DAPTO HIGH SCHOOL – Science
Year 7 - Topic: Being a Scientist

To satisfactorily complete this topic you must achieve the outcomes below.

Student Outcomes	**Achieved? (√ or X)**
1. Define Science as an organized approach to solving problems. 2. Name and describe some of the branches of Science including Physics, Chemistry, Biology and Geology. 3. Accept responsibility for maintaining a safe working environment by following a set of safety rules. 4. Identify some dangerous situations in the laboratory and relate them to laboratory rules. 5. Demonstrate / explain what to do in the following situations: (a) FIRE – Carbon Dioxide fire extinguisher, fire blanket, sand bucket, mains gas off (b) CHEMICAL SPILL – wash off with water (c) BROKEN GLASS – use brush and pan, do not place in rubbish (d) ELECTRICAL PROBLEM – stay clear, use main power key IN ALL CASES THE TEACHER MUST BE INFORMED IMMEDIATELY 6. Draw and label the parts of the Bunsen Burner as barrel, base, air hole collar and hose. 7. Demonstrate the correct steps for lighting a Bunsen Burner. 8. Assemble, name and draw in 2D the following: test tube, measuring cylinder, conical flask, filter funnel, watch glass, evaporating basin, tripod, gauze, retort stand, heat mat, boss head, clamp, test tube holder and beaker. 9. Draw a column graph to show the number of five pieces of equipment in the laboratory. 10. Record scientific experiment using the headings: PROBLEM, HYPTOHESIS, AIM , EQUIPMENT, METHOD, RESULTS, CONCLUSION 11. Define a hypothesis as a suggested answer to a problem, which may be solved by an experiment. 12. Recall and use the basic units of measurements in the SI system. 13. Use and read the following measurement instruments accurately: (a) metre ruler (b) stop watch (c) thermometer (b) measuring cylinder (e) triple beam balance (f) data logger 14. Use these instruments to accurately determine (a) Length of a Science Lab (b) Mass of an exercise book (c) Volume of liquid help by a teaspoon (d) Time it takes to run 100 m (e) Number of drops of water on a coin (f) Volume of a rock 15. Boil water and use a line graph to show the temperature change over time. 16. List the senses we use to find out about the world around us and link each sense to the information it gives us. **<u>Additional Content:</u>** 17. Determine the structure of the eye by using a “cut-out”. 18. Determine the structure of the ear by using a “cut-out”. 19. Use video information to learn how we see and hear. 20. Use video information to learn how we smell and taste. 21. Discussions and research on corneal transplants and cochlear implants. **<u>Vocabulary List:</u>** Biology Chemistry Geology Physics Laboratory Bunsen Measuring Cylinder Observation Problem Hypothesis Conclusion Tripod Retort Gauze Measurement Instrument Temperature Cornea Retina Auditory Eardrum	

Topic Test: ___/50

Bookwork : Satisfactory ☐ Unsatisfactory ☐

Attitude : Satisfactory ☐ Unsatisfactory ☐

Assessments : Satisfactory ☐ Unsatisfactory ☐

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Teacher Signature Parent/Guardian Signature

Self-reflection

My achievements for this unit are:_____

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I need to improve in the following area:_____

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One way I can improve:_____

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DAPTO HIGH SCHOOL – Science
Year 7 - Topic: What's the Matter?

To satisfactorily complete this topic you must achieve the outcomes below.

Student Outcomes	**Achieved? (√ or X)**
1. Describe matter as anything that has *mass* and takes up *space*. 2. Identify that matter exists in three states: solid, liquid, gas. 3. Give examples and make observations of different types of matter that exist as solids, liquids and gases. 4. Classify a variety of substances as solid, liquid or gas. 5. State the "Particle Theory of Matter" says that all matter is made up of particles that are constantly moving and interacting. 6. Observe and describe differences in ***appearances*** of substances in different states e.g. water (solid, liquid, gas), CO_2 (solid, gas), wax (solid, liquid, gas), tin (solid, liquid), iodine (solid, gas) etc. 7. Understand that particles move faster when heated and more slowly when cooled. 8. Investigate the properties of matter e.g. compressibility, diffusion, shape, space etc. 9. Understand that matter expands when heated and contracts when cooled due to increased or decreases in particle movements. 10. Discuss implications of expansion and contraction of matter in everyday life using specific examples. 11. Carry out an investigation to boil water using correct steps, appropriate equipment with safety and within a given time frame. **Additional Content:** 12. Describe diffusion in terms of the random movement of particles in liquids and gases. 13. Investigate, experimentally, the effect of temperature on the rate of diffusion and explain observations in terms of the particle theory of matter. **Vocabulary List:** Matter Solid Liquid Gas Particle Expand Contract Compress Diffuse State Temperature Thermometer Property	

Topic Test: ___/50

Bookwork : Satisfactory ☐ Unsatisfactory ☐

Attitude : Satisfactory ☐ Unsatisfactory ☐

Assessments : Satisfactory ☐ Unsatisfactory ☐

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Self-reflection

My achievements for this unit are:_____

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I need to improve in the following area:_____

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One way I can improve:_____

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DAPTO HIGH SCHOOL – Science

Year 7 - Topic: What is Energy?

