

Education Overview F – 10 - Use, adapt, extend

How to get some science in your art and art in your science

F-2	Strand Sub strand	Content Descriptors	Methodology		
<p>Curriculum links ART SCIENCE</p>	<ul style="list-style-type: none"> Science Understanding (SU) Science as a Human Endeavour (SHE) Science Understanding (SU) Science Inquiry Skills (SIS) 	<p>Science content descriptors are mostly based on the F-10 Australian Curriculum: Science Elaborations for the Aboriginal and Torres Strait Islander Cross-curriculum priority</p> <p>https://www.australiancurriculum.edu.au/media/5644/new-content-elaborations-for-the-australian-curriculum-science-f-10.pdf</p>	<p>LOOK</p> <p>www.ghostnetcollective.com.au</p>	<p>DISCUSS/THINK</p> <p>www.ghostnetcollective.com.au</p>	<p>CREATE</p> <p>www.ghostnetcollective.com.au</p>
F – 2 ACAVAM106		<p>Explore ideas, experiences, observations and imagination to create visual artworks and design, including considering ideas in artworks by Aboriginal and Torres Strait Islander artists</p>	<p>Look at the art works by the Erub Artists.</p> <p>https://www.erubarts.com.au/ www.ghostnetcollective.com.au</p>	<p>Talk about what can be seen and how we can tell what type of animal it is even though its made of ghost net.</p>	<p>Use one of the Erub Arts ghost net art images to paint or draw.</p> <p>https://www.erubarts.com.au/</p>
ACAVAM107		<p>Use and experiment with different materials, techniques, technologies and processes to make artworks</p>	<p>Look around the playground and collect different types of leaves – focus on shape, size and colour.</p>	<p>Talk about why plants and animals are important to us.</p>	<p>Use leaves to create mono prints</p>
ACAVAR109		<p>Respond to visual artworks and consider where and why people make visual artworks, starting with visual artworks from Australia, including visual artworks of Aboriginal and Torres Strait Islander Peoples</p>	<p>Look at the ghost net work of the ERUB artists. Name all the plants and animals can be seen?</p> <p>https://www.erubarts.com.au/ www.ghostnetcollective.com.au</p>	<p>Why do you think they have made these plants and animals? Why are these plants and animals important to them?</p>	<p>Draw the animals that are important to you. They could be your pet or your family totem or an animal we get food from like a chicken.</p>
<p>Foundation ACSHE013</p> <p>ACSIS233</p>	<p>SHE Nature and development of science</p> <p>SIS Processing and analysing data and information</p>	<p>Science involves observing, asking questions about, and describing changes in, objects and events.</p> <p>https://australiancurriculum.edu.au/TeacherBackgroundInfo?id=56562</p> <p>Engage in discussions about observations and use methods such as drawing to represent ideas</p>	<p>Look around the playground and name all the living things that can be seen</p>	<p>Discuss how Torres Strait Islander Peoples learn about their world through looking closely at the world around them Think about what helps the living things to live – food, water, sunlight</p> <p>Discuss how we can get information about the world by looking and observing changes</p>	<p>Draw the plants you can find around your school – look at the different shapes, patterns and lines.</p>
ACSSU002	SU Biological sciences	<p>Living things have basic needs, including food and water</p> <p>https://australiancurriculum.edu.au/TeacherBackgroundInfo?id=56554</p>	<p>Read The Lost Girl By: Ambelin Kwaymullina, Leanne Tobin (Illustrator) https://www.youtube.com/watch?v=G6UcLA01epM</p>	<p>Discuss how how Aboriginal and Torres Strait Islander Peoples gain knowledge about the land and its vital resources, such as water and food, through observation</p>	<p>Draw the plants you can find around your school – look at the different shapes, patterns and lines. Let the leaves dry out and draw them again. Put both pictures next to each other</p>
AC SIS011	SIS Planning and conducting	<p>Explore and make observations by using the senses</p>	<p>Look at the cloud paintings by Segar Passi</p> <p>Read Walking With the Seasons in Kakadu By: Diane Lucas, Ken Searle (Illustrator)</p>	<p>Think about the clouds and what you already know about them like dark clouds mean rain</p>	<p>Paint the clouds you can see in the sky</p>
YR 1 ACSSU019	SU Earth and space sciences	<p>Observable changes occur in the sky and landscape</p> <ul style="list-style-type: none"> recognising the extensive knowledge of daily and seasonal changes in weather patterns and landscape held by Aboriginal and 	<p>Look at the cloud paintings by Segar Passi that teach about clouds and what the cloud patterns tells people</p>	<p>Discuss the different cloud types and what they mean</p>	<p>Paint the clouds again – do this over a number of lessons</p>

		Torres Strait Islander Peoples - https://australiancurriculum.edu.au/TeacherBackgroundInfo?id=56577			
AC SIS029	SIS Communicating	Represent and communicate observations and ideas in a variety of ways https://australiancurriculum.edu.au/TeacherBackgroundInfo?id=56580	Look at the work of the Erub Artist and describe what you can see. What does it tell us about their life? Watch "Sharing Marine Monitoring in Bardi Jawi Sea Country" for mural ideas https://www.youtube.com/watch?v=FJ1Obvi9Vlc	What other ways can we learn about how people live?	Create a mural of a reef system. Add photos, paintings and drawings, information, observations, write stories and poems about the plants and animals that live in the reef.
