

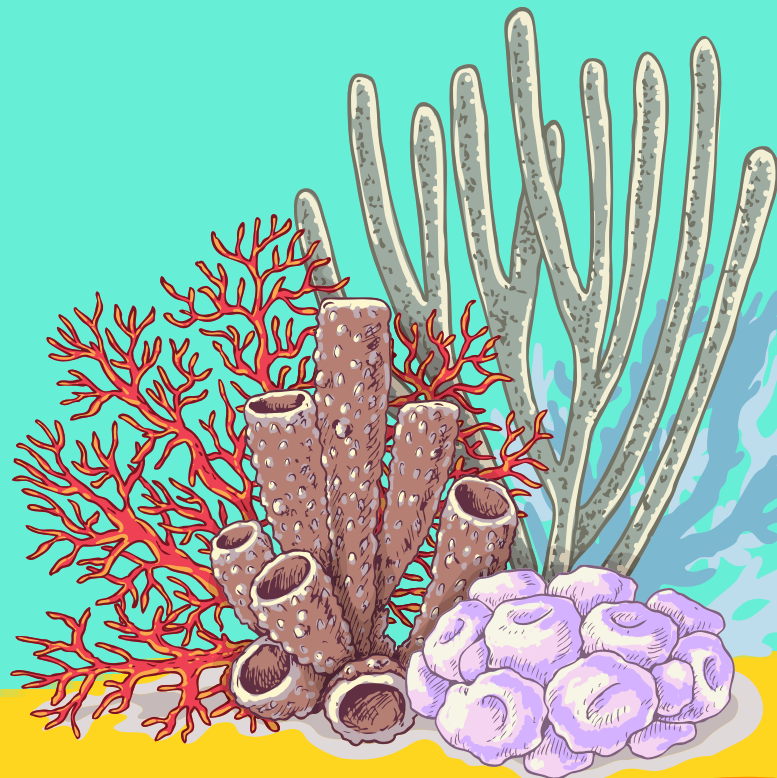
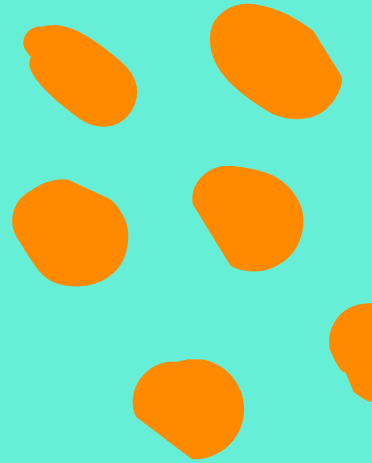


NEW SOUTH WALES

PRIMARY LESSON PLAN

CORAL BLEACHING

- Syllabus Outcomes
- Inquiry Questions
- Activities
- Worksheets



SYLLABUS OUTCOMES

- **Plans** and conducts scientific investigations to answer testable questions, and collects and summarises data to communicate conclusions ST3-1WS-S
- **Examines** how the environment affects the growth, survival and adaptation of living things ST3-4LW-S

STUDENTS

- **Plan** and conduct a fair test to show the conditions needed for a particular plant or animal to grow and survive in its environment (ACSSU094) SciT
- **Describe** how changing physical conditions in the environment affect the growth and survival of living things, for example:
 - temperature of water in aquatic environment

INQUIRY QUESTION
How do physical conditions affect the survival of living things?

ACTIVITIES

- **Brainstorming** as a class: *What do we already know about coral bleaching?*
- **Students** watch video [What Is Coral Bleaching? | TIME](#) and answer questions as they watch
- **Students** complete the vocabulary activity before reading the [Readworks article](#) on coral bleaching
- **Students** complete an investigation worksheet and conduct an investigation using NASA's coral bleaching simulation <http://climatekids.nasa.gov/coral-bleaching/>

EXTENSION ACTIVITIES

- **Make** a coral reef ecosystem dessert <https://climatekids.nasa.gov/ocean-ecosystem/>
- **NeMO-Net** students can contribute to a crowd-sourced NASA project by classifying corals <http://nemonet.info/> (this can be downloaded onto school ipads)
- **Data** in the classroom - Coral Bleaching worksheets <https://datainthe classroom.noaa.gov/coral-bleaching/investigating-coral-bleaching-teacher-resources>

