

SCH3U - Unit 2 Chemical reactions – 75 Minutes

David Suzuki Secondary School  
 Lesson 3: Single Displacement Reactions  
 Sharma

Tuesday, November 24, 2020  
 Teachers: Sisi Feng, Sharnam

Please reference [lesson](#) with [Jamboard activity](#) and virtual lab attached document

Green=David Suzuki SS considerations

<b><u>Curriculum Expectations</u> for lesson 3:</b>	
<b>Lab (pg. 92):</b>	
<p><b>A1.1</b> formulate relevant scientific questions about observed relationships, ideas, problems, or issues, make informed predictions, and/or formulate educated hypotheses to focus inquiries or research</p> <p><b>A1.6</b> compile accurate data from laboratory and other sources, and organize and record the data, using appropriate formats, including tables, flow charts, graphs, and/or diagrams</p> <p><b>A1.8</b> synthesize, analyse, interpret, and evaluate qualitative and quantitative data; solve problems involving quantitative data; determine whether the evidence supports or refutes the initial prediction or hypothesis and whether it is consistent with scientific theory; identify sources of bias and error; and suggest improvements to the inquiry to reduce the likelihood of error</p> <p><b>A1.10</b> synthesize, analyse, interpret, and evaluate qualitative and quantitative data; solve problems involving quantitative data; determine whether the evidence supports or refutes the initial prediction or hypothesis and whether it is consistent with scientific theory; identify sources of bias and error; and suggest improvements to the inquiry to reduce the likelihood of error</p>	
<b>Lesson (pg. 96):</b>	
<p><b>C1</b> analyse chemical reactions used in a variety of applications, and assess their impact on society and the environment</p> <p><b>C2</b> investigate different types of chemical reactions</p> <p><b>C3</b> demonstrate an understanding of the different types of chemical reactions</p>	
<b>Learning skills</b>	<b>Global competencies</b>
<ul style="list-style-type: none"> <li>• Collaboration</li> <li>• Self-regulation</li> <li>• Independent work</li> <li>• Organization</li> </ul>	<ul style="list-style-type: none"> <li>• Critical thinking</li> <li>• Communication</li> <li>• Collaboration</li> <li>• Citizenship</li> <li>• Creativity</li> <li>• Character</li> </ul>
<b>Learning objectives (for entire unit) Modified for IS143</b>	
<ul style="list-style-type: none"> <li>• By the end of the unit, I can:</li> <li>• Recognize chemical changes (Lesson 1)</li> <li>• Predict products of reactions, write chemical equations, test these reactions (Lesson 2, 3)</li> <li>• Understand synthesis, decomposition, and displacement reactions (Lesson 2, 3)</li> <li>• Use reactivity series to predict reactivity of series of elements (Lesson 3)</li> <li>• <b>Identify chemical compounds and reactions in everyday use or environmental significance</b> (Lesson 1, 2, 3)</li> </ul>	
<b>Learning objectives (for lesson 1) Modified for IS143</b>	
<ul style="list-style-type: none"> <li>• By the end of the lesson, <u>I can</u>:</li> <li>• Define single displacement reactions</li> </ul>	

- Predict products of single displacement reactions
- Understand how the reactivity series operates

### Accommodations for David Suzuki SS (DSSS)

- Environmental phenomenon as examples of displacement reactions (corrosion in pipes)
- Technological examples included (Thermite process)
- Peel custodian appreciation day
- Anti-bullying program
- Sports examples (ice hockey)
- Take and go breakfast program
- Springbrook Public School feeder school example
- Lots of visuals tied to words to accommodate 20% of ELLs at school

### Equity, Diversity, Inclusion

- Anti-bullying intervention as an example of single displacement reactions
- Anonymous answering system on PearDeck
- Personalized land acknowledgement
- Indigenous perspectives incorporated (ways of making weapons, gathering ayahuasca)
- Positionality established with Indigenous perspectives and land use
- Breakout rooms allows intimate space to share ideas and for students to respect each other in a safe learning environment (DSSS mission)
- Language is gauged, eg. Using “may” instead of “have to,” not assuming everyone knows a particular topic etc.
- Closed captioning is provided for the hearing impaired and to mitigate any language barriers for the ELLS
- Written chemical reactions are not used, and instead reactions are typed out to accommodate for ELLs and those with reading challenges who may have difficulty reading the slides.
- Option to draw answer for critical thinking exercise as opposed to writing

### VARK learning for IS143

- $\frac{3}{4}$  of class are visual learners; incorporated lots of visuals and colours, videos
- $\frac{5}{12}$  of class are auditory; incorporated lots of discussions, videos, me talking to the class, breakout room critical thinking activity
- $\frac{3}{4}$  of class are read/writing learners; lots of SA questions on PearDeck, writing down answers during discussion times, homework questions assigned from the textbook
- $\frac{3}{4}$  of class are kinaesthetic learners; fitness challenge, virtual lab

