

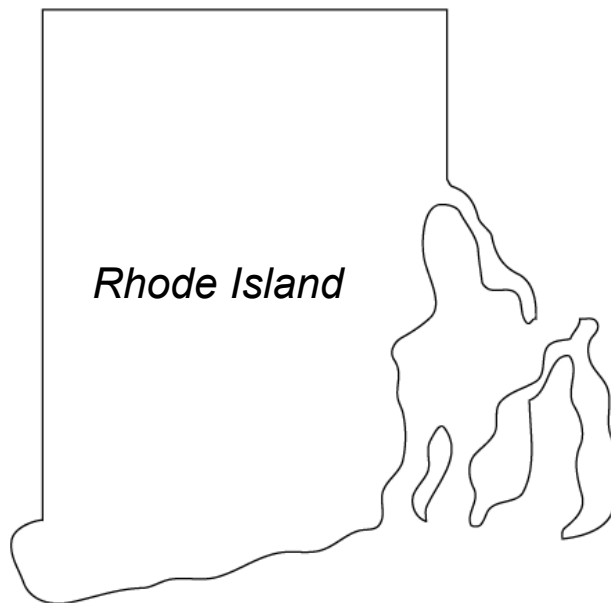


# DELTA SCIENCE MODULES III

Grades K-8

Correlation With

## Rhode Island Grade Span Expectations



# Rhode Island Grade Span Expectations

## Correlation to

## Delta Science Modules III

The following is a correlation of the grades K-2, 3-4 and 5-6, and 7-8 portions of the Rhode Island Grade Span Expectations to Delta Science Modules. This correlation shows representative examples of investigations and activities from the DSM program that address the expectations. A citation does not include all of the investigations or activities from DSM that might address a particular expectation.

January 2007

## Earth and Space Science Grades K-2

**ESS1 - The earth and earth materials as we know them today have developed over long periods of time, through continual change processes.**

### ESS1 (K-4) INQ –1

Given certain earth materials (soils, rocks or minerals) use physical properties to sort, classify, and describe them.

Grade Span Expectations	DSM
<p><b>ESS1 (K-2)–1</b> <b>Students demonstrate an understanding of earth materials by ...</b></p> <p><b>1a</b> describing, comparing, and sorting rocks and soils by similar or different physical properties (e.g., size, shape, color, texture, smell, weight).</p> <p><b>1b</b> recording observations/data about physical properties.</p> <p><b>1c</b> using attributes of properties to state why objects are grouped together (e.g., rocks that are shiny or not shiny).</p>	<p><b>Soil Science</b> Activity 2-4, 7, pp. 21-44, 59-67</p> <p><b>Soil Science</b> Activity 2-4, 7, pp. 21-44, 59-67</p> <p><b>Soil Science</b> Activity 7, pp. 59-67</p>

### ESS1 (K-4) INQ –2

Use results from an experiment to draw conclusions about how water interacts with earth materials (e.g., percolation, erosion, frost heaves).

Grade Span Expectations	DSM
<p><b>ESS1 (K-2) –2</b> <b>Students demonstrate an understanding of processes and change over time within earth systems by ...</b></p> <p><b>2a.</b> conducting tests on how different soils retain water (e.g., how fast does the water drain through?).</p>	

### ESS 1 (K-4) NOS –3

Explain how the use of scientific tools helps to extend senses and gather data about weather. (i.e., weather/wind vane: direction; wind sock: wind intensity; anemometer: speed; thermometer: temperature; meter sticks/rulers: snow depth; rain gauges: rain amount in inches).

Grade Span Expectations	DSM
<p><b>ESS 1(K-2)–3</b> <b>Students demonstrate an understanding of how the use of scientific tools helps to extend senses and gather data by...</b></p> <p><b>3a</b> using scientific tools to extend senses and gather data about weather (e.g., weather/wind vane: direction; wind sock: wind intensity; anemometer: speed; thermometer:</p>	<p><b>Weather Watching</b> Activity 2-5, 7, pp. 21-50, 61-68 Reader, pp. 6-7</p>

temperature; meter sticks/rulers: snow depth; rain gauges: rain amount in inches).	
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**ESS1 (K-4) INQ+SAE –4**

Explain how wind, water, or ice shape and reshape the earth.

Grade Span Expectations	DSM
<p><b>ESS1 (K-2) –4</b>  <b>Students demonstrate an understanding of processes and change over time within earth systems by ...</b></p> <p><b>4a</b> observing and recording seasonal and weather changes throughout the school year.</p>	<p><b>Weather Watching</b>            Activity 1-5, 7, pp. 13-50, 61-68</p>

**ESS1 (K-4) POC –5**

Based on data collected from daily weather observations, describe weather changes or weather patterns.

Grade Span Expectations	DSM
<p><b>ESS1 (K-2) –5</b>  <b>Students demonstrate an understanding of processes and change over time within earth systems by ...</b></p> <p><b>5a</b> observing, recording, and summarizing local weather data.</p> <p><b>5b</b> observe how clouds are related to forms of precipitation (e.g., rain, sleet, snow).</p>	<p><b>Weather Watching</b>            Activity 2-5, 7, pp. 21-50, 61-68</p> <p><b>Weather Watching</b>            Activity 6, pp. 51-59</p>

**ESS1 (K-4) FAF -6**

Given information about earth materials explain how their characteristics lend themselves to specific uses

Grade Span Expectations	DSM
<p><b>ESS1 (K-2) –6</b>  <b>Students demonstrate an understanding of properties of earth materials by...</b></p> <p><b>6a</b> identifying which materials are best for different uses (e.g., soils for growing plants, sand for the sand box).</p>	<p><b>Soil Science</b>            Activity 7, 10, pp. 59-67, 91-97            Activity 7, Science and the Arts, p. 67</p> <p><b>Classroom Plants</b>            Activity 3-4, pp. 29-46</p>

**ESS2 - The earth is part of a solar system, made up of distinct parts that have temporal and spatial interrelationships.**

No further targets for EK ESS2 at the K-4 Grade Span

Grade Span Expectations	DSM
<p><b>ESS2 (K-2) –7</b>  <b>Students demonstrate an understanding of</b></p>	

<p><b>temporal or positional relationships between or among the Earth, sun, and moon by ...</b></p> <p><b>7a</b> observing that the sun can only be seen in the daytime, but the moon can be seen sometimes at night and sometimes during the day.</p> <p><b>7b</b> observing that the sun and moon appear to move slowly across the sky.</p> <p><b>7c</b> observing that the moon looks slightly different from day to day.</p>	<p><b>Finding the Moon</b> Activity 1, pp. 13-19</p> <p><b>Finding the Moon</b> Activity 1, 3, pp. 13-19, 29-37 <b>Sunshine and Shadows</b> Activity 4, 6, pp. 33-41, 49-56 Reader, pp. 8-9</p> <p><b>Finding the Moon</b> Activity 4, 9-10, pp. 39-46, 77-81 Reader, pp. 6-10</p>
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No further targets for EK ESS2 at the K-4 Grade Span

Grade Span Expectations	DSM
<p><b>ESS2 (K-2)-8</b> <b>Students demonstrate an understanding of characteristics of the solar system by ...</b></p> <p><b>No GSEs for this Assessment Target</b></p>	

**ESS3 - The origin and evolution of galaxies and the universe demonstrate fundamental principles of physical science across vast distances and time**

No further targets for EK ESS2 at the K-4 Grade Span *The GSEs listed below are assessed at the local level only.*

Grade Span Expectations	DSM
<p><b>ESS3 (K-2) –9</b> <b>Students demonstrate understanding of processes and change over time within the system of the universe (Scale, Distances, Star Formation, Theories, Instrumentation) by...</b></p> <p><b>9a</b> observing that there are more stars in the sky than can easily be counted, but they are not scattered evenly and not all the same in brightness.</p>	<p><b>Finding the Moon</b> Activity 1, Science Extension, p. 19</p>

## Earth and Space Science Grades 3-4

**ESS1 - The earth and earth materials as we know them today have developed over long periods of time, through continual change processes.**

### ESS1 (K-4) INQ –1

Given certain earth materials (soils, rocks or minerals) use physical properties to sort, classify, and describe them.

Grade Span Expectations	DSM
<p><b>ESS1 (3-4) –1</b> <b>Students demonstrate an understanding of earth materials by ...</b></p> <p><b>1a</b> describing, comparing, and sorting rocks, soils, <u>and minerals</u> by similar or different physical properties (e.g., size, shape, color, texture, smell, weight, <u>temperature, hardness, composition</u>).</p> <p><b>1b</b> recording and <u>analyzing</u> observations/data about physical properties (e.g., <u>within a grouping</u>, which characteristics are the same and which are different).</p> <p><b>1c</b> <u>citing evidence (e.g., prior knowledge, data) to support why rocks, soils, or minerals are classified/not classified together.</u></p> <p><b>1d</b> <u>identifying the four basic materials of the earth (water, soil, rocks, air).</u></p>	<p><b>Soil Science</b> Activity 2-4, 7, pp. 21-44, 59-67</p> <p><b>Soil Science</b> Activity 1-4, 7, pp. 15-44, 59-67</p> <p><b>Soil Science</b> Activity 7, pp. 59-67 Reader, pp. 7-8</p> <p>DSM provides the opportunity to address this expectation. See below: <b>Soil Science</b> Activity 1, 7, pp. 15-28, 59-67 Reader, pp. 2-3 <b>Water Cycle</b> Activity 1, pp. 13-21 Reader, pp. 2-5</p>

### ESS1 (K-4) INQ –2

Use results from an experiment to draw conclusions about how water interacts with earth materials (e.g., percolation, erosion, frost heaves).

Grade Span Expectations	DSM
<p><b>ESS1 (3-4)–2</b> <b>Students demonstrate an understanding of processes and change over time within earth systems by ...</b></p> <p><b>2a</b> <u>conducting investigations and using observational data to describe how water moves rocks and soils.</u></p>	<p><b>Soil Science</b> Activity 12, pp. 107-114 Reader, p. 9 <b>Earth Movements</b> Reader, pp. 12-13</p>

**ESS 1 (K-4) NOS –3**

Explain how the use of scientific tools helps to extend senses and gather data about weather. (i.e., weather/wind vane: direction; wind sock: wind intensity; anemometer: speed; thermometer: temperature; meter sticks/rulers: snow depth; rain gauges: rain amount in inches).

Grade Span Expectations	DSM
<p><b>ESS 1(3-4) –3</b>  <b>Students demonstrate an understanding of how the use of scientific tools helps to extend senses and gather data by...</b></p> <p><b>3a</b> <u>explaining</u> how the use of scientific tools helps to extend senses and gather data about weather (i.e., weather/wind vane: direction; wind sock: wind intensity; anemometer: speed; thermometer: temperature; meter sticks/rulers: snow depth; rain gauges: rain amount in inches).</p> <p><b>3b</b> <u>selecting</u> appropriate tools for a given task and <u>describing</u> the information they will provide.</p>	<p><b>Weather Watching</b>            Activity 2-5, 7, pp. 21-50, 61-68            Reader, pp. 6-7</p> <p><b>Weather Instruments</b>            Activity 1-6, 11, pp. 13-57, 89-96            Reader, pp. 3-9</p> <p>DSM provides the opportunity to address this expectation. See below:</p> <p><b>Weather Watching</b>            Activity 2-5, 7, pp. 21-50, 61-68            Reader, pp. 6-7</p> <p><b>Weather Instruments</b>            Activity 1-6, 11, pp. 13-57, 89-96            Reader, pp. 3-9</p>

**ESS1 (K-4) INQ+SAE –4**

Explain how wind, water, or ice shape and reshape the earth.

Grade Span Expectations	DSM
<p><b>ESS1 (3-4) –4</b>  <b>Students demonstrate an understanding of processes and change over time within earth systems by ...</b></p> <p><b>4a</b> <u>investigating local landforms and how wind, water, or ice have shaped and reshaped them (e.g. severe weather).</u></p> <p><b>4b</b> <u>using or building models to simulate the effects of how wind and water shape and reshape the land (e.g., erosion, sedimentation, deposition, glaciation).</u></p> <p><b>4c</b> <u>identifying sudden and gradual changes that affect the Earth (e.g. sudden change = flood; gradual change = erosion caused by oceans).</u></p>	<p><b>Soil Science</b>            Activity 12, pp. 107-114            Reader, p. 9</p> <p><b>Earth Movements</b>            Activity 3, pp. 29-37            Reader, pp. 12-13</p> <p><b>Soil Science</b>            Activity 5-6, 12, pp. 45-58, 107-114</p> <p><b>Earth Movements</b>            Activity 3, pp. 29-37</p> <p><b>Soil Science</b>            Activity 5-6, 12, pp. 45-58, 107-114</p> <p><b>Earth Movements</b>            Activity 3, 7-11, pp. 29-37, 63-103            Reader, pp. 9-13</p>

**ESS1 (K-4) POC –5**

Based on data collected from daily weather observations, describe weather changes or weather patterns.

