

# SCH3U BONDING UNIT

NOTE: Links in italics may not currently work. Will go "LIVE" as the unit progresses.

Please note that the outline starts as a duplicate of a previous semester to serve as an overview but is likely to change including assignments.

This is a live document. It will be adjusted as we go.

Assessments	Information
<b>Quiz 1 topics:</b> Bonding, Electronegativity, continued nomenclature. There will be a Topics quiz and a separate set of nomenclature questions	In Class Date: <b>Mar19</b> ~25 mins in class Correct AND hand in Quiz with answers will be posted on Classroom at the end of the quiz day.
<b>Quiz 2 topics:</b> <del>AT HOME QUIZ (maybe)</del> structures, forces & properties, → includes Electronegativity, Shapes and IMF	In Class Date: <b>Mar26</b> ~25 mins in class Correct AND hand in Quiz with answers will be posted on Classroom at the end of the quiz day.
<b>Learning Portfolio 1</b>	This will be due part way through this unit. See due date & instructions on Google Classroom
<b>Learning Portfolio 2</b>	This will be worked on during this unit and due once all items on the list are completed, See due date & instructions on Google Classroom
<b>Deep Dive 1 Project (TBD)</b>	<del>This is Part 1 of your Culminating and will be worth 7% of your final grade. See due date &amp; instructions on Google Classroom</del>
<b>IMF &amp; Properties Lab Assessment (Claim, Evidence, Reasoning)</b>	In Class Date: <b>Mar 28</b> ~20 mins in class <i>This is a quiz-length assessment that will count on your final grade based on your understanding of the Properties lab.</i>
UNIT TEST	DATE: <b>A2</b> . <ul style="list-style-type: none"> <li>Use the topics in below plan to create your own test topic list- SUGGESTED: Do a mindmap of the unit topics to solidify connections and understanding.</li> <li><a href="#">SCH3U1/SCH4C1 UNIT 2 Bonding &amp; Reactions</a></li> <li><b>GENERAL HELP:</b> <a href="#">How to Better Answer</a> and <a href="#">Multiple Choice strategies</a></li> <li><a href="#">ch.2 and 3 review U.08.pdf</a> - Use questions as applicable off this review.</li> <li><a href="#">SCH3U Exam Practice Quizzes &amp; Tools</a> - See slides Bonding Unit. Please ADD any helpful resources you find.</li> <li>Use any practice options provided with each learning topic (redo prior quizzes &amp; activities)</li> <li>Try to create your own review topics list before referring to this:</li> </ul>

# Learning Topics and Pacing Guide

SCH3U [ALL TEXT ANSWERS](#) for Bonding Unit Material

**Keeping Track!** You can copy this [Table of Contents](#) to link all digital materials & track all topics. Optional but recommended.

