



Delta Science Modules (DSM™) Grades K-8

Correlation with

Montana Science Content Standards and Benchmarks



State of Montana Science Content Standards

Correlated to DSM™ (Delta Science Modules III)

The following is a correlation of the Montana Science Content Standards to the Delta Science Modules (DSM). This correlation shows representative examples of investigations and activities from the DSM program that address the Benchmarks at two points: at the end of grade 4, encompassing all grade K-4 DSM modules, and at the end of grade 8, encompassing all grade 5-8 DSM modules. A citation does not necessarily reflect all of the investigations or activities from DSM that might address a particular standard.

End of Grade Four Benchmarks Kindergarten

Science 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.

<i>BENCHMARK</i>	<i>DSM ACTIVITIES</i>	<i>PAGE NUMBERS</i>
1. Students will 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.	From Seed to Plant Activity 1, 2, 6, 8 How Do We Learn? Activity 6 Investigating Water Activity 5, 9 Science Challenge Observing an Aquarium Activity 8 Science Challenge Properties Activity 10 Sunshine and Shadows Activity 3	Pages 15-32, 53-57, 67-72 Pages 51-57 Pages 46, 80 Page 87 Pages 75-80 Pages 27-32
2. Students will select and use appropriate tools including technology to make measurements (including metric units) and represent results of basic scientific investigations.	Finding the Moon Activity 2 From Seed to Plant Activity 7, 8 How Do We Learn? Activity 7, 9, 10, 11, 12 Investigating Water Activity 10 Science and Math Properties Activity 6 Sunshine and Shadows Activity 8 Science and Math	Pages 21-28 Pages 59-72 Pages 58-64, 73-102 Page 88 Pages 47-52 Page 70
3. Students will use data to describe and communicate the results of scientific investigations.	Finding the Moon Activity 5 From Seed to Plant Activity 7 How Do We Learn? Activity 9, 10, 11 Investigating Water Activity 9 Science and Math	Pages 47-54 Pages 59-66 Pages 73-93 Page 80
4. Students will use models that illustrate simple concepts and compare those models to the actual phenomenon.	Finding the Moon Activity 2, 3, 10 From Seed to Plant Activity 9 How Do We Learn? Activity 8 Investigating Water Activity 12 Observing an Aquarium Activity 2 [Note: This benchmark is addressed in the grade 2 essential learning expectations]	Pages 21-38, 85-92 Pages 73-78 Pages 65-71 Pages 95-100 Pages 23-30
5. Students will identify a valid test in an investigation.	From Seed to Plant Activity 6 How Do We Learn?	Pages 53-58

	Activity 10 Investigating Water Activity 7 Properties Activity 7 Sunshine and Shadows Activity 3 [Note: This benchmark is addressed in the grade 3 essential learning expectations]	Pages 81-86 Pages 55-61 Pages 53-60 Pages 27-32
6. Students will identify how observations of nature form an essential base of knowledge among the Montana American Indians.	This is a local benchmark that can be addressed in a culturally appropriate way through connections that Montana teachers will make between science/nature observations in DSM and local environments and customs.	

Science Content Standard 2

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

BENCHMARK	DSM ACTIVITIES	PAGE NUMBERS
1. Students will create mixtures and separate them based on different physical properties (e.g., salt and sand, iron filings and soil, oil and water).	Investigating Water Activity 7, 12 [Note: This benchmark is addressed in the grade 2 essential learning expectations]	Pages 55-61, 95-100
2. Students will examine, measure, describe, compare and classify objects in terms of common physical properties.	From Seed to Plant Activity 1 How Do We Learn? Activity 2, 3 Investigating Water Activity 5, 7 <i>Investigating Water Reader</i> Properties Activity 1, 2, 3, 4, 5, 6, 7	Pages 15-20 Pages 23-36 Pages 41-46, 55-62 <i>Pages 4-5, 12</i> Pages 13-60
3. Students will identify the basic characteristics of light, heat, motion, magnetism, electricity and sound.	Finding the Moon Activity 5 Investigating Water Activity 10 and Science Challenge 1 Properties Activity 11 <i>Properties Reader</i> Sunshine and Shadows Activity 3, 5 <i>Sunshine and Shadows Reader</i>	Pages 47-54 Pages 81-88 Pages 81-86 <i>Page 8</i> Pages 27-32, 43-48 <i>Pages 2-4</i>
4. Students will model and explain that matter exists as solids, liquids, and gases and can change from one form to another.	Investigating Water Activity 1, 2, 3, 4, 7, 9, 10, 11 <i>Investigating Water Reader</i> Properties Activities 7, 8, 9 <i>Properties Reader</i>	Pages 13-40, 55-62, 71-94 <i>Pages 4-5, 6-11, 13</i> Pages 53-74 <i>Pages 5, 9-11, 12-13, 15</i>
5. Students will identify that the position of an object can be described by its location relative to another object and its motions described, and measured by	Investigating Water Activity 2, 3 Sunshine and Shadows Activity 4, 5, 6, 7	Pages 21-34 Pages 33-64

external forces action upon it.	[Note: This benchmark is addressed in the grade 3 essential learning expectations]	
6. Students will identify, build, and describe mechanical systems and the forces acting within those systems.	[Note: This benchmark is addressed in the grades 2 and 4 essential learning expectations]	
7. Students will observe, measure and manipulate forms of energy: sound, light, heat, electrical, magnetic	Finding the Moon Activity 5 Investigating Water Activity 7 Science Extension Properties Activity 11 Sunshine and Shadows Activity 1, 2, 3, 4, 5	Pages 47-54 Page 61 Pages 81-86 Pages 13-48

Science 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.

<i>BENCHMARK</i>	<i>DSM ACTIVITIES</i>	<i>PAGE NUMBERS</i>
1. Students will identify that plants and animals have structures and systems that serve different functions for growth, survival, and reproduction.	From Seed to Plant Activity 3, 4, 5, 9, 10 <i>From Seed to Plant Reader</i> Observing an Aquarium Activity 3, 4, 5, 6 <i>Observing an Aquarium Reader</i>	Pages 33-52, 73-84 <i>Pages 2-9, 14-15</i> Pages 31-68 <i>Pages 6-9</i>
2. Students will identify, measure, and describe basic requirements of energy and nutritional needs for an organism.	From Seed to Plant Activity 8, 14 <i>From Seed to Plant Reader</i> Observing an Aquarium Activity 3, 4, 5, 6 <i>Observing an Aquarium Reader</i> [Note: This benchmark is addressed in the grade 1 essential learning expectations]	Pages 67-72, 105-109 <i>Pages 8, 12</i> Pages 31-68 <i>Pages 9, 12</i>
3. Students will describe and use models that trace the life cycles of different plants and animals and discuss how they differ from species to species.	From Seed to Plant Activity 13 <i>From Seed to Plant Reader</i> <i>Observing an Aquarium Reader</i> [Note: This benchmark is addressed in the grade 2 essential learning expectations]	Pages 97-103 <i>Pages 10-11</i> <i>Pages 10-11</i>
4. Students will 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.	From Seed to Plant Activity 6, 8, 11 <i>From Seed to Plant Reader</i> Observing an Aquarium Activity 1, 8, 9, 11 [Note: This benchmark is addressed in the grade 4 essential learning expectations]	Pages 53-58, 67-72, 85-90 <i>Pages 4-5, 8, 12, 14-15</i> Pages 15-22, 79-96, 109-116
5. Students will create and use a classification system to group a variety of plants and animals according to their similarities and	Observing an Aquarium Activity 6	Pages 57-68

differences.		
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Science 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.

<i>BENCHMARK</i>	<i>DSM ACTIVITIES</i>	<i>PAGE NUMBERS</i>
1. Students will describe and give examples of Earth's changing features.		
2. Students will describe and measure the physical properties of Earth's basic materials (including soil, rocks, water and gases) and the resources they provide.	Finding the Moon Activity 8 Investigating Water Activity 1, 2, 4, 5, 9 <i>Investigating Water Reader</i> Observing an Aquarium Activity 1 Properties Activity 7, 8, 9 [Note: This benchmark is addressed in the grade 2 essential learning expectations]	Pages 71-76 Pages 13-26, 35-46, 71-80 <i>Pages 2-3, 4-13, 15</i> Pages 15-21 Pages 53-74
3. Students will investigate fossils and make inferences about life the plants, animals, and the environment at that time.	[Note: This benchmark is addressed in the grade 2 essential learning expectations]	
4. Students will observe and describe the water cycle and the local weather and demonstrate how weather conditions are measured.	[Note: This benchmark is addressed in the grade 1 essential learning expectations]	
5. Students will identify seasons and explain the difference between weather and climate.	[Note: This benchmark is addressed in the grade 2 essential learning expectations]	
6. Students will identify objects (e.g., moon, stars, meteors) in the sky and their patterns of movement and explain that light and heat comes from a star called the Sun.	Finding the Moon Activity 1, 2, 3, 4, 9, 10 <i>Finding the Moon Reader</i> Sunshine and Shadows Activity 4, 5, 6 <i>Sunshine and Shadows Reader</i> [Note: This benchmark is addressed in the grade 1 essential learning expectations]	Pages 13-46, 77-92 <i>Pages 2-3, 4, 6-10</i> Pages 33-56 <i>Pages 2-4, 10</i>
7. Students will identify technology and methods used for space exploration (e.g. star parties, space shuttles, telescopes).	Finding the Moon Activity 4 Science and Careers [Note: This benchmark is addressed in the grade 1 essential learning expectations]	Page 46

Science Content Standard 5

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

<i>BENCHMARK</i>	<i>DSM ACTIVITIES</i>	<i>PAGE NUMBERS</i>
1. Students will describe and discuss examples of how people	Finding the Moon Activity 12	Pages 99-104

<p>use science and technology.</p>	<p>From Seed to Plant Activity 2 Science, Tech, and Society <i>From Seed to Plant Reader</i> How Do We Learn? Activity 9, 12 <i>How Do We Learn? Reader</i> Investigating Water Activity 12 <i>Investigating Water Reader</i> Observing an Aquarium Activity 11 Science, Tech, and Society Properties Activity 10 Science and Health <i>Properties Reader</i> Sunshine and Shadows Activity 11 Science and the Arts <i>Sunshine and Shadows Reader</i></p>	<p>Page 20 Page 13</p> <p>Pages 73-79, 95-101 Page 7-9, 12-13, 15</p> <p>Pages 95-100 Page 6-7, 13, 15</p> <p>Page 116</p> <p>Page 80 Page 4</p> <p>Page 88 Pages 8, 12-13</p>
<p>2. Students will describe a scientific or technological innovation that impacts communities, cultures, and societies.</p>	<p>Finding the Moon Activity 10 Science, Tech, and Society <i>Finding the Moon Reader</i> From Seed to Plant Activity 2 Science, Tech, and Society How Do We Learn? Activity 9, 10 Investigating Water Activity 12 Science, Tech, and Society Observing an Aquarium Activity 11 Science, Tech, and Society Properties Activity 10 Sunshine and Shadows Activity 3 Science and Health <i>Sunshine and Shadows Reader</i></p> <p>[Note: This benchmark is addressed in the grade 3 essential learning expectations]</p>	<p>Page 91 Page 15</p> <p>Page 20</p> <p>Pages 73-86</p> <p>Page 100</p> <p>Page 116</p> <p>Pages 75-80</p> <p>Page 32 Pages 14-15</p>
<p>3. Students will simulate scientific collaboration by sharing and communicating ideas to identify and describe problems.</p>	<p>Finding the Moon Activity 12 From Seed to Plant Activity 8 How Do We Learn? Activity 11 Investigating Water Activity 5 Science Challenge Observing an Aquarium Activity 6 Science Challenge 1 Properties Activity 10 Science, Tech, and Society Sunshine and Shadows Activity 9</p> <p>[Note: This benchmark is addressed in the grade 4 essential learning expectations]</p>	<p>Pages 99-104</p> <p>Pages 67-72</p> <p>Pages 87-93</p> <p>Page 46</p> <p>Page 67</p> <p>Page 80</p> <p>Pages 71-76</p>
<p>4. Students will use scientific knowledge to make inferences and propose solutions for simple environmental problems.</p>	<p>From Seed to Plant Activity 8 Investigating Water Activity 12</p>	<p>Pages 67-72</p> <p>Pages 95-100</p>

	Observing an Aquarium Activity 6 Science Challenge 1 [Note: This benchmark is addressed in the grade 1 essential learning expectations]	Page 67
5. Students will identify how the knowledge of science and technology influences the development of the Montana American cultures.	This is a local benchmark that can be addressed in a culturally appropriate way through connections that Montana teachers will make between science/technology observations in DSM and local environments and customs.	

Science Content Standard 6

Students understand historical developments in science and technology.

<i>BENCHMARKS</i>	<i>DSM ACTIVITIES</i>	<i>PAGE NUMBERS</i>
1. Students will give historical examples of scientific and technological contributions to communities, cultures and societies, including Montana American Indian examples.	<i>Finding the Moon Reader</i> From Seed to Plant Activity 5 Science, Tech, and Society Investigating Water Activity 8 Science and Social Studies Sunshine and Shadows Activity 6 Science, Tech, and Society [Note: This benchmark is addressed in the grade 3 essential learning expectations]	<i>Page 14</i> <i>Page 52</i> <i>Page 69</i> <i>Page 56</i>
2. Students will describe how scientific inquiry has produced much knowledge about the world and a variety of contributions toward understanding events and phenomenon within the universe.	Finding the Moon Activity 7 <i>Finding the Moon Reader</i> From Seed to Plant Activity 8 How Do We Learn? Activity 9 <i>How Do We Learn? Reader</i> Investigating Water Act. 12 Science Challenge, Extensions <i>Investigating Water Reader</i> Observing an Aquarium Activity 11 <i>Observing an Aquarium Reader</i> <i>Properties Reader</i> Sunshine and Shadows Activity 9 <i>Sunshine and Shadows Reader</i>	<i>Pages 63-69</i> <i>Page 14</i> <i>Pages 67-72</i> <i>Pages 73-79</i> <i>Pages 7-15</i> <i>Page 12</i> <i>Page 14</i> <i>Pages 109-116</i> <i>Page 13</i> <i>Page 14</i> <i>Pages 71-76</i> <i>Pages 12-13</i>
3. Students will describe science as a human endeavor and an ongoing process.	<i>Finding the Moon Reader</i> From Seed to Plant Activity 12 Science and Social Studies How Do We Learn? Activity 9, 10 <i>How Do We Learn? Reader</i> <i>Investigating Water Reader</i> Observing an Aquarium Activity 2 Science and the Arts <i>Observing an Aquarium Reader</i> <i>Properties Reader</i> Sunshine and Shadows Activity 4, 5, 6 <i>Sunshine and Shadows Reader</i>	<i>Page 14</i> <i>Page 96</i> <i>Pages 73-86</i> <i>Pages 7-14</i> <i>Page 14</i> <i>Page 30</i> <i>Page 13</i> <i>Page 15</i> <i>Pages 33-56</i> <i>Page 12</i>

End of Grade Four Benchmarks

Grade One

Science 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.

<i>BENCHMARK</i>	<i>DSM ACTIVITIES</i>	<i>PAGE NUMBERS</i>
1. Students will 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.	From Seed to Plant Activity 1, 2, 6, 8 How Do We Learn? Activity 6 Investigating Water Activity 5, 9 Science Challenge Observing an Aquarium Activity 8 Science Challenge Properties Activity 10 Sunshine and Shadows Activity 3	Pages 15-32, 53-57, 67-72 Pages 51-57 Pages 46, 80 Page 87 Pages 75-80 Pages 27-32
2. Students will select and use appropriate tools including technology to make measurements (including metric units) and represent results of basic scientific investigations.	Finding the Moon Activity 2 From Seed to Plant Activity 7, 8 How Do We Learn? Activity 7, 9, 10, 11, 12 Investigating Water Activity 10 Science and Math Properties Activity 6 Sunshine and Shadows Activity 8 Science and Math	Pages 21-28 Pages 59-72 Pages 58-64, 73-102 Page 88 Pages 47-52 Page 70
3. Students will use data to describe and communicate the results of scientific investigations.	Finding the Moon Activity 5 From Seed to Plant Activity 7 How Do We Learn? Activity 9, 10, 11 Investigating Water Activity 9 Science and Math	Pages 47-54 Pages 59-66 Pages 73-93 Page 80
4. Students will use models that illustrate simple concepts and compare those models to the actual phenomenon.	Finding the Moon Activity 2, 3, 10 From Seed to Plant Activity 9 How Do We Learn? Activity 8 Investigating Water Activity 12 Observing an Aquarium Activity 2 [Note: This benchmark is addressed in the grade 2 essential learning expectations]	Pages 21-38, 85-92 Pages 73-78 Pages 65-71 Pages 95-100 Pages 23-30
5. Students will identify a valid test in an investigation.	From Seed to Plant Activity 6 How Do We Learn?	Pages 53-58

	Activity 10 Investigating Water Activity 7 Properties Activity 7 Sunshine and Shadows Activity 3 [Note: This benchmark is addressed in the grade 3 essential learning expectations]	Pages 81-86 Pages 55-61 Pages 53-60 Pages 27-32
6. Students will identify how observations of nature form an essential base of knowledge among the Montana American Indians.	This is a local benchmark that can be addressed in a culturally appropriate way through connections that Montana teachers will make between science/nature observations in DSM and local environments and customs.	