Grade Span Expectations	DSM
<p><b>ESS1 (3-4) –5</b>  <b>Students demonstrate an understanding of processes and change over time within earth systems by ...</b></p> <p><b>5a</b> <u>observing, recording, comparing, and analyzing weather data to describe weather changes or weather patterns.</u></p> <p><b>5b</b> <u>describing water as it changes into vapor in the air and reappears as a liquid when it's cooled.</u></p> <p><b>5c</b> <u>explaining how this cycle of water relates to weather and the formation of clouds.</u></p>	<p><b>Weather Watching</b>                      Activity 2-5, 7, pp. 21-50, 61-68  <b>Weather Instruments</b>                      Activity 1-6, 10-12, pp. 13-57, 86-101                      Reader, pp. 3-9</p> <p><b>Weather Watching</b>                      Activity 6, pp. 51-59                      Reader, pp. 4-5  <b>States of Matter</b>                      Activity 8-10, pp. 65-88  <b>Weather Instruments</b>                      Activity 7-9, 11, pp. 59-80, 89-96                      Reader, p. 6  <b>Water Cycle</b>                      Activity 4, 8-9, 11-13, pp. 39-44, 69-83, 91-114                      Reader, pp. 8-11</p> <p><b>Weather Watching</b>                      Activity 6, pp. 51-59                      Reader, pp. 4-5  <b>Weather Instruments</b>                      Activity 9, pp. 75-80                      Reader, p. 6  <b>Water Cycle</b>                      Activity 9,13, pp. 77-83, 91-114                      Reader, pp. 8-11</p>

**ESS1 (K-4) FAF -6**

Given information about earth materials explain how their characteristics lend themselves to specific uses

Grade Span Expectations	DSM
<p><b>ESS1 (3-4)-6</b>  <b>Students demonstrate an understanding of properties of earth materials by...</b></p> <p><b>6a</b> <u>determining and supporting explanations of their uses (e.g., best soils to grow plants, best building material for a specific purpose, determining which rock size will best prevent erosion).</u></p>	<p><b>Soil Science</b>                      Activity 7, 10, p. 59-67, 91-97                      Activity 7, Science and the Arts, p. 67  <b>Classroom Plants</b>                      Activity 3-4, pp. 29-46</p>

**ESS2 - The earth is part of a solar system, made up of distinct parts that have temporal and spatial interrelationships.**

No further targets for EK ESS2 at the K-4 Grade Span

Grade Span Expectations	DSM
<p><b>ESS2 (3-4)-7</b>  <b>Students demonstrate an understanding of temporal or positional relationships</b></p>	

<p><b>between or among the Earth, sun, and moon by ...</b></p> <p><b>7a</b> observing that the sun, moon, <u>and stars</u> appear to move slowly across the sky.</p> <p><b>7b</b> observing that the moon looks slightly different from day to day, <u>but looks the same again in about 4 weeks.</u></p> <p><b>7c</b> <u>recognizing that the rotation of the Earth on its axis every 24 hours produces the day/night cycle.</u></p>	<p><b>Solar System</b> Reader, p. 7</p> <p><b>Solar System</b> Activity 9, pp. 73-81 Reader, p. 6</p>
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No further targets for EK ESS2 at the K-4 Grade Span

Grade Span Expectations	DSM
<p><b>ESS2 (3-4)-8</b> Students demonstrate an understanding of characteristics of the solar system by ...</p> <p><b>8a</b> <u>recognizing that: the sun is the center of our solar system; the Earth is one of several planets that orbits the sun; and the moon orbits the Earth.</u></p> <p><b>8b</b> <u>recognizing that it takes approximately 365 days for the Earth to orbit the sun.</u></p>	<p><b>Solar System</b> Activity 1-2, 6, 8, pp. 13-26, 51-58, 65-72 Reader, pp. 2-3</p> <p><b>Solar System</b> Activity 9, pp. 73-81 Reader, p. 3</p>

No further targets for EK ESS2 at the K-4 Grade Span *The GSEs listed below are assessed at the local level only.*

Grade Span Expectations	DSM
<p><b>ESS3 (3-4)-9</b> Students demonstrate understanding of processes and change over time within the system of the universe (Scale, Distances, Star Formation, Theories, Instrumentation) by...</p> <p><b>9a</b> <u>recognizing that throughout history people have identified patterns of stars that we call constellations.</u></p>	<p><b>Solar System</b> Activity 12, pp. 101-110</p>

## Earth and Space Science Grades 5-6

**ESS1 - The earth and earth materials as we know them today have developed over long periods of time, through continual change processes.**

### **ESS1 (5-8) INQ+ POC –1**

Use geological evidence provided to support the idea that the Earth’s crust/lithosphere is composed of plates that move.

Grade Span Expectations	DSM
<p>ESS1 (5-6)–1 <b>Students demonstrate an understanding of processes and change over time within earth systems by ...</b></p> <p><b>1a</b> <u>identifying and describing the layers of the earth.</u></p> <p><b>1b</b> <u>plotting location of volcanoes and earthquakes and explaining the relationship between the location of these phenomena and faults.</u></p>	<p><b>Erosion</b> Reader, p. 2 <b>Earth Processes</b> Activity 2, pp 23-38 Reader, pp. 2-3</p> <p><b>Earth Processes</b> Activity 10, pp 89-95</p>

### **ESS1 (5-8) SAE–2**

Explain the processes that cause the cycling of water into and out of the atmosphere and their connections to our planet’s weather patterns.

Grade Span Expectations	DSM
<p>ESS1 (5-6)–2 <b>Students demonstrate an understanding of processes and change over time within earth systems by ...</b></p> <p><b>2a</b> <u>diagramming, labeling and explaining the processes of the water cycle including evaporation, precipitation, and run-off, condensation, transpiration, and groundwater.</u></p> <p><b>2b</b> <u>explaining how condensation of water vapor forms clouds which affects climate and weather.</u></p> <p><b>2c</b> <u>developing models to explain how humidity, temperature, and altitude affect air pressure and how this affects local weather.</u></p> <p><b>2d</b> <u>identifying composition and layers of earth’s atmosphere.</u></p>	<p><b>Weather Forecasting</b> Reader, p. 4 <b>Oceans</b> Activity 5, pp. 55-63</p> <p><b>Weather Forecasting</b> Activity 9, pp. 69-74 Reader, p. 4 <b>Oceans</b> Activity 5, pp. 55-63</p> <p><b>Weather Forecasting</b> Activity 3-8, pp. 25-68 Reader, pp. 6-7</p> <p><b>Weather Forecasting</b> Reader, p. 2</p>

**ESS1 (5-8) POC –3**

Explain how earth events (abruptly and over time) can bring about changes in Earth’s surface: landforms, ocean floor, rock features, or climate.

Grade Span Expectations	DSM
<p><b>ESS1 (5-6)–3</b>  <b>Students demonstrate an understanding of processes and change over time within earth systems by ...</b></p> <p><u>3a describing events and the effect they may have on climate (e.g. El Nino, deforestation, glacial melting, and an increase in greenhouse gases).</u></p>	<p><b>Weather Forecasting</b>            Activity 7, Science Challenge, p. 61            Reader, p. 9</p> <p><b>Oceans</b>            Activity 8, Science Challenge, p. 98</p> <p><b>Pollution</b>            Activity 9, Science, Technology and Society, p. 70</p>

**ESS1 (5-8) SAE+ POC –4**

Explain the role of differential heating or convection in ocean currents, winds, weather and weather patterns, atmosphere, or climate.

Grade Span Expectations	DSM
<p><b>ESS1 (5-6)–4</b>  <b>Students demonstrate an understanding of processes and change over time within earth systems by ...</b></p> <p><u>4a explaining how differential heating and convection affect Earth’s weather patterns.</u></p> <p><u>4b describing how differential heating of the oceans affects ocean currents which in turn influence weather and climate.</u></p> <p><u>4c explaining the relationship between differential heating/convection and the production of winds.</u></p> <p><u>4d analyzing global patterns of atmospheric movements to explain effects on weather.</u></p> <p><u>4e predicting temperature and precipitation changes associated with the passing of various fronts.</u></p>	<p><b>Weather Forecasting</b>            Reader, p. 9</p> <p><b>Oceans</b>            Reader, p. 8</p> <p><b>Weather Forecasting</b>            Reader, p. 15</p> <p><b>Weather Forecasting</b>            Reader, pp. 9, 15</p> <p><b>Weather Forecasting</b>            Activity 7, pp. 55-61            Reader, p. 4</p>

**ESS1 (5-8) INQ+ POC –5**

Using data about a rock’s physical characteristics make and support an inference about the rock’s history and connection to rock cycle.

Grade Span Expectations	DSM
<p><i>ESS1 (5-6)-5</i>  <i>Students demonstrate an understanding of</i></p>	

<p><i>processes and change over time by ...</i></p> <p><b>5a</b> <u>representing the processes of the rock cycle in words, diagrams, or models.</u></p> <p><b>5b</b> <u>citing evidence and developing a logical argument to explain the formation of a rock, given its characteristics and location. (e.g. classifying rock type using identification resources).</u></p>	<p><b>Rocks and Minerals</b> Activity 2, 9-10, pp. 21-28, 69-84 Reader, pp. 9-13</p> <p><b>Earth Processes</b> Activity 4-6, pp. 39-62 Reader, pp. 16-19</p> <p><b>Rocks and Minerals</b> Activity 2, 9-10, pp. 21-28, 69-84 Reader, pp. 9-13</p> <p><b>Earth Processes</b> Activity 4-6, pp. 39-62 Reader, pp. 16-19</p>
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**ESS2 - The earth is part of a solar system, made up of distinct parts that have temporal and spatial interrelationships.**

**ESS2 (5-8) MAS –6**

Compare and contrast planets based on data provided about size, composition, location, orbital movement, atmosphere, or surface features (includes moons).

Grade Span Expectations	DSM
<p><b>ESS2 (5-6)-6</b> <b>Students demonstrate an understanding of characteristics of the solar system by ...</b></p> <p><b>6a</b> <u>identifying and comparing the size, location, distances, and movement (e.g. orbit of planets, path of meteors) of the objects in our solar system.</u></p> <p><b>6b</b> <u>comparing the composition, atmosphere, and surface features of objects in our solar system.</u></p>	<p><b>Earth, Moon and Sun</b> Activity 3-4, pp. 29-44 Reader, pp. 2-3, 21-23</p> <p><b>Astronomy</b> Activity 6 Reader, pp. 2-7</p> <p><b>Earth, Moon and Sun</b> Reader, pp. 21-23</p> <p><b>Astronomy</b> Reader, pp. 2-7, 19-20</p>

**ESS2 (5-8) NOS –7** Explain how technological advances have allowed scientists to re-evaluate or extend existing ideas about the solar system.

Grade Span Expectations	DSM
<p><b>ESS2 (5-6)-7</b> <i>Students demonstrate an understanding of how technological advances have allowed scientists to re-evaluate or extend existing ideas about the solar system by...</i></p> <p><b>No GSEs for the ESS2 (5-8) NOS-7 Assessment Target</b></p>	

**ESS2 (5-8) SAE+ POC –8**

Explain temporal or positional relationships between or among the Earth, sun, and moon (e.g., night/day, seasons, year, tides) or how gravitational force affects objects in the solar system (e.g., moons, tides, orbits, satellites).

Grade Span Expectations	DSM
<p><i>ESS2 (5-6)-8 Students demonstrate an understanding of temporal or positional relationships between or among the Earth, sun, and moon by ...</i></p> <p><b>8a</b> <u>using models to describe the relative motion/position of the Earth, sun and moon.</u></p> <p><b>8b</b> <u>explaining night/day, seasons, year, and tides as a result of the regular and predictable motion of the Earth, sun, and moon.</u></p> <p><b>8c</b> <u>using a model of the Earth, sun and moon to recreate the phases of the moon.</u></p> <p><b>ESS2 (5-6) -8</b> <b>Students demonstrate an understanding of gravitational relationships between or among objects of the solar system by ...</b></p> <p><b>8d</b> <u>defining the Earth’s gravity as a force that pulls any object on or near the Earth toward its center without touching it.</u></p>	<p><b>Earth, Moon and Sun</b> Activity 5-12, pp. 45-119 Reader, pp. 2-3, 8, 10, 12, 15 <b>Astronomy</b> Activity 5</p> <p><b>Earth, Moon and Sun</b> Activity 6, 8-9, pp. 53-60, 71-92 Reader, pp. 8-12, 16-17 <b>Astronomy</b> Activity 5</p> <p><b>Earth, Moon and Sun</b> Activity 10, pp. 93-101 Reader, pp. 14-15</p> <p><b>Earth, Moon and Sun</b> Reader, p. 5 <b>Astronomy</b> Reader, p. 3 <b>Newton’s Toy Box</b> Activity 2-3, pp. 9-31 Reader, pp. 4-8</p>

**ESS3 - The origin and evolution of galaxies and the universe demonstrate fundamental principles of physical science across vast distances and time**

**No further targets for EK ESS3 at the 5-8 Grade Span**

The GSEs listed below are assessed at the local level only

Grade Span Expectations	DSM
<p><b>ESS3 (5-6)–9</b> <b>Students demonstrate an understanding of the structure of the universe by ...</b></p> <p><b>9a</b> <u>describing the apparent motion/position of the objects in the sky. (e.g. constellations, planets).</u></p>	<p><b>Earth, Moon and Sun</b> Activity 1-2, pp. 13-27 <b>Astronomy</b> Activity 1-4</p>

9b identifying the sun as a medium-sized star located near the edge of a disk-shaped galaxy of stars.

**Earth, Moon and Sun**

Reader, p. 4

**Astronomy**

Reader, p. 8

## Earth and Space Science Grades 7-8

**ESS1 - The earth and earth materials as we know them today have developed over long periods of time, through continual change processes.**

### **ESS1 (5-8) INQ+ POC –1**

Use geological evidence provided to support the idea that the Earth’s crust/lithosphere is composed of plates that move.

Grade Span Expectations	DSM
<p>ESS1 (7-8)–1 <b>Students demonstrate an understanding of processes and change over time within earth systems by ...</b></p> <p><b>1a</b> <u>citing evidence and developing a logical argument for plate movement using fossil evidence, layers of sedimentary rock, location of mineral deposits, and shape of the continents.</u></p>	<p><b>Earth Processes</b> Activity 1, 10, 12-14, pp. 13-21, 89-95, 105-129 Reader, pp. 4-6</p>

### **ESS1 (5-8) SAE–2**

Explain the processes that cause the cycling of water into and out of the atmosphere and their connections to our planet’s weather patterns.