<b>KEEPING UP</b> Date range gives the latest date you should complete the learning patch by.	<b>LEARNING TOPIC COLLECTIONS</b>	Complete Topics in collection <b>from Left to Right in the row</b> , then proceed to the next collection, unless otherwise instructed. Each topic should be completed in ONE class unless otherwise indicated.  Boxes Filled in <b>Blue are Level 4</b> & can be skipped if you are behind the pace of the course (must complete Level 4 material if you are aiming for an above 85% in the course). It WILL appear on assessments.			
<b>TOPIC DAYS</b>  <b>Mar 5:</b> Intro lesson  <b>Mar 6:</b> Nomenclature review - Polyatomic extension  <b>Mar 7:</b> Nomenclature -> Acids & Hydrates	Compounds and Molecules	<p><b>TOPIC: Introduction &amp; Review</b></p> <p><a href="#">SCH3U Terms &amp; Translations</a></p> <p>LEARN:</p> <ul style="list-style-type: none"> <li>-&gt; <a href="#">Intro Slides</a></li> <li>-&gt; <a href="#">This Kahoot</a> (link if away)</li> <li>-&gt; For review: <a href="#">Lewis Diagrams and Ionic Bonding</a> (posted in Matter Unit)</li> <li>-&gt;</li> </ul> <p><b>Practice:</b></p> <ul style="list-style-type: none"> <li>-&gt; For review: Bonding Diagram worksheets:               <ul style="list-style-type: none"> <li>→ <a href="#">Ionic</a> (<a href="#">Answers</a>)</li> <li>→ <a href="#">Covalent</a> (<a href="#">Answers</a>)</li> </ul> </li> <li>→ Try to memorize <a href="#">THESE</a> element charges for Quiz</li> </ul> <p>Optional help/extensions:</p> <p>Continue to utilize resources on <a href="#">Grade 10 Atoms, Nomenclature &amp; Bonding Review_Student</a></p>	<p><b>TOPIC: Nomenclature Review and LEARN:</b></p> <ul style="list-style-type: none"> <li>-&gt; Board practice on Lewis for ionic and covalent</li> <li>-&gt; compound Boggle from Intro slides last class</li> <li>-&gt; <a href="#">Polyatomics</a> <b>OR</b> <a href="#">Polyatomic Note &amp; questions</a> (note)</li> <li>-&gt; <a href="#">Make sure you cover oxyanions &amp; the “-ate” families Grade 11/12 addition from Grade 10.</a></li> </ul> <p><b>Practice:</b></p> <ul style="list-style-type: none"> <li>-&gt; Polyatomic practice: <a href="#">Nomenclature Sheet 3 &amp; 4</a> - <a href="#">attempt at least all of sheet 3.</a> <ul style="list-style-type: none"> <li>NOTE: there may be some “old” naming system ones. Not tested!</li> </ul> </li> <li>-&gt; Complete Quia Quiz <a href="#">Learning Artifacts</a> as posted on classroom for nomenclature (several)</li> <li>→ Use your study planner!</li> </ul> <p>Review as needed from:</p> <ul style="list-style-type: none"> <li>-&gt; <a href="#">The Questions for Naming Any Compound</a> (slides 1-7)</li> <li>-&gt; <a href="#">Naming Compounds with Transition Metals</a> Review as</li> </ul>	<p><b>TOPIC: Nomenclature (cont'd): Acid &amp; Hydrate naming</b></p> <ul style="list-style-type: none"> <li>-&gt; <a href="#">Acids &amp; Hydrates</a> - Use this self-guided presentation <b>And/or</b> this Fun book (created as a Deep dive project) <a href="#">What's My Name? Acids and Hydrates</a></li> </ul> <p>Acids &amp; Hydrates practice: <a href="#">Sheets 5&amp;6</a> , <a href="#">attempt at least all of sheet 5</a>. Again compare sheets for answers.</p>	

			needed  If comfortable with all the above continue with Acids and Hydrate topic this period:		
<b>TOPIC DAYS</b>  <b>Mar 17 :</b> Electronegativity NOTE: LEARNING PORTFOLIO 1 Deadline Approaching! Wed we will do the last item to add.  <b>Mar 18:</b> Molecular Shape Activity  <b>Mar 19:</b> <b>Quiz</b> & Molecule Polarity	<b>Bond and Molecule Polarity and shapes</b>	<b>TOPIC: Electronegativity</b> LEARN: -> <a href="#">Electronegativity Slides</a>  ->Check out the Key on your Periodic table for the Electronegativity values  <b>Practice: :</b> -> <a href="#">Electronegativity Worksheet</a> -> you can make a copy to complete digitally. Save #14 with molecule shape until after VSEPR topic. -> <a href="#">Bare Essentials Polarity Comic.pdf</a> - Read and optionally, complete the questions to deepen understanding. -> pg. 84 # 2-4; 85 # 5,6 <b>Optional help/extensions:</b> -> <a href="#">Polar and Non-polar covalent bonds</a> {Edpuzzle}	<b>TOPIC: Molecular Shape</b> LEARN: -> Chemthink Molecular Shapes on Classroom - (Activity) . You may choose to complete & submit in partners. <a href="#">Chemthink - Molecular Shapes</a> - This is assigned on Classroom to complete  <b>Practice:</b> -> COMPLETE Q#14 from <a href="#">Electronegativity Worksheet</a> : be able to draw the VSEPR shape correctly. If time in class you can build several to confirm you are correct. -> Quia Quiz: <a href="#">Molecular Geometry and Lewis Structures (3U/4C)</a> - assigned on Classroom to submit when you've done this. (may be a Learning Portfolio Artifact)	<b>TOPIC: Molecule Polarity &amp; Building Molecules</b> LEARN: -> <b>WATCH:</b> <a href="#">Polar vs non-polar keeping it simple</a> -> SLIDES (start at "Polar Covalent Bonding Slide") <a href="#">Electronegativity, Molecular Shape &amp; Polarity</a> -> <a href="#">Chart of VSEPR Model</a> and Molecular shapes: You should know the shapes molecules will form and be able to predict overall polarity of molecules from their EN difference. ->BUILD: <a href="#">Molecule Shape &amp; Polarity Activity (S23)</a> <ul style="list-style-type: none"><li>Complete overall polarity practice below</li></ul> - <b>Practice:</b> -> <a href="#">Predict Overall Polarity Hmwk</a> (NOT submitted) ->Check your <a href="#">Answers</a> -> If not done, complete Q#14 from <a href="#">Electronegativity Worksheet</a> . You can now predict polarity too. --> <a href="#">Molecular Shape and Polarity Errors Worksheet S23</a> & Answers (2nd pg)	
<b>TOPIC DAYS</b>  <b>Mar 20:</b> Continue molecule building & errors	<b>Intermolecular Forces</b>	<b>TOPIC: Intermolecular Forces &amp; Properties of Solids</b> LEARN: -> <a href="#">Intermolecular forces Slides {L}</a>	<b>TOPIC: IMF &amp; Properties lab</b> Quest Assessment on lab understanding in a few classes	<b>TOPIC: Balancing</b> LEARN: -> It is VERY IMPORTANT to be proficient in this skill.	<b>TOPIC: Household Product Assignment</b>  See posted assignment on

