

LANE, MYA (PGT)

SD5 Green Space Day Padlet

SD5 Green Space Day Padlet depicting a cross-curricular day of learning for a Year 4 class about water pollution with a focus on 'saving the turtles'

Key Information

SD5

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Year 4 Class (LKS2)

Cross-curricular: Science, Geography, Drama, English and Art

LO: To learn about the dangers that sea turtles face and how humans can protect them.

Overall Idea: Pupils understand the impact of climate change on sea turtles and humans are able to protect the turtles.

Theme - Water Pollution "Save the Turtles" for World Ocean Day 8th June

"*World Ocean Day* catalyzes collective action for a healthy ocean and a stable climate"

Context

Class of 30 Year 4 children in a rural village setting

Lower Key Stage 2 objectives in National Curriculum.

Pupils should be taught to:

- Recognise that environments can change and that this can sometimes pose dangers to living things
- Explore examples of human impact (both positive and negative) on environments and the negative effects of littering.

The Department for Education says primary school children are taught about how environments can change as a result of human actions.

Prior Learning

- Children should be aware of recycling and not littering due to it being a part of every day life.
- Some children may already be aware of such issues.

Learning - skills, knowledge, values



Plastic Pollution

Every day, the equivalent of 2,000 garbage trucks full of plastic are dumped into the world's o...

[unep.org](https://www.unep.org)



Plastic Pollution

What's the problem?

kids.nationalgeographic.com

Coral Reef Ecosystems

A Garden Under the Sea

Corals are living organisms that form coral reefs, delicate ecosystems that look like colourful gardens under the sea. Coral reefs are some of the most biodiverse ecosystems in the world, supporting 25% of all marine species, including fish, sea sponges, starfish and crabs. The largest coral reef, the Great Barrier Reef, is off the coast of Queensland, Australia. It covers over 133,000 square miles, an area equivalent to over 64 million football pitches.

Corals have microscopic algae living inside their tissues, which gives the coral reef its beautiful colours.

The biggest coral reefs are found in tropical waters because the warm, clear, shallow water provides an ideal environment for the algae to photosynthesise.



The Great Barrier Reef



A colourful coral reef ecosystem

A Symbiotic Relationship

The relationship between algae and corals is an example of symbiosis - each organism depends on the other for survival. Corals are animals so they rely on the photosynthesising algae for food.

Corals provide the algae with a safe environment and their waste supplies the compounds needed for photosynthesis. In return, the algae supply the corals with glucose and oxygen produced through photosynthesis. The corals use the glucose and oxygen for respiration and for making other molecules such as proteins and calcium carbonate. The calcium carbonate is used to build skeletons which form the foundation of the reef.

Help! Coral Reefs Are at Risk

Due to the increased burning of fossil fuels by humans, the concentration of carbon dioxide in the atmosphere is increasing. The extra carbon dioxide dissolves into the oceans, which can cause major problems for the coral reefs. Carbon dioxide causes ocean acidification, in which the water becomes more acidic. The increase in acidity makes it harder for the corals to build the calcium carbonate skeletons.

The increase in atmospheric carbon dioxide is also linked to global warming. Global warming causes increase in ocean temperatures, which can lead to coral bleaching: the corals expel the tiny algae that live within them and the corals turn white. If this continues for too long, the corals cannot survive and therefore die. Coral bleaching can also result from water pollution caused by harmful chemicals entering the oceans. For example, sun cream contains toxic chemicals that can wash off our skin and accumulate in corals.

Wildfires, development of surrounding land and increased traffic can cause an increase in runoff turbidity. The additional sediment in the runoff can smother the reef, reducing the amount of sunlight that can reach the photosynthetic organisms that live there. Coral reefs are also damaged by the huge numbers of divers visiting the reefs, either by accidentally touching the reef or by taking a piece for a souvenir. Coral reefs can take up to ten years to recover after a negative event such as coral bleaching, water pollution, ocean acidification or oil spills.



Coral reef after a bleaching event

It is not only humans that cause problems for coral reefs. Warmer sea temperatures and water pollution have led to population outbreaks of crown-of-thorns starfish, which feed on corals and cause extensive damage to the reefs. Unfortunately, the starfish feed on the corals at a faster rate than the corals can reproduce.

