

TEACHER RESOURCE PACK



SCIENCE WEEK LIVE-IN-SCHOOLS

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TEACHER STEP-BY STEP GUIDE

BEFORE THE PERFORMANCE:

TEACHER RESOURCE PACK: Please copy or email and distribute this pack to all relevant teachers PRIOR to the live-in-school performance.

STUDENT NUMBERS: Please prepare IN ADVANCE the number of students attending so you can inform our Team Leader at the conclusion of the performance.

ON THE DAY OF THE PERFORMANCE:

SAFETY: Please ensure the space is clean and clear for the safety and wellbeing of both your students and the performers.

TABLE REQUEST: The performance will require one table of medium size. Please pre-set a table in the performance space at least 40 minutes before the scheduled performance start time.

PERFORMER ARRIVAL TIME: Performers will arrive approximately 30 minutes before the scheduled performance start time. Please make sure the space is clear and ready to ensure we can setup and start on time.

START TIME: Please ensure students are lined up outside the performance space 5 minutes before the commencement of the show to guarantee a prompt start. We are not able to work within your school bell times if the performance cannot start on time.

PERFORMANCE SPACE REQUIREMENTS: Access to power is required in the room so we can operate sound for the presentation.

The performers require an area of approx. 5m x 5m for the staging area. Students should be seated in front of this stage area and can be on seats or sitting on the floor as long as a good view of the performers.

Please note: a small or medium sized room such as a multipurpose room or small hall is more effective acoustically and atmospherically than a large space such as a gym. Please make the performance area available at least 30 minutes prior to the commencement of the show so that the performers can prepare the space to start on time.

TEACHER PRESENCE: We request teacher presence and support for the performers at all times during the performance.

AFTER THE PERFORMANCE:

STUDENT NUMBERS: Please provide the total number of students that have attended the performance to our Team Leader before they depart your school.

EVALUATION: Go to **performteachers.com** and click on the name of this program to evaluate and be in the draw to **WIN \$200**

CLASSROOM ACTIVITIES: Share with teachers any of the classroom activities in this pack and use in your follow up lessons.

STUDENT DIGITAL ACTIVITIES: Direct students onto our website **RESOURCES** page where they can access the digital games, videos and downloadable student activities.

RESERVE A DATE FOR NEXT YEAR: Find details for next year's programs at the end of this pack and reserve a date NOW to grab the **early bird specials!**

PAYMENT: A tax invoice for the balance of payment will be forwarded to your school the day after the incursion, so please **do not prepare a cheque on the day**. We have instructed our performers not to handle any money or financial issues. These should all be directed to our office. Please refer to your Booking Confirmation for details on pricing terms and conditions. If you require another copy then call our office on 1300 652 470

MANY THANKS FOR YOUR ASSISTANCE AND SUPPORT!



ABOUT THE COMPANY

Perform! Education is a multi award-winning educational production company and part of the largest educational producers operating across New Zealand, Australia, and the USA.

The company specialises in touring curriculum aligned, educational musicals, theatre and sketch comedy into schools and has been operating for twenty years. Every year we tour to over 250,000 students and in all, the company and its writers have toured our specialty educational programs to **over three million students** across the world.

In Australia, we tour an annual **Science Week In Schools** educational sketch comedy program in conjunction with National Science Week, as well as a **Book Week In Schools** literacy program. The **Science/STEM** program inspires students with the limitless fun and possibilities offered by Science, Technology, Engineering & Maths – while promoting how science impacts our everyday lives and future careers.

The live performances are **highly interactive** and feature comedic sketches, appealing and identifiable characters, loads of **comedy**, fun scientific facts and student interaction that captivates and engages all audiences from ages 10 to 15 years old (as well as their teachers!).

Question time and **Post-Performance** activities reinforce the learning outcomes, and this specially designed **Teacher Resource Pack** sent prior to the performance offers a comprehensive selection of classroom exercises for both before and after the performance.

To find out more about **Perform! Education** or to contact the company, please log onto our website at www.performeducation.com

If you or any of your students would like to find out more details about our company please visit our website: www.performeducation.com



ABOUT THE PROGRAM

Welcome to the **Science Week in Schools** program **THE MARINE TEAM!**

Educating your students about Marine Science and Ocean Sustainability, this program celebrates the National Science Week 2020 Schools Theme: **Deep Blue: Innovations for the future of our oceans.**

THE MARINE TEAM is a 45 minute live-in-school performance that consists of two professional actor/educators with two goals. The first goal is to explore:

- **How oceans impact our planet**
- **What is ocean sustainability**
- **Solutions that generate healthy oceans**
- **What YOU can do**