Science Content Standard 2

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

BENCHMARK	DSM ACTIVITIES	PAGE NUMBERS
1. Students will create mixtures and separate them based on different physical properties (e.g., salt and sand, iron filings and soil, oil and water).	Investigating Water Activity 7, 12 [Note: This benchmark is addressed in the grade 2 essential learning expectations]	Pages 55-61, 95-100
2. Students will examine, measure, describe, compare and classify objects in terms of common physical properties.	From Seed to Plant Activity 1 How Do We Learn? Activity 2, 3 Investigating Water Activity 5, 7 <i>Investigating Water Reader</i> Properties Activity 1, 2, 3, 4, 5, 6, 7	Pages 15-20 Pages 23-36 Pages 41-46, 55-62 <i>Pages 4-5, 12</i> Pages 13-60
3. Students will identify the basic characteristics of light, heat, motion, magnetism, electricity and sound.	Finding the Moon Activity 5 Investigating Water Activity 10 and Science Challenge 1 Properties Activity 11 <i>Properties Reader</i> Sunshine and Shadows Activity 3, 5 <i>Sunshine and Shadows Reader</i>	Pages 47-54 Pages 81-88 Pages 81-86 <i>Page 8</i> Pages 27-32, 43-48 <i>Pages 2-4</i>
4. Students will model and explain that matter exists as solids, liquids, and gases and can change from one form to another.	Investigating Water Activity 1, 2, 3, 4, 7, 9, 10, 11 <i>Investigating Water Reader</i> Properties Activities 7, 8, 9 <i>Properties Reader</i>	Pages 13-40, 55-62, 71-94 <i>Pages 4-5, 6-11, 13</i> Pages 53-74 <i>Pages 5, 9-11, 12-13, 15</i>
5. Students will identify that the position of an object can be described by its location relative to another object and its motions described, and measured by	Investigating Water Activity 2, 3 Sunshine and Shadows Activity 4, 5, 6, 7	Pages 21-34 Pages 33-64

external forces action upon it.	[Note: This benchmark is addressed in the grade 3 essential learning expectations]	
6. Students will identify, build, and describe mechanical systems and the forces acting within those systems.	[Note: This benchmark is addressed in the grades 2 and 4 essential learning expectations]	
7. Students will observe, measure and manipulate forms of energy: sound, light, heat, electrical, magnetic	Finding the Moon Activity 5 Investigating Water Activity 7 Science Extension Properties Activity 11 Sunshine and Shadows Activity 1, 2, 3, 4, 5	Pages 47-54 Page 61 Pages 81-86 Pages 13-48

Science 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.

<i>BENCHMARK</i>	<i>DSM ACTIVITIES</i>	<i>PAGE NUMBERS</i>
1. Students will identify that plants and animals have structures and systems that serve different functions for growth, survival, and reproduction.	From Seed to Plant Activity 3, 4, 5, 9, 10 <i>From Seed to Plant Reader</i> Observing an Aquarium Activity 3, 4, 5, 6 <i>Observing an Aquarium Reader</i> [Note: This benchmark is addressed in the grade 2 essential learning expectations]	Pages 33-52, 73-84 <i>Pages 2-9, 14-15</i> Pages 31-68 <i>Pages 6-9</i>
2. Students will identify, measure, and describe basic requirements of energy and nutritional needs for an organism.	From Seed to Plant Activity 8, 14 <i>From Seed to Plant Reader</i> Observing an Aquarium Activity 3, 4, 5, 6 <i>Observing an Aquarium Reader</i>	Pages 67-72, 105-109 <i>Pages 8, 12</i> Pages 31-68 <i>Pages 9, 12</i>
3. Students will describe and use models that trace the life cycles of different plants and animals and discuss how they differ from species to species.	From Seed to Plant Activity 13 <i>From Seed to Plant Reader</i> <i>Observing an Aquarium Reader</i> [Note: This benchmark is addressed in the grade 2 essential learning expectations]	Pages 97-103 <i>Pages 10-11</i> <i>Pages 10-11</i>
4. Students will 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.	From Seed to Plant Activity 6, 8, 11 <i>From Seed to Plant Reader</i> Observing an Aquarium Activity 1, 8, 9, 11 [Note: This benchmark is addressed in the grade 4 essential learning expectations]	Pages 53-58, 67-72, 85-90 <i>Pages 4-5, 8, 12, 14-15</i> Pages 15-22, 79-96, 109-116
5. Students will create and use a classification system to group a variety of plants and animals according to their similarities and	Observing an Aquarium Activity 6 [Note: This benchmark is addressed in	Pages 57-68

differences.	the grade 2 essential learning expectations]	
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Science 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.

<i>BENCHMARK</i>	<i>DSM ACTIVITIES</i>	<i>PAGE NUMBERS</i>
1. Students will describe and give examples of Earth's changing features.		
2. Students will describe and measure the physical properties of Earth's basic materials (including soil, rocks, water and gases) and the resources they provide.	Finding the Moon Activity 8 Investigating Water Activity 1, 2, 4, 5, 9 <i>Investigating Water Reader</i> Observing an Aquarium Activity 1 Properties Activity 7, 8, 9 [Note: This benchmark is addressed in the grade 2 essential learning expectations]	Pages 71-76 Pages 13-26, 35-46, 71-80 <i>Pages 2-3, 4-13, 15</i> Pages 15-21 Pages 53-74
3. Students will investigate fossils and make inferences about life the plants, animals, and the environment at that time.	[Note: This benchmark is addressed in the grade 2 essential learning expectations]	
4. Students will observe and describe the water cycle and the local weather and demonstrate how weather conditions are measured.		
5. Students will identify seasons and explain the difference between weather and climate.	[Note: This benchmark is addressed in the grade 2 essential learning expectations]	
6. Students will identify objects (e.g., moon, stars, meteors) in the sky and their patterns of movement and explain that light and heat comes from a star called the Sun.	Finding the Moon Activity 1, 2, 3, 4, 9, 10 <i>Finding the Moon Reader</i> Sunshine and Shadows Activity 4, 5, 6 <i>Sunshine and Shadows Reader</i>	Pages 13-46, 77-92 <i>Pages 2-3, 4, 6-10</i> Pages 33-56 <i>Pages 2-4, 10</i>
7. Students will identify technology and methods used for space exploration (e.g. star parties, space shuttles, telescopes).	Finding the Moon Activity 4 Science and Careers	Page 46

Science Content Standard 5

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

<i>BENCHMARK</i>	<i>DSM ACTIVITIES</i>	<i>PAGE NUMBERS</i>
1. Students will describe and discuss examples of how people use science and technology.	Finding the Moon Activity 12 From Seed to Plant Activity 2 Science, Tech, and Society <i>From Seed to Plant Reader</i> How Do We Learn?	Pages 99-104 Page 20 <i>Page 13</i>

	<p>Activity 9, 12 <i>How Do We Learn? Reader</i> Investigating Water Activity 12 <i>Investigating Water Reader</i> Observing an Aquarium Activity 11 Science, Tech, and Society Properties Activity 10 Science and Health <i>Properties Reader</i> Sunshine and Shadows Activity 11 Science and the Arts <i>Sunshine and Shadows Reader</i></p>	<p>Pages 73-79, 95-101 <i>Page 7-9, 12-13, 15</i></p> <p>Pages 95-100 <i>Pages 6-7, 13, 15</i></p> <p>Page 116</p> <p>Page 80 <i>Page 4</i></p> <p>Page 88 <i>Pages 8, 12-13</i></p>
<p>2. Students will describe a scientific or technological innovation that impacts communities, cultures, and societies.</p>	<p>Finding the Moon Activity 10 Science, Tech, and Society <i>Finding the Moon Reader</i> From Seed to Plant Activity 2 Science, Tech, and Society How Do We Learn? Activity 9, 10 Investigating Water Activity 12 Science, Tech, and Society Observing an Aquarium Activity 11 Science, Tech, and Society Properties Activity 10 Sunshine and Shadows Activity 3 Science and Health <i>Sunshine and Shadows Reader</i></p> <p>[Note: This benchmark is addressed in the grade 3 essential learning expectations]</p>	<p>Page 91 <i>Page 15</i></p> <p>Page 20</p> <p>Pages 73-86</p> <p>Page 100</p> <p>Page 116</p> <p>Pages 75-80</p> <p>Page 32 <i>Pages 14-15</i></p>
<p>3. Students will simulate scientific collaboration by sharing and communicating ideas to identify and describe problems.</p>	<p>Finding the Moon Activity 12 From Seed to Plant Activity 8 How Do We Learn? Activity 11 Investigating Water Activity 5 Science Challenge Observing an Aquarium Activity 6 Science Challenge 1 Properties Activity 10 Science, Tech, and Society Sunshine and Shadows Activity 9</p> <p>[Note: This benchmark is addressed in the grade 4 essential learning expectations]</p>	<p>Pages 99-104</p> <p>Pages 67-72</p> <p>Pages 87-93</p> <p>Page 46</p> <p>Page 67</p> <p>Page 80</p> <p>Pages 71-76</p>
<p>4. Students will use scientific knowledge to make inferences and propose solutions for simple environmental problems.</p>	<p>From Seed to Plant Activity 8 Investigating Water Activity 12 Observing an Aquarium Activity 6 Science Challenge 1</p>	<p>Pages 67-72</p> <p>Pages 95-100</p> <p>Page 67</p>
<p>5. Students will identify how the knowledge of science and</p>	<p>This is a local benchmark that can be addressed in a culturally appropriate</p>	

technology influences the development of the Montana American cultures.	way through connections that Montana teachers will make between science/technology observations in DSM and local environments and customs.	
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Science Content Standard 6

Students understand historical developments in science and technology.

<i>BENCHMARKS</i>	<i>DSM ACTIVITIES</i>	<i>PAGE NUMBERS</i>
1. Students will give historical examples of scientific and technological contributions to communities, cultures and societies, including Montana American Indian examples.	<i>Finding the Moon Reader</i> From Seed to Plant Activity 5 Science, Tech, and Society Investigating Water Activity 8 Science and Social Studies Sunshine and Shadows Activity 6 Science, Tech, and Society [Note: This benchmark is addressed in the grade 3 essential learning expectations]	<i>Page 14</i> <i>Page 52</i> <i>Page 69</i> <i>Page 56</i>
2. Students will describe how scientific inquiry has produced much knowledge about the world and a variety of contributions toward understanding events and phenomenon within the universe.	Finding the Moon Activity 7 <i>Finding the Moon Reader</i> From Seed to Plant Activity 8 How Do We Learn? Activity 9 <i>How Do We Learn? Reader</i> Investigating Water Act. 12 Science Challenge, Extensions <i>Investigating Water Reader</i> Observing an Aquarium Activity 11 <i>Observing an Aquarium Reader</i> <i>Properties Reader</i> Sunshine and Shadows Activity 9 <i>Sunshine and Shadows Reader</i>	<i>Pages 63-69</i> <i>Page 14</i> <i>Pages 67-72</i> <i>Pages 73-79</i> <i>Pages 7-15</i> <i>Page 12</i> <i>Page 14</i> <i>Pages 109-116</i> <i>Page 13</i> <i>Page 14</i> <i>Pages 71-76</i> <i>Pages 12-13</i>
3. Students will describe science as a human endeavor and an ongoing process.	<i>Finding the Moon Reader</i> From Seed to Plant Activity 12 Science and Social Studies How Do We Learn? Activity 9, 10 <i>How Do We Learn? Reader</i> <i>Investigating Water Reader</i> Observing an Aquarium Activity 2 Science and the Arts <i>Observing an Aquarium Reader</i> <i>Properties Reader</i> Sunshine and Shadows Activity 4, 5, 6 <i>Sunshine and Shadows Reader</i>	<i>Page 14</i> <i>Page 96</i> <i>Pages 73-86</i> <i>Pages 7-14</i> <i>Page 14</i> <i>Page 30</i> <i>Page 13</i> <i>Page 15</i> <i>Pages 33-56</i> <i>Page 12</i>

End of Grade Four Benchmarks

Grade Two

Science 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.

<i>BENCHMARK</i>	<i>DSM ACTIVITIES</i>	<i>PAGE NUMBERS</i>
1. Students will 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.	Force and Motion Activity 7 Science Challenge Plant and Animal Populations Activity 9 Sink or Float? Activity 9, 12 Soil Science Activity 12 States of Matter Activity 5	Page 72 Pages 85-93 Pages 75-80, 97-103 Pages 107-114 Pages 41-50
2. Students will select and use appropriate tools including technology to make measurements (including metric units) and represent results of basic scientific investigations.	Butterflies and Moths Activity 2 Science and Math Classroom Plants Activity 5 Science and Math Force and Motion Activity 9 Science Challenge Plant and Animal Populations Activity 2 Sink or Float? Activity 12 Soil Science Activity 3 Science and Math States of Matter Activity 7 Using Your Senses Activity 2 Weather Watching Activity 3, 4, 7	Page 30 Page 53 Page 90 Pages 25-33 Pages 97-103 Page 35 Pages 57-63 Pages 23-30 Pages 29-44, 61-68
3. Students will use data to describe and communicate the results of scientific investigations.	Butterflies and Moths Activity 3 Force and Motion Activity 1, 2, 3, 4 Plant and Animal Populations Activity 2, 6, 9, 10, 11 Sink or Float? Activity 8, 9, 10, 11, 12 Soil Science Activity 3 Science and Math States of Matter Activity 7, 8 Using Your Senses Activity 2 Weather Watching Activity 3, 7	Pages 31-38 Pages 13-48 Pages 25-34, 59-68, 85-110 Pages 67-103 Page 35 Pages 57-72 Pages 23-30 Pages 29-36, 61-68
4. Students will use models that illustrate simple concepts and compare those models to the actual phenomenon.	Butterflies and Moths Activity 10, 12 Science and the Arts Classroom Plants Activity 12 Force and Motion	Pages 95, 110 Pages 105-112

	Activity 6 Plant and Animal Populations Activity 12 Sink or Float? Activity 8 Soil Science Activity 6, 8, 12 Using Your Senses Activity 5 Weather Watching Activity 6, 8, 9	Pages 57-64 Pages 111-117 Page 67-73 Pages 51-58, 69-80, 107-114 Pages 45-52 Pages 51-60, 69-86
5. Students will identify a valid test in an investigation.	Butterflies and Moths Activities 3, 8 Classroom Plants Activity 5 Force and Motion Activity 4 Plant and Animal Populations Activity 9 Sink or Float? Activity 5 Soil Science Activity 9 Science Challenge States of Matter Activity 5 Using Your Senses Activity 8 Weather Watching Activity 2 Science Extension [Note: This benchmark is addressed in the grade 3 essential learning expectations]	Pages 31-38, 71-78 Pages 47-53 Pages 41-47 Pages 85-93 Pages 43-51 Page 89 Pages 41-50 Pages 67-74 Page 28
6. Students will identify how observations of nature form an essential base of knowledge among the Montana American Indians.	This is a local benchmark that can be addressed in a culturally appropriate way through connections that Montana teachers will make between science/nature observations in DSM and local environments and customs.	

Science Content Standard 2

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

<i>BENCHMARK</i>	<i>DSM ACTIVITIES</i>	<i>PAGE NUMBERS</i>
1. Students will create mixtures and separate them based on different physical properties (e.g., salt and sand, iron filings and soil, oil and water).	Soil Science Activity 2, 3, 4 States of Matter Activity 1 Science Extension <i>States of Matter Reader</i>	Pages 21-44 Page 18 <i>Page 11</i>
2. Students will examine, measure, describe, compare and classify objects in terms of common physical properties.	Sink or Float? Activity 1, 2, 3, 4, 5 <i>Sink or Float? Reader</i> Soil Science Activity 2, 7 <i>Soil Science Reader</i> States of Matter Activity 1 <i>States of Matter Reader</i>	Pages 13-52 <i>Pages 2-3, 7-11, 14-15</i> Pages 21-28, 59-68 <i>Pages 7-8, 13</i> Pages 13-18 <i>Pages 2-6</i>

	Weather Watching Activity 6	Pages 51-60
3. Students will identify the basic characteristics of light, heat, motion, magnetism, electricity and sound.	Force and Motion Activity 1, 2, 4 <i>Force and Motion Reader</i> <i>Sink or Float? Reader</i> States of Matter Activity 4, 5, 6, 7, 8, 9, 10, 11 Using Your Senses Activity 5, 6 <i>Using Your Senses Reader</i> Weather Watching Activity 2, 3, 4, 5, 11 <i>Weather Watching Reader</i> [Note: This benchmark is addressed in the grades 1, 3 and 4 essential learning expectations]	Pages 13-30, 41-48 <i>Pages 3-4</i> <i>Page 15</i> Pages 35-96 Pages 45-60 <i>Pages 4-5, 6-7</i> Pages 21-50, 101-108 <i>Pages 3, 4-5, 8-9</i>
4. Students will model and explain that matter exists as solids, liquids, and gases and can change from one form to another.	<i>Sink or Float? Reader</i> <i>Soil Science Reader</i> States of Matter Activity 8, 9, 10 <i>States of Matter Reader</i> Weather Watching Activity 7 <i>Weather Watching Reader</i> [Note: This benchmark is addressed in the grades 1, 3 and 4 essential learning expectations]	<i>Pages 3-6</i> <i>Pages 4-5</i> Pages 65-88 <i>Pages 7-10</i> Pages 61-68 <i>Pages 4-5</i>
5. Students will identify that the position of an object can be described by its location relative to another object and its motions described, and measured by external forces action upon it.	Force and Motion Activity 1, 2, 3, 4 <i>Force and Motion Reader</i> Weather Watching Activity 4 <i>Earth Movements Reader</i> [Note: This benchmark is addressed in the grade 3 essential learning expectations]	Pages 13-48 <i>Page 2-4</i> Pages 37-44 <i>Pages 6-8, 9-10</i>
6. Students will identify, build, and describe mechanical systems and the forces acting within those systems.	Force and Motion Activity 6, 7, 8 <i>Force and Motion Reader</i> Weather Watching Activity 4	Pages 57-82 <i>Pages 5-6, 8</i> Pages 37-44
7. Students will observe, measure and manipulate forms of energy: sound, light, heat, electrical, magnetic	Using Your Senses Activity 3, 5, 6 States of Matter Activity 4, 5, 6, 7, 8, 9 Weather Watching Activity 2, 3	Pages 31-36, 45-60 Pages 35-79 Pages 21-36

Science 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.

