



Grades 6-8

From the:
Alaska Content and Performance Standards -- Physical Science Content
Grades Six to Eight

The following is a list of the Alaska Content and Performance Standards for Physical Science -- Grades Six to Eight, and the chapters in Exploration Education's Intermediate Physical Science curriculum that support these standards.



Covered in Exploration Education's
Intermediate Level Physical Science Curriculum

Please Note: There are two versions of the Intermediate Level Physical Science Curriculum -- STANDARD and ADVANCED. The STANDARD version has three lessons per chapter (x.1, x.2, and x.3) and it is aligned below with the 6th grade standards. The ADVANCED version has five lessons in each chapter (x.1, x.2, x.3, x.4, and x.5) and is aligned below with the 7th and 8th grade standards.

STANDARD B1: Concepts of Physical Science
SB Students develop an understanding of the concepts, models, theories, universal principles, and facts that explain the physical world.



SB1 Students develop an understanding of the characteristic properties of matter and the relationship of these properties to their structure and behavior.
The student demonstrates an understanding of the structure and properties of matter by:

Covered in EE's Curriculum Chapters:

[6] SB1.1 using models to represent matter as it changes from one state to another

19.1, 19.2, 19.3, 20.1, 20.2, 20.3, 21.1

[7] SB1.1 using physical properties (i.e., density, boiling point, freezing point, conductivity) to differentiate among and/or separate materials (i.e., elements, compounds, and mixtures)

5.1, 5.2, 5.4, 5.5, 19.1, 19.2, 19.3, 20.1, 20.2, 20.3, 20.4, 20.5, 21.1, 22.1, 22.2, 22.3, 22.4, 22.5, 23.1, 23.2, 23.3, 23.4, 23.5, 24.1, 24.3, 24.4

[8] SB1.1 using physical and chemical properties (i.e., density, boiling point, freezing point, conductivity, flammability) to differentiate among materials (i.e., elements, compounds, and mixtures)

5.1, 5.2, 5.4, 5.5, 19.1, 19.2, 19.3, 20.1, 20.2, 20.3, 20.4, 20.5, 21.1, 22.1, 22.2, 22.3, 22.4, 22.5, 23.1, 23.2, 23.3, 23.4, 23.5, 24.1, 24.3, 24.4

SB2 Students develop an understanding that energy appears in different forms, can be transformed from one form to another, can be transferred or moved from one place or system to another, may be unavailable for use, and is ultimately conserved.
The student demonstrates an understanding of how energy can be transformed, transferred, and conserved by:

Covered in EE's Curriculum Chapters:

[6] SB2.1 recognizing that energy can exist in many forms (i.e., heat, light, chemical, electrical, mechanical)


9.1, 9.2, 28.2, 32.2

[7] SB2.1 explaining that energy (i.e., heat, light, chemical, electrical, mechanical) can change form

9.1, 9.2, 21.4, 21.5, 28.2, 28.4, 28.5, 31.4, 31.5, 32.2, 32.4, 32.5, 34.5

[8] SB2.1 identifying the initial source and resulting change in forms of energy in common phenomena (e.g., sun to tree to wood to stove to cabin heat)

7.4, 7.5, 9.1, 9.2, 21.4, 21.5, 28.2, 28.4, 28.5, 31.4, 31.5, 32.2, 32.4, 32.5, 34.5

