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**  Complete quizzes as you complete the learning related to each topic, |
| --- | --- |
| ***Quiz 1 topics:***Bonding, Electronegativity, continued nomenclature. There will be a Topics quiz and a separate set of nomenclature questions | In Class Date:  *Mar19* ~25 mins in class  Correct AND hand in  Quiz with answers will be posted on Classroom at the end of the quiz day. |
| ***Quiz 2 topics:***~~AT HOME QUIZ (maybe)~~  *structures, forces & properties,* → includes Electronegativity, Shapes and IMF | In Class Date:  *Mar26* ~25 mins in class  Correct AND hand in  Quiz with answers will be posted on Classroom at the end of the quiz day. |
| ***Learning Portfolio 1*** | This will be due part way through this unit. See due date & instructions on Google Classroom |
| ***Learning Portfolio 2*** | 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 |
| ***~~Deep Dive 1 Project (TBD)~~*** | *~~This is Part 1 of your Culminating and will be worth 7% of your final grade.~~* ~~See due date & instructions on Google Classroom~~ |
| ***IMF & Properties Lab Assessment (Claim, Evidence, Reasoning)*** | In Class Date:  *Mar 28* ~20 mins in class  *This is a quiz-length assessment that will count on your final grade based on your understanding of the Properties lab.* |
| UNIT TEST | *DATE: A2 .*   * Usethe topics in below plan to create your own test topic list- SUGGESTED: Do a mindmap of the unit topics to solidify connections and understanding. * [SCH3U1/SCH4C1 UNIT 2 Bonding & Reactions](https://docs.google.com/document/d/1JqQrl3cfJWjR5yEVcOOARwfW-IWcbVjLpOsYZHVCrGA/edit?usp=sharing) * **GENERAL HELP:** [How to Better Answer](https://docs.google.com/presentation/d/1SFpMAtt2UzJOstF-B_OPyAyppo-M63KE_qNGtLjaW6M/present) and [**Multiple Choice strategies**](https://education.macleans.ca/study-tips/how-to-ace-multiple-choice-tests/) * [ch.2 and 3 review\_U.08.pdf](https://drive.google.com/file/d/0BzCIvA_rN_d3WHBJdTkwYm9VdWs/view?resourcekey=0-HHEn7qlGuyxEDDpjXPCtYw) - Use questions as applicable off this review. * [SCH3U Exam Practice Quizzes & Tools](https://docs.google.com/presentation/d/1JZRN70y_HVFkWbsv9A5wXvdN_5fYmlNVp3efvtTjDMk/edit?usp=sharing) - See slides Bonding Unit. Please ADD any helpful resources you find. * Use any practice options provided with each learning topic (redo prior quizzes & activities) * Try to create your own review topics list before referring to this: |

| Learning Topics and Pacing Guide  SCH3U [ALL TEXT ANSWERS for Bonding](https://drive.google.com/file/d/0BzCIvA_rN_d3TXZxc2IxSU1oRU0/view?usp=sharing&resourcekey=0-0CNiDby-V-Mzf-YWcj5KiA) Unit Material  Keeping Track! You can copy this [Table of Contents](https://docs.google.com/presentation/d/1fIiuwfuE-h-kGMUv3LZ46-8IaU7W0DQoIe5nfHd7ycE/template/preview) to link all digital materials & track all topics. Optional but recommended. | | | | | |
| --- | --- | --- | --- | --- | --- |
| KEEPING UP  Date range gives the latest date you should complete the learning patch by. | LEARNING TOPIC COLLECTIONS | Complete Topics in collection **from Left to Right in the row,** then proceed to the next collection, unless otherwise instructed. Each topic should be completed in ONE class unless otherwise indicated.  Boxes Filled in **Blue are Level 4** & 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. | | | |