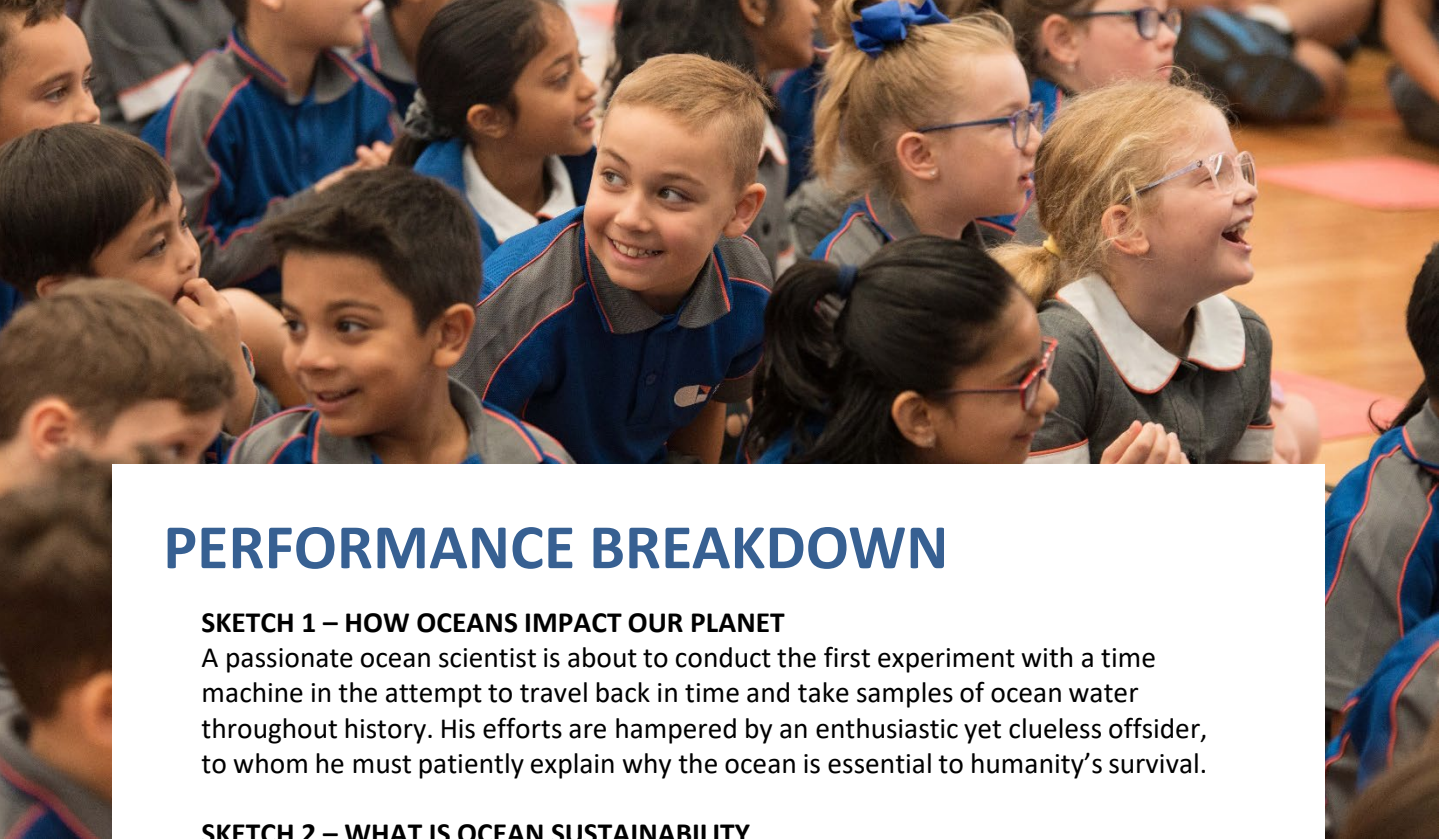
The second goal is to make your students laugh so hard that they forget they're learning!

LEARNING AREAS: Science, HASS, Technologies (Design & Technologies), Maths, English, The Arts (Drama)

CROSS CURRICULUM PRIORITIES: Sustainability, Aboriginal & Torres Strait Islander Histories & Cultures

LEARNING POINT BREAKDOWN:

- **How oceans impact our planet:** The largest ecosystem on Earth, they provide oxygen, food, regulate weather and climate, absorb CO₂, support the global economy and social, cultural and community needs.
- **What is ocean sustainability:** Using the ocean now in a way that ensures it's health for the future. Threats include: pollution, plastics, global warming, warming oceans, ocean acidification and overfishing.
- **Solutions that generate healthy oceans:** Ocean clean-up technology eg Boyan Slat, reducing Greenhouse Gas emissions, marine renewable energy, kelp farming, sustainable aquaculture, Aboriginal and Torres Strait Islander Peoples' sustainable ocean management, marine engineering and innovation.
- **What YOU can do:** Reduce & refuse plastics, throw rubbish in the correct bin, eat sustainably caught seafood, use reef safe sunscreen, use renewable energy, less energy, eat less red meat.



PERFORMANCE BREAKDOWN

SKETCH 1 – HOW OCEANS IMPACT OUR PLANET

A passionate ocean scientist is about to conduct the first experiment with a time machine in the attempt to travel back in time and take samples of ocean water throughout history. His efforts are hampered by an enthusiastic yet clueless offsider, to whom he must patiently explain why the ocean is essential to humanity's survival.

SKETCH 2 – WHAT IS OCEAN SUSTAINABILITY

A documentary film maker with an over-inflated ego embarks on an ocean journey to the Great Pacific Garbage Patch. When his presenter turns out to have no screen experience, it's too late to turn back and he despairs his Academy Award dreams have been dashed. But not only does he learn about the human activities putting ocean sustainability at risk, he learns never to judge a book by its cover.

SKETCH 3 – SOLUTIONS THAT GENERATE HEALTHY OCEANS

A wannabe evil supervillain is on a mission to win the Best Baddie Award at this year's Villain Convention. His misguided strategy is to steal all the best new ocean sustainability technology and use it on a vast scale to put everyone else out of business and take over the world. Thus, he zeros in on marine renewable energy technology, ocean clean-up technology, aquaponic innovation and kelp farming, finally setting off to VillainCon with high hopes.

SKETCH 4 – WHAT YOU CAN DO

A student volunteer is invited onto stage to be a world famous pop-star, on their 'Save the Oceans World Tour.' Their bodyguards usher them through a packed pre-show schedule of fan Meet and Greets and Press briefings, all the while reinforcing their ocean health message, such as consuming sustainable seafood and avoiding pollution.

QUESTION TIME

Here the actors will recap the major points in the performance and quiz the audience on some facts about gravity and light. It's also an opportunity, if time permits, for the students to ask questions of the actors and open up discussion to be taken back to the classroom. The post show question time, in conjunction with this Resource Pack, is designed to extend the theme by encouraging students to investigate further and make **STEM** something they see in everything they do.

POST PERFORMANCE

DISCUSSION POINTS

– CLASSROOM OR GROUPS

- What does ocean sustainability mean?
- Why is ocean sustainability important?
- Why is the ocean called 'our planet's life support system'?
- Name 3 ways the ocean impacts you today?
- In what ways are humans putting ocean sustainability at risk?
- Why does so much rubbish end up in the ocean?
- What are microplastics?
- Why are microplastics a risk?
- What are some easy ways we can all reduce plastics in the ocean?
- Apart from plastics, what are some other examples of ocean pollution?
- What is global warming?
- What factors lead to global warming?
- What effect does global warming have on our oceans?
- What is ocean acidification?
- What are some easy ways we can all help slow global warming?
- How does eating less red meat help slow global warming?
- What is overfishing and why is it a concern?
- What is sustainable fishing and why is it important?
- How can we ensure the seafood we eat is caught sustainably?
- Why are balloons such a threat to ocean species?
- What are some examples of marine renewable technologies?
- Name 3 easy ways we can all contribute to marine health.



