

What your student will study in Chemistry 30

Chemistry 30 develops your student's understanding of energy in chemical systems, reaction rates, and how chemistry connects to real-world technology and environmental decisions. The course emphasizes hands-on investigation, precise calculation, and the ability to explain chemical phenomena using diagrams and mathematical models. Throughout the year, your student will work with thermometers, calorimeters, and data analysis tools. Your student will learn to think critically about how chemistry shapes energy use, fuel selection, and pollution control in Alberta and beyond. [See the curriculum.](#)

What the course covers

Thermochemical Changes

This unit begins with the heat transfer equation $Q = mc\Delta T$, which allows your student to analyze how much thermal energy moves between substances. Your student will understand that the chemical energy stored in hydrocarbons, such as natural gas and oil, originally came from the sun through photosynthesis, and that coal, another fossil fuel, also stores solar energy captured by ancient plants, though it formed through a different geological process. In the laboratory, your student will burn fuels or dissolve substances in water and measure temperature change to determine the actual energy released or absorbed. Your student will use thermometers and temperature probes correctly, compile data using spreadsheets or laboratory software, and present findings using appropriate SI units and significant figures.

Your student will work collaboratively to design and build an energy conversion device, test it, and communicate results using proper units and significant figures. [See the curriculum:](#) [1](#), [2](#), [3](#), [4](#), [5](#), [6](#), [7](#), [8](#), [9](#), [10](#), [11](#), [12](#), [13](#), [14](#), [15](#), [16](#), [17](#), [18](#), [19](#), [20](#), [21](#), [22](#), [23](#), [24](#), [25](#), [26](#), [27](#).

How the course is assessed

Chemistry 30 develops specific outcomes for Knowledge, Skills, and Science, Technology and Society (STS) considerations in each unit. Unit tests measure your student's ability to calculate enthalpy changes, apply Hess' law, interpret energy diagrams, and explain reaction mechanisms. Laboratory work is assessed on the quality of data collection, the accuracy of calculations, and the clarity of written analysis. The diploma examination covers content from the Chemistry 30 program of studies.

How to support study at home

Work through calculation problems together. Ask your student to walk you through a problem in which they calculate the enthalpy change of a reaction using standard enthalpies of formation. Have them explain each step: which products and reactants they used, how they set up the subtraction, and what the sign of ΔH means. Your student will predict the enthalpy change for chemical equations using standard enthalpies of formation. [See the curriculum.](#)

Ask about energy diagrams. When your student brings home an energy diagram, ask them to describe what the diagram shows. Where are the reactants and products on the vertical axis? What does the height of the curve represent? Does the curve show the energy increasing to a peak before decreasing, or does it show a different pattern? Understanding the shape helps your student explain whether a reaction releases or absorbs energy overall. This kind of explanation deepens understanding and helps your student prepare to explain diagrams on exams. [See the curriculum.](#)

Discuss real-world fuel choices. Your student will learn about how Alberta communities select fuels for heating and power generation. Ask your student why natural gas might be chosen over coal in one region, or why remote areas might use different fuels than urban areas. This connects classroom chemistry to decisions that affect your family's own energy use. [See the curriculum.](#)

Help with lab report writing. Chemistry 30 lab reports require precise language and proper units. When your student writes a calorimetry report, check that they have stated the purpose clearly. Check that they have described the procedure step by step. Check that they have recorded data with units. Check that they have explained what the results mean. Encourage them to use a checklist of SI units and significant figures before submitting. [See the curriculum: 1, 2.](#)

Review safety procedures. Ask your student to explain the WHMIS labeling system and why they must follow specific steps for handling and disposing of chemicals in the lab. This reinforces safe habits and shows your student that you take laboratory safety seriously. [See the curriculum.](#)

Use online resources for extra practice. If your student struggles with a concept such as Hess' law or activation energy, ask their teacher to recommend a worked example or virtual lab. [See the source: 1, 2.](#)

Note: 76 learning outcome blocks were left out to fit the 6000-token curriculum budget for this kind of material. Use "Split into parts" to generate one document per organizing idea.