

Unit Plan:- Year 10 Chemistry - Regional Real-life Reactions

Many students are unaware of the importance of chemistry in a wide variety of local industries and in everyday life. This knowledge will assist students with important life decisions, such as being a consumer and possible career paths.

Unit Plan

In a learning context	
Key Competencies	<ul style="list-style-type: none">● Thinking - students will develop their understanding, make decisions, construct knowledge and develop curiosity while engaged in this topic.● Using language, symbols, and text - working with and making meaning of how scientific knowledge is expressed, e.g. texts, diagrams, language● Managing self - students will manage time frames for poster project and develop strategies to meet the challenge● Relating to others - students will make social connections with employers in the speed meet, and as part of gathering information for their poster project and students will communicate what they have learnt to a target audience.● Participating and contributing - students will engage in a scientific enquiry and explore the impact that products and solutions may have on themselves and the environment.
Values	<ul style="list-style-type: none">● Excellence● Innovation● Curiosity and inquiry● Integrity● Respect

<p>Science Year 10 Level 5 NZC (12 hours)</p>	<p>Material World</p> <p>Students will:-</p> <p>Properties and change of matter</p> <ul style="list-style-type: none"> ● Investigate the chemical and physical properties of different groups of substances, for example, acids and bases, fuels, and metals. ● Distinguish between pure substances and mixtures and between elements and compounds. <p>The structure of matter</p> <ul style="list-style-type: none"> ● Describe the structure of the atoms of different elements. ● Distinguish between an element and a compound, a pure substance and a mixture. <p>Chemistry and society</p> <ul style="list-style-type: none"> ● Link the properties of different groups of substances to the way they are used in society or occur in nature
<p>Unit Goal: - <i>To understand how creating products can have consequences by altering the balance of a system</i></p>	<ul style="list-style-type: none"> ● Students will investigate examples of pH and neutralisation in the human body and the environment (antacids, soil, waterways etc). ● Students will investigate how the chemical makeup of systems (body, environment) can be assessed. ● Students will explore the impact that products and solutions may have on themselves and the environment. ● Students will consider to what extent the industry should consider the impact of their products. <p>Students are tasked with creating a conference poster board using a local industry or everyday context of their choice to discuss and evaluate the implications and importance of acids and bases on society when used to make a product or solve a problem or issue. This will be displayed at the Year 7-8 Youth Chemistry Conference, and students will present their findings to Year 7 and 8</p>

	<p>students.</p> <p>The student's poster board must include:</p> <ul style="list-style-type: none"> ● Knowledge about pH, ions and neutralisation ● Appropriate chemical equations ● Industry or everyday life connections/links ● Positive or negative consequences of changes in pH for humans, society and/or the environment ● Sources documented correctly
<p>Integrating careers into curriculum</p>	<p>Career Management Competency - Exploring opportunities</p> <p>Students are supported to explore and understand the possibilities that exist post-school.</p> <p>Goals:</p> <ul style="list-style-type: none"> ● <i>To determine prior thinking about what kind of people engage with science and to challenge stereotypes.</i> ● <i>To investigate a range of scientists and their work and compare these to my preconceived ideas.</i> ● <i>To understand different industries and career options that use chemistry in their day-to-day work.</i>
<p>Pre-Event Lesson (1 hour)</p>	<p>What does a Scientist look like?</p> <ol style="list-style-type: none"> 1. Tell me what you think? See slides <ol style="list-style-type: none"> a. Students answer the following questions using google form <ul style="list-style-type: none"> ● Rate how much you enjoy learning about science. ● Rate how important it is for the future that there are people studying science. ● What does a scientist do? 2. Take students through kahoots - students identify the correct science for each occupation in the slide. 3. Students go through the hashtag #scientistswhoselfie #scientistswhoselfie 4. on Twitter or Instagram and look at all the different types of scientist posting or Real living scientists as most people can not name living scientists, only those from history.

	<p>5. Students complete the worksheet - WHAT DOES A SCIENTIST LOOK LIKE</p> <p>Share comments with classes, reflect on questions asked at the beginning of the lesson</p> <p>Science teachers take students through lessons on acids and bases</p>
<p>Inspiring Future Event (2 hours back to back)</p>	<p>Preparation and instructions for the Inspiring Futures Event.</p> <p>Inspiring Futures Event</p> <p>Why an Inspiring the Future event? Research in Aotearoa and overseas has shown that young people can have narrow ideas about the future. Inspiring the Future helps to show young people more of the pathways that exist by connecting schools like ours with volunteer role models from the community.</p> <p>What happens at Inspiring Futures events? Role models visit schools to share their stories with the students – what job they do, how they got there, and any challenges faced along the way through the following programme.</p> <p>20 questions Role models wearing casual clothes sit in a row in front of the students. Students try to guess what job they each do by asking up to 20 questions. Role models can only answer with “yes” or “no”, “sometimes” or “maybe”.</p> <p>The role models then leave the room and change into their work clothes or collect a prop that represents the job they do.</p> <p>The reveal</p>

Role models return to the room wearing their work clothes or holding their props. They each reveal their job and talk for 2-3 minutes about how they use chemistry in their work.

Speed Date

Students are separated into as many groups as there are role models. Each group visits each role model in turn. Students ask questions and learn more about their career pathways and the work they do.

Followup lesson - Reflection

Complete the Experiential Learning student worksheet - What happened?/What did I learn?/What do I want to learn more about?

Project

Students using a local industry or everyday context of their choice, develop a presentation where they discuss and evaluate the implications and importance of acids and bases on society when used to make a product or solve a problem or issue.