue:	
1.	Reef Dwellers	Grade	6-9	30 mins	World of the Sea Aquarium
2.	Lobsters and Crayfish	Grade	10-12	30 mins	World of the Sea Aquarium
3.	Life in an underwater cave	Grade	6-12	30 mins	World of the Sea Aquarium
4.	Reef Dwellers	Grade	10-12	30 mins	World of the Sea Aquarium
5.	Tidal Pools	Grade	6-9	30 mins	World of the Sea Aquarium
6.	The Lungfish	Grade	10-12	30 mins	World of the Sea Aquarium
7.	Poison Fish	Grade	6-12	30 mins	World of the Sea Aquarium
8.	Sharks and Pufferfish	Grade	6-9	30 mins	World of the Sea Aquarium
9.	The Predators	Grade	6-9	30 mins	World of the Sea Aquarium
10.	The Mudcrab	Grade	6-12	30 mins	World of the Sea Aquarium
11.	The Barramundi	Grade	6-12	30 mins	World of the Sea Aquarium
12.	Wobbegong Shark	Grade	6-9	30 mins	World of the Sea Aquarium
13.	Reef Dwellers	Grade	6-9	30 mins	World of the Sea Aquarium
14.	The Coral Polyp	Grade	6-12	30 mins	World of the Sea Aquarium
15.	Reef Dwellers	Grade	10-12	30 mins	World of the Sea Aquarium
16.	Mangroves and Mudskippers	Grade	9-12	30 mins	World of the Sea Aquarium
17.	Reef Dwellers	Grade	10-12	30 mins	World of the Sea Aquarium
18.	The Moray Eel	Grade	6-12	30 mins	World of the Sea Aquarium
19.	Anemones and their Fish	Grade	6-12	30 mins	World of the Sea Aquarium
20.	Behind the Scenes **	Grade	6-12	30 mins	Behind the Scenes
21.	The Dolphin and Whale Show	Grade	10-12	11am -11.30am	Qantas Marine Stadium
22.	The Dolphin and Whale Show	Grade	6-9	11am -11.30am	Qantas Marine Stadium
23.	Dolphins and Whales	Grade	3-5	11am -11.30am	Qantas Marine Stadium
24.	Dolphin and Whale Anatomy *	Grade	6-12	10 mins	Qantas Marine Stadium
25.	Training Methods	Grade	10-12	15 mins	Qantas Marine Stadium
26.	Bony fish ****	Grade	6-12	12-12.20pm	World of Sea Theatre
27.	Sharks and Rays****	Grade	6-12	30 mins	World of Sea Theatre
28.	Fish who live in Aquariums	Grade	3-5	20 mins	World of Sea Theatre
29.	The Dive Show	Grade	10-12	20 mins	World of Sea Theatre
30.	The Dive Show	Grade	6-9	20 mins	World of Sea Theatre
31.	The Dive Show	Grade	3-5	20 mins	World of Sea Theatre
32.	The Pirate Pantomine	Grade	3/4	30 mins	The Endeavor
33.	The Corkscrew	Grade	6-9	20 mins	Corkscrew
34.	The Water Slide***	Grade	10-12	30 mins	Water Slide
35.	The Johnson Water Ski Show	Grade	3-5	12 noon	Johnson Water Ski Show

### Notes:

\* These projects require Sea World Staff to be present. Schools requesting these projects should make a special request for the staff to be present for the presentation of a talk/tour/special assistance and remind students to be prompt and attentive during the talk. It may be, that due for some unforeseen circumstance, eg: a sick dolphin, the diver/trainer may not be able to attend. It is therefore advisable for staff to have an alternative plan should this occur. The Dolphin projects are also outside and if it rains students *will* get wet.

\*\* This project is limited to 12 students at a time.

\*\*\* This project requires some students to volunteer as subjects. These students will need swimming costumes and 15 minutes time for them to change/dress afterwards, should be allowed

\*\*\*\* These projects involve a talk by one of the divers. The projects should be pretaught and students should arrive at the World of the Sea theatre by 12 noon. If they wish to see the dive show at 12.40 they must vacate the building and queue for the show with the general public..