CLASSROOM ACTIVITY #1

RESPONSIBLE FISHING

ASTA RESOURCE BOOK OF IDEAS FOR NATIONAL SCIENCE WEEK 2020

Learning Areas: Science, Mathematics, English

Overview

People go fishing for many different reasons eg food, enjoyment, work, and income.

Your challenge is to design a game to educate others about responsible fishing. Did you know that people can make sure they fish responsibly by:

- taking only what is needed
- catching and releasing their fish if they have enough for a meal
- making sure they don't keep undersized fish
- if unsure of the fish species or size, releasing the fish immediately, removing fish from the hook or net immediately and killing it humanely if keeping it
- cleaning up all fishing gear (eg discarded tackle and line, and bait bags), and taking these items back to shore to dispose of properly
- placing other people's discarded fishing gear and litter in bins
- abiding by the fisheries regulations in the state they live in
- reporting any suspected illegal fishing activity
- reporting fishing breaches to the Fishwatch hotline on 1800 017 116.



Image sourced from:
<https://www.stocksy.com/50310/young-girl-fishing-from-boat-at-a-lake>

CLASSROOM ACTIVITY #1

RESPONSIBLE FISHING

Check out one type of fishing game at

<http://www.mesa.edu.au/seaweeek2006/thursday/act04.asp> and then experiment with your game design ideas, troubleshoot the design challenge, flow chart your ideas, document your process, and design a solution.

Share photos and students' work samples via National Science Week's online community. The Australian Science Teachers Association loves to see pictures of children in the classroom learning, and to share photos via email at nscwk@asta.edu.au or share what has been created via Facebook, Instagram or Twitter with #scienceweek! Please ensure that you have parental permission prior to posting any images of students.



The screenshot shows the MESA Seaweeek 2006 website. The header features the MESA logo (ABN 51 745 896 713) and the Seaweeek 2006 banner with the dates March 5 to 12 and the slogan "FOOTPRINTS FOR OUR FUTURE" with the tagline "The choices we make". Navigation links include Home, About MESA, Contact MESA, Seaweeek, Site Resources, Marine Links, International News, and MESA History. The main content area is titled "Seaweeek 2006: Footprints for our Future" and dated Monday, 27 Jul 2020. It lists various activities: Book live webcast, Themes, eCard Competition, Make a pledge, Sustainability Game, Take a test, and Register/View Seaweeek events. The "Fish Game" section is highlighted, with an objective: "Children to construct a fishing game that highlights the legal size and bag limits for certain fish." The "Materials" list includes Magnets, Washers, Thick fishing line, 1 metre length of dowel for each group, Card, Paints, OHP, OHTs, Pencils and a Blow up pool (optional). An image shows a person fishing from a pier. The "Procedure" lists steps from dividing students into groups to conducting fishing time in the classroom.

Fish Game

Objective: Children to construct a fishing game that highlights the legal size and bag limits for certain fish.

Materials

- Magnets
- Washers
- Thick fishing line
- 1 metre length of dowel for each group
- Card
- Paints
- OHP
- OHTs
- Pencils and
- Blow up pool (optional).

Procedure

- Divide students into groups. Team each group with a parent/teacher aide/teacher;
- Ask students to source legal fish size and bag limit information from the Internet at the Department of Primary Industries Web-site (www.dpi.qld.gov.au/fishweb/2881.html#1) or contact the Department of Primary Industries for easy to use fish ID and bag limit brochures;
- Discuss the information on the brochures;
- Allocate a fish to each of the groups. Photocopy fish pictures from brochure onto OHTs;
- Blow the fish up from the OHT to create different sized fish - undersized, legal limit size and oversize (if applicable) and trace onto card;
- Cut out fish then have students paint using the correct colours and markings;
- Place information tags on under side of fish including type of fish, bag limit and legal size;
- Attach large washer directly under the mouth of the fish;
- Laminate and cut out;
- Construct a fishing pole out of dowel and thick fishing line. Attach magnet to end of line;
- Present a talk to the class about their chosen fish; and
- Conduct fishing time in the classroom. Students catch a fish, read ID then measure with tape to determine if their catch is legal.

Image sourced from:
<http://www.mesa.edu.au/seaweeek2006/thursday/act04.asp>

Source:

SOURCE: ASTA Resource Book of Ideas for National Science Week 2020, p31

https://www.scienceweek.net.au/wp-content/uploads/2020/03/2020ASTA-DeepBlue_ResourceBook_FINAL.pdf

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CLASSROOM ACTIVITY #2

OCEAN ACIDIFICATION AND SHELLS

ASTA RESOURCE BOOK OF IDEAS FOR NATIONAL SCIENCE WEEK 2020

Learning Areas: Science, Mathematics

Overview

Ocean acidification has been called the evil twin of climate change. It is the other carbon dioxide problem. Around a quarter of the carbon dioxide produced by burning fossil fuels dissolves into the ocean where it combines with water to form carbonic acid. While this acid is extremely weak it is nevertheless strong enough to dissolve the calcium carbonate shells of corals, microscopic molluscs or effect other animals. As the acid dissolves calcium carbonate, it releases more carbon dioxide that, in turn, makes more carbonic acid.

Scientists are starting to see evidence and the consequences of ocean acidification and what it means for marine life. Did you know that egg shells are made of the same compound from which coral and mollusc shells are made ie calcium carbonate? Try the following activity and see if you can make a shell disappear.