Yr 2 ACSSU031	SU Chemical sciences	Different materials can be combined for a particular purpose •investigating the ways in which Aboriginal and Torres Strait Islander Peoples combine different materials to produce utensils (hafting, weaving, sewing and gluing) https://australiancurriculum.edu.au/TeacherBackgroundInfo?id=56588	Look at examples of Aboriginal and Torres Strait Islander Peoples weaving such as fish scoops and baskets. Look at modern nets and the fibres they are made from.	Talk about the qualities of natural fibres and synthetic fibres. Discuss the pro's and cons. Talk about using different fibres for weaving and how ghost net fibres can be used with the same skills as natural fibres	Learn how to weave a coconut leaf fish. Notice that you have to use green leaves to weave but it will get stiff when the leaves dry

3 – 4	Strand Sub strand	Content Descriptors	Methodology		
Curriculum links ART SCIENCE	<ul style="list-style-type: none"> • Science Understanding (SU) • Science as a Human Endeavour (SHE) • Science Understanding (SU) • Science Inquiry Skills (SIS) 		LOOK	DISCUSS/THINK	CREATE
Yr 3 - 4 ACAVAM110		Explore ideas and artworks from different cultures and times, including artwork by Aboriginal and Torres Strait Islander artists, to use as inspiration for their own representations	Look at the ghost net art of Erub Arts, Lynnette Griffiths and Marion Gaemers – The Ghost Net Collective. Look at how a large artwork is made from many small works.	Talk about this collaborative method of working and how it reflects the community and how the school and the classroom are also communities	Create a ghost net sculpture following the instruction sheets. Create a small reef system by joining everybody's work together
ACAVAM111		Use materials, techniques and processes to explore visual conventions when making artworks	Look at the ghost net art works that rely on repetition and movement to add information about the animals they represent.	How has repetition and movement been used to add to our understanding?	Create a class mural of a reef system. Add ghost net sculptures, photos, paintings and drawings, information, write stories and poems about the plants and animals that live around the reef. Consider ways to display the collective works that use repetition and movement.
ACAVAM112		Present artworks and describe how they have used visual conventions to represent their ideas	Watch "Caught in the Net" and "Ghost Nets of the Ocean" on the Erub Arts website https://www.erubarts.com.au/projects-exhibitions/ www.ghostnetcollective.com.au	How does having a group display change the ideas of the artwork?	Create a collaborative display of the class sculptures.
ACAVAR113		Identify intended purposes and meanings of artworks using visual arts terminology to compare artworks, starting with visual artworks in Australia including visual artworks of Aboriginal and Torres Strait Islander Peoples	Watch "Caught in the Net" and "Ghost Nets of the Ocean" on the Erub Arts website https://www.erubarts.com.au/projects-exhibitions/ www.ghostnetcollective.com.au	Discuss how using ghost net to make art can help get information about ghost nets to a wider audience	Create an information display explaining ghost net and the problems it is causing.

Yr 3 ACSSU044	SU Biological sciences	<p>Living things can be grouped on the basis of observable features and can be distinguished from non-living things</p> <ul style="list-style-type: none"> recognising Aboriginal and Torres Strait Islander Peoples' use of observable features to group living things <p>https://australiancurriculum.edu.au/TeacherBackgroundInfo?id=56594 https://australiancurriculum.edu.au/TeacherBackgroundInfo?id=56592</p>	<p>Look at the ghost net art of Erub Arts, Lynnette Griffiths and Marion Gaemers – The Ghost Net Collective. There are 2 main groups of sculptures – sea and land</p>	<p>Discuss how we can group living things based on observable features such as scales and feathers. Talk about the e.g. platypus and how it was difficult for Western science to classify it but Indigenous people already understood how it fitted into their understanding of the world</p>	<p>Create a class mural of a reef system. Add ghost net sculptures, photos, paintings and drawings, information, write stories and poems about the plants and animals that live around the reef. Make different groups of how you could classify them such as crustacean and vertebrae. Shore line and deeper water.</p>
ACSHE051 Yr 4 ACSHE062	SHE Use and influence of science	<p>Science knowledge helps people to understand the effect of their actions</p> <ul style="list-style-type: none"> researching Aboriginal and Torres Strait Islander Peoples' knowledge of the local natural environment, such as the characteristics of plants and animals <p>https://australiancurriculum.edu.au/TeacherBackgroundInfo?id=16846</p>	<p>Research plastic in oceans – Watch and follow Lisa Blair Sails the World https://lisablairsailstheworld.com/</p>	<p>Discuss how science is helping us understand the effects of plastic on our marine environments</p>	<p>Create a poster that shows how plastic ends up in the ocean and what effects it can have. Include solutions. Add that to the class mural.</p>
