



# Middle School Science

## **Purpose**

These statements show the progress report statement's correlation to the science learning objectives. Objectives are grouped by cross-cutting concepts. These concepts span K-12 and are reported out in the K-7 grade levels. The expectation is that students will secure each objective by the end of the course. Ongoing assessments are utilized to provide detailed data regarding student progress.

## **Philosophy Statement**

Waukee students will be inspired to actively participate in a global society as informed citizens and problem-solvers by connecting the past to the present in order to shape the future.

## 6<sup>th</sup> Grade Science

Progress Report Statement	Science Objective/PowerSchool Statement
<p><b>Observes patterns through organization, classification and relationships. (Patterns)</b></p>	<ul style="list-style-type: none"> <li>Analyzes properties of substances to determine if chemical interactions have occurred.</li> <li>Predicts interactions among organisms across multiple ecosystems.</li> <li>Interprets data on natural hazards to forecast future events.</li> </ul>
<p><b>Investigates and explains causal relationships through mechanisms across contexts. (Causality)</b></p>	<ul style="list-style-type: none"> <li>Describes changes in particle motion, temperature, and state of a substance</li> <li>Analyzes the impact of resource availability on organisms and populations.</li> <li>Describes how interactions of air masses result in changes in weather.</li> <li>Explains how the distributions of Earth's resources are the result of geoscience processes.</li> <li>Designs methods for monitoring and minimizing human impact on the environment.</li> <li>Defends how increases in population and consumption impact Earth's systems.</li> </ul>
<p><b>Recognizes how changes in scale, proportion, or quantity affect a system's structure or performance. (Scale, Proportion &amp; Quantity)</b></p>	<ul style="list-style-type: none"> <li>Develops models to describe the atomic composition of simple molecules.</li> </ul>
<p><b>Examines systems and system models for components and their interactions. (Systems and System models)</b></p>	<ul style="list-style-type: none"> <li>Explains how unequal heating and Earth's rotation cause regional climates.</li> </ul>
<p><b>Tracks the transfers of energy and matter within, into, or out of any system. (Energy and Matter)</b></p>	<ul style="list-style-type: none"> <li>Models the cycling of matter and flow of energy within an ecosystem.</li> <li>Models the Earth's water cycle including solar energy and gravity.</li> </ul>
<p><b>Analyzes the structure and function of living and nonliving things. (Structure and Function)</b></p>	<ul style="list-style-type: none"> <li>Describes how synthetic materials come from natural resources and impact society.</li> <li>Models how the total number of atoms does not change in a chemical reaction.</li> <li>Designs a device to release or absorb thermal energy by chemical processes.</li> </ul>

**Recognizes conditions of stability and change for natural and built systems. (Stability and Change)**

- Defends how changes to an ecosystem can affect populations.
- Evaluate competing design solutions for maintaining biodiversity and ecosystem services.
- Investigates factors that have caused the rise in global temperatures over the past century.

# 7<sup>th</sup> Grade Science

Progress Report Statement	Science Objective/PowerSchool Statement
<b>Observes patterns through organization, classification and relationships. (Patterns)</b>	<ul style="list-style-type: none"> <li>Describe the cyclic patterns of lunar phases, eclipses, and seasons.</li> </ul>
<b>Investigates and explains causal relationships through mechanisms across contexts. (Causality)</b>	<ul style="list-style-type: none"> <li>Determine the factors that affect the strength of electric and magnetic forces.</li> <li>Provide evidence that fields exist between objects exerting forces on each other.</li> <li>Determine how animal behaviors and plant structures affect successful reproduction.</li> <li>Construct an explanation for how environmental and genetic factors influence the growth.</li> <li>Describe why methods of reproduction result in identical, or varied, genetic information.</li> </ul>
<b>Recognizes how changes in scale, proportion, or quantity affect a system's structure or performance. (Scale, Proportion and Quantity)</b>	<ul style="list-style-type: none"> <li>Recognize that organisms are made of (sometimes many types of) cells (single or multi).</li> <li>Analyze and interpret data to determine scale properties of objects in the solar system.</li> </ul>
<b>Examines systems and system models for components and their interactions. (System and System Models)</b>	<ul style="list-style-type: none"> <li>Apply Newton's Laws to design a solution to a problem involving two colliding objects.</li> <li>Use evidence to prove that gravitational interactions attract and depend on mass.</li> <li>Describe how the body is a system of interacting subsystems composed of groups of cells.</li> <li>Describe the role of gravity in the motions within galaxies and the solar system.</li> </ul>
<b>Tracks the transfers of energy and matter within, into, or out of any system. (Energy and Matter)</b>	<ul style="list-style-type: none"> <li>Describe how photosynthesis cycles matter and energy in and out of organisms.</li> <li>Describe how chemical reactions form new molecules that support growth and release energy.</li> </ul>
<b>Analyzes the structure and function of living and nonliving things. (Structure and Function)</b>	<ul style="list-style-type: none"> <li>Describe the function of a cell as a whole and the ways parts of cells contribute to the function.</li> <li>Describe how sensory receptors respond to stimuli, send messages, and cause behavior.</li> <li>Describe why structural changes to genes may affect structure and function of the organism.</li> </ul>

**Recognizes conditions of stability and change for natural and built systems.  
(Stability and Change)**

- Provide evidence that the change in an object's motion depends on the forces and mass.