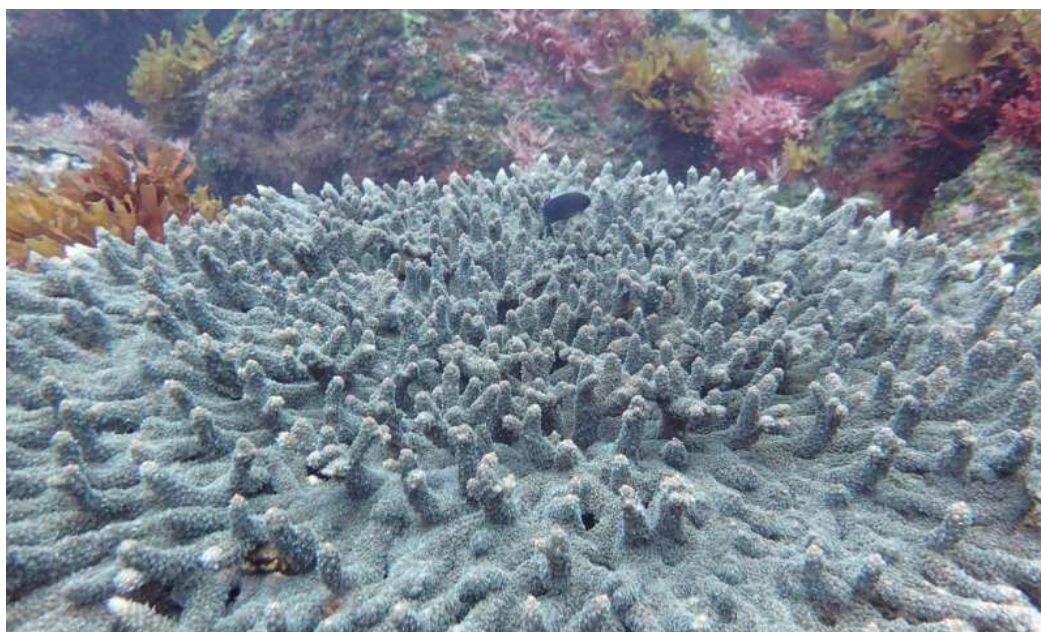


Image sourced from:
<https://phys.org/news/2018-07-ocean-acidification-major-impact-marine.htm>

CLASSROOM ACTIVITY #2

OCEAN ACIDIFICATION AND SHELLS

MATERIALS

- 2 eggs
- 1 litre vinegar
- 2 small bowls
- large bowl
- jug
- measuring cup
- spoon
- salt
- water
- ruler

WHAT TO DO

DAY ONE:

- Put the eggs in the large bowl.
- Pour vinegar into the bowl until the eggs are completely covered. The eggs will start to bubble.
- Leave the eggs to stand overnight.
- Create a salt solution in a jug by dissolving as much salt as possible into 500 mls water. Keep adding salt until a few salt crystals are left on the bottom that will not dissolve, no matter how long you stir.

DAY TWO:

- The eggs should be soft. Remove from the vinegar and gently brush any remaining shell of the egg until you can see the yolk through the membrane (clear covering).
- Measure each egg with a ruler.
- Carefully put one egg into each of the small bowls.
- Gently cover one of the eggs with water.
- Cover the other egg with the salt solution from the jug.
- Leave both eggs overnight. Measure the eggs. Have they changed in size?

WHAT'S HAPPENING?

Eggshells contain calcium carbonate (CaCO_3), and vinegar's active ingredient is acetic acid (CH_3COOH). When these chemicals react together, the result is a salt called calcium ethanoate, some water, and bubbly carbon dioxide gas. The reaction for this equation looks like this:



CLASSROOM ACTIVITY #2

OCEAN ACIDIFICATION AND SHELLS

Once an egg's shell is dissolved by this reaction, its membrane is revealed. This membrane is 'selectively permeable', which means it will allow some things through but not others. An egg's membrane will allow small molecules like water to pass through but not large ones like salt.

The egg left in water will look very different to the one in saltwater due to a process called osmosis. Osmosis occurs when two solutions are separated by a selectively permeable membrane. Water moves by osmosis from a weak (dilute) solution to a strong (concentrated) solution, such as the solution inside the egg. So, when the egg is left in water only, water flows in through the membrane, making the egg expand.

The egg in the saltwater shrinks. This is because the solution outside the egg is more concentrated, so the water flowed out from the dilute solution to the concentrated solution.



Image sourced from:
<https://www.wikihow.com/Dissolve-an-Eggshell>

Source:

ASTA Resource Book of Ideas for National Science Week 2020, p42

https://www.scienceweek.net.au/wp-content/uploads/2020/03/2020ASTA-DeepBlue_ResourceBook_FINAL.pdf

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CLASSROOM ACTIVITY #3

GLOBAL WARMING DEMONSTRATION

by NASA JET PROPULSION LABORATORY EDUCATION

Learning Areas: Science, Mathematics

Overview

This demonstration uses a water balloon to show how Earth's oceans are absorbing most of the heat being trapped on our warming world.



Image sourced from:
<https://www.jpl.nasa.gov/edu/teach/activity/global-warming-demonstration/>

Materials

- Several balloons
- Lighter (be sure it creates a flame rather than a jet)
- Bottle of water
- Bucket
- Safety goggles
- Watch the "DIY Space: Water Balloon Demonstration" video tutorial: <https://www.jpl.nasa.gov/edu/teach/activity/global-warming-demonstration/>

CLASSROOM ACTIVITY #3

GLOBAL WARMING DEMONSTRATION

Procedures

1. Blow up the balloon and tie it. Ask someone to hold the balloon while you put on safety goggles. Explain to students that the air-filled balloon represents Earth's atmosphere and the flame represents the heat from the sun.
2. Take the balloon and have students stand at least three feet away from you.
3. Hold the bottom of the balloon. Place the lighter's flame onto the balloon, but at a safe distance from where you are holding the balloon. As soon as the flame touches the balloon, the balloon will pop.
4. Now make a water balloon. When filling the balloon, try to remove any air bubbles as placing the flame over an air bubble could cause the balloon to pop prematurely. Explain to students that this balloon represents Earth's oceans.
5. Make sure your safety goggles are still on and hold the balloon over the bucket. Make sure to hold the balloon at the bottom and place the lighter's flame on the balloon, at a safe distance from where you are holding the balloon.
6. Depending on the size of the balloon, the quality and thickness of the rubber, and the presence of any air bubbles, the water-filled balloon should last more than one minute with the flame on it. Be sure to follow any safety instructions on the lighter with regard to how long the lighter may be held lit without cooling off.
7. Eventually the balloon may pop, so position the bucket to catch the water.
8. Explain to students that this demonstration illustrates how Earth's oceans are absorbing a great deal of the heat generated by climate change. In fact, Earth's oceans are absorbing about 80 to 90 percent of the heat from global warming. Since water can withstand a lot more heat than the atmosphere, the temperature of the oceans isn't changing that much.