# memo

Australia State High School  
Kangaroo Rd Kangaroo

To: Administration  
From: Excursion Organiser  
Subject: Sea World Excursion

SAMPLE COPY ONLY

**Details:**

Approval is requested to conduct a Grade 8 excursion to Sea World.  
Please find set out below details:

<i>Dates:</i>	_____
<i>Times:</i>	All day
<i>Cost:</i>	\$8 per student plus bus fare
<i>Transport:</i>	Bus, highway No 1 to the Southport Broadwater.
<i>Student Activities:</i>	Complete Research Projects (see attached)
<i>Lead up activities:</i>	Examination of projects and teacher's guide (see attached)
<i>Follow up activities:</i>	Student Project Report and Class talk
<i>Educational Aims:</i>	At the conclusion of the excursion the students should be able to: (a) <i>make observations of living marine organisms</i> (b) <i>draw line illustrations and graphs</i> (c) <i>make predictions and interpret data</i> (d) <i>operationally define some ecological terms</i> (e) <i>communicate their ideas both orally and in writing</i>

**Staff Participating:**

<i>Contact Person:</i>	_____
<i>Phone:</i>	The Project Neptune Officer (075) 321055
<i>Address:</i>	P.O. Box 190 Surfers Paradise 4217

Australia State High School  
Kangaroo Rd, Kangaroo

The Project Neptune Officer  
Sea World  
PO Box 190  
Surfers Paradise 4217

Dear Sir/Madam,

I wish to bring 70 Grade 8 students and three teachers, to your establishment on June 6 to participate in your Project Neptune. We will be arriving at 10.00 am and leaving at 2.00pm.

Could you please supply me with the following copies of your project materials.

I have attached your order form.

Could you also arrange for us to have a diver to assist the students with Projects 26 and 27.

Yours sincerely

..... SAMPLE COPY ONLY



*Return to:*

*The Project Neptune Officer  
Sea World Australia  
P.O.Box 190  
Surfers Paradise, 4217 Qld*

*Name of School.....*

*Contact Person.....*

*Phone.....*

**List of Student Projects**

No:	Name:	Recomended :	Number Req
1.	Reef Dwellers	Grade 6-9	.....
2.	Lobsters and Crayfish	Grade 10-12	.....
3.	Life in an Underwater Cave	Grade 6-10	.....
4.	Reef Dwellers	Grade 10-12	.....
5.	Tidal Pools	Grade 6-9	.....
6.	The Lungfish	Grade 10-12	.....
7.	Poison Fish	Grade 6-12	.....
8.	Sharks and Pufferfish	Grade 6-9	.....
9.	The Predators	Grade 6-9	.....
10.	The Mudcrab	Grade 6-12	.....
11.	The Barramundi	Grade 6-12	.....
12.	Wobbegong Shark	Grade 6-9	.....
13.	Reef Dwellers	Grade 6-9	.....
14.	The Coral Polyp	Grade 6-12	.....
15.	Reef Dwellers	Grade 10-12	.....
16.	Mangroves and Mudskippers	Grade 9-12	.....
17.	Reef Dwellers	Grade 10-12	.....
18.	The Moray Eel	Grade 6-12	.....
19.	Anemones and their Fish	Grade 6-12	.....
20.	Behind the Scenes	Grade 6-12	.....
21.	The Dolphin and Whale Show	Grade 10-12	.....
22.	The Dolphin and Whale Show	Grade 6-9	.....
23.	Dolphins and Whales	Grade 3-5	.....
24.	Dolphin and Whale Anatomy	Grade 6-12	.....
25.	Training Methods	Grade 10-12	.....
26.	Bony Fish	Grade 6-12	.....
27.	Sharks and Rays	Grade 6-12	.....
28.	Fish who live in Aquariums	Grade 3-5	.....
29.	The Dive Show	Grade 10-12	.....
30.	The Dive Show	Grade 6-9	.....
31.	The Diver Show	Grade 3-5	.....
32.	The Pirate Pantomine	Grade 3/4	.....
33.	The Corkscrew	Grade 6-9	.....
34.	The Water Slide	Grade 10-12	.....
35.	The Johnson Water Ski Show	Grade 3	.....

Note: Projects 32 and 35 are two pages only and will come to you joined together.

**Special Requests:**

Will you require a behind the scenes tour? (max 12)  Yes  No

Will your students require a talk after Dolphin Show to complete their project?  Yes  No

Will your students be attending the Divers talk in the World of the Sea Theatre to complete Projects 26 and 27?  Yes  No

*Dear Parents,*

**Re: Grade 8 Sea World Excursion Information**

As part of this term's work, your child is studying a unit on *the sea*. We propose to conduct an excursion to Sea World to make the lessons more meaningful. During the day's activities, your child will have the opportunity to complete a number of written projects that have been individually designed for each student in the class. A written report is required as well as a class talk. The excursion has the support of the Parents' and Friends' Association and the local Regional Education Department.

