

What your student will study in Chemistry 30

What the course covers

Chemistry 30 begins by building specific habits of mind alongside content knowledge. Students develop curiosity about science careers and problems. They learn to respect different perspectives and cultural contributions to science. They practice careful and reproducible lab technique. They work as a team on investigations. They take responsibility for energy use and safe chemical disposal. They follow consistent safety practices using the Workplace Hazardous Materials Information System (WHMIS) and consumer product labels. These attitudes are not taught in one unit. They appear in every lab and every unit that follows. [See the curriculum: 1, 2, 3, 4, 5, 6, 7.](#)

The first content unit is Unit A: Thermochemical Changes, built around the themes of energy, change and systems. This unit studies thermochemistry: the energy absorbed or released when chemical bonds break and form. Your student will define enthalpy and molar enthalpy. They will write balanced equations that include energy terms. They will use ΔH to determine whether a reaction releases energy (exothermic) or absorbs it (endothermic). This includes consideration of the various aspects of energy use on society. Students calculate enthalpy changes three ways: from standard enthalpies of formation, from Hess's law (combining known reactions to find the energy change of a new one), and from calorimetry data collected in the lab. They also study activation energy, energy diagrams and catalysts. A catalyst speeds up a reaction without changing the net energy involved. Typical lab work includes calorimetry. Students use calorimetry to measure energy changes in chemical reactions. They apply Hess's law to determine the molar enthalpy of a reaction. The unit considers the various aspects of energy use on society. Students consider the impacts of energy use on society and the environment. They compare fuels and energy efficiency. They consider catalysts as a key concept in thermochemical changes. Unit A makes up about 20 percent of course time. It draws on measurement, graphing and equation-solving skills students have already learned in mathematics. [See the curriculum: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19.](#)

The course continues into further units. Students are encouraged to develop positive attitudes that support the responsible acquisition and application of knowledge related to science and technology. Students are encouraged to appreciate how scientific problem solving and the development of new technologies are related. Students are encouraged to demonstrate interest in science and technology topics related to everyday life. Students are encouraged to recognize the usefulness of being skilled at mathematics and problem solving. Students are encouraged to use a multiperspective approach in their scientific work. A video resource on the combustion of carbon and copper supports the kind of enthalpy and calorimetry reasoning introduced in Unit A. [See the source: 1, 2, 3, 4, 5, 6, 7.](#)

How the course is assessed

Students are encouraged to show concern for safety in planning, carrying out and reviewing activities. Students should use equipment and materials appropriately in laboratory settings. Unit tests measure understanding. Formal lab reports mark accuracy of data, correct use of SI units and significant digits, and safe handling and disposal of materials under WHMIS guidelines. Students are encouraged to show concern for safety in planning, carrying out and reviewing activities throughout the course. [See the curriculum: 1, 2, 3, 4, 5, 6.](#)

Chemistry 30 is offered in Alberta. As is standard Alberta practice for diploma courses, the final mark combines a school-awarded portion built from unit tests, labs and assignments across the year with a provincial diploma exam written near the end of the course. Check with the school for the exact weighting, since this is set by Alberta Education rather than by the unit outlines themselves.

How to support study at home

Ask your student to walk you through a $Q = mc\Delta T$ problem in a kitchen. Use a kitchen thermometer and a mug of warm water as a stand-in if it helps make the variables concrete. This checks that the formula for heat transfer, not just the answer, makes sense to them. [See the curriculum.](#)

Have your student explain the difference between an exothermic and an endothermic reaction using an example from daily life, such as a cold pack or a campfire. Putting a concept into plain words is a good test of real understanding. [See the curriculum.](#)

Sit down with a Hess's law problem and ask your student to talk through each step out loud. Include why the equations are being added, reversed or multiplied. This is one of the more abstract skills in the course and benefits from being explained to another person. [See the curriculum.](#)

Review lab safety habits together. Include how your student describes the safe storage and disposal of chemicals in a lab report. This reinforces WHMIS practices that matter well beyond the chemistry classroom. [See the curriculum:](#) [1](#), [2](#).

Bring up a current energy issue, such as a pipeline project or a shift toward natural gas or renewables in Alberta. Ask your student to weigh the economic, environmental and technological sides of the debate. This connects the course's science, technology and society outcomes to real decisions your student will encounter as a voter and consumer. [See the curriculum:](#) [1](#), [2](#).

If a unit test result surprises you, ask to see the assignment booklet and compare your student's work against the posted answer key before deciding whether extra help is needed. These booklets exist for every unit and are a fast way to spot exactly where a misunderstanding started. [See the source:](#) [1](#), [2](#), [3](#), [4](#).