

TITLE	MI STANDARDS ADDRESSED	GR LEVEL	LEXILE LEVEL	BOOK SUMMARY	VOCABULARY
<b>All About the Moon</b> ISBN 0022859330 6 PK ISBN 002286654X	S.RS.06.11, S.RS.06.12, S.RS.06.19, E.SE.06.41	Z	730	<i>All About the Moon</i> compares and contrasts Earth and the Moon, describes the history of the Moon landings, explains the motion of the Moon, and discusses the phases of the Moon.	crater lunar mare orbit satellite
<b>Alloys</b> ISBN 0022859381 6 PK ISBN 0022866574	S.RS.06.15, S.RS.06.19	Y	860	<i>Alloys</i> describes historical uses of metals and alloys, such as bronze and iron. It also describes current applications of alloys and possible future uses of alloys.	alloy bronze corrosion iron steel
<b>Amazing Water</b> ISBN 0022859209 6 PK ISBN 0022866558	S.RS.06.17, L.EC.06.41, P.CM.06.11, E.SE.06.12	T	560	The unique properties of water, uses of water, the water cycle, water pollution, and the possibility of water on other planets are described in <i>Amazing Water</i> .	condense evaporate precipitation solvent surface tension
<b>Animal Migration</b> ISBN 0022859179 6 PK ISBN 0022866426	S.RS.06.17, L.EC.06.32, L.EC.06.41	S	670	<i>Animal Migration</i> explores the migration patterns of whales, monarch butterflies, warblers, and sea turtles. The life cycle of the Monarch butterfly is diagrammed, and maps are used to illustrate migration routes.	habitat metamorphosis migration plankton predator
<b>Antarctica: Land of Snow and Ice</b> ISBN 0022847324 6 PK ISBN 0022865179	S.RS.06.17, S.RS.06.19, L.EC.06.11, L.EC.06.31, L.EC.06.41, E.SE.06.51	V	900	In <i>Antarctica: Land of Snow and Ice</i> , the terms <i>habitat</i> , <i>biome</i> , and <i>ecosystem</i> are defined. The climate and living things of Antarctica are described.	biome ecosystem glacier habitat microhabitat
<b>Bacteria and Viruses</b> ISBN 0022859292 6 PK ISBN 0022866442	S.RS.06.19, L.OL.06.52, L.EC.06.22, E.SE.06.13	Y	660	<i>Bacteria and Viruses</i> begins with a discussion of early discoveries related to microscopes and microorganisms. Various types of bacteria are discussed and pictured. The role of bacteria in ecosystems and ways that bacteria impact humans are also discussed.	antibiotic microscope pasteurization virus

\* - Also available in an English Language Learner version

TITLE	MI STANDARDS ADDRESSED	GR LEVEL	LEXILE LEVEL	BOOK SUMMARY	VOCABULARY
<b>Building a Biome *</b> ISBN 0022847332 6 PK ISBN 0022865187	L.EC.06.11, L.OL.06.51, L.OL.06.52	X	910	Construction of the deserts biome in the Indianapolis Zoo is described in <b><i>Building a Biome</i></b> . Characteristics of desert biomes are described and career opportunities at zoos are identified.	biome conservation ecosystem precipitation species
<b>Carbon</b> ISBN 0022859217 6 PK ISBN 0022866582	S.RS.06.17, S.RS.06.19, L.EC.06.41, L.EC.06.42	S	600	<b><i>Carbon</i></b> describes forms of carbon, uses of carbon, the role of carbon in living things, the carbon cycle, fossil fuels, and the greenhouse effect.	Atom compound element organic compound respiration
<b>Changes at Earth's Surface</b> ISBN 0022847421 6 PK ISBN 0022865276	E.SE.06.11, E.SE.06.12	V	880	<b><i>Changes at Earth's Surface</i></b> describes physical and chemical weathering, erosion, deposition, and the changes that result from these processes.	chemical weathering deposition erosion gravity physical weathering
<b>Chemical Changes *</b> ISBN 0022859276 6 PK ISBN 0022866590	S.RS.06.15, L.EC.06.22	X	630	<b><i>Chemical Changes</i></b> contains a description of the signs that indicate a chemical change has occurred, everyday applications of chemical changes, and chemical changes that occur in organisms.	chemical change combustion compound element reaction
<b>Discovering the Secrets of Cells *</b> ISBN 0022859233 6 PK ISBN 0022866469	S.RS.06.19	X	720	<b><i>Discovering the Secrets of Cells</i></b> explores careers in cell biology, the function of organelles, and tools such as computers that are used in cell research.	Cell DNA gene neuron nucleus
<b>DNA Fingerprinting</b> ISBN 0022859322 6 PK ISBN 0022866515	S.RS.06.15, S.RS.06.19	Y	720	<b><i>DNA Fingerprinting</i></b> describes applications of DNA technology to solving crimes, tracing ancestry, solving historical mysteries, and tracking genetic diseases.	Base DNA fingerprinting gene inherit mutation