Source:

NASA JET PROPULSION LABORATORY - <https://www.jpl.nasa.gov/edu/teach/activity/global-warming-demonstration/>


ONLINE ACTIVITIES








Perform Education has partnered with Cool Australia to provide your school and students with customised program lesson plans for **THE MARINE TEAM!**

Visit the activity page HERE <https://www.coolaustralia.org/science-lessons-and-worksheets/>

If you are not yet a member of Cool Australia – just sign up online for FREE!



REGISTER | LOGIN



EDUCATORS- STUDENTS- LEARNING@HOME ABOUT US PROFESSIONAL DEVELOPMENT


Latest Science Topics, Lessons and Worksheets

Science Week 2020: The Deep Blue Innovation for the Future of our Oceans

This year National Science Week is all about the ocean, engaging students in ocean science and supporting young people to be active and aware of science-driven research.

We have projects for all year levels from **understanding our impact** on the ocean, the **marine life** and it's importance in the eco-system and **citizen science projects** to get your students active and engaged in our environment through science.

Early Learning Primary Secondary



Latest releases for all year levels:



War On Waste: The Battle Continues

Just released, our War on Waste lessons are the perfect introduction to waste and its impact on our oceans. These lessons let students from Foundation to Year 10 tune in to waste as an issue in Australia and examine the impact on oceans.

The unit of work connects to more than science lessons, but for those science die-hards we have some great specialist lessons:

- Plastic Waste in our Ocean Foundation – Year 3
 - Impacts of Single Use Plastics Year 4 – 6
 - Plastics Years 7 – 10
- [Complete War on Waste series here](#)

In 2019, imagine

Innovation, active, action-

is available to



Student Resources

Cool Australia's Digital Library is full of images, articles and activities to help kids research.

Complete Digital Libraries

- Ocean Conservation
- Water
- Biodiversity



Quick Fact Sheets



GLOSSARY

Aquaculture:	The farming of fish and other seafood like shrimp and algae.
Boyan Slat:	Founder of The Ocean Cleanup, an organisation dedicated to developing technology to remove the plastic from the world's oceans.
Carbon Dioxide:	A type of greenhouse gas produced by burning fossil fuels.
Carbonic Acid:	A weak acid produced when water and carbon dioxide mix. Can cause the breakdown of shells and skeletons of ocean organisms like coral and plankton.
Coral bleaching:	When ocean water is too warm, coral gets stressed and expels the algae living in their tissues, causing them to turn white.
Ecosystem:	Made up of all the living and non-living things in an area.
Fossil fuels:	Fuels that come from the remains of plants, animals and other living things that lived long ago. The three most common are coal, oil and natural gas and we use them to make energy for things like electricity and transport.
Global Warming:	The rising of the average temperature of the Earth.
Great Pacific Garbage Patch:	A big patch of garbage in the Northern Pacific Ocean that is three times the size of France.
Innovation:	A new idea, device, or method. The act or process of introducing new ideas, devices, or methods.
Kelp:	A fast-growing type of seaweed that can absorb lots of carbon dioxide.
Marine Renewable Energy:	Energy sources we can use from the ocean that will never run out, for example tidal energy and wave energy.
Microplastics:	Small particles of plastic smaller than 5mm long that can be harmful to ocean animals and humans.
Ocean acidification:	A change in ocean chemistry due to the absorption of carbon dioxide from the atmosphere. The water becomes more acidic which can be harmful to plants and animals.
Over-fishing:	Catching so many fish that they don't have time to reproduce back to healthy numbers.
Sustainability:	Using natural resources like the ocean in a way that keeps them healthy for the future.



USEFUL WEBLINKS

NATIONAL SCIENCE WEEK

<https://www.scienceweek.net.au/schools/>

ASTA DEEP BLUE RESOURCE BOOK

https://www.scienceweek.net.au/wp-content/uploads/2020/03/2020ASTA-DeepBlue_ResourceBook_FINAL.pdf

BLUE ECONOMY CRC

<https://blueeconomycrc.com.au/>

THE MARINE STEWARDSHIP COUNCIL

<https://www.msc.org/en-au/for-teachers/teach-learn-about-ocean-sustainability/learning-resources>

CHANGE YOUR TUNA

<http://changeyourtuna.org.au/>

GOODFISH

<https://goodfish.org.au/resources/>

WORLDS OCEANS DAY

<https://worldoceansday.org/>

THE OCEAN CLEANUP

<https://theoceancleanup.com/>

UN DECADE OF OCEAN SCIENCE

<https://www.oceandecade.org/>

If you or any of your students would like to find out more details about our company please visit our website: **www.PerformEducation.com**



CURRICULUM CONTENT

AUSTRALIAN CURRICULUM

LEARNING AREAS

- Science
- Technologies (Design and Technologies)
- Mathematics
- HASS
- English
- The Arts

CROSS CURRICULUM PRIORITIES

- Sustainability
- Aboriginal & Torres Straight Islander Histories and Cultures

THEMES

- Marine Science
- Ocean sustainability
- Global Warming
- Marine Renewable Energy
- Sustainable Aquaculture
- Innovation in Marine Engineering & Technology
- Pollution
- Plastics
- Ocean Acidification
- Aboriginal and Torres Straight Islander Peoples' ocean sustainability practices
- Personal ocean sustainability behaviours and practices



CURRICULUM CONTENT

SCIENCE

Year 5

Science / Year 5 / Science Understanding / Biological sciences

Living things have structural features and adaptations that help them to survive in their environment ([ACSSU043](#))

Science / Year 5 / Science as a Human Endeavour / Use and influence of science

Scientific knowledge is used to solve problems and inform personal and community decisions ([ACSHE083](#))

Year 6

Science / Year 6 / Science Understanding / Biological sciences

The growth and survival of living things are affected by physical conditions of their environment ([ACSSU094](#))

Science / Year 6 / Science as a Human Endeavour / Use and influence of science

Scientific knowledge is used to solve problems and inform personal and community decisions ([ACSHE100](#))

Year 7

Science / Year 7 / Science Understanding / Biological sciences

Interactions between organisms, including the effects of human activities can be represented by food chains and food webs ([ACSSU112](#))

Science / Year 7 / Science Understanding / Earth and space sciences

Some of Earth's resources are renewable, including water that cycles through the environment, but others are non-renewable ([ACSSU116](#))

