

# Science

## Draft K-6 curriculum

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### Science overview

Science calls on students to use their curiosity, creativity, and perseverance to develop a deeper understanding of the natural world. It includes the study of physics, chemistry, biology, Earth science, astronomy, and computer science.

Through science, students develop critical thinking, problem solving, confidence, and communication skills to make sense of complex information both on their own and in teams. They gain knowledge 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 to evaluate information they encounter every day. It can lead to careers in research, medicine, computer science, geology, engineering, astronomy, agriculture, and more.

### Shifts in K-6 science

These are the main shifts in knowledge and skill requirements from the current K-6 science curriculum to the draft:

#### Specific units and topics

- Current – Organized by units and topics that limit connections between scientific ideas, methods, and thinking.
- Draft – Students build foundational knowledge across K-6 to deepen their understanding of scientific ideas, methods, and thinking.

#### Computational thinking

- Current – No references to problem solving with coding.
- Draft – Clear expectations for students to learn problem solving that includes coding and algorithms.

#### Science components/scientific methods

- Current – Students learn to apply science inquiry skills at each grade but do not study scientific methods in a separate unit.
- Draft – Students will learn scientific methods, including investigation, evidence, explanation, understanding, and representation in separate units and apply them across all grades.

#### Diverse perspectives

- Current – No references to diverse perspectives.
- Draft – Opportunities for students to explore diverse perspectives and cultures.
- Current – No references to First Nations, Métis, and Inuit perspectives.
- Draft – First Nations, Métis, and Inuit knowledge, practices, and perspectives are clearly and respectfully included.

### Draft K-6 science snapshot

These are samples of what students learn in K-6 from grade to grade:

#### Kindergarten

- Properties of natural and constructed objects can be explored through five senses.
- Surrounding environment and its elements, including connection to and respect for the environment.
- Ways to protect the environment, like reducing waste, recycling, reusing, and not littering.

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- Children will learn the concepts of clear instruction and sequences in a classroom.
- Reasons for human and animal movement, like the need to seek food and water and to escape danger.

### Grade 1

- Students will learn to analyze properties of natural and constructed objects and investigate how they can be changed.
- Students will learn about their environment, including seasonal changes.
- First Nations, Métis, and Inuit community actions that illustrate a responsibility to care for the natural world.
- Ways safety instructions can be followed and the importance of following instructions.
- Investigation and its importance, including respect for nature.

### Grade 2

- Identify the materials used to make various objects.
- Earth, its landforms, and its bodies of water, including personal connections to land.
- Ways that creativity can be used to ensure that instructions lead to the desired outcome.
- Methods and processes used in scientific investigation.

### Grade 3

- Natural and processed materials and their potential to be changed.
- Changes to Earth's surface and human responsibility for protecting the planet.
- First Nations, Métis, and Inuit relationships, intergenerational knowledge of landscapes.
- The Earth is warming up due to a range of causes.
- Creativity and its relationship to computational thinking.
- Ways investigation develops knowledge in science.

### Grade 4

- Management of waste materials and potential personal and environmental impact.
- Interconnection between the Earth systems, life on Earth, and conservation practices.

- Apply knowledge of recycling, reusing, reducing, repurposing, and repairing materials to reduce waste.
- Ways to design solutions to problems using algorithms for computer science, technology, and engineering.
- Nature of evidence and its role in science.

### Grade 5

- Physical properties of solids, liquids, and gases.
- Climate and weather conditions and conservation agriculture.
- Compare renewable energy resources with non renewable energy resources, and demonstrate appropriate use of scientific vocabulary when discussing energy resources.
- Creating computational artifacts, coding, and translating algorithms into code.
- Ways evidence is enhanced and the importance of handling it responsibly, including scientific ethics related to animals.

### Grade 6

- Effect of heating and cooling on matter.
- Factors affecting climate and climate change.
- Factors to consider when choosing which energy resource to use, like availability, societal impacts, economic impacts, and environmental and climate impacts.
- The scientific, environmental, and economic considerations around energy distribution and use in Alberta.
- Using design and abstraction to create and refine computational artifacts and considering the environmental impacts of using technology.
- Role of explanation in science.

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