**Materials, Solutions, & Chemical/Physical Change**

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| **Big Idea** | **Emerging** | **Developing** | **Proficient** | **Extending** |
| Materials can be changed through physical and chemical processes | Identifies ways a particular object can be changed (e.g. water) | Observes, record, classify, and describes physical and chemical changes | Distinguishes between physical and chemical changes, describes incidences of natural and man made changes | Proposes ways to change a material for a particular purpose |
| Elements consist of one type of atom, and compounds consist of atoms of different elements chemically combined | Defines elements and compounds | Explores patterns in data to categorize elements and compounds according to chemical structure and/or properties | Compares reactions of elements and compounds in the process of chemical change, and Indigenous uses of chemical change processes (e.g. preserving meat) using a range of methods of presentation | Proposes new methods or products related to chemical change |
| Everyday materials are often mixtures | Recognizes that many everyday materials are mixtures | Describes separation techniques, including those used by Indigenous people, for a variety of purposes and relates to place based daily life | Critiques past research to test separation techniques, reflects on processes and evaluates importance related to social or environmental issues | Evaluates ethical choices made related to resource extraction (e.g. Fracking) |
| Solutions are homogeneous | Understands that solutions are derived from mixing a substance with a solvent | Describes the homogenous properties of a solution and gives examples of solubility | Selects appropriate strategies to solve problems related to properties of solutions and the solubility of solids, liquids, and gases, represents in a variety of ways | Makes connections between properties of solutions and applications in daily life (e.g. food flavouring and ph) |
| Identifies examples of mixing and separating solutions | Explains processes for creating and separating solutions | Evaluates the uses of homogenous solutions, including Indigenous practices and represents using tables, graphs, and technology | Proposes a way to separate or create solutions that are intended to solve current Canadian environmental challenges |