K- 12 Comprehensive Standard: Inquiry, the Nature of Science, and Technology
Students will combine scientific processes and knowledge with scientific reasoning and critical thinking to ask questions about phenomena and propose explanations based on gathered evidence.

Concepts	Grade Level Standards

	Pre K	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Abilities to do Scientific Inquiry	SC M P4.1.1 Students, with adult guidance, will ask questions conduct investiga-tions, make and communicate observations.	SC M 00.1.1 Students will ask questions conduct investiga-tions, make and communicate observations.	SC M 01.1.1 Students will ask questions and conduct investigations that lead to observations and communica-tion of findings.	SC S 02.1.1 Students will ask questions and conduct investigations that lead to observations and communica-tion of findings.	SC M 03.1.1 Students will plan and conduct investigations that lead to the development of explanations.	SC M 04.1.1 Students will plan and conduct investigations that lead to the development of explanations.	SC S 05.1.1 Students will plan and conduct investigations that lead to the development of explanations.	SC M 06.1.1 Students will design and conduct investigations that will lead to descriptions of relationships between evidence and explanations.	SC M 07.1.1 Students will design and conduct investigations that will lead to descriptions of relationships between evidence and explanations.	SC S 08.1.1 Students will design and conduct investigations that will lead to descriptions of relationships between evidence and explanations.
Nature of Science	SC M P4.1.2 Students will describe how scientists go about their work.	SC M 00.1.2 Students will describe how scientists go about their work.	SC M 1.1.2 Students will describe how scientists go about their work.	SC M 02.1.2 Students will describe how scientists go about their work.	SC M 03.1.2 Students will describe how scientists go about their work.	SC M 04.1.2 Students will describe how scientists go about their work.	SC S 05.1.2 Students will describe how scientists go about their work.	SC M 06.1.2 Students will apply the nature of science to their own investiga-tions.	SC M 07.1.2 Students will apply the nature of science to their own investiga-tions.	SC S 08.1.2 Students will apply the nature of science to their own investiga-tions.
Technology	SC M P4.1.3 Students will explore a simple design problem.	SC M 00.1.3 Students will explore a simple design problem.	SC M 01.1.3 Students will solve a simple design problem.	SC M 02.1.3 Students will solve a simple design problem.	SC M 03.1.3 Students will solve a simple design problem.	SC M 04.1.3 Students will solve a simple design problem.	SC S 05.1.3 Students will solve a simple design problem.	SC M 06.1.3 Students will solve a design problem which involves one or two science concepts.	SC M 07.1.3 Students will solve a design problem which involves one or two science concepts.	SC S 08.1.3 Students will solve a design problem which involves one or two science concepts.

K- 12 Comprehensive Standard: Inquiry, the Nature of Science, and Technology Students will combine scientific processes and knowledge with scientific reasoning and critical thinking to ask questions about phenomena and propose explanations based on gathered evidence.	
Concept	**Grade Level Standards**

	Pre K	**Kindergarten**	**Grade 1**	**Grade 2**	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**
Abilities to do Scientific Inquiry	**SC M P4.1.1 Students, with adult guidance, will ask questions about observations and communicate findings.**	**SC M 00.1.1 Students will ask questions and conduct investigations that lead to observations and communica-tion of findings.**	**SC M 01.1.1 Students will ask questions and conduct investigations that lead to observations and communica-tion of findings.**	**SC S 02.1.1 Students will ask questions and conduct investigations that lead to observations and communica-tion of findings.**	**SC M 03.1.1 Students will plan and conduct investigations that lead to the development of explanations.**	**SC M 04.1.1 Students will plan and conduct investigations that lead to the development of explanations.**	**SC S 05.1.1 Students will plan and conduct investigations that lead to the development of explanations.**	**SC M 06.1.1 Students will design and conduct investigations that will lead to descriptions of relationships between evidence and explanations. (Structured Level Inquiry)**	**SC M 07.1.1 Students will design and conduct investigations that will lead to descriptions of relationships between evidence and explanations. (Guided Level Inquiry)**	**SC S 08.1.1 Students will design and conduct investigations that will lead to descriptions of relationships between evidence and explanations.**
Scientific Questioning	**SC M P4.1.1.a** With adult guidance, ask questions that relate to a science topic	**SC M 00.1.1.a** Ask questions that relate to a science topic	**SC M 01.1.1.a** Ask questions that relate to a science topic	**SC S 02.1.1.a** Ask questions that relate to a science topic	**SC M 03.1.1.a** Ask testable scientific questions	**SC M 04.1.1.a** Ask testable scientific questions	**SC S 05.1.1.a** Ask testable scientific questions	**SC M 06.1.1.a** Formulate testable questions that lead to predictions and scientific investigations	**SC M 07.1.1.a** Formulate testable questions that lead to predictions and scientific investigations	**SC S 08.1.1.a** Formulate testable questions that lead to predictions and scientific investigations
Scientific Investigations	**SC M P4.1.1.b** Use their five senses to participate in simple investigations with teacher direction	**SC M 00.1.1.b** Use their five senses to participate in simple investigations	**SC M 01.1.1.b** Conduct simple investigations with teacher direction	**SC S 02.1.1.b** Conduct simple investigations	**SC M 03.1.1.b** Plan and conduct investigations and identify factors that have the potential to impact an investigation	**SC M 04.1.1.b** Plan and conduct investigations and identify factors that have the potential to impact an investigation	**SC S 05.1.1.b** Plan and conduct investigations and identify factors that have the potential to impact an investigation	**SC M 06.1.1.b** Conduct logical and sequential investigations	**SC M 07.1.1.b** Design and conduct logical and sequential investigations including repeated trials	**SC S 08.1.1.b** Design and conduct logical and sequential investigations including repeated trials

Scientific Controls And Variables								**SC M 06.1.1.c** Determine controls and use independent (manipulated) variables	**SC M 07.1.1.c** Determine controls and use dependent (responding) and independent (manipulated) variables	**SC S 08.1.1.c** Determine controls and use dependent (responding) and independent (manipulated) variables
Scientific Tools	**SC M P4.1.1.c** Explore the guided use of simple tools	**SC M 00.1.1.c** Select and use simple tools with guidance	**SC M 01.1.1.c** Select and use simple tools appropriately	**SC S 02.1.1.c** Select and use simple tools appropriately	**SC M 03.1.1.c** Select and use equipment correctly and accurately	**SC M 04.1.1.c** Select and use equipment correctly and accurately	**SC S 05.1.1.c** Select and use equipment correctly and accurately	**SC M 06.1.1.d** Select and use equipment appropriate to the investigation, demonstrate correct techniques	**SC M 07.1.1.d** Select and use equipment appropriate to the investigation, demonstrate correct techniques, and apply appropriate mathematical concepts	**SC S 08.1.1.d** Select and use equipment appropriate to the investigation, demonstrate correct techniques, and apply appropriate mathematical concepts
Scientific Observations	**SC M P4.1.1.d** Observe and explore the world of familiar objects using their senses and tools	**SC M 00.1.1.d** Describe objects, organisms, or events using pictures, words, and numbers	**SC M 01.1.1.d** Describe objects, organisms, or events using pictures, words, and numbers	**SC S 02.1.1.d** Describe objects, organisms, or events using pictures, words, and numbers	**SC M 03.1.1.d** Make relevant observations and measurements	**SC M 04.1.1.d** Make relevant observations and measurements	**SC S 05.1.1.d** Make relevant observations and measurements	**SC M 06.1.1.e** Make qualitative and quantitative observations	**SC M 07.1.1.e** Make qualitative and quantitative observations	**SC S 08.1.1.e** Make qualitative and quantitative observations
Scientific Data Collection	**SC M P4.1.1.e** Begin to record observations (drawings, tallies)	**SC M 00.1.1.e** Collect and record observations (drawings, tallies)	**SC M 01.1.1.e** Collect and record observations (drawings, pictographs, charts, tallies)	**SC S 02.1.1.e** Collect and record observations **SC M 02.1.1.e** Collect and record observations (charts, tables, drawings, bar graphs)	**SC M 03.1.1.e** Collect and organize data (tables, graphs, charts)	**SC M 04.1.1.e** Collect and organize data (tables, graphs, charts)	**SC S 05.1.1.e** Collect and organize data **SC M 05.1.1.e** Collect and organize data (tables, graphs, charts)	**SC M 06.1.1.f** Record and represent data appropriately and accurately	**SC M 07.1.1.f** Record and represent data appropriately, and review for quality and accuracy	**SC S 08.1.1.f** Record and represent data appropriately and review for quality, accuracy, and relevancy

