



COURSE OUTLINE
GENERAL INTEGRATED SCIENCE YEAR 11 2021
UNIT 1



Term	Week	Topic and key teaching points	Syllabus content	Assessment
1	1	<p><u>Science Inquiry Skills/ 5 Kingdoms</u></p> <ul style="list-style-type: none"> • Distribute programs, syllabus, assessment outline, discuss expectations, etc. • Review Scientific Method including Hypothesis, Variables, Graphing and Interpretation • Describe the features and give examples of each of the 5 Kingdoms of classification (Animal, Plants, Monera, Protists and Fungi) 	<ul style="list-style-type: none"> • construct questions for investigation; propose hypotheses; and predict possible outcomes • plan, select and use appropriate investigation methods, to collect reliable data; assess risk and address ethical issues associated with these methods • conduct investigations safely, competently and methodically for the collection of valid and reliable data • represent data in meaningful and useful ways; organise and analyse data to identify trends and patterns; qualitatively describe sources of measurement error and use evidence to make and justify conclusions • the cell is the simplest form of organisation that can perform activities required for life • forms of organisation of multicellular organisms include tissues, organs and systems 	
1	2	<p><u>Plants</u></p> <ul style="list-style-type: none"> • Detail the basic features and examples of the plant classifications (Angiosperms, Gymnosperms, Bryophytes and Pteridophytes) • Plants are the producers • Describe the structure and function of all parts of angiosperms (flowering plants) • Flower dissection practical • Private Life of Plants – Flowering video 	<ul style="list-style-type: none"> • construct questions for investigation; propose hypotheses; and predict possible outcomes • plan, select and use appropriate investigation methods, to collect reliable data; assess risk and address ethical issues associated with these methods • conduct investigations safely, competently and methodically for the collection of valid and reliable data 	<p><u>Task 1:</u> Science Inquiry - Seedling Investigation Design and begin investigation (20%)</p>



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			<ul style="list-style-type: none"> represent data in meaningful and useful ways; organise and analyse data to identify trends and patterns; qualitatively describe sources of measurement error and use evidence to make and justify conclusions 	
1	3	<p><u>Invertebrate Animals</u></p> <ul style="list-style-type: none"> Discuss features and examples of the different types of aquatic invertebrates (Poriferans, Cnidarians, Echinoderms and Molluscs) Describe the features and give examples of the 3 types of worms (Annelids, Nematodes and Platyhelminths) Use dichotomous keys to classify organisms Briefly touch on the different types of Arthropods Look at invertebrate block specimens under microscope concentrate on how to make scientific drawings 	<ul style="list-style-type: none"> communicate scientific ideas and information for a particular purpose, using appropriate scientific language, conventions and representations 	<p>Task 2: Science Inquiry - Classification Task (15%)</p>
1	4	<p><u>Vertebrate Animals</u></p> <ul style="list-style-type: none"> Describe the features and give examples of each of the 5 classes of vertebrate animals (Mammals, Birds, Reptiles, Fish and Amphibians) Discuss the different types of Mammals Use of microscopes including parts, functions and calculating magnifications Practice using Microscopes to view Vertebrate Resin blocks or pre-prepared slides 	<ul style="list-style-type: none"> the cell is the simplest form of organisation that can perform activities required for life forms of organisation of multicellular organisms include tissues, organs and systems 	<p>Task 1: Science Inquiry - Seedling Investigation Write up Due (20%)</p>



