

What your student will study in Chemistry 30

What the course covers

Throughout the course, your student is encouraged to build habits that carry beyond any single topic: curiosity about how chemistry shows up in daily life and future careers, respect for the many perspectives that have shaped scientific understanding, careful and evidence-based thinking, teamwork in the lab, responsible use of energy and materials, and safety practices based on WHMIS (the Workplace Hazardous Materials Information System) and product labelling. These attitudes are woven into every unit rather than taught as a stand-alone topic. [See the curriculum: 1, 2, 3, 4, 5, 6, 7.](#)

The first major unit, Thermochemical Changes, makes up about a fifth of the course and looks at the energy involved in chemical reactions. Your student will learn to calculate heat transfer using the formula $Q = mc\Delta T$ and molar enthalpy, write balanced equations that include energy terms, and use ΔH to determine whether a reaction releases or absorbs energy. They will predict enthalpy changes using standard enthalpies of formation and apply Hess's law, a method for finding the energy change of a reaction by combining the energy changes of related reactions. Calorimetry, the technique of measuring heat flow using a calorimeter, is a hands-on centrepiece of this unit: students design and run experiments, sometimes building their own polystyrene-cup calorimeter, to measure the molar enthalpy change of reactions such as fuel combustion. They will also connect this chemistry to biology and everyday life, classifying photosynthesis, cellular respiration and hydrocarbon combustion as endothermic or exothermic, and studying activation energy, catalysts and energy diagrams that show how a reaction proceeds from reactants to products. On the societal side, your student examines Alberta's reliance on fossil fuels, compares the efficiency and environmental impact of different fuels, and considers how catalytic converters and other technologies reduce pollution. Skills built in this unit, including using proper SI units and significant digits, formulating lab procedures safely, and presenting data with tables and graphs, are practised throughout the rest of the course. [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, 28, 29.](#)

Chemistry 30 continues with three further units, each supported by its own assignment booklet and answer key that your student's teacher uses to guide and mark coursework. Lab work in these later units includes titration, a technique for finding the concentration of a solution such as hydrogen peroxide by carefully adding a reactant of known concentration, and building and testing voltaic cells, which generate electricity from chemical reactions between different metals. Additional lab and video resources cover combustion reactions and buffer solutions, mixtures that resist changes in acidity. [See the source: 1, 2, 3, 4, 5, 6, 7.](#)

How the course is assessed

Your student's grade in Chemistry 30 comes from a mix of unit tests, lab reports and assignment work completed throughout each unit, following the assignment booklets used for Units A through D. Lab investigations, such as the calorimetry experiments in Unit A, are marked both on the results obtained and on the safe, careful use of equipment and procedure. As is general Alberta practice for a 30-level course, a portion of the final grade also comes from the provincial diploma examination, with the remainder made up of the school-awarded mark based on tests, labs and assignments completed during the semester. [See the curriculum: 1, 2, 3, 4, 5, 6, 7, 8.](#)

How to support study at home

You can ask your student to walk you through a $Q = mc\Delta T$ problem step by step, out loud, at the kitchen table; explaining the steps to someone else is one of the best ways to catch gaps in understanding of these formulas. [See the curriculum: 1, 2.](#)

You can ask your student to show you a lab report from a calorimetry experiment and explain what the numbers mean, since interpreting real data and calculating molar enthalpy changes is a core skill this course builds through hands-on investigation. [See the curriculum: 1, 2, 3.](#)

Around the house, everyday items such as a kitchen thermometer, a coffee cup, or a candle can be used to talk through how a simple calorimeter works, which helps make an abstract concept concrete. [See the source.](#)

You can ask your student about the safety rules they follow in the chemistry lab, including WHMIS symbols and safe storage and disposal of chemicals; talking through these procedures reinforces habits that matter both in the lab and at home. [See the curriculum: 1, 2.](#)

Watching the news together for stories about fossil fuels, energy efficiency, or new energy technologies gives your student a chance to connect classroom chemistry to real decisions Alberta faces about energy use. [See the curriculum: 1, 2, 3.](#)

If your student is consistently unsure how to set up a 9D, ÷" †W72w2 Æ w problem, or struggles to explain what an energy diagram shows, that is a good signal to reach out to the teacher for extra help before the next unit test.

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.