Scientific Interpretations, Reflections, and Applications					**SC M 03.1.1.f** Develop a reasonable explanation based on collected data	**SC M 04.1.1.f** Develop a reasonable explanation based on collected data	**SC S 05.1.1.f** Develop a reasonable explanation based on collected data	**SC M 06.1.1.g** Evaluate predictions, draw logical inferences based on observations	**SC M 07.1.1.g** Evaluate predictions, draw logical inferences based on observed patterns and relationships	**SC S 08.1.1.g** Evaluate predictions, draw logical inferences based on observed patterns/ relationships, and account for non-relevant information
Scientific Communication	**SC M P4.1.1.f** Begin to use drawings and words to describe and share observations with others	**SC M 00.1.1.f** Use drawings and words to describe and share observations with others (science notebooks)	**SC M 01.1.1.f** Use drawings and words to describe and share observations with others (science notebooks)	**SC S 02.1.1.f** Use drawings and words to describe and share observations with others **SC M 02.1.1.f** Use drawings and words to describe and share observations with others (science notebooks)	**SC M 03.1.1.g** Share information, procedures, and results with peers and/or adults (science notebooks)	**SC M 04.1.1.g** Share information, procedures, and results with peers and/or adults (science notebooks)	**SC S 05.1.1.g** Share information, procedures, and results with peers and/or adults **SC M 05.1.1.g** Share information, procedures, and results with peers and/or adults (science notebooks)	**SC M 06.1.1.h** Share information, procedures, results, and conclusions with appropriate audiences	**SC M 07.1.1.h** Share information, procedures, results, and conclusions with appropriate audiences	**SC S 08.1.1.h** Share information, procedures, results, and conclusions with appropriate audiences
					SC M 03.1.1.h Provide feedback on scientific investigations	**SC M 04.1.1.h** Provide feedback on scientific investigations	**SC S 05.1.1.h** Provide feedback on scientific investigations	**SC M 06.1.1.i** Analyze and provide appropriate critique of scientific investigations	**SC M 07.1.1.i** Analyze and provide appropriate critique of scientific investigations	**SC S 08.1.1.i** Analyze and provide appropriate critique of scientific investigations

Mathematics	**SC M P4.1.1.g** Begin to use appropriate mathematics in all aspects of scientific inquiry	**SC M 00.1.1.g** Use appropriate mathematics in all aspects of scientific inquiry	**SC M 01.1.1.g** Use appropriate mathematics in all aspects of scientific inquiry	**SC S 02.1.1.g** Use appropriate mathematics in all aspects of scientific inquiry	**SC M 03.1.1.i** Use appropriate mathematics in all aspects of scientific inquiry	**SC M 04.1.1.i** Use appropriate mathematics in all aspects of scientific inquiry	**SC S 05.1.1.i** Use appropriate mathematics in all aspects of scientific inquiry	**SC M 06.1.1.j** Use appropriate mathematics in all aspects of scientific inquiry	**SC M 07.1.1.j** Use appropriate mathematics in all aspects of scientific inquiry	**SC S 08.1.1.j** Use appropriate mathematics in all aspects of scientific inquiry
Reading Comprehension: Informational Text	**SC M P4.1.1.h** Explore informational text to gain meaning	**SC M 00.1.1.h** Explore informational text to gain meaning	**LA S 01.1.6** Extract and construct meaning using prior knowledge, applying text information, and monitoring comprehen-sion while reading grade level text	**LA S 02.1.6** Extract and construct meaning using prior knowledge, applying text information, and monitoring comprehen-sion while reading grade level text	**LA S 03.1.6** Extract and construct meaning using prior knowledge, applying text information, and monitoring comprehen-sion while reading grade level text	**LA S 04.1.6** Extract and construct meaning using prior knowledge, applying text information, and monitoring comprehen-sion while reading grade level text	**LA S 05.1.6** Extract and construct meaning using prior knowledge, applying text information, and monitoring comprehen-sion while reading grade level text	**LA S 06.1.6.e** Summarize, analyze, and synthesize informational text using main idea and supporting details	**LA S 07.1.6.e** Summarize, analyze, and synthesize informational text using main idea and supporting details	**LA S 08.1.6.e** Summarize, analyze, and synthesize informational text using main idea and supporting details
			LA S 01.1.6.e Retell the main ideas from informational text	**LA S 02.1.6.e** Retell and summarize the main ideas from informational text	**LA S 03.1.6.e** Retell and summarize the main ideas from informational text using supporting details	**LA S 04.1.6.e** Retell and summarize the main ideas from informational text using supporting details	**LA S 05.1.6.e** Summarize and analyze the main ideas from informational text	**LA S 06.1.6.f** Apply knowledge of organizational patterns found in informational text (e.g., sequence, description, cause and effect, compare / contrast, fact/opinion)	**LA S 07.1.6.f** Apply knowledge of organizational patterns found in informational text (e.g., sequence, description, cause and effect, compare / contrast, fact/opinion)	**LA S 08.1.6.f** Apply knowledge of organizational patterns found in informational text (e.g., sequence, description, cause and effect, compare / contrast, fact/opinion)

Reading Comprehension: Informational Text *(continued)*			**LA S 01.1.6.f** Identify the characteristics of organizational patterns found in informational text (e.g., sequence, compare / contrast)	**LA S 02.1.6.f** Identify the characteristics of organizational patterns found in informational text (e.g., sequence, compare / contrast)	**LA S 03.1.6.f** Identify the characteristics of organizational patterns found in informational text (e.g., sequence, compare / contrast)	**LA S 04.1.6.f** Identify the characteristics of organizational patterns found in informational text (e.g., sequence, compare / contrast)	**LA S 05.1.6.f** Identify the characteristics of organizational patterns found in informational text (e.g., sequence, compare / contrast)	**LA S 06.1.6.g** Apply knowledge of text features to locate information and gain meaning from a text (e.g., index, maps, charts, tables, graphs, headings, subheadings)	**LA S 07.1.6.g** Apply knowledge of text features to locate information and gain meaning from a text (e.g., index, maps, charts, tables, graphs, headings, subheadings)	**LA S 08.1.6.g** Apply knowledge of text features to locate information and gain meaning from a text (e.g., index, maps, charts, tables, graphs, headings, subheadings)
			LA M 01.1.6.g Identify text features in informational text (e.g., titles, bold print, italic, illustrations, captions, table of contents)	**LA S 02.1.6.g** Use text features to locate information and gain meaning from a text (e.g., table of contents, maps, charts, illustrations, titles, bold print, captions)	**LA S 03.1.6.g** Apply knowledge of text features to locate information and gain meaning from a test (e.g., table of contents, maps, charts, illustrations, headings, captions, font/format styles)	**LA S 04.1.6.g** Apply knowledge of text features to locate information and gain meaning from a text (e.g., glossary, maps, charts, tables, graphs, illustrations, headings, subheadings, captions, font/format styles)	**LA S 05.1.6.g** Apply knowledge of text features to locate information and gain meaning from a text (e.g., index, maps, charts, tables, graphs, headings, subheadings)			
Writing Genres	**LA M P4.2.2.a** Write for a selected purpose (e.g., lists, alphabet book, story with picture, in pretend/ free play, label objects in classroom)	**LA M 00.2.2.a** Write for a selected purpose (e.g., lists, alphabet book, story with picture, label objects in classroom)	**LA S 01.2.2.a** Write for a selected purpose (e.g., story with pictures factual book, alphabet book, poem, letter)	**LA S 02.2.2.a** Write for a selected purpose (e.g., story with pictures factual book, alphabet book, poem, letter)	**LA S 03.2.2.a** Write in a selected genre considering purpose (e.g., inform, entertain, persuade, instruct)	**LA S 04.2.2.a** Write in a selected genre considering purpose (e.g., inform, entertain, persuade, instruct)	**LA S 05.2.2.a** Write in a selected genre considering purpose (e.g., inform, entertain, persuade, instruct)			

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Concept	**Grade Level Standards**

	Pre K	**Kindergarten**	**Grade 1**	**Grade 2**	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**
Nature of Science	**SC M P4.1.2 Students will describe how scientists go about their work.**	**SC M 00.1.2 Students will describe how scientists go about their work.**	**SC M 01.1.2 Students will describe how scientists go about their work.**	**SC M 02.1.2 Students will describe how scientists go about their work.**	**SC M 03.1.2 Students will describe how scientists go about their work.**	**SC M 04.1.2 Students will describe how scientists go about their work.**	**SC S 05.1.2 Students will describe how scientists go about their work.**	**SC M 06.1.2 Students will apply the nature of science to their own investigations.**	**SC M 07.1.2 Students will apply the nature of science to their own investigations.**	**SC S 08.1.2 Students will apply the nature of science to their own investigations.**
Scientific Knowledge				**SC M 02.1.2.a** Recognize that scientific explanations are based on evidence and scientific knowledge	**SC M 03.1.2.a** Recognize that scientific explanations are based on evidence and scientific knowledge	**SC M 04.1.2.a** Recognize that scientific explanations are based on evidence and scientific knowledge	**SC S 05.1.2.a** Recognize that scientific explanations are based on evidence and scientific knowledge	**SC M 06.1.2.a** Recognize science is an ongoing process and the scientific community accepts and uses explanations until they encounter new experimental evidence not matching existing explanations	**SC M 07.1.2.a** Recognize science is an ongoing process and the scientific community accepts and uses explanations until they encounter new experimental evidence not matching existing explanations	**SC S 08.1.2.a** Recognize science is an ongoing process and the scientific community accepts and uses explanations until they encounter new experimental evidence not matching existing explanations
Science and Society	**SC M P4.1.2.a** Explore objects in nature and objects made by people	**SC M 00.1.2.a** Recognize that some objects occur in nature and others have been designed or made by people	**SC M 01.1.2.a** Differentiate between objects that occur in nature and others designed or made by people	**SC M 02.1.2.b** Identify everyday objects designed or made by people	**SC M 03.1.2.b** Recognize that new discoveries are always being made which impact scientific knowledge	**SC M 04.1.2.b** Recognize that new discoveries are always being made which impact scientific knowledge	**SC S 05.1.2.b** Recognize that new discoveries are always being made which impact scientific knowledge	**SC M 06.1.2.b** Describe how scientific discoveries influence and change society	**SC M 07.1.2.b** Describe how scientific discoveries influence and change society	**SC S 08.1.2.b** Describe how scientific discoveries influence and change society