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1	5	<p><u>Local Wet Land Habitat Study</u></p> <ul style="list-style-type: none"> • Draw specimens from water samples collected from a wetland • Conduct water sampling tests for pH, turbidity, O₂ content • Identify and classify specimens found in water sample using prior knowledge 	<ul style="list-style-type: none"> • plan, select and use appropriate investigation methods, to collect reliable data; assess risk and address ethical issues associated with these methods • conduct investigations safely, competently and methodically for the collection of valid and reliable data • qualitatively describe sources of measurement error and use evidence to make and justify conclusions 	<p>Task 3: Scientific Inquiry – Microscope Practical Test (15%)</p>
1	6	<p><u>Feeding Relationships</u></p> <ul style="list-style-type: none"> • Provide definitions on the different types of organisms (producers, consumers and decomposers) • Discuss different predator/prey relationships using examples • Describe the components and correct terminology for food chains found in nature 	<ul style="list-style-type: none"> • biological communities interact with each other and their physical environment 	
1	7	<p><u>Food Webs</u></p> <ul style="list-style-type: none"> • Allocate students a food web from a list of specific region • Begin researching the species of plants and animals in this location and the feeding relationships between them • Compare and contrast food webs and food pyramids of numbers 	<ul style="list-style-type: none"> • biological communities interact with each other and their physical environment 	<p>Task 4 Begin Extended Response – Research and Create a Food Web (10%)</p>
1	8-9	<p><u>Adaptations</u></p> <ul style="list-style-type: none"> • Continue Food Web Research Assignment • Describe the features and give examples of the 3 types of adaptations (structural, functional and behavioural) • Students to choose an animal from your food web and attempt to identify and explain adaptations that ensure its survival 	<ul style="list-style-type: none"> • changes in a system can affect the survival of organisms; variation assists survival of individuals • biological communities interact with each other and their physical environment 	<p>Task 5: Mid-Topic Test – Plants, Animals and Food Webs Week 7 (10%)</p> <p>Task 4:</p>



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		<ul style="list-style-type: none"> Revise topics for Mid-Topic test as indicated 		Extended Response – Research and Create a Food Web Due (10%)
2	1	<u>Water / Carbon Cycles</u> <ul style="list-style-type: none"> Discuss in detail the steps that are involved in the water cycle. Create a diagram to illustrate the water cycle. Describe the carbon cycle in sufficient detail that students can see the movement of carbon through nature. Create a diagram to illustrate the carbon cycle. 	<ul style="list-style-type: none"> interaction between the hydrosphere, lithosphere and atmosphere are represented by biogeochemical cycles conservation of matter occurs in cycles in nature 	Task 6: Extended Response – Write an Essay on the Carbon Cycle in-class (10%)
2	2	<u>Human Impact on Ecosystems</u> <ul style="list-style-type: none"> Brainstorm factors affecting ecosystems (pollution, urbanisation, landfill, habitat destruction and biomagnification). Provide information such as causes, likely effects, organisms affected and prevention on each of the factors above and have students compile a summary sheet 	<ul style="list-style-type: none"> human activities and natural processes impact on cycles in nature scientific knowledge can be used to develop and evaluate projected economic, social and environmental impacts, and to design action for sustainability the use of scientific knowledge is influenced by social, economic, cultural and ethical considerations 	



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2	3	<p><u>Endangered Species</u></p> <ul style="list-style-type: none"> Define the term endangered species and brainstorm different species Describe the classification used and provide examples. Complete worksheets available on causes for endangered animals from Perth Zoo Begin Research on one Endangered Animal and construct a brochure to raise public awareness 	<ul style="list-style-type: none"> reproduction and inheritance play an important role in the continuity of species change in physical environment leads to eventual change in biological characteristics of a species 	<p>Task 7: Extended Response – Research and Construct a Brochure on an Endangered Animal (10%)</p>
2	4	<p><u>Quarantine</u></p> <ul style="list-style-type: none"> Focus on the roll of Quarantine in the protection of Threatened species by providing students with definition and examples Complete Quarantine Kit activities (video and questionnaire) 	<ul style="list-style-type: none"> the use of scientific knowledge may have beneficial and/or harmful and/or unintended consequences the use of scientific knowledge is influenced by social, economic, cultural and ethical considerations 	
2	5	<p><u>Introduced Species and Feral Animals</u></p> <ul style="list-style-type: none"> Discuss the difference between the terms introduced species and feral animals Provide students with definitions and examples of both introduced species and feral animals Look at a case study on Rabbits in Australia Revise for Final topic Test as indicated 	<ul style="list-style-type: none"> changes in a system can affect the survival of organisms; variation assists survival of individuals 	<p>Task 8: Final Topic Test- Human Impact and Ecosystems (10%)</p>