| **TOPIC DAYS**  **Mar 5:** Intro lesson  **Mar 6:** Nomenclature review - Polyatomic extension  **Mar 7:** Nomenclature -> Acids & Hydrates | Compounds and Molecules | **TOPIC: Introduction & Review**  [**SCH3U Terms & Translations**](https://docs.google.com/spreadsheets/d/1k7n7RIVNmCm2mxdR82PuWE07mUAhyPWbDSk9GAwjviM/edit?gid=1422833731#gid=1422833731)  LEARN:  -> [Intro Slides](https://docs.google.com/presentation/d/1agzLEtovBLHX4jfVdCT8jspEv14P7MfEwdYZccvDAcY/edit?usp=sharing)  -> [This Kahoot](https://kahoot.it/challenge/?quiz-id=0257b1e7-0d37-4548-aaaf-6d246f7e37e8&single-player=true) (link if away)  -> For review: [Lewis Diagrams and Ionic Bonding](https://docs.google.com/document/d/19hl4QtBILwU-18p2rCYtkV-MHOcfFVoOv5hdxXAUXQA/edit) (posted in Matter Unit)  ->  **Practice:**  -> For review:  Bonding Diagram worksheets:  → [Ionic](https://docs.google.com/document/d/1hhhCKgy3Mj4hvXuS-pzT_GRNczUmaKgdcwPOtWlKNn4/edit)  ([Answers](https://drive.google.com/file/d/1mvWiQL5SCKFheVuPzWJP3b4iEIMbid89/view?usp=sharing))  → [Covalent](https://drive.google.com/file/d/0BzCIvA_rN_d3MWxtOTVXdFVHMGVha1JLUml4anR6cmQxbXNB/view?usp=sharing)  ([Answers](https://drive.google.com/file/d/1muLjDcGmelyBvJzwRUnIhaLIpgCrc1xO/view?usp=sharing))  → Try to memorize [THESE](https://docs.google.com/document/d/17erLy7hWY3mkT9jlCo-drpsvVMkQP7QK_G2_nvaGnws/edit) element charges for Quiz  Optional help/extensions:  Continue to utilize resources on [Grade 10 Atoms, Nomenclature & Bonding Review \_Student](https://docs.google.com/document/d/1NROydgxRO2Y9WlMB2pb6cPArYtC3CGSmaskRzW16p5Q/edit?usp=sharing) | **TOPIC: Nomenclature Review and** LEARN:  -> Board practice on Lewis for ionic and covalent  -> compound Boggle from Intro slides last class  -> [***Polyatomics***](https://docs.google.com/presentation/d/1uBsZHr_PVVUeu2vuHPMcG-49MetOQo0NeK_l8m3RHos/present) OR [Polyatomic Note & questions](https://drive.google.com/file/d/0BzCIvA_rN_d3MFNkLThnQm1GcWc/view?usp=sharing&resourcekey=0-6cSBbotzZf0cjprH332OoA) (note)  -> Make sure you cover oxyanions & the “-ate” families Grade 11/12 addition from Grade 10.  **Practice:**  -> Polyatomic practice: [Nomenclature Sheet 3 & 4](https://drive.google.com/file/d/0BzCIvA_rN_d3ci1hdElUdlhiRHM/view?usp=sharing&resourcekey=0-Nz3Sktf8422TmsFt1Tz1bA) - attempt at least all of sheet 3.   * NOTE: there may be some “old” naming system ones. Not tested!   -> Complete Quia Quiz Learning Artifacts as posted on classroom for nomenclature (several)  → Use your study planner!  Review as needed from:  -> [*The Questions for Naming Any Compound*](https://docs.google.com/presentation/d/1MBxle1NvTFWCI7AiGIS_jrGBFczov-PBFpqJ_hQyQHw/edit#slide=id.777g1b0606e2aa_0_75)(slides 1-7)  -> [**Naming Compounds with Transition Metals**](https://www.youtube.com/watch?v=8KSWRy2MMyM) Review as needed  If comfortable with all the above continue with Acids and Hydrate topic this period: | **TOPIC: Nomenclature (cont’d): Acid & Hydrate naming**  -> [Acids & Hydrates](https://docs.google.com/presentation/d/1z8c_nlEK1wek_Eey3jiN5iTyS5Yc_c61iJ5rWhtF6i4/edit?usp=sharing) - Use this self-guided presentation **And/or** this Fun book (created as a Deep dive project) [What's My Name? Acids and Hydrates](https://docs.google.com/presentation/d/1-ciK3oX4mQ1nriAAiStCVTleYXXDpOA-7eWMFyTtd-M/present)    Acids & Hydrates practice: [Sheets 5&6](https://drive.google.com/file/d/0BzCIvA_rN_d3NDRMVk90bkloVE0/view?usp=sharing&resourcekey=0-sw0uryz3poRn402WCiNIRA) , attempt at least all of sheet 5. Again compare sheets for answers. |  |