Grade Span Expectations	DSM
<p>ESS1 (7-8)–2 <b>Students demonstrate an understanding of processes and change over time within earth systems by ...</b></p> <p style="text-align: center;"><b>No GSEs for the ESS1 (5-8) SAE-2 Assessment Target</b></p>	

### **ESS1 (5-8) POC –3**

Explain how earth events (abruptly and over time) can bring about changes in Earth’s surface: landforms, ocean floor, rock features, or climate.

Grade Span Expectations	DSM
<p>ESS1 (7-8)–3 <b>Students demonstrate an understanding of processes and change over time within earth systems by ...</b></p> <p><b>3a</b> <u>evaluating slow processes (e.g. weathering, erosion, mountain building, sea floor spreading) to determine how the earth has changed and will continue to change over time.</u></p> <p><b>3b</b> <u>evaluating fast processes (e.g. erosion, volcanoes and earthquakes) to determine how the earth has changed and will continue to change over time.</u></p>	<p><b>Earth Processes</b> Activity 3-4, 7, 13, pp. 29-46, pp. 63-69, 111-120 Reader, pp. 5-8</p> <p><b>Earth Processes</b> Activity 3-4, pp. 29-46 Reader, pp. 7-15</p>

<p><b>3c</b> investigating the effect of flowing water on landforms (e.g. stream table, local environment).</p>	<p><b>Earth Processes</b> Reader, pp. 11-14</p>
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**ESS1 (5-8) SAE+ POC –4**

Explain the role of differential heating or convection in ocean currents, winds, weather and weather patterns, atmosphere, or climate.

Grade Span Expectations	DSM
<p><b>ESS1 (7-8)–4</b> <b>Students demonstrate an understanding of processes and change over time within earth systems by ...</b></p> <p style="text-align: center;"><b>No GSEs for the ESS1 (5-8) SAE+POC=4 Assessment Target</b></p> <p><b>4a</b> explaining cause and effect relationships between global climate and energy transfer.</p> <p><b>4b</b> using evidence to make inferences or predictions about global climate issues.</p>	

**ESS1 (5-8) INQ+ POC –5**

Using data about a rock’s physical characteristics make and support an inference about the rock’s history and connection to rock cycle.

Grade Span Expectations	DSM
<p><b>ESS1 (7-8)-5</b> <b>Students demonstrate an understanding of processes and change over time by ...</b></p> <p style="text-align: center;"><b>No GSEs for the ESS1 (5-8) INQ+POC-5 Assessment Target</b></p>	

**ESS2 - The earth is part of a solar system, made up of distinct parts that have temporal and spatial interrelationships.**

**ESS2 (5-8) MAS –6**

Compare and contrast planets based on data provided about size, composition, location, orbital movement, atmosphere, or surface features (includes moons).

Grade Span Expectations	DSM
<p><b>ESS2 (7-8) -6</b> <b>Students demonstrate an understanding of characteristics of the solar system by ...</b></p> <p style="text-align: center;"><b>No GSEs for the ESS2 (7-8)-6 Assessment Target</b></p>	

**ESS2 (5-8) NOS –7**

Explain how technological advances have allowed scientists to re-evaluate or extend existing ideas about the solar system.

Grade Span Expectations	DSM
<p><b>ESS2 (7-8) -7</b> Students demonstrate an understanding of how technological advances have allowed scientists to re-evaluate or extend existing ideas about the solar system by...</p> <p><b>7a</b> <u>identifying major discoveries from different scientists and cultures and describing how these discoveries have contributed to our understanding of the solar system (e.g. timeline, research project, picture book).</u></p>	<p><b>Earth, Moon and Sun</b> Activity 3, Science and Social Studies, p. 35 Activity 8, Science and Social Studies, p. 79 Reader, p. 20</p> <p><b>Astronomy</b> Activity 1, Science Extension Activity 9, Science and Language Arts Reader, pp. 2-3, 21</p>

**ESS2 (5-8) SAE+ POC –8**

Explain temporal or positional relationships between or among the Earth, sun, and moon (e.g., night/day, seasons, year, tides) or how gravitational force affects objects in the solar system (e.g., moons, tides, orbits, satellites).

Grade Span Expectations	DSM
<p><i>ESS2 (7-8) -8</i> <b>Students demonstrate an understanding of temporal or positional relationships between or among the Earth, sun, and moon by ...</b></p> <p><b>8a</b> <u>using or creating a model of the Earth, sun and moon system to show rotation and revolution.</u></p> <p><b>8b</b> <u>explaining night/day, seasons, year, and tides as a result of the regular and predictable motion of the Earth, sun, and moon.</u></p> <p><b>8c</b> <u>using a model of the Earth, sun and moon to recreate the phases of the moon.</u></p> <p><i>ESS2 (7-8) -8</i> <b>Students demonstrate an understanding of gravitational relationships between or among objects of the solar system by...</b> <b>8d</b> <u>describing the relationship between mass and the gravitational force between objects.</u></p>	<p><b>Earth, Moon and Sun</b> Activity 6, 8-9, pp. 53-60, 71-92 Reader, pp. 8-10</p> <p><b>Astronomy</b> Activity 5</p> <p><b>Earth, Moon and Sun</b> Activity 6, 8-9, 12, pp. 53-60, 71-92, 111-119 Reader, pp. 8-12, 16-17</p> <p><b>Astronomy</b> Activity 5</p> <p><b>Earth, Moon and Sun</b> Activity 10, pp. 93-101 Reader, pp. 14-15</p> <p><b>Earth, Moon and Sun</b> Reader, p. 5</p> <p><b>Astronomy</b> Reader, p. 3</p> <p><b>Newton's Toy Box</b></p>

<p><u>8e describing the relationship between distance and the gravitational force between objects.</u></p> <p><u>8f explaining that the sun's gravitational pull holds the Earth and other planets in their orbits, just as the planet's gravitational pull keeps their moons in orbit.</u></p>	<p>Activity 3, pp. 19-23 Reader, pp. 4, 8</p> <p><b>Earth, Moon and Sun</b> Reader, p. 5</p> <p><b>Astronomy</b> Reader, p. 3</p> <p><b>Newton's Toy Box</b> Activity 3, pp. 19-23 Reader, pp. 4, 8</p> <p><b>Earth, Moon and Sun</b> Reader, p. 5</p> <p><b>Astronomy</b> Reader, p. 3</p> <p><b>Newton's Toy Box</b> Reader, pp. 4, 23</p>
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**ESS3 - The origin and evolution of galaxies and the universe demonstrate fundamental principles of physical science across vast distances and time**

**No further targets for EK ESS3 at the 5-8 Grade Span**

*The GSEs listed below are assessed at the local level only*

Grade Span Expectations	DSM
<p><b>ESS3 (7-8)-9</b>  <b>Students demonstrate an understanding of the structure of the universe by...</b></p> <p><b>9a</b> <u>describing the universe as containing many billions of galaxies, and each galaxy contains many billions of stars.</u></p>	<p><b>Earth, Moon and Sun</b>  Reader, p. 4</p> <p><b>Astronomy</b>  Activity 11  Reader, pp. 2, 14-15</p>

## Life Science Grades K-2

**LS1 – All living organisms have identifiable structures and characteristics that allow for survival (organisms, populations, & species).**

### **LS1 (K-4) – INQ+POC –1**

Sort/classify different living things using similar and different characteristics. Describe why organisms belong to each group or cite evidence about how they are alike or not alike.

Grade Span Expectations	DSM
<p><b>LS1 (K-2)-1</b> <b>Students demonstrate an understanding of classification of organisms by...</b></p> <p><b>1a</b> distinguishing between living and non-living things.</p> <p><b>1b</b> identifying and sorting based on a similar or different external feature.</p> <p><b>1c</b> observing and recording the external features that make up living things (e.g., roots, stems, leaves, flowers, legs, antennae, tail, shell).</p>	<p><b>Observing an Aquarium</b> Activity 2, pp. 23-30 <b>From Seed to Plant</b> Activity 1, pp. 15-24</p> <p><b>Observing an Aquarium</b> Activity 3-6, pp. 31-67 <b>Butterflies and Moths</b> Activity 1, 6, 9, 12, pp. 15-21, 53-59, 79-87, 105-110</p> <p><b>Observing an Aquarium</b> Activity 3-5, pp. 31-55 <b>From Seed to Plant</b> Activity 2-5, 9-10, pp. 21-52, 73-84 <b>Butterflies and Moths</b> Activity 1-2, 9, 12, pp. 15-30, 79-87, 105-110 <b>Classroom Plants</b> Activity 6-9, pp. 55-86 <b>Plant and Animal Populations</b> Activity 4-7, pp. 43-76</p>

### **LS1 (K-4) – SAE–2**

Identify the basic needs of plants and animals in order to stay alive. (i.e., water, air, food, space).

Grade Span Expectations	DSM
<p><b>LS1 (K-2)-2</b> <b>Students demonstrate an understanding of structure and function survival requirements by ...</b></p> <p><b>2a</b> observing that plants need water, air, food, and light to grow; observe that animals need water, air, food and shelter to grow.</p>	<p><b>Observing an Aquarium</b> Activity 2, pp. 23-30 <b>From Seed to Plant</b> Activity 2, 8, 11, 14, pp. 21-31, 67-72, 85-90, 105-109 Reader, p. 12 <b>Butterflies and Moths</b> Activity 1, pp. 15-21 <b>Classroom Plants</b> Activity 3, 5, pp. 29-37, 47-53 <b>Plant and Animal Populations</b> Activity 2, 4, pp. 25-33, 43-50</p>

**LS1 (K-4) – POC–3**

Predict, sequence or compare the life stages of organisms – plants and animals (e.g., put images of life stages of an organism in order, predict the next stage in sequence, compare two organisms).

Grade Span Expectations	DSM
<p><b>LS1 (K-2)-2</b> <b>Students demonstrate an understanding of reproduction by ...</b></p> <p><b>3a</b> observing and scientifically drawing (e.g., recording shapes, prominent feature, relative proportions, organizes and differentiates significant parts observed) and labeling the stages in the life cycle of a familiar plant and animal.</p> <p><b>3b</b> sequencing the life cycle of a plant or animal when given a set of pictures.</p>	<p><b>Observing an Aquarium</b> Activity 10, pp. 97-107 Reader, pp. 10-11</p> <p><b>From Seed to Plant</b> Activity 13, pp. 97-103 Reader, p. 10-11</p> <p><b>Classroom Plants</b> Reader, p. 5</p> <p><b>Butterflies and Moths</b> Activity 11, pp. 97-104</p>

**LS1 (K-4) – FAF–4**

Identify and explain how the physical structures of an organism (plants or animals) allow it to survive in its habitat/environment (e.g., roots for water; nose to smell fire).

Grade Span Expectations	DSM
<p><b>LS1 (K-2)-4</b> <b>Students demonstrate an understanding of structure and function survival requirements by ...</b></p> <p><b>4a</b> identifying the specific functions of the physical structures of a plant or an animal (e.g. roots for water; webbed feet for swimming).</p>	<p><b>Observing an Aquarium</b> Activity 4-5, pp. 39-55 Reader, pp. 6-9</p> <p><b>From Seed to Plant</b> Activity 3, 9-10, pp. 33-38, 73-84 Reader, pp. 6-9</p> <p><b>Butterflies and Moths</b> Activity 1-2, 10, pp. 15-30, 89-96</p> <p><b>Classroom Plants</b> Activity 6-9, 11, pp. 55-86, 97-104 Reader, pp. 6-12</p> <p><b>Plant and Animal Populations</b> Activity 4-7, pp. 43-76</p> <p><b>Using Your Senses</b> Activity 1, 5, 8, 10-11, pp. 13-21, 45-52, 67-73, 81-95 Reader, pp. 2-12</p>

**LS2 – Matter cycles and energy flows through an ecosystem.**

**LS2 (K-4) – SAE–5**

Recognize that energy is needed for all organisms to stay alive and grow or identify where a plant or animal gets its energy.

Grade Span Expectations	DSM
<p><b>LS2 (K-2)-5</b>  <b>Students demonstrate an understanding of energy flow in an ecosystem by ...</b></p> <p><b>5a</b> caring for plants and/or animals by identifying and providing for their needs; experimenting with a plant’s growth under different conditions, including light and no light.</p>	<p><b>Observing an Aquarium</b>                      Activity 2, pp. 23-30  <b>From Seed to Plant</b>                      Activity 2, 8, 11, 14, pp. 21-31, 67-72, 85-90, 105-109                      Reader, p. 12  <b>Butterflies and Moths</b>                      Activity 1, pp. 15-21  <b>Classroom Plants</b>                      Activity 5, pp. 47-53  <b>Plant and Animal Populations</b>                      Activity 2, 4, 6, 11, pp. 25-33, 43-50, 53-58, 85-90</p>

**LS2 (K-4) – SAE–6**

Describe ways plants and animals depend on each other (e.g., shelter, nesting, food).

Grade Span Expectations	DSM
<p><b>LS2 (K-2)-6</b>  <b>Students demonstrate an understanding of food webs in an ecosystem by ...</b></p> <p><b>6a</b> acting out or constructing simple diagrams (pictures or words) that shows a simple food web.</p> <p><b>6b</b> using information about a simple food web to determine how basic needs (e.g. shelter and water) are met by the habitat/environment.</p>	<p><b>Observing an Aquarium</b>                      Activity 72, pp. 69-78  <b>Plant and Animal Populations</b>                      Activity 12, pp. 111-117                      Reader, pp. 12-13  <b>Soil Science</b>                      Activity 8, pp. 69-79</p> <p>DSM provides the opportunity to address this expectation. See below:  <b>Observing an Aquarium</b>                      Activity 72, pp. 69-78  <b>Plant and Animal Populations</b>                      Activity 12, pp. 111-117                      Reader, pp. 12-13  <b>Soil Science</b>                      Activity 8, pp. 69-79</p>

**LS3 - Groups of organisms show evidence of change over time (structures, behaviors, and biochemistry).**

**LS3 (K-4) – SAE–7**

Using information (data and scenario), explain how changes in the environment can cause organisms to respond (e.g., survive there and reproduce, move away, die).