<i>BENCHMARK</i>	<i>DSM ACTIVITIES</i>	<i>PAGE NUMBERS</i>
1. Students will identify that	Butterflies and Moths	

plants and animals have structures and systems that serve different functions for growth, survival, and reproduction.	<p>Activity 2, 3, 10 <i>Butterflies and Moths Reader</i> Classroom Plants Activity 1, 2, 9, 11 <i>Classroom Plants</i> Plant and Animal Populations Activity 1, 3 Using Your Senses Activity 1, 2, 7</p> <p>[Note: This benchmark is addressed in the grades 3 and 4 essential learning expectations]</p>	<p>Pages 23-38, 89-96 <i>Pages 4-5</i></p> <p>Pages 15-28, 81-86, 97-104 <i>Pages 6-12</i></p> <p>Pages 15-24, 35-42</p> <p>Pages 13-30, 61-66</p>
2. Students will identify, measure, and describe basic requirements of energy and nutritional needs for an organism.	<p>Butterflies and Moths Activity 1 <i>Butterflies and Moths Reader</i> Classroom Plants Activity 5 <i>Classroom Plants Reader</i> Plant and Animal Populations Activity 4, 5 <i>Plant and Animal Populations Reader</i></p> <p>[Note: This benchmark is addressed in the grades 1, 3 and 4 essential learning expectations]</p>	<p>Pages 15-22 <i>Page 2</i></p> <p>Pages 47-54 <i>Pages 7, 9, 15</i></p> <p>Pages 43-57 <i>Pages 4-5, 12-13</i></p>
3. Students will describe and use models that trace the life cycles of different plants and animals and discuss how they differ from species to species.	<p>Butterflies and Moths Activity 11 <i>Butterflies and Moths Reader</i> Classroom Plants Activity 9 Science and Language Arts <i>Classroom Plants Reader</i></p>	<p>Pages 97-104 <i>Pages 8-12, 13</i></p> <p>Page 86 <i>Page 5</i></p>
4. Students will 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.	<p>Butterflies and Moths Activity 7, 8, 10 <i>Butterflies and Moths Reader</i> Classroom Plants Activity 5 Plant and Animal Populations Activity 5, 6, 7, 8, 9 <i>Plant and Animal Populations Reader</i></p> <p>[Note: This benchmark is addressed in the grade 4 essential learning expectations]</p>	<p>Pages 61-78, 89-96 <i>Page 15</i></p> <p>Pages 47-54</p> <p>Pages 51-93 <i>Pages 4-7, 8-9, 15</i></p>
5. Students will create and use a classification system to group a variety of plants and animals according to their similarities and differences.	<p>Butterflies and Moths Activity 9, 10, 12</p>	<p>Pages 79-96, 105-110</p>

Science 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.

<i>BENCHMARK</i>	<i>DSM ACTIVITIES</i>	<i>PAGE NUMBERS</i>
1. Students will describe and give examples of Earth's changing features.	<p>Soil Science Activity 5, 10 <i>Soil Science Reader</i></p>	<p>Pages 45-50, 91-98 <i>Pages 4-5, 9</i></p>
2. Students will describe and	Classroom Plants	

measure the physical properties of Earth's basic materials (including soil, rocks, water and gases) and the resources they provide.	Activity 3 Science Extension 2 <i>Classroom Plants Reader</i> Sink or Float? Activity 7 <i>Sink or Float? Reader</i> Soil Science Activity 1, 2, 3, 4 <i>Soil Science Reader</i> States of Matter Activity 2, 3, 4 <i>States of matter Reader</i> Weather Watching Activity 4, 5, 6, 7 <i>Weather Watching Reader</i>	Page 37 <i>Pages 4, 15</i> Pages 61-66 <i>Pages 7-8</i> Pages 15-44 <i>Pages 2-3, 7-8, 10-11</i> Pages 19-40 <i>Pages 2-6, 7-10, 11, 12</i> Pages 37-68 <i>Pages 4-5</i>
3. Students will investigate fossils and make inferences about life the plants, animals, and the environment at that time.		
4. Students will observe and describe the water cycle and the local weather and demonstrate how weather conditions are measured.	Weather Watching Activity 6, 7, 12 <i>Weather Watching Reader</i>	Pages 51-68, 109-116 <i>Pages 2-5</i>
5. Students will identify seasons and explain the difference between weather and climate.	Weather Watching Activity 1 <i>Weather Watching Reader</i>	Pages 13-19 <i>Pages 8-9, 10-12</i>
6. Students will identify objects (e.g., moon, stars, meteors) in the sky and their patterns of movement and explain that light and heat comes from a star called the Sun.	Weather Watching Activity 3 <i>Weather Watching Reader</i> [Note: This benchmark is addressed in the grades 1, 3 and 4 essential learning expectations]	Pages 29-36 <i>Page 10</i>
7. Students will identify technology and methods used for space exploration (e.g. star parties, space shuttles, telescopes).	[Note: This benchmark is addressed in the grades 1 and 3 essential learning expectations]	

Science Content Standard 5

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

<i>BENCHMARK</i>	<i>DSM ACTIVITIES</i>	<i>PAGE NUMBERS</i>
1. Students will describe and discuss examples of how people use science and technology.	Butterflies and Moths Activity 3, 6 Science, Tech, & Society Classroom Plants Activity 2 Science, Tech, and Society <i>Classroom Plants Reader</i> Force and Motion Activity 4 Science Challenge <i>Force and Motion Reader</i> Plant and Animal Populations Activity 2 Science and Careers Sink or Float? Activity 12 <i>Sink or Float? Reader</i> Soil Science Activity 12 Science, Tech, and Society	Pages 38, 59 Page 28 <i>Pages 14-15</i> Page 47 <i>Page 5, 9, 14</i> Page 33 Pages 97-103 <i>Pages 12-13</i> Page 114

	<i>Soil Science Reader</i> States of Matter Activity 5 Science and Careers, 12 <i>States of Matter Reader</i> Using Your Senses Activity 8 Science at Home <i>Using Your Senses Reader</i> Weather Watching Activity 1 <i>Weather Watching Reader</i>	<i>Pages 10-12, 13</i> <i>Pages 50, 97-101</i> <i>Pages 12, 14, 15</i> <i>Page 72</i> <i>Pages 13-15</i> <i>Pages 13-19</i> <i>Pages 6-7, 14-15</i>
2. Students will describe a scientific or technological innovation that impacts communities, cultures, and societies.	Butterflies and Moths Activity 5, 6 Science, Tech, & Society Classroom Plants Activity 1, 12 Science, Tech, & Society <i>Classroom Plants Reader</i> Force and Motion Activity 5 Science and Social Studies Activity 9 Science and Health <i>Force and Motion Reader</i> Sink or Float? Activity 12 Science, Tech, and Society Soil Science Activity 12 <i>Soil Science Reader</i> States of Matter Activity 6 Science and Careers Using Your Senses Activity 8 Science at Home <i>Using Your Senses Reader</i> Weather Watching Activity 9 Science, Tech, and Society <i>Weather Watching Reader</i> [Note: This benchmark is addressed in the grade 3 essential learning expectations]	<i>Pages 52, 59</i> <i>Page 21, 112</i> <i>Page 15</i> <i>Page 55</i> <i>Page 90</i> <i>Pages 5, 12-13, 14</i> <i>Page 103</i> <i>Pages 107-114</i> <i>Pages 10-12</i> <i>Page 56</i> <i>Page 72</i> <i>Pages 13, 14, 15</i> <i>Page 86</i> <i>Pages 6-7, 13, 14-15</i>
3. Students will simulate scientific collaboration by sharing and communicating ideas to identify and describe problems.	Butterflies and Moths Activity 8 Science, Tech, & Society Classroom Plants Activity 11 Science, Tech, and Society Force and Motion Activity 4 Science Challenge Plant and Animal Populations Activity 9 Sink or Float? Activity 12 Soil Science Activity 11 Science Challenge States of Matter Activity 5 Science, Tech, and Society [Note: This benchmark is addressed in the grade 3 essential learning expectations]	<i>Page 77</i> <i>Page 104</i> <i>Page 47</i> <i>Pages 85-93</i> <i>Pages 97-103</i> <i>Page 105</i> <i>Page 50</i>
4. Students will use scientific knowledge to make inferences and propose solutions for simple environmental problems.	Classroom Plants Activity 6 Science, Tech, and Society Force and Motion Activity 6 Science and Social Studies Plant and Animal Populations	<i>Page 64</i> <i>Page 64</i>

	Activity 5 Science, Tech, and Society Soil Science Activity 10 States of Matter Activity 5 Science and Health	Page 57 Pages 91-97 Page 50
5. Students will identify how the knowledge of science and technology influences the development of the Montana American cultures.	This is a local benchmark that can be addressed in a culturally appropriate way through connections that Montana teachers will make between science/technology observations in DSM and local environments and customs.	

Science Content Standard 6

Students understand historical developments in science and technology.

<i>BENCHMARKS</i>	<i>DSM ACTIVITIES</i>	<i>PAGE NUMBERS</i>
1. Students will give historical examples of scientific and technological contributions to communities, cultures and societies, including Montana American Indian examples.	Butterflies and Moths Activity 2 Science and Social Studies <i>Classroom Plants Reader</i> Force and Motion Activity 1 Science and Social Studies <i>Force and Motion Reader</i> Sink or Float? Activity 12 Science, Tech, and Society States of Matter Activity 6 Science and Social Studies Using Your Senses Activity 1 Science and Social Studies <i>Using Your Senses Reader</i> Weather Watching Activity 2 <i>Weather Watching Reader</i> [Note: This benchmark is addressed in the grade 3 essential learning expectations]	Page 30 <i>Page 14</i> Page 22 <i>Pages 12-13</i> Page 103 Page 56 Page 21 <i>Pages 14-15</i> Pages 21-28 <i>Pages 13, 15</i>
2. Students will describe how scientific inquiry has produced much knowledge about the world and a variety of contributions toward understanding events and phenomenon within the universe.	Butterflies and Moths Activity 2 Science and Social Studies <i>Butterflies and Moths Reader</i> <i>Classroom Plants Reader</i> Plant and Animal Populations Activity 9 Sink or Float? Activity 8, 9 Soil Science Activity 12 <i>Soil Science Reader</i> States of Matter Activity 5 <i>States of Matter Reader</i> Weather Watching Activity 12 <i>Weather Watching Reader</i>	Page 30 <i>Page 14</i> <i>Page 14</i> Pages 85-93 Pages 67-80 Pages 107-114 <i>Page 13</i> Pages 41-50 <i>Page 14</i> Pages 109-116 <i>Page 13-15</i>
3. Students will describe science as a human endeavor and an ongoing process.	Butterflies and Moths Activity 5 Science, Tech, and Society <i>Butterflies and Moths Reader</i> Classroom Plants Activity 6 Science, Tech, and Society	Page 52 <i>Page 14</i> Page 64

	<i>Classroom Plants Reader</i>	<i>Page 14</i>
	Force and Motion	
	Activity 9 Science and the Arts	Page 90
	<i>Force and Motion Reader</i>	<i>Pages 12-13</i>
	Length and Capacity	
	Activity 11 Science and Social Studies	Page 88
	Sink or Float?	
	Activity 9 Science Challenge	Page 80
	<i>Sink or Float? Reader</i>	<i>Pages 12-13</i>
	<i>Soil Science Reader</i>	<i>Page 13</i>
	<i>States of Matter Reader</i>	<i>Page 14</i>
	<i>Using Your Senses Reader</i>	<i>Pages 14-15</i>
	Weather Watching	
	Activity 12	Pages 109-116
	<i>Weather Watching Reader</i>	<i>Pages 13-15</i>

End of Grade Four Benchmarks Grade Three

Science 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.

<i>BENCHMARK</i>	<i>DSM ACTIVITIES</i>	<i>PAGE NUMBERS</i>
<p>1. Students will 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.</p>	<p>Classroom Plants Activity 5 Force and Motion Activity 7 Science Challenge Plant and Animal Populations Activity 9 Sink or Float? Activity 9, 12 Soil Science Activity 12 States of Matter Activity 5 Electrical Circuits Activity 11 Science Challenge Food Chains and Webs Activity 2 Magnets Activity 4, 6 Water Cycle Activity 5</p>	<p>Pages 47-53 Page 72 Pages 85-93 Pages 75-80, 97-103 Pages 107-114 Pages 41-50 Page 88 Pages 23-30 Pages 29-34, 41-46 Pages 45-51</p>
<p>2. Students will select and use appropriate tools including technology to make measurements (including metric units) and represent results of basic scientific investigations.</p>	<p>Butterflies and Moths Activity 2 Science and Math Classroom Plants Activity 5 Science and Math Force and Motion Activity 9 Science Challenge Plant and Animal Populations Activity 2 Sink or Float? Activity 12 Soil Science Activity 3 Science and Math States of Matter Activity 7 Using Your Senses Activity 2 Weather Watching Activity 3, 4, 7 Dinosaurs and Fossils Activity 6 Food Chains and Webs Activity 2 Plant and Animal Life Cycles Activity 6 Solar System Activity 5, 6, 7, 8 Water Cycle Activity 1, 2 Weather Instruments</p>	<p>Page 30 Page 53 Page 90 Pages 25-33 Pages 97-103 Page 35 Pages 57-63 Pages 23-30 Pages 29-44, 61-68 Pages 47-53 Pages 23-30 Pages 57-63 Pages 43-72 Pages 13-29</p>

	Activity 1, 3, 4, 5, 6, 7, 8	Pages 13-22, 31-74
3. Students will use data to describe and communicate the results of scientific investigations.	Butterflies and Moths Activity 3 Force and Motion Activity 1, 2, 3, 4 Plant and Animal Populations Activity 2, 6, 9, 10, 11 Sink or Float? Activity 8, 9, 10, 11, 12 Soil Science Activity 3 Science and Math States of Matter Activity 7, 8 Using Your Senses Activity 2 Weather Watching Activity 3, 7 Dinosaurs and Fossils Activity 6 Food Chains and Webs Activity 2 Magnets Activity 4 Plant and Animal Life Cycles Activity 7, 9 Solar System Activity 5, 6 Sound Activity 5 Water Cycle Activity 1, 2 Weather Instruments Activity 1, 3, 4, 5, 6, 7, 8	Pages 31-38 Pages 13-48 Pages 25-34, 59-68, 85-110 Pages 67-103 Page 35 Pages 57-72 Pages 23-30 Pages 29-36, 61-68 Pages 47-53 Pages 23-30 Pages 29-34 Pages 65-73, 83-89 Pages 43-58 Pages 45-50 Pages 13-29 Pages 13-22, 31-74
4. Students will use models that illustrate simple concepts and compare those models to the actual phenomenon.	Butterflies and Moths Activity 10, 12 Science and the Arts Classroom Plants Activity 12 Force and Motion Activity 6 Plant and Animal Populations Activity 12 Sink or Float? Activity 8 Soil Science Activity 6, 8, 12 Using Your Senses Activity 5 Weather Watching Activity 6, 8, 9 Dinosaurs and Fossils Activity 3 Earth Movements Activity 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 Electrical Circuits Activity 9, 10, 11 Food Chains and Webs Activity 11, 12 Magnets Activity 8	Pages 95, 110 Pages 105-112 Pages 57-64 Pages 111-117 Page 67-73 Pages 51-58, 69-80, 107-114 Pages 45-52 Pages 51-60, 69-86 Pages 29-34 Pages 13-104 Pages 71-88 Pages 89-101 Pages 53-58

	Solar System Activity 2, 3, 6, 8, 9 Water Cycle Activity 9, 10, 11, 12, 13 Weather Instruments Activity 9	Pages 21-34, 51-58, 65-82 Pages 77-114 Pages 75-80
5. Students will identify a valid test in an investigation.	Butterflies and Moths Activities 3, 8 Classroom Plants Activity 5 Force and Motion Activity 4 Plant and Animal Populations Activity 9 Sink or Float? Activity 5 Soil Science Activity 9 Science Challenge States of Matter Activity 5 Using Your Senses Activity 8 Weather Watching Activity 2 Science Extension Electrical Circuits Activity 6. 7 Food Chains and Webs Activity 2 Magnets Activity 2, 3 Plant and Animal Life Cycles Activity 1 Sound Activity 5 Water Cycle Activity 6 Weather Instruments Activity 7	Pages 31-38, 71-78 Pages 47-53 Pages 41-47 Pages 85-93 Pages 43-51 Page 89 Pages 41-50 Pages 67-74 Page 28 Pages 51-62 Pages 23-30 Pages 19-28 Pages 15-21 Pages 45-50 Pages 53-60 Pages 59-66
6. Students will identify how observations of nature form an essential base of knowledge among the Montana American Indians.	This is a local benchmark that can be addressed in a culturally appropriate way through connections that Montana teachers will make between science/nature observations in DSM and local environments and customs.	

