

Applicable standards

National Geography Standards, Second Edition

Elements of the standards	Lessons							
	1	2	3	4	5	6	7	8
The World in Spatial Terms								
Standard 2. How to use mental maps to organize information about people, places, and environments in a spatial context.	✓							✓
Places and Regions								
Standard 4. The physical and human characteristics of places.	✓	✓	✓					✓
Physical Systems								
Standard 8. The characteristics and spatial distribution of ecosystems on Earth's surface.	✓							✓
Human Systems								
Standard 14. How human actions modify the physical environment.			✓	✓	✓	✓	✓	✓
Environment and Society								
Standard 15. How physical systems affect human systems.				✓		✓		✓
Standard 16. The changes that occur in the meaning, use, distribution, and importance of resources.				✓	✓	✓		✓
The Uses of Geography								
Standard 18. How to apply geography to interpret the present and plan for the future.						✓	✓	✓

SCHEME OF WORK

Lesson 1: Where is Timor-Leste and why does it have coral reefs?

Overview

This lesson introduces Timor-Leste, the case study for this scheme of work and coral reefs. Students will locate Timor-Leste alongside other important coral reefs on a map. They will also learn what conditions are needed for a coral reef to grow and the global distribution of coral reefs.

Learning outcomes

- Locate Timor-Leste on a map
- Give reasons why coral reefs are important
- Describe the global location and distribution of coral reefs
- Describe and explain the global distribution of coral reefs
- Identify different warm coral reefs

Resources

**Slideshow 1:**

Where is Timor-Leste and why does it have coral reefs?

**Student Sheet 1a:**

Timor-Leste and the Coral Triangle info sheet

Student Sheet 1b:

Where is Timor-Leste and the Coral Triangle?

Student Sheet 1c:

Where are coral reefs located?

Student Sheet 1d:

Blank world map

**Video:**

Coral expedition: Wonders of coral

Video:

Seaview science: Biodiversity

Video:

Welcome to Timor-Leste

Lesson 2: What is the structure of a coral reef?

Overview

In this lesson, students will begin to develop further understanding of the coral polyp and how they grow from a single coral polyp to a huge coral reef. Student will then look at the coral reef zones and develop understanding of those different zones and their characteristics.

Learning outcomes

- Understand the wider context and learning outcomes
- List the different scales of a coral reef
- Describe what a coral polyp is and why it is important
- Describe and explain the formation of different coral reefs
- Describe the different habitat zones within a coral reef

Resources

**Slideshow 2:**

What is the structure of a coral reef?

**Student Sheet 2a:**

The formation of coral reefs

Student Sheet 2b:

Reef habitat zones

**Activity:**

Incredible edible polyp

Activity:

Coral reef zones

**Gallery:**

Reef scales

Gallery:

Zones on the reef

**Video:**

Seaview Survey: Coral reefs

**Subject Update:**

The formation of coral reefs

SCHEME OF WORK

Lesson 3: What are the factors of the coral reef ecosystem?

Overview

This lesson will introduce students to abiotic and biotic factors of the coral reef ecosystem. In this lesson students will gain a detailed understanding of a variety of abiotic and biotic factors. By the end of the lesson students will be able to describe those factors and begin to identify ways actions of humans will affect the ecosystem.

Learning outcomes

- Understand the wider context and learning outcomes
- Define the key terms – abiotic and biotic
- Describe how the abiotic factors, work within the ecosystem. E.g. nutrient cycle
- Describe how the biotic factors, work within the ecosystems. E.g. food web
- Explain the interrelationships of different factors within the ecosystem

Resources



Slideshow 3:

What are the factors of the coral reef ecosystem?



Student Sheet 3a:

Abiotic and biotic factors

Student Sheet 3b:

Abiotic and biotic table

Student Sheet 3c:

Food chains



Gallery:

Coral life (advanced)



Activity:

Coral food chain mobile

Lesson 4: How do humans use coral reefs?

Overview

This lesson will look at how the goods and services of a coral reef are used globally and within Timor-Leste. With a study of the economic value of the coral reef and developing an understanding of that economic value is calculated. This lesson will also develop an understanding of what is meant by different services provided by the coral reef.