STUDENT WORKSHEET

Learning Intention

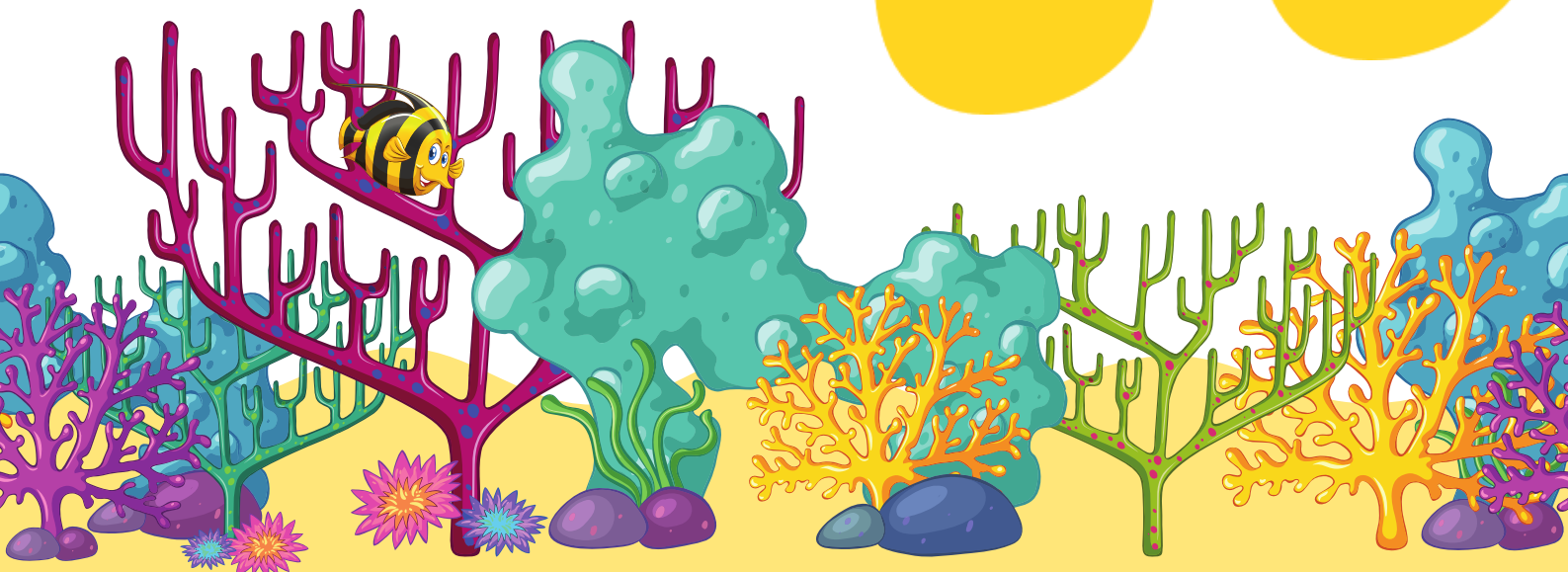
To explain how physical conditions affect the survival of living things.

Success Criteria:

- Describe coral bleaching and explain its causes
- Explain why coral bleaching is problematic
- Plan & conduct an investigation to examine the effect of temperature on coral

ADD TO THE BRAINSTORM

**CORAL
BLEACHING**



STUDENT WORKSHEET

Watch the following video and answer the questions below

[What Is Coral Bleaching? | TIME](#)

STUDENT QUESTIONS

Coral is one big animal? TRUE or FALSE _____

Coral is made up of polyps and algae? TRUE or FALSE _____

What gives coral its colour? _____

What happens when algae becomes stressed? _____

Bleached corals are always dead? TRUE or FALSE _____

VOLCABULARY ACTIVITY

SENSITIVE

Showing a strong response to things in the environment

REEF

A ridge of rock, coral or sand at or near the surface of ocean waters

MONITOR

To observe or watch something to gain information

VULNERABLE

At risk of something

BLEACHING

To cause a material to become white or much lighter

CREATE A SENTENCE USING EACH OF THESE WORDS

**AIM:
TO INVESTIGATE
EFFECT OF
TEMPERATURE
ON CORAL**

INVESTIGATION WORKSHEET

Complete the hypothesis by selecting one of each of the terms in **BLUE**

HYPOTHESIS

If the temperature **INCREASES/DECREASES** the amount of bleached coral will **INCREASE/DECREASE**

