**Teaching and Learning Program for the Elements**

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| **T:\Office\Graham Moore\jpeg sentral logo.jpg** | **Teaching and Learning Program** |
| **Title/Type of Unit:** Global Issues**Program Risk Level:** High | **Duration:** 10 weeks**By**  |
| **Syllabus Outcomes****Stage 4** | *A student:***SC4-3VA** demonstrates confidence in making reasoned, evidence-based decisions about the current and future use and influence of science and technology, including ethical considerations **SC4-2VA** shows a willingness to engage in finding solutions to science-related personal, social and global issues, including shaping sustainable futures**SC4-4WS** identifies questions and problems that can be tested or researched and makes predictions based on scientific knowledge**SC4-7WS** processes and analyses data from a first-hand investigation and secondary sources to identify trends, patterns and relationships, and draw conclusions**SC4-8WS** selects and uses appropriate strategies, understanding and skills to produce creative and plausible solutions to identified problems**SC4-9WS** presents science ideas, findings and information to a given audience using appropriate scientific language, text types and representations**SC4-13ES** explains how advances in scientific understanding of processes that occur within and on the Earth, influence the choices people make about resource use and management**SC4-15LW** explains how new biological evidence changes people's understanding of the world |
| **Connectedness****Why does this learning matter?** | **Students learn to:**1. classify a range of the Earth's resources as renewable or non-renewable
2. outline features of some non-renewable resources, including metal ores and fossil fuels
3. describe uses of a variety of natural and made resources extracted from the biosphere, atmosphere, lithosphere and hydrosphere
4. investigate some strategies used by people to conserve and manage non-renewable resources, eg recycling and the alternative use of natural and made resources
 | **Students learn about:*** the Earth and it’s natural resources
* how we utilise our natural resources to function as a society
* how different communities utilise their natural / man made resources to service their community based needs
* how we can better manage our plants resources so we take care of the environment and what happens when we don’t
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| **Background and Key Ideas** | Students will be learning about environmental global issues. Students will introduced to global warming and climate change, renewable and non-renewable resources, human impact and involvement, sustainability and prevention strategies put in place to minimize human impact and further disturbance of ecosystems. |
| **Literacy Continuum** | Reading Texts | Comprehension | Vocabulary Knowledge | Aspects of Writing | Aspects of Speaking | Phonics | Phonemic Awareness | Concepts About Print |
| **Clusters:** Reading texts , Comprehension **Activities linked to program to increase learning:** Reading: Report on the Ozone Layer, Nuclear, Radiation, Energy and Fossil Fuels. Comprehension: Understanding text on the ozone layer, radiation, energy and fossil fuels |
| **Numeracy Continuum** | Counting Sequences | Counting as Problem Solving | Pattern and Number Structure | Place Value | Multiplication and Division | Fraction Units | Length, Area and Volume |
| Elements: Aspect 7Activities linked to program to increase learning: Students investigate statistics on the impact of Global Warming by calculating radiation, fossil fuels and energy in the atmosphere. |
| **Quality Teaching** |
| **Intellectual Quality** | **Quality Learning Environment** | **Significance** |
| * IQ1 Deep Knowledge
* IQ2 Deep Understanding
* IQ3 Problematic Knowledge
* IQ4 Higher-order Thinking
* IQ5 Metalanguage
* IQ6 Substantive Communication
 | * QLE1 Explicit Quality Criteria
* QE2 Engagement
* QE3 High Expectations
* QE4 Social Support
* QE5 Students’ Self-regulation
* QE6 Student Direction
 | * S1 Background Knowledge
* S2 Cultural Knowledge
* S3 Knowledge Integration
* S4 Inclusively
* S5 Connectedness
* S6 Narrative
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| **Teaching and Learning Lesson Overview** |
| **The Elements of Learning & Achievement**F:\Mock ups\Square elements\Numeracy.jpgE:\Final V1\Final sq NO border\Sq Technology no bdr.jpg | **Week One****Global Warming (**[**TH1**](../Science%20TR/TR1%20SCIENCE.pptx)**,** [**SH1**](../Science%20SH/SH1.docx)**)**Through a PowerPoint presentation and discussion, students will:* Learn about the Greenhouse effect and how it works.
* Learn about greenhouse gases and other gases related to global warming
* Identify global environments that have had noticeable effects from global warming.
* Predict the temperature rise of the future through a series of investigations.