ACSSU072	SU Biological sciences	<p>Living things have life cycles</p> <ul style="list-style-type: none"> investigating how Aboriginal and Torres Strait Islander Peoples understand and utilise the life cycles of certain species <p>https://australiancurriculum.edu.au/TeacherBackgroundInfo?id=56643</p>	<p>Look for information on the Giant Triton Sea Snail Breeding Program https://fieldcapture.ala.org.au/merit/project/index/5f92de26-1090-49c4-a1f5-33cf4f8fd16f</p>	<p>Discuss why this program could be vital for the health of the Great Barrier Reef.</p>	<p>Create small posters of the life cycle of different reef creatures such as the Giant Triton. These can also be added to the class mural.</p>
ACSSU073	SU Biological sciences Tangaroa Blue 4 -6 https://www.tangaroablue.org/resources/education-kit-and-fact-sheets/upper-primary-f-six-year/	<p>Living things depend on each other and the environment to survive</p> <ul style="list-style-type: none"> recognising how Aboriginal and Torres Strait Islander Peoples perceive themselves as being an integral part of the environment <p>https://australiancurriculum.edu.au/TeacherBackgroundInfo?id=56644</p>	<p>Look at images of the Great Barrier Reef and look for all the different living things and their role in the food chain.</p> <p>Watch “Caught in the Net” and “Ghost Nets of the Ocean” on the Erub Arts website https://www.erubarts.com.au/projects-exhibitions/ www.ghostnetcollective.com.au</p>	<p>Discuss how we are part of that food chain and how this knowledge is still very strong with Aboriginal and Torres Strait Islander Peoples as they are directly affected by change to their food source. Where does our food come from?</p>	<p>Create a diary of the food you eat every day and research where that food has come from.</p>
ACSSU074	SU Chemical sciences	<p>Natural and processed materials have a range of physical properties that can influence their use</p> <ul style="list-style-type: none"> considering how Aboriginal and Torres Strait Islander Peoples use natural and processed materials for different purposes, such as tools, clothing and shelter, based on their properties <p>https://australiancurriculum.edu.au/TeacherBackgroundInfo?id=56645</p>	<p>Look for all the things made out of plastic in your class and home.</p> <p>Visit Tangaroa Blue for expanded Marine Debris Education Kit 4 – 6 https://www.tangaroablue.org/resources/education-kit-and-fact-sheets/upper-primary-f-six-year/</p>	<p>Why do we use plastic. How long have we been using plastic? How does plastic end up in the ocean? What did we use before plastic?</p>	<p>Find a broken plastic toy and think of ways to fix it or change its use. Test out some of the ideas.</p>

5 & 6	Strand Sub strand	Content Descriptors	Methodology		
Curriculum links ART SCIENCE	<ul style="list-style-type: none"> • Science Understanding (SU) • Science as a Human Endeavour (SHE) • Science Understanding (SU) • Science Inquiry Skills (SIS) 		LOOK	DISCUSS/THINK	CREATE
Yr 5 – 6 ACAVAM114		Explore ideas and practices used by artists, including practices of Aboriginal and Torres Strait Islander artists, to represent different views, beliefs and opinions	Look at the ghost net art of Erub Arts, Lynnette Griffiths and Marion Gaemers – The Ghost Net Collective.	Discuss the ghost net art by Erub artists – is their work communicating ideas about the environment? How is ghost net art helping to communicate environmental ideas? Discuss how making art collaboratively can help spread environmental messages.	Design an artwork to make out of ghost net. In your planning include some research on the net such as its origin and where it was found.
ACAVAM115		Develop and apply techniques and processes when making their artworks	Watch the instructional video's on making the ghost net sculptures	While creating the sculptures, talk about the techniques used and what other applications those techniques and materials could be used for.	Follow the instructional sheets to create some of the ghost net sculptures. How does using the ghost net material help you understand the issues of ghost net?
ACAVAM116		Plan the display of artworks to enhance their meaning for an audience	Watch <i>Caught in the Net</i> and Ghost Nets of the Ocean at https://www.erubarts.com.au/projects-exhibitions/ www.ghostnetcollective.com.au	Discuss how displaying work as a group would give a different message to displaying the work as individual pieces.	Create a collaborative display of the class sculptures. Incorporate the time line posters depicting the problems with ghost net.