Go to the simulation and see what effect increasing the temperature has on the coral
<https://climatekids.nasa.gov/coral-bleaching/>

RESULTS

- Complete the discussion by selecting one of each of the terms in **BLUE**
- Increasing the temperature by 1°C caused **NONE/SOME/ALL** of the coral to bleach
- Increasing the temperature by 2°C cause **NONE/SOME/ALL** of the coral to bleach
- Increasing the temperature by 3°C cause **NONE/SOME/ALL** of the coral to bleach

COMPLETE THE DISCUSSION BY ANSWERING THESE QUESTIONS

HOW DID WATER POLLUTION AFFECT THE CORAL?

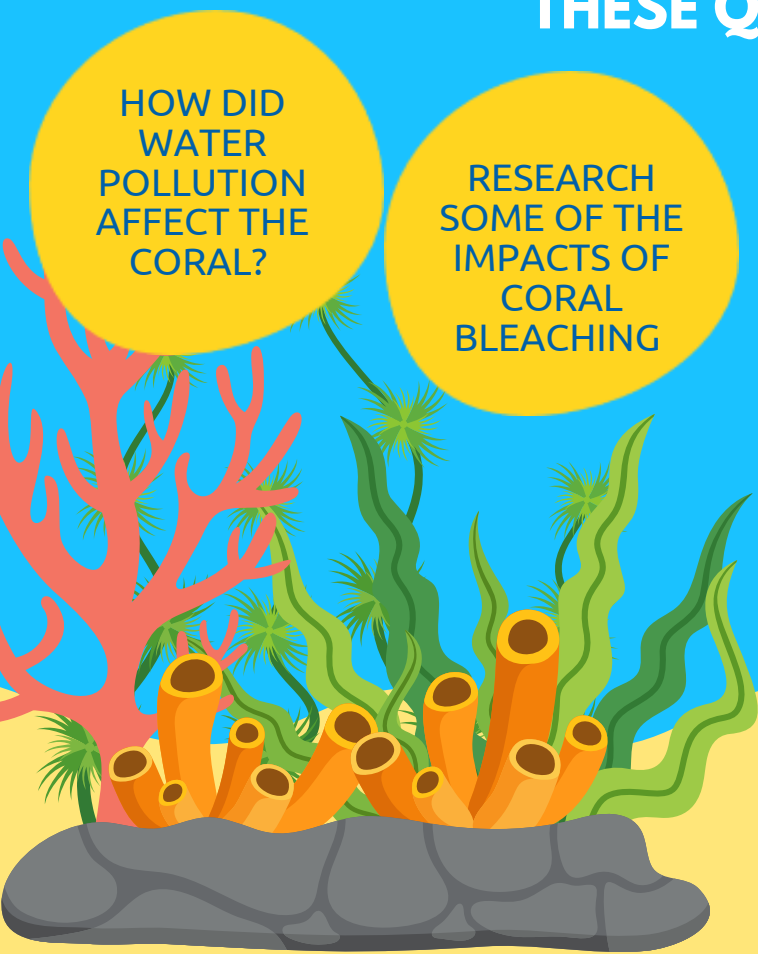
RESEARCH SOME OF THE IMPACTS OF CORAL BLEACHING

WAS YOUR HYPOTHESIS SUPPORTED OR REFUTED?

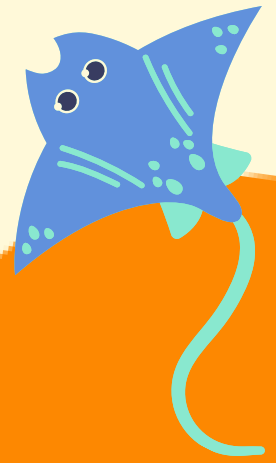
HOW DID DECREASING THE TEMPERATURE BY 1°C AFFECT THE ABILITY OF THE CORAL TO RECOVER FROM STORMS? ?