Science as a Human Endeavor		**SC M 00.1.2.b** Recognize people interact with the natural and man-made world	**SC M 01.1.2.b** Recognize many different people study science	**SC M 02.1.2.c** Recognize many different people study science	**SC M 03.1.2.c** Recognize many different people study science	**SC M 04.1.2.c** Recognize many different people study science	**SC S 05.1.2.c** Recognize many different people study science	**SC M 06.1.2.c** Recognize scientists from various cultures have made many contributions to explain the natural world	**SC M 07.1.2.c** Recognize scientists from various cultures have made many contributions to explain the natural world	**SC S 08.1.2.c** Recognize scientists from various cultures have made many contributions to explain the natural world
		SC M 00.1.2.c Recognize that scientists work as individuals and in groups to investigate the natural world	**SC M 01.1.2.c** Recognize that scientists work as individuals and in groups to investigate the natural world	**SC M 02.1.2.d** Recognize that scientists work as individuals and in groups to investigate and communicate about the natural world						

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Concept	**Grade Level Standards**

	Pre K	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Technology	**SC M P4.1.3 Students will explore a simple design problem.**	**SC M 00.1.3 Students will explore a simple design problem.**	**SC M 01.1.3 Students will solve a simple design problem.**	**SC M 02.1.3 Students will solve a simple design problem.**	**SC M 03.1.3 Students will solve a simple design problem.**	**SC M 04.1.3 Students will solve a simple design problem.**	**SC S 05.1.3 Students will solve a simple design problem.**	**SC M 06.1.3 Students will solve a design problem which involves one or two science concepts.**	**SC M 07.1.3 Students will solve a design problem which involves one or two science concepts.**	**SC S 08.1.3 Students will solve a design problem which involves one or two science concepts.**
Abilities to do Technical Design	**SC M P4.1.3.a** Identify a simple problem	**SC M 00.1.3.a** Identify a simple problem	**SC M 01.1.3.a** Identify a simple problem	**SC M 02.1.3.a** Identify a simple problem	**SC M 03.1.3.a** Identify a simple problem	**SC M 04.1.3.a** Identify a simple problem	**SC S 05.1.3.a** Identify a simple problem	**SC M 06.1.3.a** Identify problems for technical design	**SC M 07.1.3.a** Identify problems for technical design	**SC S 08.1.3.a** Identify problems for technical design
	SC M P4.1.3.b Brainstorm solutions to a simple problem	**SC M 00.1.3.b** Propose a solution to a simple problem	**SC M 01.1.3.b** Propose a solution to a simple problem	**SC M 02.1.3.b** Propose a solution to a simple problem	**SC M 03.1.3.b** Propose a solution to a simple problem	**SC M 04.1.3.b** Propose a solution to a simple problem	**SC S 05.1.3.b** Propose a solution to a simple problem	**SC M 06.1.3.b** Design a solution or product	**SC M 07.1.3.b** Design a solution or product	**SC S 08.1.3.b** Design a solution or product
	SC M P4.1.3.c Collaboratively implement proposed solution	**SC M 00.1.3.c** Collaboratively implement proposed solution	**SC M 01.1.3.c** Implement the proposed solution	**SC M 02.1.3.c** Implement the proposed solution	**SC M 03.1.3.c** Implement the proposed solution	**SC M 04.1.3.c** Implement the proposed solution	**SC S 05.1.3.c** Implement the proposed solution	**SC M 06.1.3.c** Implement the proposed design	**SC M 07.1.3.c** Implement the proposed design	**SC S 08.1.3.c** Implement the proposed design
	SC M P4.1.3.d With adult guidance, reflect on the implementation of a solution	**SC M 00.1.3.d** With adult guidance, reflect on the implementation of a solution	**SC M 01.1.3.d** With adult guidance, evaluate the implementation of a solution	**SC M 02.1.3.d** Evaluate the implementation of a solution	**SC M 03.1.3.d** Evaluate the implementation	**SC M 04.1.3.d** Evaluate the implementation	**SC S 05.1.3.d** Evaluate the implementation	**SC M 06.1.3.d** Evaluate completed technological designs or products	**SC M 07.1.3.d** Evaluate completed technological designs or products	**SC S 08.1.3.d** Evaluate completed technological designs or products
	SC M P4.1.3.e Communicate the problem, design, and solution	**SC M 00.1.3.e** Communicate the problem, design, and solution	**SC M 01.1.3.e** Communicate the problem, design, and solution	**SC M 02.1.3.e** Communicate the problem, design, and solution	**SC M 03.1.3.e** Communicate the problem, design, and solution	**SC M 04.1.3.e** Communicate the problem, design, and solution	**SC S 05.1.3.e** Communicate the problem, design, and solution	**SC M 06.1.3.e** Communicate the process of technical design	**SC M 07.1.3.e** Communicate the process of technical design	**SC S 08.1.3.e** Communicate the process of technical design

Understanding of Technical Design	**SC M P4.1.3.f** Begin to apply engineering design and creative thinking to solve practical problems with adult guidance	**SC M 00.1.3.f** Begin to apply engineering design and creative thinking to solve practical problems with adult guidance	**SC M 01.1.3.f** Begin to apply engineering design and creative thinking to solve practical problems with adult guidance	**SC M 02.1.3.f** Begin to apply engineering design and creative thinking to solve practical problems with adult guidance	**SC M 03.1.3.f** Apply engineering design and creative thinking to solve practical problems	**SC M 04.1.3.f** Apply engineering design and creative thinking to solve practical problems	**SC M 05.1.3.f** Apply engineering design and creative thinking to solve practical problems	**SC M 06.1.3.f** Distinguish between scientific inquiry (asking questions about the natural world) and technological design (using science to solve practical problems)	**SC M 07.1.3.f** Distinguish between scientific inquiry (asking questions about the natural world) and technological design (using science to solve practical problems)	**SC S 08.1.3.f** Distinguish between scientific inquiry (asking questions about the natural world) and technological design (using science to solve practical problems)
								SC M 06.1.3.g Describe how science and technology are reciprocal	**SC M 07.1.3.g** Describe how science and technology are reciprocal	**SC S 08.1.3.g** Describe how science and technology are reciprocal
								SC M 06.1.3.h Recognize that solutions have intended and unintended consequences	**SC M 07.1.3.h** Recognize that solutions have intended and unintended consequences	**SC S 08.1.3.h** Recognize that solutions have intended and unintended consequences
								SC M 06.1.3.i Compare and contrast the reporting of scientific knowledge and the reporting of technological knowledge	**SC M 07.1.3.i** Compare and contrast the reporting of scientific knowledge and the reporting of technological knowledge	**SC S 08.1.3.i** Compare and contrast the reporting of scientific knowledge and the reporting of technological knowledge

K- 12 Comprehensive Standard: Physical Science
Students will integrate and communicate the information, concepts, principles, processes, theories, and models of the Physical Sciences to make connections with the natural and engineered world.