<p>sheet.</p> <p><b>Mar 21:</b> Intermolecular forces</p> <p><b>Mar 24:</b> Properties lab (IMF) - <b>QUEST IN A FEW CLASSES</b></p> <p><b>Mar 25:</b> Discuss Properties lab &amp; IMF. Balancing Review &amp; further practice. Intro Household assignment <b>QUIZ NEXT PERIOD</b></p> <p><b>TEST SOON!</b> See Table at the top for Review Material and Test Date.</p> <p><del>** Be working on Deep Dive Project &amp; Learning Portfolio</del></p> <p><b>** QUIZ after completion of this row</b></p> <p>Reminder to use Retrieval and Spaced practice on prior concepts!</p>		<p>-&gt; <a href="#">Notes Summary</a> for use as needed.</p> <p><b>Practice:</b> TRY: <a href="#">Effects of Intermolecular forces</a> - includes a strategy, practice problems and solutions. → <a href="#">Intermolecular Forces Worksheet F23</a> <a href="#">Answers</a> -&gt; Quia Practice Only: <b><a href="#">Chemical Bonding (Bond Polarity &amp; Electronegativity)</a></b> - <b>Optional help/extensions:</b></p> <ul style="list-style-type: none"><li>• View this <a href="#">video</a> for further help with IMF</li><li>• Tyler Dewitt, detailed <a href="#">Hydrogen bonding video</a></li><li>• <a href="#">Difference between Intra &amp; Intermolecular Forces</a></li><li>• <i>Optional extra practice</i> <a href="#">Intermolecular Question Sheet</a> (Answers are on it)</li></ul>	<p>LEARN: <a href="#">Properties of solids &amp; Bond types lab</a> : Be sure you have predicted before you do the lab. Groups of 3 - See instructions on digital lab above</p> <p><b>Practice:</b> -&gt; Complete the lab questions</p>	<p>-&gt; Watch <a href="#">VIDEO</a> on Balancing Chemical Equations and conservation of mass [review from grade 10!] -&gt; <a href="#">Balancing Equations Answers Visually</a></p> <p><a href="#">Video Help</a> for Polyatomic compound balancing</p> <p>Helpful trick: Write out the atoms in each compound like in the video but just use element symbols. (Eg H2O -&gt; HHO) and circle this set. You can add more circles but CAN NOT change what's in a circle.</p> <p><b>Practice:</b> -&gt; <a href="#">Balancing 1</a> ; <a href="#">Answers</a> -&gt; <a href="#">Balancing 2</a> ; <a href="#">Answers</a> -&gt; <a href="#">Balancing 3: Answers</a> (says worksheet 4, its the third we're doing) -&gt; More Balancing {Optional}: Complete questions on page 211 # 1-4 (note, skip 2d due to text error)+ page 215 # 2-4 and page 252 # 2</p> <p><b>Optional help/extensions:</b> -&gt; <b>Note:</b> <a href="#">Counting atoms help</a> if you've forgotten -&gt; <a href="#">Quizzizz counting atoms practice</a> (Sem 2 2023 link)</p>	Classroom & complete with a partner
<p><b>TOPIC DAYS</b></p> <p><b>Mar 26:</b> <b>Quiz 2 &amp;</b> Household assignment time</p> <p><b>Mar 27:</b> Types of</p>	<p><b>Chemical Reactions</b></p>	<p><b>TOPIC: Types of Reactions</b></p> <p>LEARN: -&gt; Further review from Gd 10: Video on <a href="#">Types of Reactions</a> → <a href="#">SCH4C note Types of</a></p>	<p><b>TOPIC: Activity Series &amp; Single Displacement Reactions</b></p> <p>LEARN: -&gt; <a href="#">Activity Series Lab</a></p>	<p><b>TOPIC: Combustion lab</b></p> <p>LEARN: -&gt; <a href="#">3U/4C combustion lab</a></p> <p>-&gt; Research <u>as needed</u> to recall/learn combustion; you</p>	

