



## Colorado Academic Standards for Science Priority Standards: 7<sup>th</sup> Grade

*Grade • Standard • Grade Level Expectation • Evidence Outcome (NGSS Standard Code)*

### **Standard 1: Physical Science**

**MS.1.1: The fact that matter is composed of atoms and molecules can be used to explain the properties of substances, diversity of materials, states of matter and phases changes.**

MS.1.1.a: Develop models to describe the atomic composition of simple molecules and extended structures. (MS-PS1-1)

MS.1.1.c: Gather and make sense of information to describe that synthetic materials come from natural resources and impact society. (MS-PS1-3)

MS.1.1.d: Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed. [Clarification Statement: Emphasis is on qualitative molecular-level models of solids, liquids, and gases to show that adding or removing thermal energy increases or decreases kinetic energy of the particles until a change of state occurs.] (MS-PS1-4)

**MS.1.2: Reacting substances rearrange to form different molecules, but the number of atoms is conserved. Some reactions release energy and others absorb energy.**

MS.1.2.a: Analyze and interpret data on the properties of substances before and after the substances interact to determine if a chemical reaction has occurred. (MS-PS1-2)

MS.1.2.b: Develop and use a model to describe how the total number of atoms does not change in a chemical reaction and thus mass is conserved. (MS-PS1-5)

### **Standard 2: Life Science**

**MS.2.3: Sustaining life requires substantial energy and matter inputs.**

MS.2.3.a: Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms. (MS-LS1-6)

MS.2.3.b: Develop a model to describe how food is rearranged through chemical reactions forming new molecules that support growth and/or release energy as this matter moves through an organism. (MS-LS1-7)

**MS.2.5: Organisms and populations of organisms are dependent on their environmental interactions both with other living things and with nonliving.**

MS.2.5.a: Analyze and interpret data to provide evidence for the effects of resource availability on organisms and populations of organisms in an ecosystem. (MS-LS2-1)

MS.2.5.b: Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems. (MS-LS2-2)

### **Standard 3: Earth and Space Science**

**MS.3.4: Energy flows and matter cycles within and among Earth's systems, including the sun and Earth's interior as primary energy sources. Plate tectonics is one result of these processes.**

MS.3.4.a: Develop a model to describe the cycling of Earth's materials and the flow of energy that drives this process. (MS-ESS2-1)

MS.3.4.b: Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales. (MS-ESS2-2)

**MS.3.5: Plate tectonics is the unifying theory that explains movements of rocks at Earth's surface and geological history.**

MS.3.5.a: Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions. (MS-ESS2-3)

**MS.3.8: Humans depend on Earth's land, ocean, atmosphere, and biosphere for different resources, many of which are limited or not renewable. Resources are distributed unevenly around the planet as a result of past geologic processes.**

MS.3.8.a: Construct a scientific explanation based on evidence for how the uneven distributions of Earth's mineral, energy, and groundwater resources are the result of past and current geoscience processes. (MS-ESS3-1)

**MS.3.9: Mapping the history of natural hazards in a region and understanding related geological forces.**

MS.3.9.a: Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects. (MS-ESS3-2)