Concepts	Grade Level Standards

	Pre K	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Matter	**SC M P4.2.1 Students will explore properties of objects.**	**SC M 00.2.1 Students will explore properties of objects.**	**SC M 01.2.1 Students will observe and describe properties of objects and their behavior.**	**SC S 02.2.1 Students will observe and describe properties of objects and their behavior.**		**SC M 04.2.1 Students will explore and describe the physical properties of matter and its changes.**	**SC S 05.2.1 Students will explore and describe the physical properties of matter and its changes.**			**SC S 08.2.1 Students will identify and describe the particulate nature of matter including physical and chemical interactions.**
Force and Motion	**SC M P4.2.2 Students will explore force and motion of objects.**	**SC M 00.2.2 Students will explore force and motion of objects.**	**SC M 01.2.2 Students will compare relative position and motion of objects.**	**SC S 02.2.2 Students will compare relative position and motion of objects.**	**SC M 03.2.2 Students will identify the influence of forces on motion.**	**SC M 04.2.2 Students will identify the influence of forces on motion.**	**SC S 05.2.2 Students will identify the influence of forces on motion.**		**SC M 07.2.2 Students will investigate and describe forces and motion.**	**SC S 08.2.2 Students will investigate and describe forces and motion.**
Energy	**SC M P4.2.3 Students will explore signs of energy transfer.**	**SC M 00.2.3 Students will explore signs of energy transfer.**	**SC M 01.2.3 Students will explore signs of energy transfer.**	**SC M 02.2.3 Students will observe and identify signs of energy transfer.**	**SC M 03.2.3 Students will observe and identify signs of energy transfer.**	**SC M 04.2.3 Students will observe and identify signs of energy transfer.**	**SC S 05.2.3 Students will observe and identify signs of energy transfer.**	**SC M 06.2.3 Students will identify and describe how energy systems and matter interact.**	**SC M 07.2.3 Students will identify and describe how energy systems and matter interact.**	**SC S 08.2.3 Students will identify and describe how energy systems and matter interact.**

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Concept	Grade Level Standards

	Pre K	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Matter	**SC M P4.2.1 Students will explore properties of objects.**	**SC M 00.2.1 Students will explore properties of objects.**	**SC M 01.2.1 Students will observe and describe properties of objects and their behavior.**	**SC S 02.2.1 Students will observe and describe properties of objects and their behavior.**	**SC M 03.2.1 Students will observe and describe properties of objects and their behavior.**	**SC M 04.2.1 Students will observe and describe properties of objects and their behavior.**	**SC S 05.2.1 Students will explore and describe the physical properties of matter and its changes.**			**SC S 08.2.1 Students will identify and describe the particulate nature of matter including physical and chemical interactions.**
Properties and Structure of Matter			**SC M 01.2.1.a** Observe physical properties of objects (freezing and melting, sinking and floating, color, size, texture, shape, weight)	**SC S 02.2.1.a** Observe physical properties of objects (freezing and melting, sinking and floating, color, size, texture, shape, weight) (Grade 1)			**SC S 05.2.1.a** Identify mixtures and pure substances			**SC S 08.2.1.a** Compare and contrast elements, compounds, and mixtures
			SC M 01.2.1.b Separate and sort objects by physical attributes (freezing, sinking, floating, color, size, texture, shape, weight)	**SC S 02.2.1.b** Separate and sort objects by physical attributes (Grade 1)			**SC S 05.2.1.b** Identify physical properties of matter (color, odor, elasticity, weight, volume)			**SC S 08.2.1.b** Describe physical and chemical properties of matter

Properties and Structure of Matter *(continued)*	**SC M P4.2.1.a** Observe and describe objects using comparative terms (heavier, lighter, longer, shorter)	**SC M 00.2.1.a** Begin to measure objects using standard and non-standard units	**SC M 01.2.1.c** Begin to measure objects using standard units (inch, foot, gallon, pint, etc.)	**SC S 02.2.1.c** Measure objects using standard and non-standard units (Grades P4, K, 1, 2)	**SC M 03.2.1.a** Use appropriate metric measurements to describe physical properties	**SC M 04.2.1.a** Use appropriate metric measurements to describe physical properties	**SC S 05.2.1.c** Use appropriate metric measurements to describe physical properties			
States of Matter	**SC M P4.2.1.b** Explore solids and liquids	**SC M 00.2.1.b** Explore solids and liquids	**SC M 01.2.1.d** Identify solids and liquids and recognize that liquids take the shape of their container	**SC S 02.2.1.d** Identify solids and liquids and recognize that liquids take the shape of their container (Grades P4, K, 1)			**SC S 05.2.1.d** Identify state changes caused by heating and cooling solids, liquids, and gasses			**SC S 08.2.1.c** Recognize most substances can exist as a solid, liquid, or gas depending on temperature **SC M 08.2.1.c** Explain how most substances can exist as a solid, liquid, or gas depending on temperature
							SC M 05.2.1.e Describe the characteristics of physical change (materials can be changed to their original state)			**SC S 08.2.1.d** Compare and contrast solids, liquids, and gasses based on properties of these states of matter
Physical and Chemical Changes										**SC S 08.2.1.e** Distinguish between physical and chemical changes (phase changes, dissolving, burning, rusting)

Physical and Chemical Changes (continued)										**SC S 08.2.1.f** Recognize conservation of matter in physical and chemical changes
Classification of Matter										**SC S 08.2.1.g** Classify substances into similar groups based on physical properties

K- 12 Comprehensive Standard: Physical Science Students will integrate and communicate the information, concepts, principles, processes, theories, and models of the Physical Sciences to make connections with the natural and engineered world.	
Concept	**Grade Level Standards**

	Pre K	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Force and Motion	**SC M P4.2.2 Students will explore position and motion of objects.**	**SC M 00.2.2 Students will explore position and motion of objects.**	**SC M 01.2.2 Students will compare relative position and motion of objects.**	**SC S 02.2.2 Students will compare relative position and motion of objects.**	**SC M 03.2.2 Students will identify the influence of forces on motion.**	**SC M 04.2.2 Students will identify the influence of forces on motion.**	**SC S 05.2.2 Students will identify the influence of forces on motion.**		**SC M 07.2.2 Students will investigate and describe forces and motion.**	**SC S 08.2.2 Students will investigate and describe forces and motion.**
Motion	**SC M P4 .2.2.a** Identify location and motion of objects	**SC M 00.2.2.a** Identify location of objects (above, below, beside, in front)		**SC S 02.2.2.a** State location and/or motion relative to another object or its surroundings (in front of, behind, between, over, under, faster, slower, forward and backward, up and down) (Grades P4, K, 2)		**SC M 04.2.2.a** Describe motion by tracing and measuring an object's position over a period of time (speed)	**SC S 05.2.2.a** Describe motion by tracing and measuring an object's position over a period of time (speed) (Grade 4)		**SC M 07.2.2.a** Describe motion of an object by its position and velocity	**SC S 08.2.2.a** Describe motion of an object by its position and velocity (Grade 7)
	SC M P4.2.2.b Explore force and motion of objects	**SC M 00.2.2.b** Explore force and motion of objects		**SC S 02.2.2.b** Describe how objects move in many different ways (straight, zigzag, round and round, back and forth, and fast and slow) (Grades P4, K, 2)						

Inertia / Newton's 1st Law									**SC M 07.2.2.b** Recognize an object that is not being subjected to a force will continue to move at a constant speed in a straight line or stay at rest (Newton's 1st law) **SC M 07.2.2.b** Describe experiments with inertia	**SC S 08.2.2.b** Recognize an object that is not being subjected to a force will continue to move at a constant speed in a straight line or stay at rest (Newton's 1st law) (Grade 7)
Forces / Newton's 2nd Law						**SC M 04.2.2.b** Describe changes in motion due to outside forces (push, pull, gravity)	**SC S 05.2.2.b** Describe changes in motion due to outside forces (push, pull, gravity) (Grade 4)		**SC M 07.2.2.c** Compare the motion of objects related to the effects of balanced and unbalanced forces **SC M 07.2.2.c** Identify and apply the relationship among force, mass and acceleration	**SC S 08.2.2.c** Compare the motion of objects related to the effects of balanced and unbalanced forces
						SC M 04.2.2.c Describe the relationship between amount of mass and kinetic energy (Grade 4)				
Newton's 3rd Law									**SC M 07.2.2.d** Explore Newton's 3rd law (forces act in pairs)	

Universal Forces			**SC M 01.2.2.a** Explore properties of magnetic behavior	**SC M 02.2.2.c** Explore properties of magnetic behavior (Grade 1)	**SC M 03.2.2.a** Describe magnetic behavior in terms of attraction, repulsion and magnetic fields		**SC S 05.2.2.c** Describe magnetic behavior in terms of attraction and repulsion (Grade 3) **SC M 05.2.2.c** Describe magnetic behavior in terms of attraction, repulsion and magnetic fields (Grade 3)			**SC S 08.2.2.d** Recognize that everything on or around the Earth is pulled toward the Earth's center by gravitational force

K- 12 Comprehensive Standard: Physical Science Students will integrate and communicate the information, concepts, principles, processes, theories, and models of the Physical Sciences to make connections with the natural and engineered world.	
Concept	**Grade Level Standards**