Could you please sign the permission slip attached and return the money to the school as soon as possible so that we might finalise numbers.

I wish to supply the following details

<b>Dates</b>	<b>Classes/Teachers</b>
.....	.....
<b>Cost:</b>	<b>\$8+Bus fare</b>
<b>Booklets received:</b>	Sea World will provide the printed projects for the students as well as a research booklet that they can use to complete their assignment work and a questionnaire.
<b>Activities:</b>	Students will be travelling by bus leaving school at 9.00am(after roll period) arriving at Sea World at 9.30am. They will work individually to complete their selected projects. At 11am they will visit the Dolphin and Whale show and afterwards receive a talk by one of the trainers. At 12 noon they are to assemble in the World of the Sea Theatre for a talk by the divers. Lunch will be as a group from 12.30pm - 1.00pm when the teachers will check the projects. If these are to the satisfaction of staff, the final project will be completed on the corkscrew or on the dive show at 1.20pm. The buses will leave school at 2.15 pm and we will return to school by 3.00pm.
<b>What to Bring:</b>	A cut lunch, a drink, a hat, sun burn cream, raincoat if it looks like rain
<b>What to wear:</b>	.....

**Payment of Money/Return of Consent Form**

Please return the consent form attached along with the correct money/cheque to the school.

Yours sincerely,

.....  
**SAMPLE COPY ONLY**

# memo

**FROM: EXCURSION ORGANISER**

**TO: STAFF PARTICIPATING IN TRIP**

**SUBJECT: SEA WORLD VISIT**

**DETAILS:**

**SECONDARY/PRIMARY/TAFE**

Please find attached a packet of Projects for your Sea World Trip next Week. This contains:-

1. Two copies of each of four projects each (Two aquarium and two other as a suggestion)
2. 12 Project 26, 12 Project 27.
3. 24 Project 33. Corkscrew Project.
4. 1 Program for the day
5. 24 Aquarium Project Evaluation Sheets
6. Student and Teachers book

SAMPLE COPY ONLY

**Prior to the visit:**

**SECONDARY**

1. Allocate the projects on the basis of:- Two aquarium Projects each 1, 3, 5, 7, 8, 9, 10, 12, 13, 15, 16, or 18
2. Allocate the evaluation sheet and tell the students to staple this to their projects so that they can be marked at Sea World on the day.
3. Discuss what is to be done and when you want it handed in by.

**PRIMARY**

1. Teach the songs
2. Read the play
3. Make the costumes
4. Act out the play

**TAFE**

1. List the jobs associated with Sea World
2. Arrange for work experience
3. Consider the possibility of behind the scenes Project 20

**SAMPLE SECONDARY PROGRAMME**

**On the day:**

9.30 am	ARRIVE	Explain locations and times.
9.30 am	WORLD OF THE SEA AQUARIUM	Projects 1, 3, 5, 7, 8, 9, 10, 12, 13, 15, 16, 18
11.00am	QANTAS MARINE STADIUM	Dolphin and Whale Show
11.30am	QANTAS MARINE STADIUM	Talk on Dolphins
12.00 Noon	WORLD OF THE SEA THEATRE	Project 26 or 27
12.40 pm	LUNCH	Hand in of Aquarium Projects
1.00pm	CORKSCREW	Project 33 (given out at 1pm)
1.20pm	WORLD OF THE SEA THEATRE	Dive Show
2.15pm	BUSES BACK TO SCHOOL	

**SAMPLE PRIMARY PROGRAMME**

**On the day:**

9.30 am	ARRIVE
9.30 am	WORLD OF THE SEA AQUARIUM OR ENDEAVOUR
10.15	DOLPHIN EDUCATIONAL TALK/CAPTAIN KID'S CASTLE
11.00am	QANTAS MARINE STADIUM
11.30am	MORNING TEA
12.00 Noon	JOHNSON WATER SKI SHOW
12.40	WORLD OF THE SEA DIVE SHOW
1.00PM	LUNCH
1.30PM	MONORAIL

**SAMPLE TAFE PROGRAMME**

**On the day:**

**By arrangement**

## Sample Secondary Lesson Plan (before you go)

### Aims:

- (a) distribute projects to each student and explain what has to be done and what is expected.
- (b) revise the key words in the individual student project
- (e) go over the daily program and remind students when/where to assemble/payment of money/return of consent forms

### Materials:

Use the teacher/student booklet for background information

- (a) Copies of the projects
- (b) Project report sheet

### Lesson introduction:

- (a) Distribute copies of projects to class.
- (b) Distribute evaluation sheets and explain.

