BRITISH COLUMBIA | Ministry of Education

Science: What's New?

K–9 curriculum

Feedback on the 2013 Science K–9 draft curriculum focused on three main needs:

- better representation of ecology and environmental learning
- strengthened alignment between the learning standards and the Rationale and Goals to support place-based knowledge and Aboriginal perspectives
- greater consideration of the effect of proposed changes on multi-grade classrooms

The redesigned Science K–9 curriculum clarifies the intent of ensuring that environmental learning is present throughout the subject area and defines and better supports a place-based approach to science learning. Additionally, Aboriginal perspectives are embedded in the curriculum, strong linkages are made with the scientifically educated citizen discussed in the Rationale and Goals, and learning in multi-grade classrooms is supported through a thoughtful flow of concepts.

Features of the redesigned Science curriculum include the following:

- Each grade has four areas of science: biology, chemistry, physics, and Earth/space science. (The existing curriculum organizes the subject by biology, physical sciences, and Earth/space science.)
- There are four Big Ideas per grade, one for each area of science, and most Big Ideas include sample inquiry questions for students.
- The focus on inquiry is apparent in the organization of the Curricular Competencies, which use an inquiry process, as well as through the sample inquiry questions for students provided in the Elaborations.
- Elaborations are included as hyperlinks throughout the curriculum as a support for teachers. Elaborations are not mandatory. They include definitions of key science terminology, examples of some science concepts, sample inquiry questions to support the exploration of concepts, and guidance on the level of depth suggested in the content.
- A focus on place and locality in British Columbia is emphasized throughout the curriculum. Place is defined and supported in the Curricular Competencies Elaborations through reflective questions for students to consider in developing their understanding of this important concept.
- Content has been further aligned to support a strong conceptual story of science.
- Aboriginal perspectives are reflected in the Content learning standards and Elaborations at each grade.

The redesigned Science curriculum retains important aspects of the existing curriculum:

- The familiar skills and processes of science remain an integral part of the Science curriculum and reside in the Curricular Competencies. Previously, these skills and processes were introduced a few at a time by year; now they are introduced in Kindergarten and grow in sophistication through to Grade 12.
- The areas of science (i.e., biology, chemistry, physics, and Earth/space science) are still represented in the redesigned curriculum. In K–9, they include a strengthened focus on ecology and environmental education, and in the senior grades this focus is expanded into curriculum for Environmental Science 11 and 12.

Proposal for Grade 10–12 curriculum

Through the proposed curriculum for Grades 10–12, teachers would be able to provide a variety of options for students. To support the range of learning environments, program models, and school structures in secondary schools across British Columbia, the curriculum proposal comprises a provincial core (required) curriculum and an optional curriculum for students who wish to deepen their study in any one of five specialty areas or any interdisciplinary combination.

The Science Grade 10 draft provincial core curriculum includes the same curricular features as the K–9 curriculum (i.e., Big Ideas, Curricular Competencies, Content, and Elaborations) and completes the conceptual story of science that begins in Kindergarten. Consistent with the Science K–9 curriculum, the Science Grade 10 draft curriculum includes four areas of science: biology, chemistry, physics, and Earth/space science. (The existing curriculum organizes the subject by processes of science, life science, physical science, and Earth/space science.)

The focus on inquiry is expanded in the Science Grade 10 draft curriculum, as the Elaborations include both sample inquiry questions that are aligned with the inquiry process headings in the Curricular Competencies and an inquiry progression for each area of science. The area of physics, for example, includes the following progression:

	Grade 10 Curricular Competencies Elaborations: Physics
Questioning and predicting	*Why do some roller coasters go faster than others?*
Planning and conducting	*How do you design a roller coaster to test a variable?*
Processing and analyzing data and information	*What variables affect your roller coaster's speed?*
Evaluating	*What factors would you change to increase the roller coaster's speed? Would it be appropriate to go faster? How would you improve your experiment?*
Applying and innovating	*How can you build a cart for your roller coaster that has as little friction as possible?*
Communicating	*How would you sell your roller coaster design based on scientific evidence?*

The Science draft provincial optional curriculum has been outlined for Grades 11 and 12. At this level, science specialty courses are recommended for Biology, Chemistry, Physics, Earth Sciences, and Environmental Science. The following 10 options could be modularized to support locally developed course options and would replace the existing 13 Science Integrated Resource Packages (IRPs):

Current IRPs	Proposed Provincial Optional Curriculum
Biology 11	Biology 11 and 12
Biology 12	
Chemistry 11	Chemistry 11 and 12
Chemistry 12	
Physics 11	Physics 11 and 12
Physics 12	
Applications of Physics 11	
Applications of Physics 12	
Earth Science 11	Earth Sciences 11 and 12
Geology 12	
Sustainable Resources 11	Environmental Science 11 and 12
Sustainable Resources 12	
Science and Technology 11	

Whether students choose to pursue deeper or broader study in science, this new curriculum design ensures that they are able to pursue their individual interests and passions.