Big Ideas/Key Concepts:
- All life is interdependent and interacts with the environment.
- The earth is surrounded by an active atmosphere and an energy system that controls the distribution life, local weather, climate, and global temperature.

<table>
<thead>
<tr>
<th>Standards</th>
<th>Student Friendly “I Can” Statements</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>Ecology: Continued</strong></td>
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</tr>
<tr>
<td>SPI 0607.2.4 Identify the environmental conditions and interdependencies among organisms found in the major biomes.</td>
<td>I can reason scientifically why plants and animals have certain adaptations for survival within their biome.</td>
</tr>
<tr>
<td>6. WCE.SC.7: Use scientific reasoning to explore adaptations of organisms for their biome.</td>
<td>I can compare and contrast the world’s major biomes in terms of the adaptations of plants and animals living there.</td>
</tr>
<tr>
<td>6. WCE.SC.8: Analyze predator/prey data and adaptations.</td>
<td>I can analyze data concerning predator/prey relationships.</td>
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<tr>
<td>6. WCE.SC.9: Analyze evidence of the effect of an invasive species and design a solution to lessen its impact.</td>
<td>I can analyze evidence about the effect of an invasive species on native populations, and design a solution to lessen its impact on native species.</td>
</tr>
<tr>
<td>SPI 0607.T/E.1 Identify the tools and procedures needed to test the design features of a prototype.</td>
<td>I can identify tools and procedures needed to test the design features of prototype or solution.</td>
</tr>
<tr>
<td>SPI 0607.T/E.2</td>
<td>Evaluate a protocol to determine if the engineering design process was successfully applied.</td>
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<tr>
<td>SPI 0607.T/E.3</td>
<td>Distinguish between the intended benefits and the unintended consequences of a new technology.</td>
</tr>
<tr>
<td>SPI 0607.T/E.4</td>
<td>Differentiate between adaptive and assistive engineering products (e.g., food, biofuels, medicines, integrated pest management).</td>
</tr>
</tbody>
</table>

### Weather

**SPI 0607.8.1** Analyze data to identify events associated with heat convection in the atmosphere.

**SPI 0607.8.2** Recognize the connection between the sun’s energy and the wind.

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**I can use the engineering design process to solve a given problem (the effect of invasive species on native populations) with multiple criteria/constraints or evaluate a protocol to determine if the engineering design process was successfully applied to solve a given problem.**

**I can identify the intended benefits and unintended consequences of this new technology and describe its impact on society.**

**I can explain the difference between adaptive and assistive engineered products.**

**Weather**

I can identify and use meteorological tools to gather data.

- Thermometer
- Barometer
- Anemometer
- Psychrometer/hygrometer
- Wind vane/compass

I can produce and analyze graphical analyses of collected weather data.

I can explain how the process of convection relies on conduction and radiation that produce air movements in the atmosphere.

- Density \( D = \frac{m}{v} \) measured in g/cc
- Convection/Convection Cell
- Radiation
- Conduction
- Heat transfer
- Energy transfer
- Seasons (Introduced)

I can describe how the sun’s energy produces the wind on Earth due to uneven heating of Earth’s surface.
6. WCE.SC.10: Diagram convection patterns that flow due to uneven heating of the Earth.

6. WCE.SC.11: Model a convection cell in the atmosphere.

SC6.WCE.12: Explain the Coriolis Effect.

6. WCE.SC.13: Research the climatic effects of mountain ranges, bodies of water and other geographical features.

I can link sunlight to the flow of heat and the convection cycle in the atmosphere.

I can model a convection cell: a cyclical pattern of air particles that change position within the cell due to temperature and density changes.

I can determine the textual meaning and apply the following concepts as they relate to wind:
- Coriolis Effect (based on Earth’s rotation and pressure changes)
- Prevailing Wind Direction
- Global Winds
- Local Winds: Land/Sea Breezes, Mountain/valley Breezes

I can research and discuss how mountain ranges, bodies of water, and other geographical features cause climate variations.