

ACET Junior Academies'

Scheme of Work for geography

How do we affect the world?



About this unit: This unit explores various urgent ecological, societal and resource scarcity issues created by humans. The unit is loosely arranged into a focus on the oceans, then land, then humanitarian concerns, and is interwoven with issues arising from human induced climate change. Each lesson aims to produce a piece of work that can be included into a class display on geographical issues.

Unit structure

This unit is structured around the following geographical enquiries:

What is happening to coral reefs?

Are we overfishing?

What is all this plastic in the ocean?

What is going to happen to sea levels?

Are we running out of water?

What is destroying the forests?

Will climate change force people to move?

National Curriculum unit:

- locate the world's countries, using maps to focus on Europe (including the location of Russia) and North and South America, concentrating on their environmental regions, key physical and human characteristics, countries, and major cities
- understand geographical similarities and differences through the study of human and physical geography of a region of the United Kingdom, a region in a European country, and a region within North or South America
- physical geography, including: climate zones, biomes and vegetation belts, rivers, mountains, volcanoes and earthquakes, and the water cycle
- human geography, including: types of settlement and land use, economic activity including trade links, and the distribution of natural resources including energy, food, minerals and water

Enquiry 1: What is happening to Coral Reefs?

Links to previous learning	Knowledge and second order concepts	Geographical skills:	Assessment criteria:	Curriculum Links:	
<p>Biomes</p>	<p>Substantive knowledge: <i>(What the children should know.)</i></p> <ul style="list-style-type: none"> • What is coral? • Why do coral reefs matter to humans? • Where does coral thrive, survive, and die? • What factors influence coral reef health? • How will coral reefs respond to projected global warming? 		<p>Can your children:</p> <p>name at least three reasons why coral reefs are important to humans</p> <p>explain the role of symbiosis in reef ecosystems;</p> <p>identify the geographic locations most favorable for coral reefs; and describe the range of environmental conditions in which coral reefs thrive and survive.</p> <p>Identify that coral reefs are extremely sensitive to temperature and chemical change in sea water</p>	<p>Horizontal:</p> <p>Vertical:</p>	
		<p align="center">Locational Knowledge</p>			<p>locate the world's countries</p>
		<p>Place Knowledge:</p>			<p>understand geographical similarities and differences through the study of human and physical geography of a region of the United Kingdom, a region in a European country, and a region within North or South America physical geography, including: climate zones, biomes</p>
		<p>Suggested activities:</p>			<p>Resources:</p>
<p>Students watch and make notes (teacher guided) on the videos introducing coral reefs and their ecology. Students complete an extended writing task explaining the importance of Coral Reefs to marine life, and humans.</p>	<p>Coral Reef Biology</p> <p>https://www.youtube.com/watch?v=hHCCih9cHxw</p>	<p>https://www.cbsnews.com/news/great-barrier-reef-dying-climate-change-caused-decrease-in-new-coral-study-says/#:~:text=The%20Great%20Barrier%20Reef%20%E2%80%94%20which,shrink%20as%20global%20warming%20intensifies.</p>			