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TITLE	MI STANDARDS ADDRESSED	GR LEVEL	LEXILE LEVEL	BOOK SUMMARY	VOCABULARY
<b>Do Fossil Fuels Have a Future? *</b> ISBN 0022847499 6 PK ISBN 0022865349	S.RS.06.17, S.RS.06.19, L.OL.06.52, L.EC.06.41	X	900	<i>Do Fossil Fuels Have a Future?</i> explains the formation of fossil fuels, methods of mining fossil fuels, consequences of the use of fossil fuels, and possible alternatives to fossil fuels.	acid rain coal decompose fossil fuel petroleum
<b>Earth's Changing Climate *</b> ISBN 002285925X 6 PK ISBN 0022866523	S.RS.06.15, S.RS.06.17, S.RS.06.19, L.EC.06.41, L.EC.06.42, E.SE.06.51	W	740	Climate, climate change, and the science of studying climates are discussed in <i>Earth's Changing Climate</i> .	climate climatologist core drought weather
<b>Ecosystems</b> ISBN 0022847316 6 PK ISBN 0022865160	S.RS.06.15, S.RS.06.17, S.RS.06.19, L.OL.06.51, L.OL.06.52, L.EC.06.11, L.EC.06.23, L.EC.06.41, L.EC.06.42	Y	910	<i>Ecosystems</i> discusses energy flow within ecosystems, human impact on ecosystems, and ways that individuals can have a positive impact on ecosystems.	conservation consumer decomposer ecosystem producer
<b>Einstein, Newton, and Gravity</b> ISBN 0022859489 6 PK ISBN 0022866639	S.RS.06.15, S.RS.06.19	X	760	<i>Einstein, Newton, and Gravity</i> discusses the development of ideas about gravity and space-time, and highlights the cumulative nature of scientific knowledge.	force gravity inertia mass theory
<b>Energy Hunter *</b> ISBN 0022847367 6 PK ISBN 0022865225	S.RS.06.15, S.RS.06.17, S.RS.06.19, L.OL.06.52, L.EC.06.41, L.EC.06.42, E.SE.06.53	X	810	<i>Energy Hunter</i> identifies sources of energy including biomass, geothermal, solar, fossil fuels, and nuclear reactions.	biomass geothermal energy nuclear fusion renewable solar energy

