

DAPTO HIGH SCHOOL – Science

Year 10 - Topic: Dolly

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

Student Outcomes		Achieved? (√ or X)																																												
<div>1. Draw and describe the different methods of asexual reproduction. (Eg: rhizomes and runners, cuttings and tubers, bulbs and corms.</div> <div>2. Construct a table to compare and contrast asexual and sexual reproduction.</div> <div>3. Label a diagram of the female and male reproductive systems of humans.</div> <div>4. Describe the functions of the main parts of the female and male reproductive systems in humans.</div> <div>5. Discuss that an organism’s features are determined by both inheritance and the environment.</div> <div>6. Describe the experiments carried out by Gregor Mendel.</div> <div>7. Distinguish between the following terms: phenotype/genotype, dominant/recessive, genes/ chromosomes, heredity/genetics.</div> <div>8. Manipulate punnet squares to predict the outcome of a monohybrid cross of characteristics.</div> <div>9. Describe the outcome of a monohybrid cross using ratios and percentages.</div> <div>10. Recognise the relationship between DNA, genes and chromosomes (ie: DNA -> genes -> chromosomes -> nucleus -> cells -> organism).</div> <div>11. List 4 bases (adenine, guanine, thymine, cytosine) present in DNA.</div> <div>12. Outline the Watson-Crick model of DNA including:<div><div>▪ Explain the advantage of replicating DNA exactly</div><div>▪ Explain advantages and disadvantages of DNA mutating</div><div>▪ Identify that information is transferred as DNA on chromosomes when cells reproduce</div><div>▪ Identify that DNA is part of a gene</div><div>▪ Construct models (i – cut and paste and ii – 3D model kit) of a DNA molecule</div></div></div> <div>13. Draw and describe genes and chromosomes using bioviewer slides.</div> <div>14. Relate genetic engineering to changing or manipulating the order of bases (genetic code)</div>																																														
<div><u>Vocabulary List:</u></div> <table><tr><td>Genetics</td><td>Hormones</td><td>Ovary</td><td>Inheritance</td></tr><tr><td>Manipulate</td><td>Puberty</td><td>Fallopian Tube</td><td>Environment</td></tr><tr><td>Chromosome</td><td>Reproduction</td><td>Uterus</td><td>Heredity</td></tr><tr><td>Sexual</td><td>Genome</td><td>Vagina</td><td>Adenine</td></tr><tr><td>Asexual</td><td>Antibiotics</td><td>Ova</td><td>Guanine</td></tr><tr><td>Characteristics</td><td>Deoxyribonucleic Acid</td><td>Urethra</td><td>Thymine</td></tr><tr><td>Phenotype</td><td>Rhizomes</td><td>Testicle</td><td>Cytosine</td></tr><tr><td>Genotype</td><td>Cutting</td><td>Scrotum</td><td>Model</td></tr><tr><td>Dominant</td><td>Tuber</td><td>Sperm Duct</td><td></td></tr><tr><td>Recessive</td><td>Bulb</td><td>Penis</td><td></td></tr><tr><td>Monohybrid</td><td>Corm</td><td>Sperm</td><td></td></tr></table>			Genetics	Hormones	Ovary	Inheritance	Manipulate	Puberty	Fallopian Tube	Environment	Chromosome	Reproduction	Uterus	Heredity	Sexual	Genome	Vagina	Adenine	Asexual	Antibiotics	Ova	Guanine	Characteristics	Deoxyribonucleic Acid	Urethra	Thymine	Phenotype	Rhizomes	Testicle	Cytosine	Genotype	Cutting	Scrotum	Model	Dominant	Tuber	Sperm Duct		Recessive	Bulb	Penis		Monohybrid	Corm	Sperm	
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Topic Test: ____/50

