

# Chemistry, Grade 12

College Preparation

SCH4C

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This course enables students to develop an understanding of chemistry through the study of matter and qualitative analysis, organic chemistry, electrochemistry, chemical calculations, and chemistry as it relates to the quality of the environment. Students will use a variety of laboratory techniques, develop skills in data collection and scientific analysis, and communicate scientific information using appropriate terminology. Emphasis will be placed on the role of chemistry in daily life and the effects of technological applications and processes on society and the environment.

**Prerequisite:** Science, Grade 10, Academic or Applied

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## Big Ideas

### *Matter and Qualitative Analysis*

- The properties of matter can be predicted and analysed qualitatively.
- Substances can be identified based on their distinct properties.
- Qualitative analysis of matter is used in many different fields of endeavour.

### *Organic Chemistry*

- Organic compounds have predictable chemical and physical properties determined by their respective structures.
- Organic compounds can be synthesized by living things or through artificial processes.
- Organic chemical reactions and their applications have significant implications for society, human health, and the environment.

### *Electrochemistry*

- Oxidation and reduction are paired chemical reactions in which electrons are transferred from one substance to another in a predictable way.
- The control and applications of oxidation and reduction reactions have significant implications for society and the environment.

### *Chemical Calculations*

- Relationships in chemical reactions can be described quantitatively.
- Quantitative relationships of chemical reactions have applications in the home, workplace, and the environment.

### *Chemistry in the Environment*

- Air and water quality can be affected by both natural processes and human activities.
- Quantitative relationships of chemical reactions can be used to assess air and water quality.