7 Science Coursework Planner

Term 3: Earth Science

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. **Topic 6.2 and Ex 6.2 Q 1-7** 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	**Our solar system** ☐ *Compare* times for the rotation of the Earth and the moon around the sun. ☐ *Compare* times for the orbits of the Earth and the moon around the sun. ☐ *Construct* annotated diagrams of the rotations and orbits of the Earth and the moon relative to the sun. ***Website to check*** https://www.sciencekids.co.nz/gamesactivities/earthsunmoon.html https://phet.colorado.edu/en/simulation/gravity-and-orbits	*Coursework planner handed out* *Bookwork expectations delivered* **Homework:** Read topics 6.1 to 6.3 Complete Ex 6.2 Q 1-4 ☺ 13 **Something extra for class or home** ☺ *Research* influential discoveries in the history of astronomy
2	**Moon phases** ☐ *Investigate* natural phenomena such as phases of the moon. ☐ *Understand and explain* that the phases of the moon are related to the moon's position relative to the Earth and the sun. ☐ *Research* knowledges held by Aboriginal and Torres Strait Islander Peoples regarding the phases of the moon. ☐ Conduct the 'Modelling the phases of the moon' experiment. ***Websites to check*** https://www.natgeokids.com/au/discover/science/space/the-phases-of-the-moon/ https://www.youtube.com/watch?v=f4ZHdzl6ZWg	**Homework:** Read Topic 6.4 Complete Ex 6.4 Q 1-5, 7 **Something extra for class or home** Complete Worksheet 6.1 'The moon' on Readcloud
3	**Tides on earth** ☐ *Explain* that tides occur due to interactions between the Earth, the moon and the sun. ☐ ☺ *Construct* a graph to demonstrate the tidal patterns for any given day and *predict* future high tides. ☐ *Research* knowledges held by Aboriginal and Torres Strait Islander Peoples regarding the connection between the lunar cycle and ocean tides. ☐ *Construct* an annotated diagram for a neap and a spring tide. ***Websites to check*** https://scijinks.gov/tides/ https://www.youtube.com/watch?v=pwChk4S99i4	**Homework:** Read Topic 6.5 Complete Ex 6.5 Q 1-6, 8 **Something extra for class or home** Complete Worksheet 6.2 'Surf's up' on Readcloud
4	**Seasons** ☐ *Explain* why different regions of the Earth experience different seasonal conditions by referring to the following factors:	*Bookwork check* *Class quizzes / warm-ups with feedback*

