

# Under the Sea

**Dive into an undersea adventure!**

**These teachers' notes are to be used with Project Pullout #33, which is found in issue 86 of DMAG. Students will learn how marine creatures interact and survive, as well as the effect humans have on the marine environments.**

**This supplement encourages students to:**

- Understand that plants and animals live in environments that supply their needs
- The activities of people can alter the balance of nature
- Animals are grouped into classes in accordance with their characteristics

### **HSIE: Different Environments**

As a class, ask students to develop a mind map around what they know about coral reefs. This can include the different types of creatures that can be found in reefs, their survival techniques, various reefs around the world etc.

### **A Change for the Better Survival techniques**

Ask students to read pages 52-53 of DMAG's Project Pull-out. Explain to the class that all animals are equipped with techniques to help them survive in the world. Look at the pictures shown in DMAG and discuss the survival techniques of the animals pictured. Ask each student to choose a marine animal and find out:



- What are its predators? What survival techniques does it have to escape from its predators?
- What does it eat? What techniques or physical characteristics does it have to increase its chances of acquiring food?
- Does it have any other habits or features? What are their purposes?
- What is it exactly?
- What are the major causes of it?
- What role have humans played in causing it?
- What are its short-term effects on the environment?
- What are its long-term effects on the environment? (Rising sea temperatures? Rising sea levels?)
- What could happen to the environment if these threats continue?

### **What about us?**

Ask the class if they think we have any survival techniques. What natural techniques can they think of? (Simple ones are running, hiding, fighting, living in large groups, and thinking). What about man-made techniques? For example, camouflage (we create camo-print outfits to help us hide in the jungle) or shields and suits of armour to protect our bodies.

### **Environment Matters**

Split the class up into three groups and ask each to investigate one of the following threats to the world's oceans: runoff, removal of mangroves and global warming. In their research they should find out the following:

### **Extension exercise**

After doing the exercise above, ask students to research what people are doing worldwide to combat these threats. How effective are they? What can be done to make them more effective? Are there any other proposed forms of action that haven't been put into practise yet? Why not? Can students propose any other solutions to reduce the threat?

### **Species diversity Excursion**

You'll see a large variety of marine life in the IMAX film *Under the Sea 3D*.

# Under the Sea

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Some of the main classes of animal you'll see are fish, mammals, crustaceans and molluscs. As a class, watch the film or go to an aquarium and ask students to jot down the different creatures they see. Describe each creature's physical characteristics. Now ask students to have a go at grouping them according to their "classes." What similarities are there within each class? What differences are there between classes?

If you can't see *Under the Sea 3D* or are not near an aquarium, take a trip to the local fish market and buy a fish, crustacean (e.g. prawn) and/or mollusc (e.g. squid). In the classroom, discuss the physical characteristics of each – does it have fins? Scales? A shell? Tentacles? Dissect each and ask the students what they notice about how each is internally structured. Do they have a skeleton or are they just

a big blob of jelly? Does the skeleton have any similarities to ours e.g. a backbone?

### Relationships

When you watch the movie *Under the Sea 3D*, you'll learn about symbiosis. As a class, define what a mutual symbiotic relationship is. Answer: when different species live together and mutually benefit each other.

### If you have watched

*Under the Sea 3D*: ask students to point out where in the movie they noticed symbiosis. One example is with the cleaner wrasse and the grouper. In this relationship, the wrasse eats parasites and dead skin off the grouper and in return, the grouper protects the wrasse.

*If you don't have the chance to watch Under the Sea 3D*: ask each student to investigate a symbiotic relationship of their choosing and share it with the class.

Whilst mutual symbiotic relationships benefit both parties, there are other types of symbiotic relationships that aren't as fair – such as parasitism. Ask the class to break into pairs and find out what parasitism is. Pairs should also find some examples of parasites, both within the marine environment and the terrestrial environment.

### English: Asking Questions

Ask the class to read page 54 of DMAG's Project Pull-out and, if you can, watch the film *Under the Sea 3D*. In their exercise books, ask students to write down a number of questions they would ask Howard Hall, the director of *Under the Sea 3D* if they were to meet him.

### Interview Time

Students are to pair off and choose their favourite five questions from the above exercise. Using the information in the Project Pull-out, some added research, and creativity, they are to write up an interview transcript between a journalist and Howard Hall. Once complete, ask the pairs to perform or read this to the class (one acting as the journalist, the other as Howard Hall).

### Art: Marine Ecosystems

Ask the students to complete the *Draw It* activity on the Students' Worksheet. As an extension, ask them to label the parts of the creature they have chosen to draw e.g. dorsal fin, gills, eyes, mouth etc.

### About DMAG

These Teachers' Notes were sponsored by IMAX and the movie *Under the Sea 3D*. They were written by the staff at DMAG and may be reproduced for use in school classrooms. To subscribe to the magazine they refer to, call 1300 887 795 (Australia) or 612 8296 5413 (international). To watch *Under the Sea 3D* at IMAX see [www.imaxmelbourne.com.au](http://www.imaxmelbourne.com.au) or [www.imax.com.au](http://www.imax.com.au) for session times in Melbourne and Sydney.