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TITLE	MI STANDARDS ADDRESSED	GR LEVEL	LEXILE LEVEL	BOOK SUMMARY	VOCABULARY
<b>Exploring the Ocean Depths *</b>  ISBN 0022859268 6 PK ISBN 0022866566	S.RS.06.17, L.EC.06.11, L.EC.06.31, L.EC.06.41	X	710	<i>Exploring the Ocean Depths</i> describes how technology is used to advance science by allowing humans to explore the deepest parts of the ocean.	adaptation bioluminescence geyser hydrothermal vent probe
<b>Finding Our Way</b>  ISBN 0022859195 6 PK ISBN 0022866531	S.RS.06.15, S.RS.06.19	T	640	<i>Finding Our Way</i> describes methods of navigation, longitude and latitude, historic navigation tools, and modern navigation tools such as GPS.	astrolabe compass Global Positioning System (GPS) latitude longitude
<b>Fire in the Sierra Nevada</b>  ISBN 0022847340 6 PK ISBN 0022865195	L.EC.06.11, L.EC.06.23, L.EC.06.31, L.EC.06.32	Y	840	<i>Fire in the Sierra Nevada</i> describes the communities of living things found in the Sierra Nevada and the role that fire plays in keeping this ecosystem in balance.	chaparral ecosystem habitat ignite vegetation
<b>Foods that Feed the World *</b>  ISBN 0022859225 6 PK ISBN 0022866434	S.RS.06.15, S.RS.06.17, S.RS.06.19, L.EC.06.41, L.EC.06.42, E.SE.06.13	X	730	<i>Foods That Feed the World</i> describes agriculture, food production, and ways that science has improved agricultural practices over time.	agriculture fertilizer pesticide breeding staple
<b>Greenhouse Effect</b>  ISBN 0022847456 6 PK ISBN 0022865306	S.RS.06.17, L.EC.06.41, L.EC.06.42	V	820	<i>Greenhouse Effect</i> describes the role of the greenhouse effect in making Earth habitable and describes ways that human activity impacts the greenhouse effect, the ozone layer, and global climate.	atmosphere carbon dioxide deforestation global warming greenhouse effect
<b>Gregor Mendel *</b>  ISBN 0022859241 6 PK ISBN 0022866493	S.RS.06.15, S.RS.06.19	W	710	In <i>Gregor Mendel</i> , the experimental methods used by Gregor Mendel are described. This book also describes how Mendel's results used ratios, discusses Mendel's laws, and identifies ways that Mendel's work impacted the work of other scientists.	dominant genetics heredity hybrid recessive

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TITLE	MI STANDARDS ADDRESSED	GR LEVEL	LEXILE LEVEL	BOOK SUMMARY	VOCABULARY
<b>Hidden Life In A Pond</b>  ISBN 0022859314 6 PK ISBN 0022866477	S.RS.06.15, S.RS.06.19, L.OL.06.51, L.OL.06.52, L.EC.06.11, L.EC.06.21, L.EC.06.31	Y	720	<i>Hidden Life in a Pond</i> identifies microorganisms found in pond water and explains the history of the microscope.	algae bacteria food web habitat protozoa
<b>How Do Toys Work? *</b>  ISBN 0022859284 6 PK ISBN 0022866620	S.RS.06.15, P.EN.06.11, P.EN.06.12	W	710	<i>How Do Toys Work?</i> applies concepts of physics, such as motion, forces, friction, and momentum to toys such as yo-yos and model airplanes.	energy force friction gravity momentum
<b>Microorganisms</b>  ISBN 0022859187 6 PK ISBN 0022866450	S.RS.06.15, S.RS.06.19, L.OL.06.51, L.EC.06.21, L.EC.06.22	S	570	<i>Microorganisms</i> identifies types of microorganisms, discusses the development of the microscope, and explains the role of microorganisms in disease and in food production.	antibiotic bacteria microbe protist vaccine
<b>Microwaves and Cooking</b>  ISBN 0022847480 6 PK ISBN 0022865330	S.RS.06.15, S.RS.06.19, P.EN.06.41	W	820	<i>Microwaves and Cooking</i> describes the accidental discovery that microwaves cook food, development of the microwave oven over time, and the process of scientific invention.	electron magnetron microwave nonionizing radiation patent
<b>Nuclear Medicine</b>  ISBN 0022859349 6 PK ISBN 0022866604	S.RS.06.15, S.RS.06.19, P.EN.06.41	Y	750	<i>Nuclear Medicine</i> describes the application of radioactive materials in medicine. The book describes X rays, bone scans, MRI, and radiation therapy.	barium CT scan MRI nuclear medicine X ray
<b>Power for Our Future</b>  ISBN 0022847375 6 PK ISBN 0022865233	S.RS.06.15, S.RS.06.17, S.RS.06.19, L.EC.06.41, L.EC.06.42	Y	940	<i>Power For Our Future</i> describes the need for renewable energy resources such as solar energy, geothermal energy, fuel cells, and biomass fuels.	geothermal energy hydrogen solar power renewable tidal energy