HOW DID INCREASING THE TEMPERATURE BY 1°C AFFECT THE ABILITY OF THE CORAL TO RECOVER FROM STORMS?

HOW DID STORMS AFFECT THE CORAL?



AIM: TO MODEL CORAL BLEACHING



MODELLING CORAL BLEACHING

METHOD

1. Create coral models using modelling clay
2. Mix thermochromic powder with white paint
3. Paint models using this mixture
4. Fill one bucket with room temperature water and fill the other with warm water (~30°C)
5. Measure and record the temperature in both buckets
6. Place coral models in each bucket and observe and changes that take place
7. Move the coral models from one bucket to the other and observe any changes

EQUIPMENT NEEDED

- Thermochromic powder
- Modelling clay or coral models
- White paint
- Two buckets/containers for water
- Thermometer

RESULTS

	Warm Bucket	Cold Bucket
Temperature (°C)		
Coral Observations		

Coral Movement	Observations
Coral moved from hot to cold	
Coral moved from cold to hot	

DISCUSSION CORAL BLEACHING

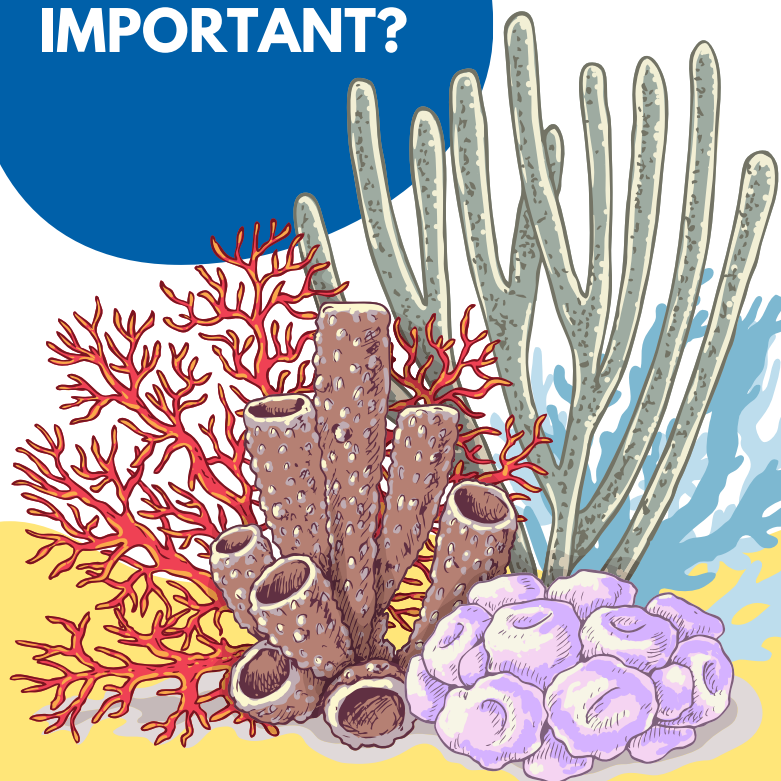
WHAT
HAPPENED TO
THE CORAL
WHEN IT WAS
PLACED IN
WARMER
WATER?

LIST THE SIX
ACTIONS BEING
TAKEN BY
MANAGEMENT
AUTHORITIES IN
ADDRESSING THE
ISSUES OF CLIMATE
CHANGE?

WHAT IS THE
CURRENT
STATE OF
CORAL REEFS
ON A GLOBAL
SCALE?

RANK THESE IN
ORDER OF WHAT
YOU BELIEVE WILL
BE **MOST** EFFECTIVE
TO THE **LEAST**
EFFECTIVE.

WHY IS CORAL
IMPORTANT?





NEW SOUTH
WALES

**CHECK OUT MORE
PRIMARY TEACHER
RESOURCES ON
OUR HUB!**



beachsafetyhub.org.au