TEACHER GUIDE - BACKGROUND

What are corals?

Corals are **animals** that build large hard structures that can be seen from the air and even from space. When viewed close up, tentacles and a mouth are visible. Corals use these **external features** at night to capture plankton and feed. However, during the day something very different happens. Corals have a special relationship (symbiosis) with a microscopic type of algae/plant called zooxanthellae (pronounced 'zoo-zan-thel-ay'). Corals provide a home for the zooxanthellae and in return they provide food and colour.

There are more than 800 different species of hard corals. Corals come in many different shapes and sizes - these are called coral growth forms. Branching corals are fast-growing. Boulder corals grow more slowly and some may be more than 100 years old. CoralWatch uses 4 growth forms that you can easily recognise.

Why are corals important?

Coral reefs provide essential habitat for thousands of marine species. Reefs protect our coastlines from storms and cyclones, and allow seagrass and mangroves (nursery grounds) to grow in calm waters. They also provide us with food, income and natural beauty.

Coral bleaching

When coral becomes stressed from high water temperatures, it can kick out the symbiotic algae living inside. This process is known as coral bleaching. Zooxanthellae give the coral their brown or green appearance and when gone the white skeleton is visible underneath. Without the zooxanthellae, corals do not get enough food/nutrients, and may die if the stressful conditions are severe. The main cause of large bleaching events is increased water temperature. Sea temperatures are predicted to rise due to climate change, and bleaching events are expected to occur more frequently. There are many things you can do to reduce the impact of climate change: renewable energy, public transport, recycling etc.

CoralWatch

CoralWatch is a citizen science organisation at The University of Queensland in Brisbane, Australia. CoralWatch uses the Coral Health Chart as a cheap, simple, non-invasive method for the monitoring of coral bleaching. In the field, users simply compare colours of corals with colours on the chart and record matching codes and coral type. The method is simple and anyone can get involved including your students. **www.coralwatch.org**

TEACHER GUIDE - LESSON PLAN

This lesson plan focuses on learning about the importance of coral reefs and how colour can act as an indicator of reef health. Students develop an understanding of living things (coral) that can grow in different shapes and their needs within the habitat (coral reefs). Severe changes in water temperature can cause corals to change colour from brown/green to white (coral bleaching).

Australian Curriculum links - Year 1 Science learning outcomes

Science understanding
- Living things have a variety of external features. (ACSSU017)
- Living things live in different places where their needs are met. (ACSSU211)

Science as a human endeavour
- Science involves asking questions about, and describing changes in, objects and events. (ACSHE021)
- People use science in their daily lives, including when caring for their environment and living things. (ACSHE022)

Science inquiry skills
- Represent and communicate observations and ideas in a variety of ways such as oral and written language, drawing and role-play. (ACSIS029)

Key learning points

- Corals are animals that can grow in different shapes.
- Corals have external features: arms, mouth, stomach.
- The Great Barrier Reef provides a habitat for many plants and animals.
- Corals like warm water but when water is too warm, corals get stressed and can loose their colour (bleach).
- Coral bleaching is a major threat to reefs worldwide, including the Great Barrier Reef.
- Bleached corals can recover when water temperatures return to normal.
- Not only scientists, anyone can monitor reefs using the Coral Health Chart.
- There are many things you can do at home that can help to protect coral reefs.

Lesson plan sequence

Introduction

1. Teacher introduces the topic coral reefs by asking students if they have visited the reef. How was your experience? What colours did you see?
2. Students colour in the 'Colours on the Reef' colouring page.