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TITLE	MI STANDARDS ADDRESSED	GR LEVEL	LEXILE LEVEL	BOOK SUMMARY	VOCABULARY
<b>Powered by the Sun</b>  ISBN 0022847472 6 PK ISBN 0022865322	S.RS.06.15, S.RS.06.17, S.RS.06.19, P.EN.06.41, L.EC.06.41, L.EC.06.42	Y	890	<i>Powered By the Sun</i> describes nuclear fusion in the Sun and the role of the Sun's energy in the water cycle and fossil fuel formation. It also describes ways that solar energy can be captured and used to make electricity, heat water, heat homes, and power spacecraft.	<b>array</b> <b>insulation</b> <b>nuclear fusion</b> <b>renewable</b> <b>resource</b> <b>solar energy</b>
<b>Skates Bikes, and Rockets</b>  ISBN 0022859470 6 PK ISBN 0022866612	S.RS.06.15, S.RS.06.19	S	830	<i>Skates, Bikes, and Rockets</i> describes how Newton's laws of motion are demonstrated by inline skates, ice skates, bicycles, and rockets.	<b>force</b> <b>friction gravity</b> <b>inertia</b> <b>newton</b>
<b>Sun Storms *</b>  ISBN 0022847464 6 PK ISBN 0022865314	S.RS.06.15, S.RS.06.19, P.EN.06.41, E.SE.06.61, E.SE.06.62	X	900	<i>Sun Storms</i> describes solar events such as solar flares and sunspots and the way these events affect Earth. It also describes methods scientists use to study the Sun.	<b>corona</b> <b>magnetic field</b> <b>plasma solar flare</b> <b>sunspot</b>
<b>The Ring of Fire</b>  ISBN 0022847413 6 PK ISBN 0022865268	S.RS.06.15, L.EC.06.11, E.SE.06.41, E.SE.06.51, E.SE.06.52, E.SE.06.53	Z	940	<i>The Ring of Fire</i> describes the most severe earthquakes and volcanic events associated with the Ring of Fire. Tsunamis and tsunami warning systems are also discussed.	<b>aftershock</b> <b>earthquake seismic</b> <b>tsunami</b> <b>volcano</b>
<b>The Story of DNA</b>  ISBN 0022859446 6 PK ISBN 0022866485	S.IP.06.11, S.IA.06.12, S.IA.06.15, S.RS.06.19, L.EC.06.41	S	840	<i>The Story of DNA</i> highlights the discoveries of Watson and Crick, Mendel, Wilkins and Franklin, and Francis Collins. It discusses the role of DNA in the inheritance of traits and new developments in DNA technology.	<b>cell</b> <b>DNA</b> <b>gene genetics</b> <b>mutate</b>
<b>Tracing the Food Web</b>  ISBN 0022847286 6 PK ISBN 0022865144	S.RS.06.17, L.OL.06.51, L.OL.06.52, L.EC.06.11, L.EC.06.21, L.EC.06.41	V	860	The flow of energy in a variety of ecosystems is described in <i>Tracing the Food Web</i> . Human impact on the world's ecosystems is also described.	<b>Consumer</b> <b>decomposer</b> <b>ecosystem</b> <b>food chain</b> <b>food web</b>