Bookwork : Satisfactory ☐ Unsatisfactory ☐

Attitude : Satisfactory ☐ Unsatisfactory ☐

Assessments : Satisfactory ☐ Unsatisfactory ☐

Teacher Signature

Parent/Guardian Signature

Self-reflection

My achievements for this unit are:_____

I need to improve in the following area:_____

One way I can improve:_____

DAPTO HIGH SCHOOL – Science

Year 10 - Topic: Chemical Reactions

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

Student Outcomes	Achieved? (√ or X)																								
<div>1. Construct a mind map of existing knowledge and future content.</div> <div>2. Recall, discuss and introduce important terms – glossary, spelling list</div> <div>3. Recall definitions of elements, compounds and mixtures.</div> <div>4. Recall Periodic Table and symbols of major elements.</div> <div>5. Recall atomic structure, in terms of protons, electrons and neutrons.</div> <div>6. Introduce basic chemical reactions in terms of reactants and products.</div> <div>7. Perform experiments and describe the chemical reactions in the following:<div><div>▪ Combustion</div><div>▪ Corrosion</div><div>▪ Decomposition</div><div>▪ Precipitation</div></div></div> <div>8. Analyse experimental results.</div> <div>9. Describe Quantitatively the reactants and products in the above 3 reactions.</div> <div>10. Construct word equations from observations and written descriptions of a range of chemical reactions.</div> <div>11. Use models to demonstrate chemical reactions</div> <div><u>Optional Extension Content:</u><div>12. Write chemical equations – using symbols.</div><div>13. Identify characteristics that classify substances as either ionic or covalent compounds.</div><div>14. Identify the characteristics of organic compounds.</div><div>15. Balance a range of common chemical equations.</div><div>16. Identify common reactions involving organic compounds, including esterification and saponification.</div><div>17. Identify the characteristics of acids, bases and salts.</div></div> <div><u>Vocabulary List:</u><table><tr><td>Equation</td><td>Alcohol</td><td>Volatile</td><td>Ethanol</td></tr><tr><td>Quantitive</td><td>Hydrocarbon</td><td>Reaction</td><td>Catalyst</td></tr><tr><td>Aromatic</td><td>Formulae</td><td>Molecular</td><td>Saturated</td></tr><tr><td>Elements</td><td>Mixtures</td><td>Compounds</td><td>Periodic</td></tr><tr><td>Precipitation</td><td>Reactant</td><td>Product</td><td>Combustion</td></tr><tr><td>Corrosion</td><td>Decomposition</td><td>Structure</td><td>Experiment</td></tr></table></div>	Equation	Alcohol	Volatile	Ethanol	Quantitive	Hydrocarbon	Reaction	Catalyst	Aromatic	Formulae	Molecular	Saturated	Elements	Mixtures	Compounds	Periodic	Precipitation	Reactant	Product	Combustion	Corrosion	Decomposition	Structure	Experiment	
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Attitude : Satisfactory ☐ Unsatisfactory ☐

Assessments : Satisfactory ☐ Unsatisfactory ☐

Teacher Signature

Parent/Guardian Signature

Self-reflection

My achievements for this unit are:_____

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One way I can improve:_____

DAPTO HIGH SCHOOL – Science

Year 10 - Topic: Origin of the Universe

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

Student Outcomes				Achieved? (√ or X)																				
<div>1. Discuss the current scientific thinking about the origin of the universe and compare it to other theories.</div> <div>2. Construct a timeline to show how different cultures have interpreted constellations.</div> <div>3. Research the theories about the beginning of the universe present.</div> <div>4. Use the internet to compare size of the universe by comparing it to our Earth, the Solar System and our Galaxy.</div> <div>5. Identify that some types of electromagnetic radiation are used to provide information about the universe and investigate how we detect these different types of radiation.</div> <div>6. Describe some of the difficulties in obtaining information about the universe when observing the heavens on Earth.</div> <div>7. Discuss the impact of Voyager probes and the Hubble space telescope on the knowledge and understanding of the universe.</div> <div>8. Distinguish between luminosity and brightness of a star by measuring the brightness of an object at different distances.</div> <div>9. Identify that Stars are classified using surface temperature and brightness by using the letters O, B, A, F, G, K, M, N & S and construct a database using data for the 50 brightest stars. (“Oh Be A Fine Girl/Guy Kiss Me Now Susan/Sam”).</div> <div>10. Describe some changes that are likely to take place during the life of a star.</div> <div>11. Relate some major features of the universe to theories about the formation of the Universe.</div>																								
<div><u>Additional Content:</u></div> <div>12. Relate colours of stars to their age, distance from the Earth and size.</div> <div>13. Explain how Quasars have provided evidence of a changing Universe.</div> <div>14. Explain how different cultures have interpreted constellations.</div>																								
<div><u>Vocabulary List:</u></div> <div><table><tr><td>Universe</td><td>Radiation</td><td>Brightness</td><td>Black Holes</td></tr><tr><td>Galaxy</td><td>Light Telescope</td><td>Red Giant</td><td>Quasar</td></tr><tr><td>Light-year</td><td>Radio Telescope</td><td>Supernovae</td><td>Nebulae Constellation</td></tr><tr><td>Star</td><td>Electromagnetic</td><td>Neutron Star</td><td>Temperature</td></tr><tr><td>Big Bang</td><td>Luminosity</td><td>Pulsars</td><td></td></tr></table></div>				Universe	Radiation	Brightness	Black Holes	Galaxy	Light Telescope	Red Giant	Quasar	Light-year	Radio Telescope	Supernovae	Nebulae Constellation	Star	Electromagnetic	Neutron Star	Temperature	Big Bang	Luminosity	Pulsars		
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Topic Test: ____/50