<p>Students look at before and after photos of coral bleaching to identify the severity of the threat.</p> <p>Students complete a number of enquiry research activities e.g.</p> <ol style="list-style-type: none"> 1) play the coral bleaching game, 2) Complete an interactive exploration of a reef online e.g. https://attenboroughsreef.com/ 3) compare maps of sea temperatures and reef locations 4) information posters to examine what conditions coral likes to grow in and what threats cause bleaching. 5) Students explore the Great Barrier Reef using google maps: https://goo.gl/maps/tseYwooZu3TQ9Q5N6. There are numerous points where street view can be used to view underwater 360 photographs of the reef. <p>Students should create a piece of work that summarises the key threats to Coral, and why it must be protected. Output could include a presentation, verbal response, poster or written. Some output should be aimed towards a classroom display.</p> <p>Check: https://www.theworldcounts.com/challenges/planet-earth/oceans/coral-reef-destruction to emphasise the</p>	<p>Symbiosis on Coral Reef https://www.youtube.com/watch?v=-EUUEPinEcQ</p> <p>Medicine Chest of the sea https://www.youtube.com/watch?v=7f603V2hnug</p> <p>Bleaching game https://climatekids.nasa.gov/coral-bleaching/</p> <p>Another coral explainer https://www.youtube.com/watch?v=UyEw_Rl8mqM&feature=emb_title</p> <p>sea surface temperature map Coral Reef location map Bleaching posters (all in folder)</p>	<p>https://interactive.carbonbrief.org/can-great-barrier-reef-survive-climate-change/</p> <p>Vocabulary:</p> <p>Symbiotic relationship Coral Reef Marine life</p>
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Enquiry 2: Are we overfishing?				
Links to previous learning	Knowledge and second order concepts	Geographical skills:	Assessment criteria:	Curriculum Links:
Trade and fishing link	<p>Substantive knowledge: <i>(What the children should know.)</i></p>		<p>Can your children:</p> <p>Explain the importance of the fishing industry to people</p>	<p>Horizontal:</p> <p>Vertical:</p>
	<p>How important is the fishing industry and why do we catch so many fish?</p> <p>Are there any methods that are particularly damaging?</p>	<p>Locational Knowledge</p> <p>locate the world's countries, using maps to focus on Europe (including the location of Russia)</p>		

	<p>How can overfishing cause an ecosystem to collapse?</p>	<p>and North and South America, concentrating on their environmental regions, key physical and human characteristics, countries, and major cities</p>	<p>Explain how overfishing might cause the collapse of ocean ecosystems</p> <p>Express the urgency of the issues</p>	
		<p>Place Knowledge:</p>		
		<p>understand geographical similarities and differences through the study of human and physical geography of a region of the United Kingdom, a region in a European country, and a region within North or South America</p>		
<p>Suggested activities:</p>		<p>Resources:</p>	<p>Useful links:</p>	
<p>Students watch a video to introduce the topic. Students record summarise and discuss the key impacts and issues. Use https://www.theworldcounts.com/challenges/planet-earth/oceans/overfishing-facts</p> <p>And https://www.theworldcounts.com/challenges/oceans to emphasise the issues.</p> <p>Draw this simple marine food chain on the board. Energy passes along the chain in the direction of the arrow.</p>		<p>Introductions to the topic https://www.youtube.com/watch?v=faRIUJ0jLbA https://www.youtube.com/watch?v=SWxoz3Fr_og https://www.youtube.com/watch?v=F6nwZUkBeas</p>	<p>BBC blue planet live lesson https://www.bbc.co.uk/teach/live-lessons/blue-planet-live-lesson/zn7tkmn http://www.eschooltoday.com/overfishing/overfishing-information-for-children.html http://www.eschooltoday.com/overfishing/causes-of-overfishing.html</p>	
<p>phytoplankton > shrimp > herring > cod > human Remind the class that plants are primary producers and animals are consumers.</p> <p>Ask the class what the words predator and prey mean. A predator is an animal that hunts other animals for food, and the hunted animals are known as prey. 1) Which</p>		<p>You will need a ball of wool or string and 30 critter cards: 6 plankton, 5 krill, 5 shrimp, 3 crabs, 2 seagulls, 4 herring, 2</p>	<p>Vocabulary:</p> <p>Predator Prey Primary producer Consumer</p>	

