



7 Science Coursework Planner

Term 4: Biological Sciences



Trinity Bay Science

Use of this coursework plan:

Use this coursework plan to inform your learning. You should **tick off** a topic as you learn and understand it and study it at home. Weekly homework is expected with well written sentences. Read **topic 3.2 and Ex 3.2 Q 1 – 4** means students need to read this section and complete the numbered questions for homework. Your answers should be of a higher standard than the simple answers provided by the textbook. These answers will be provided at the end of each week electronically.

☺ will be used for high level (A or B standard) concepts only. These items may not be addressed by all classes.

Summative Assessment: 1 x 70 min exam

Criterion Assessed: Understanding and Skills

WEEK	Elaborations of Content Descriptors Knowledge, concepts, skills and processes that students are expected to learn. Students will:	Guidance Assessment X3 Feedback x 3 Weekly Homework
1	<p><u>Classification</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> <i>Understand</i> classification is based on physical characteristics and group organisms based on physical characteristics. <input type="checkbox"/> <i>Understand</i> classification knowledge has changed over time. <input type="checkbox"/> <i>Classify</i> organisms using hierarchical systems such as kingdom, phylum, class, order, family, genus and species. <p>Website to check https://clickv.ie/w/UYuo</p>	<p><i>Coursework planner handed out Bookwork expectations delivered</i></p> <p>Homework: Read topic 3.2 and 3.4 Complete Ex 3.2 Q 1 – 4, 10</p> <p>Something extra for class or home Complete investigation 3.2 'Living, non-living or dead?'</p>
2	<p><u>Dichotomous keys</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> <i>Use and apply</i> scientific conventions for naming species. <input type="checkbox"/> <i>Organise and group</i> a variety of organisms based on the basis of similarities and differences in particular features. <input type="checkbox"/> <i>Understand and apply</i> the conventions of dichotomous keys. <input type="checkbox"/> <i>Examine, construct and use</i> dichotomous keys. <input type="checkbox"/> <i>Identify and classify</i> organisms using branching and written dichotomous keys. <p>Website to check https://biologydictionary.net/dichotomous-key/</p>	<p>Homework: Read Topic 3.3 – 3.4 Complete Ex 3.4 Q 3 – 7</p> <p>Something extra for class or home Complete investigation 3.4 'Making a class key'</p>
3	<p><u>Dichotomous keys</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> <i>Consolidate</i> and extend understanding of classification using dichotomous keys. <input type="checkbox"/> ☺ <i>Use</i> a learning object to classify plants or bacteria. <p>Websites to check https://youtu.be/wpKulkADzBk https://fergusonfoundation.org/resources/game-fishing-for-a-name/</p>	<p><i>Class quizzes / warm-ups with feedback</i></p> <p>Homework: Read Topic 3.3 – 3.6 Complete Ex 3.5 Q 1 – 6 ☺ 22a.</p>
4	<p><u>Food chains</u></p> <ul style="list-style-type: none"> <input type="checkbox"/> <i>Construct and use</i> food chains to represent feeding relationships in a habitat. <input type="checkbox"/> <i>Classify</i> organisms in an environment according to their position in a food chain. <input type="checkbox"/> <i>Recognise</i> the role of microorganisms within food chains. <p>Websites to check https://www.nationalgeographic.org/topics/resource-library-food-chains-and-webs/?q=&page=1&per_page=25 https://clickv.ie/w/-cvo</p>	<p><i>Bookwork check</i></p> <p>Homework: Read Topic 4.1 – 4.4 Complete Ex 4.4 Q 1 – 5</p> <p>Something extra for class or home Complete Worksheet 4.5 'Food chains and food webs' on Readcloud</p>