Why Are Coral Reefs Important?

As well as being areas of natural beauty and tourism hotspots, coral reefs protect the adjacent shorelines from damage caused by waves, storms and hurricanes. Local communities also rely on coral reefs for a supply of fresh fish and seafood.



Crown-of-thorns starfish foraging on coral reefs

Coral reefs are an important factor in reducing carbon dioxide in the atmosphere. When the algae photosynthesise, the dissolved carbon dioxide from the atmosphere is fixed in compounds that are used for the growth of both the algae and the coral. Algae are producers, so other organisms in the ecosystem depend on them for food.

Many of the organisms that make up coral reefs are important for the development of drugs. Some of these drugs are used to treat different types of cancer, leukaemia and HIV.

What Can You Do to Help?

Everybody can help to protect coral reefs even if they do not live near them.

You can help to decrease the concentration of carbon dioxide in the atmosphere by recycling paper and plastics and by reducing the burning of fossil fuels, for example by using public transport, walking or cycling instead of driving a car.

Using coral reef friendly sun cream that does not contain toxic chemicals and eating sustainably sourced fish and seafood is also important for protecting coral reefs. If you visit, remembering not to touch the corals or take pieces as souvenirs will also help to protect the reefs. Together we can help save coral reefs around the world.



A vibrant coral reef

Key Learning

Knowledge:

- How rubbish/pollution is impacting our oceans.
- How pollution is impacting our habitats and creatures - particularly turtles.
- How we can help to improve/protect turtles and their habitats.

Skills:

- To reflect on the impact of pollution.
- Engage in conversations.
- Secondary research.

Values:

- Develop awareness of the impacts of pollution on habitats and the effects it can have on animals.
- Reflect and evaluate ways we are able to reduce pollution and promote effective protection for habitats and animals.
- Look at the overall effect this will have on future generations.

Activities

Start of the day

Children walk into 'polluted classroom' (rubbish on the floor etc). Ask children how they feel about this. "What's wrong with the classroom?" "Would you like your home to look like this?"

Introduce theme for the day, that we are going to be looking at ocean pollution, the impact it has on creatures like the turtles and thinking about ways we can help improve the situation.

English/Drama: create and perform a blackout poem.

LO: To produce and perform a blackout poem based on climate change and ocean pollution.

Articles for blackout poetry:


- <https://www.un.org/en/climatechange/science/climate-issues/ocean>
- <https://www.worldwildlife.org/stories/how-climate-change-relates-to-oceans>
- <https://kids.nationalgeographic.com/nature/kids-vs-plastic/article/pollution-1>
- <https://www.amazon.co.uk/Ocean-Childrens-Encyclopedia-DK/dp/0241185521>
- Introduce idea of blackout poetry: examples, WAGOLL.
- Discuss how good examples all link to the theme of climate change.
- As a class come up with lots of vocabulary linked to climate change - discuss definitions if any children are unsure.
- Class shared write of a blackout poem.
- Children choose text to use and have a go.
- Perform to a peer, peer-assess with WWW and EBI.
- Have another go and make some improvements.
- Perform to peer.
- Class performance: ask class who heard a good one and why - ask that child if they would like to perform their poem to the class.

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The ocean – the world's greatest ally against climate change




| Coral reefs underpin ocean biodiversity and provide important economic and social benefits across the world.

The **ocean** generates 50 percent of the oxygen we need, absorbs 25 percent of all carbon dioxide emissions and captures 90 percent of the excess heat generated by these emissions. It is not just 'the lungs of the planet' but also its largest 'carbon sink' – a vital buffer against the impacts of climate change.

The ocean is central to reducing global greenhouse gas emissions and stabilizing the Earth's climate.

However, increasing greenhouse gas emissions have affected the health of the ocean –

Learn more about...



ocean

un.org

Geography: To create a coral reef fact file comparing two coral reefs and analyse graphs that show the decline in coral reefs over time

- LO: To compare two different coral reefs and understand the decline in coral reefs over time
- Links to sea turtles as they rely on coral reefs for their survival as their habitat and source of food
- As a group create an A3 printed fact file (see template below) on two different coral reefs, including a section on location and about the threats to their health and survival
- Analyse in pairs graphs that show the decline in healthy coral reefs over time and discuss findings as a class
- Class discussion on how we can protect the coral reef

Science: Create a poster to show how humans/organisations can protect our environment.