Grade Span Expectations	DSM
<p><b>LS3 (K-2)-7</b>  <b>Students demonstrate an understanding of equilibrium in an ecosystem by ...</b></p> <p>Currently no GSEs for this target at K-2 Grade Span</p>	

**LS4 – Humans are similar to other species in many ways, and yet are unique among Earth’s life forms.**

**LS4 (K-4) – FAF–8**

Identify what the physical structures of humans do (e.g., sense organs-eyes, ears, skin, etc.) or compare physical structures of humans to similar structures of animals.

Grade Span Expectations	DSM
<p><b>LS4 (K-2)-8</b>  <b>Students demonstrate an understanding of human body systems by ...</b></p> <p><b>8a</b> identifying the five senses and using senses to identify objects in the environment.</p> <p><b>8b</b> observing, identifying and recording external features of humans and other animals.</p> <p><b>8c</b> identifying the senses needed to meet survival needs for a given situation.</p>	<p><b>How Do We Learn</b>            Activity 1, pp. 13-22            Reader, pp. 2-6</p> <p><b>Using Your Senses</b>            Activity 1, 5, 8, 10-11, pp. 13-21, 45-52, 67-73, 81-95            Reader, pp. 2-12</p> <p><b>Observing an Aquarium</b>            Activity 4-5, pp. 39-55            Reader, pp. 6-9</p> <p><b>Butterflies and Moths</b>            Activity 1-2, 10, pp. 15-30, 89-96</p> <p><b>Plant and Animal Populations</b>            Activity 4-7, pp. 43-76</p> <p><b>Using Your Senses</b>            Activity 1, 5, 8, 10-11, pp. 13-21, 45-52, 67-73, 81-95            Reader, pp. 2-12</p> <p>DSM provides the opportunity to address this expectation.            See below:  <b>Butterflies and Moths</b>            Activity 7, 10, pp. 61-70, 89-95  <b>Plant and Animal Populations</b>            Activity 4-7, pp. 43-76            Reader, pp. 6, 11</p>

**LS4 (K-4) – POC–9**

Distinguish between characteristics of humans that are inherited from parents (i.e., hair color, height, skin color, eye color) and others that are learned (e.g., riding a bike, singing a song, playing a game, reading).

<b>Grade Span Expectations</b>	<b>DSM</b>
<p><b>LS4 (K-2)-9</b> <b>Students demonstrate an understanding of human heredity by ...</b></p> <p><b>9a</b> observing and comparing their physical features with those of parents, classmates and other organisms.</p> <p><b>9b</b> identifying that some behaviors are learned.</p>	<p><b>Butterflies and Moths</b> Activity 10, pp. 89-95 <b>Using Your Senses</b> Activity 1, Science and Health, p. 21</p> <p><b>Using Your Senses</b> Activity 1, Science and Social Studies, p. 21 Activity 11, Science and Social Studies, p. 73 Reader, pp. 14-15</p>

## Life Science Grades 3-4

**LS1 – All living organisms have identifiable structures and characteristics that allow for survival (organisms, populations, & species).**

### LS1 (K-4) – INQ+POC –1

Sort/classify different living things using similar and different characteristics. Describe why organisms belong to each group or cite evidence about how they are alike or not alike.

Grade Span Expectations	DSM
<p><b>LS1 (3-4)-1</b> <b>Students demonstrate an understanding of classification of organisms by...</b></p> <p><b>1a</b> <u>citing evidence to distinguish</u> between living and non-living things.</p> <p><b>1b</b> identifying, sorting and comparing based on similar <u>and/or different external features</u>.</p> <p><b>1c</b> recording and analyzing observations/data about external features (e.g., within a grouping, which characteristics are the same and which are different).</p> <p><b>1d</b> <u>citing evidence</u> (e.g., prior knowledge, data) <u>to draw conclusions explaining why organisms are grouped/not grouped together</u> (e.g., mammal, bird, fish).</p>	<p><b>Plant and Animal Life Cycles</b> Activity 1, pp. 15-21 Reader, p. 2</p> <p><b>Butterflies and Moths</b> Reader, p. 2</p> <p><b>Butterflies and Moths</b> Activity 1, 6, 9, 12, pp. 15-21, 53-59, 79-87, 105-110</p> <p><b>Dinosaurs and Fossils</b> Activity 9-10, pp. 67-82</p> <p><b>Dinosaurs and Fossils</b> Activity 9-10, pp. 67-82</p> <p><b>Dinosaurs and Fossils</b> Activity 9-10, pp. 67-82</p>

### LS1 (K-4) – SAE –2

Identify the basic needs of plants and animals in order to stay alive (i.e., water, air, food, space).

Grade Span Expectations	DSM
<p><b>LS1 (3-4)-2</b> <b>Students demonstrate an understanding of structure and function survival requirements by...</b></p> <p><b>2a</b> observing that plants need water, air, food, light and <u>space</u> to grow <u>and reproduce</u>; observe that animals need water, air, food, and shelter/space to grow <u>and reproduce</u>.</p>	<p><b>Classroom Plants</b> Activity 3, 5, pp. 29-37, 47-53</p> <p><b>Butterflies and Moths</b> Activity 1, pp. 15-21</p> <p><b>Plant and Animal Populations</b> Activity 2, 4, pp. 25-33, 43-50</p> <p><b>Plant and Animal Life Cycles</b> Activity 2-5, pp. 33-56 Reader, p. 2</p>

**LS1 (K-4) – POC –3**

Predict, sequence or compare the life stages of organisms – plants and animals (e.g., put images of life stages of an organism in order, predict the next stage in sequence, compare two organisms).

Grade Span Expectations	DSM
<p><b>LS1 (3-4)-3</b>  <b>Students demonstrate an understanding of reproduction by...</b></p> <p><b>3a</b> observing changes and <u>recording data</u> to scientifically <u>draw</u> and label the stages in the life cycle of a familiar plant and animal.</p> <p><b>3b</b> sequencing the life cycle of a plant or animal when given a set of <u>data/pictures</u>.</p> <p><b>3c</b> <u>comparing the life cycles of 2 plants or 2 animals when given a set of pictures</u>.</p>	<p><b>Butterflies and Moths</b>                      Activity 1, 6, 9, 11, pp. 15-21, 53-59, 79-87, 97-104</p> <p><b>Plant and Animal Life Cycles</b>                      Activity 2-10, pp. 23-96</p> <p><b>Butterflies and Moths</b>                      Activity 11, pp. 97-104</p> <p><b>Plant and Animal Life Cycles</b>                      Activity 9-10, pp. 83-96</p> <p>DSM provides the opportunity to address this expectation. See above citations.</p>

**LS1 (K-4) – FAF –4**

Identify and explain how the physical structures of an organism (plants or animals) allow it to survive in its habitat/environment (e.g., roots for water; nose to smell fire).

Grade Span Expectations	DSM
<p><b>LS1 (3-4)-4</b>  <b>Students demonstrate an understanding of structure and function survival requirements by...</b></p> <p><b>4a</b> identifying and explaining <u>how</u> the physical structure/characteristic of an organism allows it to survive and <u>defend itself</u> (e.g., of a characteristic – the coloring of a fiddler crab allows it to camouflage itself in the sand and grasses of its environment so that it will be protected from predators).</p> <p><b>4b</b> analyzing the structures needed to for survival of <u>populations</u> of plants and animals in a <u>particular habitat/environment</u> (e.g., populations of desert plants and animals require structures that enable them to obtain/conserves/retain water</p>	<p><b>Butterflies and Moths</b>                      Activity 3, 8, pp. 31-38, 71-77</p> <p><b>Classroom Plants</b>                      Activity 11, pp. 97-104</p> <p><b>Plant and Animal Populations</b>                      Reader, p. 11</p> <p><b>Food Chains and Webs</b>                      Activity 5, pp. 47-55                      Reader, pp. 4-5</p> <p><b>Plant and Animal Populations</b>                      Reader, pp. 5-7</p>

**LS2 – Matter cycles and energy flows through an ecosystem.**

**LS2 (K-4) – SAE –5**

Recognize that energy is needed for all organisms to stay alive and grow or identify where a plant or animal gets its energy.

Grade Span Expectations	DSM

<p><b>LS2 (3-4)-5</b>  <b>Students demonstrate an understanding of energy flow in an ecosystem by...</b></p> <p><b>5a</b> <u>identifying sources of energy for survival of organisms (i.e. light or food).</u></p>	<p><b>Butterflies and Moths</b>  Activity 10, pp. 89-95  Reader, p. 2</p> <p><b>Plant and Animal Populations</b>  Activity 10-12, pp. 95-117  Reader, pp. 4, 12-13</p> <p><b>Food Chains and Webs</b>  Activity 3, 8, 10-12, pp. 31-37, 67-72, 81-101  Reader, pp. 6-9</p>
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**LS2 (K-4) – SAE –6**

Describe ways plants and animals depend on each other (e.g., shelter, nesting, food).

Grade Span Expectations	DSM
<p><b>LS2 (3-4)-6</b>  <b>Students demonstrate an understanding of food webs in an ecosystem by...</b></p> <p><b>6a</b> <u>demonstrating in a food web that all animals' food begins with the sun.</u></p> <p><b>6b</b> <u>use information about organisms to design a habitat and explain how the habitat provides for the needs of the organisms that live there.</u></p> <p><b>6c</b> <u>explaining the way that plants and animals in that habitat depend on each other.</u></p>	<p><b>Plant and Animal Populations</b>  Activity 12, pp. 111-117  Reader, pp. 12-13</p> <p><b>Soil Science</b>  Activity 8, pp. 69-79</p> <p><b>Food Chains and Webs</b>  Activity 3, 11-12, pp. 31-37, 89-101  Reader, pp. 6-9</p> <p><b>Food Chains and Webs</b>  Activity 1-9, pp. 15-73</p> <p><b>Food Chains and Webs</b>  Activity 1-9, pp. 15-73</p>

**LS3 – Groups of organisms show evidence of change overtime (structures, behaviors, and biochemistry).**

**LS3 (K-4) – SAE –7**

Using information (data or scenario), explain how changes in the environment can cause organisms to respond (e.g., survive there and reproduce, move away, die).

Grade Span Expectations	DSM
<p><b>LS3 (3-4)-7</b>  <b>Students demonstrate an understanding of equilibrium in an ecosystem by...</b></p> <p><b>7a</b> <u>explaining what plants or animals might do if their environment changes (e.g., changing food supply or habitat due to fire, human impact, sudden weather related changes).</u></p>	<p><b>Plant and Animal Populations</b>  Activity 7, Science, Technology and Society, p. 76  Reader, p. 15</p> <p><b>Food Chains and Webs</b>  Activity 10, Science, Technology and Society, p. 87</p>

<p><b>7b</b> explaining how the balance of the ecosystem can be disturbed (e.g., how does overpopulation of a species affect the rest of the ecosystem).</p>	<p>Activity 12, Science, Technology and Society, DSM provides the opportunity to address this expectation. See citations above.</p>
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**LS4 – Humans are similar to other species in many ways, and yet are unique among Earth’s life forms.**

**LS4 (K-4) – FAF –8**

Identify what the physical structures of humans do (e.g., senses – eyes, ears, skin, etc.) or compare physical structures of humans to similar structures of animals.

Grade Span Expectations	DSM
<p><b>LS4 (3-4)-8</b>  <b>Students demonstrate an understanding of human body systems by...</b></p> <p><b>8a</b> showing connections between external and internal body structures (i.e., organs and systems) and how they help humans survive.</p> <p><b>8b</b> comparing and analyzing external features and characteristics of humans and other animals.</p>	<p><b>Using Your Senses</b>            Activity 1, 5, 8-12, pp. 13-21, 45-52, 67-103            Reader, pp. 4-12</p>

**LS4 (K-4) – POC –9**

Distinguish between characteristics of humans that are inherited from parents (i.e., hair color, height, skin color, eye color) and others that are learned (e.g., riding a bike, singing a song, playing a game, reading).

Grade Span Expectations	DSM
<p><b>LS4 (3-4)-9</b>  <b>Students demonstrate an understanding of human heredity by...</b></p> <p><b>9a</b> identifying similarities that are inherited from a biological parent.</p> <p><b>9b</b> identifying that some behaviors are learned and some behaviors are instinctive.</p>	<p><b>Using Your Senses</b>            Activity 1, Science and Social Studies, p. 21            Activity 10, Science, Technology and Society, p. 88            Activity 11, Science Challenge, p. 95            Reader, pp. 14-15</p>

## Life Science Grades 5-6

**LS1 – All living organisms have identifiable structures and characteristics that allow for survival (organisms, populations, & species).**

**LS1 (5-8) – INQ + SAE –1**

Using data and observations about the biodiversity of an ecosystem make predictions or draw conclusions about how the diversity contributes to the stability of the ecosystem.

Grade Span Expectations	DSM
<p><b>LS1 (5-6)-1</b> <b>Students demonstrate an understanding of biodiversity by...</b></p> <p><b>1a</b> recognizing that organisms have different features and <u>behaviors for meeting their needs to survive</u> (e.g. fish have gills for respiration, mammals have lungs, bears hibernate).</p>	<p><b>You and Your Body</b> Activity 1-2, 4, 6-8, pp. 13-25, 33-39, 49-66 Reader, pp. 4-11</p> <p><b>Plants in Our World</b> Activity 4 Reader, pp. 2-6, 22</p>

**LS1 (5-8) – SAE + FAF –2**

Describe or compare how different organisms have mechanisms that work in a coordinated way to obtain energy, grow, move, respond, provide defense, enable reproduction, or maintain internal balance (e.g., cells, tissues, organs and systems).