	Pre K	**Kindergarten**	**Grade 1**	**Grade 2**	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**
Energy	**SC M P4.2.3 Students will explore signs of energy transfer.**	**SC M 00.2.3 Students will explore signs of energy transfer.**	**SC M 01.2.3 Students will explore signs of energy transfer.**	**SC M 02.2.3 Students will observe signs of energy transfer.**	**SC M 03.2.3 Students will observe and identify signs of energy transfer.**	**SC M 04.2.3 Students will observe and identify signs of energy transfer.**	**SC S 05.2.3 Students will observe and identify signs of energy transfer.**	**SC M 06.2.3 Students will identify and describe how energy systems and matter interact.**	**SC M 07.2.3 Students will identify and describe how energy systems and matter interact.**	**SC S 08.2.3 Students will identify and describe how energy systems and matter interact.**
Sound / Mechanical Waves	**SC M P4.2.3.a** Explore sound energy		**SC M 01.2.3.a** Observe and explore characteristics of sound	**SC M 02.2.3.a** Observe and explore characteristics of sound (Grades P4, 1)	**SC M 03.2.3.a** Recognize that sound is produced from vibrating objects; the sound can be changed by changing the vibration		**SC S 05.2.3.a** Recognize that sound is produced from vibrating objects; the sound can be changed by changing the vibration (Grade 3)	**SC M 06.2.3.a** Recognize that vibrations set up wave-like disturbances that spread away from the source (sound, seismic, water waves) (Grade 6)		**SC S 08.2.3.a** Recognize that vibrations set up wave-like disturbances that spread away from the source (sound, seismic, water waves) (Grade 6)
								SC M 06.2.3.b Identify that waves move at different speeds in different materials		**SC S 08.2.3.b** Identify that waves move at different speeds in different materials (Grade 6)
Light	**SC M P4.2.3.b** Explore light energy	**SC M 00.2.3.a** Observe and explore characteristics of light energy		**SC M 02.2.3b** Observe and explore characteristics of light energy **(**Grades P4, K, 2)			**SC S 05.2.3.b** Recognize that light travels in a straight line and can be reflected by an object (mirror)			

Light *(continued)*							**SC S 05.2.3.c** Recognize that light can travel through certain materials and not others (transparent, translucent, opaque)	**SC M 06.2.3.c** Recognize that light interacts with matter by transmission (including refraction), absorption, or scattering (including reflection)		**SC S 08.2.3.c** Recognize that light interacts with matter by transmission (including refraction), absorption, or scattering (including reflection) (Grade 6)
								SC M 06.2.3.d Recognize that to see an object, light from the surface of the object must enter the eye; the color seen depends on the properties of the surface and the color of the available light sources		**SC S 08.2.3.d** Recognize that to see an object, light from the surface of the object must enter the eye; the color seen depends on the properties of the surface and the color of the available light sources (Grade 6)
Heat						**SC M 04.2.3.a** Identify ways to generate heat (friction, burning, incandescent light bulb)	**SC S 05.2.3.d** Identify ways to generate heat (friction, burning, incandescent light bulb) (Grade 4)		**SC M 07.2.3.a** Recognize that heat moves from warmer objects to cooler objects until both reach the same temperature **SC M 07.2.3.a** Identify the three ways heat moves from warmer objects to cooler objects (convection, conduction, radiation)	**SC S 08.2.3.e** Recognize that heat moves from warmer objects to cooler objects until both reach the same temperature (Grade 7)

Heat *(continued)*						**SC M 04.2.3.b** Identify materials that act as thermal conductors or insulators	**SC S 05.2.3.e** Identify materials that act as thermal conductors or insulators (Grade 4)			
Electricity / Magnetism					**SC M 03.2.3.b** Recognize that the transfer of electricity in an electrical circuit requires a closed loop		**SC S 05.2.3.f** Recognize that the transfer of electricity in an electrical circuit requires a closed loop (Grade 3)			
Conservation								**SC M 06.2.3.e** Describe transfer of energy from electrical and magnetic sources to different energy forms (heat, light, sound)	**SC M 07.2.3.b** Describe transfer of energy from electrical and magnetic sources to different energy forms (heat)	**SC S 08.2.3.f** Describe transfer of energy from electrical and magnetic sources to different energy forms (heat, light, sound, chemical)
								SC M 06.2.3.f Recognize all energy is neither created nor destroyed	**SC M 07.2.3.c** Recognize all energy is neither created nor destroyed	**SC S 08.2.3.g** Recognize all energy is neither created nor destroyed

K- 12 Comprehensive Standard: Life Science
Students will integrate and communicate the information, concepts, principles, processes, theories, and models of the Life Sciences to make connections with the natural and engineered world.

Concepts	Grade Level Standards

	Pre K	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Structure and Function of Living Systems	**SC M P4.3.1 Students will observe the characteris-tics of living things.**	**SC M 00.3.1 Students will investigate the characteris-tics of living things.**	**SC M 01.3.1 Students will investigate the characteris-tics of living things.**	**SC S 02.3.1 Students will investigate the characteris-tics of living things.**	**SC M 03.3.1 Students will investigate and compare the characteris-tics of living things.**	**SC M 04.3.1 Students will investigate and compare the characteris-tics of living things.**	**SC S 05.3.1 Students will investigate and compare the characteris-tics of living things.**		**SC M 07.3.1 Students will investigate and describe the structure and function of living organisms.**	**SC S 08.3.1 Students will investigate and describe the structure and function of living organisms.**
Heredity	**SC M P4.3.2 Students will observe changes in living things.**	**SC M 00.3.2 Students will observe changes in living things.**	**SC M 01.3.2 Students will observe changes in living things.**	**SC S 02.3.2 Students will recognize changes in living things.**	**SC M 03.3.2 Students will identify variations of inherited characteris-tics and life cycles.**	**SC M 04.3.2 Students will identify variations of inherited characteris-tics and life cycles.**	**SC S 05.3.2 Students will identify variations of inherited characteris-tics and life cycles.**		**SC M 07.3.2 Students will investigate and describe the relationship between reproduction and heredity.**	**SC S 08.3.2 Students will investigate and describe the relationship between reproduction and heredity.**
Flow of Matter and Energy in Ecosystems							**SC S 05.3.3 Students will describe relationships within an ecosystem.**	**SC M 06.3.3 Students will describe populations and ecosystems.**		**SC S 08.3.3 Students will describe populations and ecosystems.**
Biodiversity	**SC M P4.3.4 Students will observe changes in organisms.**	**SC M 00.3.4 Students will observe changes in organisms.**	**SC M 01.3.4 Students will observe changes in organisms.**	**SC S 02.3.4 Students will recognize changes in organisms.**			**SC S 05.3.4 Students will describe changes in organisms over time.**			**SC S 08.3.4 Students will identify characteris-tics of organisms that help them survive.**

K- 12 Comprehensive Standard: Life Science Students will integrate and communicate the information, concepts, principles, processes, theories, and models of the Life Sciences to make connections with the natural and engineered world.	
Concept	**Grade Level Standards**

	Pre K	**Kindergarten**	**Grade 1**	**Grade 2**	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**
Structure and Function of Living Systems	**SC M P4.3.1 Students will explore characteris-tics of living things.**	**SC M 00.3.1 Students will investigate characteris-tics of living things.**	**SC M 01.3.1 Students will investigate characteris-tics of living things.**	**SC S 02.3.1 Students will investigate characteris-tics of living things.**	**SC M 03.3.1 Students will investigate and compare the characteris-tics of living things.**	**SC M 04.3.1 Students will investigate and compare the characteris-tics of living things.**	**SC S 05.3.1 Students will investigate and compare the characteris-tics of living things.**		**SC M 07.3.1 Students will investigate and describe the structure and function of living organisms.**	**SC S 08.3.1 Students will investigate and describe the structure and function of living organisms.**
Characteristics of Life	**SC M P4.3.1.a** Observe living and nonliving things	**SC M 00.3.1.a** Differentiate between living and nonliving things		**SC S 02.3.1.a** Differentiate between living and nonliving things (Grades P4, K)	**SC M 03.3.1.a** Compare and contrast characteristics of living and nonliving things (animals)	**SC M 04.3.1.a** Compare and contrast characteristics of living and nonliving things (plants)	**SC S 05.3.1.a** Compare and contrast characteristics of living and nonliving things (Grades 3, 4)		**SC M 07.3.1.a** Recognize the levels of organization in living organisms (cells, tissues, organs, organ systems, organisms)	**SC S 08.3.1.a** Recognize the levels of organization in living organisms (cells, tissues, organs, organ systems, organisms) (Grade 7)
Cellular Composition of Organisms									**SC M 07.3.1.b** Recognize that all organisms are composed of one or many cells; that these cells must grow, divide, and use energy; and that all cells function similarly	**SC S 08.3.1.b** Recognize that all organisms are composed of one or many cells; that these cells must grow, divide, and use energy; and that all cells function similarly (Gr. 7)
									SC M 07.3.1.c Recognize specialized cells perform specialized functions in multicellular organisms	**SC S 08.3.1.c** Recognize specialized cells perform specialized functions in multicellular organisms (Grade 7)