Bookwork : Satisfactory ☐ Unsatisfactory ☐

Attitude : Satisfactory ☐ Unsatisfactory ☐

Assessments : Satisfactory ☐ Unsatisfactory ☐

Teacher Signature

Parent/Guardian Signature

Self-reflection

My achievements for this unit are:_____

I need to improve in the following area:_____

One way I can improve:_____

DAPTO HIGH SCHOOL – Science

Year 10 - Topic: Jurassic Park

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

Student Outcomes				Achieved? (√ or X)																												
<div>1. Discuss and draw a flow diagram to illustrate that the continents have been moving over time (from one super continent – Pangaea 400 to 2 continents – Gondwana and Laurasia 250 MYA – to the present 7 continents).</div> <div>2. Describe the Theory of Plate Tectonics as – the Earth’s crust is made up of plates and these plates are slowly moving across the Earth’s surface. The continents and oceans sit on these plates.</div> <div>3. Discuss the evidence that supports the theory of Plate Tectonics – (Eg: The fitting together of plates at various points, Matching rock types and layers at these points, Fossil similarities at these joins and the existence of volcanoes in deep sea trenches.</div> <div>4. Draw a diagram and explain how the movements of the Earth’s plates are due to convection currents in the mantle and to gravitational forces – include collusion zones, mid ocean trenches, deep sea trenches and subduction zones on the diagrams.</div> <div>5. Map the locations on a world map of the major volcanoes, earthquakes and fold mountains.</div> <div>6. Explain how interactions at plate boundaries may result in earthquakes, volcanic activity and new landforms.</div> <div>7. Explain some impacts of natural events including cyclones, volcanic eruptions and earthquakes on the atmosphere, hydrosphere, lithosphere and biosphere.</div> <div>8. Describe using examples the differences between an observation and inference.</div> <div>9. Investigate ways in which scientists make inferences about past events.</div> <div>10. Identify that geological history can be interpreted from the formation of sediments of horizontal layers in which the oldest are at the base and the youngest at the top.</div> <div>11. Describe the ways in which organisms can be fossilised (Eg: moulds, casts, carbon imprints, actual body in sediments or amber and trace fossils).</div> <div>12. Draw and label different types of fossils.</div> <div>13. Construct moulds and casts of bones and shells to stimulate fossil formation.</div> <div>14. Define biological evolution.</div> <div>15. Compare the theories of evolution proposed by Darwin and Larmarck.</div> <div>16. Construct a table and timeline that describes when major plant and animal groups are thought to have first evolved.</div> <div>17. Discuss evidence that present day organisms have evolved from organisms in the distant past,</div> <div>18. Relate Natural Selection to the Theory of Evolution using examples – (Eg: Peppered Moths).</div> <div>19. Outline the evidence that supports the Theory of Evolution – Distribution Studies, Comparative anatomy, Embryology, Molecular Studies and Paleontology.</div> <div>20. Associate geological periods with major plant and animal groups.</div> <div>21. Understand that the theories discussed in this topic are not fact but hypothesis which change with research and new findings.</div>																																
<div>Additional Content:</div> <div>22. Compare the theories on the origins of life on Earth for different cultural groups – (Eg: Dreaming, creationism, Extraterrestrial etc).</div> <div>23. Use various sources to research extinct Australian Meganfauna – (Eg: Diprotodon, Tasmanian Tiger).</div>																																
<div>Vocabulary List:</div> <table><tr><td>Subduction</td><td>Laurasia</td><td>Fossil</td><td>Horizontal</td></tr><tr><td>Convection</td><td>Atmosphere</td><td>Cyclones</td><td>Evolution</td></tr><tr><td>Continental</td><td>Hydrosphere</td><td>Earthquakes</td><td>Theory</td></tr><tr><td>Tectonic</td><td>Lithosphere</td><td>Volcanoes</td><td>Natural Selection</td></tr><tr><td>Pangea</td><td>Biosphere</td><td>Geological</td><td>Anatomy</td></tr><tr><td>Gondwana</td><td>Collision</td><td>Paleontology</td><td>Embryology</td></tr><tr><td>Molecular</td><td>Hypothesis</td><td></td><td></td></tr></table>					Subduction	Laurasia	Fossil	Horizontal	Convection	Atmosphere	Cyclones	Evolution	Continental	Hydrosphere	Earthquakes	Theory	Tectonic	Lithosphere	Volcanoes	Natural Selection	Pangea	Biosphere	Geological	Anatomy	Gondwana	Collision	Paleontology	Embryology	Molecular	Hypothesis		
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Topic Test: ____/50