Science Content Standard 2

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

<i>BENCHMARK</i>	<i>DSM ACTIVITIES</i>	<i>PAGE NUMBERS</i>
1. Students will create mixtures and separate them based on different physical properties (e.g., salt and sand, iron filings and soil, oil and water).	Soil Science Activity 2, 3, 4 States of Matter Activity 1 Science Extension <i>States of Matter Reader</i>	Pages 21-44 Page 18 <i>Page 11</i>
2. Students will examine, measure, describe, compare and classify objects in terms of common physical properties.	Sink or Float? Activity 1, 2, 3, 4, 5 <i>Sink or Float? Reader</i> Soil Science	Pages 13-52 <i>Pages 2-3, 7-11, 14-15</i>

	<p>Activity 2, 7 <i>Soil Science Reader</i> States of Matter Activity 1 <i>States of Matter Reader</i> Weather Watching Activity 6 Dinosaurs and Fossils Activity 9, 10, 11 Electrical Circuits Activity 6, 7 Food Chains and Webs Activity 1 Magnets Activity 2, 3, 4 <i>Solar System Reader</i> Sound Activity 1 Weather Instruments Activity 10</p>	<p>Pages 21-28, 59-68 <i>Pages 7-8, 13</i></p> <p>Pages 13-18 <i>Pages 2-6</i></p> <p>Pages 51-60</p> <p>Pages 67-90</p> <p>Pages 51-62</p> <p>Pages 15-22</p> <p>Pages 19-34 <i>Pages 4-13</i></p> <p>Pages 13-20</p> <p>Pages 81-88</p>
<p>3. Students will identify the basic characteristics of light, heat, motion, magnetism, electricity and sound.</p>	<p>Force and Motion Activity 1, 2, 4 <i>Force and Motion Reader</i> <i>Sink or Float? Reader</i> States of Matter Activity 4, 5, 6, 7, 8, 9, 10, 11 Using Your Senses Activity 5, 6 <i>Using Your Senses Reader</i> Weather Watching Activity 2, 3, 4, 5, 11 <i>Weather Watching Reader</i> Earth Movements Activity 4 <i>Earth Movements Reader</i> Electrical Circuits Activity 1, 2, 3, 4, 5, 6, 7, 8, 9 <i>Electrical Circuits Reader</i> Magnets Activity 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 <i>Magnets Reader</i> Solar System Activity 11 Sound Activity 1, 2, 3, 7, 8, 9 <i>Sound Reader</i> Weather Instruments Activity 1 Science Extension</p>	<p>Pages 13-30, 41-48 <i>Pages 3-4</i> <i>Page 15</i></p> <p>Pages 35-96</p> <p>Pages 45-60 <i>Pages 4-5, 6-7</i></p> <p>Pages 21-50, 101-108 <i>Pages 3, 4-5, 8-9</i></p> <p>Pages 39-46 <i>Pages 9-11</i></p> <p>Pages 13-76 <i>Pages 2, 3, 4, 8-9, 10</i></p> <p>Pages 13-76 <i>Pages 2-3, 4-5, 6</i></p> <p>Pages 93-100</p> <p>Pages 13-36, 59-82 <i>Pages 2-3, 4-5, 6-7, 8</i></p> <p>Page 21</p>
<p>4. Students will model and explain that matter exists as solids, liquids, and gases and can change from one form to another.</p>	<p><i>Sink or Float? Reader</i> <i>Soil Science Reader</i> States of Matter Activity 8, 9, 10 <i>States of Matter Reader</i> Weather Watching Activity 7 <i>Weather Watching Reader</i> Earth Movements Activity 5, 10 <i>Earth Movements Reader</i></p>	<p><i>Pages 3-6</i> <i>Pages 4-5</i></p> <p>Pages 65-88 <i>Pages 7-10</i></p> <p>Pages 61-68 <i>Pages 4-5</i></p> <p>Pages 47-54, 87-96 <i>Pages 10-11, 12-13</i></p>

	Water Cycle Activity 1, 4, 5, 6, 8, 9, 12, 13 <i>Water Cycle Reader</i> Weather Instruments Activity 7, 11	P 13-22, 39-60, 69-84, 99-114 <i>Pages 4, 6, 7, 8-9, 10-11</i> Pages 59-66, 89-96
5. Students will identify that the position of an object can be described by its location relative to another object and its motions described, and measured by external forces action upon it.	Force and Motion Activity 1, 2, 3, 4 <i>Force and Motion Reader</i> Weather Watching Activity 4 <i>Earth Movements Reader</i> Magnets Activity 7, 8 Solar System Activity 2, 10 Weather Instruments Activity 2	Pages 13-48 <i>Page 2-4</i> Pages 37-44 <i>Pages 6-8, 9-10</i> Pages 47-58 Pages 21-26, 83-92 Pages 23-29
6. Students will identify, build, and describe mechanical systems and the forces acting within those systems.	Force and Motion Activity 6, 7, 8 <i>Force and Motion Reader</i> Weather Watching Activity 4 [Note: This benchmark is addressed in the grades 2 and 4 essential learning expectations]	Pages 57-82 <i>Pages 5-6, 8</i> Pages 37-44
7. Students will observe, measure and manipulate forms of energy: sound, light, heat, electrical, magnetic	Using Your Senses Activity 3, 5, 6 States of Matter Activity 4, 5, 6, 7, 8, 9 Weather Watching Activity 2, 3 Earth Movements Activity 11 Electrical Circuits Activity 3, 4, 5 Food Chains and Webs Activity 3 Magnets Activity 3, 4 Sound Activity 3, 4, 5, 6, 7, 8 Weather Instruments Activity 1 Science Extension	Pages 31-36, 45-60 Pages 35-79 Pages 21-36 Pages 97-103 Pages 27-50 Pages 31-38 Pages 25-34 Pages 29-72 Page 21

Science 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.

<i>BENCHMARK</i>	<i>DSM ACTIVITIES</i>	<i>PAGE NUMBERS</i>
1. Students will identify that plants and animals have structures and systems that serve different functions for growth, survival, and reproduction.	Butterflies and Moths Activity 2, 3, 10 <i>Butterflies and Moths Reader</i> Classroom Plants Activity 1, 2, 9, 11 <i>Classroom Plants</i> Plant and Animal Populations Activity 1, 3	Pages 23-38, 89-96 <i>Pages 4-5</i> Pages 15-28, 81-86, 97-104 <i>Pages 6-12</i> Pages 15-24, 35-42

	Using Your Senses Activity 1, 2, 7 Dinosaurs and Fossils Activity 8 Food Chains and Webs Activity 4, 5, 6 <i>Food Chains and Webs Readers</i> Plant and Animal Life Cycles Activity 3, 4, 5 <i>Plant and Animal Life Cycles Reader</i>	Pages 13-30, 61-66 Pages 61-66 Pages 39-58 <i>Pages 4-5</i> Pages 33-56 <i>Pages 4-5, 6</i>
2. Students will identify, measure, and describe basic requirements of energy and nutritional needs for an organism.	Butterflies and Moths Activity 1 <i>Butterflies and Moths Reader</i> Classroom Plants Activity 5 <i>Classroom Plants Reader</i> Plant and Animal Populations Activity 4, 5 <i>Plant and Animal Populations Reader</i> Food Chains and Webs Activity 2, 3 <i>Food Chains and Webs Reader</i> Plant and Animal Life Cycles Activity 2	Pages 15-22 <i>Page 2</i> Pages 47-54 <i>Pages 7, 9, 15</i> Pages 43-57 <i>Pages 4-5, 12-13</i> Pages 23-38 <i>Pages 6-9</i> Pages 23-32
3. Students will describe and use models that trace the life cycles of different plants and animals and discuss how they differ from species to species.	Butterflies and Moths Activity 11 <i>Butterflies and Moths Reader</i> Classroom Plants Activity 9 Science and Language Arts <i>Classroom Plants Reader</i> Plant and Animal Life Cycles Activity 2, 4, 5, 8, 9, 10, 11 <i>Plant and Animal Life Cycles Reader</i>	Pages 97-104 <i>Pages 8-12, 13</i> Page 86 <i>Page 5</i> Pages 23-32, 43-56, 75-104 <i>Pages 2-13</i>
4. Students will 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.	Butterflies and Moths Activity 7, 8, 10 <i>Butterflies and Moths Reader</i> Classroom Plants Activity 5 Plant and Animal Populations Activity 5, 6, 7, 8, 9 <i>Plant and Animal Populations Reader</i> <i>Dinosaurs and Fossils Reader</i> Food Chains and Webs Activity 7 <i>Food Chains and Webs Reader</i> [Note: This benchmark is addressed in the grades 2 and 4 essential learning expectations]	Pages 61-78, 89-96 <i>Page 15</i> Pages 47-54 Pages 51-93 <i>Pages 4-7, 8-9, 15</i> <i>Page 13</i> Pages 59-66 <i>Pages 2-10, 14, 15</i>
5. Students will create and use a classification system to group a variety of plants and animals according to their similarities and differences.	Butterflies and Moths Activity 9, 10, 12 Dinosaurs and Fossils Activity 10, 11 <i>Dinosaurs and Fossils Reader</i> Food Chains and Webs Activity 9 <i>Food Chains and Webs Reader</i> Plant and Animal Life Cycles Activity 1, 11	Pages 79-96, 105-110 Pages 75-90 <i>Pages 2-3</i> Pages 73-79 <i>Pages 6-7</i> Pages 15-22, 97-104

	<i>Plant and Animal Life Cycles Reader</i>	<i>Pages 2-3</i>
	[Note: This benchmark is addressed in the grade 4 essential learning expectations]	

Science 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.

BENCHMARK	DSM ACTIVITIES	PAGE NUMBERS
1. Students will describe and give examples of Earth's changing features.	Soil Science Activity 5, 10 <i>Soil Science Reader</i> Earth Movements Activity 6, 7, 8, 9, 10, 11, 12 <i>Earth Movements Reader</i>	Pages 45-50, 91-98 <i>Pages 4-5, 9</i> Pages 55-110 <i>Pages 4-5, 6-13, 15</i>
2. Students will describe and measure the physical properties of Earth's basic materials (including soil, rocks, water and gases) and the resources they provide.	Classroom Plants Activity 3 Science Extension 2 <i>Classroom Plants Reader</i> Sink or Float? Activity 7 <i>Sink or Float? Reader</i> Soil Science Activity 1, 2, 3, 4 <i>Soil Science Reader</i> States of Matter Activity 2, 3, 4 <i>States of matter Reader</i> Weather Watching Activity 4, 5, 6, 7 <i>Weather Watching Reader</i> Earth Movements Activity 2, 3 <i>Earth Movements Reader</i> Food Chains and Webs Activity 1, 2 Water Cycle Activity 1, 2, 3, 4, 5, 9, 10 <i>Water Cycle Reader</i> Weather Instruments Activity 1, 2, 3, 4, 5, 6, 7, 8 <i>Weather Instruments Reader</i> [Note: This benchmark is addressed in the grade 4 essential learning expectations]	Page 37 <i>Pages 4, 15</i> Pages 61-66 <i>Pages 7-8</i> Pages 15-44 <i>Pages 2-3, 7-8, 10-11</i> Pages 19-40 <i>Pages 2-6, 7-10, 11, 12</i> Pages 37-68 <i>Pages 4-5</i> Pages 21-38 <i>Pages 12-13, 15</i> Pages 15-30 Pages 13-52, 77-90 <i>Pages 8-9, 10-12, 14-15</i> Pages 13-74 <i>Pages 2, 6</i>
3. Students will investigate fossils and make inferences about life the plants, animals, and the environment at that time.	Dinosaurs and Fossils Activity 1, 2, 3, 8 <i>Dinosaurs and Fossils Reader</i> <i>Earth Movements Reader</i> [Note: This benchmark is addressed in the grade 4 essential learning expectations]	Pages 13-34, 61-66 <i>Pages 4-5, 6-7</i> Page 6
4. Students will observe and describe the water cycle and the local weather and demonstrate how weather conditions are	Weather Watching Activity 6, 7, 12 <i>Weather Watching Reader</i> Water Cycle	Pages 51-68, 109-116 <i>Pages 2-5</i>

measured.	Activity 13 <i>Water Cycle Reader</i> Weather Instruments Activity 11 <i>Weather Instruments Reader</i>	Pages 107-114 <i>Pages 10-12</i> Pages 89-96 <i>Pages 2, 3-5, 6, 7-9</i>
5. Students will identify seasons and explain the difference between weather and climate.	Weather Watching Activity 1 <i>Weather Watching Reader</i> Solar System Activity 9 Science Challenge <i>Water Cycle Reader</i> Weather Instruments Activity 12	Pages 13-19 <i>Pages 8-9, 10-12</i> Page 81 <i>Page 12</i> Pages 97-101
6. Students will identify objects (e.g., moon, stars, meteors) in the sky and their patterns of movement and explain that light and heat comes from a star called the Sun.	Weather Watching Activity 3 <i>Weather Watching Reader</i> Solar System Activity 1, 2, 12 <i>Solar System Reader</i> <i>Weather Instruments Reader</i>	Pages 29-36 <i>Page 10</i> Pages 13-26, 101-110 <i>Pages 2-3, 13</i> <i>Page 2</i>
7. Students will identify technology and methods used for space exploration (e.g. star parties, space shuttles, telescopes).	Solar System Activity 2 Science, Tech, and Society <i>Solar System Reader</i>	Page 26 <i>Page 15</i>

Science Content Standard 5

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

BENCHMARK	DSM ACTIVITIES	PAGE NUMBERS
1. Students will describe and discuss examples of how people use science and technology.	Butterflies and Moths Activity 3, 6 Science, Tech, & Society Classroom Plants Activity 2 Science, Tech, and Society <i>Classroom Plants Reader</i> Force and Motion Activity 4 Science Challenge <i>Force and Motion Reader</i> Plant and Animal Populations Activity 2 Science and Careers Sink or Float? Activity 12 <i>Sink or Float? Reader</i> Soil Science Activity 12 Science, Tech, and Society <i>Soil Science Reader</i> States of Matter Activity 5 Science and Careers, 12 <i>States of Matter Reader</i> Using Your Senses Activity 8 Science at Home <i>Using Your Senses Reader</i> Weather Watching Activity 1 <i>Weather Watching Reader</i> Dinosaurs and Fossils Activity 12 Science and Careers <i>Dinosaurs and Fossils Reader</i>	Pages 38, 59 Page 28 <i>Pages 14-15</i> Page 47 <i>Page 5, 9, 14</i> Page 33 Pages 97-103 <i>Pages 12-13</i> Page 114 <i>Pages 10-12, 13</i> Pages 50, 97-101 <i>Pages 12, 14, 15</i> Page 72 <i>Pages 13-15</i> Pages 13-19 <i>Pages 6-7, 14-15</i> Page 95 <i>Pages 5, 12</i>

	<p>Earth Movements Activity 3 Science and Health <i>Earth Movements Reader</i></p> <p>Electrical Circuits Activity 11 <i>Electrical Circuits Reader</i></p> <p>Food Chains and Webs Activity 9 Science and Social Studies <i>Food Chains and Webs Reader</i></p> <p>Magnets Activity 8 Science and Careers <i>Magnets Reader</i></p> <p>Plant and Animal Life Cycles Activity 7 Science, Tech, and Society</p> <p>Solar System Activity 7 <i>Solar System Reader</i></p> <p>Sound Activity 8 Science, Tech, and Society <i>Sound Reader</i></p> <p>Water Cycle Activity 8 Science, Tech, and Society <i>Water Cycle Reader</i></p> <p>Weather Instruments Activity 12 <i>Weather Instruments Reader</i></p> <p>[Note: This benchmark is addressed in the grades 1, 2 and 4 essential learning expectations]</p>	<p>Page 37 <i>Pages 6-8, 10, 14</i></p> <p>Pages 83-88 <i>Pages 10, 11, 14-15</i></p> <p>Page 79 <i>Page 13</i></p> <p>Page 58 <i>Pages 8-9, 10-12, 14, 15</i></p> <p>Page 73</p> <p>Pages 59-64 <i>Page 15</i></p> <p>Page 72 <i>Pages 12-13, 14, 15</i></p> <p>Page 76 <i>Pages 14-15</i></p> <p>Pages 97-101 <i>Pages 3-5, 7-9, 12-13, 14</i></p>
<p>2. Students will describe a scientific or technological innovation that impacts communities, cultures, and societies.</p>	<p>Butterflies and Moths Activity 5, 6 Science, Tech, & Society</p> <p>Classroom Plants Activity 1, 12 Science, Tech, & Society <i>Classroom Plants Reader</i></p> <p>Force and Motion Activity 5 Science and Social Studies Activity 9 Science and Health <i>Force and Motion Reader</i></p> <p>Sink or Float? Activity 12 Science, Tech, and Society</p> <p>Soil Science Activity 12 <i>Soil Science Reader</i></p> <p>States of Matter Activity 6 Science and Careers</p> <p>Using Your Senses Activity 8 Science at Home <i>Using Your Senses Reader</i></p> <p>Weather Watching Activity 9 Science, Tech, and Society <i>Weather Watching Reader</i></p> <p>Dinosaurs and Fossils Activity 12 Science, Tech, and Society</p> <p>Earth Movements Activity 4 Science, Tech, and Society <i>Earth Movements Reader</i></p> <p>Electrical Circuits Activity 5</p>	<p>Pages 52, 59</p> <p>Page 21, 112 <i>Page 15</i></p> <p>Page 55 Page 90 <i>Pages 5, 12-13, 14</i></p> <p>Page 103</p> <p>Pages 107-114 <i>Pages 10-12</i></p> <p>Page 56</p> <p>Page 72 <i>Pages 13, 14, 15</i></p> <p>Page 86 <i>Pages 6-7, 13, 14-15</i></p> <p>Page 95</p> <p>Page 46 <i>Page 14</i></p> <p>Pages 45-50</p>