Body

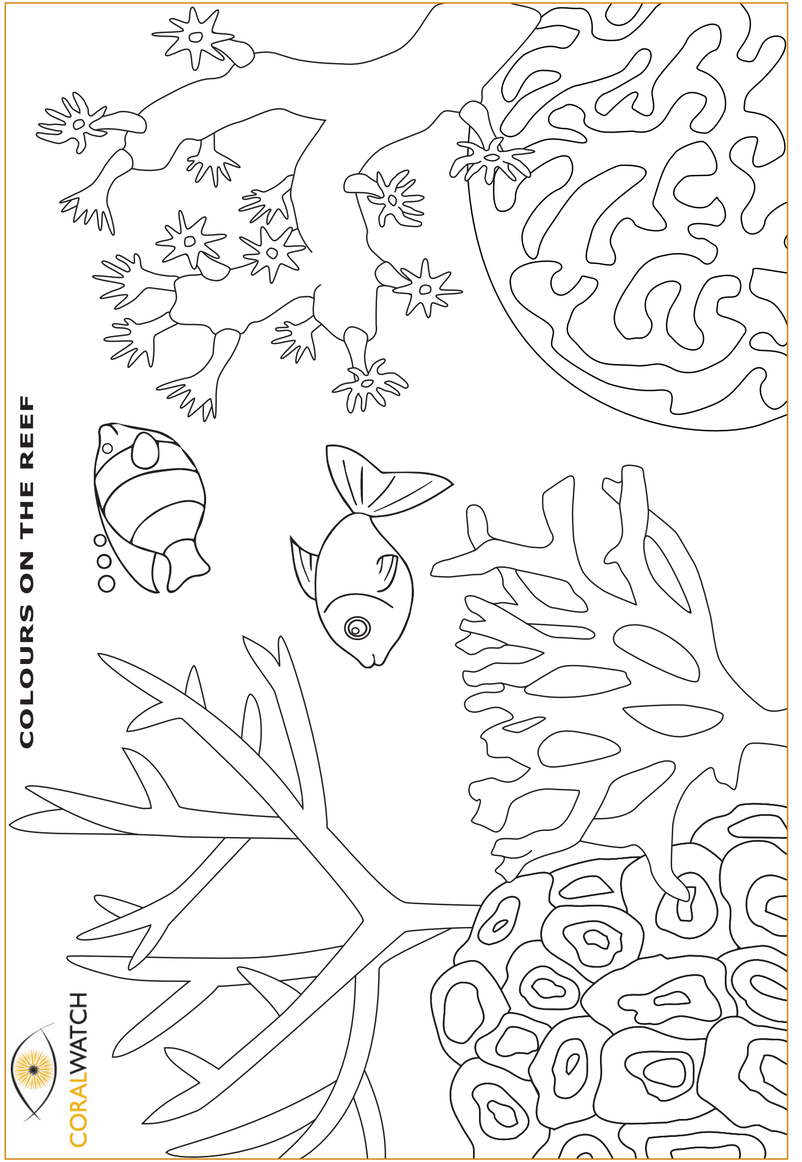
3. Teacher presents 'Colours on the Reef' presentation.
4. Students measure the colours from their colouring page with the Coral Health Chart.
5. Students write down the colour code and identify coral types by ticking the box.
6. Students add the total amount of recordings per coral type.
7. Students label and colour in the coral polyp drawing.

Conclusion

8. Teacher discusses students results, talking about their chosen imaginary colours on the reef.
9. Teacher uses CoralWatch virtual reef / coral photos to discuss real colours on the reef and measure colours with the Coral Health Chart.

Resources

- 'Colours on the Reef' - colouring page.
- CoralWatch datasheet.
- Coral polyp drawing and labelling activity.
- Presentation 'Colours on the Reef' download from www.coralwatch.org/web/guest/education-products.
- Coral Health Charts and Virtual reef available from CoralWatch.



CORALWATCH DATA SHEET

Name _____

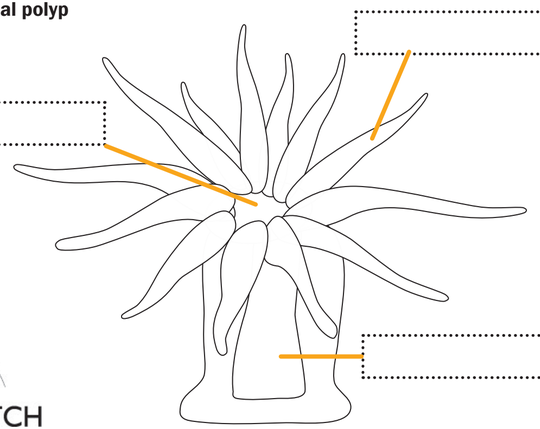
Class _____

CORALWATCH

Colour				
Total				

LABELLING ACTIVITY

I can label a coral polyp



CORALWATCH

Mouth	Stomach	Arms / tentacles

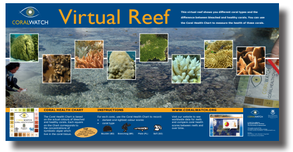
CORALWATCH RESOURCES

Colours on the Reef

Powerpoint presentation for grade 1 students, including teacher notes. Downloadable from www.coralwatch.org/web/guest/education-products

Virtual reef (Poster 72 x 36 cm)

This virtual reef shows you different coral types and the difference between bleached and healthy corals. You can use the Coral Health Chart to measure the health of these corals.



Coral Reefs and Climate Change

The Guide for Education and Awareness

Beautifully illustrated, this book forms a great resource to primary school teachers. Chapters cover oceanography, coral reef ecology, climate change and conservation. The book comes with a Coral Health Chart and Do It Yourself monitoring instructions.

CORALWATCH

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Colours on the Reef - Year 1 Lesson plan

Photos: Craig Reid, Nathan Cook & CoralWatch

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Colours on the Reef

Year 1 Lesson plan

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