To satisfactorily complete this topic you must achieve the outcomes below.

Student Outcomes	Achieved? (√ or X)
1. Define energy as the ability to do work or to cause change and it is measured in joules. 2. Identify that technologies make tasks easier or more convenient. 3. Describe that energy changed when it is used from one form to another. 4. Identify 10 different forms of energy. 5. Account for total energy involved in energy transfers and transformations. 6. Identify kinetic energy as energy of motion and potential energy as energy due to other properties. 7. Label a diagram to show how PE changes to KE and vice versa when a brick falls and a pendulum falls. 8. Identify energy changes inside and outside the laboratory. 9. Identify a variety of energy transformations in everyday devices involving electrical, sound light and/or heat energy. 10. Use models to describe different forms of energy. 11. Make energy converters, which change: electrical to heat – radiator electrical to sound – speaker solar to electrical – solar cells heat to electrical – thermocouple heat to kinetic – automobile engine chemical to heat – striking a match 12. Describe a problem and develop a hypothesis or question that can be tested or researched. e.g. use a pendulum to show conversion of KE and PE. 13. Identify possible sources of information or data relevant to the investigation. 14. Identify what type of information or data needs to be collected. 15. Justify why particular types of data or information are to be collected. 16. Identify the appropriate units to be used in collecting data. 17. Follow a planned procedure when performing an investigation e.g. identify 10 devices in the home that transform energy, draw a flow chart of energy changed that occur in a power station. 18. Use time and resources effectively. 19. Safely and efficiently construct, assemble, and manipulate identified equipment. 20. Record using the appropriate units. 21. Describe (using examples including those developed by Aboriginal peoples) ideas developed by different cultures to explain the world around them. 22. Describe historical cases where developments in science have led to the development of new technologies. 23. Identify and describe examples where technological advances have impacted on science.	

Topic Test: ___/50

Bookwork : Satisfactory ☐ Unsatisfactory ☐

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Assessments : Satisfactory ☐ Unsatisfactory ☐

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Teacher Signature Parent/Guardian Signature

Self-reflection

My achievements for this unit are:_____

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I need to improve in the following area:_____

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One way I can improve:_____

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DAPTO HIGH SCHOOL – Science
Year 7 - Topic: Hot Stuff

To satisfactorily complete this topic you must achieve the outcomes below.

Student Outcomes	**Achieved? (√ or X)**
1. Recall that there are three states of matter and that the particles of matter are continuously moving and interacting. 2. Realise that a changed in the amount of energy processed by particles determines the amount of their movement. 3. Measure and graph the temperature at which ice melts to demonstrated the melting point of a solid. 4. Measure and graph the temperature at which wax freezes to demonstrate the freezing point of a liquid. 5. Determine the effect of salt on the boiling and freezing points of water. 6. Compare the cooling effect of evaporation of various liquids including water and ethanol. 7. Observe the condensation of water vapour into a liquid. 8. Understand the differences between evaporation and boiling. 9. Understand the concept of latent heat, and that energy must be lost or gained during changes of state. 10. Carry out an experiment to demonstrate the latent heat of water as it boils. 11. Observe the sublimation of various substances from solid to gas/gas to solid, including sulfur, naphthalene, iodine, carbon dioxide (dry ice). 12. Explain that pressure Is caused by colliding particles pushing against surfaces. 13. Understand the relationship between pressure, force and surface area. 14. Observe the effects of air pressure at work, including suction disks, Magdeburg hemispheres and a "crushing can". 15. Know that air pressure is measured by barometers. 16. Know some common units of air pressure, including millibars, hectapascals, mmHg and atmospheres 17. Relate differences in air pressure to differences in weather patterns, so know about isobars. 18. Boil water under reduced pressure, so understand that boiling point depends on ambient pressures. 19. Understand that density is a measure of mass/volume. 20. Measure the masses (using a digital balance) and volume of common substances (by difference if necessary) and determine their density in grams/mL, including water, ice, salt, sand, rubber stopper, rock. 21. Understand that a less dense substance floats on a more dense substance. 22. Float different concentrations of salt water on each other. 23. Know that the Dead Sea is very dense, so that a person cannot sink in it. 24. Know what Plimsoll lines are and what they are used for. 25. Make a Cartesian diver and use knowledge of pressure and density to explain how it works.	