TITLE	MI STANDARDS ADDRESSED	GR LEVEL	LEXILE LEVEL	BOOK SUMMARY	VOCABULARY
<b>Tsunami! *</b> ISBN 0022847391 6 PK ISBN 002286525X	S.RS.06.15, E.SE.06.51, E.SE.06.52	X	880	<b>Tsunami!</b> describes the formation and aftermath of the tsunami of December 26, 2004, as well as ways that tsunamis can be predicted and prepared for.	<b>geologist</b> <b>lithosphere</b> <b>meteorite</b> <b>Richter scale</b> <b>tectonic plate</b>

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# Michigan Science Grade Level Content Expectations

## SCIENCE PROCESSES

### Inquiry Process

#### K-7 Standard S.IP

**Develop an understanding that scientific inquiry and reasoning involves observing, questioning, investigating, recording, and developing solutions to problems**

#### S.IP.M.1

**Inquiry involves generating questions, conducting investigations, and developing solutions to problems through reasoning and observation.**

S.IP.06.11

Generate scientific questions based on observations, investigations, and research.

S.IP.06.12

Design and conduct scientific investigations.

S.IP.06.13

Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens, thermometer, models, sieves, microscopes) appropriate to scientific investigations.

S.IP.06.14

Use metric measurement devices in an investigation.

S.IP.06.15

Construct charts and graphs from data and observations.

S.IP.06.16

Identify patterns in data.

**Inquiry Analysis and Communication****K-7 Standard S.IA****Develop an understanding that scientific inquiry and investigations require analysis and communication of findings, using appropriate technology.****S.IA.M.1****Inquiry includes an analysis and presentation of findings that lead to future questions, research, and investigations.**

S.IA.06.11

Analyze information

S.IA.06.12

Evaluate data, claims, and personal knowledge through collaborative science discourse.

S.IA.06.13

Draw conclusions from sets of data from multiple trials of a scientific investigation.

S.IA.06.15

Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data.

**Reflection and Social Implications****K-7 Standard S.RS****Develop an understanding that claims and evidence for their scientific merit should be analyzed. Understand how scientists decide what constitutes scientific knowledge. Develop an understanding of the importance of reflection on scientific knowledge and its application to new situations to better understand the role of science in society and technology****S.RS.M.1****Reflecting on knowledge is the application of scientific knowledge to new and different situations. Reflecting on knowledge requires careful analysis of evidence that guides decision-making and the application of science throughout history and within society.**

S.RS.06.11

Evaluate the strengths and weaknesses of claims, arguments, and data.

S.RS.06.12

Describe limitations in personal and scientific knowledge.

S.RS.06.13

Identify the need for evidence in making scientific decisions.

S.RS.06.14

Evaluate scientific explanations based on current evidence and scientific principles.

- S.RS.06.15 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.
- S.RS.06.16 Design solutions to problems using technology.
- S.RS.06.17 Describe the effect humans and other organisms have on the balance of the natural world.
- S.RS.06.18 Describe what science and technology can and cannot reasonably contribute to society.
- S.RS.06.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.

**PHYSICAL SCIENCE****Energy****K-7 Standard P.EN**

**Develop an understanding that there are many forms of energy (such as heat, light, sound, and electrical) and that energy is transferable by convection, conduction, or radiation. Understand energy can be in motion, called kinetic; or it can be stored, called potential. Develop an understanding that as temperature increases, more energy is added to a system. Understand nuclear reactions in the sun produce light and heat for the Earth.**

**P.EN.M.1**

**Kinetic and Potential Energy- Objects and substances in motion have kinetic energy. Objects and substances may have potential energy due to their relative positions in a system. Gravitational, elastic, and chemical energy are all forms of potential energy.**

- P.EN.06.11 Identify kinetic or potential energy in everyday situations (for example: stretched rubber band, objects in motion, ball on a hill, food energy).
- P.EN.06.12 Demonstrate the transformation between potential and kinetic energy in simple mechanical systems (for example: roller coasters, pendulums).