Reactions & Balancing Practice

**Mar 28:** Activity Series (lab & learning) & **IMF Lab Quest** (last 20 min)

**Mar31:** Activity Series wrap up (Possibly combustion lab)

**A1:** Review time

**A2:** **Unit Test**

~~Deep Dive Project time~~

**A3 :** Stoich Cont'd

**A4:**

Reminder to use Retrieval and Spaced practice on prior concepts!

Chemical Reactions

-> SCH3U Types of chemical reactions: NOTE: Senior detail on Single Displacement (most reactive replaces) and Double displacement will be covered in future lessons But this is a great summary for the course. You don't need to memorize the subtypes (eg carbonate reactions) but its Level 4.

**Practice:**

--> A Voyage Through Equations Worksheet, answers are further in document.

Optional help/extensions:  
Virtual Types of Reactions Lab - you can use this to review the 4 basic types of reactions from Grade 10.

Types of Chem Reactions (Trimpe).pdf - Great visual summary on page 2 of answers & can practice on first page, but only grade 10 details

Complete at least up to #7 (virtual option below)

-> **NOTE:** the back of your periodic table has the series.

-> Watch: What is an activity series? (3 mins)

-> Watch: Using an activity series to predict (3 min Edpuzzle)

**Practice:**

**Read: 9 - Activity Series Single Displacement & Combustion Notes {L} {or Slides}**

Activity Series Worksheet

(answers included)

-> Quia activity to test your knowledge of using the activity series

**ASSIGNED:** (Learning Portfolio Artifact) Quia on Classroom focusing on Single displacements

Optional help/extensions:

-> Virtual lab Option if not in class

Just set up the same reactions as in the lab sheet. **Also good for practice!**

-> Read section 3.2 (p. 114-120) & do p. 121 #4 -7

-> Single Displacement Reactions in General - 4 examples worked through, includes the exciting Demos and has embedded questions to enhance understanding.

→ More examples worked through (Edpuzzle) of using the Activity Series to predict if reactions occur

need to be able to predict the products of both complete AND incomplete combustion. You should be able to **balance complete combustion reactions only**.

-> Resources: Video, ThoughtCo, BBC Bitesize Limewater test - Read under the Carbon dioxide heading

		<p>TEACHER TEMPLATE ONLY {This will take ~ 2 classes}</p> <p><b>Copy paste this template as needed:</b></p> <p><b>TOPIC:</b></p> <p>LEARN:</p> <p>-&gt;</p> <p>-&gt;</p> <p><b>Practice:</b></p> <p>-&gt;</p> <p>Optional help/extensions:</p> <p><i>Nearpod <a href="#">Period A</a>, <a href="#">Period B</a>, <a href="#">Period C</a></i> [Spring 22 links ]</p> <p>Reference slides for topic</p> <p><b>ASSIGNED:</b> Include in your portfolio.</p> <p>Level 4: Include a (not fancy) mindmap</p> <p><u>NO assigned portfolio item.</u></p>			
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