Grade Span Expectations	DSM
<p><b>LS1 (5-6)-2</b> <b>Students demonstrate an understanding of structure and function survival requirements by...</b></p> <p><b>2a</b> describing structures or behaviors that help organisms survive in their environment (e.g., defense, obtaining <u>nutrients</u>, reproduction, and <u>eliminating waste</u>).</p>	<p><b>You and Your Body</b> Activity 1-2, 4, 6-8, pp. 13-25, 33-39, 49-66 Reader, pp. 4-11</p> <p><b>Plants in Our World</b> Activity 4 Reader, pp. 2-6, 22</p>

**LS1 (5-8) – POC–3**

Compare and contrast sexual reproduction with asexual reproduction.

Grade Span Expectations	DSM
<p><b>LS1 (5-6)-3</b> <b>Students demonstrate an understanding of reproduction by...</b></p> <p><b>3a</b> <u>defining reproduction as a process though which organisms produce offspring.</u></p> <p><b>3b</b> <u>describing reproduction in terms of being essential for the continuation of a species.</u></p>	<p><b>Plants in Our World</b> Reader, pp. 6-8, 10, 12, 17, 19</p> <p><b>DNA-From Genes to Proteins</b> Reader, pp. 14-18</p> <p>DSM provides the opportunity to address this expectation. See citations above.</p>

<b>3c</b> <u>investigating and comparing a variety of plant and animal life cycles.</u>	<b>Plants in Our World</b> Reader, pp. 8, 10, 17, 20
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**LS1 (5-8) – FAF–4**

Explain relationships between or among the structure and function of cells, tissues, organs, and organ systems in an organism.

<b>Grade Span Expectations</b>	<b>DSM</b>
<p><b>LS1 (5-6)-4</b> <b>Students demonstrate an understanding of differentiation by...</b></p> <p><b>4a</b> <u>identifying cells as the building blocks of organisms.</u></p> <p><b>4b</b> <u>recognizing and illustrating (e.g., flow chart) the structural organization of an organism from cell to tissue to organs to organ system to organism.</u></p>	<p><b>You and Your Body</b> Reader, pp. 2-3 <b>Plants in Our World</b> Activity 1-2 Reader, pp. 2 <b>DNA-From Genes to Proteins</b> Activity 3-4 Reader, pp. 3, 6-7, 14</p> <p><b>You and Your Body</b> Reader, pp. 2-3 <b>DNA-From Genes to Proteins</b> Activity 3</p>

**LS2 - Matter and energy flows through an ecosystem.**

**LS2 (5-8) –SAE–5**

Using data and observations, predict outcomes when abiotic/biotic factors are changed in an ecosystem.

<b>Grade Span Expectations</b>	<b>DSM</b>
<p><b>LS2 (5-6)-5</b> <b>Students demonstrate an understanding of equilibrium in an ecosystem by...</b></p> <p><b>5a</b> identifying and defining an ecosystem and the variety of relationships within it (e.g., predator/prey, consumer/producer/decomposer, host/parasite, catastrophic events).</p>	

**LS2 (5-8) –SAE–6**

Given a scenario trace the flow of energy through an ecosystem, beginning with the sun, through organisms in the food web, and into the environment (includes photosynthesis and respiration).

<b>Grade Span Expectations</b>	<b>DSM</b>
<p><b>LS2 (5-6)-6</b> <b>Students demonstrate an understanding of energy flow in an ecosystem by...</b></p> <p><b>6a</b> identifying the sun as the major source of energy for life on earth and <u>sequencing the energy flow in an ecosystem.</u></p> <p><b>6b</b> <u>describing the basic processes and</u></p>	<p><b>Plants in Our World</b> Activity 3, 8-9 Reader, pp. 2-4</p> <p><b>Plants in Our World</b></p>

<u>recognizing the substances involved in photosynthesis and respiration.</u>	Activity 8-10 Reader, pp. 3-4
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**LS2 (5-8) – INQ + SAE–7**

Given an ecosystem, trace how matter cycles among and between organisms and the physical environment (includes water, oxygen, food web, decomposition, recycling but **not** carbon cycle or nitrogen cycle).

Grade Span Expectations	DSM
<p><b>LS2 (5-6)-7</b> <b>Students demonstrate an understanding of recycling in an ecosystem by...</b></p> <p><b>7a</b> explaining the processes of precipitation, evaporation, condensation as parts of the water cycle.</p> <p><b>7b</b> completing a basic food web for a given ecosystem.</p>	<p><b>Weather Forecasting</b> Reader, p. 4 <b>Oceans</b> Activity 5, pp. 55-63</p>

**LS3 – Groups of organisms show evidence of change over time (structure, behaviors, biochemistry).**

**LS3 (5-8) – MAS + FAF–8**

Use a model, classification system, or dichotomous key to illustrate, compare, or interpret possible relationships among groups of organisms (e.g., internal and external structures, anatomical features).

Grade Span Expectations	DSM
<p><b>LS3 (5-6)-8</b> <b>Students demonstrate an understanding of classification of organisms by...</b></p> <p><b>8a</b> <u>stating the value of, or reason for, classification systems.</u></p> <p><b>8b</b> <u>following a taxonomic key to identify a given organism (e.g., flowering and non-flowering plants).</u></p>	<p>DSM provides the opportunity to address this expectation. See below: <b>Plants in Our World</b> Reader, pp. 2, 23</p>

**LS3 (5-8) – POC - 9**

Cite examples supporting the concept that certain traits of organisms may provide a survival advantage in a specific environment and therefore, an increased likelihood to produce offspring.

Grade Span Expectations	DSM
<p><b>LS3 (5-6)-9</b> <b>Students demonstrate an understanding of Natural Selection/evolution by...</b></p> <p><b>9a</b> <u>explaining how a population's or species' traits affect their ability to survive over time.</u></p> <p><b>9b</b> <u>researching or reporting on possible causes for the extinction of an animal or plant.</u></p>	<p><b>DNA-From Genes to Proteins</b> Reader, pp. 19-20</p>

<u>9c explaining how fossil evidence can be used to understand the history of life on earth.</u>	<b>Earth Processes</b> Reader, pp. 22
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**LS4 – Humans are similar to other species in many ways, and yet are unique among Earth’s life forms.**

**LS4 (5-8) – INQ –10**

Use data and observations to support the concept that environmental or biological factors affect human body systems (biotic & abiotic).

<b>Grade Span Expectations</b>	<b>DSM</b>
<p><b>LS4 (5-6)-10</b> <b>Students demonstrate an understanding of human body systems by...</b></p> <p><b>10a</b> <u>identifying the biotic factors (e.g., microbes, parasites, food availability, aging process) that have an effect on human body systems.</u></p> <p><b>10b</b> <u>identifying the abiotic factors (e.g., drugs, altitude, weather, pollution) that have an effect on human body systems.</u></p> <p><b>Students demonstrate an understanding of patterns of human health/disease by...</b></p> <p><b>10c</b> <u>identifying the biotic (e.g., microbes, parasites, food availability, aging process) and abiotic (e.g., radiation, toxic materials, carcinogens) factors that cause disease and affect human health.</u></p>	<p><b>You and Your Body</b> Activity 9, Science and Health, p. 71 Activity 10, Science and Health, p. 77</p> <p><b>You and Your Body</b> Activity 5, Science and Health, p. 48 Activity 5, Science, Technology and Society, p. 48 Activity 6, Science and Health, p. 54 <b>Pollution</b> Activity 4, Science and Health, p. 38</p> <p><b>You and Your Body</b> Activity 9, Science and Health, p. 71 Activity 10, Science and Health, p. 77 <b>Pollution</b> Activity 4, Science and Health, p. 38</p>

**LS4 (5-8) – INQ + POC–11**

Using data provided, select evidence that supports the concept that genetic information is passed on from both parents to offspring.

<b>Grade Span Expectations</b>	<b>DSM</b>
<p><b>LS4 (5-6)-11</b> <b>Students demonstrate an understanding of human heredity by...</b></p> <p><b>11a</b> <u>differentiating between inherited and acquired traits.</u></p> <p><b>11b</b> <u>observing, recording and comparing differences in inherited traits (e.g., connected earlobe, tongue rolling).</u></p>	<p><b>DNA-From Genes to Proteins</b> Reader, p. 20</p> <p><b>DNA-From Genes to Proteins</b> Activity 1-2</p>

## Life Science Grades 7-8

**LS1 – All living organisms have identifiable structures and characteristics that allow for survival (organisms, populations, & species).**

**LS1 (5-8) – INQ + SAE –1**

Using data and observations about the biodiversity of an ecosystem make predictions or draw conclusions about how the diversity contributes to the stability of the ecosystem.

Grade Span Expectations	DSM
<p><b>LS1 (7-8)-1</b> <b>Students demonstrate an understanding of biodiversity by...</b></p> <p><b>1a</b> <u>giving examples of adaptations or behaviors that are specific to a niche (role) within an ecosystem.</u></p> <p><b>1b</b> <u>explaining how organisms with different structures and behaviors have roles that contribute to each other's survival and the stability of the ecosystem.</u></p>	

**LS1 (5-8) – SAE + FAF–2**

Describe or compare how different organisms have mechanisms that work in a coordinated way to obtain energy, grow, move, respond, provide defense, enable reproduction, or maintain internal balance (e.g., cells, tissues, organs and systems).

Grade Span Expectations	DSM
<p><b>LS1 (7-8)-2</b> <b>Students demonstrate an understanding of structure and function survival requirements by...</b></p> <p><b>2a</b> <u>explaining how cells, as the basic unit of life, has the same survival needs as an organism (i.e., obtain energy, grow, eliminate waste, reproduce, provide for defense).</u></p> <p><b>2b</b> <u>observing and describing ( e.g., drawing, labeling) individual cells as seen through s microscope targeting cell membrane, cell wall, nucleus, and chloroplasts.</u></p> <p><b>2c</b> <u>observing, describing and charting the growth, motion, responses of living organisms.</u></p>	<p><b>DNA-From Genes to Proteins</b> Activity 3-4 Reader, pp. 2-9 <b>Plants in Our World</b> Activity 1 Reader, p. 2</p> <p><b>DNA-From Genes to Proteins</b> Activity 3-4 Reader, pp. 2-9 <b>Plants in Our World</b> Activity 1 Reader, p. 2</p> <p><b>Plants in Our World</b> Activity 3-4 Reader, pp. 5-6</p>

**LS1 (5-8) – POC–3**

Compare and contrast sexual reproduction with asexual reproduction.

Grade Span Expectations	DSM
<p><b>LS1 (7-8)-3</b> <b>Students demonstrate an understanding of reproduction by...</b></p> <p><b>3a</b> <u>explaining reproduction as a fundamental process by which the new individual receives genetic information from parent(s).</u></p> <p><b>3b</b> <u>describing forms of asexual reproduction that involves the genetic contribution of only one parent (e.g., binary fission, budding, vegetative propagation, regeneration).</u></p> <p><b>3c</b> <u>describing sexual reproduction as a process that combines genetic material of two parents to produce a new organism (e.g., sperm/egg, pollen/ova).</u></p>	<p><b>DNA-From Genes to Proteins</b> Reader, p. 18 <b>Plants in Our World</b> Reader, p. 6</p> <p><b>DNA-From Genes to Proteins</b> Reader, p. 14 <b>Plants in Our World</b> Reader, p. 7</p> <p><b>Plants in Our World</b> Reader, p. 6 <b>DNA-From Genes to Proteins</b> Reader, p. 18</p>

**LS1 (5-8) – FAF–4**

Explain relationships between or among the structure and function of the cells, tissues, organs, and organ systems in an organism.

Grade Span Expectations	DSM
<p><b>LS1 (7-8)-4</b> <b>Students demonstrate an understanding of differentiation by...</b></p> <p><b>4a</b> <u>explaining that specialized cells perform specialized functions (e.g., muscle cells contract, nerve cells transmit impulses, skin cells provide protection).</u></p> <p><b>4b</b> <u>comparing individual cells of tissues and recognizing the similarities of cells and how they work together to perform specific functions.</u></p> <p><b>4c</b> <u>explaining how each type of cell, tissue, and organ has a distinct structure and set of functions that serve the organism as a whole.</u></p>	<p><b>DNA-From Genes to Proteins</b> Reader, pp. 3, 6-7 <b>Plants in Our World</b> Reader, pp. 6, 10, 14-15, 17, 19</p> <p><b>DNA-From Genes to Proteins</b> Reader, pp. 6-7 <b>Plants in Our World</b> Reader, pp. 14-15</p> <p>DSM provides the opportunity to address this expectation. See below: <b>DNA-From Genes to Proteins</b> Reader, pp. 3-14 <b>Plants in Our World</b> Reader, pp. 3-8, 13-19</p>

**LS2 – Matter cycles and energy flows through an ecosystem.****LS2 (5-8) – INQ + SAE–5**

Using data and observations, predict outcomes when abiotic/biotic factors are changed in an ecosystem.

Grade Span Expectations	DSM
<p><b>LS2 (7-8)-5</b> <b>Students demonstrate an understanding of</b></p>	

<p><b>equilibrium in an ecosystem by...</b></p> <p><b>5a</b> <u>identifying which biotic (e.g., bacteria, fungi, plants, animals) and biotic (e.g., weather, climate, light, water, temperature, soil composition, catastrophic events) factors affect a given ecosystem.</u></p> <p><b>5b</b> <u>analyzing how biotic and abiotic factors affect a given ecosystem.</u></p> <p><b>5c</b> <u>predicting the outcome of a given change in biotic and abiotic factors in an ecosystem.</u></p> <p><b>5d</b> <u>using a visual model (e.g., graph) to track population changes in an ecosystem.</u></p>	
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**LS2 (5-8) – INQ + SAE–6**

Given a scenario trace the flow of energy through an ecosystem, beginning with the sun, through organisms in the food web, and into the environment (includes photosynthesis and respiration).