Topic Test: ___/50

Bookwork : Satisfactory ☐ Unsatisfactory ☐

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Assessments : Satisfactory ☐ Unsatisfactory ☐

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Teacher Signature Parent/Guardian Signature

Self-reflection

My achievements for this unit are:_____

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I need to improve in the following area:_____

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One way I can improve:_____

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DAPTO HIGH SCHOOL – Science
Year 7 - Topic: Energy on the Move

To satisfactorily complete this topic you must achieve the outcomes below.

Student Outcomes	**Achieved? (√ or X)**
1. Associate energy with energy transfers in a simple circuit. 2. Construct and draw simple circuits to show transfer of energy. 3. Identify that sound requires a medium in which to travel (propagation). 4. Describe light as a form of energy not requiring a medium for propagation. 5. Define conduction as movement of heat in solids by vibrations between particles. 6. Define good and bad conductors (insulators). 7. Describe uses for insulation – why animals may have thick fur coats, how are house kept cool. 8. Define convection as movement of heat in liquids and gases. 9. Describe how sea-breezes occur due to convection. 10. Describe radiation as movement of heat where no particles are present. 11. Describe differences between absorption, reflection and transmission of radiation. 12. Follow the planned procedure when performing an investigation. 13. Use time and resources effectively. 14. Safely and effectively construct, assemble and manipulate identified equipment. 15. Record data using appropriate units. 16. Identify and describe examples where technological advances have impacted on science. - space and reentry (Space Shuttle) - thermos flasks - nuclear weapons	

Topic Test: ___/50

Bookwork : Satisfactory ☐ Unsatisfactory ☐

Attitude : Satisfactory ☐ Unsatisfactory ☐

Assessments : Satisfactory ☐ Unsatisfactory ☐

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Self-reflection

My achievements for this unit are:_____

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One way I can improve:_____

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DAPTO HIGH SCHOOL – Science
Year 7 - Topic: Up Mullet Creek

To satisfactorily complete this topic you must achieve the outcomes below.

Student Outcomes	**Achieved? (√ or X)**
1. Explain the difference between producers, and consumers and give examples from the local environment. E.g Producers make their own food from nutrients in the soil, water and carbon dioxide (plants), whilst consumers must eat other loving things to get the carbon compounds they need (animals). 2. Tabulate information that describes and gives examples of differences between carnivores, omnivores, herbivores and decomposers. 3. Define a food chain as a flow of energy through a number of different organisms. 4. Draw simple food chains including plants and animals including at least one example from Mullet Creek. 5. Construct and draw food webs, identifying producers, herbivores, carnivores, omnivores and decomposers from Australian ecosystems. 6. Define the terms adaptations, ecosystem and environment. 7. Collate information from a variety of sources, including only relevant information, research some adaptations of living things to factors in their environments. 8. Research using the internet some effects of bushfires, drought and flood on Australian ecosystems, including the Aboriginal perspective on land management. 9. Recall the general word equations for photosynthesis and respiration. 10. Describe the roles of photosynthesis and respiration in ecosystems. 11. Recognise that all materials come from the Earth and returns to the Earth. 12. Draw, label and describe the water cycle. 13. Name and label the zones of the Earth (atmosphere, lithosphere, hydrosphere and biosphere). 14. Select and use an appropriate graph to present information on the main gases of the atmosphere and the approximate percentages of each. 15. Describe the importance of atmospheric gases including ozone and greenhouse gases to life on Earth. **<u>Vocabulary List</u>** Producer, Consumer, Nutrients, Organism Herbivore, Decomposer, Food chain, Adaption Food web, Ecosystem, Environment, Respiration Drought, Flood, Photosynthesis, Hydrosphere Aboriginal, Atmosphere, Lithosphere, Omnivore Ozone, Greenhouse, Carnivore, Energy Biosphere	

Topic Test: ___/50

Bookwork : Satisfactory ☐ Unsatisfactory ☐

Attitude : Satisfactory ☐ Unsatisfactory ☐

Assessments : Satisfactory ☐ Unsatisfactory ☐

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Self-reflection

My achievements for this unit are:_____

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I need to improve in the following area:_____

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