Science / Year 7 / Science as a Human Endeavour / Nature and development of science

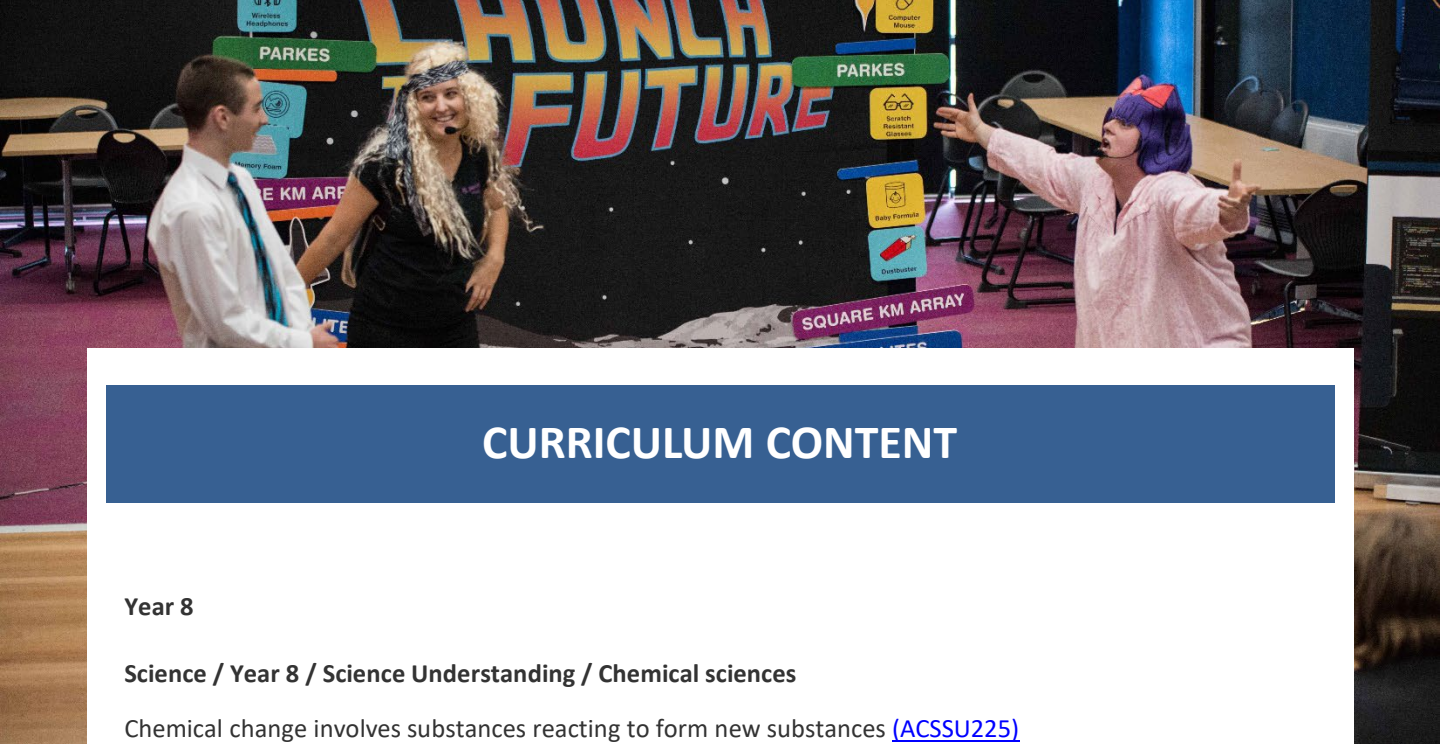
Science knowledge can develop through collaboration across the disciplines of science and the contributions of people from a range of cultures ([ACSHE223](#))

Science / Year 7 / Science as a Human Endeavour / Use and influence of science

Solutions to contemporary issues that are found using science and technology, may impact on other areas of society and may involve ethical considerations ([ACSHE120](#))

Science / Year 7 / Science as a Human Endeavour / Use and influence of science

People use science understanding and skills in their occupations and these have influenced the development of practices in areas of human activity ([ACSHE121](#))



CURRICULUM CONTENT

Year 8

Science / Year 8 / Science Understanding / Chemical sciences

Chemical change involves substances reacting to form new substances ([ACSSU225](#))

Science / Year 8 / Science Understanding / Physical sciences

Energy appears in different forms, including movement (kinetic energy), heat and potential energy, and energy transformations and transfers cause change within systems ([ACSSU155](#))

Science / Year 8 / Science as a Human Endeavour / Use and influence of science

Solutions to contemporary issues that are found using science and technology, may impact on other areas of society and may involve ethical considerations ([ACSHE135](#))

Science / Year 8 / Science as a Human Endeavour / Use and influence of science

People use science understanding and skills in their occupations and these have influenced the development of practices in areas of human activity ([ACSHE136](#))

Year 9

Science / Year 9 / Science Understanding / Biological sciences

Ecosystems consist of communities of interdependent organisms and abiotic components of the environment; matter and energy flow through these systems ([ACSSU176](#))

Science / Year 9 / Science Understanding / Chemical sciences

Chemical reactions, including combustion and the reactions of acids, are important in both non-living and living systems and involve energy transfer ([ACSSU179](#))

Science / Year 9 / Science Understanding / Physical sciences

Energy transfer through different mediums can be explained using wave and particle models ([ACSSU182](#))

Science / Year 9 / Science as a Human Endeavour / Use and influence of science

Values and needs of contemporary society can influence the focus of scientific research ([ACSHE228](#))

CURRICULUM CONTENT

TECHNOLOGIES (Design & Technologies)

Years 5 & 6

Design and technologies / Year 5 and 6 / Design and Technologies Knowledge and Understanding

Examine how people in design and technologies occupations address competing considerations, including sustainability in the design of products, services, and environments for current and future use ([ACTDEK019](#))

Years 7 & 8

Design and technologies / Year 7 and 8 / Design and Technologies Knowledge and Understanding

Investigate the ways in which products, services and environments evolve locally, regionally and globally and how competing factors including social, ethical and sustainability considerations are prioritised in the development of technologies and designed solutions for preferred futures ([ACTDEK029](#))

Design and technologies / Year 7 and 8 / Design and Technologies Knowledge and Understanding