LO: To learn about environmental changes and the impact it has on habitats.


- Children come into the classroom and walk around a gallery of photos on the wall showing different impacts of pollution in the sea/with turtles.
- Then discuss who has caused this - Humans.
- Main effect is the destruction of habitats - explain how they become incapable of supporting the species and one of their biggest threats.
- Then discuss what humans can do to prevent and reduce this from happening.
- Mention big organisations such as marine sanctuaries but also what we can do - reduce littering, recycling.
- Chn then decide which one they would like to focus on and create a poster to show what humans can do to help our sea turtles. Use iPads for extra research if needed.
- Then each group will look at each others to see what ideas they have come up with.

Geography

Coral Reef Research

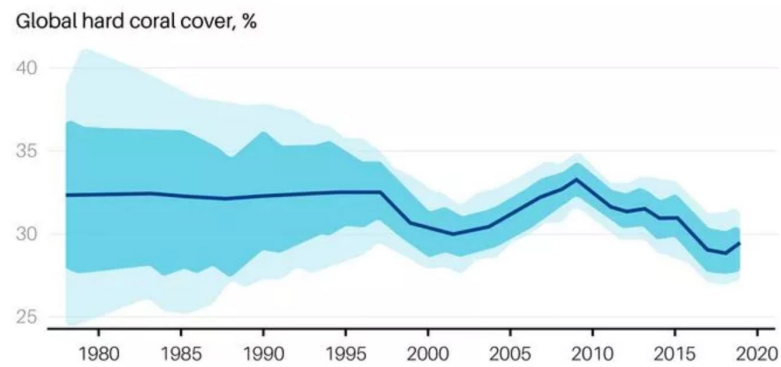
Choose two coral reefs to find out more about. Use the information you have gathered to compare and contrast the reefs.

Name of Reef		
Location		
Ocean		
Native Coral		
Marine Animals		
Marine Plants		
Specific Threats		
Interesting Facts		



Geography

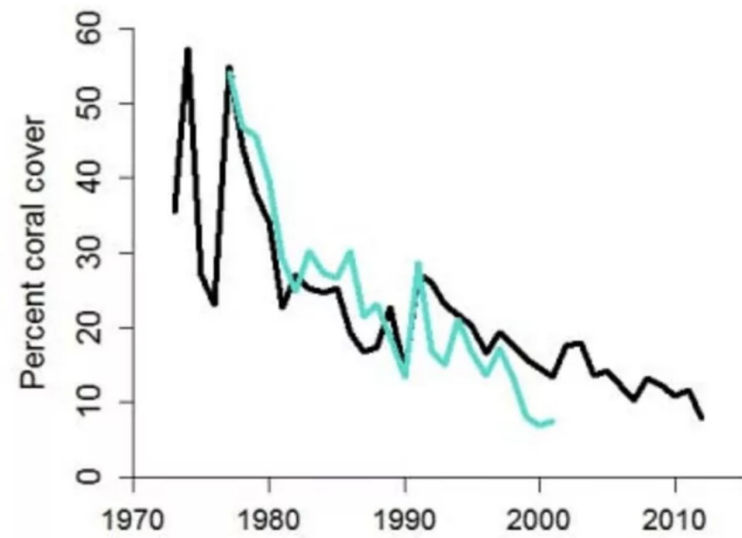
Status of the world's reefs



Source: GCRMN, Status of the Coral Reefs of the World: 2020.

EARTH.ORG

Geography



Art: explore mark making techniques with recycled materials to create an underwater scene of a turtle's habitat.

LO: To use recycled materials to explore mark-making techniques and create an image of a turtle's habitat.

- Children can use the materials from the classroom at start of day. Ask them "what can we do with these materials now? How can we reuse them?"
- Children can use materials to make a collage or print with the materials to add texture.
- Play explorify video for inspiration:
- Discussion around the video - what can you see? It is beautiful here but what would it look like filled with rubbish? Link to work on coral in geography earlier in the day.
- Play the video again and pause at different points for the children to use as inspiration in their work.
- Have one large piece of paper per table and children to use the materials to make their image of the ocean
- All pieces put together at end to make one large piece



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explorify.uk

End of the day activity:

"Spectrum of difference"

Selection of statements to read out to students.