	○ The link between the tilt of the Earth & the intensity of the sunlight hitting the Earth. ○ The combination of the position of the Earth in its orbit relative to the sun. ☐ *Investigate* Aboriginal and Torres Strait Islander Peoples' calendars and how they are used to predict seasonal changes. ***Websites to check*** https://www.livescience.com/25202-seasons.html https://www.dkfindout.com/us/quiz/earth/take-sizzling-seasons-quiz/	**Homework:** Read Topic 6.2 Complete Ex 6.2 Q 5-7 ☺ 8-10
5	**Eclipses** ☐ *Model* the relative movements of the Earth, sun and moon and how natural phenomena such as solar and lunar eclipses and phases of the moon occur. ○ Conduct the 'Modelling solar and lunar eclipses experiment. ☐ *Research* Aboriginal and Torres Strait Islander Peoples' oral traditions and cultural recordings of solar and lunar eclipses. ☐ *Construct* a diagram of a total solar eclipse including an umbra and penumbra. ☐ *Investigate* similarities and differences between Aboriginal and Torres Strait Islander Peoples and contemporary understandings of solar and lunar eclipses. ***Websites to check*** https://spaceplace.nasa.gov/eclipses/en/ https://www.youtube.com/watch?v=rVE8PFYlwSM	*Formative assessment* *Ongoing feedback* **Homework:** Read Topic 6.6 Complete Ex 6.6 Q 1 - 4 **Something extra for class or home**. Complete Worksheet 6.3 'Eclipses' on Readcloud
6	**Water cycle** ☐ *Consider* the water cycle in terms of changes of state of water. ☐ *Investigate* factors that influence the water cycle in nature. ☐ *Explore* and *discuss* how human management of water impacts on the water cycle. ☐ *Explore* Aboriginal and Torres Strait Islander Peoples' connections with, and valuing of, water and water resource management. ***Websites to check*** https://www.natgeokids.com/au/discover/science/nature/water-cycle/	***Class quizzes / warm-ups with feedback*** Read Topic 7.5 Complete Ex 7.5 Q 6 - 9 **Something extra for class or home**. Complete Worksheet 7.2 'The water cycle'
7	**Renewable resources** ☐ *Consider* what is meant by the term 'renewable' in relation to the Earth's resources. ☐ *Consider* timescales for the regeneration of resources. ☐ *Investigate* the variety of resources found in the earth's crust and below. ☐ *Understand* the reliance society has on mineral resources. ***Websites to check*** https://www.generationgenius.com/renewable-vs-nonrenewable-energy-reading-material/	**Homework:** Read Topics 7.1 to 7.4 Complete Ex 7.2 Q 1-3, Ex 7.3 Q 1-6
8	**Renewable and non-renewable resources** ☐ *Consider* what is meant by the term 'non-renewable' in relation to the Earth's resources. ☐ *Compare* renewable and non-renewable energy sources, including how they are used in a range of situations. ☐ ☺ *Analyse* data of global fossil fuel use. ☐ ☺ Calculate the percentage of renewable and non-renewable energy sources used globally using data provided. **Revision** ☐ Revision	**Homework:** Read Topics 7.1 to 7.4 Complete Ex 7.4 Q 1, 2, 4-7
9	**Assessment** Exam (Understanding and skills)	*Summative assessment* *Exam*
10	**Feedback** ☐ Feedback on exam results, and feed forward for Term 4 Starlab Experience week and astronomy videos	*Exam/Ongoing feedback* *This week is a catch up week for the Starlab experience.*

8 Science Coursework Planner

Term 3: Energy for my life and Watt's Up (10 weeks)

Trinity Bay Science

Use of this coursework plan:
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☺ 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	**Energy** • Define energy types: sound, heat, light and electrical • Define **action (kinetic) energy** and **potential energy** • Investigate examples of kinetic and potential energy • Know that **kinetic, sound, heat, light** and **electrical** energy are all types of action (kinetic) energy, and **chemical, elastic, nuclear** and **gravitational** are all forms of potential energy. **Cairns Show Holiday** ***Websites to check*** https://clickv.ie/w/eeOn https://youtu.be/qybUFnY7Y8w https://youtu.be/Av07QiqmsoA	*Coursework planner handed out and bookwork expectations delivered* **Homework** Read topic 10.1.2-10.2.1 Complete Ex 10.2 Q1-3 and Q7-9
2	**Energy** • Review the idea of **energy transformations and** Know the **Law of Conservation of Energy**; that energy cannot be created or destroyed, only transformed from one form to another or transferred from one object to another • Know that the sun is the primary source of energy for everything. **Science Week Activities** ***Websites to check*** https://phet.colorado.edu/en/simulation/pendulum-lab https://youtu.be/xXXF2C-vrQE	**Homework** Read topic 10.2.2 Complete Ex 10.2 Q 4-6 and Q10-11
3	**Chemical Potential Energy** • Define and give examples of **chemical potential energy** • Know that energy is measured in joules (J). • Investigate chemical potential energy in food • Compare the amount of chemical potential energy in different food categories • Know that **R.D.I** is the recommended daily intake • Investigate R.D.I from each food category • Review the healthy food pyramid and plan a daily menu for a year 8 student ***Websites to check*** http://www.medicalonline.com.au/medical/nutrition/rdi.htm https://www.health.gov.au/resources/publications/the-australian-dietary-guidelines	**Homework** Read topic 10.2.2 Types of Energy Complete your daily menu plan.
4	**Assessing the Energy in Food** • ☺ Design and carry out an experiment to compare the energy content of foods. • Complete the Aim, variables Review **IDC variables** and the scientific method. • Complete results table and graph results and discussion section • ☺ Know how to graph results using Excel	**Homework** *Complete activity 10.2 worksheet*