	<p><i>Electrical Circuits Reader</i></p> <p>Food Chains and Webs Activity 2 Science and Health <i>Food Chains and Webs Reader</i></p> <p>Magnets Activity 3 Science, Tech, and Society <i>Magnets Reader</i></p> <p>Plant and Animal Life Cycles Activity 7 Science, Tech, and Society</p> <p>Solar System Activity 2 Science, Tech, and Society 1</p> <p>Sound Activity 4, 5 Science, Tech, & Society <i>Sound Reader</i></p> <p>Water Cycle Activity 7 Science, Tech, & Society <i>Water Cycle Reader</i></p> <p>Weather Instruments Activity 12 Science, Tech, and Society <i>Weather Instruments Reader</i></p>	<p><i>Pages 10, 11, 12, 13, 14</i></p> <p>Page 29 <i>Page 11</i></p> <p>Page 28 <i>Pages 8-10, 13, 14, 15</i></p> <p>Page 73</p> <p>Page 26</p> <p>Pages 43, 50 <i>Pages 14, 15</i></p> <p>Page 67 <i>Pages 13, 14-15</i></p> <p>Page 101 <i>Pages 4, 5, 9, 10, 11, 12-13</i></p>
3. Students will simulate scientific collaboration by sharing and communicating ideas to identify and describe problems.	<p>Butterflies and Moths Activity 8 Science, Tech, & Society</p> <p>Classroom Plants Activity 11 Science, Tech, and Society</p> <p>Force and Motion Activity 4 Science Challenge</p> <p>Plant and Animal Populations Activity 9</p> <p>Sink or Float? Activity 12</p> <p>Soil Science Activity 11 Science Challenge</p> <p>States of Matter Activity 5 Science, Tech, and Society</p> <p>Dinosaurs and Fossils Activity 8</p> <p>Electrical Circuits Activity 10</p> <p>Food Chains and Webs Activity 11</p> <p>Magnets Activity 12</p> <p>Plant and Animal Life Cycles Activity 7</p> <p>Water Cycle Activity 11</p> <p>Weather Instruments Activity 6</p> <p>[Note: This benchmark is addressed in the grade 4 essential learning expectations]</p>	<p>Page 77</p> <p>Page 104</p> <p>Page 47</p> <p>Pages 85-93</p> <p>Pages 97-103</p> <p>Page 105</p> <p>Page 50</p> <p>Pages 61-66</p> <p>Pages 77-82</p> <p>Pages 89-95</p> <p>Pages 77-81</p> <p>Pages 65-73</p> <p>Pages 91-98</p> <p>Pages 51-57</p>
4. Students will use scientific knowledge to make inferences and propose solutions for simple environmental problems.	<p>Classroom Plants Activity 6 Science, Tech, and Society</p> <p>Force and Motion Activity 6 Science and Social Studies</p> <p>Plant and Animal Populations Activity 5 Science, Tech, and Society</p> <p>Soil Science</p>	<p>Page 64</p> <p>Page 64</p> <p>Page 57</p>

	Activity 10 States of Matter Activity 5 Science and Health Earth Movements Activity 4 Science, Tech, and Society Electrical Circuits Activity 6 Science Extension 2 Food Chains and Webs Activity 9 Plant and Animal Life Cycles Activity 7 Science, Tech, and Society Water Cycle Activity 9, 12 Science, Tech, & Society	Pages 91-97 Page 50 Page 46 Page 55 Pages 73-79 Page 73 Page 83, 106
5. Students will identify how the knowledge of science and technology influences the development of the Montana American cultures.	This is a local benchmark that can be addressed in a culturally appropriate way through connections that Montana teachers will make between science/technology observations in DSM and local environments and customs.	

Science Content Standard 6

Students understand historical developments in science and technology.

<i>BENCHMARKS</i>	<i>DSM ACTIVITIES</i>	<i>PAGE NUMBERS</i>
1. Students will give historical examples of scientific and technological contributions to communities, cultures and societies, including Montana American Indian examples.	Butterflies and Moths Activity 2 Science and Social Studies <i>Classroom Plants Reader</i> Force and Motion Activity 1 Science and Social Studies <i>Force and Motion Reader</i> Sink or Float? Activity 12 Science, Tech, and Society States of Matter Activity 6 Science and Social Studies Using Your Senses Activity 1 Science and Social Studies <i>Using Your Senses Reader</i> Weather Watching Activity 2 <i>Weather Watching Reader</i> Dinosaurs and Fossils Activity 3 Science and Social Studies <i>Dinosaurs and Fossils Reader</i> <i>Earth Movements Reader</i> Electrical Circuits Activity 3 Science and Social Studies <i>Electrical Circuits Reader</i> <i>Food Chains and Webs Reader</i> Magnets Activity 4 Science and Social Studies <i>Magnets Reader</i> <i>Plant and Animal Life Cycles Reader</i> Solar System Activity 2 Science and Social Studies Sound Activity 7 Science and Social Studies <i>Sound Reader</i> Water Cycle Activity 10 Science and Social Studies	 Page 30 <i>Page 14</i> Page 22 <i>Pages 12-13</i> Page 103 Page 56 Page 21 <i>Pages 14-15</i> Pages 21-28 <i>Pages 13, 15</i> Page 34 <i>Pages 14-15</i> <i>Page 6, 14</i> Page 35 <i>Pages 12-13</i> <i>Pages 11, 12</i> Page 34 <i>Pages 8-9, 13, 14, 15</i> <i>Page 14</i> Page 26 Page 65 <i>Page 5</i> Page 89

	<i>Water Cycle Reader</i> Weather Instruments Activity 1 Science and Social Studies <i>Weather Instruments Reader</i>	<i>Page 13</i> <i>Page 21</i> <i>Pages 10-11</i>
2. Students will describe how scientific inquiry has produced much knowledge about the world and a variety of contributions toward understanding events and phenomenon within the universe.	Butterflies and Moths Activity 2 Science and Social Studies <i>Butterflies and Moths Reader</i> <i>Classroom Plants Reader</i> Plant and Animal Populations Activity 9 Sink or Float? Activity 8, 9 Soil Science Activity 12 <i>Soil Science Reader</i> States of Matter Activity 5 <i>States of Matter Reader</i> Weather Watching Activity 12 <i>Weather Watching Reader</i> Dinosaurs and Fossils Activity 6, 7 <i>Dinosaurs and Fossils Reader</i> Earth Movements Activity 6, 7, 8, 9 <i>Earth Movements Reader</i> Electrical Circuits Activity 9 Science and Social Studies <i>Electrical Circuits Reader</i> <i>Food Chains and Webs Reader</i> Magnets Activity 12 <i>Magnets Reader</i> <i>Plant and Animal Life Cycles Reader</i> <i>Solar System Reader</i> Water Cycle Activity 10 Science Connections <i>Water Cycle Reader</i> <i>Weather Instruments Reader</i>	<i>Page 30</i> <i>Page 14</i> <i>Page 14</i> Pages 85-93 Pages 67-80 Pages 107-114 <i>Page 13</i> Pages 41-50 <i>Page 14</i> Pages 109-116 <i>Page 13-15</i> Pages 47-60 <i>Pages 4-5, 13</i> Pages 55-85 <i>Page 14</i> Page 76 <i>Pages 12-13</i> <i>Page 11, 12, 13</i> Pages 77-81 <i>Page 13</i> <i>Page 14</i> <i>Page 14</i> Page 89 <i>Page 13</i> <i>Pages 10-11</i>
3. Students will describe science as a human endeavor and an ongoing process.	Butterflies and Moths Activity 5 Science, Tech, and Society <i>Butterflies and Moths Reader</i> Classroom Plants Activity 6 Science, Tech, and Society <i>Classroom Plants Reader</i> Force and Motion Activity 9 Science and the Arts <i>Force and Motion Reader</i> Sink or Float? Activity 9 Science Challenge <i>Sink or Float? Reader</i> <i>Soil Science Reader</i> <i>States of Matter Reader</i> <i>Using Your Senses Reader</i> Weather Watching Activity 12 <i>Weather Watching Reader</i> Dinosaurs and Fossils	<i>Page 52</i> <i>Page 14</i> Page 64 <i>Page 14</i> Page 90 <i>Pages 12-13</i> Page 80 <i>Pages 12-13</i> <i>Page 13</i> <i>Page 14</i> <i>Pages 14-15</i> Pages 109-116 <i>Pages 13-15</i>

	Activity 10 <i>Dinosaurs and Fossils Reader</i>	Pages 75-82 Pages 13-15
	Earth Movements Activity 6, 7, 8, 9 <i>Earth Movements Reader</i>	Pages 55-85 Pages 6-7, 14
	Electrical Circuits Activity 8 Science, Tech, and Society <i>Electrical Circuits Reader</i> <i>Food Chains and Webs Reader</i>	Page 70 Pages 12-13 Pages 11, 12, 13
	Magnets Activity 12 <i>Magnets Reader</i> <i>Plant and Animal Life Cycles Reader</i>	Pages 77-81 Pages 13, 14, 15 Page 14
	Solar System Activity 10 Science, Tech, and Society <i>Solar System Reader</i>	Page 92 Pages 14, 15
	Sound Activity 6 Science, Tech, and Society <i>Sound Reader</i>	Page 57 Page 14
	Water Cycle Activity 3 Science, Tech, & Society 1 <i>Water Cycle Reader</i> <i>Weather Instruments Reader</i>	Page 37 Page 14 Pages 10, 11, 12

End of Grade Four Benchmarks

Grade Four

Science 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.

<i>BENCHMARK</i>	<i>DSM ACTIVITIES</i>	<i>PAGE NUMBERS</i>
1. Students will 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.	Electrical Circuits Activity 11 Science Challenge Food Chains and Webs Activity 2 Magnets Activity 4, 6 Water Cycle Activity 5	Page 88 Pages 23-30 Pages 29-34, 41-46 Pages 45-51
2. Students will select and use appropriate tools including technology to make measurements (including metric units) and represent results of basic scientific investigations.	Dinosaurs and Fossils Activity 6 Food Chains and Webs Activity 2 Plant and Animal Life Cycles Activity 6 Solar System Activity 5, 6, 7, 8 Water Cycle Activity 1, 2 Weather Instruments Activity 1, 3, 4, 5, 6, 7, 8	Pages 47-53 Pages 23-30 Pages 57-63 Pages 43-72 Pages 13-29 Pages 13-22, 31-74
3. Students will use data to describe and communicate the results of scientific investigations.	Dinosaurs and Fossils Activity 6 Food Chains and Webs Activity 2 Magnets Activity 4 Plant and Animal Life Cycles Activity 7, 9 Solar System Activity 5, 6 Sound Activity 5 Water Cycle Activity 1, 2 Weather Instruments Activity 1, 3, 4, 5, 6, 7, 8	Pages 47-53 Pages 23-30 Pages 29-34 Pages 65-73, 83-89 Pages 43-58 Pages 45-50 Pages 13-29 Pages 13-22, 31-74
4. Students will use models that illustrate simple concepts and compare those models to the actual phenomenon.	Dinosaurs and Fossils Activity 3 Earth Movements Activity 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 Electrical Circuits Activity 9, 10, 11 Food Chains and Webs Activity 11, 12 Magnets Activity 8 Solar System Activity 2, 3, 6, 8, 9	Pages 29-34 Pages 13-104 Pages 71-88 Pages 89-101 Pages 53-58 Pages 21-34, 51-58, 65-82

	Water Cycle Activity 9, 10, 11, 12, 13 Weather Instruments Activity 9	Pages 77-114 Pages 75-80
5. Students will identify a valid test in an investigation.	Electrical Circuits Activity 6, 7 Food Chains and Webs Activity 2 Magnets Activity 2, 3 Plant and Animal Life Cycles Activity 1 Sound Activity 5 Water Cycle Activity 6 Weather Instruments Activity 7	Pages 51-62 Pages 23-30 Pages 19-28 Pages 15-21 Pages 45-50 Pages 53-60 Pages 59-66
6. Students will identify how observations of nature form an essential base of knowledge among the Montana American Indians.	This is a local benchmark that can be addressed in a culturally appropriate way through connections that Montana teachers will make between science/nature observations in DSM and local environments and customs.	

Science Content Standard 2

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

<i>BENCHMARK</i>	<i>DSM ACTIVITIES</i>	<i>PAGE NUMBERS</i>
1. Students will create mixtures and separate them based on different physical properties (e.g., salt and sand, iron filings and soil, oil and water).		
2. Students will examine, measure, describe, compare and classify objects in terms of common physical properties.	Dinosaurs and Fossils Activity 9, 10, 11 Electrical Circuits Activity 6, 7 Food Chains and Webs Activity 1 Magnets Activity 2, 3, 4 <i>Solar System Reader</i> Sound Activity 1 Weather Instruments Activity 10	Pages 67-90 Pages 51-62 Pages 15-22 Pages 19-34 <i>Pages 4-13</i> Pages 13-20 Pages 81-88
3. Students will identify the basic characteristics of light, heat, motion, magnetism, electricity and sound.	Earth Movements Activity 4 <i>Earth Movements Reader</i> Electrical Circuits Activity 1, 2, 3, 4, 5, 6, 7, 8, 9 <i>Electrical Circuits Reader</i> Magnets Activity 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11 <i>Magnets Reader</i> Solar System Activity 11	Pages 39-46 <i>Pages 9-11</i> Pages 13-76 <i>Pages 2, 3, 4, 8-9, 10</i> Pages 13-76 <i>Pages 2-3, 4-5, 6</i> Pages 93-100

	Sound Activity 1, 2, 3, 7, 8, 9 <i>Sound Reader</i> Weather Instruments Activity 1 Science Extension	Pages 13-36, 59-82 <i>Pages 2-3, 4-5, 6-7, 8</i> Page 21
4. Students will model and explain that matter exists as solids, liquids, and gases and can change from one form to another.	Earth Movements Activity 5, 10 <i>Earth Movements Reader</i> Water Cycle Activity 1, 4, 5, 6, 8, 9, 12, 13 <i>Water Cycle Reader</i> Weather Instruments Activity 7, 11	Pages 47-54, 87-96 <i>Pages 10-11, 12-13</i> P 13-22, 39-60, 69-84, 99-114 <i>Pages 4, 6, 7, 8-9, 10-11</i> Pages 59-66, 89-96
5. Students will identify that the position of an object can be described by its location relative to another object and its motions described, and measured by external forces action upon it.	<i>Earth Movements Reader</i> Magnets Activity 7, 8 Solar System Activity 2, 10 Weather Instruments Activity 2	<i>Pages 6-8, 9-10</i> Pages 47-58 Pages 21-26, 83-92 Pages 23-29
6. Students will identify, build, and describe mechanical systems and the forces acting within those systems.		
7. Students will observe, measure and manipulate forms of energy: sound, light, heat, electrical, magnetic	Earth Movements Activity 11 Electrical Circuits Activity 3, 4, 5 Food Chains and Webs Activity 3 Magnets Activity 3, 4 Sound Activity 3, 4, 5, 6, 7, 8 Weather Instruments Activity 1 Science Extension	Pages 97-103 Pages 27-50 Pages 31-38 Pages 25-34 Pages 29-72 Page 21

Science 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.

<i>BENCHMARK</i>	<i>DSM ACTIVITIES</i>	<i>PAGE NUMBERS</i>
1. Students will identify that plants and animals have structures and systems that serve different functions for growth, survival, and reproduction.	Dinosaurs and Fossils Activity 8 Food Chains and Webs Activity 4, 5, 6 <i>Food Chains and Webs Readers</i> Plant and Animal Life Cycles Activity 3, 4, 5 <i>Plant and Animal Life Cycles Reader</i>	Pages 61-66 Pages 39-58 <i>Pages 4-5</i> Pages 33-56 <i>Pages 4-5, 6</i>
2. Students will identify, measure, and describe basic requirements of energy and nutritional needs for an organism.	Food Chains and Webs Activity 2, 3 <i>Food Chains and Webs Reader</i> Plant and Animal Life Cycles Activity 2	Pages 23-38 <i>Pages 6-9</i> Pages 23-32
3. Students will describe and use models that trace the life cycles of different plants and animals	Plant and Animal Life Cycles Activity 2, 4, 5, 8, 9, 10, 11 <i>Plant and Animal Life Cycles Reader</i>	Pages 23-32, 43-56, 75-104 <i>Pages 2-13</i>

and discuss how they differ from species to species.	[Note: This benchmark is addressed in the grades 2 and 3 essential learning expectations]	
4. Students will 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.	<i>Dinosaurs and Fossils Reader</i> Food Chains and Webs Activity 7 <i>Food Chains and Webs Reader</i>	<i>Page 13</i> Pages 59-66 <i>Pages 2-10, 14, 15</i>
5. Students will create and use a classification system to group a variety of plants and animals according to their similarities and differences.	Dinosaurs and Fossils Activity 10, 11 <i>Dinosaurs and Fossils Reader</i> Food Chains and Webs Activity 9 <i>Food Chains and Webs Reader</i> Plant and Animal Life Cycles Activity 1, 11 <i>Plant and Animal Life Cycles Reader</i>	Pages 75-90 <i>Pages 2-3</i> Pages 73-79 <i>Pages 6-7</i> Pages 15-22, 97-104 <i>Pages 2-3</i>

Science 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.