Arrange a line across the classroom: agree-disagree

Students respond to statements by placing themselves on the line in a position that matches how they feel about the statement.

Teacher leads discussion/questions between students on why they placed themselves in that position.

Allow opportunities for students to move in response to their peers' comments.

No judgement of opinions, discussion about feelings towards statements.

Suggested statements:

-It is important to talk to our families and friends about keeping the oceans free from pollution.

-I can take action to help make a positive impact on the environment.

Pedagogy

Start of the day

- Whole class discussion on the state of the room. Sharing ideas and opinions about the impact the classroom environment being full of litter has.

English/Drama:

- Discussion of blackout poetry - what makes a good one?
- Class shared write.
- Blackout poetry writing.
- Self and peer assessment.
- Performance of poetry.

Geography

- Whole class discussion about coral reefs, their purpose and how pollution has damaged these and reduced their quantity; show images and videos
- Table work to fill in a fact file on two different coral reefs
- Partner work to analyse a series of charts showing the decline in healthy coral reef over time and then class discussion about this
- Table talk - How can we help to protect the coral reefs?

Science

- Partner talk - Look at the photos around the room and discuss what they are showing.
- Whole class discussions - Who/what has caused this to happen, what pollution is, the negative effects - lead onto habitat lost.
- Group work - Create a poster to show a method on how humans can protect the environment and to save turtles.

Art

- Whole class discussion about video, children give their thought and ideas.
- Exploring new artistic skill of mark-making.
- Group work, collaborating as a team to create their artwork.
- Linking creative piece to something meaningful that the children care about.

End of the day activity

- Whole class discussion about statements with students expressing their opinions and responding to others

Resources

English/Drama:

- WAGOLL
- Felt tip pens and pencils
- Range of texts e.g:
- <https://www.un.org/en/climatechange/science/climate-issues/ocean>
- <https://www.worldwildlife.org/stories/how-climate-change-relates-to-oceans>
- <https://kids.nationalgeographic.com/nature/kids-vs-plastic/article/pollution-1>
- <https://www.amazon.co.uk/Ocean-Childrens-Encyclopedia-DK/dp/0241185521>

Geography: IT Equipment

Use of chromebooks/tablets/ipads/PC's (whichever the school has available) to research into two different coral reefs to complete the A3 printed fact file template and investigate their decline using links given to different charts and graphs that depict this decline which can be analysed in partners and discussed as a class

Science

Photos - Images of different habitats and turtles being affected by rubbish.

iPads - Extra research on methods to help protect the turtles to help add extra information onto their posters.

Sugar paper and pens - To help them to create their posters.

Art: Recycled materials

Plastic bottles, plastic lids, cardboard e.g. cereal boxes (could be collected in the run up to this cross-curricular day) paint, glue, A3 paper/roll of paper.

<https://explorify.uk/en/activities/whats-going-on/remarkable-reef>

Learning Outcomes

Start of the day

LO: To consider the impact that an environment polluted by litter has on those in it.

English/Drama

LO: To produce and perform a blackout poem based on climate change and ocean pollution.

I can carefully consider and select words that are appropriate to use for a poem on climate change.

I can decide on a theme for my poetry.

I can read my poem using effective drama techniques to make an impactful performance.

Geography

LO: To compare two different coral reefs and understand the decline in coral reefs over time

I can compare the location and features of two different coral reefs

I can analyse and discuss graphs that depict the decline in healthy coral reef over time

I can understand ways to help protect the coral reefs

Science

LO: To learn about environmental changes and the impact it has on habitats.

I can recall the causes and effects of environmental change.

I can explain the impact of change on marine habitats.

I can present what humans can positively do to help protect marine habitats and the turtles.

Art

LO: To use recycled materials to explore mark-making techniques and create an image of a turtle's habitat.

I can use mark-marking to create a piece of artwork.

I can take inspiration from videos to create a piece of art.

I can think of ways to recycle and reuse waste materials and create something new with them.

End of the day activity

LO: I can engage in a discussion about the environment

I can express an opinion on response to a statement about the environment.

I can listen to my peers' opinions and respond appropriately.

I can be open to changing my opinion in response to another person's comment.