

## Course Outline

**Course Name: Science 9 Skill Building**

**Location: Charles Best Secondary**

**Dates: July 11 to July 28, 2023**

**Teacher Name: Ms. T. Della**

**Class Times: 8:30am – 11:30am OR 12:00pm – 3:00pm**

**Number of Class Sessions: 14 (3 hours each)**

**Textbook: n/a**

**Class Blog: <https://myriverside.sd43.bc.ca/tdella/science-9-skill-building-summer-2023/>**

### General Course Description:

Students will increase their confidence and skill in Science 9 by reviewing the main/most difficult concepts in the curriculum. We will focus on other basic skills as well, such as graphing and solving equations. Each day will include a variety of activities, relevant to the world around us, to engage the students in their learning.

<https://curriculum.gov.bc.ca/curriculum/science/9/core>

<b>Big Ideas</b>	<b>Curricular Competencies</b>	<b>Content</b>
<p>The <b>biosphere, geosphere, hydrosphere, and atmosphere</b> are interconnected, as matter cycles and energy flows through them</p> <ul style="list-style-type: none"><li>• How do Earth's major spheres interact?</li><li>• How do matter and energy move through ecosystems?</li><li>• How do First Peoples view the cycling of matter and energy?</li></ul>	<p><b>Questioning and predicting</b> Demonstrate an intellectual curiosity about a scientific topic of personal interest. Make observations aimed at identifying own questions about the natural world. Formulate hypotheses &amp; predict outcomes.</p> <p><b>Planning and conducting</b> 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</p> <p><b>Processing and analyzing data and information</b> 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</p>	<p>Students are expected to know the following:</p> <p><b>Spheres</b> Hydrosphere, Geosphere, Biosphere, Atmosphere Effects of solar radiation, is energy for most life, water cycle, climate change</p> <p><b>Chemistry</b> element properties as organized in the periodic table, atomic size, metals/non-metals/semi-</p>

<p>The electron arrangement of <b>atoms</b> impacts their <b>chemical</b> nature</p> <ul style="list-style-type: none"> <li>• Which patterns are shown on the periodic table?</li> <li>• How can the periodic table be represented in a different form?</li> </ul> <p><b>Electric current</b> is the flow of electric charge</p> <ul style="list-style-type: none"> <li>• Why do electrons flow in a circuit?</li> <li>• How does increasing current impact your personal safety with electricity?</li> </ul> <p><b>Cells</b> are derived from cells</p> <ul style="list-style-type: none"> <li>• How do cells multiply?</li> <li>• What are the advantages and disadvantages of sexual and asexual reproduction?</li> </ul>	<p>Use knowledge of scientific concepts to draw conclusions that are consistent with evidence Analyze cause-and-effect relationships</p> <p><b>Evaluating</b> 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 problems</p> <p><b>Applying and innovating</b> 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</p> <p><b>Communicating</b> 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</p>	<p>metals, chemical families, diatomic elements. The arrangement of electrons determines the compounds; ionic, covalent; names and formulas.</p> <p><b>Physics</b> circuits, basic components, series, parallel, short circuits, current flow, AC, DC, must be complete for electrons to flow Ohm's Law: voltage, current, and resistance Dangers of current and voltage</p> <p><b>Biology</b> asexual reproduction: mitosis, fission, budding, cloning, spores, grafting sexual reproduction: meiosis, genetics</p>
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Skill building courses do not cover the entire curriculum. We will be focusing on the following:  
 Day-by-day plan <https://myriverside.sd43.bc.ca/tdella/science-9-skill-building-summer-2023/>

Concepts	Learning Activities	Assessment Strategies
<p><i>Week 1</i>  <i>July 11 – July 14</i>  <b>Introductory</b> activities            Planning and conducting an experiment  <b>Spheres Unit:</b>            Water and Flooding            Rocks, Earthquakes,            Volcanoes            Atmosphere</p>	<p>Notes/Demonstrations            Worksheets            Video clips            Outdoor field trips            Individual/Pair/Group work:</p> <ul style="list-style-type: none"> <li>• Who I am</li> <li>• Paper Airplane experiment</li> <li>• Floods assignment</li> <li>• Pangea Cut-and-Paste</li> <li>• Rock collection &amp; id</li> <li>• Mind Map</li> <li>• Atmosphere magazine</li> </ul>	<p>Students do not receive a letter grade for Skill Building classes. Despite this:</p> <ul style="list-style-type: none"> <li>• assignments will be collected and marked/commented on</li> <li>• quizzes will be marked</li> <li>• students will be assessed on their participation in the lessons, assignments, and group activities</li> </ul>
<p><i>Week 2</i>  <i>July 17 – July 21</i>  <b>Chemistry Unit:</b>            Matter, Atoms, Periodic Table            Bohr and Lewis diagrams            Compound formation, Ionic and Covalent            Naming compounds            Writing formula</p>	<p>Notes/Demonstrations            Worksheets            Video clips            Song            Games            Individual/Pair/Group work:</p> <ul style="list-style-type: none"> <li>• Oobleck Lab</li> <li>• Write a Haiku</li> <li>• Periodic Table Maze</li> <li>• Teams Games Tournament</li> <li>• Quizzes</li> <li>• Ionic Puzzle Pieces</li> <li>• Flow chart creation</li> </ul>	<p>At the end of the course, students will be assigned a G/S/N and given an overall comment on their effort and ability level with the curriculum.</p>
<p><i>Week 3</i>  <i>July 24 – July 28</i>  <b>Physics Unit:</b>            Graphing, solving for x            Moving charges and energy            Ohm’s Law            Circuits: Series, Parallel, Short</p>	<p>Notes/Demonstrations            Worksheets            Video clips            Games            Activities            Individual/Pair/Group work:</p> <ul style="list-style-type: none"> <li>• Worksheets</li> <li>• PhET Lab</li> <li>• Make an electric card</li> <li>• Quizzes</li> </ul>	