<p>organism is the primary producer? 2) How many consumers are there? 3) Which animals are prey? 4) Who is the top predator? 5) Which animals are both predator and prey? Ask the class to think of some more marine food chains and hand out the worksheet for the children to complete. Who has drawn the biggest underwater food web? Explain the words herbivore, carnivore and omnivore. Ask the children to name some animals from each group</p> <p>Show the class the picture of dolphins attacking a bait ball of sardines. Explain that a bait ball is the name given to a school of fish that has massed together to form a giant swirling ball to protect itself from predators.</p> <ul style="list-style-type: none"> • Why are the sardines bait balling? • Is this a good way for small fish to protect themselves? • Are the sardines predators or prey? • Which animal is the predator? • How could this food chain be extended? <p>Whole-class activity String game for a class of 30. Draw a picture of a food web on the board, showing all the arrows: Stand the children in a circle. Give each child a critter card and ask one of the children to hold the end of a ball of string, and to roll or pass the ball to a species they eat, or one that eats them. A krill could pick plankton, shrimp, or blue whale, because these species are linked in the food chain. Carry on passing the string until all the critters are connected at least once. Some children may get the string several times. Make sure the web is held tight, then ask one species to let go (try krill or shrimp first). As the string starts to slacken see how the web of life starts to unravel. The remaining critters should look at the food web on the board, and let go if they no longer have a food source. Eventually the food web will fall apart.</p> <p>As a follow up illustrate the dangers of trawler fishing and over fishing in general, students could use the sting to form a “net” which they then sweep other students representing different species in the food web all together in one “catch”</p> <p>Hold a class debate. Ask the children to propose a motion, or choose one of the following: “This house believes that human activity is destroying the world’s oceans.” “This house believes that we should look after the marine environment.” Ask for five volunteers to speak for the motion and five to speak against. Allow time for each group to prepare their arguments. The rest of the class can discuss the motion. Take the role of Speaker and invite the ‘first proposer’ to put forward</p>	<p>seals, 1 shark, 1 blue whale, 1 human</p>	<p>Ecosystem Food chain Trawler fishing Bycatch</p>
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their arguments for the motion, then ask the 'first opposer' to present their arguments against. When everyone has had their say, hold a vote and announce the result.		
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Enquiry 3: What is all this plastic in the ocean?					
Links to previous learning	Knowledge and second order concepts	Geographical skills:		Assessment criteria:	Curriculum Links:
Fossil fuels	Substantive knowledge: <i>(What the children should know.)</i>		Can your children: Explain why we use plastics? Explain how plastic, either microplastics or larger pieces enter the ocean? Identify some ways that plastic pollution harm marine life, and perhaps us. Identify what the great pacific garbage patch is.	Horizontal: Vertical:	
	Why do we use so much plastic?	Locational Knowledge			
	How does plastic enter the ocean?	Place Knowledge:			
	What are the impacts of plastic pollution on marine life?				
How big is the Pacific Garbage Patch?					
Suggested activities:		Resources:		Useful links:	
Ask students to think about plastic in their everyday lives and how much they rely on it. They could compile a list of how they use it throughout the day e.g. plastic milk bottle at breakfast, plastic bag for bread, plastic tub for margarine, cling film to wrap sandwich, lunch box, bottle of water, chair, telephone, cycle helmet, computer, television, games console. How would their lives be different without it?		Introduction to microplastic pollution https://oceanservice.noaa.gov/facts/microplastics.html Why do we use so much plastic:		Images of ocean plastic https://www.reuters.com/news/picture/our-ocean-of-plastic-idUSRTX71OH1/1426145521 https://www.kidsagainstoplastic.co.uk/ Vocabulary:	