Cellular Composition of Organisms *(continued)*									**SC M 07.3.1.d** Identify the organs and functions of the major systems of the human body and describe ways that these systems interact with each other	**SC S 08.3.1.d** Identify the organs and functions of the major systems of the human body and describe ways that these systems interact with each other (Grade 7)
Characteristics of Living Organisms	**SC M P4.3.1.b** Explore the basic needs of plants and animals	**SC M 00.3.1.b** Explore the basic needs of plants and animals	**SC M 01.3.1.a** Identify the basic needs of animals (food, water, air, space, shelter)	**SC S 02.3.1.b** Identify the basic needs of living things (food, water, air, space, shelter) (Grades P4, K, 1, 2) **SC M 02.3.1.b** Identify the basic needs of plants (food, water, air, space, shelter)						
			SC M 01.3.1.b Identify and explain the function of external parts of animals	**SC S 02.3.1.c** Identify external parts of plants and animals (Grades 1, 2) **SC M 02.3.1.c** Identify and explain the function of external parts of animals and plants	**SC M 03.3.1.b** Identify how parts of animals function to meet basic needs (e.g., leg of an insect helps an insect move, root of a plant helps the plant obtain water)	**SC M 04.3.1.b** Identify how parts of plants function to meet basic needs (e.g., leg of an insect helps an insect move, root of a plant helps the plant obtain water)	**SC S 05.3.1.b** Identify how parts of plants and animals function to meet basic needs (e.g., leg of an insect helps an insect move, root of a plant helps the plant obtain water) (Grades 3, 4)			
				SC S 02.3.1.d Observe and match plants and animals to their distinct habitats						

Behavior										**SC S 08.3.1.e** Describe how plants and animals respond to environmental stimuli

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Concept	**Grade Level Standards**

	Pre K	**Kindergarten**	**Grade 1**	**Grade 2**	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**
Heredity	**SC M P4.3.2 Students will observe changes in living things.**	**SC M 00.3.2 Students will observe changes in living things.**	**SC M 01.3.2 Students will recognize changes in living things.**	**SC S 02.3.2 Students will recognize changes in living things.**	**SC M 03.3.2 Students will identify variations of inherited characteris-tics and life cycles.**	**SC M 04.3.2 Students will identify variations of inherited characteris-tics and life cycles.**	**SC S 05.3.2 Students will identify variations of inherited characteris-tics and life cycles.**		**SC M 07.3.2 Students will investigate and describe the relationship between reproduction and heredity.**	**SC S 08.3.2 Students will investigate and describe the relationship between reproduction and heredity.**
Inherited Traits		**SC M 00.3.2.a** Observe how offspring resemble their parents	**SC M 01.3.2.a** Describe how animal offspring resemble their parents	**SC S 02.3.2.a** Describe how offspring resemble their parents (Grades K, 1, 2) **SC M 02.3.2.a** Describe how plant offspring resemble their parents	**SC M 03.3.2.a** Identify inherited characteristics of animals	**SC M 04.3.2.a** Identify inherited characteristics of plants	**SC S 05.3.2.a** Identify inherited characteristics of plants and animals (Grades 3, 4)		**SC M 07.3.2.a** Recognize that hereditary information is contained in genes within the chromosomes of each cell	**SC S 08.3.2.a** Recognize that hereditary information is contained in genes within the chromosomes of each cell (Grade 7)
Reproduction	**SC M P4.3.2.a** Observe how living things change as they grow	**SC M 00.3.2.b** Observe how living things change as they grow	**SC M 01.3.2.b** Describe how animals change as they grow	**SC S 02.3.2.b** Describe how living things change as they grow (Grades P4, K, 1, 2) **SC M 02.3.2.b** Describe how plants change as they grow	**SC M 03.3.2.b** Identify the life cycle of animals with backbones	**SC M 04.3.2.b** Identify the life cycle of plants that produce seeds	**SC S 05.3.2.b** Identify the life cycle of an organism (Grades 3, 4)		**SC M 07.3.2.b** Compare and contrast sexual and asexual reproduction	**SC S 08.3.2.b** Compare and contrast sexual and asexual reproduction **(**Grade 7)

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Concept	**Grade Level Standards**

	Pre K	**Kindergarten**	**Grade 1**	**Grade 2**	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**
Flow of Matter and Energy in Ecosystems							**SC S 05.3.3 Students will describe relationships within an ecosystem.**	**SC M 06.3.3 Students will describe populations and ecosystems.**		**SC S 08.3.3 Students will describe populations and ecosystems.**
Flow of Energy							**SC S 05.3.3.a** Diagram and explain a simple food chain beginning with the Sun **SC M 05.3.3.a** Diagram and explain a simple food chain and food web beginning with the Sun	**SC M 06.3.3.a** Diagram and explain the flow of energy through a simple food web		**SC S 08.3.3.a** Diagram and explain the flow of energy through a simple food web (Grade 6)
							SC S 05.3.3.b Identify the role of producers, consumers, and decomposers in an ecosystem	**SC M 06.3.3.b** Compare the roles of producers, consumers, and decomposers in an ecosystem		**SC S 08.3.3.b** Compare the roles of producers, consumers, and decomposers in an ecosystem (Grade 6)
Ecosystems							**SC S 05.3.3.c** Recognize the living and nonliving factors that impact the survival of organisms in an ecosystem	**SC M 08.3.3.c** Recognize that producers transform sunlight into chemical energy through photosynthesis		**SC S 08.3.3.c** Recognize that producers transform sunlight into chemical energy through photosynthesis (Grade 6)

Ecosystems *(continued)*										**SC S 08.3.3.d** Determine the biotic and abiotic factors that impact the number of organisms an ecosystem can support
								SC M 06.3.3.d Recognize a population is all the individuals of a species at a given place and time		**SC S 08.3.3.e** Recognize a population is all the individuals of a species at a given place and time (Grade 6)
								SC M 06.3.3.e Identify symbiotic relationships among organisms		**SC S 08.3.3.f** Identify symbiotic relationships among organisms (Grade 6)
Impact on Ecosystem							**SC S 05.3.3.d** Recognize all organisms cause changes, some beneficial and some detrimental, in the environment where they live **SC M 05.3.3.d** Describe beneficial and detrimental changes organisms cause in their environment			**SC S 08.3.3.g** Identify positive and negative effects of natural and human activity on an ecosystem

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Concept	**Grade Level Standards**

	Pre K	**Kindergarten**	**Grade 1**	**Grade 2**	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**
Biodiversity	**SC M P4.3.4 Students will explore changes in organisms.**	**SC M 00.3.4 Students will observe changes in organisms.**	**SC M 01.3.4 Students will recognize changes in organisms.**	**SC S 02.3.4 Students will recognize changes in organisms.**		**SC M 04.3.4 Students will describe changes in organisms over time.**	**SC S 05.3.4 Students will describe changes in organisms over time.**			**SC S 08.3.4 Students will identify characteristics of organisms that help them survive.**
Biological Adaptations	**SC M P4.3.4.a** Explore seasonal changes in animals and plants	**SC M 00.3.4.a** Observe seasonal changes in plants and animals	**SC M 01.3.4.a** Identify Seasonal changes in animals	**SC S 02.3.4.a** Recognize seasonal changes in plants and animals (plants) (Grades P4, K, 1, 2)		**SC M 04.3.4.a** Describe adaptations made by plants to survive environmental changes in Nebraska	**SC S 05.3.4.a** Describe adaptations made by plants or animals to survive environ-mental changes (Grades 4, 5) **SC M 05.3.4.a** Describe adaptations made by animals to survive environ-mental changes			**SC S 08.3.4.a** Describe how an inherited characteristic enables an organism to improve its survival rate
Biological Evolution										**SC S 08.3.4.b** Recognize the extinction of a species is caused by the inability to adapt to an environmental change
										SC S 08.3.4.c Use anatomical features of an organism to infer similarities among other organisms

K- 12 Comprehensive Standard: Earth and Space Sciences Students will integrate and communicate the information, concepts, principles, processes, theories, and models of Earth and Space Sciences to make connections with the natural and engineered world.	
Concepts	**Grade Level Standards**

	Pre K	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Earth in Space	**SC M P4.4.1 Students will observe and begin to identify objects of the sky.**	**SC M 00.4.1 Students will observe and identify objects of the sky.**		**SC S 02.4.1 Students will observe and identify objects of the sky.**			**SC S 05.4.1 Students will observe and describe characteris-tics, patterns, and changes in the sky.**			**SC S 08.4.1 Students will investigate and describe Earth and the solar system.**
Earth Structures and Processes	**SC M P4.4.2 Students will explore Earth materials**	**SC M 00.4.2 Students will observe, identify, and describe characteris-tics of Earth's materials.**		**SC S 02.4.2 Students will observe, identify, and describe characteris-tics of Earth's materials.**		**SC M 04.4.2 Students will observe and describe Earth's materials, structure, and processes.**	**SC S 05.4.2 Students will observe and describe Earth's materials, structure, and processes.**	**SC M 06.4.2 Students will investigate and describe Earth's structure, systems, and processes.**	**SC M 07.4.2 Students will investigate and describe Earth's structure, systems, and processes.**	**SC S 08.4.2 Students will investigate and describe Earth's structure, systems, and processes.**
Energy in Earth's Systems	**SC M P4.4.3 Students will observe simple patterns of change on Earth.**	**SC M 00.4.3 Students will observe simple patterns of change on Earth.**	**SC M 01.4.3 Students will observe simple patterns of change on Earth.**	**SC S 02.4.3 Students will observe simple patterns of change on Earth.**	**SC M 03.4.3 Students will observe and describe the effects of energy changes on Earth.**		**SC S 05.4.3 Students will observe and describe the effects of energy changes on Earth.**		**SC M 07.4.3 Students will investigate and describe energy in Earth's systems.**	**SC S 08.4.3 Students will investigate and describe energy in Earth's systems.**
Earth's History							**SC S 05.4.4 Students will describe changes in Earth.**	**SC M 06.4.4 Students will use evidence to draw conclusions about changes in Earth.**		**SC S 08.4.4 Students will use evidence to draw conclusions about changes in Earth.**

