



Course: Science 10

Teacher: Alistair Eggo

Unit: Chemistry - Acids/Bases

Date: 6th April 2020

Duration: 3 weeks

Description:

As we transition into online learning, we will finish our chemistry unit of the Science 10 course. We have previously discussed types of reaction in a variety of means, and we will finish with a short section on acids and bases. Students will complete an inquiry project on indicators, doing a small laboratory experiment in their kitchens.

	Big Ideas	Essential Questions
Understand	<p><i>Which Big Ideas will be the focus of this unit?</i></p> <p>Energy change is required as atoms rearrange in chemical processes.</p>	<p><i>What questions will be guiding your students' inquiry?</i></p> <ul style="list-style-type: none"> - What are common acids and bases? Why should we care? - What do indicators do? - How do acids and bases react?

	Core Competencies	
Do	<p><i>Choose one or more Core Competencies that will be focused on and developed in this unit: (1) Communication; (2) Creative Thinking; (3) Critical Thinking; (4) Positive Personal and Cultural Identity; (5) Personal Awareness and Responsibility; and (6) Social Responsibility.</i></p> <ul style="list-style-type: none"> - Personal Awareness and Responsibility - Creative Thinking 	<p><i>Which activities, projects, exercises or discussions will teach this Core Competency? How will they implement the First Peoples Principles of Learning? How will they be inquiry-based?</i></p> <p>Students will create a project on acids and bases in their own home, where they have the ability to choose many facets of the investigation. This may enhance their personal awareness and responsibility as students ration their own supplies to complete this short experiment. Similarly, creating their own procedure and having a choice of options requires creativity.</p>
	Curricular Competencies	

	<p><i>Which Curricular Competencies (specific to your course) will students learn and be assessed on in this unit?</i></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, including increasingly complex ones, about the natural world <p>Planning and conducting</p> <ul style="list-style-type: none"> - Collaboratively and individually plan, select, and use appropriate investigation methods, including field work and lab experiments, to collect reliable data (qualitative and quantitative) - 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>Processing and analyzing data and information</p> <ul style="list-style-type: none"> - Use knowledge of scientific concepts to draw conclusions that are consistent with evidence <p>Evaluating</p> <ul style="list-style-type: none"> - 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 	<p><i>Which activities, projects, exercises or discussions will teach these Curricular Competencies? How will they implement the First Peoples Principles of Learning? How will they be inquiry-based? How will the Curricular Competencies be assessed?</i></p> <p>As students complete the short kitchen experiment, they will plan extensively. The planning process, execution and subsequent reflection will entail all of the skills listed here.</p> <p>The lecture-based portion of the unit will allow students to hypothesize effectively about other acids and bases, applying their knowledge to new scenarios and drawing “conclusions that are consistent with evidence”.</p>
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Curricular Content		
Kn o w	<p><i>Which Curricular Content (specific to your course) will students learn and be assessed on this unit?</i></p> <ul style="list-style-type: none"> - acid-base chemistry - law of conservation of mass - energy change during chemical reactions: exothermic and endothermic, activation energy 	<p><i>Which activities, projects, exercises or discussions will teach this Curricular Content? How will they implement the First Peoples Principles of Learning? How will they be inquiry-based? How will the Curricular Content be assessed?</i></p> <p>This will be taught through some direct instruction, completion of some problem sets, and through the kitchen experiment inquiry project on acids</p>

	<ul style="list-style-type: none"> - practical applications and implications of chemical processes, including First Peoples knowledge: household chemical safety (e.g., ammonia and bleach), combustion (e.g., forest fire, fire triangle, kindling temperature, ignition point, oxygen concentration), polymer chemistry, semiconductors, resource extraction (e.g., ore, fracking), pulp and paper chemistry, food chemistry, corrosion/prevention, tanning, traditional medicines, phytochemistry, pharmaceuticals, environmental remediation, water quality, oil spill cleanup 	<p>and bases. Assessment will be of their planning for the experiment, problem sets, and a final quiz.</p>
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Required Resources

What resources (textbooks, computer programmes, website subscriptions) will students need to complete this unit?

McGraw Hill Ryerson Science 10 textbook

Access to Google Meet

Some basic kitchen supplies