<p>Introduce students to issue using videos and https://www.theworldcounts.com/challenges/planet-earth/oceans/plastic-in-the-ocean</p> <p>Students complete an enquiry task where they must collate information that answers the key questions for the lesson. They must then present their findings. Form of presentation is flexible, poster, diorama, spoken presentation, video</p> <p>Food chain simulation:</p> <p>Divide the class into different tiers of marine life, primary consumers, secondary consumers, and tertiary consumers. E.g. Shrimp, Tuna, Shark/sea bird. Use ping pong balls or similar to simulate plastics. Have each tier consume the tier below to simulate plastic passing up the food chain and concentrating in the food we eat. This revisits the food chain learning from the previous lesson, but in a new form.</p>	<p>https://www.youtube.com/watch?v=EjIUp6A7GRU</p> <p>life cycle of a plastic bottle https://www.youtube.com/watch?v=6xINyWPPb8&feature=emb_title</p> <p>Articles and information about plastic pollution https://yppte.org.uk/news/the-plastic-coated-island-where-nobody-lives</p> <p>https://yppte.org.uk/news/plastic-found-in-tap-water</p> <p>https://yppte.org.uk/news/oceans-of-plastic</p> <p>https://yppte.org.uk/news/plastic-found-in-fish-in-the-river-thames</p> <p>https://yppte.org.uk/factsheets/section-a-pollution/plastic-pollution#section</p> <p>Pacific garbage patch https://www.youtube.com/watch?v=vrPBYS5zzF8</p>	<p>Biodegradable microplastics Food chain Great Pacific Garbage Patch</p>
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Enquiry 4: What is happening to sea levels?				
Links to previous learning	Knowledge and second order concepts	Geographical skills:	Assessment criteria:	Curriculum Links:

<p>Fossil Fuels</p> <p>Water Cycle</p>	<p>Substantive knowledge: <i>(What the children should know.)</i></p> <p>What is the effect of global warming on the ocean?</p> <p>What is global warming doing to glaciers?</p> <p>What will happen if all the ice in the ocean melts?</p>	<p>use maps, atlases, globes and digital/computer mapping to locate countries and describe features studied</p> <p>Locational Knowledge</p> <p>locate the world's countries, using maps to focus on Europe (including the location of Russia) and North and South America, concentrating on their environmental regions, key physical and human characteristics, countries, and major cities</p> <p>Place Knowledge:</p>	<p>Can your children:</p> <p>Explain that as global temperature rise, the sea expands flooding coastlines</p> <p>Explain that as global temperatures rise, glaciers on top of land will melt and contribute to rising sea level</p> <p>Explain that, because it is already floating in the water, Arctic ice and other sea ice will not affect sea level if it melts.</p>	<p>Horizontal:</p> <p>Vertical:</p>
<p>Suggested activities:</p>		<p>Resources:</p>	<p>Useful links:</p>	
<p>Recap for students how greenhouse gasses are causing warming in global temperatures. Share the climate action graph of global warming predictions. Ask students if they understand that these predictions will occur in their lifetimes. Explain the difference between optimistic and realistic predictions. Ask if they think a few degrees, increase will make a difference to their lives.</p> <p>Share https://ss6m.climatecentral.org/#6/52.789/-3.142 which shows a simulation of 2 degree rise. Show students the impact on the UK coast, places they may have heard of, then compare to famous cities and coastlines. New York, Amsterdam, and the coastline of Bangladesh are good examples.</p> <p>Ask students if they are able to explain how a small average temperature change could cause dramatic sea level rise.</p> <p>Explain thermal expansion and melting of glaciers on land – with video</p>		<p>Climate predictions graph – in folder.</p> <p>Sea level rise simulation</p> <p>https://ss6m.climatecentral.org/#6/52.789/-3.142</p> <p>Alternative</p> <p>https://www.floodmap.net/</p> <p>Thermal expansion explained https://www.youtube.com/watch?v=fuvY5YG5zA4</p>	<p>https://www.geographyinthenews.org.uk/issues/issue-28/why-is-the-risk-of-coastal-flooding-increasing/ks2/</p> <p>Vocabulary:</p> <p>Glaciers Thermal Expansion Global Warming</p>	

