

Chemistry - Science Grade 7

<i>What I want students to know, do and understand?</i>		
Concept(s)	Change, organization/form, interaction, system, stability, cause/effect	
Big Idea	Curricular Competencies	Content
<p>Elements consist of one type of atom, and compounds consist of atoms of different elements chemically combined.</p>	<p>QUESTIONING AND PREDICTING</p> <ul style="list-style-type: none"> • Demonstrate a sustained intellectual curiosity about a scientific topic or problem of personal interest • Make observations aimed at identifying their own questions about the natural world • Identify a question to answer or a problem to solve through scientific inquiry • Formulate alternative “If...then...” hypotheses based on their questions • Make predictions about the findings of their inquiry <p>PLANNING AND CONDUCTING</p> <ul style="list-style-type: none"> • Collaboratively plan a range of investigation types, including field work and experiments, to answer their questions or solve problems they have identified • Measure and control variables (dependent and independent) through fair tests • Observe, measure, and record data (qualitative and quantitative), using equipment, including digital technologies, with accuracy and precision • Ensure that safety and ethical guidelines are followed in their investigations <p>PROCESSING AND ANALYZING DATA AND INFORMATION</p> <ul style="list-style-type: none"> • Construct and use a range of methods to represent patterns or relationships in data, including tables, graphs, keys, models, and digital technologies as appropriate • Seek patterns and connections in data from their own investigations and secondary sources • Use scientific understandings to identify relationships and draw conclusions <p>EVALUATING</p> <ul style="list-style-type: none"> • Reflect on their investigation methods, including the adequacy of controls on variables (dependent and independent) and the quality of the data collected 	<p>elements and compounds are pure substances:</p> <ul style="list-style-type: none"> • an element is a pure substance consisting of a single type of atom, as distinguished by its atomic number (e.g., iron, copper) • a compound is a pure substance consisting of two or more different atoms held together in a defined special arrangement by chemical bonds (i.e. water/salt) <p>crystalline structure of solids</p> <ul style="list-style-type: none"> • crystals formed by a unique arrangement of particles (e.g., rock candy, quartz, snowflakes) <p>chemical changes</p> <ul style="list-style-type: none"> • when atoms rearrange into new products accompanied by an energy change (e.g., rusting, the reaction of vinegar and baking soda, etc.)

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	<ul style="list-style-type: none"> Identify possible sources of error and suggest improvements to their investigation methods <p>APPLYING AND INNOVATING</p> <ul style="list-style-type: none"> Contribute to care for self, others, community, and world through personal or collaborative approaches Co-operatively design projects Transfer and apply learning to new situations Generate and introduce new or refined ideas when problem solving <p>COMMUNICATING</p> <ul style="list-style-type: none"> Communicate ideas, findings, and solutions to problems, using scientific language, representations, and digital technologies as appropriate Express and reflect on a variety of experiences and perspectives of place as sources of information 	
<i>How will I know my students have it?</i>		
Summative Assessment		
Unit Test:	<p>GRASPS TASK</p> <p>Conducting an experiment that reflects chemical change</p>	<p>Extra Performance Task</p> <p>Element Super Villain Trading Card Assignment</p>
<p>Students are able to explain the similarities and differences between elements and compounds.</p> <p>Students are able to explain the differences between physical and chemical changes.</p> <p>Students have a general knowledge of periodic table – able to investigate the properties of elements and compounds</p>	<p>Goal: to design an experiment that will demonstrate chemical change to primary grade students.</p> <p>Role: you are a grade 2/3 teacher</p> <p>Audience: the students in your class</p> <p>Situation: The students in your class are having a hard time understanding the concept of chemical change. You know that they enjoy visual explanations and demonstrations, so you need to design an experiment that will help them understand the concept.</p> <p>Product/Performance: You will create a detailed lab procedure using the scientific method, as well as demonstrating this experiment to students</p>	<p>You are about to create the most evil super villain mankind has ever seen! This supervillain has terrifying powers of destruction that can cause mass havoc. You are to make a trading card on 8.5 x 11" card stock describing this supervillain and all of his/her properties and characteristics.</p>

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	<p><i>Differentiation</i> - provide a template of the scientific method to be filled in, have students explore physical change instead of chemical, or challenge students to create a complex chemical change (beyond vinegar and baking soda)</p>	
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