

### **Montana Science Test Design and Blueprint Summary**

The Montana Science Assessments are administered in grades 5 and 8 as an adaptive online assessment. Items are selected based on student performance on the previous items, while adhering to the test blueprint. The test is not segmented by science discipline; students will get items from each discipline in a random order. Each student will receive a total of 6 clusters and 12 standalone items; 2 clusters and 4 standalone items from each of the three science disciplines, respectively: Earth and Space Science, Life Science, and Physical Science. There will also be embedded field test items (either 1 cluster or 4 standalone items) randomly selected within each test.

#### **TEST BLUEPRINT SUMMARY FOR GRADE 5**

The grade 5 test covers the Montana Adapted Science performance expectations (PEs) for grades 3-5. PEs incorporate Disciplinary Core Ideas, Science and Engineering Practices, and Cross-Cutting Concepts. Students will be asked to apply their knowledge and skills to address 18 different phenomena during the assessment. The blueprint indicates all possible PEs assessed on the grade 5 test.

<b>DCI and PE Summary</b>	<b>Clusters</b>	<b>Standalone Items</b>	<b>Total</b>
<b>Discipline – Physical Science, PE Total = 17</b>	<b>2</b>	<b>4</b>	<b>6</b>
<b>DCI – Motion and Stability: Forces and Interactions</b>			
• PEs: 3-PS2-1, 3-PS2-2, 3-PS2-3, 3-PS2-4, 5-PS2-1			
<b>DCI – Energy</b>			
• PEs: 4-PS3-1, 4-PS3-2, 4-PS3-3, 4-PS3-4, 5-PS3-1			
<b>DCI – Waves and Their Applications in Technologies for Information Transfer</b>			
• PEs: 4-PS4-1, 4-PS4-2, 4-PS4-3			
<b>DCI – Matter and Its Interactions</b>			
• PEs: 5-PS1-1, 5-PS1-2, 5-PS1-3, 5-PS1-4			
<b>Discipline – Life Science, PE Total = 12</b>	<b>2</b>	<b>4</b>	<b>6</b>
<b>DCI – From Molecules to Organisms: Structure and Function</b>			
• PEs: 3-LS1-1, 4-LS1-1, 4-LS1-2, 5-LS1-1			
<b>DCI – Ecosystems: Interactions, Energy, and Dynamics</b>			
• PEs: 3-LS2-1, 5-LS2-1			
<b>DCI – Inheritance and Variation of Traits</b>			
• PEs: 3-LS3-1, 3-LS3-2			
<b>DCI – Biological Evolution: Unity and Diversity</b>			
• PEs: 3-LS4-1, 3-LS4-2, 3-LS4-3, 3-LS4-4			
<b>Discipline – Earth and Space Science, PE Total = 13</b>	<b>2</b>	<b>4</b>	<b>6</b>
<b>DCI - Earth's Systems</b>			
• PEs: 3-ESS2-1, 3-ESS2-2, 4-ESS2-1, 4-ESS2-2, 5-ESS2-1, 5-ESS2-2			
<b>DCI – Earth and Human Activity</b>			
• PEs: 3-ESS3-1, 4-ESS3-2, 4-ESS3-1, 5-ESS3-1			
<b>DCI – Earth's Place In the Universe</b>			
• PEs: 4-ESS1-1, 5-ESS1-1, 5-ESS1-2			
<b>Item Total</b>	<b>6</b>	<b>12</b>	<b>18</b>
<b>Embedded Field Test Items</b>	<b>Additional 1 cluster or 4 standalone items</b>		

**TEST BLUEPRINT SUMMARY FOR GRADE 8**

The grade 8 test covers the Montana Adapted Science performance expectations (PEs) for grades 6-8. PEs incorporate Disciplinary Core Ideas, Science and Engineering Practices, and Cross-Cutting Concepts. Students will be asked to apply their knowledge and skills to address 18 different phenomena during the assessment. The blueprint indicates all possible PEs assessed on the grade 8 test.

<b>DCI and PE Summary</b>	<b>Clusters</b>	<b>Standalone Items</b>	<b>Total</b>
<b>Discipline – Physical Science, PE Total = 18</b>	<b>2</b>	<b>4</b>	<b>6</b>
<b>DCI – Matter and Its Interactions</b>			
• PEs: MS-PS1-1, MS-PS1-2, MS-PS1-3, MS-PS1-4, MS-PS1-5, MS-PS1-6			
<b>DCI – Motion and Stability: Forces and Interactions</b>			
• PEs: MS-PS2-1, MS-PS2-2, MS-PS2-3, MS-PS2-4, MS-PS2-5			
<b>DCI – Energy</b>			
• PEs: MS-PS3-1, MS-PS3-2, MS-PS3-3, MS-PS3-4, MS-PS3-5			
<b>DCI – Waves and Their Applications in Technologies for Information Transfer</b>			
• PEs: MS-PS4-1, MS-PS4-2			
<b>Discipline – Life Science, PE Total = 19</b>	<b>2</b>	<b>4</b>	<b>6</b>
<b>DCI – From Molecules to Organisms: Structures and Processes</b>			
• PEs: MS-LS1-1, MS-LS1-2, MS-LS1-3, MS-LS1-4, MS-LS1-5, MS-LS1-6, MS-LS1-7			
<b>DCI – Ecosystems: Interactions, Energy, and Dynamics</b>			
• PEs: MS-LS2-1, MS-LS2-2, MS-LS2-3, MS-LS2-5			
<b>DCI – Hereditary: Inheritance and Variation of Traits</b>			
• PEs: MS-LS3-1, MS-LS3-2			
<b>DCI – Biological Evolution: Unity and Diversity</b>			
• PEs: MS-LS4-1, MS-LS4-2, MS-LS4-3, MS-LS4-4, MS-LS4-5, MS-LS4-6			
<b>Discipline – Earth and Space Science, PE Total = 15</b>	<b>2</b>	<b>4</b>	<b>6</b>
<b>DCI – Earth's Place in the Universe</b>			
• PEs: MS-ESS1-1, MS-ESS1-2, MS-ESS1-3, MS-ESS1-4			
<b>DCI – Earth's Systems</b>			
• PEs: MS-ESS2-1, MS-ESS2-2, MS-ESS2-3, MS-ESS2-4, MS-ESS2-5, MS-ESS2-6			
<b>DCI – Earth and Human Activity</b>			
• PEs: MS-ESS3-1, MS-ESS3-2, MS-ESS3-3, MS-ESS3-4, ME-ESS3-5			
<b>Item Total PE= 52</b>	<b>6</b>	<b>12</b>	<b>18</b>
<b>Embedded Field Test Items</b>	<b>Additional 1 cluster or 4 standalone items</b>		