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| **Science 10 Competency Power Standards** |
| BIG IDEAS   * **DNA** is the basis for the diversity of living things. * Energy change is required as atoms rearrange in **chemical processes.** * **Energy** is conserved, and its transformation can affect living things and the environment. |
| 1. **QUESTIONING & PREDICTING**  * Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal interest * Make observations aimed at identifying their own questions, including increasingly complex ones, about the natural world * Formulate multiple hypotheses and predict multiple outcomes |
| 1. **PLANNING & CONDUCTING INVESTIGATIONS**  * Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable data (qualitative and quantitative) * Assess risks and address ethical, cultural and/or environmental issues associated with their proposed methods and those of others * Select and use appropriate equipment, including digital technologies, to systematically and accurately collect and record data * Ensure that safety and ethical guidelines are followed in their investigations |
| 1. **ANALYZING DATA**  * Experience and interpret the local environment * Apply First Peoples perspectives and knowledge, other ways of knowing, and local knowledge as sources of information * Seek and analyze patterns, trends, and connections in data, including describing relationships between variables (dependent and independent) and identifying inconsistencies * Construct, analyze and interpret graphs (including interpolation and extrapolation), models and/or diagrams * Use knowledge of scientific concepts to draw conclusions that are consistent with evidence * Analyze cause-and-effect relationships |
| 1. **EVALUATING**  * Evaluate their methods and experimental conditions, including identifying sources of error or uncertainty, confounding variables, and possible alternative explanations and conclusions * Describe specific ways to improve their investigation methods and the quality of the data * Evaluate the validity and limitations of a model or analogy in relation to the phenomenon modelled * Demonstrate an awareness of assumptions, question information given, and identify bias in their own work and secondary sources * Consider the changes in knowledge over time as tools and technologies have developed * Connect scientific explorations to careers in science * Exercise a healthy, informed skepticism, and use scientific knowledge and findings to form their own investigations and to evaluate claims in secondary sources * Consider social, ethical, and environmental implications of the findings from their own and others’ investigations * Critically analyze the validity of information in secondary sources and evaluate the approaches used to solve problem |
| 1. **APPLICATION & INNOVATION**  * Contribute to care for self, others, community, and world through individual or collaborative approaches * Transfer and apply learning to new situations * Generate and introduce new or refined ideas when problem solving * Contribute to finding solutions to problems at a local and/or global level through inquiry * Consider the role of scientists in innovation |
| 1. **COMMUNICATING**  * Formulate physical or mental theoretical models to describe a phenomenon * Communicate scientific ideas, claims, information, and perhaps a suggested course of action, for a specific purpose and audience, constructing evidence-based arguments and using appropriate scientific language, conventions, and representations * Express and reflect on a variety of experiences, perspectives, and worldviews through place |

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| **Science 10 Content Power Standards** |
| 1. **GENETICS**  * DNA structure and function patterns of inheritance & mechanisms for the diversity of life: * & mutation and its impact on evolution & natural selection and artificial selection * & applied genetics and ethical considerations |
| 1. **CHEMICAL REACTIONS**  * rearrangement of atoms in chemical reactions * acid-base chemistry * law of conservation of mass * energy change during chemical reactions: endothermic vs exothermic * practical applications and implications of chemical processes, including First Peoples knowledge |
| **ENERGY**   * nuclear energy and radiation * law of conservation of energy * potential and kinetic energy * transformation of energy * local and global impacts of energy transformations from technologies |