

Lesson Plan

Grade/Class	Grade 10 Science	Date/Time	3/21/2025
Topic/Unit Title	Descriptive Prefixes in Naming Molecular Compounds	Time	slot 3

Lesson Outcomes / Purpose

Curriculum: Outcomes, Essential Questions, Targeted Learning and Experiences

Utilizing Manitoba curricula list all outcomes, essential questions, descriptions of targeted learning or experiences that will be presented/explored in this lesson.

Students will learn to understand and apply descriptive prefixes to name molecular compounds. The goal is for students to be able to correctly name and categorize compounds using these prefixes, reinforcing concepts related to molecular chemistry.

Essential Questions:

- How do descriptive prefixes assist in naming compounds?
- What role do prefixes play in distinguishing molecular compounds?

Targeted Learning and Experiences:

- Understand the use of descriptive prefixes (e.g., mono-, di-, tri-, tetra-, etc.) when naming molecular compounds.
- Learn to apply the rules of molecular compound naming through direct instruction and guided practice.
- Explore the connections between prefixes and molecular formulas for naming compounds systematically.

Specific Learning Outcomes and Evidence of Learning

Expand on the targeted learning and curricular outcomes noted above. Consider referring to the supplemental resource attached to the Unit Planning Template, "*Appendices of Verbs*" and making use of sentence leads, ("The student(s) will be able..."(TSWBA) and "I can..." statements) to describe what observable evidence of learning students will engage in, and on which they may be assessed. For example:

1. Students will categorize... (Cognitive Domain, Analyze)
2. Students will design...(Affective Domain)
3. I can draw and label the parts of a tree. (Cognitive & Psychomotor Domain, Remember & Simple)
4. I can create coding to move my spherio to a 3 – 4 beat (Psychomotor Domain, Complex)

Students will be able to:

- Name molecular compounds using the correct descriptive prefixes.
- Identify and explain the role of prefixes in compound names.
- Engage in identifying compounds on temporary vertical surfaces (e.g., whiteboards or paper) to visualize connections between names and formulas.

I can statements:

- I can correctly identify and apply descriptive prefixes when naming molecular compounds.
- I can explain how prefixes relate to the number of atoms in a molecule.

Cross-Curricular/Real World Connections

Note any relevant cross-curricular outcomes, essential questions or experiences or authentic learning present in this lesson.

Cross-Curricular: Math (numbers in prefixes) and language (structure of compound names).

Real-World Connections: Understanding chemical nomenclature is crucial for careers in chemistry, pharmacology, and materials science. It is also valuable for anyone working with scientific texts, such as environmental scientists or biochemists.

Assessment Evidence

Description (conversation, observation or product)	FOR	AS	OF
Feedback between teacher and students	X		
Using temporary vertical surfaces	X	X	
check-in reflection			X

Materials (ICT considered)

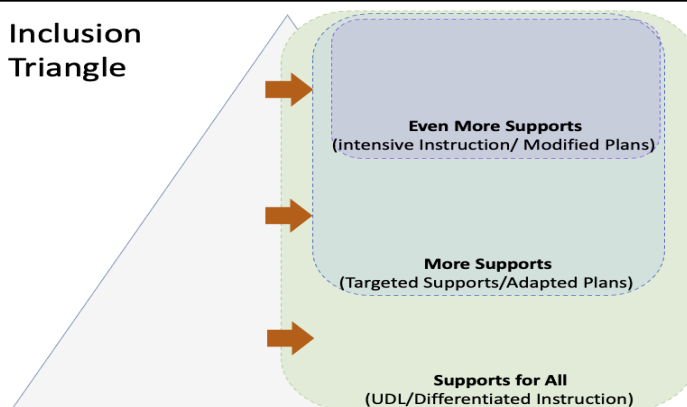
Resources (referenced), handouts, ICT, equipment, etc. Include exemplars / samples

- Whiteboards/Markers for students to write and organize their compound names.
- ICT tools like an interactive whiteboard for displaying compound examples.
- Handouts with common molecular compound formulas and their corresponding prefixes.

Key Words / Vocabulary

- Prefixes: mono-, di-, tri-, tetra-, penta-, etc.
- Molecular compounds
- Chemical nomenclature
- Naming conventions
- Compound formulas

Differentiated Instruction & Student Specific Planning



Adapted from Shelley Moore, 2015

Considering students' readiness, interests, and learning profile, how will learning tasks for this lesson be differentiated?

Visual Learners: Use of temporary vertical surfaces for visualizing compound names and formulas.

Kinesthetic Learners: Students can write and physically move through examples using whiteboards or paper to actively participate in the naming process.

English Language Learners (ELL): Provide clear visual aids and simplified explanations of prefixes and compound names. Encourage peer support for vocabulary clarification.

Learning Plan

Hook Activate	<p>Start with an introductory question: "Have you ever seen names of chemicals that look strange or hard to pronounce, like carbon dioxide or sulfur hexafluoride? What do you think these names mean?"</p> <p>Show an example of a compound formula (e.g., CO₂) and ask students how they think it got its name. Briefly introduce the role of prefixes in naming.</p>	<p>Time</p> <p>5 mins</p>
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Acquire	<p>Present a direct lecture on the importance of descriptive prefixes (mono-, di-, tri-, tetra-, etc.) in molecular compound names.</p> <p>Show several examples of molecular compounds, breaking down their names and formulas using prefixes. For instance: CO₂ (carbon dioxide), N₂O (dinitrogen monoxide), SO₃ (sulfur trioxide).</p> <p>Engage students by asking them to suggest names for different molecular formulas using appropriate prefixes.</p>	20 mins
Apply	<p>Activity 1: Have students work in pairs to use prefixes to name various molecular compounds on their temporary vertical surfaces (whiteboards). For example, provide students with chemical formulas like N₂, P₄O₁₀, etc., and ask them to write the names on the board.</p> <p>Activity 2: Provide a short set of problems or a quiz where students must match compound formulas with the correct names and prefixes.</p>	25 mins
	Check-in Reflection: do students retain what they have learned in a previous lesson?	10 mins
Closure	<p>Review key concepts of the lesson: What are the prefixes, and why do they matter? How do these prefixes help us name molecular compounds?</p> <p>Allow time for students to ask any remaining questions about naming compounds.</p> <p>Introduce the next steps: upcoming lessons on ionic compounds or reviewing practice problems at home.</p>	5 mins
Reflections about the lesson:		

Reflection for the lesson:

- How did students respond to using temporary vertical surfaces for learning?
- What challenges did students face when applying prefixes to molecular compounds, and how can this be addressed in future lessons?
- Reflect on the level of student engagement with the material and whether the feedback loops (check-ins, reflections) provided sufficient insight into their understanding.

Rationale for Lesson Plan:

This lesson on descriptive prefixes in naming molecular compounds is crucial for developing students' understanding of chemical nomenclature, which is foundational for their success in chemistry and other scientific fields. By learning how to apply prefixes like *mono-*, *di-*, and *tri-* to molecular formulas, students gain the skills necessary for clear and precise communication in science. The lesson encourages critical thinking, problem-solving, and hands-on practice through interactive activities like using temporary vertical surfaces to visualize and correct compound names and bonds. By incorporating real-time feedback, self-assessment, and opportunities for reflection, the lesson supports diverse learning styles and promotes a growth mindset, helping students progressively build their knowledge. Ultimately, this lesson provides essential tools for students to understand and engage with the language of chemistry, preparing them for more advanced concepts and real-world applications.