Grade Span Expectations	DSM
<p><b>LS2 (7-8)-6</b> <b>Students demonstrate an understanding of energy flow in an ecosystem by...</b></p> <p><b>6a</b> <u>explaining the transfer of the sun’s energy through living systems and its effect upon them.</u></p> <p><b>6b</b> <u>describing the basic processes and recognizing the names and chemical formulas of the substances involved in photosynthesis and respiration.</u></p> <p><b>6c</b> <u>explaining the relationship between photosynthesis and respiration.</u></p> <p><b>Students demonstrate an understanding of food webs in an ecosystem by...</b></p> <p><b>6d</b> <u>creating or interpreting a model that traces the flow of energy in a food web.</u></p>	<p><b>Plants in Our World</b> Activity 8-10 Reader, pp. 3-4</p> <p><b>Plants in Our World</b> Activity 8-10 Reader, pp. 3-4</p> <p><b>Plants in Our World</b> Activity 8-10 Reader, pp. 3-4</p>

**LS2 (5-8) –SAE–7**

Given an ecosystem, trace how matter cycles among and between organisms and the physical environment (includes water, oxygen, food web, decomposition, recycling but **not** carbon cycle or nitrogen cycle).

Grade Span Expectations	DSM
<p><b>LS2 (7-8)-7</b> <b>Students demonstrate an understanding of recycling in an ecosystem by...</b></p> <p><b>7a</b> <u>diagramming or sequencing a series of steps showing how matter cycles among and between organisms and the physical environment.</u></p>	

<p><b>7b</b> <u>developing a model for a food web of local aquatic and local terrestrial environments.</u></p> <p><b>7c</b> <u>explaining the inverse nature or complementary aspects of photosynthesis/respiration in relation to carbon dioxide, water and oxygen exchange.</u></p> <p><b>7d</b> <u>conducting a controlled investigation that shows that the total amount of matter remains constant, even through its form and location change as matter is transferred among and between organisms and the physical environment (e.g., bottle biology, mass of a closed system over time.</u></p>	<p><b>Plants in Our World</b> Activity 9-10 Reader, pp. 3-4</p>
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**LS3 - Groups of organisms show evidence of change over time (structure, behaviors, biochemistry).**

**LS3 (5-8) – MAS + FAF–8**

Use a model, classification system, or dichotomous key to illustrate, compare, or interpret possible relationships among groups of organisms (e.g., internal and external structures, anatomical features).

Grade Span Expectations	DSM
<p><b>LS3 (7-8)-8</b> <b>Students demonstrate an understanding of classification of organisms by...</b></p> <p><b>8a</b> sorting organisms with similar characteristics into groups based on <u>internal</u> and external structures.</p> <p><b>8b</b> <u>explaining how species with similar evolutionary histories/characteristics are classified more closely together with some organisms than others (e.g., a fish and human have more in common with each other than a fish and jelly fish).</u></p> <p><b>8c</b> <u>recognizing the classification system used in modern biology.</u></p>	<p>DSM provides the opportunity to address this expectation. See below: <b>Plants in Our World</b> Reader, pp. 9-20, 23</p> <p><b>Plants in Our World</b> Reader, pp. 2, 23</p>

**LS3 (5-8) – POC–9**

Cite examples supporting the concept that certain traits of organisms may provide a survival advantage in a specific environment and therefore, an increased likelihood to produce offspring.

Grade Span Expectations	DSM
<p><b>LS3 (7-8)-9</b> <b>Students demonstrate an understanding of Natural Selection/evolution by...</b></p> <p><b>9a</b> <u>explaining the genetic variation/traits of organisms are passed on through reproduction and random genetic changes.</u></p>	<p><b>DNA-From Genes to Proteins</b> Reader, pp. 19-20</p>

<p><b>9b</b> <u>gathering evidence that demonstrates evolutionary relationships among organisms</u> (e.g., similar in body structure, early development, traits).</p> <p><b>9c</b> differentiate between acquired and inherited characteristics and giving examples of each.</p> <p><b>9d</b> <u>explaining how natural selection leads to evolution</u> (e.g., survival of the fittest).</p> <p><b>9e</b> <u>describing how scientists' understanding of the way species originate or become extinct has changed over time.</u></p>	<p><b>DNA-From Genes to Proteins</b> Reader, p. 20</p> <p><b>DNA-From Genes to Proteins</b> Reader, pp. 19-20</p>
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**LS4 – Humans are similar to other species in many ways, and yet are unique among Earth's life forms.**

**LS4 (5-8) – INQ–10**

Use data and observations to support the concept that environmental or biological factors affect human body systems (biotic & abiotic).

Grade Span Expectations	DSM
<p><b>LS4 (7-8)-10</b> <b>Students demonstrate an understanding of human body systems by...</b></p> <p><b>10a</b> <u>predicting and explaining</u> the effects of biotic factors (e.g. microbes, parasites, food availability, aging process) on human body systems</p> <p><b>10b</b> <u>predicting and explaining</u> the effect of biotic factors (e.g., drugs, environmental conditions) on the human body.</p> <p><b>Students demonstrate an understanding of patterns of human health/disease by...</b></p> <p><b>10c</b> <u>researching and reporting on how biotic</u> (e.g., microbes, parasites, food availability, aging process) and abiotic (e.g., radiation, toxic materials, carcinogens) factors affect human health.</p>	

**LS4 (5-8) – INQ–11**

Using data provided, select evidence that supports the concept that genetic information is passed on from both parents to offspring.

Grade Span Expectations	DSM
<p><b>LS4 (7-8)-11</b> <b>Students demonstrate an understanding of human heredity by...</b></p> <p><b>11a</b> <u>recognizing that characteristics of an organism result from inherited traits of one or more genes from parents and others result</u></p>	<p><b>DNA-From Genes to Proteins</b> Activity 3, Science Extension Reader, pp. 15-20</p>

<p><u>from interactions with the environment.</u></p> <p><b>11b</b> <u>tracing a genetic characteristic through a given pedigree (e.g., genealogical chart, Queen Victoria-hemophilia or hypothetical example) to demonstrate the passage of traits.</u></p> <p><b>11c</b> <u>identifying that genetic materials (i.e., chromosomes and genes) are located in the cell's nucleus.</u></p>	<p><b>DNA-From Genes to Proteins</b> Activity 5-9 Reader, pp. 12-14, 18</p>
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**LS4 (5-8) – POC–12**

Describe the major changes that occur over time in human development from single cell through embryonic development to new born (i.e., trimesters: 1<sup>st</sup> – group of cells, 2<sup>nd</sup> – organs form, 3<sup>rd</sup> – organs mature).

Grade Span Expectations	DSM
<p><b>LS4 (7-8)-12</b> <b>Students demonstrate an understanding of patterns of human development by...</b></p> <p><b>12a</b> <u>identifying and sequencing the stages of human embryonic development.</u></p> <p><b>12b</b> <u>describing the changes from one stage of embryonic development to the next.</u></p> <p><b>12c</b> <u>comparing and contrasting embryonic development in various life forms (e.g., humans, frogs, chickens, sea urchins).</u></p> <p><b>12d</b> <u>comparing the patterns of human development after birth to life stages of other species.</u></p>	

## Physical Science Grades K-2

**PS1- All living and nonliving things are composed of matter having characteristics properties that distinguish one substance from another (independent of size or amount of substance).**

### **PS1 (K-4) – INQ–1**

Collect and organize data about physical properties in order to classify objects or draw conclusions about objects and their characteristic properties (e.g., temperature, color, size, shape, weight, texture, flexibility).

Grade Span Expectations	DSM
<p><b>PS1 (K-2)-1</b> <b>Students demonstrate an understanding of characteristic properties of matter by...</b></p> <p><b>1a</b> identifying, comparing, and sorting objects by similar or different physical properties (e.g., size, shape, color, texture, smell, weight).</p> <p><b>1b</b> recording observations/data about physical properties.</p> <p><b>1c</b> using attributes of properties to state why objects are grouped together (e.g., things that roll, things that are rough).</p>	<p><b>Investigating Water</b> Activity 5, pp. 41-46 <b>Properties</b> Activity 2-7, 10-11, pp. 19-50, 75-86 <b>How Do We Learn</b> Activity 2-3, pp. 23-35 <b>Sink or Float</b> Activity 1, p. 13-19</p> <p><b>Investigating Water</b> Activity 5, pp. 41-46 <b>Properties</b> Activity 2-7, 10-11, pp. 19-50, 75-86 <b>How Do We Learn</b> Activity 2-3, pp. 23-35 <b>Sink or Float</b> Activity 1, p. 13-19</p> <p><b>Investigating Water</b> Activity 5, pp. 41-46 <b>Properties</b> Activity 10-11, pp. 75-86 <b>Sink or Float</b> Activity 1, p. 13-19</p>

### **PS1 (K-4) – POC–2**

Make a prediction about what might happen to the state of common materials when heated or cooled or categorize materials as solid, liquid, or gas.

Grade Span Expectations	DSM
<p><b>PS1 (K-2)-2</b> <b>Students demonstrate an understanding of states of matter by...</b></p> <p><b>2a</b> describing properties of solids and liquids.</p>	<p><b>Properties</b> Activity 7-8, pp. 53-60 Reader, pp. 5, 9-10 <b>Sink or Float</b> Reader, p. 5 <b>States of Matter</b></p>

<p><b>2b</b> identifying and comparing solids and liquids.</p> <p><b>2c</b> making logical predictions about the changes in the state of matter when adding or taking away heat (e.g., ice melting, water freezing).</p>	<p>Activity 1-2, pp. 13-25 Reader, p. 4-5</p> <p><b>Properties</b> Activity 7-8, pp. 53-60 Reader, pp. 5, 9-10</p> <p><b>Sink or Float</b> Reader, p. 5</p> <p><b>States of Matter</b> Activity 1-2, pp. 13-25 Reader, p. 4-5</p> <p><b>States of Matter</b> Activity 4-5, 7-12, pp. 35-50, 57-97</p>
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**PS1 (K-4) – SAE–3**

Use measures of weight (data) to demonstrate that the whole equals the sum of its parts.

Grade Span Expectations	DSM
<p><b>PS1 (K-2)-3</b> <b>Students demonstrate an understanding of conservation of matter by...</b></p> <p><b>3a</b> using simple tools (e.g., balance scale, see-saw) to explore the property of weight.</p>	<p><b>Properties</b> Activity 6, pp. 47-52</p> <p><b>Sink or Float</b> Activity 5, pp. 43-50</p> <p><b>Force and Motion</b> Activity 3, pp. 31-39</p>

**PS2 – Energy is necessary for change to occur in matter. Energy can be stored, transferred, and transformed, but cannot be destroyed.**

**PS2 (K-4) – SAE–4**

Given a specific example or illustration (e.g., simple closed circuit, rubbing hands together), predict the observable effects of energy (i.e., light bulb lights, a bell rings, hands warm up (i.e. a test item might ask, “what will happen when....?”)

Grade Span Expectations	DSM
<p><b>PS2 (K-2)-4</b> <b>Students demonstrate an understanding of energy by...</b></p> <p><b>4a</b> describing observable effects of light using a variety of light sources.</p> <p><b>4b</b> experimenting and describe how vibrating objects make sound (e.g., guitar strings, seeing salt bounce on a drum skin).</p> <p><b>4c</b> identifying the sun as a source of heat energy.</p>	<p><b>Sunshine and Shadows</b> Activity 3, 8-11, pp. 27-32, 65-88</p> <p><b>Using Your Senses</b> Activity 3, pp. 31-36</p> <p><b>Using Your Senses</b> Activity 5-6, pp. 45-60</p> <p><b>Sunshine and Shadows</b> Reader, p. 2</p> <p><b>Investigating Water</b></p>

	Reader, pp. 8-9
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**PS2 (K-4) – SAE–5**

Use observations of light in relation to other objects/substances to describe the properties of light (can be reflected, refracted, or absorbed).

Grade Span Expectations	DSM
<p><b>PS2 (K-2)-5</b>  <b>Students demonstrate an understanding of energy by...</b></p> <p><b>5a</b> demonstrate when a shadow will be created using sunny versus cloudy days.</p>	<p><b>Sunshine and Shadows</b>            Activity 1, 3, pp. 13-18, 27-32            Reader, p. 4</p>

**PS2 (K-4) – SAE + INQ–6**

Experiment, observe, or predict how heat might move from object to another.

Grade Span Expectations	DSM
<p><b>PS2 (K-2)-6</b>  <b>Students demonstrate an understanding of energy by...</b></p> <p><b>6a</b> describing that the sun warms land and water.</p> <p><b>6b</b> describing that objects change in temperature by adding or subtracting heat.</p>	<p><b>Sunshine and Shadows</b>            Reader, p. 2  <b>Investigating Water</b>            Reader, pp. 8-11</p> <p><b>Sunshine and Shadows</b>            Reader, p. 2  <b>Investigating Water</b>            Activity 9, pp. 71-80            Reader, pp. 8-11  <b>States of Matter</b>            Activity 6-7, 11, pp. 51-63, 89-96            Reader, pp. 8-10</p>

**PS3 – The motion of an object is affected by forces.**

**PS3 (K-4) – INQ + SAE–7**

Use data to predict how a change in force (greater/less) might affect the position, direction of motion, or speed of an object (e.g., ramps and balls).