### Main Part of Lesson

- (a) Students are to read the entire project, 10 minutes.
- (b) Questions and answers with a blackboard summary of: what did you find in the project, sample answers, background reading, key words, adaptations, drawings, aims, what to do, questions to answer, answers to research, drawings of tank layout, special (eg: play, crossword, fish model)
- (c) Go over evaluation sheet, and what you expect when the project is handed in. Set deadline.
- (d) Go over program, school rules whilst out of school, general behaviour expectations, when and where to meet the bus, if it rains, what to wear, what not to bring, when we get back.

### Possible questions:

- (a) What words are used in the aims section?
- (b) What do they mean?...make a list.
- (c) What does research mean?
- (d) What type of research do you have to do....name five students...get responses
- (e) What is a good drawing?
- (f) What is a good answer to a question?
- (g) What will a VHA project be?

## SUGGESTIONS ONLY

### Conclusion:

What was covered today :

- (a) What projects you are expected to do
- (b) How well I want them done
- (c) What is expected of you
- (d) When you are to assemble, what to wear, and when you will be back

# Student Project Report Cover Sheet

Attach your completed projects to this sheet

Student's Name..... Grade ..... Teacher:.....

Project No.....Project Name.....

Project No.....Project Name.....

Project No.....Project Name.....

Project No.....Project Name.....

Project No.....Project Name.....

## Statement

A well written project will have the following characteristics:

1. Handed in on time and be your own work
2. Clearly labelled and organised with sheets of paper stapled neatly together
3. Handwriting neat with answers in complete sentences where possible
4. All words that are mentioned in the project script to be spelt without error
5. Diagrams to be drawn in pencil, lines to be complete and joined where possible
6. Data tables to be complete with accurate observations recorded
7. Questions to be answered correctly



## Marking

SAMPLE COPY ONLY

This could be on a scale of achievement.

Handed in on time, your own work, neatly organised	1 2 3
Handwriting, grammar and spelling correct	1 2 3 4 5
Diagrams, illustrations, Drawing of tank layout	1 2 3 4 5
Data tables and observations	1 2 3 4 5 6 7
Every question, data table, record attempted	1 2 3
Answers to questions	1 2 3 4 5 6 7

Criteria	Very High Level of Achievement	28-30
	High Level of Achievement	25-27
	Sound Level of Achievement	20-24
	Limited Level of Achievement	15-19
	Very Limited Level of Achievement	05-14

MARK /30

Excursion Assignment Achievement Level:

.....

Teacher's signature

Comment:

\_\_\_\_\_

\_\_\_\_\_

# Information on the Projects

All projects are 4 pages long. Generally speaking, they all have three different elements.

**PROJECT 1: REEF DWELLERS**

Vagabond Butterflyfish  
Blue Angelfish  
Masked Bannerfish  
Grammatid's Wrasse  
Orange Fairy Basslet

NOTE: These fish may be located in different tanks

**THE SIMULATED HABITAT**

An animal's living place is called its *habitat*. An example of such a habitat might be a hole in a rock.

Look carefully at the shape of the rocks.  
The rock in the middle of the tank represents a coral "bommie".

This provides the fish with plenty of places to establish homes or hide to avoid predators.

The holes in the "bommie" give fish a place to back into or defend. They also give shade, which allows the fish to use its natural colours as camouflage.

Spend some time just looking at where these fish are found in the aquarium to see how well the fish use these holes and their colour adaptations.

Some of the holes or spaces around them will be defended. This area is called the *territory* of the fish and is an area marked out by the fish as its own private space. Watch the *butterflyfish* as a good example of territorial fish.

Special features or characteristics in an animal or plant that enable it to survive in a particular place are called *adaptations*. The Fairy Basslet uses its colour to fade in with the background. The colour is therefore an example of *adaptation*.

Most fish also have an area that they continually swim around and from which they rarely roam. This area is called the animal's *home range*.