ACAVAR117		Explain how visual arts conventions communicate meaning by comparing artworks from different social, cultural and historical contexts, including Aboriginal and Torres Strait Islander artworks	Research Traditional Aboriginal and Torres Strait Islander weaving and Erub Arts ghost net weaving	Compare examples of traditional Torres Strait weaving with contemporary ghost net art. What are the similarities and what are the differences. Consider the context for the works.	Try some traditional weaving with green palm fronds
Yr 5 ACSSU043	SU Biological sciences	<p>Living things have structural features and adaptations that help them to survive in their environment</p> <ul style="list-style-type: none"> • investigating Aboriginal and Torres Strait Islander Peoples' knowledge of the adaptations of certain species and how those adaptations can be exploited https://australiancurriculum.edu.au/TeacherBackgroundInfo?id=56650	<p>Research how Aboriginal and Torres Strait Islander Peoples' used biomimicry.</p> https://australiancurriculum.edu.au/TeacherBackgroundInfo?id=56650	<p>Scientists often look to how nature has developed solutions to problems to inform strategies for new technologies and processes. One aspect of this is the investigation of unusual and interesting structural adaptations of organisms and how these have evolved. Biomimicry is the “examination of nature, its models, systems, processes, and elements to emulate or take inspiration from in order to solve human problems”.</p>	Design a tool based off the features of a blacktip reef shark.
ACSHE083	SHE Use and influence of science	<p>Scientific knowledge is used to solve problems and inform personal and community decisions.</p> <ul style="list-style-type: none"> • investigating how Torres Strait Islander Peoples and Aboriginal Peoples of arid regions of Australia use scientific knowledge to manage precious water resources https://australiancurriculum.edu.au/TeacherBackgroundInfo?id=56656	<p>Watch The Australian Coral Reef Resilience Initiative in the Keppel Islands. AIMS</p> https://www.youtube.com/watch?v=H5QbMXEQ4o4	<p>Discuss how science is being used to solve problems and is changing the way individuals and communities interact with scientists. Explain what Citizen Science is.</p>	<p>Join Lids4Kids - an initiative that uses science to inform community action</p> https://www.lids4kids.org.au/

ACSHE217	SHE Use and influence of science	<p>Scientific understandings, discoveries and inventions are used to solve problems that directly affect peoples' lives</p> <ul style="list-style-type: none"> investigating how Aboriginal and Torres Strait Islander Peoples' traditional ecological and zoological knowledge informs sustainable harvesting practices of certain species, such as dugongs and turtles https://australiancurriculum.edu.au/TeacherBackgroundInfo?id=56655 	<p>Research sustainable practices in your area. Discuss why the development of such practices are important both for the environment and the community</p>	<p>Discuss - Recent research pertaining to dugong and turtle populations has confirmed that traditional hunting rights of Aboriginal and Torres Strait Islander Peoples are not responsible for recent population declines, rather these species are being impacted on by contemporary issues, such as climate change affecting native habitats, marine debris including ghost nets, pollution, commercial fishing, feral animals that destroy turtle nests, and strikes from marine vessels.</p>	<p>Look for citizen science initiatives in your local area and become contributors to the data collection. Some citizen science initiatives are found at the The Australian Citizen Science Association https://citizenscience.org.au/</p>
AC SIS093	SIS Communicating	<p>Communicate ideas, explanations and processes using scientific representations in a variety of ways, including multi-modal texts</p> <ul style="list-style-type: none"> Acknowledging and exploring Aboriginal and Torres Strait Islander Peoples' ways of representing and communicating information about anatomical features, including structural adaptations https://australiancurriculum.edu.au/TeacherBackgroundInfo?id=56658 	<p>Watch https://www.youtube.com/watch?v=FJ1Obvi9Vlc Sharing Marine Monitoring in Bardi Jawi Sea Country. AIMS</p>	<p>Discuss all the different ways you can see scientific ideas being represented – e.g graphs, art works, video</p> <p>Discuss how the artwork represents an alternative way of representing scientific information about anatomical features, including structural adaptations</p>	<p>Create a class mural of a reef system. Add ghost net sculptures, photos, paintings and drawings, information, data, about the plants and animals that live around the reef. Use as many different ideas to present scientific information regarding reef systems as you can think of.</p>