Grade Span Expectations	DSM
<p><b>PS3 (K-2)-7</b>  <b>Students demonstrate an understanding of motion by...</b></p> <p><b>7a</b> showing how pushing and pulling moves or does not move an object.</p>	<p><b>Properties</b>            Activity 10-11, pp. 75-86  <b>Investigating Water</b>            Activity 5-6, pp. 41-54  <b>Weather Watching</b>            Activity 5, pp. 45-50  <b>Force and Motion</b>            Activity 1-9, pp. 13-90  <b>Sink or Float</b>            Activity 1, pp. 13-19</p>

<p><b>7b</b> predicting the direction an object will or will not move if a force is applied to it.</p> <p><b>Students demonstrate an understanding of force by...</b></p> <p><b>7c</b> showing that different objects fall to earth unless something is holding them up.</p>	<p>DSM provides the opportunity to address this expectation. See citations above.</p> <p><b>Properties</b> Activity 10, pp. 75-80</p> <p><b>Investigating Water</b> Activity 8, pp. 63-69</p> <p><b>Force and Motion</b> Activity 2, pp. 23-29 Reader, p. 2</p> <p><b>Sink or Float</b> Activity 1, pp. 13-19</p>
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**PS3 (K-4) – INQ + SAE–8**

Use observations of magnets in relation to other objects to describe the properties of magnetism (i.e., attract or repel certain objects or has no effect).

Grade Span Expectations	DSM
<p><b>PS3 (K-2)-8</b> <b>Students demonstrate an understanding of (magnetic) force by...</b></p> <p><b>8a</b> observing and sorting objects that are and are not attracted to magnets.</p>	<p><b>Properties</b> Activity 11, pp. 81-86 Reader, p. 8</p>

## Physical Science Grades 3-4

**PS1- All living and nonliving things are composed of matter having characteristics properties that distinguish one substance from another (independent of size or amount of substance).**

### **PS1 (K-4) – INQ–1**

Collect and organize data about physical properties in order to classify objects or draw conclusions about objects and their characteristic properties (e.g., temperature, color, size, shape, weight, texture, flexibility).

Grade Span Expectations	DSM
<p><b>PS1 (3-4)-1</b> <b>Students demonstrate an understanding of characteristic properties of matter by...</b></p> <p><b>1a</b> identifying, comparing, and sorting objects by similar or different physical properties (e.g., size, shape, color, texture, smell, weight, temperature, flexibility).</p> <p><b>1b</b> <u>citing evidence (e.g., prior knowledge, data) to support conclusions about why objects are grouped together.</u></p> <p><b>Students demonstrate an understanding of physical changes by...</b></p> <p><b>1c</b> <u>observing and describing physical changes (e.g., freezing, thawing, torn piece of paper).</u></p>	<p><b>Sink or Float</b> Activity 1, p. 13-19</p> <p><b>Electrical Circuits</b> Activity 6-7, pp. 51-62</p> <p><b>Magnets</b> Activity 2, pp. 19-23</p> <p><b>Sink or Float</b> Activity 1, p. 13-19</p> <p><b>Electrical Circuits</b> Activity 6-7, pp. 51-62</p> <p><b>Magnets</b> Activity 2, pp. 19-23</p> <p><b>Soil Science</b> Activity 5-6, pp. 45-58</p> <p><b>States of Matter</b> Activity 4, 7-11, pp. 35-40, 57-96</p> <p><b>Water Cycle</b> Activity 8-9, 11-13, pp. 69-83, 91-114</p>

### **PS1 (K-4) – POC–2**

Make a prediction about what might happen to the state of common materials when heated or cooled or categorize materials as solid, liquid, or gas.

Grade Span Expectations	DSM
<p><b>PS1 (3-4)-2</b> <b>Students demonstrate an understanding of states of matter by...</b></p> <p><b>2a</b> describing properties of solids, liquids, and <u>gases.</u></p> <p><b>2b</b> identifying and comparing solids, liquids, and gases.</p> <p><b>2c</b> making logical predictions about the</p>	<p><b>States of Matter</b> Activity 1-3, pp. 13-34 Reader, pp. 4-6</p> <p><b>States of Matter</b> Activity 1-3, pp. 13-34 Reader, pp. 4-6</p> <p><b>States of Matter</b></p>

changes in the state of matter when adding heat (e.g., ice melting, <u>water boiling</u> or freezing, <u>condensation/evaporation</u> ).	Activity 4, 7-12, pp. 35-40, 57-101 <b>Water Cycle</b> Activity 8-9, 11-13, pp. 69-83, 91-114
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**PS1 (K-4) – SAE–3**

Use measures of weight (data) to demonstrate that the whole equals the sum of its parts.

Grade Span Expectations	DSM
<p><b>PS1 (3-4)-3</b> <b>Students demonstrate an understanding of conservation of matter by...</b></p> <p><b>3a</b> <u>measuring the weight of objects to prove that all matter has weight.</u></p> <p><b>3b</b> <u>using measures of weight to prove that the whole equals the sum of its parts.</u></p> <p><b>3c</b> <u>showing that the weight of an object remains the same despite a change in its shape.</u></p>	<p><b>Force and Motion</b> Activity 3, pp. 31-39 <b>Sink or Float</b> Activity 5, pp. 43-50</p> <p><b>Sink or Float</b> Activity 5, pp. 43-50</p>

**PS2 – Energy is necessary for change to occur in matter. Energy can be stored, transferred, and transformed, but cannot be destroyed.**

**PS2 (K-4) – SAE–4**

Given a specific example or illustration (e.g., simple closed circuit, rubbing hands together), predict the observable effects of energy (i.e., light bulb lights, a bell rings, hands warm up (i.e. a test item might ask, “what will happen when....?”)

Grade Span Expectations	DSM
<p><b>PS2 (3-4)-4</b> <b>Students demonstrate an understanding of energy by...</b></p> <p><b>4a</b> <u>experimenting to identify and classify different pitches and volumes of sounds produced by different objects</u></p> <p><b>4b</b> <u>using data to explain what causes sound to have different pitch or volume.</u></p> <p><b>4c</b> <u>describing or showing that heat can be produced in many ways (i.e., electricity, friction, burning).</u></p> <p><b>4d</b> drawing, <u>diagramming</u>, building, and explaining a complete <u>electrical circuit</u>.</p> <p><b>4e</b> <u>using experimental data to classify a variety of materials as conductors or insulators.</u></p>	<p><b>Using Your Senses</b> Activity 6, pp. 53-60 <b>Sound</b> Activity 7-11, pp. 459-98</p> <p><b>Using Your Senses</b> Activity 6, pp. 53-60 <b>Sound</b> Activity 7-11, pp. 459-98</p> <p><b>States of Matter</b> Activity 5, 8, pp. 41-50, 65-72 <b>Electrical Circuits</b> Activity 8, pp. 63-70</p> <p><b>Electrical Circuits</b> Activity 1-5, pp. 13-50</p> <p><b>Electrical Circuits</b> 6-7, pp. 51-62</p>

**PS2 (K-4) – SAE–5**

Use observations of light in relation to other objects/substances to describe the properties of light (can be reflected, refracted, or absorbed).

Grade Span Expectations	DSM
<p><b>PS2 (3-4)-5</b>  <b>Students demonstrate an understanding of energy by...</b></p> <p><b>5a</b> <u>investigating observable effects of light using a variety of light sources</u> (e.g., light travels in a straight line until it interacts with an object, blocked light rays produce shadows).</p> <p><b>5b</b> <u>predicting, describing and investigating how light rays are reflected, refracted, or absorbed.</u></p>	

**PS2 (K-4) – SAE + INQ–6**

Experiment, observe, or predict how heat might move from one object to another.

Grade Span Expectations	DSM
<p><b>PS2 (3-4)-6</b>  <b>Students demonstrate an understanding of energy by...</b></p> <p><b>6a</b> <u>describing how heat moves from warm objects to cold objects until both objects are the same temperature.</u></p> <p><b>6b</b> showing that heat moves from one object to another causing temperature change (e.g., when land heats up it warms the air).</p>	<p><b>Weather Watching</b>            Activity 2, pp. 21-28  <b>Weather Instruments</b>            Activity 1, 6, pp. 13-21, 51-57  <b>States of Matter</b>            Activity 6-7, pp. 51-63</p>

**PS3 – The motion of an object is affected by forces.****PS3 (K-4) – INQ + SAE–7**

Use data to predict how a change in force (greater/less might affect the position, direction of motion, or speed of an object (e.g., ramps and balls)

Grade Span Expectations	DSM
<p><b>PS3 (3-4)-7</b>  <b>Students demonstrate an understanding of motion by...</b></p> <p><b>7a</b> <u>predicting the direction and describing the motion of objects (of different weights, shapes, sizes, etc) if a force is applied to it.</u></p>	<p><b>Force and Motion</b>            Activity 1-8, pp. 13-82  <b>Weather Watching</b>            Activity 4-5, pp. 37-50  <b>Sink or Float</b>            Activity 10, pp. 81-88  <b>Weather Instruments</b>            Activity 4-5, pp. 37-50</p>

<p><u>7b</u> describing change in position relative to other objects or background.</p> <p><b>Students demonstrate an understanding of force (e.g., push-pull, gravitational) by...</b></p> <p><u>7c</u> investigating and describing that different amounts of force can change direction/speed of an object in motion.</p> <p><u>7d</u> conducting experiments to demonstrate that different objects fall to earth unless something is holding them up.</p>	<p><b>Force and Motion</b> Activity 3-8, pp. 31-82</p> <p><b>States of Matter</b> Activity 6, pp. 50-56</p> <p><b>Sink or Float</b> Activity 1, pp. 13-19</p> <p><b>Weather Instruments</b> Activity 4, 11, pp. 37-42, 89-96</p> <p><b>Force and Motion</b> Activity 4-6, pp. 41-64</p> <p><b>Weather Watching</b> Activity 5, pp. 45-50</p> <p><b>Weather Instruments</b> Activity 5, pp. 43-50</p> <p><b>Force and Motion</b> Activity 8, pp. 73-82</p> <p><b>Sink or Float</b> Activity 1, pp. 13-19</p> <p><b>Magnets</b> Activity 1, pp. 13-17</p>
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**PS3 (K-4) – INQ -SAE–8**

Use observations of magnets in relation to other objects to describe the properties of magnetism (i.e., attract or repel certain objects or has no effect).

Grade Span Expectations	DSM
<p><b>PS3 (3-4)-8</b> <b>Students demonstrate an understanding of (magnetic) force by...</b></p> <p><u>8a</u> using prior knowledge and investigating to predict whether or not an object will be attracted to a magnet.</p> <p><u>8b</u> describing what happens when like and opposite poles of a magnet are placed near each other. relative to other objects or background.</p> <p><u>8c</u> exploring relative strength of magnets (e.g., size of magnets, number of magnets, properties of materials).</p>	<p><b>Magnets</b> Activity 2, pp. 19-23</p> <p><b>Magnets</b> Activity 6, pp. 141-45 Reader, p. 3</p> <p><b>Magnets</b> Activity 4, 11, pp. 29-34, 71-76</p>

## Physical Science Grades 5-6

**PS1- All living and nonliving things are composed of matter having characteristics properties that distinguish one substance from another (independent of size or amount of substance).**

### PS1 (5-8) – INQ–1

Investigate the relationship among mass, volume and density.

Grade Span Expectations	DSM
<p><b>PS1 (5-6)-1</b> <b>Students demonstrate an understanding of characteristic properties of matter by...</b></p> <p><b>1a</b> <u>comparing the masses of objects of equal volumes made of different materials.</u></p>	<p><b>Matter and Change</b> Activity 1, pp. 13-19 Reader, p. 14</p>

### PS1 (5-8) – INQ + POC–2

Given data about the characteristics of matter (e.g., melting and boiling points, density, solubility) identify, compare, or classify different substances.

Grade Span Expectations	DSM
<p><b>PS1 (5-6)-2</b> <b>Students demonstrate an understanding of characteristic properties of matter by...</b></p> <p><b>2a</b> <u>recognizing that different substances have properties which allow them to be identified regardless of the size of the sample.</u></p> <p><b>2b</b> <u>classifying and comparing</u> substances using characteristic properties (e.g., solid, liquid, gas).</p>	<p><b>Rocks and Minerals</b> Activity 3-6, pp. 29-54 Reader, pp. 4-6</p> <p><b>Matter and Change</b> Activity 1, 10, pp. 13-19, 85-92 Reader, p. 14</p> <p><b>Matter and Change</b> Activity 10, pp. 85-92 Reader, p. 4-5, 20</p>

### PS1 (5-8) – INQ + SAE–3

Collect data or use data provided to infer or predict that the total amount of mass in a closed system stays the same, regardless of how substances interact (conservation of matter).

Grade Span Expectations	DSM
<p><b>PS1 (5-6)-3</b> <b>Students demonstrate an understanding of conservation of matter by...</b></p> <p><b>3a</b> <u>explaining that regardless of how parts of an object are arranged, the mass of the whole is always the same as the sum of the masses of its parts.</u></p>	<p><b>Matter and Change</b> Reader, p. 17</p>

**PS1 (5-8) – SAE + MAS–4**

Represent or explain the relationship between or among energy, molecular motion, temperature, and states of matter.

Grade Span Expectations	DSM
<p><b>PS1 (5-6)-4</b>  <b>Students demonstrate an understanding of states of matter by...</b></p> <p><b>4a</b> <u>differentiate among the characteristics of solids, liquids, and gases.</u></p> <p><b>4b</b> predicting the effects of heating and cooling on the physical state, <u>volume and mass</u> of a substance.</p>	<p><b>Weather Forecasting</b>            Activity 9, pp. 69-74            Reader, p. 4  <b>Matter and Change</b>            Reader, pp. 9-10</p> <p><b>Weather Forecasting</b>            Activity 9, pp. 69-74            Reader, p. 4  <b>Matter and Change</b>            Reader, pp. 9-12</p>

**PS1 (5-8) –MAS–5**

Given graphic or written information, classify matter as atom/molecule or element/compound (Not the structure of an atom).