5	<p>Food webs</p> <ul style="list-style-type: none"> <input type="checkbox"/> <i>Identify</i> an organism's trophic level. <input type="checkbox"/> <i>Understand</i> that the number of organisms in each trophic level decreases as the level increases. <input type="checkbox"/> <i>Recognise</i> the role of microorganisms within food webs. <input type="checkbox"/> <i>Interpret</i> food webs to show relationships between organisms in an environment. <input type="checkbox"/> <i>Construct, use, and interpret</i> food webs to show relationships between organisms in an environment. <p>Websites to check https://youtu.be/hLq2datPo5M https://www.bbc.co.uk/bitesize/guides/zq4wixs/revision/1</p>	<p><i>Formative assessment</i> <i>Ongoing feedback</i></p> <p>Homework: Read Topic 4.1 – 4.4 Complete Ex 4.4 Q 7, 8 ☺ 14</p> <p>Something extra for class or home. Complete a food web using Worksheet 4.2 'Food webs' on Readcloud</p>
6	<p>Examining human impact</p> <ul style="list-style-type: none"> <input type="checkbox"/> <i>Identify</i> key species within a habitat. <input type="checkbox"/> <i>Identify</i> trophic levels in food pyramids. <input type="checkbox"/> <i>Understand</i> human activity has a range of impacts on a food web. <input type="checkbox"/> <i>Analyse and interpret</i> data showing population numbers. <input type="checkbox"/> ☺ <i>Elaborate</i> on the effects of human activity beyond food webs. <p>Websites to check https://www.pbslearningmedia.org/resource/human-impact-food-webs-video-gallery/the-age-of-nature/</p>	<p><i>Class quizzes / warm-ups with feedback</i></p> <p>Homework: Read Topic 4.4 – 4.9 Complete Ex 4.4 Q 8 ☺ 16 Complete Ex 4.9 Q 24 – 26</p>
7	<p>Investigating and evaluating human impact</p> <ul style="list-style-type: none"> <input type="checkbox"/> <i>Examine and explore</i> the impact of introduced species on other living things. <input type="checkbox"/> Investigate the effect of human activity on local habitats, such as deforestation, agriculture or the introduction of new species. <input type="checkbox"/> <i>Understand</i> the factors that cause species to become 'endangered'. <input type="checkbox"/> <i>Investigate</i> needs and means for controlling introduced species. <input type="checkbox"/> <i>Identify</i> the different levels of 'threatened' species. <input type="checkbox"/> ☺ <i>Discuss</i> the benefits and arguments surrounding human engagement with 'threatened' species e.g. zoos, scientific testing, cultural practices. <input type="checkbox"/> ☺ Research specific examples of human activity, such as the effects of palm oil production. <p>Websites to check https://www.science.org.au/curious/earth-environment/invasive-species https://www.nationalgeographic.org/encyclopedia/endangered-species/</p>	<p>Homework: Read Topic 4.9 – 4.12 Complete Ex 4.9 Q 1 – 5 ☺ 10</p> <p>Something extra for class or home Complete Worksheet 4.7 'Population overload' on Readcloud Complete Worksheet 4.8 'Spot the pest' on Readcloud</p>
8	<p>Native food webs</p> <ul style="list-style-type: none"> <input type="checkbox"/> <i>Identify</i> relationships between organisms in a native environment. <input type="checkbox"/> <i>Explore</i> abiotic factors that influence organisms within a habitat. <ul style="list-style-type: none"> ○ Conduct the 'Measuring abiotic factors' prac. <input type="checkbox"/> ☺ <i>Simulate</i> interactions between an animal population and environmental factors <p>Websites to check https://www.natureaustralia.org.au/what-we-do/our-insights/perspectives/human-impact-nature-australia/ https://clickv.ie/w/2dvo https://www.youtube.com/watch?v=q2zdiLn3gSE</p>	<p>Homework: Read Topic 4.7 Complete Ex 4.7 Q 2, 3, 4a – d ☺</p>
9	<p>Revision</p> <ul style="list-style-type: none"> <input type="checkbox"/> <i>Consolidate</i> and extend understanding of classification <input type="checkbox"/> <i>Review</i> the conventions for constructing branching and written dichotomous keys <p>Assessment</p> <ul style="list-style-type: none"> <input type="checkbox"/> Exam (Understanding and skills) 	<p><i>Summative assessment</i> <i>Exam</i> <i>Exam feedback</i></p>
10	<p>Review and reflect</p> <ul style="list-style-type: none"> <input type="checkbox"/> <i>Review</i> human impacts and native food webs <input type="checkbox"/> Achievement in Year 7 Science discussed and goals set for Year 8 and beyond 	