Yr 6 ACSSU094	SU Biological sciences	<p>The growth and survival of living things are affected by physical conditions of their environment.</p> <ul style="list-style-type: none"> investigating Aboriginal and Torres Strait Islander Peoples' knowledge and understanding of the physical conditions necessary for the survival of certain plants and animals in the environment https://australiancurriculum.edu.au/TeacherBackgroundInfo?id=56660 	<p>Look around your own area and find out who the local Aboriginal or Torres Strait Islander People are.</p> <p>Invite a representative in to talk about their country and how contemporary living is affecting their lands and oceans.</p> <p>Watch "Caught in the Net" and "Ghost Nets of the Ocean" on the Erub Arts website https://www.erubarts.com.au/projects-exhibitions/ www.ghostnetcollective.com.au</p>	<p>Investigate Aboriginal and Torres Strait Islander Peoples' knowledge and understanding of the physical conditions necessary for the survival of certain plants and animals in the environment.</p> <p>Seasons and stars in the Torres Strait Islands https://www.qcaa.qld.edu.au/about/k-12-policies/aboriginal-torres-strait-islander-perspectives/resources/seasons-stars</p> <p>Indigenous Weather Knowledge http://www.bom.gov.au/iwk/calendars/masig.shtml</p> <p>https://www.csiro.au/en/research/natural-environment/land/about-the-calendars</p>	<p>Use the seasonal calendars to inform your information mural on reef systems.</p>
ACSSU096	SU Earth and space sciences	<p>Sudden geological changes and extreme weather events can affect Earth's surface</p> <ul style="list-style-type: none"> researching Aboriginal and Torres Strait Islander Peoples' cultural stories that provide evidence of geological events https://australiancurriculum.edu.au/TeacherBackgroundInfo?id=56662 	<p>Research Aboriginal and Torres Strait Islander Peoples' cultural stories that provide evidence of geological events</p>	<p>Investigate stories about the creation of the Great Barrier Reef or other areas that came into existence with the melting of the ice age.</p>	<p>Create a timeline map of the changing coastline of Australia.</p>

Yr 7 – 8	Strand Sub strand	Content Descriptors	Methodology		
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Yr 7 – 8 ACAVAM118		Experiment with visual arts conventions and techniques, including exploration of techniques used by Aboriginal and Torres Strait Islander artists, to represent a theme, concept or idea in their artwork	Look around your local area and find out how waste is affecting the lands, water ways and oceans.	Discuss how ghost net art is bound by a response to ghost net as an environmental issue.	Create a recycled waste sculpture that reflects a natural element of your environment e.g a particular native tree made from soft drink cans
ACAVAM119		Develop ways to enhance their intentions as artists through exploration of how artists use materials, techniques, technologies and processes		Discuss how the use of ghost net is the message as well as the materials to create the artwork	
ACAVAM120		Develop planning skills for artmaking by exploring techniques and processes used by different artists	Visit Sea Museum and watch http://www.sea.museum/whats-on/exhibitions/ghost-nets-of-the-ocean	What planning has gone into creating the giant mullet sculptures?	Document your research and planning for the recycled sculpture
ACAVAM121		Practise techniques and processes to enhance representation of ideas in their artmaking	Visit Sea Museum and watch http://www.sea.museum/whats-on/exhibitions/ghost-nets-of-the-ocean/ghost-net-stories	Discuss when Jimmy Thaiday is talking about using the different net to create different aspects of the mullets	Experiment with your materials to create different effects or to get a sense of movement or structural features or repetition.
ACAVAR123		Analyse how artists use visual conventions in artworks			
ACAVAM122		Present artwork demonstrating consideration of how the artwork is displayed to enhance the artist's intention to an audience	Look at the poster on Art and compare and contrast the way Marion Gaemers work at Sculpture by the Sea is displayed compared to the Erub Arts Taba Naba at the Oceanographic Museum in Monaco	Discuss how the location and positioning of the work add meaning to the work.	Create a plan for exhibiting the recycled sculptures either individually or as a group.
ACAVAR124		Identify and connect specific features and purposes of visual artworks from contemporary and past times to explore viewpoints and enrich their artmaking, starting with Australian artworks including those of Aboriginal and Torres Strait Islander Peoples	Research traditional Torres Strait weaving such as fish scoops and baskets. Some examples are now in museums and are for display and not use.	Discuss how the purpose of these woven pieces change due to context and materials. Fish scoops have been replaced by modern nets and the skills needed to make fish scoops are being employed to make ghost net art.	Try some traditional weaving with green palm fronds
Yr 7 ACSSU112	SU Biological sciences	Interactions between organisms, including the effects of human activities can be represented by food chains and food webs <ul style="list-style-type: none"> • investigating Aboriginal and Torres Strait Islander Peoples' responses to the disruptive interactions of invasive species and their effect on important food webs that many communities are a part of, and depend on, for produce and medicine https://australiancurriculum.edu.au/TeacherBackgroundInfo?id=56833	Watch Giant Triton and Crown of Thorns Starfish (COTS) at Australian Institute of Marine Science (AIMS) https://www.youtube.com/watch?v=0s1SaHnjbKw	Discuss how the Crown of Thorns are affecting the Great Barrier Reef and how that could impact on food chains and food webs. Research how the Giant Triton snail became endangered. How did this impact on COTS?	Make Triton eggs using the Ghost Net Collective instructional sheets.