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Attitude : Satisfactory ☐ Unsatisfactory ☐

Assessments : Satisfactory ☐ Unsatisfactory ☐

Teacher Signature

Parent/Guardian Signature

Self-reflection

My achievements for this unit are:_____

I need to improve in the following area:_____

One way I can improve:_____

DAPTO HIGH SCHOOL – Science

Year 10 - Topic: Fizz Bang Pop

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

Student Outcomes				Achieved? (√ or X)
<div>1. Extract and test indicators.</div> <div>2. Identify, use and recall some indicators.</div> <div>3. List properties and uses and acids.</div> <div>4. Conduct tests on properties of acids.</div> <div>5. List properties and uses of bases.</div> <div>6. Conduct tests on bases and neutralizing acids.</div> <div>7. Draw pH scale with acidic and basic.</div> <div>8. Find pH of common solutions.</div> <div>9. Recall names and uses of common salts.</div> <div>10. Use acids and bases to make salts.</div> <div>11. Recall solubility and solutions.</div> <div>12. Make and separate a precipitate.</div> <div>13. Recall how ions are made.</div> <div>14. Name ionic compounds.</div> <div>15. Recall properties of ionic compounds.</div> <div>16. Use models to write formulae.</div> <div>17. Recall properties of covalent compounds.</div> <div>18. Name covalent compounds form formulae.</div> <div>19. Interpret chemical equations as diagrams.</div> <div>20. Predict and verify changes in chemical reactions.</div> <div>21. Perform chemical reactions with safety.</div> <div>22. Compare results in chemical reactions.</div> <div>23. Describe the reaction of carbonate compounds.</div> <div>24. Use limewater to test for carbon dioxide.</div> <div>25. Identify and describe decomposition.</div> <div>26. Recall role of carbonate compounds in environment.</div> <div>27. Analyse solutions, suspensions and solubility.</div> <div>28. Conduct tests to name precipitates.</div> <div>29. Identify ions using precipitate tests.</div> <div>30. List historical uses of metals from the beginning of the “metals age”</div> <div>31. List common uses of metals in modern society.</div> <div>32. Describe the desirable qualities of metals.</div> <div>33. Define the term “ore”.</div> <div>34. Recall that metals are obtained form ore minerals.</div> <div>35. Recall a mineral as a likely ore mineral by observation (or from given description) of its density, lustre and reaction with acid.</div> <div>36. Define and use laboratory apparatus to measure density.</div> <div>37. Recall that metals are extracted from their ores by chemical reactions.</div> <div>38. Describe the physical properties of some common metals (Eg: iron, copper aluminum, lead, zinc, tin, silver – colour when shined, density, electrical conductivity, malleability).</div>				
<u>Vocabulary List:</u>				
Decomposition	Fluorescent	Quark	Potassium	Mineral
Beryllium	Covalent	Lattice	Corrosion	Reagent
Precipitate	Density	Lustre	Synthetic	Excess
Reactant	Product	Limiting	Antacid	Galvanise
Sacrificial	Indicator	Hydroxide	Ultraviolet	Litmus
Ethanoic	Sulfuric	Neutralise	Polyatomic	Hydrochloric
Ammonia	Crystallisation	Saturated	Phenolphthalein	Ascorbic
Electrolysis	Radioactive	Mass	Universal	pH
Ionic	Conductivity	Hvdrooxide	Ore	Solubility