Analyse how food and fibre are produced when designing managed environments and how these can become more sustainable ([ACTDEK032](#))

Years 9 & 10

Design and technologies / Year 9 and 10 / Design and Technologies Knowledge and Understanding

Critically analyse factors, including social, ethical and sustainability considerations, that impact on designed solutions for global preferred futures and the complex design and production processes involved ([ACTDEK040](#))

Design and technologies / Year 9 and 10 / Design and Technologies Knowledge and Understanding

Explain how products, services and environments evolve with consideration of preferred futures and the impact of emerging technologies on design decisions ([ACTDEK041](#))

HUMANITIES & SOCIAL SCIENCES

Year 5

Humanities and social sciences / Year 5 / Knowledge and Understanding / Geography

The influence of people, including Aboriginal and Torres Strait Islander Peoples, on the environmental characteristics of Australian places ([ACHASSK112](#))

Humanities and social sciences / Year 5 / Knowledge and Understanding / Geography

The environmental and human influences on the location and characteristics of a place and the management of spaces within them ([ACHASSK113](#))

Humanities and social sciences / Year 5 / Knowledge and Understanding / Economics and business

Types of resources (natural, human, capital) and the ways societies use them to satisfy the needs and wants of present and future generations ([ACHASSK120](#))

CURRICULUM CONTENT

Year 6

Humanities and social sciences / Year 6 / Knowledge and Understanding / Civics and citizenship

The obligations citizens may consider they have beyond their own national borders as active and informed global citizens ([ACHASSK148](#))

Humanities and social sciences / Year 6 / Knowledge and Understanding / Economics and business

The effect that consumer and financial decisions can have on the individual, the broader community and the environment ([ACHASSK150](#))

Year 7

Humanities and social sciences / Year 7 / Knowledge and Understanding

Classification of environmental resources and the forms that water takes as a resource ([ACHASSK182](#))

Humanities and social sciences / Year 7 / Knowledge and Understanding

The quantity and variability of Australia's water resources compared with other continents ([ACHASSK184](#))

Humanities and social sciences / Year 7 / Knowledge and Understanding

The influence of environmental quality on the liveability of places ([ACHASSK190](#))

Geography

Year 7

Geography / Year 7 / Geographical Knowledge and Understanding / Unit 1: Water in the world

Classification of environmental resources and the forms that water takes as a resource ([ACHGK037](#))

Geography / Year 7 / Geographical Knowledge and Understanding / Unit 1: Water in the world

The quantity and variability of Australia's water resources compared with other continents ([ACHGK039](#))

Geography / Year 7 / Geographical Knowledge and Understanding / Unit 1: Water in the world

Economic, cultural, spiritual and aesthetic value of water for people, including Aboriginal and Torres Strait Islander Peoples and peoples of the Asia region ([ACHGK041](#))

Geography / Year 7 / Geographical Knowledge and Understanding / Unit 2: Place and liveability

The influence of environmental quality on the liveability of places ([ACHGK045](#))

A STEM STORY

CURRICULUM CONTENT

Year 8

Geography / Year 8 / Geographical Knowledge and Understanding / Unit 1: Landforms and landscapes

Human causes and effects of landscape degradation ([ACHGK051](#))

Geography / Year 8 / Geographical Knowledge and Understanding / Unit 2: Changing nations

Causes and consequences of urbanisation, drawing on a study from Indonesia, or another country of the Asia region ([ACHGK054](#))

Year 9

Geography / Year 9 / Geographical Knowledge and Understanding / Unit 1: Biomes and food security

Challenges to food production, including land and water degradation, shortage of fresh water, competing land uses, and climate change, for Australia and other areas of the world ([ACHGK063](#))

Geography / Year 9 / Geographical Knowledge and Understanding / Unit 1: Biomes and food security

The capacity of the world's environments to sustainably feed the projected future global population ([ACHGK064](#))

Geography / Year 9 / Geographical Knowledge and Understanding / Unit 2: Geographies of interconnections

The effects of the production and consumption of goods on places and environments throughout the world and including a country from North-East Asia ([ACHGK068](#))

ENGLISH

Year 5

English / Year 5 / Language / Text structure and organisation

Understand how texts vary in purpose, structure and topic as well as the degree of formality ([ACELA1504](#))

English / Year 5 / Literacy / Interpreting, analysing, evaluating

Identify and explain characteristic text structures and language features used in imaginative, informative and persuasive texts to meet the purpose of the text ([ACELY1701](#))

Year 6

English / Year 6 / Language / Text structure and organisation

Understand how authors often innovate on text structures and play with language features to achieve particular aesthetic, humorous and persuasive purposes and effects ([ACELA1518](#))

CURRICULUM CONTENT

English / Year 6 / Literacy / Texts in context

Compare texts including media texts that represent ideas and events in different ways, explaining the effects of the different approaches ([ACELY1708](#))

English / Year 6 / Literacy / Interpreting, analysing, evaluating

Use comprehension strategies to interpret and analyse information and ideas, comparing content from a variety of textual sources including media and digital texts ([ACELY1713](#))

Year 7

English / Year 7 / Language / Language for interaction

Understand how accents, styles of speech and idioms express and create personal and social identities ([ACELA1529](#))

English / Year 7 / Literature / Examining literature

Recognise and analyse the ways that characterisation, events and settings are combined in narratives, and discuss the purposes and appeal of different approaches ([ACELT1622](#))

English / Year 7 / Literature / Examining literature

Understand, interpret and discuss how language is compressed to produce a dramatic effect in film or drama, and to create layers of meaning in poetry, for example haiku, tankas, couplets, free verse and verse novels ([ACELT1623](#))

English / Year 7 / Literacy / Interpreting, analysing, evaluating

Analyse and explain the ways text structures and language features shape meaning and vary according to audience and purpose ([ACELY1721](#))

Year 8

English / Year 8 / Language / Language for interaction

Understand how rhetorical devices are used to persuade and how different layers of meaning are developed through the use of metaphor, irony and parody ([ACELA1542](#))

English / Year 8 / Literature / Examining literature

Identify and evaluate devices that create tone, for example humour, wordplay, innuendo and parody in poetry, humorous prose, drama or visual texts ([ACELT1630](#))