ACSHE120	SHE Use and influence of science	Science and technology contribute to finding solutions to a range of	Watch Giant Triton and Crown of Thorns Starfish (COTS) at AIMS	How are scientists at AIMS trying to find solutions to the issue of COTS? In the past	Brainstorm ideas to reduce crown of thorns starfish to acceptable levels on the Great

	<p>Tangaroa Blue 7 - 10 https://www.tangaroablue.org/resources/education-kit-and-fact-sheets/senior-units-s-ten-year/</p>	<p>contemporary issues; these solutions may impact on other areas of society and involve ethical considerations</p> <ul style="list-style-type: none"> • Strait Islander Peoples and discussing related ethical considerations associated with bio-piracy and intellectual property rights https://australiancurriculum.edu.au/TeacherBackgroundInfo?id=56823 	<p>https://www.youtube.com/watch?v=0s1SaHnjbKw</p>	<p>programs were run with divers injecting a poison into COTS. What are the problems associated with this? What are the current methods used? (Vinegar) What are the benefits of using vinegar?</p>	<p>Barrier Reef. Create an infographic outlining the issues of an abundant crown of thorns population on the reef system.</p>
ACSHE121	SHE Use and influence of science	<p>Science understanding influences the development of practices in areas of human activity such as industry, agriculture and marine and terrestrial resource management</p>	<p>Watch The Australian Institute of Marine Science https://www.youtube.com/watch?v=HBvBQJaRKjs&t=68s</p>	<p>What role does AIMS play in our understanding the development of practices in areas of human activity such as industry and marine resource management. How is the health of our reef linked to various industries?</p>	<p>Choose an industry that impacts on our reef systems and create a power point presentation outlining those impacts and how science is helping to reduce those impacts.</p>
ACSHE121	SHE Use and influence of science	<p>People use science understanding and skills in their occupations and these have influenced the development of practices in areas of human activity</p> <ul style="list-style-type: none"> • investigating how the knowledge and experience of Aboriginal and Torres Strait Islander Peoples are being used to inform scientific decisions, such as the care of Country/Place https://australiancurriculum.edu.au/TeacherBackgroundInfo?id=56824 	<p>Watch Mapping Makarda: working with the Land and Sea Rangers of Groote Eylandt https://www.youtube.com/watch?v=Tda-regWCcs</p> <p>Watch Sharing Marine Monitoring in Bardi Jawi Sea Country. https://www.youtube.com/watch?v=FJ1Obvi9Vic</p>	<p>Discuss how Indigenous Land and Sea Rangers are an important part of the scientific process. Why is it important to work with Aboriginal and Torres Strait Islander Peoples? What jobs can you see people doing and what work do you think these opportunities provide, such as boat drivers, translators, scientists, artists, videographers.</p>	<p>Find out who owns the country you are on and how they are caring for that country. Invite the traditional owners to talk about their area in terms of caring for country and their environmental concerns and possible solutions. e.g fire management</p>
ACSIS125	SIS Planning and conducting	<p>Collaboratively and individually plan and conduct a range of investigation types, including fieldwork and experiments, ensuring safety and ethical guidelines are followed</p> <ul style="list-style-type: none"> • collaborating with Aboriginal and Torres Strait Islander Peoples in planning scientific investigations, and seeking guidance regarding culturally sensitive locations during fieldwork https://australiancurriculum.edu.au/TeacherBackgroundInfo?id=56743 <p>consulting with Aboriginal and Torres Strait Islander land councils in planning scientific investigations, and seeking guidance regarding land access rights https://australiancurriculum.edu.au/TeacherBackgroundInfo?id=56744</p>	<p>Visit Tangaroa Blue for expanded Marine Debris Education Kit 7 -10 https://www.tangaroablue.org/resources/education-kit-and-fact-sheets/senior-units-s-ten-year/</p> <p>Watch and follow Lisa Blair Sails the World https://lisablairsailstheworld.com/</p>	<p>Find out who owns the country you are on and how they are caring for that country. Are they involved in data collection or any citizen science initiatives?</p> <p>Discuss citizen science and how that is being used across a range of scientific endeavours.</p>	<p>Organise a beach clean up</p> <ul style="list-style-type: none"> • What items would be the most abundant? • Compare 2 different beach locations • Does the abundance of litter vary with distance to the shoreline vs close to the water? • weigh and count rubbish. What is the breakdown of materials? e.g. plastic, glass, aluminium

9 & 10	Strand Sub strand	Content Descriptors	Methodology		
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Yr 9 – 10 ACAVAM125		Conceptualise and develop representations of themes, concepts or subject matter to experiment with their developing personal style, reflecting on the styles of artists, including Aboriginal and Torres Strait Islander artists	Research the issues regarding ghost nets, plastic, micro plastics and marine debris in our marine environments. Research artists who's work reflects these environmental concerns such as ghost net art of Erub Arts, Lynnette Griffiths and Marion Gaemers – The Ghost Net Collective. www.ghostnetcollective.com.au https://www.erubarts.com.au/projects-exhibitions/	Conceptualise and develop representations of the theme – marine debris to experiment with developing a personal style. Use the ghost net instructions as a starting point to create your own reef based sculpture	Plan and design artworks that represent your ideas regarding marine debris. Consider the materials used.
ACAVAM128		Plan and design artworks that represent artistic intention			
ACAVAM126		Manipulate materials, techniques, technologies and processes to develop and represent their own artistic intentions	Research Traditional Aboriginal and Torres Strait Islander weaving and Erub Arts ghost net weaving. Consider what the different purposes are for creating works. www.ghostnetcollective.com.au https://www.erubarts.com.au/projects-exhibitions/	Compare examples of traditional Torres Strait weaving with contemporary ghost net art. What are the similarities and what are the differences. Consider the context for the works. When does a functional object become an artefact or art work?	Try some traditional weaving with green palm fronds. Experiment with other materials to weave.