<i>BENCHMARK</i>	<i>DSM ACTIVITIES</i>	<i>PAGE NUMBERS</i>
1. Students will describe and give examples of Earth's changing features.	Earth Movements Activity 6, 7, 8, 9, 10, 11, 12 <i>Earth Movements Reader</i>	Pages 55-110 <i>Pages 4-5, 6-13, 15</i>
2. Students will describe and measure the physical properties of Earth's basic materials (including soil, rocks, water and gases) and the resources they provide.	Earth Movements Activity 2, 3 <i>Earth Movements Reader</i> Food Chains and Webs Activity 1, 2 Water Cycle Activity 1, 2, 3, 4, 5, 9, 10 <i>Water Cycle Reader</i> Weather Instruments Activity 1, 2, 3, 4, 5, 6, 7, 8 <i>Weather Instruments Reader</i>	Pages 21-38 <i>Pages 12-13, 15</i> Pages 15-30 Pages 13-52, 77-90 <i>Pages 8-9, 10-12, 14-15</i> Pages 13-74 <i>Pages 2, 6</i>
3. Students will investigate fossils and make inferences about life the plants, animals, and the environment at that time.	Dinosaurs and Fossils Activity 1, 2, 3, 8 <i>Dinosaurs and Fossils Reader</i> <i>Earth Movements Reader</i>	Pages 13-34, 61-66 <i>Pages 4-5, 6-7</i> <i>Page 6</i>
4. Students will observe and describe the water cycle and the local weather and demonstrate how weather conditions are measured.	Water Cycle Activity 13 <i>Water Cycle Reader</i> Weather Instruments Activity 11 <i>Weather Instruments Reader</i>	Pages 107-114 <i>Pages 10-12</i> Pages 89-96 <i>Pages 2, 3-5, 6, 7-9</i>
5. Students will identify seasons and explain the difference between weather and climate.	Solar System Activity 9 Science Challenge <i>Water Cycle Reader</i> Weather Instruments Activity 12 [Note: This benchmark is addressed in the grade 3 essential learning	Page 81 <i>Page 12</i> Pages 97-101

	expectations]	
6. Students will identify objects (e.g., moon, stars, meteors) in the sky and their patterns of movement and explain that light and heat comes from a star called the Sun.	Solar System Activity 1, 2, 12 <i>Solar System Reader</i> <i>Weather Instruments Reader</i>	Pages 13-26, 101-110 <i>Pages 2-3, 13</i> <i>Page 2</i>
7. Students will identify technology and methods used for space exploration (e.g. star parties, space shuttles, telescopes).	Solar System Activity 2 Science, Tech, and Society <i>Solar System Reader</i> [Note: This benchmark is addressed in the grades 1 and 3 essential learning expectations]	Page 26 <i>Page 15</i>

Science Content Standard 5

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

<i>BENCHMARK</i>	<i>DSM ACTIVITIES</i>	<i>PAGE NUMBERS</i>
1. Students will describe and discuss examples of how people use science and technology.	Dinosaurs and Fossils Activity 12 Science and Careers <i>Dinosaurs and Fossils Reader</i> Earth Movements Activity 3 Science and Health <i>Earth Movements Reader</i> Electrical Circuits Activity 11 <i>Electrical Circuits Reader</i> Food Chains and Webs Activity 9 Science and Social Studies <i>Food Chains and Webs Reader</i> Magnets Activity 8 Science and Careers <i>Magnets Reader</i> Plant and Animal Life Cycles Activity 7 Science, Tech, and Society Solar System Activity 7 <i>Solar System Reader</i> Sound Activity 8 Science, Tech, and Society <i>Sound Reader</i> Water Cycle Activity 8 Science, Tech, and Society <i>Water Cycle Reader</i> Weather Instruments Activity 12 <i>Weather Instruments Reader</i>	Page 95 <i>Pages 5, 12</i> Page 37 <i>Pages 6-8, 10, 14</i> Pages 83-88 <i>Pages 10, 11, 14-15</i> Page 79 <i>Page 13</i> Page 58 <i>Pages 8-9, 10-12, 14, 15</i> Page 73 Pages 59-64 <i>Page 15</i> Page 72 <i>Pages 12-13, 14, 15</i> Page 76 <i>Pages 14-15</i> Pages 97-101 <i>Pages 3-5, 7-9, 12-13, 14</i>
2. Students will describe a scientific or technological innovation that impacts communities, cultures, and societies.	Dinosaurs and Fossils Activity 12 Science, Tech, and Society Earth Movements Activity 4 Science, Tech, and Society <i>Earth Movements Reader</i> Electrical Circuits Activity 5 <i>Electrical Circuits Reader</i> Food Chains and Webs Activity 2 Science and Health <i>Food Chains and Webs Reader</i>	Page 95 Page 46 <i>Page 14</i> Pages 45-50 <i>Pages 10, 11, 12, 13, 14</i> Page 29 <i>Page 11</i>

	Magnets Activity 3 Science, Tech, and Society <i>Magnets Reader</i> Plant and Animal Life Cycles Activity 7 Science, Tech, and Society Solar System Activity 2 Science, Tech, and Society 1 Sound Activity 4, 5 Science, Tech, & Society <i>Sound Reader</i> Water Cycle Activity 7 Science, Tech, & Society <i>Water Cycle Reader</i> Weather Instruments Activity 12 Science, Tech, and Society <i>Weather Instruments Reader</i>	Page 28 <i>Pages 8-10, 13, 14, 15</i> Page 73 Page 26 Pages 43, 50 <i>Pages 14, 15</i> Page 67 <i>Pages 13, 14-15</i> Page 101 <i>Pages 4, 5, 9, 10, 11, 12-13</i>
3. Students will simulate scientific collaboration by sharing and communicating ideas to identify and describe problems.	Dinosaurs and Fossils Activity 8 Electrical Circuits Activity 10 Food Chains and Webs Activity 11 Magnets Activity 12 Plant and Animal Life Cycles Activity 7 Water Cycle Activity 11 Weather Instruments Activity 6	Pages 61-66 Pages 77-82 Pages 89-95 Pages 77-81 Pages 65-73 Pages 91-98 Pages 51-57
4. Students will use scientific knowledge to make inferences and propose solutions for simple environmental problems.	Earth Movements Activity 4 Science, Tech, and Society Electrical Circuits Activity 6 Science Extension 2 Food Chains and Webs Activity 9 Plant and Animal Life Cycles Activity 7 Science, Tech, and Society Water Cycle Activity 9, 12 Science, Tech, & Society	Page 46 Page 55 Pages 73-79 Page 73 Page 83, 106
5. Students will identify how the knowledge of science and technology influences the development of the Montana American cultures.	This is a local benchmark that can be addressed in a culturally appropriate way through connections that Montana teachers will make between science/technology observations in DSM and local environments and customs.	

Science Content Standard 6

Students understand historical developments in science and technology.

<i>BENCHMARKS</i>	<i>DSM ACTIVITIES</i>	<i>PAGE NUMBERS</i>
1. Students will give historical examples of scientific and technological contributions to communities, cultures and societies, including Montana American Indian examples.	Dinosaurs and Fossils Activity 3 Science and Social Studies <i>Dinosaurs and Fossils Reader</i> <i>Earth Movements Reader</i> Electrical Circuits Activity 3 Science and Social Studies <i>Electrical Circuits Reader</i>	Page 34 <i>Pages 14-15</i> <i>Page 6, 14</i> Page 35 <i>Pages 12-13</i>

	<p><i>Food Chains and Webs Reader</i></p> <p>Magnets Activity 4 Science and Social Studies <i>Magnets Reader</i></p> <p><i>Plant and Animal Life Cycles Reader</i></p> <p>Solar System Activity 2 Science and Social Studies</p> <p>Sound Activity 7 Science and Social Studies <i>Sound Reader</i></p> <p>Water Cycle Activity 10 Science and Social Studies <i>Water Cycle Reader</i></p> <p>Weather Instruments Activity 1 Science and Social Studies <i>Weather Instruments Reader</i></p>	<p><i>Pages 11, 12</i></p> <p>Page 34 <i>Pages 8-9, 13, 14, 15</i> Page 14</p> <p>Page 26</p> <p>Page 65 Page 5</p> <p>Page 89 Page 13</p> <p>Page 21 <i>Pages 10-11</i></p>
<p>2. Students will describe how scientific inquiry has produced much knowledge about the world and a variety of contributions toward understanding events and phenomenon within the universe.</p>	<p>Dinosaurs and Fossils Activity 6, 7 <i>Dinosaurs and Fossils Reader</i></p> <p>Earth Movements Activity 6, 7, 8, 9 <i>Earth Movements Reader</i></p> <p>Electrical Circuits Activity 9 Science and Social Studies <i>Electrical Circuits Reader</i></p> <p><i>Food Chains and Webs Reader</i></p> <p>Magnets Activity 12 <i>Magnets Reader</i></p> <p><i>Plant and Animal Life Cycles Reader</i> <i>Solar System Reader</i></p> <p>Water Cycle Activity 10 Science Connections <i>Water Cycle Reader</i></p> <p><i>Weather Instruments Reader</i></p>	<p><i>Pages 47-60</i> <i>Pages 4-5, 13</i></p> <p><i>Pages 55-85</i> Page 14</p> <p>Page 76 <i>Pages 12-13</i> <i>Page 11, 12, 13</i></p> <p><i>Pages 77-81</i> Page 13 Page 14 Page 14</p> <p>Page 89 Page 13 <i>Pages 10-11</i></p>
<p>3. Students will describe science as a human endeavor and an ongoing process.</p>	<p>Dinosaurs and Fossils Activity 10 <i>Dinosaurs and Fossils Reader</i></p> <p>Earth Movements Activity 6, 7, 8, 9 <i>Earth Movements Reader</i></p> <p>Electrical Circuits Activity 8 Science, Tech, and Society <i>Electrical Circuits Reader</i></p> <p><i>Food Chains and Webs Reader</i></p> <p>Magnets Activity 12 <i>Magnets Reader</i></p> <p><i>Plant and Animal Life Cycles Reader</i></p> <p>Solar System Activity 10 Science, Tech, and Society <i>Solar System Reader</i></p> <p>Sound Activity 6 Science, Tech, and Society <i>Sound Reader</i></p> <p>Water Cycle Activity 3 Science, Tech, & Society 1 <i>Water Cycle Reader</i></p> <p><i>Weather Instruments Reader</i></p>	<p><i>Pages 75-82</i> <i>Pages 13-15</i></p> <p><i>Pages 55-85</i> <i>Pages 6-7, 14</i></p> <p>Page 70 <i>Pages 12-13</i> <i>Pages 11, 12, 13</i></p> <p><i>Pages 77-81</i> <i>Pages 13, 14, 15</i> Page 14</p> <p>Page 92 <i>Pages 14, 15</i></p> <p>Page 57 Page 14</p> <p>Page 37 Page 14 <i>Pages 10, 11, 12</i></p>

End of Grade Eight Benchmarks Grade Five

Science 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.

<i>BENCHMARK</i>	<i>DSM ACTIVITIES</i>	<i>PAGE NUMBERS</i>
1. Students will identify a question, determine relevant variables and a control, formulate a testable hypothesis, plan and predict the outcome of an investigation, safely conduct scientific investigation, and compare and analyze data.	Color and Light Activity 4 Electromagnetism Activity 6 Erosion Activity 5 Pollution Activity 10	Pages 37-44 Pages 43-48 Pages 43-49 Pages 71-76
2. Students will select and use appropriate tools including technology to make measurements (in metric units), gather, process and analyze data from scientific investigations.	Electromagnetism Activity 3 Erosion Activity 4 Flight and Rocketry Activity 9 Oceans Activity 3 Pollution Activity 10 Simple Machines Activity 3 You and Your Body Activity 5 Weather Forecasting Activity 3	Pages 25-29 Pages 37-42 Pages 91-97 Pages 31-42 Pages 71-76 Pages 25-32 Pages 41-48 Pages 25-32
3. Students will review, communicate and defend results of investigations including considering alternative explanations.	Color and Light Activity 10 Electromagnetism Activity 11 Erosion Activity 6 Flight and Rocketry Activity 5 Oceans Activity 10 Science Challenge Rocks and Minerals Activity 10 Science and Math	Pages 85-91 Pages 77-83 Pages 51-57 Pages 55-64 Page 124 Page 84
4. Students will create models to illustrate scientific concepts and use the model to predict change. (e.g., computer simulation, stream table, graphic representation).	Color and Light Activity 11 Electromagnetism Activity 10 Erosion Activity 2 Flight and Rocketry Activity 5 Oceans Activity 5 Pollution Activity 5 Science Extension 2 Rocks and Minerals	Pages 93-100 Pages 69-76 Pages 21-28 Pages 55-64 Pages 55-63 Page 45

	Activity 2, 9 Simple Machines Activity 11 You and Your Body Activity 6 Weather Forecasting Activity 4, 5	Pages 21-28, 69-76 Pages 83-89 Pages 49-54 Pages 33-48
5. Students will identify strengths and weakness in an investigative design.	Electromagnetism Activity 7 Pollution Activity 5 Rocks and Minerals Activity 5, 6 [Note: This benchmark is addressed in the grades 6-8 essential learning expectations]	Pages 49-56 Pages 39-45 Pages 41-54
6. Students will compare how observations of nature form an essential base of knowledge among the Montana American Indians.	This is a local benchmark that can be addressed in a culturally appropriate way through connections that Montana teachers will make between science/nature observations in DSM and local environments and customs.	

Science Content Standard 2

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

<i>BENCHMARKS</i>	<i>DSM ACTIVITIES</i>	<i>PAGE NUMBERS</i>
1. Students will classify, describe, and manipulate the physical models of matter in terms of: elements, and compounds, pure substances and mixtures, atoms and molecules.	Color and Light Activity 2, 3 Electromagnetism Activity 1 Flight and Rocketry Activity 1, 3 <i>Electrical Connections Reader</i>	Pages 19-36 Pages 13-17 Pages 13-21, 33-43 <i>Pages 2-3</i>
2. Students will examine, describe, compare and classify objects and substances based on common physical properties and simple chemical properties.	Color and Light Activity 2 <i>Color and Light Reader</i> Electromagnetism Activity 1 Erosion Activity 7 Flight and Rocketry Activity 3 Pollution Activity 7, 8 Rocks and Minerals Activity 3, 4, 5, 6, 10 <i>Rocks and Minerals Reader</i>	Pages 19-27 <i>Page 7</i> Pages 13-17 Pages 59-66 Pages 33-43 Pages 53-64 Pages 29-54, 77-84 <i>Pages 3, 4-6, 10-12</i>
3. Students will describe energy and compare and contrast the energy transformations and the characteristics of light, heat, motion, magnetism, electricity, sound and mechanical waves.	Color and Light Activity 1 <i>Color and Light Reader</i> Electromagnetism Activity 9 and Science Extension <i>Electromagnetism Reader</i> <i>Pollution Reader</i> You and Your Body Activity 12 Science Extension 1	Pages 13-18 <i>Pages 2-4, 8-9</i> Pages 63-68 <i>Pages 2-3, 6-7, 12</i> <i>Page 15</i> Page 89

	[Note: This benchmark is addressed in the grades 6-8 essential learning expectations]	
4. Students will model and explain the states of matter are dependent upon the quantity of energy present in the system and describe what will change and what will remain unchanged at the particulate level when matter experiences an external force or energy change.	Oceans Activity 5 [Note: This benchmark is addressed in the grades 6-8 essential learning expectations]	Pages 55-64
5. Students will describe and explain the motion of an object in terms of its position, direction, & speed as well as the forces acting upon it.	Erosion Activity 4 Flight and Rocketry Activity 8, 9 <i>Flight and Rocketry Reader</i> Simple Machines Activity 1 <i>Simple Machines Reader</i>	Pages 37-42 Pages 81-97 <i>Page 3</i> Pages 13-18 <i>Pages 2, 15</i>
6. Students will identify, build, describe, measure, and analyze mechanical systems (e.g., simple and complex machines) and describe the forces acting within those systems.	Electromagnetism Activity 9, 10 Flight and Rocketry Activity 8, 9 <i>Flight and Rocketry Reader</i> Simple Machines Activity 4, 12 <i>Simple Machines Reader</i> Newton's Toy Box Activity 10 [Note: This benchmark is addressed in the grades 6-8 essential learning expectations]	Pages 63-76 Pages 81-97 <i>Pages 8-9, 10-11, 12, 13</i> Pages 33-38, 91-96 <i>Page 15</i> Pages 67-72
7. Students will give examples and describe how energy is transferred and conserved (e.g. electric to light and heat [light bulb], chemical to mechanical [fuel to propulsion]).	<i>Color and Light Reader</i> Electromagnetism Activity 9 <i>Electromagnetism Reader</i> Flight and Rocketry Activity 12 <i>Flight and Rocketry Reader</i> <i>Pollution Reader</i> You and Your Body Activity 9, 11	<i>Pages 2-3, 4</i> Pages 63-68 <i>Pages 2, 12</i> Pages 121-130 <i>Page 13</i> <i>Page 15</i> Pages 67-72, 79-84

Science 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.