*New Words*

*New Words*

Habitat, territory, adaptations, home range, algae, operculum, bommie, reef crest, ree slope, reef lagoon, juveniles

Pages 3 and 4 have:

1. Information for students  
Pages 1 and 2.

2. The project itself  
Page 3

3. Questions on the project and the data collected  
Page 4

Questions that relate to behind the scenes

Aims that the project addresses


Methods by which the students undertake the project

Questions to think about or which focus the students' attention onto the aims

Space for students' observations and records

Detailed drawings for colouring and to help students identify the fish

References for further research

<p>Aims: At the end of this activity you should be able to:</p> <p>(a) Identify a beaked coral fish (b) Draw the colour patterns of the fish and suggest reasons for these (c) Prepare a report on the ways the fish feeds and the shape of its body</p> <p>Research Methods:</p> <p>_____</p> <p>_____</p> <p>Questions about the fish</p> <p>_____</p> <p>_____</p> <div style="border: 1px solid black; padding: 2px; background-color: #e0e0e0;"> <p>Observations and descriptions</p> </div>	<p>Behind the scenes questions:</p> <p>What is the tank constructed of _____</p> <p>What special lights does the tank have to display the fish ? _____</p> <p>Colour patterns and special features of the fish</p> <p>_____</p>  <p>References <small>HALSTED R., Tropical Marine Aquaria, Melbourne 1986</small></p>
---	--

# Follow up activities

## CORE

### COMPULSORY CORE

Mark the projects and hand them back according to some predetermined criteria. If students come to Sea World, do nothing and have a day out, the educational significance is totally lost. This type of student who comes for a day out and who does not wish to complete a project should pay full price.

All students should attempt at least one project on either the Dolphins, Sharks, Rays and Fish in the Aquaria. *By the end of the day, they should have seen all of the above.*

## OPTIONS

### OPTION 1: STUDENTS PREPARE A SHORT REPORT ON THEIR PROJECT

Either with a partner or individually, the student uses the data collected in the project to prepare a 3 to 5 minute talk.

A model fish/dolphin/diver could be made to be used as props to illustrate the subject matter.

Alternatively students could make overhead transparencies or charts.

A sample talk format is enclosed on page 14.

### OPTION 2: STUDENTS BUILD A MODEL AQUARIUM

Either with a partner or a group, students can set about to build a cardboard model aquarium. Using a large box that potato chips come in from the canteen, students can recreate the aquarium and all its details.

Details are given on page 15.

### OPTION 3: STUDENTS CONSTRUCT A MODEL FISH

This is best done individually. The student collects data from the project and then sets to making a model fish.

By taking the fish in the project and enlarging them to actual size on an enlarging photocopier, the student can then cut out the shape. The two sides can be stuck together and filled with cotton wool.

The model can then be coloured and displayed in the classroom. More details are given in the aquarium projects.

### OPTION 4:

#### STUDY ASSIGNMENTS

Diving study assignments that could be used for a term report.

### OPTION 5: GO ON AN EXCURSION

Why not look at the commercial fishing sites, local dive shops close to your school. Take a boat excursion through some mangrove swamps.

**Sample Certificates**

Use the following guides and your school photocopier to make certificates for your students.

***BEST PROJECT***

Awarded to

---

**BEST CLASS TALK**

Awarded to

---

***ENCOURAGEMENT AWARD***  
*for the best effort*

Awarded to

---

***FASTEST DOWN THE WATERSLIDE***

Awarded to

---

**BEST MODEL FISH**

Awarded to

---



## OPTION 1: STUDENTS PREPARE A SHORT TALK ON THEIR PROJECT

Either with a partner or individually, the student uses the data collected in the project to prepare a 3 to 5 minute talk.

A model fish/dolphin/diver could be made to be used as props to illustrate the subject matter.

Alternatively students could make overhead transparencies or charts.

### YOUR PROJECT TALK

Student's Name .....

Project Number:.....Project Name:.....

### A GOOD TALK



### A GOOD PROJECT NEPTUNE STUDENT PROJECT TALK

.....should have a clear introduction and welcome, be illustrated by clear examples, should demonstrate to the listener a sound knowledge of the topic, should describe adequately the materials used in building models, have written notes from which the talk is given, detail budget discuss results of research evidence of trials and failures, discuss problems encountered and solutions executed, demonstrate the principles involved and mention the history of how the project developed, detail reference books from which further information was taken, and finally have all the facts correct.

