

| Science Content Standard and Benchmarks Grade 4 | Main Elements of Water Module and Activities that Apply to the Standards |
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| Standard: Benchmark 1:1, 1:2, 1:3, 1:4, 1:5 | Students complete a water monitoring site plan, conduct the water monitoring, upload data and information into the world water monitoring site for sharing with other schools and students. |
| 2:1, 2:2, 2:4 | Students begin exploring what may be “unseen” in their water and will test for dissolved oxygen, measure pH, and discuss various substances that could be contained in their water sample. Students will explore how the properties of water are different from other molecules on earth, i.e. bending, less dense when solid, and polarization of the water molecule |
| 4:2, 4:4 | Students will discover that there is a finite amount of water on the earth, describe how water flows through the water cycle and through monitoring, begin to appreciate the importance of maintaining healthy waterways. |
| 5:3. 5:4 | Students will share their water monitoring data with the world water monitoring site. Once students pick a monitoring site and collect data about the water on that site, students will create a monitoring plan that will include recommendations for conserving water, protecting the health of their site water, and/or cleaning up impacted waterways. |

| Mathematics Content Standard and Benchmarks Grade 4 | Main Elements of Soils Module and Activities that Apply to the Standards |
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| Standard: Benchmark 1:1, 1:3 | Students will make estimations of bacterial growth and colony numbers, present data in a table format, and look for patterns in bacterial growth related to the soil sample. Students will employ a laboratory notebook to illustrate and communicate their findings. |
| 2:2 | Students will be counting and grouping their bacterial colonies and relating to samples. |
| 5:1, 5:3 | Students will complete a soil profile, estimating depth, measuring depth of various layers, and determining highest concentration of various soil materials. |
| 6:1, 6:2 | Throughout the entire soil profile investigation, students will be collecting data in their science notebooks, relating data to others, and presenting data in differing formats to illustrate results of findings. |

The content standards that are addressed in the module are the following:

Science Content Standards:

Content Standard 1: Students through the inquiry process, demonstrate the ability to design, conduct, evaluate, and communicate the results and form reasonable conclusions of scientific investigations.

Benchmarks (End of Grade 4)

1. develop the abilities necessary to safely conduct scientific inquiry, including (a step-by-step sequence is not implied): (a) asking questions about objects, events, and organisms in the environment, (b) planning and conducting simple investigations
2. select and use appropriate tools including technology to make measurements (including metric units) and represent results of basic scientific investigations
3. use data to describe and communicate the results of scientific investigations
5. identify a valid test in an investigation

Content Standard 2: Students, through the inquiry process, demonstrate knowledge of properties, forms, changes and interactions of physical and chemical systems.

Benchmarks (End of Grade 4)

2. examine, measure, describe, compare and classify objects in terms of common physical properties

Content Standard 3: Students through the inquiry process, demonstrate knowledge of characteristics, structures and function of living things, the process and diversity of life, and how living organisms interact with each other and their environment.

Benchmarks (End of Grade 4)

3. describe and use models that trace the life cycles of different plants and animals and discuss how they differ from species to species
4. explain cause and effect relationships between nonliving and living components within ecosystems; and explain individual response to the changes in the environment including identifying differences between inherited, instinctual, and learned behaviors

Benchmarks (End of Grade 8)

2. explain how organisms and systems of organisms obtain and use energy resources to maintain stable conditions (e.g. food webs, photosynthesis, respiration)

Content Standard 4: Students, through the inquiry process, demonstrate knowledge of the composition, structures, processes and interactions of Earth's systems and other objects in space.

Benchmarks (End of Grade 4)

1. describe and give examples of earth's changing features
2. describe and measure the physical properties of earth's basic materials (including soil, rocks, water and gases) and the resources they provide,

Content Standard 5: Students, through the inquiry process, understand how scientific knowledge and technological developments impact communities, cultures and societies.

Benchmarks(End of Grade 4)

1. describe and discuss examples of how people use science and technology
3. simulate scientific collaboration by sharing and communicating ideas to identify and describe problems

Content Standard 6: Students understand historical developments in science and technology.

Benchmarks (End of grade 4)

1. give historical examples of scientific and technological contributions to communities, cultures, and societies, including Montana American Indian examples
2. describe how scientific inquiry has produced much knowledge about the world and a variety of contributions toward understanding events and phenomenon within the universe.

Mathematics Content Standards:

Content Standard 1: Students engage in mathematical processes of problem solving and reasoning, estimation, communication, connections, and applications, and using appropriate technology.

Benchmarks (End of Grade 4)

1. solve problems from many contexts using a variety of strategies (e.g. estimate, make a table, look for a pattern, and simplify the problem). Explain the methods for solving these problems.
3. communicate mathematical ideas in a variety of ways (e.g. written, verbal, concrete, pictorial, graphical, algebraic).

Content Standard 2: Students demonstrate understanding of and an ability to use numbers and operations.

Benchmarks(End of Grade 4)

2. use the number system by counting, grouping and applying place value concepts.

Content Standard 5: Students demonstrate understanding of measureable attributes and an ability to use measurement process.

1. estimate, measure, and investigate length, capacity, weight, mass, area, volume, time, and temperature.
3. apply measurement skills to everyday situations

Content Standard 6: Students demonstrate understanding of and an ability to use data analysis, probability, and statistics.

1. collect, organize, and display data
2. construct, read, and interpret displays of data, including graphs