

Lesson 2-3: Properties of Organic Compounds	
Curriculum Expectations	<ul style="list-style-type: none"> • A1.4 • A1.5 • A1.6 • A1.8 • A1.10 • A1.12 • A1.13 • B2.1 • B3.2
Learning Goals	<p>By the end of this lesson you will:</p> <ul style="list-style-type: none"> • Know the characteristics of the different classes of organic compounds. • Understand how the properties of a class of compounds change as the molecular and structural components change. • Be able to predict a change in the properties of a compound following a chemical change
Success Criteria	I know I have achieved the learning goals when I can describe and predict the properties of different organic compounds based on their molecular composition and structural characteristics.
Teacher Prep	<ul style="list-style-type: none"> • Large paper for brainstorm activity. • Markers for brainstorm activity.

Minds On
<p>Goal: This activity will help remind students about what physical properties are, how they are measured, what determines physical properties as well as bring up any questions students may have related to physical properties.</p> <p>1. <u>Physical Properties Brainstorm</u></p> <p>Instructions:</p> <ol style="list-style-type: none"> 1. Put students in groups of 2-4 2. Each group is given a large piece of paper. 3. Instruct groups that they will brainstorm about physical properties. 4. Students are to use their previous knowledge to fill up their brainstorm page. 5. Each group writes Physical Properties in the center of their sheet of paper.

6. For 5 minutes each group adds ideas and words around the topic. Any thoughts are acceptable, no wrong answers.
7. From those first set of connections, students are given an additional 5 minutes to add the first connections. (add 2 connections to each one at least)
8. Groups examine the results of the brainstorm and think about questions that they'd like to explore further related to physical properties (with a focus on organic compounds)
9. Each group presents their brainstorm to the class.
10. Teacher leads a group discussion about physical properties.

Action

****Refer to the Differentiation Resources link for additional practice worksheets, and to enrich your classroom teaching using different tools throughout the lesson. ****

1. **Student Notes:** Have students create a set of notes for this lesson outlining different physical properties and how the structure, composition and bonding of a compound relate to these different properties.
2. **2-3A: Physical Properties of Matter**
 - Use the Powerpoint pdf to guide students through a lecture on physical properties
 - Have students make notes as you go.
 - Emphasize the difference between physical and chemical properties.
 - Talk about ways to measure these different physical properties.
 - Discuss factors that impact these physical properties (related to unit 1, bonding, intermolecular forces, etc.)
 - Have students review the presentation on their own.
 - Encourage questions from students.
3. **2-3B: Properties of Organic Compounds**
 - Have students read through the text on their own, making notes of how the physical properties of organic compounds relate to the functional groups of the different classes as well as the size and structure of the molecules.
 - Review the content as a class encouraging questions and discussion.
4. **2-3C: Safety in the Lab: WHMIS & MSDS**
 - Before having students review the content emphasize that even though the lab activities in the course are virtual, they are still required to have knowledge of proper lab techniques, equipment and safety regulations.

- Emphasize that this knowledge is necessary for future science courses and for any labs that they may have to complete in the future.

5. 2-3D: Properties of Organic Compounds Lab

- Before the activity have students complete the lab safety zombie game.
- Have a group discussion about proper lab safety techniques.
- Use students as examples, examining if what they are wearing would be lab appropriate and pointing out what changes they would need to make to be properly attired for a lab.
- Students must read through the lab handout on their own before completing the lab. They must identify all the necessary equipment before progressing through the lab.
- Students should complete the lab individually, tabulating their own data.
- Point out that students must keep the data they gather for the assignment at the end of the lesson.

Consolidation

- 1. 2-3E: WHMIS Review** – Interactive online quiz, will introduce and review important lab safety symbols. This activity can be done individually or as a class.
- 2. 2-3F: Lab Safety Review Game**– Another opportunity for students to review lab safety. You can turn this into a class activity, seeing who can complete it the fastest or with the highest score.
 - **2-3G: Lab Equipment Quiz** – Can be done individually or as a whole. It is important for students to be familiar with physical lab equipment.
- 3. 2-3I: Properties of Organic Compounds Lab** – Review with students where marks are allocated. Emphasize that answers to the analysis questions should be written in full sentences and must have depth (ie justification for each answer) to receive the full marks. This must be completed individually.

****Refer to Differentiation Resources for additional practice worksheets, and to enrich your classroom teaching using different tools. ****