BENCHMARK	DSM ACTIVITIES	PAGE NUMBERS
1. Students will compare the structure and function of prokaryotic cells (bacteria) and eukaryotic cells (plant, animal, etc.) including the levels of organization of the structure and function, particularly with	<i>You and Your Body Reader</i>	<i>Pages 2-3</i>

humans.		
2. Students will explain how organisms and systems of organisms obtain and use energy resources to maintain stable conditions (e.g., food webs, photosynthesis, respiration).		
3. Students will communicate the differences in the reproductive processes of a variety of plants and animals using the principles of genetic modeling (e.g. Punnett squares).	[Note: This benchmark is addressed in the grades 6-8 essential learning expectations]	
4. Students will investigate and explain the interdependent nature of populations and communities in the environment and describe how species in these populations adapt by evolving.		
5. Students will create and use a basic classification scheme to identify plants and animals.		

Science 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.

BENCHMARK	DSM ACTIVITIES	PAGE NUMBERS
1. Students will 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 and constructive and destructive forces.	<i>Erosion Reader</i> Oceans Activity 4 Rocks and Minerals Activity 5, 12 Science Challenge <i>Rocks and Minerals Reader</i>	<i>Pages 2-4, 8-13</i> <i>Pages 43-54</i> <i>Pages 45, 98</i> <i>Page 2</i>
2. Students will differentiate between rock types and mineral types and classify both by how they are formed and the utilization by humans.	<i>Erosion Reader</i> Rocks and Minerals Activity 2, 9, 10, 11 <i>Rocks and Minerals Reader</i>	<i>Page 6</i> <i>Pages 21-28, 69-92</i> <i>Pages 3-6, 9-12</i>
3. Students will use fossils to describe the geological timeline.	Rocks and Minerals Activity 9 Science and Social Studies 2 <i>Rocks and Minerals Reader</i>	<i>Page 76</i> <i>Page 15</i>
4. Students will describe the water cycle, the composition and structure of the atmosphere and the impact of oceans on large scale weather patterns.	Oceans Activity 1, 5 <i>Oceans Resources</i> Weather Forecasting Activity 1 Science Extension 2 <i>Weather Forecasting Reader</i>	<i>Pages 13-22, 55-64</i> <i>Page 10</i> <i>Page 18</i> <i>Pages 2, 4</i>
5. Students will describe and model the motion and tilt of Earth in relation to the Sun, and explain the concepts of day, night, seasons, year, and climatic changes.		
6. Students will describe the earth, moon, planets and other		

objects in space in terms of size, force of gravity, structure, and movement in relation to the Sun.		
7. Students will identify scientific theories about the origin and evolution of the earth and solar system.	[Note: This benchmark is addressed in the grades 6-8 essential learning expectations]	

Science Content Standard 5

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

<i>BENCHMARK</i>	<i>DSM ACTIVITIES</i>	<i>PAGE NUMBERS</i>
1. Students will describe the specific fields of science and technology as they relate to occupations within those fields.	Color and Light Activity 2 Science and Careers Electromagnetism Activity 2 Science and Careers Erosion Activity 3 Science and Careers <i>Erosion Reader</i> Flight and Rocketry Activity 10 Science and Careers <i>Flight and Rocketry Reader</i> Oceans Activity 5, 12 Science and Careers <i>Oceans Resources</i> Pollution Activity 6, 8 Science and Careers Rocks and Minerals Activity 2 Science and Careers <i>Rocks and Minerals Reader</i> Simple Machines Activity 7 Science and Careers <i>Simple Machines Reader</i> You and Your Body Activity 2, 8 Science and Careers <i>You and Your Body Reader</i> Weather Forecasting Activity 8 Science and Careers <i>Weather Forecasting Reader</i>	Page 27 Page 23 Page 35 <i>Page 14</i> Page 109 <i>Page 8</i> Page 63, 142 <i>Page 14</i> Page 52, 64 Page 27 <i>Page 8</i> Page 63 <i>Page 13</i> Page 25, 66 <i>Page 12</i> Page 68 <i>Pages 2-3, 6-8, 11</i>
2. Students will apply scientific knowledge and process skills to understand issues and everyday events.	Color and Light Activity 4 Science, Tech, & Society Electromagnetism Activity 8 Erosion Activity 10 Flight and Rocketry Activity 10 Oceans Activity 10 Science Challenge Pollution Activity 9 Rocks and Minerals Activity 11 Simple Machines Activity 3, 4, 5, 6 You and Your Body Activity 12 Weather Forecasting	Page 43 Pages 57-62 Pages 83-89 Pages 99-109 Page 124 Pages 65-70 Pages 85-92 Pages 25-56 Pages 85-89

	Activity 12	Pages 87-93
3. Students will simulate collaborative problem solving and give examples of how scientific knowledge and technology are shared with other scientists and the public.	Color and Light Activity 6 Science and Language Arts Erosion Activity 4 Science Extension 1 Erosion Activity 10 Flight and Rocketry Activity 5 Oceans Activity 4 Rocks and Minerals Activity 10 Simple Machines Activity 7 Science Challenge [Note: This benchmark is addressed in the grades 6-8 essential learning expectations]	Page 59 Page 42 Pages 83-89 Pages 55-64 Pages 43-54 Pages 77-84 Page 63
4. Students will use scientific knowledge to investigate problems and their proposed solutions and evaluate those solutions while considering environmental impacts.	Erosion Activity 10 Flight and Rocketry Activity 9 Science and Health 2 Pollution Activity 2 Science, Tech, and Society Rocks and Minerals Activity 3 Science and Health Activity 10 Science and Social Studies You and Your Body Activity 8 Science, Tech, and Society 1	Pages 83-89 Page 97 Page 24 Page 34 Page 84 Page 66
5. Students will describe how the knowledge of science and technology influences the development of the Montana American Indian cultures.	This is a local benchmark that can be addressed in a culturally appropriate way through connections that Montana teachers will make between science/technology observations in DSM and local environments and customs.	

Science Content Standard 6

Students understand historical developments in science and technology.

<i>BENCHMARK</i>	<i>DSM ACTIVITIES</i>	<i>PAGE NUMBERS</i>
1. Students will give examples of scientific discoveries and describe the interrelationship between technological advances and scientific understanding, including Montana American Indian examples.	Color and Light Activity 7 Science and Social Studies <i>Color and Light Reader</i> Electromagnetism Activity 1 Science and Social Studies <i>Electromagnetism Reader</i> Flight and Rocketry Activity 4 Science & Social Studies <i>Flight and Rocketry Reader</i> Pollution Activity 6 Science and Careers <i>Pollution Reader</i> Rocks and Minerals Activity 7 Science, Tech, and Society Simple Machines Activity 1 Science and Social Studies <i>Simple Machines Reader</i>	Page 67 <i>Page 14</i> Page 17 <i>Page 8</i> Page 54 <i>Pages 3, 6, 14</i> Page 52 <i>Page 14</i> Page 59 Page 18 <i>Page 12</i>

	<i>You and Your Body Reader</i> Weather Forecasting Activity 5 Science and Social Studies	Page 12 Page 48
2. Students will identify major milestones in science that have impacted science, technology and society.	Color and Light Activity 1 Science and Social Studies Electromagnetism Activity 11 Science and Careers <i>Electromagnetism Reader</i> Erosion Activity 12 Science and Social Studies Flight and Rocketry Activity 2, 4 Science & Social Studies <i>Flight and Rocketry Reader</i> Oceans Activity 7 Science and Social Studies Pollution Activity 12 Science and Social Studies <i>Pollution Reader</i> Rocks and Minerals Activity 4 Science and Social Studies <i>Rocks and Minerals Reader</i> Simple Machines Activity 1 Science and Social Studies <i>Simple Machines Reader</i> Weather Forecasting Activity 1 Science and Social Studies	Page 18 Page 83 <i>Pages 8, 10, 14</i> Page 104 Page 32, 54 <i>Pages 3, 5, 6, 13-15</i> Page 88 Page 88 <i>Page 14</i> Page 40 <i>Page 6</i> Page 18 <i>Page 12</i> Page 18
3. Students will describe and explain science as a human endeavor and an ongoing process.	Color and Light Activity 8 Science and Social Studies <i>Color and Light Reader</i> Electromagnetism Activity 11 Science and Careers <i>Electromagnetism Reader</i> Erosion Activity 3 Science, Tech, and Society <i>Erosion Reader</i> Flight and Rocketry Activity 12 Science & Social Studies <i>Flight and Rocketry Reader</i> Oceans Activity 7 Science and Social Studies <i>Oceans Resources</i> Pollution Activity 6 Science and Careers <i>Pollution Reader</i> Rocks and Minerals Activity 11 <i>Rocks and Minerals Reader</i> Simple Machines Activity 9 Science and Social Studies <i>Simple Machines Reader</i> <i>You and Your Body Reader</i> Weather Forecasting Activity 1 Science and Social Studies <i>Weather Forecasting Reader</i>	Page 76 <i>Page 14</i> Page 83 <i>Pages 8, 10, 14</i> Page 35 <i>Pages 14, 15</i> Page 130 <i>Pages 3, 5, 6, 13-15</i> Page 88 <i>Page 14</i> Page 52 <i>Pages 5, 10, 12</i> Pages 85-92 <i>Pages 6, 14</i> Page 76 <i>Pages 12-13</i> <i>Pages 12-13</i> Page 18 <i>Pages 5, 7, 10-11, 14</i>

End of Grade Eight Benchmarks

Grade Eight

Science 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.

<i>BENCHMARK</i>	<i>DSM ACTIVITIES</i>	<i>PAGE NUMBERS</i>
1. Students will identify a question, determine relevant variables and a control, formulate a testable hypothesis, plan and predict the outcome of an investigation, safely conduct scientific investigation, and compare and analyze data.	Color and Light Activity 4 Electromagnetism Activity 6 Erosion Activity 5 Pollution Activity 10 Electrical Connections Activity 10 Science Challenge Matter and Change Activity 12 Newton's Toy Box Activity 13 Science Challenge Plants in Our World Activity 3	Pages 37-44 Pages 43-48 Pages 43-49 Pages 71-76 Page 87 Pages 99-104 Page 90 Pages 35-40
2. Students will select and use appropriate tools including technology to make measurements (in metric units), gather, process and analyze data from scientific investigations.	Electromagnetism Activity 3 Erosion Activity 4 Flight and Rocketry Activity 9 Oceans Activity 3 Pollution Activity 10 Simple Machines Activity 3 You and Your Body Activity 5 Weather Forecasting Activity 3 Astronomy Activity 5 Electrical Connections Activity 5, 6 Matter and Change Activity 1, 2 Newton's Toy Box Activity 4, 7, 8 Plants in Our World Activity 4 Science Challenge	Pages 25-29 Pages 37-42 Pages 91-97 Pages 31-42 Pages 71-76 Pages 25-32 Pages 41-48 Pages 25-32 Pages 51-60 Pages 43-58 Pages 13-28 Pages 33-38, 49-59 Page 47
3. Students will review, communicate and defend results of investigations including considering alternative explanations.	Color and Light Activity 10 Electromagnetism Activity 11 Erosion Activity 6	Pages 85-91 Pages 77-83 Pages 51-57

	Flight and Rocketry Activity 5 Oceans Activity 10 Science Challenge Rocks and Minerals Activity 10 Science and Math Earth Processes Activity 1 Electrical Connections Activity 12 Newton's Toy Box Activity 9 Science Extension 1	Pages 55-64 Page 124 Page 84 Pages 13-21 Pages 95-99 Page 65
4. Students will create models to illustrate scientific concepts and use the model to predict change. (e.g., computer simulation, stream table, graphic representation).	Color and Light Activity 11 Electromagnetism Activity 10 Erosion Activity 2 Flight and Rocketry Activity 5 Oceans Activity 5 Pollution Activity 5 Science Extension 2 Rocks and Minerals Activity 2, 9 Simple Machines Activity 11 You and Your Body Activity 6 Weather Forecasting Activity 4, 5 Astronomy Activity 8 DNA – From Genes to Proteins Activity 10 Earth, Moon, and Sun Activity 6 Earth Processes Activity 12 Electrical Connections Activity 12 Matter and Change Activity 5, 8 Plants in Our World Activity 9 Science and the Arts	Pages 93-100 Pages 69-76 Pages 21-28 Pages 55-64 Pages 55-63 Page 45 Pages 21-28, 69-76 Pages 83-89 Pages 49-54 Pages 33-48 Pages 77-83 Pages 87-94 Pages 53-60 Pages 105-110 Pages 95-99 Pages 45-51, 69-75 Page 86
5. Students will identify strengths and weakness in an investigative design.	Electromagnetism Activity 7 Pollution Activity 5 Rocks and Minerals Activity 5, 6 Earth Processes Activity 2, 12, 14 Matter and Change Activity 8	Pages 49-56 Pages 39-45 Pages 41-54 Pages 23-28, 105-110, 121-130 Pages 69-75
6. Students will compare how observations of nature form an	This is a local benchmark that can be addressed in a culturally appropriate	

essential base of knowledge among the Montana American Indians.	way through connections that Montana teachers will make between science/nature observations in DSM and local environments and customs.	
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Science Content Standard 2

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

<i>BENCHMARKS</i>	<i>DSM ACTIVITIES</i>	<i>PAGE NUMBERS</i>
1. Students will classify, describe, and manipulate the physical models of matter in terms of: elements, and compounds, pure substances and mixtures, atoms and molecules.	Color and Light Activity 2, 3 Electromagnetism Activity 1 Flight and Rocketry Activity 1, 3 <i>Electrical Connections Reader</i> Matter and Change Activity 4, 5 <i>Matter and Change Reader</i>	Pages 19-36 Pages 13-17 Pages 13-21, 33-43 <i>Pages 2-3</i> Pages 37-51 <i>Pages 2-8</i>
2. Students will examine, describe, compare and classify objects and substances based on common physical properties and simple chemical properties.	Color and Light Activity 2 <i>Color and Light Reader</i> Electromagnetism Activity 1 Erosion Activity 7 Flight and Rocketry Activity 3 Pollution Activity 7, 8 Rocks and Minerals Activity 3, 4, 5, 6, 10 <i>Rocks and Minerals Reader</i> Matter and Change Activity 1, 6, 10 <i>Matter and Change Reader</i>	Pages 19-27 <i>Page 7</i> Pages 13-17 Pages 59-66 Pages 33-43 Pages 53-64 Pages 29-54, 77-84 <i>Pages 3, 4-6, 10-12</i> Pages 13-20, 53-62, 85-92 <i>Pages 13-14, 16</i>
3. Students will describe energy and compare and contrast the energy transformations and the characteristics of light, heat, motion, magnetism, electricity, sound and mechanical waves.	Color and Light Activity 1 <i>Color and Light Reader</i> Electromagnetism Activity 9 and Science Extension <i>Electromagnetism Reader</i> <i>Pollution Reader</i> You and Your Body Activity 12 Science Extension 1 <i>Astronomy Reader</i> Earth Processes Activity 8 Electrical Connections Activity 7, 11 <i>Electrical Connections Reader</i> <i>Matter and Change Reader</i> Newton's Toy Box Activity 8 Science Challenge 2 <i>Plants in Our World Reader</i>	Pages 13-18 <i>Pages 2-4, 8-9</i> Pages 63-68 <i>Pages 2-3, 6-7, 12</i> <i>Page 15</i> Page 89 <i>Pages 8-10, 16-17</i> Pages 71-79 Pages 59-66, 89-94 <i>Pages 2, 15</i> <i>Pages 11-12, 18</i> Page 59 <i>Page 3</i>
4. Students will model and explain the states of matter are dependent upon the quantity of	Oceans Activity 5 <i>Matter and Change Reader</i>	Pages 55-64 <i>Pages 9-12</i>

energy present in the system and describe what will change and what will remain unchanged at the particulate level when matter experiences an external force or energy change.	Newton's Toy Box Activity 1 <i>Newton's Toy Box Reader</i>	Pages 13-18 <i>Pages 2-9</i>
5. Students will describe and explain the motion of an object in terms of its position, direction, & speed as well as the forces acting upon it.	Erosion Activity 4 Flight and Rocketry Activity 8, 9 <i>Flight and Rocketry Reader</i> Simple Machines Activity 1 <i>Simple Machines Reader</i> Newton's Toy Box Activity 1 <i>Newton's Toy Box Reader</i>	Pages 37-42 Pages 81-97 <i>Page 3</i> Pages 13-18 <i>Pages 2, 15</i> Pages 13-18 <i>Pages 2-9</i>
6. Students will identify, build, describe, measure, and analyze mechanical systems (e.g., simple and complex machines) and describe the forces acting within those systems.	Electromagnetism Activity 9, 10 Flight and Rocketry Activity 8, 9 <i>Flight and Rocketry Reader</i> Simple Machines Activity 4, 12 <i>Simple Machines Reader</i> Newton's Toy Box Activity 10	Pages 63-76 Pages 81-97 <i>Pages 8-9, 10-11, 12, 13</i> Pages 33-38, 91-96 <i>Page 15</i> Pages 67-72
7. Students will give examples and describe how energy is transferred and conserved (e.g. electric to light and heat [light bulb], chemical to mechanical [fuel to propulsion]).	<i>Color and Light Reader</i> Electromagnetism Activity 9 <i>Electromagnetism Reader</i> Flight and Rocketry Activity 12 <i>Flight and Rocketry Reader</i> <i>Pollution Reader</i> You and Your Body Activity 9, 11 Earth Processes Activity 8, 12 Electrical Connections Activity 7, 11 <i>Electrical Connections Reader</i> Matter and Change Activity 7 Science Challenge <i>Matter and Change Reader</i> Newton's Toy Box Activity 8, 10 <i>Plants in Our World Reader</i>	<i>Pages 2-3, 4</i> Pages 63-68 <i>Pages 2, 12</i> Pages 121-130 <i>Page 13</i> <i>Page 15</i> Pages 67-72, 79-84 Pages 71-79, 105-110 Pages 59-66, 89-94 <i>Pages 2, 15</i> Page 68 <i>Page 18</i> Pages 55-60, 67-72 <i>Page 3</i>

Science 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.

