

# Curriculum Overview - Alignment with Montana Standards for Science

	Introductory Exercise					
	Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6
<b>Science Content Standard 1. Students design, conduct, evaluate and communicate scientific investigations.</b>						
1. Identify a questions, formulate a hypothesis, control and manipulate variables, devise and safely conduct experiments, predict outcomes and compare and analyze results.	X	X	X	X	X	X
2. Select and accurately use appropriate equipment and technology to measure (in SI units), gather, process and analyze data from a scientific investigation.	X	X	X	X	X	X
3. Communicate and defend results of investigations; question results of investigations if different from predicted.	X	X	X	X	X	X
4. Analyze the processes, parts and subsystems of familiar (e.g. electrical circuits, bacteria) and infer cause and effect relationships among components of the system.						
5. Create models to illustrate scientific concepts and use the model to predict change (e.g. computer simulations, a stream table, graphic representation.)	X	X	X	X	X	X
6. Distinguish between controlled and uncontrolled experiments by consistency of results.	X	X	X	X	X	X

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Unit 6

	What is the water cycle?	How is flowing water an energy source?	How can work be done with water power?	How can a dam affect a river?	How can community values affect the energy resources we select?	How can communication of scientific knowledge influence others?
<b>Science Content Standard 2. Students demonstrate knowledge of properties, forms, changes and interactions of physical and chemical systems.</b>						
1. Examine, describe, compare and classify objects and substances based on common physical and simple chemical properties.						
2. Classify, describe, and model matter in terms of elements, compounds, mixtures, atoms and molecules.						
3. Model and explain that states of matter, solids, liquids, and gases are dependent upon the quantity of energy present in the system.	X		X			X
4. Identify and predict what will change and what will remain unchanged when matter experiences and external force or energy change.	X	X	X			X
5. Identify, build, describe, measure, and analyze mechanical systems (e.g. simple and complex machines).		X	X		X	X
6. Define energy and compare and contrast the characteristics of light, heat, motion, magnetism, electricity, sound and mechanical waves.	X		X			X

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<b>Science Content Standard 3. Students 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.</b>							
1. Compare the structure and function of prokaryotic cells (bacteria) and eukaryotic cells (plant, animal, etc.).							
2. Explain how organisms obtain and use energy resources to maintain stable conditions and how they respond to stimuli (e.g. photosynthesis, respiration).	X				X		
3. Communicate the difference in the reproductive processes of a variety of plant and animals using the principles of genetic modeling (e.g. Punnett squares).							
4. Investigate and explain the interdependent nature of biological systems in the environment and how they are affected by human interaction.	X				X		
5. Use a basic classification scheme to identify local plants and animals.							
<b>Science Content Standard 4. Students demonstrate knowledge of the composition, structures, pro-</b>							

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<b>cesses and interactions of Earth's systems and other objects in space.</b>							
1. Model and explain the internal structure of the Earth and describe the formation and composition of Earth's external features in terms of the rock cycle and plate tectonics.							
2. Differentiate between rocks and classify rocks by how they are formed.							
3. Explain scientific theories about the origin and evolution of the Earth and Solar System by describing how fossils are used as evidence of climatic change over time.							
4. Describe the water cycle, the composition and structure of the atmosphere, and the impact of oceans on large scale weather problems.	X	X					X
5. Describe and model the motion and tilt of Earth in relation to the Sun, and explain the concept of day, night, seasons, year.							
6. Describe the Earth, Moon, planets and other objects in space in terms of size, structure, and movement in relation to the Sun.							

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<b>Science Content Standard 5. Students understand how scientific knowledge and technological developments impact society.</b>						
1. Identify the specific fields of scientific endeavor and related occupations within those fields.						
2. Model collaborative problems solving and give examples of how scientific knowledge is shared, critiqued and scrutinized by other scientists and the public.	X					X
3. Investigate local problems and/or issues and propose solutions or products that address a need, which considers variables (e.g. environmental risks).	X				X	X
4. Apply scientific knowledge and process skills to understand issues and everyday events.	X			X	X	X
<b>Science Content Standard 6. Students understand historical developments in science and technology.</b>						
1. Trace developments that demonstrate scientific knowledge is subject to change as new evidence becomes available.	X					X
2. Identify major milestones in science that have impacted science, technology and society.	X				X	X