**Global Warming experiment (**[**TR2**](../Science%20TR/TR2%20SCIENCE.pptx)**,** [**SH2**](../Science%20SH/SH2.docx)**,** [**SH2-2**](../Science%20SH/SH2-2.docx)**)*** Students carry out an experiment to simulate the conditions of the greenhouse effect.
* Students carry out an experiment To investigate the effect of melting ice on water levels

**Week Two****The Ozone Layer (**[**TR3**](../Science%20TR/TR3%20SCIENCE.pptx)**,** [**SH3**](../Science%20SH/SH3.docx)**)**Through PowerPoint presentation and related activities, students will:* Learn about ozone and the ozone layer.
* Learn about Chloroflurocarbons (CFC’s) and the damage they cause to the ozone layer.
* Research the prevention strategies to minimise further depletion of the ozone layer.

**Week Three****Nuclear Radiation: Good or Evil (**[**TR5**](../Science%20TR/TR5%20SCIENCE.pptx)**,** [**SH5**](../Science%20SH/SH5.docx)**)**Through PowerPoint presentation and related activities, students will:* Learn about radiation and radioactivity.
* Learn about atoms and isotopes
* Learn the three types of nuclear radiation
* Learn the sources, uses and effects of nuclear radiation.

**Week Four****Energy Crisis (**[**TR7**](../Science%20TR/TR7%20SCIENCE.pptx)**,** [**SH7**](../Science%20SH/SH7.docx)**)**Through powerpoint presentation and related activities, students will:* Learn about generating nuclear energy.
* Learn about nuclear reactors.
* Learn about nuclear dangers
* Learn about alternative energy

**Week Five****Riches below (**[**TR9**](../Science%20TR/TR9%20SCIENCE.pptx)**,** [**SH9**](../Science%20SH/SH9.docx)**)**Through powerpoint presentation and related activities, students will:* Learn about the earth’s crust.
* Learn the processes mining mineral ore from the earth and extracting the metal.

**Week Six****Fossil fuels (**[**TR11**](../Science%20TR/TR11%20SCIENCE.pptx)**,** [**SH11**](../Science%20SH/SH11.docx)**)**Through powerpoint presentation and related activities, students will:* Learn about fossil fuels. What is a fossil fuel?
* Learn about non-renewable resources.

Learn about coal and oil, where it is mined and obtained.**Week Seven****Make mine renewable (**[**TR13**](../Science%20TR/TR13%20SCIENCE.pptx)**,** [**SH13**](../Science%20SH/SH13.docx)**)**Through powerpoint presentation and related activities, students will:About renewable options such as solar, wind, hydroelectric and tidal energy’s. | **Aboriginal 8 Ways of Learning***The following ways of learning are incorporated throughout the program through pedagogical practices*2_maps.jpgLearning Maps4_symbol.jpgSymbols & Images7_deconstruct.jpgDeconstruct/ Reconstruct6_non-linear.jpgNon-LinearLand LinksStory Sharing |
| **Special Needs Adjustments** | **School to Work** |
| * Extra support given to students in need of it.
* The work consists of a variety of activities aimed at different types of learning.
* Age stage appropriate work.
* Work designed to engage learners as it is altered for their interests.
* Students’ work adjusted to meet their personal learning plans goals and outcomes.
 | * Students develop their comprehension skills to allow them to identify and interpret texts.
* Students develop skills to form informed opinions.
* Students develop skills to make informed choices.
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| **Assessments** |
| Students will be assessable through:* Book work
* Experiments and investigations
* Research projects
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| Roles and Responsibilities |
| Teacher | SLSO | Student |
| Lesson PlanningStudentBehaviour SupportClass InstructionResource Preparation | Teacher SupportStudent Support, both individually and in small groupsBehaviour Support (under teacher supervision)Resource Preparation | Participation in all activitiesTo develop both academic and social skills |

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| **Teacher Evaluation****Comments / Variations** |
| Guiding QuestionsWhat worked well?This unit of work didn’t really work well as there was a lot of disruption of planning and incursions that influenced the success of this unit. What needed to be changed?Planning with school executive to what plan they have for Science might work better. Aligning the unit along with the incursions would have created a more meaningful environment for learning. What do I think the students gained from this lesson?Limited learning on the global issues of the world as they were more engaged with the incursions and the topics of states of matter.How well did this unit match the Elements of Learning and Achievement?Not very well as students didn’t engage very well in the topic areas when coveredWhat did I learn?Practical experiments are an engaging way engage student in the Science curriculum.How will I use this experience to extend my practice in the future? I think simplifying the content in to meaningful teaching and learning activities that have a practical focus will engage the class better. This hopefully will allow students to retain information and learn more scientific concepts. |
| **Date Commenced**:  | **Date Finished**:  |
| **Teachers Signature**: | **Assistant Principals Signature**: |