K- 12 Comprehensive Standard: Earth and Space Sciences Students will integrate and communicate the information, concepts, principles, processes, theories, and models of Earth and Space Sciences to make connections with the natural and engineered world.	
Concept	**Grade Level Standards**

	Pre K	**Kindergarten**	**Grade 1**	**Grade 2**	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**
Earth in Space	**SC M P4.4.1 Students will become aware of and observe objects of the sky.**	**SC M 00.4.1 Students will observe and identify objects of the sky.**		**SC S 02.4.1 Students will observe and identify objects of the sky.**			**SC S 05.4.1 Students will observe and describe characteristics, patterns, and changes in the sky.**			**SC S 08.4.1 Students will investigate and describe Earth and the solar system.**
Objects in the Sky and Universe	**SC M P4.4.1.a** Become aware of and observe objects in the sky (Sun, Moon, stars)	**SC M 00.4.1.a** Identify and observe objects in the sky (Sun, Moon, stars)		**SC S 02.4.1.a** Identify objects in the sky (the Sun, the Moon, the stars) and when they are observable (Gr. P4, K, 2) **SC M 02.4.1.a** Compare and describe features of the day and night sky			**SC S 05.4.1.a** Recognize that the observed shape of the Moon changes from day to day during a one month period **SC M 05.4.1.a** Identify relationships between the Earth and Moon over time			**SC S 08.4.1.a** Describe the components of the solar system (the Sun, planets, moons, asteroids, comets)
Motion of Objects in the Solar System				**SC S 02.4.1.b** Identify objects that appear to move in the sky (the Sun, the Moon, stars)			**SC S 05.4.1.b** Recognize the motion of objects in the sky (the Sun, the Moon, stars) change over time in recognizable patterns **SC M 05.4.1b** Identify basic relationships between the Sun, Earth and Moon (day, night, month, year)			**SC S 08.4.1.b** Describe the relationship between motion of objects in the solar system and the phenomena of day, year, eclipses, phases of the Moon and seasons

Gravitational Effects										**SC S 08.4.1.c** Describe the effects of gravity on Earth (tides) and the effect of gravity on objects in the solar system

K- 12 Comprehensive Standard: Earth Science
Students will integrate and communicate the information, concepts, principles, processes, theories, and models of the Life Sciences to make connections with the natural and engineered world.

Concept	Grade Level Standards

	Pre K	Kindergarten	Grade 1	Grade 2	Grade 3	Grade 4	Grade 5	Grade 6	Grade 7	Grade 8
Earth Structures and Processes	**SC M P4.4.2 Students will explore characteris-tics of Earth's materials.**	**SC M 00.4.2 Students will observe, identify, and describe characteris-tics of Earth's materials.**		**SC S 02.4.2 Students will observe, identify, and describe characteris-tics of Earth's materials.**		**SC M 04.4.2 Students will observe and describe Earth's materials, structure, and processes.**	**SC S 05.4.2 Students will observe and describe Earth's materials, structure, and processes.**	**SC M 06.4.2 Students will investigate and describe Earth's structure, systems, and processes.**	**SC M 07.4.2 Students will investigate and describe Earth's structure, systems, and processes.**	**SC S 08.4.2 Students will investigate and describe Earth's structure, systems, and processes.**
Properties of Earth Materials	**SC M P4.4.2.a** Explore characteristics of Earth's materials	**SC M 00.4.2.a** Observe, identify, and describe characteristics of Earth's surface materials (soil, rocks, water)		**SC S 02.4.2.a** Describe Earth materials (sand, soil, rocks, water) (Grades P4, K)		**SC M 04.4.2.a** Describe the characteristics of rocks, minerals, soil, water, and the atmosphere	**SC S 05.4.2.a** Describe the characteristics of rocks, minerals, soil, water, and the atmosphere (Grade 4)	**SC M 06.4.2.a** Describe the layers of Earth (core, mantle, crust, atmosphere)		**SC S 08.4.2.a** Describe the layers of Earth (core, mantle, crust, atmosphere) (Grade 6)
								SC M 06.4.2.b Describe the physical composition of soil		**SC S 08.4.2.b** Describe the physical composition of soil (Grade 6)
								SC M 06.4.2.c Recognize the different levels of the atmosphere	**SC M 07.4.2.a** Describe the mixture of gasses in Earth's atmosphere and how the atmosphere's properties change at different elevations	**SC S 08.4.2.c** Describe the mixture of gasses in Earth's atmosphere and how the atmosphere's properties change at different elevations (Grades 6, 7)

Properties of Earth Materials *(continued)*								**SC M 06.4.2.d** Describe evidence of Earth's magnetic field		**SC S 08.4.2.d** Describe evidence of Earth's magnetic field (Grade 6)
Earth's Processes						**SC M 04.4.2.b** Identify weathering, erosion, and deposition as processes that build up or break down Earth's surface	**SC S 05.4.2.b** Identify weathering, erosion, and deposition as processes that build up or break down Earth's surface (Grade 4)	**SC M 06.4.2.e** Compare and contrast constructive and destructive forces (deposition, erosion, weathering, plate motion causing uplift, volcanoes, earthquakes) that impact Earth's surface		**SC S 08.4.2.e** Compare and contrast constructive and destructive forces (deposition, erosion, weathering, plate motion causing uplift, volcanoes, earthquakes) that impact Earth's surface (Grade 6)
								SC M 06.4.2.f Describe the rock cycle		**SC S 08.4.2.f** Describe the rock cycle (Grade 6)
									SC S 07.4.2.b Describe the water cycle (evaporation, condensation, precipitation)	**SC S 08.4.2.g** Describe the water cycle (evaporation, condensation, precipitation) (Grade 7)
Use of Earth Materials				**SC S 02.4.2.b** Recognize ways in which individuals and families can conserve Earth's resources by reducing, reusing, and recycling		**SC M 04.4.2.c** Identify how Earth materials are used (fuels, building materials, sustaining plant life)	**SC S 05.4.2.c** Identify how Earth materials are used (fuels, building materials, sustaining plant life) (Grade 4)			**SC S 08.4.2.h** Classify Earth materials as renewable or nonrenewable

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Concept	**Grade Level Standards**

	Pre K	**Kindergarten**	**Grade 1**	**Grade 2**	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**
Energy in Earth's Systems	**SC M P4.4.3 Students will observe simple patterns of change on Earth.**	**SC M 00.4.3 Students will observe simple patterns of change on Earth.**	**SC M 01.4.3 Students will observe simple patterns of change on Earth.**	**SC S 02.4.3 Students will observe simple patterns of change on Earth.**	**SC M 03.4.3 Students will observe and describe the effects of energy changes on Earth.**		**SC S 05.4.3 Students will observe and describe the effects of energy changes on Earth.**		**SC M 07.4.3 Students will investigate and describe energy in Earth's systems.**	**SC S 08.4.3 Students will investigate and describe energy in Earth's systems.**
Energy Sources	**SC M P4.4.3.a** Explore the characteristics of the Sun's energy	**SC M 00.4.3.a** Explore the Sun's ability to provide light and heat	**SC M 01.4.3.a** Recognize that the Sun provides heat and light	**SC S 02.4.3.a** Observe that the Sun provides heat and light (Grades P4, K, 1)	**SC M 03.4.3.a** Describe the Sun's warming effect on the land and water		**SC S 05.4.3.a** Describe the Sun's warming effect on the land and water (Grade 3)		**SC M 07.4.3.a** Describe how energy from the Sun influences the atmosphere and provides energy for plant growth	**SC S 08.4.3.a** Describe how energy from the Sun influences the atmosphere and provides energy for plant growth (Grade 7)
Weather and Climate	**SC M P4.4.3.b** Observe and identify simple daily changes in weather	**SC M 00.4.3.b** Identify and describe simple daily changes in weather	**SC M 01.4.3.b** Identify and describe simple daily changes in weather	**SC S 02.4.3.b** Observe and describe simple daily changes in weather (Grades P4, K, 1) **SC M 02.4.3.b** Observe, describe and measure simple daily changes in weather (temperature) and seasonal changes	**SC M 03.4.3.b** Observe, measure, and record changes in weather (temperature, wind direction and speed, precipitation)		**SC S 05.4.3.b** Observe, measure, and record changes in weather (temperature, wind direction and speed, precipitation) (Grade 3)		**SC M 07.4.3.b** Identify factors that influence daily and seasonal changes on Earth (tilt of the Earth, humidity, air pressure, air masses)	**SC S 08.4.3.b** Identify factors that influence daily and seasonal changes on Earth (tilt of the Earth, humidity, air pressure, air masses) (Grade 7)