| **TOPIC DAYS**  **Mar 17 :** Electronegativity  NOTE: LEARNING PORTFOLIO 1 Deadline Approaching! Wed we will do the last item to add.  **Mar 18:** Molecular Shape Activity  **Mar 19:** **Quiz** & Molecule Polarity | Bond and Molecule Polarity and shapes | **TOPIC: Electronegativity**  LEARN:  **->** [Electronegativity Slides](https://docs.google.com/presentation/d/1pXVzu9yfWiV2gCmQvym22DHffs80BjBUgydiuZ57pKw/edit?usp=sharing)  ->Check out the Key on your Periodic table for the Electronegativity values  **Practice:** :  -> [Electronegativity Worksheet](https://docs.google.com/document/d/1u7DL2bj4G_dqjAPVFQZxk5o42WTsErmEJ3oLqESpU0o/edit?usp=sharing) -> you can make a copy to complete digitally. Save #14 with molecule shape until after VSEPR topic.  -> [Bare Essentials Polarity Comic.pdf](https://drive.google.com/file/d/11IAFlC05m75mUpm5jIPDrmToKpFcr2Vq/view?usp=sharing) - Read and optionally, complete the questions to deepen understanding.  -> pg. 84 # 2-4; 85 # 5,6  Optional help/extensions:  -> [Polar and Non-polar covalent bonds](https://edpuzzle.com/media/5e9374bd57b4b83f0ee3ed3d) {Edpuzzle} | **TOPIC: Molecular Shape**  LEARN:  -> Chemthink Molecular Shapes on Classroom - (Activity) . You may choose to complete & submit in partners.  [Chemthink - Molecular Shapes](https://docs.google.com/document/d/1-bujJ94JGdzizDZdSUSMnxBsp4Nc9HDgHk0akE2z49Y/edit) - This is assigned on Classroom to complete  **Practice:**  -> COMPLETE Q#14 from [Electronegativity Worksheet](https://docs.google.com/document/d/1u7DL2bj4G_dqjAPVFQZxk5o42WTsErmEJ3oLqESpU0o/edit?usp=sharing): be able to draw the VSEPR shape correctly. If time in class you can build several to confirm you are correct.  -> Quia Quiz: [**Molecular Geometry and Lewis Structures (3U/4C)**](https://www.quia.com/rr/1411462.html) - assigned on Classroom to submit when you’ve done this. (may be a Learning Portfolio Artifact) | **TOPIC: Molecule Polarity & Building Molecules**  LEARN:  -> **WATCH:** [Polar vs non-polar keeping it simple](https://www.youtube.com/watch?v=0RVxSQrVqHI)  -> SLIDES (start at “Polar Covalent Bonding Slide) [**Electronegativity, Molecular Shape & Polarity**](https://docs.google.com/presentation/d/1Ww3WLFI_xH9ZgF7eRdBL-rJod7BkeKH4PA_l-TQo8FQ/edit#slide=id.p7)  -> [Chart of VSEPR Model](https://drive.google.com/file/d/1LNvAPAKpfR64Igcsr1dpdtFUo32skmpt/view?usp=sharing) 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: [**Molecule Shape & Polarity Activity (S23)**](https://docs.google.com/document/d/1zhPnwAsZRJjq7xjGcXrOwrC58qGK6fdcYD9gFLVgTnQ/edit)   * Complete overall polarity practice below   - **Practice:**  -> [Predict Overall Polarity Hmwk](https://docs.google.com/document/d/1vJdS8tMlPYKVDHZKUB8oCultyQkSU0AHMRaDet_q6kw/edit?usp=sharing) (NOT submitted) ->Check your [Answers](https://drive.google.com/open?id=13fY1NKCoDQOMdLkgeKSLffO5Vuzljter)  -> If not done, complete Q#14 from [Electronegativity Worksheet](https://docs.google.com/document/d/1u7DL2bj4G_dqjAPVFQZxk5o42WTsErmEJ3oLqESpU0o/edit?usp=sharing). You can now predict polarity too.  --> [Molecular Shape and Polarity Errors Worksheet S23](https://docs.google.com/document/d/13NHA2KyBQvXkwyQ_GBgO5tHd_w_E-vCM4I1K_mJwtY4/edit) & Answers (2nd pg) |  |
| **TOPIC DAYS**  **Mar 20**: Continue molecule building & errors sheet.  **Mar 21**: Intermolecular forces  **Mar 24**: Properties lab (IMF) - QUEST IN A FEW CLASSES  **Mar 25:** Discuss Properties lab & IMF. Balancing Review & further practice. Intro Household assignment  ***QUIZ NEXT PERIOD***  TEST SOON! See Table at the top for Review Material and Test Date.  \*\* ~~Be working on Deep Dive Project~~ & Learning Portfolio  \*\* QUIZ after completion of this row  Reminder to use Retrieval and Spaced practice on prior concepts! | Intermolecular Forces | **TOPIC: Intermolecular Forces & Properties of Solids**  LEARN:  -> [Intermolecular forces Slides {L}](https://docs.google.com/presentation/d/19fbSbjVbrahu6dlyPRqyp7cnC6Uqw9-jfQBHShGSSKU/edit#slide=id.p5)  -> [Notes Summary](https://docs.google.com/document/d/1aTYKLjQ_MAvW2G2qjrgQCWxg958uMZArL8KdyELTD0Y/edit?usp=sharing) for use as needed.  **Practice:**  TRY: [Effects of Intermolecular forces](https://docs.google.com/presentation/d/18OUdM6XYyP6MUSItT7pbct2dKGuqH_0K1SVDkVdPXnY/edit#slide=id.p) - includes a strategy, practice problems and solutions.  → [Intermolecular Forces Worksheet F23](https://docs.google.com/document/d/1zMQUJ8_NMjeYYdd7e7h4WKfTGG7GdlcnDCOA06lR86Q/edit?usp=sharing) [Answers](https://docs.google.com/document/d/1IMiAe1X8W9GHoy3DwmRM9CNUEbjaBvSKp5SBkfdFfrM/edit?usp=sharing)  -> Quia Practice Only: [**Chemical Bonding (Bond Polarity & Electronegativity)**](https://www.quia.com/rr/1411463.html)  *-*  Optional help/extensions:   * View this [video](https://www.youtube.com/watch?v=oYd9lq3K9Ek) for further help with IMF * Tyler Dewitt, detailed [Hydrogen bonding video](https://www.youtube.com/watch?v=PyC5r2mB4d4&t=388s) * [Difference between Intra & Intermolecular Forces](https://www.youtube.com/watch?v=9OUE1JkYoIM) * *Optional extra practice* [*Intermolecular Question Sheet*](https://drive.google.com/file/d/0BzCIvA_rN_d3NGJtZlR5OVdoY0E/view?usp=sharing&resourcekey=0-UW_yueCdHVmCR9oXrGTYhQ) (Answers are on it) | **TOPIC: IMF & Properties lab**  Quest Assessment on lab understanding in a few classes  LEARN:  [Properties of solids & Bond types lab](https://docs.google.com/document/d/1hqHBNeipKy1DtoVJ2TbEZgMGPzwe0-TJ/edit) : Be sure you have predicted before you do the lab.  Groups of 3 - See instructions on digital lab above  **Practice:**  -> Complete the lab questions | **TOPIC: Balancing**  LEARN:  -> It is VERY IMPORTANT to be proficient in this skill.  **->** Watch [VIDEO](https://www.youtube.com/watch?v=X7ckfeRjjvI) on Balancing Chemical Equations and conservation of mass [review from grade 10!]  -> [Balancing Equations Answers Visually](https://docs.google.com/presentation/d/1_4r-0asDBGTOKn7hAG4psuNH-HMgRYR0JEkRbOlYQiM/edit?usp=sharing)  [Video Help](https://www.youtube.com/watch?v=UhlpnDCGCQc') for Polyatomic compound balancing  Helpful trick: Write out the atoms in each compound like in the video but just use element symbols. (Eg H2O -> HHO) and circle this set. You can add more circles but CAN NOT change what’s in a circle.  **Practice:**  -> [Balancing 1](https://drive.google.com/file/d/1KPBExHSqr33NYSWp75xXmQ3y3FlUBPhs/view?usp=sharing) ; [Answers](https://drive.google.com/file/d/1KoJHP71nx0J5UQsfcTKFWarBMkV7P8ak/view?usp=sharing)  -> [Balancing 2](https://drive.google.com/file/d/1KwXGsYRIcK3wi2kLopGvc4pA3QfCAc41/view?usp=sharing) ; [Answers](https://drive.google.com/file/d/1KzECaDrMcxCBqtNNwCUhHlXdPnsgon7g/view?usp=sharing)  -> [Balancing 3;](https://drive.google.com/file/d/1L0SmWyBhrvoOuIhvxEjldc52n8aCT47A/view?usp=sharing) [Answers](https://drive.google.com/file/d/1L4DDFWFOf0Wpb7nJ5q4G3_ccghEpZv5l/view?usp=sharing) (says worksheet 4, its the third we’re doing)  -> 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    Optional help/extensions:  **-> Note:** [**Counting atoms help**](https://www.youtube.com/watch?v=8d8s0Yu8pTE) if you’ve forgotten  -> [Quizzizz counting atoms practice](https://quizizz.com/join/quiz/5a1ed0800a9c6d1000df42ab/start?studentShare=true) (**Sem 2 2023 link)** | **TOPIC: Household Product Assignment**  See posted assignment on Classroom & complete with a partner |