<p>Conduct experiment to show thermal expansion/effect of glaciers on land vs</p> <p>Two for this lesson.</p>	<p>https://www.youtube.com/watch?v=msnOHuPep9I</p> <p>impacts of sea level rise https://www.bbc.co.uk/bitesize/cips/zqmb4wx</p> <p>experiment procedures are included in the folder</p>	
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Enquiry 5: Are we running out of Water?				
Links to previous learning	Knowledge and second order concepts	Geographical skills:	Assessment criteria:	Curriculum Links:
<p>Water Cycle</p>	<p>Substantive knowledge: <i>(What the children should know.)</i></p> <p>Why Is water an essential resource?</p> <p>What is causing water scarcity?</p> <p>Is everywhere on earth affected to the same degree?</p>	<p>use maps, atlases, globes and digital/computer mapping to locate countries and describe features studied</p> <p>Locational Knowledge</p> <p>Place Knowledge:</p> <p>locate the world's countries, using maps to focus on Europe (including the location of Russia) and North and South America, concentrating on their environmental regions, key physical and human characteristics, countries, and major cities</p>	<p>Can your children:</p>	<p>Horizontal:</p> <p>Vertical:</p>
<p>Suggested activities:</p>		<p>Resources:</p>	<p>Useful links:</p>	

<p>Students are introduced to the difficulties of water scarcity through water aid resources – video and stories. They should be able to explain how water is an essential resource for all humans, and the numerous ways in which we use it. They should be able to explain the difficulties faced from water scarcity.</p> <p>Students can play the water scarcity role play game (resource in folder) and follow up activities in resource pack.</p> <p>Explain to students the conditions of a drought, exemplify with https://theta360.com/s/k9zSiubn8e84bklmjuKcxhKAY?view=embed And use posters to explain the impacts of droughts on water availability</p> <p>Share the climate change concern infographic to emphasises the danger most of the world faces from droughts leading to water scarcity and famine.</p> <p>Share https://www.carbonbrief.org/mapped-how-climate-change-affects-extreme-weather-around-the-world</p> <p>Students can watch a small sea dry up in just 34 years</p> <p>https://earthengine.google.com/timelapse#v=44.99729,59.79043,5.507,latLng&t=3.43&ps=50&bt=19840101&et=20181231&startDwell=0&endDwell=0</p> <p>Deselect all information except for droughts. Ask students to identify which countries seem most affected, and if they can connect this to other issues such as poverty.</p> <p>Students can summarise all the threats of water scarcity and drought in a mind map.</p>	<p>Two stories of Water.pdf (in folder)</p> <p>Two stories of water video https://www.youtube.com/watch?v=WJ110k3gcs&feature=youtu.be</p> <p>Water scarcity game resources – in folder</p> <p>360 view of a drought https://theta360.com/s/k9zSiubn8e84bklmjuKcxhKAY?view=embed</p> <p>Drought resource pack (in folder)</p> <p>Climate change concern infographic – in folder</p> <p>https://www.carbonbrief.org/mapped-how-climate-change-affects-extreme-weather-around-the-world</p> <p>Timelapse of sea drying</p> <p>https://earthengine.google.com/timelapse#v=44.99729,59.79043,5.507,latLng&t=3.43&ps=50&bt=19840101&et=20181231&startDwell=0&endDwell=0</p>	<p>Vocabulary:</p> <p>Water Shortage Water stress Drought</p>
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Enquiry 6: What is destroying the Forests?