CURRICULUM CONTENT

English / Year 8 / Literature / Examining literature

Interpret and analyse language choices, including sentence patterns, dialogue, imagery and other language features, in short stories, literary essays and plays ([ACELT1767](#))

Year 9

English / Year 9 / Language / Text structure and organisation

Understand that authors innovate with text structures and language for specific purposes and effects ([ACELA1553](#))

English / Year 9 / Literacy / Interacting with others

Listen to spoken texts constructed for different purposes, for example to entertain and to persuade, and analyse how language features of these texts position listeners to respond in particular ways ([ACELY1740](#))

English / Year 9 / Literacy / Interacting with others

Use interaction skills to present and discuss an idea and to influence and engage an audience by selecting persuasive language, varying voice tone, pitch, and pace, and using elements such as music and sound effects ([ACELY1811](#))

THE ARTS (DRAMA)

Years 5 & 6

Explore dramatic action, empathy and space in improvisations, playbuilding and scripted drama to develop characters and situations ([ACADRM035](#))

Develop skills and techniques of voice and movement to create character, mood and atmosphere and focus dramatic action ([ACADRM036](#))

Explain how the elements of drama and production elements communicate meaning by comparing drama from different social, cultural and historical contexts, including Aboriginal and Torres Strait Islander drama ([ACADRR038](#))

Years 7 & 8

Develop and refine expressive skills in voice and movement to communicate ideas and dramatic action in different performance styles and conventions, including contemporary Australian drama styles developed by Aboriginal and Torres Strait Islander dramatists ([ACADRM043](#))

Analyse how the elements of drama have been combined in devised and scripted drama to convey different forms, performance styles and dramatic meaning ([ACADRR045](#))

Years 9 & 10

Evaluate how the elements of drama, forms and performance styles in devised and scripted drama convey meaning and aesthetic effect ([ACADRR052](#))

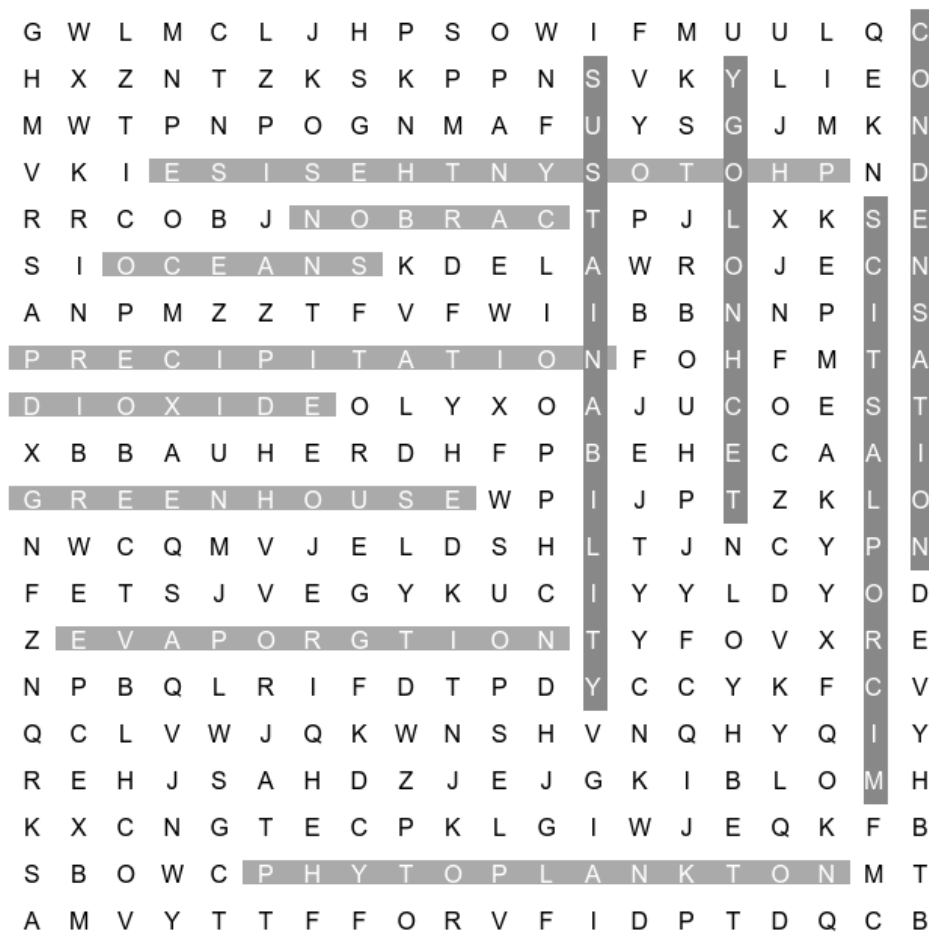
Analyse a range of drama from contemporary and past times to explore differing viewpoints and enrich their drama making, starting with drama from Australia and including drama of Aboriginal and Torres Strait Islander Peoples, and consider drama in international contexts ([ACADRR053](#))

PUZZLE SOLUTIONS

Word Find Solution:

THE MARINE TEAM WORDFIND

Using your knowledge from the Science Week In Schools performance THE MARINE TEAM, complete the word find below.



SUSTAINABILITY
TECHNOLOGY
PRECIPITATION
MICROPLASTICS

OCEANS
CARBON
CONDENSATION
PHOTOSYNTHESIS

PHYTOPLANKTON
DIOXIDE
GREENHOUSE
EVAPORATION

Crossword Solution:

Horizontal

2. Sea creatures like fish can ingest tiny plastic particles called **microplastics**!
3. When the sun heats ocean water, it **evaporates**.
5. Phytoplankton and seaweed, produce oxygen when they **photosynthesise**.
6. Rubbish like plastic and fishing lines, along with chemicals like pesticides and fertilisers all add to ocean **pollution**.
7. The burning of fossil fuels causes gasses to be trapped in our atmosphere, also known as the **greenhouse** Effect.
9. **Kelp** is the fastest growing organisms on the planet, that can absorb more CO2 from the atmosphere than a rainforest.
10. The **Marine** Team!

Vertical

1. Oceans absorb **carbon dioxide**.
4. The ocean is the largest **ecosystem** on Earth!
6. Oceans are the number 1 source of **protein** for 1 billion people.
8. Oceans generate over half the **oxygen** that we breathe!