Learning outcomes

- Understand the wider context and learning outcomes
- Describe the economic value of the coral reefs
- Draw a graph that compares the economic value of coral reefs to other ecosystems
- Explain the economic value of the coral reefs
- List the ways humans use the coral reefs globally and in Timor-Leste

Resources



Slideshow 4:

How do humans use coral reefs?



Student Sheet 4a:

Coral reefs goods and services information

Student Sheet 4b:

Goods and services table



Video:

Welcome to Timor-Leste



Subject Update:

Learn more: Human activity on the reef?

Subject Update:

Learn more: How ecosystems (E7) and G7 economies compare

SCHEME OF WORK

Lesson 5: What are the threats to coral reefs?

Overview

This lesson will look at the threats to the coral reefs, using a variety of resources including videos, a gallery and information sheets. This lesson will get students to start thinking about the scale of the threats to coral reefs and how we can all play a part regardless of how far we live from the coral reef.

Learning outcomes

- Understand the wider context and learning outcomes
- List the threats both natural and human to the coral reef
- Describe the different threats to coral reefs. Look at different scales; local in Timor-Leste (dangerous fishing) and systemic (climate change)
- Evaluate the threats to the coral reefs

Resources



Slideshow 5:
What are the threats to coral reefs?



Student Sheet 5a:
Threats information sheet

Student Sheet 5b:
Coral reef threats table



Video:
Seaview science:
Changing reefs

Video:
Pigs on the beach



Gallery:
Coral threats



Activity:
Dissolving 'coral' and 'shells'
in vinegar



Subject Update:
Learn more: Corals in a high
CO₂ world

Lesson 6: What are the impacts of coral reef destruction?

Overview

This lesson will look at the impacts of coral reef destruction, categorising those impacts. We discover the impacts to different stake holders in Timor-Leste through watching videos. Students will then write a letter to their local MP informing them of the threats the coral reefs are facing and why they need protection.

Learning outcomes

- Understand the wider context and learning outcomes
- Remember some of the threats to coral reefs
- Describe the impacts of coral reef destruction
- Explain the short term and long-term consequences of the loss of the coral reef
- Predict a strategy to mitigate the threats to coral reefs
- Reflect on learning

Resources



Slideshow 6:
What are the impacts of coral reef destruction?



Student Sheet 6a:
Facts and consequences



Video:
Stakeholders on the reef -
Community

Video:
Stakeholder on the reef -
Fisherman

Video:
Stakeholder on the reef -
Government

Video:
Stakeholder on the reef -
Local tourism

Video:
Stakeholder on the reef -
Tourism operator

SCHEME OF WORK

Lesson 7: How do we mitigate coral reef destruction?

Overview

In this lesson you will look at the different strategies implemented in places across the globe and the main strategy used in Timor-Leste. Students will be assessing the need for the mitigating strategies such as the MPA in Timor-Leste but also evaluating the strategies.

Learning outcomes

- Understand the wider context and learning outcomes
- Identify the links between the threats and the need for the mitigating strategies
- Map and describe different strategies to mitigate the threats to coral reefs
- Evaluate the effectiveness of the MPA strategy used in Timor-Leste, including the positives and negatives of the strategy
- Reflect on learning

Resources



Slideshow 7:

How do we mitigate coral reef destruction?



Student Sheet 7a:

Blank world map

Student Sheet 7b:

Mitigation strategies information sheet

Student Sheet 7c:

MPA knowledge organiser

Student Sheet 7d:

MPA information organiser



Video:

Stakeholder on the reef - Community

Video:

Stakeholder on the reef - Government

Video:

Stakeholder on the reef - Local tourism

Lesson 8: Assessment

Overview

This lesson will be spent with the students completing the assessment, which will include a variety of tasks such as exam questions and come skills-based questions such as finishing graphs.

Learning outcomes

- Apply knowledge and understanding to answer GCSE style exam questions

Resources



Student Sheet 8a:

Assessment paper

Answer Sheet 8a:

Mark scheme