TOPIC FOUR – *Biological Sciences*

Building Blocks of Life and Reproduction (10 weeks)

Summative Assessment: 1 x 70 min Written Exam

Criteria Assessed: Understanding and Skills

WEEK	Elaborations of Content Descriptors Knowledge, concepts, skills and processes that students are expected to learn. Students will :	Guidance Assessment x3 Feedback x3 Weekly Homework
1	<p><u>Unicellular Life & Exploring the microscope</u></p> <ul style="list-style-type: none"> Be able to define the term cell. Be able to distinguish between unicellular and multicellular life forms. Identify parts of a microscope (stage, light, objective lenses, ocular lens, base, fine focus knob, coarse focus knob, and clips) and be able to explain their purpose. Understand magnification. ☉ Be able to calculate the real size of an object given its apparent size and magnification. <p>Videos https://online.clickview.com.au/exchange/videos/26511383/microscopes-and-cells https://online.clickview.com.au/libraries/videos/3716289/using-a-microscope</p>	<p>Quiz Prior Knowledge</p> <p>Homework Read 3.1 to 3.3 Complete Ex 3.2 Q1,2,4 Ex 3.3 Q1,11,12</p>
2	<p><u>Multicellular life : Parts of an animal cell</u></p> <ul style="list-style-type: none"> Be able to prepare a wet mount slide and safely observe slides under a microscope. Be able to draw a scientific diagram of objects under a microscope. Use a microscope to observe, identify and illustrate pond life. Understand the levels of organisation: cells, tissues, organs, system. Be able to identify general plant cell organelles: cell membrane, nucleus, mitochondria, cytoplasm, cell wall, chloroplasts, and vacuole and describe their function. ☉ Explore examples of specialised plant cells (e.g. xylem, phloem, mesophyll cell and guard cells), their structure and function. <p>Videos https://online.clickview.com.au/exchange/categories/6364/biology/videos/5846817/cell-organelles</p>	<p>Homework Read Topic 3.4 Complete Ex 3.4 Q1 to 5, 12</p>
3	<p><u>Animal Cells</u></p> <ul style="list-style-type: none"> Describe specialised animal cells (e.g. muscle, nerve and blood cells), their structure and function. Be able to identify animal cell organelles: cell membrane, cytoplasm, nucleus, mitochondria, (☉ ribosomes, endoplasmic reticulum). Describe the function of the above animal cell organelles. ☉ Make a 3-D representation of a cell (using jelly for example). Be able to link the function of specialised cells with the variety of their organelles, e.g. mitochondria and muscle cells. ☉ Distinguish between bacteria, animal and plant cells and be able to compare prokaryotes and eukaryotes. Be able to compare and contrast plant and animal cells. <p>Videos https://online.clickview.com.au/libraries/videos/23485886/animal-and-plant-cells</p>	<p>Class Quizzes/ feedback</p> <p>Homework Read Topic 3.6 Complete Ex 3.6 Q1,2,4 & 5</p>
4	<p><u>Plant Reproduction</u></p> <ul style="list-style-type: none"> Dissect and be able to identify parts of a flower such as petal, filament, stigma, style, anther, sepal, pollen, ovary, ovule, stamen, and carpel. Know the function of each part of a flower. Understand the difference between types of pollination and be able to identify which system a plant uses. E.g. self and cross pollination, animal and wind pollination. <p>Videos https://online.clickview.com.au/libraries/videos/15495086/the-structure-of-typical-flowers https://online.clickview.com.au/libraries/series/15426177/reproduction-in-plants/videos/3716746/fertilisation-in-flowering-plants https://online.clickview.com.au/libraries/series/15426177/reproduction-in-plants/videos/3716731/pollination</p>	<p>Class Quizzes/feedback</p> <p>Homework Read Topic 3.7, 3.8, 5.11 Complete Ex 3.7 Q1. Ex. 3.8 Q1,5,7 Ex 5.11 Q1,3,4</p>