<p>SB3 Students develop an understanding of the interactions between matter and energy, including physical, chemical, and nuclear changes, and the effects of these interactions on physical systems. <i>The student demonstrates an understanding of the interactions between matter and energy and the effects of these interactions on systems by:</i></p>	<p><i>Covered in EE's Curriculum Chapters:</i></p>
<p>[6] SB3.1 recognizing that most substances can exist as a solid, liquid, or gas depending on temperature</p>	<p>19.1, 19.2, 21.1</p>
<p>[7] SB3.1 recognizing that most substances can exist as a solid, liquid, or gas depending on the motion of their Particles</p>	<p>19.1, 19.2, 21.1., 21.2, 21.3</p>
<p>[8] SB3.1 exploring changes of state with increase or decrease of particle speed associated with heat transfer (L)</p> <p>[8] SB3.2 exploring through a variety of models (e.g., gumdrops and toothpicks) how atoms may bond together into well defined molecules or bond together in large arrays (L)</p>	<p>19.1, 19.2, 20.4, 20.5, 21.1, 21.2, 21.3, 23.4, 23.5, 24.1, 24.2, 24.3, 24.4, 24.5, 25.1, 25.2, 25.3, 25.4, 25.5, 26.4</p>
<p>SB4 Students develop an understanding of motions, forces, their characteristics and relationships, and natural forces and their effects. <i>The student demonstrates an understanding of motions, forces, their characteristics, relationships, and effects by:</i></p>	<p><i>Covered in EE's Curriculum Chapters:</i></p>
<p>[6] SB4.2 stating that every object exerts gravitational force on every other object [6] SB4.3 making waves move through a variety of media (L) <i>SB4.1 is not addressed in grade 6.</i></p>	<p>1.1, 1.2, 1.3, 2.1, 2.2, 2.3, 28.2, 29.1, 29.2, 29.3</p>
<p>[7] SB4.1 illustrating that unbalanced forces will cause an object to accelerate [7] SB4.2 recognizing that electric currents and magnets can exert a force on each other [7] SB4.3 describing the characteristics of a wave (i.e., <i>SB4.1 is not addressed in grade 6.</i> amplitude, wavelength, and frequency)</p>	<p>1.1, 1.2, 1.3, 1.4, 1.5, 2.1, 2.2, 2.3, 2.4, 2.5, 3.1, 3.2, 3.3, 3.4, 3.5, 28.1, 28.2, 28.3, 29.1, 29.2, 29.3, 29.4, 29.5</p>
<p>[8] SB4.1 demonstrating (L) and explaining circular motion [8] SB4.2 describing the interactions between charges</p>	<p>4.1, 4.2, 4.3, 4.4, 4.5, 10.1, 10.2, 11.1, 11.2, 11.3, 11.4, 11.5, 13.5, 13.5, 14.4, 14.5, 15.1, 15.2, 15.3, 16.3, 16.4, 16.5</p>
<p>STANDARD A1: Science as Inquiry and Process</p>	
<p>SA Students develop an understanding of the processes and applications of scientific inquiry. SA1 Students develop an understanding of the processes of science used to investigate problems, design and conduct repeatable scientific investigations, and defend scientific arguments. <i>The student demonstrates an understanding of the processes of science by:</i></p>	<p> <i>Covered in EE's Curriculum Chapters:</i></p>
<p>[6] SA1.1 asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring, and communicating* [6] SA1.2 collaborating to design and conduct simple repeatable investigations (L)</p>	<p>1.1, 5.1, 5.2, 6.1, 20.1 All Experiments</p>
<p>[7] SA1.1 asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring, and communicating* [7] SA1.2 collaborating to design and conduct simple repeatable investigations, in order to record, analyze (i.e., range, mean, median, mode), interpret data, and present findings (L)</p>	<p>1.1, 3.5, 4.4, 4.5, 5.1, 5.2, 5.4, 5.5, 6.1, 6.5, 20.1</p>
<p>[8] SA1.1 asking questions, predicting, observing, describing, measuring, classifying, making generalizations, inferring, and communicating* [8] SA1.2 collaborating to design and conduct repeatable investigations, in order to record, analyze (i.e., range, mean, median, mode), interpret data, and present findings(L)*</p>	<p>1.1, 3.5, 4.4, 4.5, 5.1, 5.2, 5.4, 5.5, 6.1, 6.5, 20.1</p>
<p>SA2 Students develop an understanding that the processes of science require integrity, logical reasoning, skepticism, openness, communication, and peer review. <i>The student demonstrates an understanding of the attitudes and approaches to scientific inquiry by:</i></p>	<p><i>Covered in EE's Curriculum Chapters:</i></p>
<p>[6] SA2.1 identifying and differentiating fact from opinion</p>	<p>1.1</p>
<p>[7] SA2.1 identifying and evaluating the sources used to support scientific statements</p>	<p>1.1, 3.5, 22.5</p>
<p>[8] SA2.1 recognizing and analyzing differing scientific explanations and models</p>	<p>1.1, 3.5, 6.5, 16.5, 22.5</p>