Grade Span Expectations	DSM
<p><b>PS1 (5-6)-5</b>  <b>Students demonstrate an understanding of the structure of matter by...</b></p> <p><b>5a</b> distinguishing between solutions, mixtures, and “pure” substances, i.e., compounds and elements</p>	<p><b>Matter and Change</b>            Activity 3-7, pp. 29-68            Reader, pp. 4-8, 14-15</p>

**PS2 – Energy is necessary for change to occur in matter. Energy can be stored, transferred, transformed, but cannot be destroyed.**

**PS2 (5-8) – SAE + POC–6**

Given a real-world example, show that within a system, energy transforms from one form to another (i.e., chemical, heat, electrical, gravitational, light, sound, mechanical)

Grade Span Expectations	DSM
<p><b>PS2 (5-6)-6</b>  <b>Students demonstrate an understanding of energy by...</b></p> <p><b>6a</b> <u>differentiating among the properties of various forms of energy.</u></p>	<p><b>Color and Light</b>            Activity 1, pp. 13-18            Reader, pp. 2-3  <b>Electromagnetism</b>            Activity 2, 6, pp. 19-23, 43-48            Reader, pp. 1-7  <b>Electrical Connections</b>            Activity 1-2            Reader, pp. 2-8  <b>Newton’s Toy Box</b>            Activity 10, pp. 67-72</p>

<p><b>6b</b> explaining how energy may be stored in various ways (e.g., batteries, springs, height in terms of potential energy).</p> <p><b>6c</b> describing sound as the transfer of energy through various materials (e.g., solids, liquids, gases).</p>	<p>Reader, p. 14</p> <p><b>Electromagnetism</b> Activity 5-6, pp. 37-48</p> <p><b>Flight and Rocketry</b> Activity 8-9, 12, pp. 86-97, 121-130</p> <p><b>Electrical Connections</b> Activity 2-3 Reader, pp. 2-8</p> <p><b>Newton's Toy Box</b> Activity 7-10, pp. 49-72</p>
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**PS2 (5-8) – INQ + SAE + POC–7**

Use data to draw conclusions about how heat can be transferred (convection, conduction, radiation).

Grade Span Expectations	DSM
<p><b>PS2 (5-6)-7</b> Students demonstrate an understanding of heat energy by...</p> <p><b>7a</b> identifying real world applications where heat energy is transferred and showing the direction that the heat energy flows.</p>	<p><b>Earth Processes</b> Activity 10, pp. 105-110</p>

**PS3 – The motion of an object is affected by forces.**

**PS3 (5-8) – INQ + POC–8**

Use data to determine or predict the overall net effect of multiple forces (e.g., friction, gravitational, magnetic) on the position, speed, and direction of motion of objects.

Grade Span Expectations	DSM
<p><b>PS3 (5-6)-8</b> Students demonstrate an understanding of motion by...</p> <p><b>8a</b> using data or graphs to compare the relative speed of objects.</p> <p>Students demonstrate an understanding of force (e.g., friction, gravitational, magnetic) by...</p> <p><b>8b</b> recognizing that a force is a push or a pull.</p> <p><b>8c</b> explaining that changes in speed or direction of motion is caused by forces.</p>	<p><b>Newton's Toy Box</b> Activity 7-9, pp. 49-65 Reader, pp. 3, 5</p> <p><b>Simple Machines</b> Activity 1-9, pp. 13-76 Reader, p. 2</p> <p><b>Newton's Toy Box</b> Activity 1-4, pp. 13-38 Reader, p. 4</p> <p><b>Simple Machines</b> Activity 1-9, pp. 13-76</p>

<p><b>8d</b> showing <u>that electric currents and magnets can exert a force on each other.</u></p>	<p>Reader, pp. 2-9  <b>Newton's Toy Box</b>            Activity 1-13, pp. 13-90            Reader, pp. 4-12</p> <p><b>Electromagnetism</b>            Activity 1-11, pp. 13-83            Reader, pp. 2-13  <b>Electrical Connections</b>            Activity 11            Reader, pp. 11-15</p>
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**PS3 (5-8) – SAE + INQ – Local Assessment Only**

Experiment, observe, or predict how energy might be transferred by means of waves.

Grade Span Expectations	DSM
<p><b>PS3 (5-6)-LA</b>  <b>Students demonstrate an understanding of waves by...</b></p> <p><b>LAa</b> investigate how vibrations in materials (e.g., pebble in a pond, jump rope, slinky) set up wavelike disturbances that spread away from the source.</p>	<p><b>Earth Processes</b>            Activity 8, pp. 71-79            Reader, p. 9</p>

## Physical Science Grades 7-8

**PS1- All living and nonliving things are composed of matter having characteristics properties that distinguish one substance from another (independent of size or amount of substance).**

### PS1 (5-8) – INQ–1

Investigate the relationship among mass, volume and density.

Grade Span Expectations	DSM
<p><b>PS1 (7-8)-1</b> <b>Students demonstrate an understanding of characteristic properties of matter by...</b></p> <p><b>1a</b> measuring mass and volume of both regular and irregular objects and using those values as well as the <u>relationship <math>D=m/v</math> to calculate density.</u></p>	<p><b>Matter and Change</b> Activity 1, pp. 13-19 Activity 1, Science Challenge, p. 19 Reader, p. 14</p>

### PS1 (5-8) – INQ + POC–2

Given data about the characteristics of matter (e.g., melting and boiling points, density, solubility) identify, compare, or classify different substances.

Grade Span Expectations	DSM
<p><b>PS1 (7-8)-2</b> <b>Students demonstrate an understanding of characteristic properties of matter by...</b></p> <p><b>2a</b> <u>identifying an unknown substance given its characteristic properties.</u></p> <p><b>2b</b> classifying and comparing substances using characteristic properties (e.g., solid, liquid, gas; metal, non-metal).</p>	<p><b>Matter and Change</b> Activity 1, 10, pp. 13-19, 85-92</p> <p><b>Matter and Change</b> Activity 4, pp. 37-44 Reader, pp. 2-3, 22</p>

### PS1 (5-8) – INQ + SAE–3

Collect data or use data provided to infer or predict that the total amount of mass in a closed system stays the same, regardless of how substances interact (conservation of matter).

Grade Span Expectations	DSM
<p><b>PS1 (7-8)-3</b> <b>Students demonstrate an understanding of conservation of matter by...</b></p> <p><b>3a</b> <u>citing evidence to conclude that the amount of matter before and after undergoing a physical or chemical change in a closed system remains the same.</u></p>	<p><b>Matter and Change</b> Reader, p. 17</p>

### PS1 (5-8) – SAE + MAS–4

Represent or explain the relationship between or among energy, molecular motion, temperature, and states of matter.

Grade Span Expectations	DSM
<p><b>PS1 (7-8)-4</b> <b>Students demonstrate an understanding of</b></p>	

<p><b>states of matter by...</b></p> <p><b>4a</b> <u>creating diagrams or models that represent the states of matter at the molecular level.</u></p> <p><b>4b</b> <u>explaining the effect of increased and decreased heat energy on the motion and arrangement of molecules.</u></p> <p><b>4c</b> <u>observing the physical processes of evaporation and condensation, or freezing and melting, and describe these changes in terms of molecular motion and conservation of mass.</u></p>	<p><b>Matter and Change</b> Reader, pp. 9-12</p> <p><b>Matter and Change</b> Reader, pp. 9-12</p> <p><b>Matter and Change</b> Reader, pp. 9-12</p>
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**PS1 (5-8) –MAS–5**

Given graphic or written information, classify matter as atoms/molecules or element/compound (Not the structure of an atom)

Grade Span Expectations	DSM
<p><b>PS1 (7-8)-5</b> <b>Students demonstrate an understanding of the structure of matter by...</b></p> <p><b>5a</b> <u>using models or diagrams to show the difference between atoms and molecules.</u></p> <p><b>5b</b> <u>classifying common elements and compounds using symbols and simple chemical formulas.</u></p> <p><b>5c</b> <u>interpreting the symbols and formulas of simple chemical equations.</u></p> <p><b>5d</b> <u>using symbols and chemical formulas to show simple chemical arrangements that produce new substances (chemical change).</u></p> <p><b>5e</b> <u>explaining that when substances undergo physical changes, the appearance may change but the chemical make-up and chemical properties do not.</u></p> <p><b>5f</b> <u>explaining that when substances undergo chemical changes to form new substances, the properties of the new combinations may be very different from those of the old.</u></p>	<p><b>Matter and Change</b> Activity 4-5, pp. 37-51 Reader, pp. 2-8</p> <p><b>Matter and Change</b> Activity 6, 8, 10, pp. 53-61, 69-75, 85-92 Reader, pp. 4-5, 20</p> <p><b>Matter and Change</b> Activity 5, 7, 11-13, pp. 45-51, 63-69, 93-105 Reader, pp. 6-7, 18</p> <p><b>Matter and Change</b> Activity 11-13, pp. 93-105 Reader, pp. 6-7, 18</p> <p><b>Matter and Change</b> Activity 3, pp. 29-35 Reader, pp. 13-15</p> <p><b>Matter and Change</b> Activity 10-13, pp. 85-105 Reader, pp. 16-20</p>

**PS2 – Energy is necessary for change in matter. Energy can be stored, transferred, and transformed, but cannot be destroyed.**

**PS2 (5-8) –SAE + POC–6**

Given a real-world example, show that within a system, energy transforms from one form to another (i.e., chemical, heat, electrical, gravitational, light, sound, mechanical).

Grade Span Expectations	DSM
<b>PS2 (7-8)-6</b>	

<p><b>Students demonstrate an understanding of energy by...</b></p> <p><b>6a</b> using a real world example to explain the <u>transfer of potential energy to kinetic energy.</u></p> <p><b>6b</b> constructing a model to explain the transformation of energy from one form to another. (e.g., an electrical circuit changing electrical energy to light energy in a light bulb).</p> <p><b>6c</b> explaining that while energy may be stored transferred, or transformed, <u>the total amount of energy is conserved.</u></p> <p><b>6d</b> describing the effect of <u>changing voltage</u> in an electrical circuit.</p>	<p><b>Newton's Toy Box</b> Activity 7-10, pp. 49-72 Reader, p. 14 <b>Electrical Connections</b> Activity 11</p> <p><b>Newton's Toy Box</b> Activity 10, pp. 67-72 <b>Electrical Connections</b> Activity 1-2, 11</p> <p><b>Electrical Connections</b> Activity 9-10</p>
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**PS2 (5-8) –INQ + SAE + POC–7**

Use data to draw conclusions about how heat can be transferred (convection, conduction, radiation).

Grade Span Expectations	DSM
<p><b>PS2 (7-8)-7</b> <b>Students demonstrate an understanding of heat energy by...</b></p> <p><b>7a</b> <u>designing a diagram, model, or analogy to show or describe the motion of molecules for a material in a warmer and cooler state.</u></p> <p><b>7b</b> explaining the difference among <u>conduction, convection and radiation and creating a diagram to explain how heat energy travels in different directions and through different materials by each of these methods.</u></p>	<p><b>Matter and Change</b> Reader, pp. 9-12</p> <p><b>Earth Processes</b> Activity 12, pp. 105-110 Activity 12, Science Challenge, p. 110</p>

**PS3 – The motion of an object is affected by forces.**

**PS3 (5-8) –INQ + POC–8**

Use data to determine or predict the overall net effect of multiple forces (e.g., friction, gravitational, magnetic) on the position, speed, and direction of motion of objects.

Grade Span Expectations	DSM
<p><b>PS3 (7-8)-7</b> <b>Students demonstrate an understanding of motion by...</b></p> <p><b>8a</b> <u>measuring distance and time for a moving object and using those values as well as the relationship <math>s=d/t</math> to calculate speed and graphically represent data.</u></p> <p><b>8b</b> <u>solving for any unknown in the expression</u></p>	<p><b>Newton's Toy Box</b> Activity 7-9, pp. 49-65</p> <p>DSM provides the opportunity to address this</p>

<p><u>s=d/t given values for the other two variables.</u></p> <p><b>8c</b> differentiating among <u>speed, velocity and acceleration.</u></p> <p>.</p> <p><b>Students demonstrate an understanding of force (e.g., friction, gravitational, magnetic) by...</b></p> <p><b>8d</b> making and testing predictions on how <u>unbalanced forces</u> acting on objects change speed or direction of motion, or both.</p> <p><b>8e</b> describing or graphically representing that the <u>acceleration of an object is proportional to the force on the object and inversely proportional to the object's mass.</u></p> <p><b>8f.</b> <u>differentiating between mass and weight.</u></p>	<p>expectation. See citation above.</p> <p><b>Newton's Toy Box</b> Activity 7-9, pp. 49-65 Reader, pp. 3-5</p> <p><b>Newton's Toy Box</b> Activity 4, pp. 33-38 Reader, pp. 20-21</p> <p><b>Newton's Toy Box</b> Activity 3, pp. 25-31 Reader, p. 12</p> <p><b>Newton's Toy Box</b> Activity 3, pp. 25-31 Reader, p. 8</p>
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**PS3 (5-8) –SAE + INQ–Local Assessment Only**

Experiment. Observe, or predict how energy might be transferred by means of waves.

Grade Span Expectations	DSM
<p><b>PS3 (7-8)-LA</b> <b>Students demonstrate an understanding of visible spectrum of light by...</b></p> <p><b>LAA</b> experiment how light from the sun is made up of a mixture of many different colors of light (e.g., using prisms, spectrometers, crystals).</p> <p><b>LAb</b> representing in words, diagrams, or other models <u>the visible spectrum as part of the electromagnetic spectrum</u> (consisting of visible light, infrared, and ultra violet radiation) and <u>composed of all colors of light.</u></p> <p><b>LAc</b> <u>differentiating between electromagnetic and mechanical waves.</u></p> <p>.</p>	<p><b>Earth, Moon and Sun</b> Reader, p. 7 <b>Astronomy</b> Reader, p. 8</p> <p><b>Earth, Moon and Sun</b> Reader, p. 7 <b>Astronomy</b> Reader, p. 8 <b>Earth Processes</b> Activity 8, pp. 71-79 Reader, p. 9</p>