5	<p><u>Human Reproduction</u></p> <ul style="list-style-type: none"> Be able to identify the following male and female anatomical parts and describe their function: vagina, ovary, fallopian tube, uterus, cervix, clitoris, urethra, ureter, kidney, bladder, penis, testis, epididymis, vas deferens, prostate gland. 	<p>Homework Read Topic 5.2 Complete Ex 5.2 Q4,5</p>
6	<p><u>Human Reproduction</u></p> <ul style="list-style-type: none"> Know the physical changes that puberty causes in males and females. Know that changes in puberty are due to hormones. ☉ Be able to describe the functions of FSH, oestrogen and progesterone. <p>Videos https://online.clickview.com.au/libraries/categories/3708551/videos/3714503/human-reproduction-and-childbirth</p>	<p>Class Quizzes /feedback Homework Read Topic 5.3 Complete Ex 5.3 Q2,3 & 4</p>
7	<p><u>Comparing plant & animal Reproductive cells</u></p> <ul style="list-style-type: none"> Be able to describe the menstrual cycle and identify the timing of ovulation. ☉ Be able to link the levels of hormones and thickness of endometrium to stages of the menstrual cycle through the interpretation of diagrams. Compare the function of reproductive cells in plants and animals - sperm, eggs, pollen, and ovum. ☉ Human reproduction: bioengineering aspects of reproduction. ☉ Contraception ☉ Pregnancy Complications (ectopic pregnancy etc.) 	<p>Mix n Match/ Consolidation ppts Homework Read Topic 5.6 & 5.7 Complete Ex 5.7 Q1,2 Ex 5.8 Q1,2 ,3</p>
8	<p><u>Revision & Assessment</u></p> <ul style="list-style-type: none"> Exam testing Science Understanding and Skills. 	<p>Exam/ Feedback</p>
9/10	<p><u>Immunity</u></p> <ul style="list-style-type: none"> Describe the various types of defence against infection such as physical barriers, inflammation and white blood cells. ☉ Explain the roles of the lymphatic system, T lymphocytes, antibodies and antigens. Be able to define pathogens and hosts. Explore disease causing organisms such as bacteria, viruses, protozoa <p>Videos https://online.clickview.com.au/exchange/categories/13000/health/videos/2854333/the-immune-system https://online.clickview.com.au/exchange/categories/6364/biology/videos/38288/parasites</p>	



TOPIC FOUR – *Chemical Sciences*

Chemical Patterns and Heat and Eat units (10 weeks)

Use this coursework plan to inform your learning. You should tick off a topic as you learn and understand it and study it at home. Weekly homework is expected with well written sentences. **Topic 3.4 and Ex 3.4 Q 1-3, 5** means students need to read this section and complete the numbered questions for homework. Your answers should be of a higher standard than the simple answers provided by the textbook. These answers will be provided at the end of each week electronically. We have included some interesting optional websites to assist you.

☺ will be used for high level (A or B standard) concepts only. These items may not be addressed by all classes.