### Marking

	Very Low	Very High
Introduction and organisation	1	5
Statement of what the talk is about and what had to be done	1	5
Description of materials used and construction methods	1	5
Description of problems encountered and their solution	1	5
Description of tank parts and ways fish were made	1	5
Answers to questions and sum up	1	5
Involvement of the audience with eyes and other body movements	1	5

What to aim for:



Very High Level of Achievement  
High Level of Achievement  
Sound Level of Achievement  
Limited Level of Achievement  
Level of Achievement

32-35  
28-31  
24-27  
20-23  
07-19

/35

### Hints to students:

A good Sea World project talk will be well introduced and have everything for the talk organised. (Eg: aquarium box, model fish, notes and drawings if applicable). It will begin with a clear statement of what the talk is about and what had to be done in the project. Reference should be made about the materials used in the construction of the simulated habitat, and how it was done. It would be interesting to hear about the problems encountered and the ways you overcome these difficulties. The parts of the tank should then be described and a description of how you made your model fish. Finally you need to mention the questions you had to answer and the answers you gave to each. Don't forget to look at everyone as you speak and finish with a thank you and acknowledge any help that was given to you.

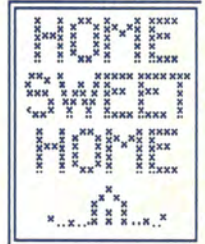
## OPTION 2: STUDENTS BUILD A MODEL AQUARIUM

Either with a partner or a group, students can set about to build a cardboard model aquarium. Using a large potato chip box from the canteen, students can recreate the aquarium and all its details.

This activity requires careful planning and a 'wet area'

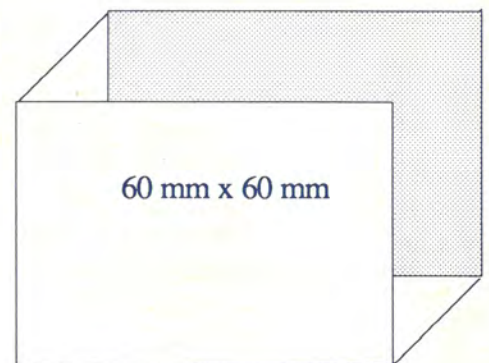
### The Wet Area

Should have a large bucket to wash up casting plaster so that sinks don't get blocked.  
Buckets for mixing  
Lots of newspaper for spills



### Materials required

Casting plaster (2 large bags will do class of 24)  
Chicken wire (a roll of bricki's wire is more manageable)  
Large roll of alfoil  
Mixing bowls (cut the tops of cordial bottles)  
Lots of newspaper for papier mache and spills  
Paints, spray can (optional)  
Sand and gravel



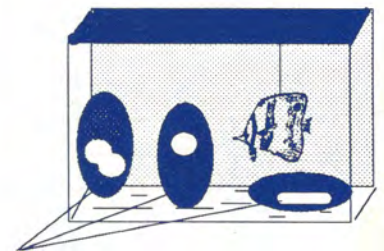
### What to do

Experiment a little with the mixture so that the students can determine how fast the mixture goes off and how much they can handle at once. The mixture is more manageable if you use an alfoil base. Also models can be made using this alfoil.

Make sure they wash their hands in a bucket so that the plaster can be collected and not thrown down the sink to clog the waste pipe.

Now select a potato chip or similar box that the canteen gets in bulk.

Have students examine the aquarium carefully during the project so that they can recreate it in their aquarium window. Mould the chicken wire and cover with newspaper soaked in casting plaster.



Rocks can be made by using alfoil

Students can make rocks, caves or other habitats that were simulated in the aquarium at Sea World. Finally they could make a model fish and hang it in their aquarium window for display.

This project can be used for a variety of objectives. It is useful for teaching many ideas especially with younger children. Some ideas could include:- adaptations, habitats, microhabitats, the problems of building aquariums, display techniques.

# Syllabus/Project/Idea Match

Any project should at some stage be compared with some common syllabus general objectives. The table below is an attempt to compare each project with some general objectives. In addition, the authors were asked to write down what they had in mind when writing their projects. These too have been matched with the projects and are labelled, general ideas.