ACAVAM129		Present ideas for displaying artworks and evaluate displays of artworks	Look at the displays of Erub Arts that have been exhibited both overseas and in Australia. How do these displays differ from a traditional gallery exhibition. www.ghostnetcollective.com.au https://www.erubarts.com.au/projects-exhibitions/	Plan for an online display of the collaborative works as well as a formal display. How does the format of display change? What are the pro's and con's of each method of display?	Set up both an online display as well as a more formal gallery display. Create a digital image from the collaborative works.
ACAVAR130		Evaluate how representations communicate artistic intentions in artworks they make and view to inform their future art making	Consider your aesthetic. Look at the work of Erub artists and how their aesthetic has been shaped by their environment and traditional crafts such as weaving and carving.	Discuss how you could use the same techniques and materials to create other types of art. Document some of your ideas considering how the material is also the message.	Write an artist statement explaining the ideas behind your work, the materials used and how your art work communicates your ideas on marine debris
ACAVAR131		Analyse a range of visual artworks from contemporary and past times to explore differing viewpoints and enrich their visual artmaking, starting with Australian artworks, including those of Aboriginal and Torres Strait Islander Peoples, and consider international artworks	Compare examples of traditional Torres Strait weaving with contemporary ghost net art. What are the similarities and what are the differences. Consider the context for the works. When does a functional object become an artefact or art work? www.ghostnetcollective.com.au https://www.erubarts.com.au/projects-exhibitions/	Consider the impact of ghost net art from Australia and the success Erub Arts has had on a global scale. Why do you think international institutions are interested in this work. Are there similar examples from other parts of the world? Are the themes of marine debris and plastic pollution universal.	Chose a contemporary Torres Strait ghost net art work and a traditional Torres Strait woven artefact to compare and contrast. Consider materials and techniques as well as intended purpose. https://www.saltwatercountry.org/artist/erub-erwer-meta/
Yr 9 ACSSU176	SU Biological sciences Tangaroa Blue 7 - 10 https://www.tangaroablue.org/resources/education-kit-and-fact-sheets/senior-units-s-ten-year/	Ecosystems consist of communities of interdependent organisms and abiotic components of the environment; matter and energy flow through these systems • investigating the interdependence of communities and the role of Aboriginal and Torres Strait Islander Peoples in maintaining their environment	Look at data around the origins of ghost nets and compared to where they end up. Compare this to maps of ocean currents.	Discuss the interconnectedness through ocean currents and the effects that is having on our reef systems. Are introduced species carried on ghost nets?	Experiment – create a current using fluorescent dye to visualise water flow. https://www.youtube.com/watch?v=aB-gBvX-524

		https://australiancurriculum.edu.au/TeacherBackgroundInfo?id=56676			
AC SIS170	SIS Processing and analysing data and information	<p>Use knowledge of scientific concepts to draw conclusions that are consistent with evidence.</p> <p>Acknowledging and identifying the relationship between First Peoples' knowledges and contemporary science and the co-contributions in arriving at shared understanding when working "both-ways"</p> <p>https://australiancurriculum.edu.au/TeacherBackgroundInfo?id=56770</p>	<p>Research records of Aboriginal and Torres Strait Islander peoples have used currents for transporting resources and for hunting and fishing.</p> <p>Research what modern medicines have originated from Aboriginal and Torres Strait Islander peoples knowledge of plants, animals and the environment.</p>	<p>Discuss how that knowledge can help understand currents from before western science started recording them in the Great Barrier Reef area and adds to our understanding of current</p>	<p>Create an infographic of currents throughout the Cape and Torres Strait and overlay that with traditional trade routes. Before ghost nets started appearing in these areas other artefacts from distant lands would wash up on these coast lines.</p>
AC SIS164 AC SHE230	SIS Questioning and predicting	<p>Formulate questions or hypotheses that can be investigated scientifically</p> <ul style="list-style-type: none"> acknowledging and using information from Aboriginal and Torres Strait Islander Peoples to hypothesise about fauna or flora distributions <p>https://australiancurriculum.edu.au/TeacherBackgroundInfo?id=56767</p> <p>Collaborate with Aboriginal and Torres Strait Islander Peoples to formulate questions and hypotheses that can be investigated scientifically regarding disrupted ecosystems</p> <p>https://australiancurriculum.edu.au/TeacherBackgroundInfo?id=56768</p>	<p>Formulate questions and hypotheses regarding plastic in the environment. Plastic is now found everywhere we look. In Antarctica it is in every organism and has now been found deep in human lungs.</p>	<p>Watch and follow Lisa Blair Sails the World https://lisablairsailstheWorld.com/</p> <p>Discuss what other biological systems have been shifted out of balance due to humans. What are the consequences?</p>	<p>Beach sieve exercise. Collect data about micro plastics found in different locations. These samples can be sent to the Australian Institute of Marine Sciences to be analysed.</p> <p>Develop and conduct tests to detect micro plastics in the school area.</p>
