



New K-6 curriculum

Science

Overview

Science seeks to answer questions and make sense of the physical, living, and digital world. Science calls on students to use their curiosity, creativity, and perseverance to develop a deeper knowledge and understanding of the world. Science includes the studies of physics, chemistry, biology, Earth science, astronomy, and computer science.

Through science, students—on their own and in groups—develop confidence and skills in critical thinking, problem solving, and communicating to make sense of complex information. They gain knowledge and skills by applying scientific methods. Exploring the environment through diverse perspectives and traditional knowledge allows students to connect with their surroundings and recognize the responsibility we share for our planet.

Studying science equips students with the skills needed to evaluate information they encounter every day and to make evidence-informed decisions. It can lead to careers in research, medicine, computer science, geology, engineering, astronomy, agriculture, and more.

From draft to new curriculum – content update summary

What we heard

We listened to all feedback from classroom piloting and engagement activities and heard some common concerns across all draft K-6 subjects:

- Load
 - some content is too heavy within a subject, grade, or learning outcome.
- Age-inappropriateness
 - some knowledge, understandings, and skills and procedures need to be better aligned with students' developmental level in specific grades.
 - more prerequisite learning is needed in some grades to support the knowledge, understandings, and skills and procedures.
- Wording clarity
 - clearer expectations and verb choices are needed in some areas for students to achieve learning outcomes.
 - clearer descriptions are needed for some knowledge, understandings, or skills and procedures.

Classroom piloting feedback on draft K-6 science content suggested updates to provide:

- opportunities for hands-on activities and providing more examples
- content on agricultural practices in Alberta

What we updated

In March 2023, we finalized new K-6 science curriculum by updating the draft curriculum from May 2022. In addition to making changes that reflect engagement and piloting feedback, we also ensured we continue to align with top-performing jurisdictions, both within Canada and internationally, as well as those with knowledge-rich curriculums.

We made the following content updates:

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Classification: Public



- **Load:** Refined examples, removed redundancies, and redistributed content while considering age-appropriateness.
- **Age appropriateness:** Reworded content; added definitions, examples, or details to develop foundational knowledge; and shifted content within K-6 or into grades 7-12.
- **Wording clarity:** Analyzed and edited content for cohesiveness and clear language.
- **Subject-specific changes:** Revised and added content to increase opportunities for active learning and practice and to promote understanding of agricultural practices in Alberta.

Current and new curriculum comparison

The following list shows how elements in the current K-6 science curriculum, published in 1996, compare to the new curriculum. The comparisons provide examples and do not represent all the changes that were made.

	Current curriculum (1996) Examples	New curriculum (March 2023) Examples
Specific units and topics	<ul style="list-style-type: none"> • Content is organized by units and topics that limit connections between scientific ideas, methods, and thinking. 	<ul style="list-style-type: none"> • Students build foundational knowledge across K-6 to deepen their understanding of scientific ideas, methods, and thinking.
Computational thinking	<ul style="list-style-type: none"> • There are no references to problem solving with coding. 	<ul style="list-style-type: none"> • There are clear expectations for students to learn problem-solving techniques that include coding and algorithms.
Science components/scientific methods	<ul style="list-style-type: none"> • Students learn to apply science inquiry skills at each grade, but learning outcomes for scientific methods are not included in the units of study. 	<ul style="list-style-type: none"> • Content related to investigation, objectivity, evidence, representation, ethics, and explanation is included in the scientific methods organizing idea, guiding questions, and learning outcomes across all grades.
Diverse perspectives	<ul style="list-style-type: none"> • There are no references to diverse perspectives. • There are no references to First Nations, Métis, and Inuit perspectives. 	<ul style="list-style-type: none"> • There are opportunities for students to explore diverse perspectives and cultures. • First Nations, Métis, and Inuit knowledge, practices, and perspectives are clearly and respectfully included.

Snapshot by grade

In the new K-6 science curriculum, students will learn about matter, energy, Earth systems, living systems, space, computer science, and scientific methods.

Kindergarten

- Explore properties using the five senses.
- Examine movement of objects, humans, and other animals.
- Examine components of environments.
- Protect the environment by reducing waste, recycling, and reusing.
- Explore the purpose of instructions.

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Grade 1

- Analyze measurable properties of objects and physical changes.
- Investigate characteristics of movement.
- Analyze seasonal changes and their effects on plants and animals.
- Investigate plants and animals and the relationships among them.
- Order and follow instructions.
- Describe the steps of an investigation and make predictions, observations, and conclusions.

Grade 2

- Examine properties, types, and selection of materials based on suitability, availability, and sustainability.
- Investigate the sources and behaviours of light and sound.
- Examine Earth's landforms, bodies of water, and relationship to the Sun.
- Investigate the growth and development of plants and animals and explore their relationships to humans.
- Apply creativity to design precise, reliable, and efficient instructions.
- Describe purposes and procedures of investigations in science.

Grade 3

- Investigate how substances can change, including water and the water cycle.
- Conduct investigations to determine the effects of contact forces on objects, including simple machines.
- Analyze changes to Earth's surface caused by natural events and the activities of plants, humans, and other animals, including growing crops and farming.
- Examine how layers of Earth's surface, including the discovery and location of dinosaur fossils, hold information about the past.
- Discuss First Nations, Métis, and Inuit relationships with and intergenerational knowledge of land and Earth's surface.
- Analyze interactions between plants, humans, other animals, and the environment.
- Investigate creativity and its relationship to computational and divergent thinking.
- Relate sources, accuracy, and analysis of data to building scientific knowledge.

Grade 4

- Investigate the management of waste materials and describe environmental impacts.
- Investigate the non-contact forces of gravity and magnetism.
- Analyze the interconnections between Earth's systems (land, air, water, and organisms) and explore conservation activities.
- Relate the external structures and sensory organs of organisms to their functions.
- Investigate how objects in space are connected to daily life.
- Examine design processes and their application in solving problems.
- Investigate the role of data and evidence in science.

Grade 5

- Relate the particle model of matter to the states of matter.
- Investigate forces in water and air, including buoyant force, lift, and drag.
- Examine renewable and non-renewable energy resources.
- Analyze the relationships among climate, weather, and agricultural practices.
- Investigate the functions of internal biological systems of organisms.
- Interpret observable processes among stars, planets, the Sun, and the Moon in relation to daily living.
- Apply the design process in creating computational artifacts, including code.
- Examine controlled experiments, including consideration of evidence, bias, and ethics.

Grade 6

- Relate the heating and cooling of particles to the behaviour of matter, including expansion and contraction.
- Analyze internal and external forces and their effects on objects.
- Examine scientific, environmental, and economic considerations relating to energy management.

- Investigate factors affecting climate and climate change, including personal actions.
- Investigate the characteristics, components, and biodiversity of ecosystems.
- Investigate celestial bodies and technologies used for exploration in the solar system.
- Examine abstractions, coding structures, and the impact of computers and technology.
- Describe the role of explanation and hypothesis in science.