Links to previous learning	Knowledge and second order concepts	Geographical skills:	Assessment criteria:	Curriculum Links:
<p>Deforestation Y4 What are other parts of the world like?</p> <p>Palm oil Y5 What makes a fair trade</p>	<p>Substantive knowledge: <i>(What the children should know.)</i></p> <p>What are the causes of deforestation globally?</p> <p>What are the impacts of deforestation globally?</p>	<p>Locational Knowledge</p> <p>Place Knowledge:</p> <p>Actionaid deforestation resources – in folder</p>	<p>Can your children:</p> <p>Explain the causes of deforestation</p> <p>Explain some of the impacts of deforestation, particularly the acceleration of climate change by releasing carbon when burnt</p> <p>Explain how forests are a global resource, and are being affected globally</p>	<p>Horizontal:</p> <p>Vertical:</p>
Suggested activities:		Resources:	Useful links:	
<p>Students revisit deforestation in the context of the amazon Rainforest using action aid resources (in folder)</p> <p>Watch the video of rainforest destruction: https://www.rainforest-alliance.org/videos/fight-deforestation-fight-climate-change</p> <p>Use palm oil as an example of causes of forest destruction</p> <p>Use google earthengine timelapse views to show that deforestation is not limited to amazon, but is a global problem</p> <p>Use https://www.carbonbrief.org/mapped-how-climate-change-affects-extreme-weather-around-the-world</p>		<p>https://www.rainforest-alliance.org/videos/fight-deforestation-fight-climate-change</p> <p>palm oil https://www.youtube.com/watch?v=omJ-raz3BkA&feature=emb_title</p> <p>Google Earthengine time lapses https://earthengine.google.com/timelapse/</p> <p>https://earthengine.google.com/timelapse/#v=23.48081,43.97128,8.343,latLng&t=1.23&ps=50&bt=</p>	<p>https://www.3dgeography.co.uk/deforestation</p> <p>Vocabulary:</p>	

<p>Use the Boreal (pine) Forest as a contrasting example to tropical that is also under threat. https://www.youtube.com/watch?v=c3OU--05AdQ&feature=emb_title</p> <p>With wildfires selected to show how climate change is also impacting forests by causing increased numbers and intensity of wildfires.</p>	<p>19840101&et=20181231&startDwell=0&endDwell=0</p> <p>boreal forest https://www.youtube.com/watch?v=c3OU--05AdQ&feature=emb_title</p>	
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Enquiry 7: Will climate change force people to move?					
Links to previous learning	Knowledge and second order concepts	Geographical skills:		Assessment criteria:	Curriculum Links:
	<p>Substantive knowledge: <i>(What the children should know.)</i> What is forced migration?</p> <p>How will sea level rise, droughts, water scarcity, and environmental destruction driven by climate change cause a great migration?</p> <p>How will this affect the world?</p> <p>Has this already begun?</p>		<p>Locational Knowledge</p>	<p>Can your children:</p> <p>Identify the causes of climate migration and link these to previous lesson</p> <p>Empathise with and explain the difficulties that refugees face, as well as the challenges in helping them.</p> <p>Explain that this is a global concern requiring global action</p>	<p>Horizontal:</p> <p>Vertical:</p>
Suggested activities:		Resources:		Useful links:	
<p>Explain the migration is people moving to live somewhere else, and forced migration is when you have no choice but to leave. Explain that a refugee is someone who has been forced to migrate, but with nowhere to go. This lesson asks students to find empathy with stories of refugees. The lesson can follow the Action aid resources to explore stories of refugees. Although these stories come from conflict refugees, the challenges they face are similar to those that climate refugees will face.</p>		<p>Actionaid refugee resources – in folder.</p> <p>“the world’s first climate refugees”</p> <p>https://www.youtube.com/watch?v=b6QEDbI5zrg</p>		<p>https://www.unhcr.org/uk/news/stories/2019/10/5da5e18c4/climate-change-and-displacement.html</p> <p>Vocabulary:</p>	

<p>Students watch the videos on climate change refugees and homelessness.</p> <p>This story map can be used - https://storymaps.esri.com/stories/2017/climate-migrants/index.html</p> <p>Students should consider what can be done to help prevent this world changing migration, as this will lead into their final Y6 unit on protecting the future.</p>	<p>Climate change homelessness</p> <p>https://www.youtube.com/watch?v=5xuZT7VkjVg</p> <p>Doc</p> <p>https://www.youtube.com/watch?v=kY5Er8hmAR8</p>	<p>Forced migration Refugee displaced</p>
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