Yr10 AC SHE192	SHE Nature and development of science	<p>Advances in scientific understanding often rely on technological advances and are often linked to scientific discoveries</p> <ul style="list-style-type: none"> researching how technological advances in dating methods of Aboriginal Peoples' material culture are contributing to our understanding of the changing climatic conditions and human interaction with Australian megafauna <p>https://australiancurriculum.edu.au/TeacherBackgroundInfo?id=56303</p>	<p>Look at the short history of plastic and how initially the benefits outweighed the impacts.</p>	<p>Discuss the uses of plastic over the last 60 to 100 years and how it went from robust to disposable and single use plastic. Science is now having to find solutions to the immense problems that plastic has caused.</p>	<p>Try making bio plastics out of milk and vinegar or other natural ingredients.</p>
AC SHE194	SHE Use and influence of science	<p>People use scientific knowledge to evaluate whether they accept claims, explanations or predictions, and advances in science can affect people's lives, including generating new career opportunities</p> <ul style="list-style-type: none"> considering how ecological sciences are recognising the efficacy of traditional ecological practices of Aboriginal and Torres Strait Islander 	<p>Consider how ecological sciences are recognising the efficacy of traditional ecological practices of Aboriginal and Torres Strait Islander Peoples and how restorative programs based on these practices are generating new career opportunities</p> <p>Watch Mapping Makarda: working with the Land and Sea Rangers of Groote Eylandt. AIMS https://www.youtube.com/watch?v=TDa-regWCcs</p>	<p>Aboriginal and Torres Strait Islander peoples possess in-depth traditional ecological knowledge - TEK - has been recognised as an invaluable contributor to scientific knowledge in this field. Ever-increasing numbers of restoration projects in Australia are undertaken in collaboration with local Aboriginal and Torres Strait Islander communities and rely heavily on the knowledge and expertise of Aboriginal and Torres Strait Islander ranger groups. Such restoration projects include rescue efforts for threatened plant and</p>	<p>Find out who the First Nation People are in your area and how they are partnering or working scientifically to protect their lands and oceans.</p> <p>Look for citizen science initiatives in your local area and become contributors to the data collection. Some citizen science initiatives are found at the The Australian Citizen Science Association https://citizenscience.org.au/</p>

		<p>Peoples and how restorative programs based on these practices are generating new career opportunities</p> <p>https://australiancurriculum.edu.au/TeacherBackgroundInfo?id=56346</p>	<p>Watch Sharing Marine Monitoring in Bardi Jawi Sea Country. AIMS</p> <p>https://www.youtube.com/watch?v=FJ1Obvi9Vlc</p>	<p>animal species, reintroduction of locally extinct species, prevention of saltwater ingress into coastal wetland areas, eradication of invasive weeds, biological control of feral predators, wildfire management through the reestablishment of traditional fire management regimes, habitat protection, monitoring endangered bird populations, and many other environmental protection and restoration efforts.</p> <p>Discuss how partnering with Aboriginal and Torres Strait Islander peoples adds value to scientific endeavours and that in turn can raise the profile of multiple knowledge systems.</p>	<p>Watch and follow Lisa Blair Sails the World</p> <p>https://lisablairsailstheWorld.com/</p>
ACSHE230	SHE Use and influence of science	<p>The values and needs of contemporary society can influence the focus of scientific research</p> <ul style="list-style-type: none"> investigating how disease outbreaks and the emergence of drugresistant infections have focused scientific research into Aboriginal and Torres Strait Islander Peoples' traditional medicines to identify effective therapeutic compounds for the use in pharmaceuticals <p>https://australiancurriculum.edu.au/TeacherBackgroundInfo?id=56348</p>	<p>Educators - Look at the Australian Science Teachers Association site "Values and needs of contemporary society can influence the focus of scientific research"</p> <p>https://assist.asta.edu.au/australian-curriculum/values-and-needs-contemporary-society-can-influence-focus-scientific-0</p> <p>Research how existing science has responded to new needs such as the case with pregnancy tests and RATs (rapid antigen tests)</p> <p>Read the ABC article Crown-of-thorns starfish DNA reveals coral killer's weakness</p> <p>https://www.abc.net.au/news/science/2017-04-06/crown-of-thorns-starfish-dna-reveals-coral-killers-weakness/8415058</p>	<p>The Great Barrier Reef is seen as a significant site globally and is a world heritage site. The reef provides important industries such as tourism, fisheries and is an important site for scientific exploration in regards to new medicines, bio diversity and how to maintain a healthy reef. Research and discuss how societies values and needs have influenced this research.</p> <p>Can this adaptation of known science help save the reef. Researchers are looking into whether a similar test can be used to detect crown of thorns starfish.</p> <p>Discuss the crown of thorns role in a healthy reef system and how an imbalance has affected the reef. Discuss the possibilities of this new research and why this research has been necessary.</p>	<p>Brainstorm some of the values of contemporary society and how those values dictate the needs. Expand this brainstorm with possible ideas for scientific research</p>