Table 1: Project skill/idea match

<...PROJECT..><..... GENERAL OBJECTIVES.....><.GENERAL IDEAS....>

PROJECT	GENERAL OBJECTIVES																GENERAL IDEAS										
	Communicating	Observing	Inferring	Classifying	Measuring	Calculating	Drawing graphs	Predicting	Interpreting data	Using working definitions	Controlling variables	Hypothesising	Experimenting	Drawing	Debating	Expressing feelings	Territory	Reproductive biology	Adaptation	Fossils	Dangerous marine life	Anatomy	Commercial features	Habitat concept	Movement	External features	Shapes and adaptations
1 Reef dwellers	✓	✓						✓	✓			✓	✓			✓		✓				✓	✓	✓	✓	✓	
2 Lobsters & Crays	✓							✓	✓	✓		✓	✓				✓	✓	✓			✓	✓	✓	✓	✓	
3 Underwater cave	✓	✓										✓	✓		✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓
4 Reef dwellers	✓	✓			✓							✓	✓					✓				✓	✓	✓	✓	✓	✓
5 Tidal Pools	✓	✓	✓					✓	✓	✓		✓	✓					✓					✓	✓	✓	✓	✓
6 Lungfish	✓	✓	✓					✓	✓	✓		✓	✓					✓		✓		✓	✓	✓	✓	✓	✓
7 Poison fish	✓	✓						✓	✓	✓		✓	✓					✓		✓		✓	✓	✓	✓	✓	✓
8 Sharks	✓	✓						✓	✓	✓		✓	✓				✓		✓		✓	✓	✓	✓	✓	✓	✓
9 Predators	✓	✓		✓	✓	✓		✓	✓	✓		✓	✓					✓				✓	✓	✓	✓	✓	✓
10 Mudcrab	✓	✓		✓	✓	✓		✓	✓	✓		✓	✓					✓				✓	✓	✓	✓	✓	✓
11 Barramundi	✓	✓		✓	✓	✓	✓	✓	✓	✓		✓	✓					✓	✓	✓		✓	✓	✓	✓	✓	✓
12 Wobbegong Shark	✓	✓		✓				✓	✓	✓		✓	✓					✓				✓	✓	✓	✓	✓	✓
13 Reef dwellers	✓	✓						✓	✓	✓		✓	✓					✓				✓	✓	✓	✓	✓	✓
14 Coral polyp	✓	✓						✓	✓	✓		✓	✓		✓			✓	✓				✓	✓	✓	✓	✓
15 Reef dwellers	✓	✓		✓				✓	✓	✓		✓	✓					✓					✓	✓	✓	✓	✓
16 Mangroves	✓	✓		✓				✓	✓	✓		✓	✓	✓	✓			✓					✓	✓	✓	✓	✓
17 Reef dwellers	✓	✓		✓	✓	✓					✓	✓	✓	✓	✓								✓	✓	✓	✓	✓
18 Moray eel	✓	✓		✓	✓						✓	✓	✓	✓	✓				✓				✓	✓	✓	✓	✓
19 Anemone fish	✓	✓						✓	✓	✓		✓	✓					✓	✓				✓	✓	✓	✓	✓
20 Behind the scenes	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓		✓	✓										✓				
21 Dolphins	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓	✓	✓				✓			✓			✓	✓	✓
22 Whales	✓	✓	✓	✓				✓	✓	✓	✓	✓	✓	✓	✓				✓			✓			✓	✓	✓
23 Dolphins/Whales	✓	✓		✓				✓	✓	✓		✓	✓					✓	✓			✓			✓	✓	✓
24 Dol & Wh Anatomy	✓	✓										✓	✓					✓	✓	✓		✓			✓	✓	✓
25 Training methods	✓	✓	✓					✓	✓			✓	✓	✓	✓				✓					✓	✓	✓	✓
26 Bony fish	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓				✓	✓	✓			✓	✓	✓	✓	✓	✓
27 Sharks & rays	✓	✓	✓	✓	✓			✓	✓	✓	✓	✓	✓				✓	✓	✓			✓	✓	✓	✓	✓	✓
28 Aquarium fish	✓	✓		✓				✓	✓	✓		✓	✓														
29 Jnr dive show	✓	✓	✓					✓	✓	✓		✓	✓														
30 Snr dive show	✓	✓	✓					✓	✓	✓		✓	✓														
31 Diving underwater	✓	✓						✓	✓	✓		✓	✓	✓	✓												
32 Pirate pantomime	✓	✓				✓		✓	✓	✓		✓	✓	✓	✓												
33 Corkscrew	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓												
34 Waterslide	✓	✓	✓		✓	✓	✓	✓	✓	✓	✓	✓	✓	✓	✓												
35 Ski show	✓	✓			✓	✓		✓	✓	✓		✓	✓	✓	✓												