Topic Test: ____/50

Bookwork : Satisfactory ☐ Unsatisfactory ☐

Attitude : Satisfactory ☐ Unsatisfactory ☐

Assessments : Satisfactory ☐ Unsatisfactory ☐

Teacher Signature

Parent/Guardian Signature

Self-reflection

My achievements for this unit are:_____

I need to improve in the following area:_____

One way I can improve:_____

DAPTO HIGH SCHOOL – Science

Year 10 - Topic: Motion

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

Student Outcomes	Achieved? (√ or X)
<div>1. Describe qualitatively the relationship between force, mass and acceleration – $F = Ma$.</div> <div>2. Explain qualitatively the relationship between distance, speed and time – $S = VT$.</div> <div>3. Relate qualitatively acceleration to a change in speed and/or direction as a result of a net force – $a = v-u/t$.</div> <div>4. Analyse qualitatively common situations involving motions in terms of Newton's Laws.</div> <div>5. Construct, assemble, and manipulate ticker timers, pendulums, inclined planes and stopwatches.</div> <div>6. Make and record observations and measurements using ticker timers accurately over a number of trials.</div> <div>7. Extract information from:<div><div>Distance/time graphs</div><div>Speed/time graphs</div></div></div> <div>8. Record data using appropriate units.</div> <div>9. Identify trends, patterns, relationships, and contradictions in data obtained from ticker timers and other equipment.</div> <div>10. Use symbols to express relationships, including mathematical ones:<div><div>$v = u + at$</div><div>$S = ut + 1/2at^2$</div><div>$v^2 = u^2 + 2aS$</div><div>$F = ma$</div></div></div> <div>11. Use drawings, diagrams, graphs and tables to show relationships and present information clearly.</div> <div>12. Make generalizations in relation to a relevant set of observations or experimental results – Newton's Laws of Motion.</div> <div>13. Independently plan and construct investigations for:<div><div>Force and mass</div><div>Acceleration and force</div><div>The acceleration due to gravity</div></div></div>	
<div>Gravitational Force</div> <div>14. Distinguish between the terms 'mass' and 'weight'</div>	
<div>Vocabulary List:</div> <div><div>Newton</div><div>Nuclear</div><div>Nuclei</div><div>Force</div><div>Acceleration</div><div>Distance</div><div>Mass</div><div>Weight</div><div>Speed</div><div>Energy</div><div>Fission</div><div>Time</div></div>	

Topic Test: ____/50

Bookwork : Satisfactory ☐ Unsatisfactory ☐

Attitude : Satisfactory ☐ Unsatisfactory ☐

Assessments : Satisfactory ☐ Unsatisfactory ☐

Teacher Signature

Parent/Guardian Signature

Self-reflection

My achievements for this unit are:_____

I need to improve in the following area:_____

One way I can improve:_____

DAPTO HIGH SCHOOL – Science

Year 10 - Topic: Thinking Scientifically

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

Student Outcomes	Achieved? (√ or X)		
<div>1. Revise the scientific method, including variables (dependant, independent and controlled), control experiments, aim, hypothesis, results and conclusion by carrying out experiments like:<ul style="list-style-type: none">How much water do different biscuits containWhat types of food colours do certain lollies contain (eg: smarties, jelly beans)How much dissolved solid is there is different types of water (creek, bore, sea, tap)</div> <div>2. Realise the importance of scientific methods in explaining ideas like:<ul style="list-style-type: none">Atomic theory (nucleus, protons, neutrons, electrons)DNA (debate why the structure of DNA is still a model)</div> <div>3. Know how scientists work.</div> <div>4. Research one women scientist and one Australian scientist about their life and their work.</div> <div>5. Summarise information and answer questions from the DVD on scientist Howard Florey.</div> <div>6. Recall the electromagnetic spectrum and its various forms of radiation including UV, infra-red, X-rays and light.</div> <div>7. Define the terms isotope, radioisotope, radioactive decay and half-life.</div> <div>8. Identify that radioactivity is the release of particles and energy from the nuclei of atoms.</div> <div>9. Identify the 3 types of nuclear radiation as alpha, beta and gamma.</div> <div>10. Investigate the properties of alpha, beta and gamma radiation including penetration, charge and size.</div> <div>11. Relate the properties of alpha, beta and gamma radiation on living organisms and the method of protection from each type (cause and effect).</div> <div>12. Graph the half-life of the radioactive isotope.</div> <div>13. Compare a fusion reaction to a fission reaction and give an example, where each may occur.</div> <div>14. Describe some uses of biotechnology including genetic engineering in developed different strains of plants and animals for food production, production of insulin and antibiotics.</div> <div>15. Discuss some of the social, moral and ethical issues in identifying and manipulation genes on the human chromosome.</div> <div>16. Summarise information from a video investigating the issues with genetic engineering.</div> <div>17. Research information on new scientific discoveries that have affected society in the past 10 years.</div>			
<u>Vocabulary List:</u>			
Variable	Model	Particle	Engineering
Dependant	Nucleus	Fusion	Cloning
Control	Electron	Isotope	Antibiotics
Hypothesis	Electromagnetic	Biotechnology	Chromosome
Conclusion	Radiation	Genetic	

Topic Test: ____/50

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