5	**Gravitational Potential Energy** • Define and give examples of **gravitational potential energy** • Explain the effect of height and mass on gravitational potential energy • Do an experiment to investigate gravitational potential energy through the effect of dropping balls with different masses from different heights on the depth of impact craters • Be able to write an **aim, hypothesis, identify IDC variables, method and results** for an investigation ***Websites to check*** https://youtu.be/oBdalzRJR5g https://phet.colorado.edu/sims/html/energy-skate-park-basics/latest/energy-skate-park-basics_en.html	**Homework** Read topic 10.2.2 Complete your worksheet on Gravitational potential energy
6	**Elastic Potential Energy** • Define and give examples of **elastic potential energy (EPE)** • Explain the effect of elasticity of materials on the amount of EPE that can be stored. • Do an experiment to investigate the EPE stored in a spring, rubber band or any stretchy material • Be able to identify the IDC variables from a given method • Be able to evaluate how effectively variables have been controlled ***Website to check*** https://clickv.ie/w/eeOn	**Homework** *Read 10.2.3 and 10.2.3* *Complete Exercise 10.2 Q 12-15*
7	**Energy Efficiency** • Know that the **energy efficiency** of an appliance is the percentage of energy input that is used for the purpose of the appliance • Do an experiment to determine the efficiency of a kettle • ☺ Be able to calculate the energy efficiency of a kettle as a percentage, using the rule **% Efficiency = useful energy x 100** **. input energy** • ☺ Compare the energy efficiency of various appliances • Research energy sources and calorimeters • ☺ Be able to analyse results and draw conclusions ***Websites to check*** *https://clickv.ie/w/IeOn*	**Homework** Read topic 10.2.4 Efficiency Complete your kettle efficiency questions.
8	**Energy Sources and Technologies** • Know the definitions of **renewable and non-renewable** energy sources, and some examples of each type • Identify advantages and disadvantages of renewable and non-renewable energy sources • Research the application of renewable sources • ☺ Compare advantages and disadvantages of petrol, electric and hybrid cars. • ☺Research renewable sources from different countries • ☺ Investigate renewable sources for different purposes • Understand that batteries produce a convenient electrical supply • ☺ Evaluate energy claims of batteries (voltage, current) • Investigate the efficiency of light bulbs ***Websites to check*** https://www.solarschools.net/knowledge-bank/renewable-energy https://www.solarschools.net/knowledge-bank/non-renewable-energy	*Class quizzes / warmups* **Homework** Read topic 10.2.3 Work on revision questions on worksheets provided
9	• Revision • Exam testing Science Understanding and Science Skills	Exam
10	• Feedback • Complete data skills in Physics training	Feedback on Exam

TRINITY BAY STATE HIGH SCHOOL

SCIENCE DEPARTMENT – YEAR 9 COURSEWORK PLANNER

TOPIC THREE – *Biological Sciences*

My Life in Balance and Responding to Change (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.
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Summative Assessment: 1 x 70min 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	**Requirements For Life (essential nutrients)** □ Know the **five essentials nutrients** (**carbohydrates, proteins, lipids vitamins and minerals**). □ Know examples of the five essential nutrients and why they are so important. □ Undertake an experiment to determine the presence of starch, glucose and protein in glucose, starch and gelatine. Websites to check https://online.clickview.com.au/libraries/videos/3714245/nutrients-the-basics https://study.com/academy/lesson/what-are-nutrients-definition-examples.html	Coursework planner handed out. Bookwork expectations delivered. **Homework:** 1) Read the coursework planner 2) Cross reference the coursework planner and Readcloud.
2	**Nutrition** □ Describe how the requirements for life such as nutrients, water, gas exchange and removal of wastes are provided by the body systems. □ Know diseases which are caused by various vitamin deficiencies. □ Undertake an inquiry to determine the nutrients in foods found in pantry items. Websites to check https://www.khanacademy.org/science/high-school-biology/hs-biology-foundations/hs-biological-macromolecules/v/introduction-to-vitamins-and-minerals	**Homework:** **Read topic** 3.3 **Complete** Ex 3.2 Q 1,2 and 3.
3	**Digestive System** □ Understand the five digestive processes **(ingestion, mechanical digestion, chemical digestion, absorption and assimilation).** □ Understand the differences between **mechanical** and **chemical digestion** and the structures involved in these processes. □ Know the structure and function of the **digestive system (mouth, epiglottis, liver, gall bladder, caecum, appendix, salivary glands, oesophagus, stomach, pancreas, small intestine, large intestine, rectum and anus**). □ Simulate the workings of the small intestine through practical experimentation. Websites to check ☺ https://youtu.be/X3TAROotFfM	**Homework**: **Read topic** 3.4.1 to 3.4.7 **(digestive system section).** **Complete** Ex 3.4 Q 2,3,4,5,6.
4	**Circulatory System** □ Understand the components of **blood** (**plasma, red and white blood cells, platelets**). □ Understand the differences between and function of the **blood vessels** (**arteries, veins and capillaries**).	Bookwork check with feedback **Homework.**