Timing	Introduction / Minds on	Accommodations for IS143/DSSS	
~5 min	<ul style="list-style-type: none"> <li>House-keeping, accessibility options (closed captioning, raising hand function in ZOOM if cannot hear/go too fast)</li> <li>Thanking custodians for their hard work</li> <li>Fun title page – chemistry puns</li> <li>USA presidential election with Biden displacing Trump in office as an introduction to single displacement reactions</li> </ul>	<ul style="list-style-type: none"> <li>2/3 of class has less than 50% of chemistry proficiency, therefore it is important to link Minds On to something the class knows</li> <li>DSSS is also in tune with worldly affairs</li> </ul>	
~20 min	<p><b>Action – Introduction</b></p> <ul style="list-style-type: none"> <li>Definitions and fun examples of single and double displacement reactions (passing the puck in ice hockey, anti-bullying of bully displacing friend, take and go breakfast)</li> <li>Reactivity series introduced with custodial workers first</li> <li>“Rising action” phase of lesson where important concepts are first introduced</li> </ul>	<p><b>Accommodations for IS143/DSSS</b></p> <ul style="list-style-type: none"> <li>Examples with words and balanced equations provided</li> <li>Examples chosen for those without a chemical background in mind</li> <li>Several of DSSS’ calendar events included here as examples of single displacement reactions</li> <li>DSSS has ~20% of ELLs and thus using visuals as opposed to words immediately allows these students more understanding</li> <li>Fun acronym relating to DSSS’ mission statement to help students remember the order of elements in the reactivity series</li> <li>Indigenous chemistry examples explained to provide a different perspective to Western chemistry</li> <li>DSSS feeder school from Springbrook example of single displacement reactions</li> </ul>	<p><b>Types of assessments/activities</b></p> <ul style="list-style-type: none"> <li>PearDeck MC, SA questions (AfL)</li> <li>Predict products of reactions before I show the answer (AfL)</li> </ul>
~30 min	<p><b>Action – Main phase</b></p> <ul style="list-style-type: none"> <li>Fitness challenge – if answer choice A then do a certain action, if answer choice B, then do a certain action</li> <li>Critical thinking global competency activity – Which alloy is best to use to bring seawater to a processing plant?</li> <li>“Climax” part of lesson where theories are introduced relating</li> </ul>	<p><b>Accommodations for IS143/DSSS</b></p> <ul style="list-style-type: none"> <li>Examples pertaining to non-science students</li> <li>Images along with typed out words so ELLs and those with reading difficulties can read the text better than hand written</li> <li>Lots of colour coded words to highlight important words and instructions among text</li> </ul>	<p><b>Types of assessments/activities</b></p> <ul style="list-style-type: none"> <li>Fitness challenge break – active form of learning (AfL)</li> <li><a href="#">Critical thinking exercise</a>: students will be presented with tables with data on corrosion rates and their job</li> </ul>

	to definitions learned in Action – Introduction	<ul style="list-style-type: none"> <li>• Caters to kinesthetic, visual, auditory, and read/write learners (critical thinking activity on pipe design)</li> <li>• Highlights global competency</li> </ul>	is to analyze which alloy is best to use and the optimal diameter of the pipe. Students will also consider different situations (less fortunate communities, third world countries etc.) and alter their designs accordingly <b>(AaL)</b>
~10 min	<b>Consolidation</b>	<b>Rationale/accommodations</b>	
	<ul style="list-style-type: none"> <li>• Complete two rows of the single displacement virtual lab and complete the rest for homework <b>(AaL)</b></li> <li>• Go over assigned homework in the textbook</li> <li>• Please type one example of a single displacement reaction in the ZOOM chat box <b>(AFL)</b></li> </ul>	<ul style="list-style-type: none"> <li>• Allows teachers to see if students understand and address any questions</li> <li>• Table partly filled in for virtual lab (IS143)</li> <li>• Exit ticket is to complete part of lab to ensure understanding and address concerns</li> <li>• Asking students to type an example of single displacement reaction shows teachers that students understand the concept</li> <li>• Chapter review questions are chosen from the textbook so students can see how well they understood the entire unit (lessons 1-3)</li> </ul>	
<b>Timing</b>		<b>Rationale/accommodations</b>	
<ul style="list-style-type: none"> <li>• Time intervals presented above are relative and depends on student interest and understanding</li> <li>• Lesson is sectioned so anything not touched upon can be brought up in next lesson</li> </ul>		<ul style="list-style-type: none"> <li>• More time is given to answering questions on PearDeck (IS143)</li> <li>• More time is spent on going over incorrect answers (ELLS, IS143)</li> <li>• More general concepts covered (IS143)</li> </ul>	

<b>Assessments for learning (AFL)</b>	<b>Assessments as learning (AaL)</b>
Pear deck interactive questions – draggable, MC, SA	Virtual lab (marked but not counted towards grade – more of check in)
Fitness challenge!	Breakout rooms discussion: critical thinking activity on pipe design
Homework questions from the textbook	