WEEK	Elaborations of Content Descriptors Knowledge, concepts, skills and processes that students are expected to learn. Students will :	Assessment x 3 Feedback x 3 Weekly Homework
1	<p>Chemical Reactions and Conservation of Mass</p> <ul style="list-style-type: none"> <input type="checkbox"/> Revise the names and symbols of the first twenty elements. <input type="checkbox"/> Know that in a chemical reaction, reactants are transformed into products. <input type="checkbox"/> Know that an exothermic reaction or process gives off energy (usually as heat), while an endothermic reaction or process absorbs energy. <input type="checkbox"/> Know the difference between a chemical reaction and a physical process. <input type="checkbox"/> Know the Law of Conservation of Mass – in a chemical reaction, the total mass of the reactants is the same as the total mass of the products. <input type="checkbox"/> Know that in a chemical formula the subscripts tell you the number of atoms, e.g. CuSO₄ has one copper atom, one sulphur atom and four oxygen atoms. <input type="checkbox"/> ☺ Be able to <i>solve</i> and balance chemical equations. <p>Websites to check:</p> <ul style="list-style-type: none"> <input type="checkbox"/> https://www.khanacademy.org/science/ap-chemistry/stoichiometry-and-molecular-composition-ap/balancing-chemical-equations-ap/v/chemical-reactions-introduction <input type="checkbox"/> https://www.youtube.com/watch?v=3IHHOiTdmK4 	<p>Coursework planner handed out. Bookwork expectations delivered.</p> <p>Topic 7: Chemical Reactions (page 319)</p> <p>Homework:</p> <p>1) Read the coursework planner 2) Cross-Reference the coursework planner and Readcloud/new version of the textbook.</p> <p>Read Topic: 7.1 and 7.2 (pages 319, 321 - 322)</p> <p>Complete Ex: 7.2, Q1, 2, 3, ☺ 6, ☺ 8 (page 323)</p> <p>Read Topic: 7.3 (pages 324-326)</p> <p>Complete Ex: 7.3, Q1, ☺ 8 (page 327)</p>
2	<p>Reactions of acids and bases</p> <ul style="list-style-type: none"> <input type="checkbox"/> <i>List</i> the properties of acids: taste sour, react with active metals, and that some acids are corrosive. <input type="checkbox"/> Know some common substances which contain acids, e.g. vinegar, lemon juice, ant bites, yoghurt. <input type="checkbox"/> <i>List</i> the properties of bases: taste bitter, feel slippery or soapy, and that some bases are corrosive. <input type="checkbox"/> Know some common substances which contain bases, e.g. drain cleaner, dishwashing liquid. <input type="checkbox"/> <i>Observe</i> that acids react with active metals to make hydrogen gas and a salt. <input type="checkbox"/> active metal + acid → H₂ + salt <input type="checkbox"/> ☺ Know that acids are substances that dissociate to release hydrogen ions in water, and bases release hydroxide ions in water. <p>Websites to check:</p> <ul style="list-style-type: none"> <input type="checkbox"/> https://www.youtube.com/watch?v=3IHHOiTdmK4 	<p>Homework:</p> <p>Read Topic: 7.4 (page 328)</p> <p>Complete Ex: 7.4, Q1, 2, 3, 12 (page 333, 334)</p>

	<ul style="list-style-type: none"> <input type="checkbox"/> https://www.khanacademy.org/science/chemistry/acids-and-bases-topic 	
3	<p>Acids and Bases</p> <ul style="list-style-type: none"> <input type="checkbox"/> Know that a neutral substance is neither acidic nor basic. <input type="checkbox"/> Know that an alkali is a base dissolved in water. <input type="checkbox"/> Know that an indicator is a substance that is one colour in a very acidic solution and a different colour in a very basic solution. Different indicators change colour at different pH levels. <input type="checkbox"/> Compare the acidities of solutions by using the pH scale; which is a scale from 1 (very acidic) to 14 (very basic / alkaline). <p>Websites to check:</p> <ul style="list-style-type: none"> <input type="checkbox"/> https://phet.colorado.edu/en/simulation/ph-scale-basics 	<p>Assessment handed out</p> <p>A-level Exemplar handed out</p> <p>Homework:</p> <p><i>☺begin assignment by researching theory at home</i></p> <p>Read Topic: 7.4 (page 328)</p> <p>Complete Ex: 7.4 Q4, 8, 9, 10, ☺ 13, ☺ 15 (pg 333, 334)</p>
4	<p>Assessment</p> <ul style="list-style-type: none"> <input type="checkbox"/> Conduct and write up Assessment Task <input type="checkbox"/> ☺ Be able to <i>interpret</i> Safety Data Sheets (SDS) 	<p>Homework:</p> <p><i>☺continue assignment by researching theory and writing report at home</i></p>
5	<p>Acids and Bases</p> <ul style="list-style-type: none"> <input type="checkbox"/> Know that acids and bases neutralise each other. <input type="checkbox"/> Know the word equation for neutralisation: acid + base → water + a salt. <input type="checkbox"/> <i>Determine</i> the pH of substances by using an indicator. <p>Websites to check:</p> <ul style="list-style-type: none"> <input type="checkbox"/> https://phet.colorado.edu/en/simulation/acid-base-solutions 	<p>Homework:</p> <p>Read Topic: 7.4 (page 328)</p> <p>Complete Ex: 7.4 Q5, 6, ☺ 14, ☺ 18 (page 333, 334)</p>
6	<p>Acids and Bases</p> <ul style="list-style-type: none"> <input type="checkbox"/> ☺ <i>Explain</i> that acid rain is caused when sulphur-containing substances are burnt, making sulphur dioxide which reacts with water in the atmosphere. <input type="checkbox"/> ☺ Know that strong acids or bases are substances that dissociate completely in water, and that weak acids and bases do not dissociate completely in water. Some weak acids are weaker than others, because they dissociate less. <input type="checkbox"/> ☺ <i>Justify</i> that a dilute solution is a solution containing not much solute in lots of water, whereas a concentrated solution contains lots of solute in not much water. <input type="checkbox"/> ☺ Be able to use these concepts to <i>compare</i> solutions e.g. a dilute solution of a strong acid to a concentrated solution of a weak acid. 	<p>DRAFT DUE</p> <p>Homework:</p> <p><i>☺continue assignment by researching theory and start writing report at home</i></p> <p>Read Topic: 7.5 (pages 335 - 336)</p> <p>Complete Ex: 7.5 Q1, 3, ☺ 5 (page 337)</p>

