**Year 8 Earth and Space Science Program 2018**

**Term 3**

**Science Understanding for Earth and Space Sciences**



The [theory](http://www.australiancurriculum.edu.au/Glossary?a=S&t=theory) of plate tectonics explains global [patterns](http://www.australiancurriculum.edu.au/Glossary?a=S&t=patterns) of geological activity and continental movement:

1. recognising the major plates on a world map
2. modelling sea-floor spreading
3. relating the occurrence of earthquakes and volcanic activity to constructive and destructive plate boundaries
4. considering the role of heat energy and convection currents in the movement of tectonic plates
5. relating the extreme age and stability of a large part of the Australian continent to its plate tectonic history

Sedimentary, igneous and metamorphic rocks contain minerals and are formed by processes that occur within Earth over a variety of timescales:

1. representing the stages in the formation of igneous, metamorphic and sedimentary rocks, including indications of timescales involved
2. identifying a range of common rock types using a key based on observable physical and chemical properties
3. recognising that rocks are a collection of different minerals
4. considering the role of forces and energy in the formation of different types of rocks and minerals
5. recognising that some rocks and minerals, such as ores, provide valuable resources

**Assessment Outline**

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| Item | Weighting | Approximate Week in Program |
| Model Folds and Faults | 10% | Fri 10 Aug 2018 |
| Mid Topic Test | 40% | Fri 17 Aug 2018 |
| Rocks Quiz | 10% | Fri 24 Aug 2018 |
| Investigation Validation Test | Contributes towards Investigation grade | Fri 7 Sep 2018 |
| Final Topic Test | 40% | Fri 14 Sep 2018 |

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| **Week of Program** | **Date** | **Outcomes** | **Booklet activities****W/sheet on Shared Drive****Oxford Science Qs** | **Assessments** |
| 1(Monday SDD) | 17 Jul – 20 Jul (Term 3 Week 1) | * Can order the layers that are found within the Earth
* Can give properties of each layer (state of matter, composition and thickness)
* Describe the concept of a tectonic plate.
* Give evidence of tectonic plate movement (fossils and coast lines fitting like a jigsaw).
* Explain how convection currents are responsible for tectonic plate movement.
* Define convergent and divergent plate boundaries
 | Activity 1, 2, 4-6 |  |
| 2 | 23 Jul – 27 Jul (Term 3 Week 2) | * Label the main vent, dike, sill, magma chamber, lava flow, crater and ash cloud on a volcano diagram
* Describe the difference between lava and magma
* Describe causes of volcanoes (both convergent and divergent boundaries)
* Explain why the majority of volcanoes are found around the ring of fire.
* Explain what causes an Earthquake
* Name the device used to measure earthquakes (seismometer) and briefly describe how it works.
 | Activity 3, 7, 8 |  |
| 3 | 30 Jul – 3 Aug (Term 3 Week 3) | * Use diagrams to help explain the difference between syncline, anticline and monocline folds.
* Describe the difference between a normal fault, a reverse fault and a slip fault.
* Identify, from diagrams, what type of fault or fold has occurred in the crust.
 | Activity 9, 10 | Give out modelling faults and faults assignment |
| 4 | 6 Aug – 10 Aug(Term 3 Week 4) | * Define a mineral
* Describe common minerals including quartz, mica, feldspar.
* Describe the ways minerals are classified; colour, streak, Moh’s hardness, lustre, cleavage and polarising light
* Explain the role of rate of change in temperature in determining crystal size
 | Activity 17, 18, 22Oxford 2.1, 2.2 |  |

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| **Week of Program** | **Date** | **Outcomes** | **Booklet activities****W/sheet on Shared Drive****Oxford Science Qs** | **Assessments** |
| 5 | 13 Aug – 17 Aug(Term 3 Week 5) | * Define a rock
* Describe common features of igneous sedimentary and metamorphic rocks
* Describe the formation process for igneous rocks; intrusive and extrusive types.
* Can name the common igneous rocks; pumice, basalt and granite.
* Describe the formation process for metamorphic rocks; requirements for heat and pressure and how the amount of each will affect which rock is formed.
* Can name common metamorphic rocks and where they come from; marble from limestone, quartzite from sandstone, slate from mudstone.
 | Activity 19, 20, 21, 23, 28Oxford 2.4, 2.5, 2.6, 2.9 | **MID TOPIC TEST (covers weeks 1-4)** |
| 6 | 20 Aug – 24 Aug(Term 3 Week 6) | * Describe each stage of the formation process for sedimentary rocks; weathering, erosion, deposition and cementation
* Can identify the relative age of rock layers within a core sample through application of the law of superposition.
 | Activity 13, 14, 15, 25, 32, 33 Oxford 2.7, 2.8 | **Rocks quiz** |
| 7 | 27 Aug – 21 Aug(Term 3 Week 7) | * Can draw a flow diagram and describe the rock cycle
* Use a classification key describing physical and chemical properties to help identify rock types
 | Activity 26, 29Rock Cycle (after activity 29)Oxford 2.7 |  |
| 8 | 3 Sep – 7 Sep(Term 3 Week 8) | * Investigation week
 |  | **Investigation validation test** |
| 9 | 10 Sep – 14 Sep(Term 3 Week 9) | * Define an ore
* Can name the important minerals in the following ores:
	+ Iron ore: hematite and magnetite
	+ Aluminium ore: bauxite
	+ Uranium ore: uraninite
* Describe environmental concerns of mining and how certain techniques and practices can mitigate the damage (assessing environmental conditions before operations, minimising water and energy use, recycling products rather than mining more).
* TEST END OF WEEK
 | Activity 38 | **FINAL TOPIC TEST** |