



Science

Alberta's high school science program is guided by the vision that all students have the opportunity to develop scientific literacy. Students will develop the science-related knowledge, skills, and attitudes that they need to solve problems and make decisions, and at the same time help them become lifelong learners, maintaining their sense of wonder about the world around them.

At the end of Science 30, your teen will write a provincial diploma exam. These exams determine if students across the province are learning what they are expected to learn. For more information on diploma exams, visit [Writing diploma exams](#).

Science 10

What happened to that energy? Science 10 students are introduced to the biological, chemical, physical, and Earth sciences. By studying chemical reactions, cellular and multicellular processes that occur in plants, the conservation and conversion of energy, and Earth's climate, they discover how energy is transformed.

Science 20

What changes do we see on Earth? Students in Science 20 extend their study of the biological, chemical, physical, and Earth sciences and apply their knowledge to real-life problems. They investigate Newton's laws of motion, the properties of hydrocarbons, and the chemistry of solutions. They examine evidence of how Earth's surface, climate, and life forms have changed and continue to change and cycle in response to natural and human actions.

Science 30

How do we sustain our energy resources? Students sharpen their scientific skills and explore a wide range of scientific concepts to strengthen their foundations in science. They investigate human systems and health, and environmentally sustainable solutions for meeting global energy needs. They

also examine the impacts of chemicals in society and the environment and examine the properties and applications of electromagnetic energy.

Biology 20

How and why does energy flow through living systems?

Biology 20 students examine the interactions of living systems to better understand the constant flow of energy and the cycling of matter. Specifically, students explore the functioning of the human body and the mechanisms that work to maintain balance in organisms—in ecosystems and in the biosphere.

Biology 30

Why is there so much diversity? Biology 30 students conduct lab work and investigate how human systems sense and respond to the environment. They explore human reproduction and development at the cellular level and at the organism level. Students investigate the basic structure and role of DNA and investigate the inheritance of traits in individuals and populations. They analyze the changes in populations resulting from natural and human-induced changes in the environment and discover that living systems are dynamic.

Chemistry 20

How do atoms combine to form different substances?

Students explore matter and how it changes in order to understand the natural world. They investigate the chemical properties of solutions, and they apply their understanding of chemical bonds to explain ionic and molecular compounds. Chemistry 20 students explain the behaviour of gases, using the gas laws, and also work to balance chemical equations.

Chemistry 30

How can you predict chemical equilibrium? Chemistry 30 students examine and quantify how thermochemical and electrochemical systems use or provide energy. They explore common organic compounds—those that contain



carbon—and how they are used in technological applications and everyday life. Students also investigate acid-base reactions and interpret how they eventually reach equilibrium.

Physics 20

How does a lacrosse player know when to release the ball?

Physics 20 students investigate the motion of objects. They apply Newton's law of universal gravitation to astronomical observations. They also describe how energy is transmitted by mechanical waves and how waves relate to medical technologies, industry, and musical instruments.

Physics 30

When does a model or a theory need to change?

Physics 30 students consider historical experiments and explore why the model of the atom has changed as a result of experiments and observations of natural phenomena. Students apply a quantitative approach to describe conservation of momentum in an isolated system, and they investigate applications and implications of electric and magnetic forces and fields. They also use the concept of wave-particle duality to understand both wave and photon behaviour of electromagnetic radiations.

Science 14

How can we conserve energy? Science 14 students learn about the atom, the periodic table, and the safe handling of chemicals. They investigate how energy is transferred in machines, and they examine the digestive and circulatory systems, including ways to keep these systems healthy. Students also explore how human activities influence the flow of matter and energy in the biosphere.

Science 24

Why do we need vaccines and antibiotics?

Science 24 students investigate common chemical reactions and examine energy conversions in biological, chemical, physical, and technological systems. They learn about

human health and the immune system. They also investigate the principles that describe the motion of objects and apply their knowledge to real-life situations.

Science 10-4

What should I do to keep my body healthy? In Knowledge and Employability Science 10-4, students explore the digestive and circulatory systems of the human body. They investigate common chemicals used at home and in the workplace, and how to safely handle them. Students discover how force and heat energy are transferred in technologies they use in their daily lives, and they ask questions about how human activities affect the natural world. Students who have experienced challenges or difficulty with their skills will be provided with additional strategies for success in the Knowledge and Employability -4 course sequence.

Science 20-4

How do seat belts keep me safe? In Knowledge and Employability Science 20-4, students gain an understanding of the applications of science skills and knowledge for success at home, at work, and in the community. They investigate and classify simple chemical reactions, learn about energy conversions and conservation, and examine how social, environmental, and genetic factors affect human health. They also apply their knowledge of moving objects and conservation of momentum to transportation safety. Students who have experienced challenges or difficulty with their skills will be provided with additional strategies for success in the Knowledge and Employability -4 course sequence.

How Your Teen Is Assessed

Your teen's learning is assessed using a variety of tools and strategies within the classroom. Ask your teen's teacher what methods they are using. The different assessment methods tell you and your teen's teacher about your teen's strengths, areas in which your teen requires support, and



how well your teen is doing throughout the course. Your teen's teacher can then change or refine their teaching plans to ensure that learning activities better meet the needs of your teen. At the end of the course, your teen is assessed and their achievement is reported so that you know if they have achieved the expected learning outcomes for their grade.

At the end of certain 30-level courses, your teen will write a diploma exam. These exams determine if students across the province are learning what they are expected to learn. For more information on diploma exams, visit [Diploma exams – Overview](#).

Resources to Help Your Teen

A variety of digital and print resources developed by publishers, Alberta Education, or Alberta teachers are available to help students learn. Teachers may select and bring into the classroom numerous innovative and creative resources to create rich learning experiences for your teen. Visit [LearnAlberta.ca](#) to learn more about the resources your teen may encounter.

Where can I get more information?

Learn more about your child's education by visiting <https://curriculum.learnalberta.ca/parents/>.