	□ Know the structure and function of the **circulatory system** (**atria, ventricles, valves, pulmonary veins, pulmonary artery, aorta and vena cava**). □ Be able to identify the structures of the heart through a heart dissection practical. Websites to check https://youtu.be/Vi1JK6IYVt8 http://www2.needham.k12.ma.us/eliot/technology/lessons/cir_sys/index.htm	**Read topic** 3.2.8 and 3.2.9 **Complete** Ex 3.2 Q 5,6
5	**Respiratory System** □ Know the structure and function of the **respiratory system** (**mouth, trachea, bronchi, bronchioles and alveoli**). □ Be able to determine the vital capacity of the lungs through practical experimentation. □ Be able to name parts of the respiratory system through a pluck practical. Websites to check https://youtu.be/qGiPZf7njqY	**Class quizzes / warmups with feedback** **Homework:** **Read topic** 3.2.1 -3.2.7 **Complete** Ex 3.2 Q 1,2,3,4
6	**Excretory System** □ Know the structure and function of the **excretory system** (**kidneys, bladder, ureters and urethra**). □ Understand how the excretory system is closely linked to the circulatory system. □ ☺ Understand how the composition of blood and urine differs. Websites to check https://www.proprofs.com/quiz-school/story.php?title=excretory-system-quiz_2	**Homework:** **Read topic** 3.4.8-3.4.15 **Complete** Ex 3.4 Q 1, 7-10, 14-19
7	**Homeostasis and adaptations** □ ☺ Understand the processes of **homeostasis** with respect to the regulation of temperature or glucose levels. □ ☺ Be able to explain how body systems work together □ Know the difference between, **structural, functional and behavioural adaptations** and be able to list examples of each type of adaptation. □ Thurs 9 into 10 info day Websites to check https://phet.colorado.edu/en/simulation/legacy/natural-selection	**Homework:** **Complete** Ex 3.10 Review Q1,5,8,11-13 **Class quizzes / warmups with feedback**
8	**Energy and organism Interactions** □ Know the difference between **food chains and food webs**. □ Understand the roles **of producers, consumers, scavengers and decomposers** in ecosystems. Know the difference between **abiotic and biotic factors**. Develop an awareness of how factors such as seasonal changes and introduced species can affect population size Websites to check https://www.learner.org/wp-content/interactive/envsci/ecology/ecology.html?initLesson=1	**Homework:** **Read topic** 5.2.1-5.2.6 **Complete Ex** 5.2 Q 5,7,9,11, Revise previous work ready for test.
9	**Organism Interactions** □ Know the difference between **collaboration** and **symbiosis** and be able to provide examples of the different types of symbiosis (**mutualism, parasitism, and commensalism**). □ ☺ Understand the interactions of different relationships within an ecosystem. Websites to check https://byjus.com/biology/biotic-and-abiotic/ □ Exam	**Homework:** **Read topic** 5.2.7-5.2.15 **Complete** Ex 5.2 Q 1,11,15,23 Finish revision EXAM in last lesson this week,
10	□ Review the exam answers. □ Biology Data Skills practice lessons	Exam feedback