**P.EN.M.4**

**Energy Transfer- Energy is transferred from a source to a receiver by radiation, conduction, and convection. When energy is transferred from a source to a receiver, the quantity of energy before the transfer is equal to the quantity of energy after the transfer.**

- P.EN.06.41 Explain how different forms of energy can be transferred from one place to another by radiation, conduction, or convection.

P.EN.06.42

Illustrate how energy can be transferred while no energy is lost or gained in the transfer.

### Changes in Matter

**K-7 Standard P.CM**

**Develop an understanding of changes in the state of matter in terms of heating and cooling, and in terms of arrangement and relative motion of atoms and molecules. Understand the differences between physical and chemical changes. Develop an understanding of the conservation of mass. Develop an understanding of products and reactants in a chemical change.**

**P.CM.M.1**

**Changes in State- Matter changing from state to state can be explained by using models which show that matter is composed of tiny particles in motion. When changes of state occur, the atoms and/or molecules are not changed in structure. When the changes in state occur, mass is conserved because matter is not created or destroyed.**

P.CM.06.11

Describe and illustrate changes in state, in terms of the arrangement and relative motion of the atoms or molecules.

P.CM.06.12

Explain how mass is conserved as it changes from state to state in a closed system.

### LIFE SCIENCE

#### Organization of Living Things

**K-7 Standard L.OL**

**Develop an understanding that plants and animals (including humans) have basic requirements for maintaining life which include the need for air, water and a source of energy. Understand that all life forms can be classified as producers, consumers, or decomposers as they are all part of a global food chain where food/energy is supplied by plants which need light to produce food/energy. Develop an understanding that plants and animals can be classified by observable traits and physical characteristics. Understand that all living organisms are composed of cells and they exhibit cell growth and division. Understand that all plants and animals have a definite life cycle, body parts, and systems to perform specific life functions.**

**L.OL.M.5**

**Producers, Consumers, and Decomposers- All animals, including humans, are consumers that meet their energy by eating other organisms or their products. Consumers break down the structures of the organisms they eat to make the materials they need to grow and function. Decomposers, including bacteria and fungi, use dead**

**organisms or their products to meet their energy needs.**

- L.OL.06.51 Classify organisms (producers, consumers, and decomposers) based on their source of energy for growth and development.
- L.OL.06.52 Distinguish between the ways in which consumers and decomposers obtain energy.

**Ecosystems****K-7 Standard L.EC**

**Develop an understanding of the interdependence of the variety of populations, communities and ecosystems, including those in the Great Lakes region. Develop an understanding of different types of interdependence and that biotic (living) and abiotic (non-living) factors affect the balance of an ecosystem. Understand that all organisms cause changes, some detrimental and others beneficial, in the environment where they live.**

**L.EC.M.1**

**Interactions of Organisms- Organisms of one species form a population. Populations of different organisms interact and form communities. Living communities and nonliving factors that interact with them form ecosystems.**

L.EC.06.11

List examples of populations, communities, and ecosystems including the Great Lakes region.

**L.EC.M.2**

**Relationships of Organisms- Two types of organisms may interact with one another in several ways: They may be in a producer/consumer, predator/ prey, or parasite/host relationship. Some organisms may scavenge or decompose another. Relationships may be competitive or mutually beneficial. Some species have become so adapted to each other that neither could survive without the other.**

L.EC.06.21

Describe common patterns of relationships between and among populations (competition, parasitism, symbiosis, predator/prey).

L.EC.06.22

Explain how two populations of organisms can be mutually beneficial and how that can lead to interdependency.

L.EC.06.23

Predict how changes in one population might affect other populations based upon their relationships in the food web.

**L.EC.M.3**

**Biotic and Abiotic Factors- The number of organisms and populations an ecosystem can support depends on the biotic (living) resources available and abiotic (nonliving)**

**factors, such as quality of light and water, range of temperatures and soil composition.**

L.EC.06.31 Identify the living (biotic) and nonliving (abiotic) components of an ecosystem.