| **TOPIC DAYS**  **Mar 26:** Quiz 2 & Household assignment time  **Mar 27:** Types of 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:**  **Nov 1:** Deep Dive Project time.  Reminder to use Retrieval and Spaced practice on prior concepts! | Chemical Reactions | **TOPIC: Types of Reactions**  LEARN:  -> Further review from Gd 10: Video on [Types of Reactions](https://www.youtube.com/watch?v=aAWcCQB75d0&index=5&list=PLgLdw61wm__mmHq3FA_OIDZ8URB64iujd)  → [SCH4C note Types of Chemical Reactions](https://drive.google.com/file/d/13FFgtAFoyR1Z2z7GTuRCObt9Mbzv5KcD/view?usp=sharing)  -> [SCH3U Types of chemical reactions](https://docs.google.com/document/d/1QuVcoz-OzKq9ZVojwEGXwKZjpxKDW9Sp9m2BzvRF0ig/edit): 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](https://drive.google.com/file/d/0BzCIvA_rN_d3ckVrV09weTA3MTg/view?usp=sharing), answers are further in document.  Optional help/extensions:  [Virtual Types of Reactions Lab](http://www.youtube.com/watch?v=nsEkKIiOz7Q) - you can use this to review the 4 basic types of reactions from Grade 10.  [Types of Chem Reactions (Trimpe).pdf](https://drive.google.com/file/d/1F-rhwVYYF3abE8CO6dG5sSnS_uey-wuQ/view?usp=sharing) - Great visual summary on page 2 of answers & can practice on first page, but only grade 10 details | **TOPIC: Activity Series & Single Displacement Reactions**  LEARN:  -> [Activity Series Lab](https://docs.google.com/document/d/15S8x7PRYWRJw3RddMHcaiJGsmQwX6xSzAAEAOy-UI_k/edit?tab=t.0)  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?](https://www.youtube.com/watch?v=TGPPPFczOj0) (3 mins)  -> Watch: [Using an activity series to predict](https://edpuzzle.com/media/5e9b6e30aa364e3f38d9cbf8)  (3 min Edpuzzle)  **Practice:**  **Read:** [**9 - Activity Series Single Displacement & Combustion Notes {L}**](https://docs.google.com/document/d/1L8mKPbJPd2xE8T_LDas_ibC-bvcju4FrLaq6W0lx_ao/edit?tab=t.0) **{or** [**Slides**](https://docs.google.com/presentation/d/1KzEG2gyZYoGAGHXxxVgV0M4CmcOljB3c/edit?usp=sharing&ouid=110527588793921324465&rtpof=true&sd=true)**}**  [Activity Series Worksheet](https://drive.google.com/file/d/14eXROdwmY8dG9U0c2-3AbGb2FRc2LW3l/view?usp=sharing) (answers included)  -> [Quia activity](https://www.quia.com/pop/721420.html) 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](https://javalab.org/en/activity_series_of_metals_en/) 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](https://edpuzzle.com/media/5e9cac7517c33c3efa711c99) in General - 4 examples worked through, includes the exciting Demos and has embedded questions to enhance understanding.  → [More examples worked through](https://edpuzzle.com/media/5e9cb14101debe3ee6f4e39d) (Edpuzzle) of using the Activity Series to predict if reactions occur | **TOPIC: Combustion lab**  LEARN:  -> [**3U/4C combustion lab**](https://docs.google.com/document/d/1PESXtWH4tAkmsRcvHLI_-GW5_Y4gZuBAQFsXvg-K4Qo/edit#)  -> Research as needed to recall/learn combustion; you 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](https://www.youtube.com/watch?v=sgHDzTH_GyU), [ThoughtCo](https://www.thoughtco.com/combustion-reactions-604030), [BBC Bitesize](https://www.bbc.co.uk/bitesize/topics/zypsgk7/articles/zcwxcj6)  [Limewater test](https://www.bbc.co.uk/bitesize/guides/z6dtgwx/revision/1) - Read under the Carbon dioxide heading |  |
|  |  | TEACHER TEMPLATE ONLY  {This will take ~ 2 classes}  **Copy paste this template as needed:**  **TOPIC:**  LEARN:  ->  ->  **Practice:**  ->  Optional help/extensions:  *Nearpod* [*Period A*](https://app.nearpod.com/?pin=5U7GY)*,* [*Period B*](https://app.nearpod.com/?pin=SNXFT)*,* [*Period C*](https://app.nearpod.com/?pin=HTNUR)[Spring 22 links ]  Reference slides for topic  **ASSIGNED**: Include in your portfolio.  Level 4: Include a (not fancy) mindmap  NO assigned portfolio item. |  |  |  |