BENCHMARK	DSM ACTIVITIES	PAGE NUMBERS
1. Students will compare the structure and function of prokaryotic cells (bacteria) and eukaryotic cells (plant, animal,	<i>You and Your Body Reader</i> DNA – From Genes to Proteins Activity 2, 3, 4, 5, 11 <i>DNA– From Genes to Proteins Reader</i>	<i>Pages 2-3</i> Pages 19-49, 95-100 <i>Pages 4-8</i>

etc.) including the levels of organization of the structure and function, particularly with humans.	Plants in Our World Activity 1 <i>Plants in Our World Reader</i>	Pages 13-25 Page 23
2. Students will explain how organisms and systems of organisms obtain and use energy resources to maintain stable conditions (e.g., food webs, photosynthesis, respiration).	<i>DNA– From Genes to Proteins Reader</i> Plants in Our World Activity 9 <i>Plants in Our World Reader</i>	Pages 10-11 Pages 81-86 Pages 2-3
3. Students will communicate the differences in the reproductive processes of a variety of plants and animals using the principles of genetic modeling (e.g. Punnett squares).	<i>DNA– From Genes to Proteins Reader</i> <i>Plants in Our World Reader</i>	Pages 12-14 Pages 6, 10, 12, 17, 19-20
4. Students will investigate and explain the interdependent nature of populations and communities in the environment and describe how species in these populations adapt by evolving.	<i>DNA– From Genes to Proteins Reader</i>	Pages 15-20, 15-20
5. Students will create and use a basic classification scheme to identify plants and animals.	Plants in Our World Activity 1 <i>Plants in Our World Reader</i>	Pages 13-25 Page 23

Science 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.

BENCHMARK	DSM ACTIVITIES	PAGE NUMBERS
1. Students will 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 and constructive and destructive forces.	<i>Erosion Reader</i> Oceans Activity 4 Rocks and Minerals Activity 5, 12 Science Challenge <i>Rocks and Minerals Reader</i> <i>Earth, Moon, and Sun Reader</i> Earth Processes Activity 2, 3, 4, 5, 6, 7, 8, 14 <i>Earth Processes Reader</i>	Pages 2-4, 8-13 Pages 43-54 Pages 45, 98 Page 2 Page 2 Pages 23-80, 121-129 Pages 2-10
2. Students will differentiate between rock types and mineral types and classify both by how they are formed and the utilization by humans.	<i>Erosion Reader</i> Rocks and Minerals Activity 2, 9, 10, 11 <i>Rocks and Minerals Reader</i> Earth Processes Activity 6 <i>Earth Processes Reader</i>	Page 6 Pages 21-28, 69-92 Pages 3-6, 9-12 Pages 55-62 Pages 16-18
3. Students will use fossils to describe the geological timeline.	Rocks and Minerals Activity 9 Science and Social Studies 2 <i>Rocks and Minerals Reader</i> Earth Processes Activity 1, 4 Science Challenge <i>Earth Processes Reader</i>	Page 76 Page 15 Pages 13-21, 46 Page 22
4. Students will describe the water cycle, the composition and structure of the atmosphere and the impact of oceans on large	Oceans Activity 1, 5 <i>Oceans Resources</i> Weather Forecasting	Pages 13-22, 55-64 Page 10

scale weather patterns.	Activity 1 Science Extension 2 <i>Weather Forecasting Reader</i>	Page 18 <i>Pages 2, 4</i>
5. Students will describe and model the motion and tilt of Earth in relation to the Sun, and explain the concepts of day, night, seasons, year, and climatic changes.	Astronomy Activity 5 Earth, Moon, and Sun Activity 8, 9 <i>Earth, Moon, and Sun Reader</i>	Pages 51-60 Pages 71-92 <i>Pages 8-12</i>
6. Students will describe the earth, moon, planets and other objects in space in terms of size, force of gravity, structure, and movement in relation to the Sun.	<i>Astronomy Reader</i> Earth, Moon, and Sun Activity 3, 4 <i>Earth, Moon, and Sun Reader</i>	<i>Pages 2-7</i> Pages 29-44 <i>Pages 2-5, 14-19, 21-23</i>
7. Students will identify scientific theories about the origin and evolution of the earth and solar system.	<i>Astronomy Reader</i> Earth Processes Activity 1, 2	<i>Pages 3, 11, 14-15</i> Pages 13-28

Science Content Standard 5

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

BENCHMARK	DSM ACTIVITIES	PAGE NUMBERS
1. Students will describe the specific fields of science and technology as they relate to occupations within those fields.	Color and Light	
	Activity 2 Science and Careers	Page 27
	Electromagnetism	
	Activity 2 Science and Careers	Page 23
	Erosion	
	Activity 3 Science and Careers	Page 35
	<i>Erosion Reader</i>	<i>Page 14</i>
	Flight and Rocketry	
	Activity 10 Science and Careers	Page 109
	<i>Flight and Rocketry Reader</i>	<i>Page 8</i>
	Oceans	
	Activity 5, 12 Science and Careers	Page 63, 142
	<i>Oceans Resources</i>	<i>Page 14</i>
	Pollution	
	Activity 6, 8 Science and Careers	Page 52, 64
Rocks and Minerals		
Activity 2 Science and Careers	Page 27	
<i>Rocks and Minerals Reader</i>	<i>Page 8</i>	
Simple Machines		
Activity 7 Science and Careers	Page 63	
<i>Simple Machines Reader</i>	<i>Page 13</i>	
You and Your Body		
Activity 2, 8 Science and Careers	Page 25, 66	
<i>You and Your Body Reader</i>	<i>Page 12</i>	
Weather Forecasting		
Activity 8 Science and Careers	Page 68	
<i>Weather Forecasting Reader</i>	<i>Pages 2-3, 6-8, 11</i>	
Astronomy		
Activity 9 Science and Careers	Page 91	
<i>Astronomy Reader</i>	<i>Page 17</i>	
DNA – From Genes to Proteins		
Activity 12 Science and Careers	Page 108	
<i>DNA– From Genes to Proteins Reader</i>	<i>Page 22</i>	
Earth, Moon, and Sun		
Activity 2 Science and Careers	Page 27	
Earth Processes		

	<p>Activity 1, 9 Science and Careers <i>Earth Processes Reader</i></p> <p>Electrical Connections</p> <p>Activity 3 Science and Careers</p> <p>Matter and Change</p> <p>Activity 9 Science and Careers <i>Matter and Change Reader</i></p> <p>Newton's Toy Box</p> <p>Activity 4 Science and Careers</p> <p>Plants in Our World</p> <p>Activity 5 Science and Careers <i>Plants in Our World Reader</i></p>	<p>Page 21, 87 <i>Page 2</i></p> <p>Page 33</p> <p>Page 83 <i>Page 19</i></p> <p>Page 38</p> <p>Page 55 <i>Page 21</i></p>
<p>2. Students will apply scientific knowledge and process skills to understand issues and everyday events.</p>	<p>Color and Light</p> <p>Activity 4 Science, Tech, & Society</p> <p>Electromagnetism</p> <p>Activity 8</p> <p>Erosion</p> <p>Activity 10</p> <p>Flight and Rocketry</p> <p>Activity 10</p> <p>Oceans</p> <p>Activity 10 Science Challenge</p> <p>Pollution</p> <p>Activity 9</p> <p>Rocks and Minerals</p> <p>Activity 11</p> <p>Simple Machines</p> <p>Activity 3, 4, 5, 6</p> <p>You and Your Body</p> <p>Activity 12</p> <p>Weather Forecasting</p> <p>Activity 12</p> <p>Astronomy</p> <p>Activity 5</p> <p>DNA – From Genes to Proteins</p> <p>Activity 1, 2</p> <p>Earth, Moon, and Sun</p> <p>Activity 9</p> <p>Earth Processes</p> <p>Activity 6</p> <p>Electrical Connections</p> <p>Activity 12, 13</p> <p>Matter and Change</p> <p>Activity 6</p> <p>Newton's Toy Box</p> <p>Activity 4</p> <p>Plants in Our World</p> <p>Activity 10</p>	<p>Page 43</p> <p>Pages 57-62</p> <p>Pages 83-89</p> <p>Pages 99-109</p> <p>Page 124</p> <p>Pages 65-70</p> <p>Pages 85-92</p> <p>Pages 25-56</p> <p>Pages 85-89</p> <p>Pages 87-93</p> <p>Pages 51-60</p> <p>Pages 13-24</p> <p>Pages 81-92</p> <p>Pages 55-62</p> <p>Pages 95-106</p> <p>Pages 53-61</p> <p>Pages 33-38</p> <p>Pages 87-93</p>
<p>3. Students will simulate collaborative problem solving and give examples of how scientific knowledge and technology are shared with other scientists and the public.</p>	<p>Color and Light</p> <p>Activity 6 Science and Language Arts</p> <p>Erosion</p> <p>Activity 4 Science Extension 1</p> <p>Erosion</p> <p>Activity 10</p> <p>Flight and Rocketry</p> <p>Activity 5</p> <p>Oceans</p> <p>Activity 4</p> <p>Rocks and Minerals</p>	<p>Page 59</p> <p>Page 42</p> <p>Pages 83-89</p> <p>Pages 55-64</p> <p>Pages 43-54</p>

	Activity 10 Simple Machines Activity 7 Science Challenge Earth Processes Activity 1	Pages 77-84 Page 63 Pages 13-21
4. Students will use scientific knowledge to investigate problems and their proposed solutions and evaluate those solutions while considering environmental impacts.	Erosion Activity 10 Flight and Rocketry Activity 9 Science and Health 2 Pollution Activity 2 Science, Tech, and Society Rocks and Minerals Activity 3 Science and Health Activity 10 Science and Social Studies You and Your Body Activity 8 Science, Tech, and Society 1 DNA – From Genes to Proteins Activity 12 Science, Tech, and Society	Pages 83-89 Page 97 Page 24 Page 34 Page 84 Page 66 Page 108
5. Students will describe how the knowledge of science and technology influences the development of the Montana American Indian cultures.	This is a local benchmark that can be addressed in a culturally appropriate way through connections that Montana teachers will make between science/technology observations in DSM and local environments and customs.	

Science Content Standard 6

Students understand historical developments in science and technology.

<i>BENCHMARK</i>	<i>DSM ACTIVITIES</i>	<i>PAGE NUMBERS</i>
1. Students will give examples of scientific discoveries and describe the interrelationship between technological advances and scientific understanding, including Montana American Indian examples.	Color and Light Activity 7 Science and Social Studies <i>Color and Light Reader</i> Electromagnetism Activity 1 Science and Social Studies <i>Electromagnetism Reader</i> Flight and Rocketry Activity 4 Science & Social Studies <i>Flight and Rocketry Reader</i> Pollution Activity 6 Science and Careers <i>Pollution Reader</i> Rocks and Minerals Activity 7 Science, Tech, and Society Simple Machines Activity 1 Science and Social Studies <i>Simple Machines Reader</i> <i>You and Your Body Reader</i> Weather Forecasting Activity 5 Science and Social Studies Astronomy Activity 9 Science Challenge <i>Astronomy Reader</i> DNA – From Genes to Proteins Science Challenge All Activities <i>DNA– From Genes to Proteins Reader</i> Earth, Moon, and Sun Activity 3 Science and Social Studies <i>Earth, Moon, and Sun Reader</i>	Page 67 <i>Page 14</i> Page 17 <i>Page 8</i> Page 54 <i>Pages 3, 6, 14</i> Page 52 <i>Page 14</i> Page 59 Page 18 <i>Page 12</i> <i>Page 12</i> Page 48 Page 91 <i>Pages 15, 19-20, 21</i> P 17, 24, 29, 39, 49, 58, 66, 75... <i>Pages 2, 15-16</i> Page 35 <i>Page 20</i>

	<p>Earth Processes Activity 7 Science, Tech, and Society <i>Earth Processes Reader</i></p> <p>Electrical Connections Activity 7 Science, Tech, and Society <i>Electrical Connections Reader</i></p> <p>Matter and Change Activity 6, 8 Science & Social Studies <i>Matter and Change Reader</i></p> <p>Newton's Toy Box Activity 1 <i>Newton's Toy Box Reader</i> <i>Plants in Our World Reader</i></p>	<p>Page 69 <i>Pages 4, 6, 21</i></p> <p>Page 65 <i>Page 21</i></p> <p>Page 61, 75 <i>Pages 21, 22</i></p> <p>Pages 13-17 <i>Pages 10-13</i> <i>Page 21</i></p>
<p>2. Students will identify major milestones in science that have impacted science, technology and society.</p>	<p>Color and Light Activity 1 Science and Social Studies</p> <p>Electromagnetism Activity 11 Science and Careers <i>Electromagnetism Reader</i></p> <p>Erosion Activity 12 Science and Social Studies</p> <p>Flight and Rocketry Activity 2, 4 Science & Social Studies <i>Flight and Rocketry Reader</i></p> <p>Oceans Activity 7 Science and Social Studies</p> <p>Pollution Activity 12 Science and Social Studies <i>Pollution Reader</i></p> <p>Rocks and Minerals Activity 4 Science and Social Studies <i>Rocks and Minerals Reader</i></p> <p>Simple Machines Activity 1 Science and Social Studies <i>Simple Machines Reader</i></p> <p>Weather Forecasting Activity 1 Science and Social Studies</p> <p>Astronomy Activity 9 Science and Language Arts <i>Astronomy Reader</i></p> <p>DNA – From Genes to Proteins Activity 7 Science Challenge <i>DNA– From Genes to Proteins Reader</i></p> <p>Earth, Moon, and Sun Activity 13 Science, Tech, and Society <i>Earth, Moon, and Sun Reader</i></p> <p>Earth Processes Activity 14 Science Extension 1 <i>Earth Processes Reader</i></p> <p>Electrical Connections Activity 11 Science, Tech, and Society <i>Electrical Connections Reader</i></p> <p>Matter and Change Activity 12 Science, Tech, and Society <i>Matter and Change Reader</i></p> <p>Newton's Toy Box Activity 1 Science and Social Studies <i>Newton's Toy Box Reader</i></p> <p>Plants in Our World</p>	<p>Page 18</p> <p>Page 83 <i>Pages 8, 10, 14</i></p> <p>Page 104</p> <p>Page 32, 54 <i>Pages 3, 5, 6, 13-15</i></p> <p>Page 88</p> <p>Page 88 <i>Page 14</i></p> <p>Page 40 <i>Page 6</i></p> <p>Page 18 <i>Page 12</i></p> <p>Page 18</p> <p>Page 91 <i>Pages 22-23</i></p> <p>Page 66 <i>Pages 2, 15-16, 21</i></p> <p>Page 129 <i>Page 20</i></p> <p>Page 129 <i>Page 21</i></p> <p>Page 94 <i>Page 21</i></p> <p>Page 104 <i>Pages 21, 22</i></p> <p>Page 17 <i>Pages 10-13</i></p>

<p>3. Students will describe and explain science as a human endeavor and an ongoing process.</p>	<p>Activity 3 Science and Social Studies Color and Light Activity 8 Science and Social Studies <i>Color and Light Reader</i> Electromagnetism Activity 11 Science and Careers <i>Electromagnetism Reader</i> Erosion Activity 3 Science, Tech, and Society <i>Erosion Reader</i> Flight and Rocketry Activity 12 Science & Social Studies <i>Flight and Rocketry Reader</i> Oceans Activity 7 Science and Social Studies <i>Oceans Resources</i> Pollution Activity 6 Science and Careers <i>Pollution Reader</i> Rocks and Minerals Activity 11 <i>Rocks and Minerals Reader</i> Simple Machines Activity 9 Science and Social Studies <i>Simple Machines Reader</i> <i>You and Your Body Reader</i> Weather Forecasting Activity 1 Science and Social Studies <i>Weather Forecasting Reader</i> Astronomy Activity 2 Science and Social Studies <i>Astronomy Reader</i> DNA – From Genes to Proteins Science Challenge All Activities <i>DNA– From Genes to Proteins Reader</i> Earth, Moon, and Sun Activity 5 Science Challenge <i>Earth, Moon, and Sun Reader</i> Earth Processes Activity 13 Science Extension <i>Earth Processes Reader</i> Electrical Connections Activity 11 Science and Social Studies <i>Electrical Connections Reader</i> Matter and Change Activity 4 Science Extension <i>Matter and Change Reader</i> Newton’s Toy Box Activity Science and Social Studies <i>Newton’s Toy Box Reader</i> Plants in Our World Activity 8 Science, Tech, and Society <i>Plants in Our World Reader</i></p>	<p>Page 40 Page 76 Page 14 Page 83 Pages 8, 10, 14 Page 35 Pages 14, 15 Page 130 Pages 3, 5, 6, 13-15 Page 88 Page 14 Page 52 Pages 5, 10, 12 Pages 85-92 Pages 6, 14 Page 76 Pages 12-13 Pages 12-13 Page 18 Pages 5, 7, 10-11, 14 Page 29 Pages 21, 22-23 P 17, 24, 29, 39, 49, 58, 66, 75... Pages 2, 15-16, 21, 22 Page 51 Page 20 Page 120 Pages 2, 6, 21 Page 94 Page 22 Page 44 Pages 21, 22 Page 43 Pages 10-13, 22, 23 Page 79 Page 21</p>
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