7	<p>Reactions of metals</p> <ul style="list-style-type: none"> <input type="checkbox"/> ☺ Be able to <i>solve</i> and balance complex chemical equations. <input type="checkbox"/> Know that acids react with active metals to make hydrogen gas and a salt. <input type="checkbox"/> Know that the more reactive the metal, the faster that reaction will go. <input type="checkbox"/> Know that an activity series lists metals in order of reactivity. <input type="checkbox"/> Know that in a displacement reaction, the more reactive metal ends up in solution. <p>Websites to check:</p> <ul style="list-style-type: none"> <input type="checkbox"/> https://phet.colorado.edu/en/simulation/balancing-chemical-equations 	<p>Homework:</p>
8	<p>Reactions of metals and Food chemistry</p> <ul style="list-style-type: none"> <input type="checkbox"/> ☺ Be able to <i>use</i> an activity series of metals to predict the results of a displacement reaction. <input type="checkbox"/> ☺ Be able to use the results of a set of displacement reactions to categorise the metals in order from most reactive to least reactive. <input type="checkbox"/> Know that metals can be extracted from their oxides by smelting. <input type="checkbox"/> ☺ <i>Analyse</i> how the physical properties of metals can be changed by quenching, annealing and tempering. <input type="checkbox"/> Know that acids react with carbonates to make carbon dioxide gas, water and a salt; and that this is used in many applications including baking. <input type="checkbox"/> Conduct experiment on reactions involving antacids 	<p>Submit completed assessment</p> <p>Homework: Read 7.9 (Review) P.343 Complete 7.9 Review Q1, 2, 5, 8, 12,</p>
9	<p>Combustion Chemistry</p> <ul style="list-style-type: none"> <input type="checkbox"/> Know that combustion is another name for burning. <input type="checkbox"/> Know that in a combustion reaction, a substance reacts with oxygen to produce oxides. <input type="checkbox"/> <i>Determine</i> how the products of combustion reactions affect the environment. <input type="checkbox"/> Revision of chemical reactions and metals 	<p>Homework: Read Topic: 7.6 (pages 338 – 339)</p> <p>Complete Ex: 7.6 Q1, 3, 4, ☺ 6, ☺ 12 (pages 339 – 340)</p>
10	<p>Higher Order Thinking</p> <ul style="list-style-type: none"> <input type="checkbox"/> Activities 	<p>Scientific report feedback</p>