L.EC.06.32 Identify the factors in an ecosystem that influence changes in population size.

**L.EC.M.4**

**Environmental Impact of Organisms- All organisms (including humans) cause change in the environment where they live. Some of the changes are harmful to the organism or other organisms, whereas others are helpful.**

L.EC.06.41 Describe how human beings are part of the ecosystem of the Earth and that human activity can purposefully, or accidentally, alter the balance in ecosystems.

L.EC.06.42 Predict possible consequences of overpopulation of organisms, including humans, (for example: species extinction, resource depletion, climate change, pollution).

**EARTH SCIENCE**

**Solid Earth**

**K-7 Standard E.SE**

**Develop an understanding of the properties of earth materials and how those properties make materials useful. Understand gradual and rapid changes in earth materials and features of the surface of Earth. Understand magnetic properties of Earth.**

**E.SE.M.1**

**Soil- Soils consist of weathered rocks and decomposed organic materials from dead plants, animals, and bacteria. Soils are often found in layers with each having a different chemical composition and texture.**

E.SE.06.11 Explain how physical and chemical weathering lead to erosion and the formation of soils and sediments.

E.SE.06.12 Explain how waves, wind, water, and glacier movement, shape and reshape the land surface of the Earth by eroding rock in some areas and depositing sediments in other areas.

E.SE.06.13 Describe how soil is a mixture, made up of weather eroded rock and decomposed organic material.

E.SE.06.14 Compare different soil samples based on particle size and texture.

**E.SE.M.4**

**Rock Formation- Rocks and rock formations bear evidence of the minerals, materials, temperature/pressure conditions, and forces that created them.**

E.SE.06.41

Compare and contrast the formation of rock types (igneous, metamorphic, and sedimentary) and demonstrate the similarities and differences using the rock cycle model.

**E.SE.M.5**

**Plate Tectonics- The lithospheric plates of the Earth constantly move, resulting in major geological events, such as earthquakes, volcanic eruptions, and mountain building.**

E.SE.06.51

Explain plate tectonic movement and how the lithospheric plates move centimeters each year.

E.SE.06.52

Demonstrate how major geological events (earthquakes, volcanic eruptions, mountain building) result from these plate motions.

E.SE.06.53

Describe layers of the Earth as a lithosphere (crust and upper mantle), convecting mantle, and dense metallic core.

**E.SE.M.6**

**Magnetic Field of Earth- Earth as a whole has a magnetic field that is detectable at the surface with a compass.**

E.SE.06.61

Describe the Earth as a magnet and compare the magnetic properties of the Earth to that of a natural or man-made magnet.

E.SE.06.62

Explain how a compass works using the magnetic field of the Earth, and how a compass is used for navigation on land and sea.

**Earth in Space and Time****K-7 Standard E.ST**

**Develop an understanding that the sun is the central and largest body in the solar system and that Earth and other objects in the sky move in a regular and predictable motion around the sun. Understand that those motions explain the day, year, moon phases, eclipses and the appearance of motion of objects across the sky. Understand that gravity is the force that keeps the planets in orbit around the sun and governs motion in the solar system. Develop an understanding that fossils and layers of Earth provide evidence of the history of Earth's life forms, changes over long periods of time, and theories regarding Earth's history and continental drift.**

**E.ST.M.3**

**Fossils- Fossils provide important evidence of how life and environmental conditions have changed in a given location.**

E.ST.06.31

Explain how rocks and fossils are used to understand the age and geological history of the earth (timelines and relative dating, rock layers).

**E.ST.M.4**

**Geologic Time- Earth processes seen today (erosion, mountain building, and glacier movement) make possible the measurement of geologic time through methods such as observing rock sequences and using fossils to correlate the sequences at various locations.**

E.ST.06.41

Explain how Earth processes (erosion, mountain building, and glacier movement) are used for the measurement of geologic time through observing rock layers.

E.ST.06.42

Describe how fossils provide important evidence of how life and environmental conditions have changed.