Weather and Climate *(continued)*					**SC M 03.4.3.c** Describe the influence of atmospheric pressure on weather					
	SC M P4.4.3.c Explore simple seasonal weather indicators	**SC M 00.4.3.c** Observe simple seasonal weather indicators	**SC M 01.4.3.c** Describe simple seasonal weather indicators and how they impact student choices (activities, clothing)	**SC S 02.4.3.c** Describe simple seasonal weather indicators and how they impact student choices (activities, clothing) (Grades P4, K, 1)	**SC M 03.4.3.d** Recognize the difference between weather, climate, and seasons		**SC S 05.4.3.c** Recognize the difference between weather, climate, and seasons (Grade 3)		**SC M 07.4.3.c** Describe atmospheric movements that influence weather and climate (air masses, jet stream)	**SC S 08.4.3.c** Describe atmospheric movements that influence weather and climate (air masses, jet stream) (Grade 7)

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Concept	**Grade Level Standards**

	Pre K	**Kindergarten**	**Grade 1**	**Grade 2**	**Grade 3**	**Grade 4**	**Grade 5**	**Grade 6**	**Grade 7**	**Grade 8**
Earth's History						**SC M 04.4.4 Students will describe environments based on fossil evidence.**	**SC S 05.4.4 Students will describe environments based on fossil evidence.**	**SC M 06.4.4 Students will use evidence to draw conclusions about changes in Earth.**		**SC S 08.4.4 Students will use evidence to draw conclusions about changes in Earth.**
Past / Present Earth						**SC M 04.4.4.a** Describe how slow processes (erosion, weathering, deposition) and rapid processes (landslides, volcanic eruptions, earthquakes) change Earth's surface	**SC S 05.4.4.a** Describe how slow processes (erosion, weathering, deposition) and rapid processes (landslides, volcanic eruptions, earthquakes) change Earth's surface **(**Grade 4)	**SC M 06.4.4.a** Recognize that the earth processes we see today are similar to those that occurred in the past (uniformity of processes)		**SC S 08.4.4.a** Recognize that the earth processes we see today are similar to those that occurred in the past (uniformity of processes) (Grade 6)
								SC M 06.4.4.b Describe how environmental conditions have changed through use of the fossil record		**SC S 08.4.4.b** Describe how environmental conditions have changed through use of the fossil record (Grade 6)

K- 12 Comprehensive Standard: Inquiry, the Nature of Science, and Technology
Students will combine scientific processes and knowledge with scientific reasoning and critical thinking to ask questions about phenomena and propose explanations based on gathered evidence.

Concepts	Grade Level Standards

	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9	Grade 10	Grade 11	Grade 12
Abilities to do Scientific Inquiry	**SC S 05.1.1 Students will plan and conduct investigations that lead to the development of explanations.**	**SC M 06.1.1 Students will design and conduct investigations that will lead to descriptions of relationships between evidence and explanations.**	**SC M 07.1.1 Students will design and conduct investigations that will lead to descriptions of relationships between evidence and explanations.**	**SC S 08.1.1 Students will design and conduct investigations that will lead to descriptions of relationships between evidence and explanations.**	**SC M 09.1.1 Students will design and conduct investigations that lead to the use of logic and evidence in the formulation of scientific explanations and models.**	**SC M 10.1.1 Students will design and conduct investigations that lead to the use of logic and evidence in the formulation of scientific explanations and models.**	**SC M 11.1.1 Students will design and conduct investigations that lead to the use of logic and evidence in the formulation of scientific explanations and models.**	**SC S 12.1.1 Students will design and conduct investigations that lead to the use of logic and evidence in the formulation of scientific explanations and models.**
Nature of Science	**SC S 05.1.2 Students will describe how scientists go about their work.**	**SC M 06.1.2 Students will apply the nature of science to their own investigations.**	**SC M 07.1.2 Students will apply the nature of science to their own investigations.**	**SC S 08.1.2 Students will apply the nature of science to their own investigation.**	**SC M 09.1.2 Students will apply the nature of scientific knowledge to their own investigations and in the evaluation of scientific explanations.**	**SC M 10.1.2 Students will apply the nature of scientific knowledge to their own investigations and in the evaluation of scientific explanations.**	**SC M 11.1.2 Students will apply the nature of scientific knowledge to their own investigations and in the evaluation of scientific explanations.**	**SC S 12.1.2 Students will apply the nature of scientific knowledge to their own investigations and in the evaluation of scientific explanations.**
Technology	**SC S 05.1.3 Students will solve a simple design problem.**	**SC M 06.1.3 Students will solve a design problem which involves one or two science concepts.**	**SC M 07.1.3 Students will solve a design problem which involves one or two science concepts.**	**SC S 08.1.3 Students will solve a design problem which involves one or two science concepts.**	**SC M 09.1.3 Students will solve a complex design problem.**	**SC M 10.1.3 Students will solve a complex design problem.**	**SC M 11.1.3 Students will solve a complex design problem.**	**SC S 12.1.3 Students will solve a complex design problem.**

K- 12 Comprehensive Standard: Inquiry, the Nature of Science, and Technology
Students will combine scientific processes and knowledge with scientific reasoning and critical thinking to ask questions about phenomena and propose explanations based on gathered evidence.

Concept	Grade Level Standards							
	Grade 5	**Grade 6**	**Grade 7**	**Grade 8**	**Grade 9**	**Grade 10**	**Grade 11**	**Grade 12**
Abilities to do Scientific Inquiry	**SC S 05.1.1 Students will plan and conduct investigations that lead to the development of explanations.**	**SC M 06.1.1 Students will design and conduct investigations that will lead to descriptions of relationships between evidence and explanations. (Structured Level Inquiry)**	**SC M 07.1.1 Students will design and conduct investigations that will lead to descriptions of relationships between evidence and explanations. (Guided Level Inquiry)**	**SC S 08.1.1 Students will design and conduct investigations that will lead to descriptions of relationships between evidence and explanations.**	**SC M 09.1.1 Students will design and conduct investigations that lead to the use of logic and evidence in the formulation of scientific explanations and models.**	**SC M 10.1.1 Students will design and conduct investigations that lead to the use of logic and evidence in the formulation of scientific explanations and models.**	**SC M 11.1.1 Students will design and conduct investigations that lead to the use of logic and evidence in the formulation of scientific explanations and models.**	**SC S 12.1.1 Students will design and conduct investigations that lead to the use of logic and evidence in the formulation of scientific explanations and models.**
Scientific Questioning	**SC S 05.1.1.a** Ask testable scientific questions	**SC M 06.1.1.a** Formulate testable questions that lead to predictions and scientific investigations	**SC M 07.1.1.a** Formulate testable questions that lead to predictions and scientific investigations	**SC S 08.1.1.a** Formulate testable questions that lead to predictions and scientific investigations	**SC M 09.1.1.a** Formulate a testable hypothesis supported by prior knowledge to guide an investigation	**SC M 10.1.1.a** Formulate a testable hypothesis supported by prior knowledge to guide an investigation	**SC M 11.1.1.a** Formulate a testable hypothesis supported by prior knowledge to guide an investigation	**SC S 12.1.1.a** Formulate a testable hypothesis supported by prior knowledge to guide an investigation
Scientific Investigations	**SC S 05.1.1.b** Plan and conduct investigations and identify factors that have the potential to impact an investigation	**SC M 06.1.1.b** Conduct logical and sequential investigations	**SC M 07.1.1.b** Design and conduct logical and sequential investigations including repeated trials	**SC S 08.1.1.b** Design and conduct logical and sequential investigations including repeated trials	**SC M 09.1.1.b** Design and conduct logical and sequential scientific investigations with repeated trials and apply findings to new investigations	**SC M 10.1.1.b** Design and conduct logical and sequential scientific investigations with repeated trials and apply findings to new investigations (Qualitative analysis)	**SC M 11.1.1.b** Design and conduct logical and sequential scientific investigations with repeated trials and apply findings to new investigations	**SC S 12.1.1.b** Design and conduct logical and sequential scientific investigations with repeated trials and apply findings to new investigations

Scientific Controls And Variables		**SC M 06.1.1.c** Determine controls and use independent (manipulated) variables	**SC M 07.1.1.c** Determine controls and use dependent (responding) and independent (manipulated) variables	**SC S 08.1.1.c** Determine controls and use dependent (responding) and independent (manipulated) variables	**SC M 09.1.1.c** Identify and manage variables and constraints	**SC M 10.1.1.c** Identify and manage variables and constraints	**SC M 11.1.1.c** Identify and manage variables and constraints	**SC S 12.1.1.c** Identify and manage variables and constraints
Scientific Tools	**SC S 05.1.1.c** Select and use equipment correctly and accurately	**SC M 06.1.1.d** Select and use equipment appropriate to the investigation, demonstrate correct techniques	**SC M 07.1.1.d** Select and use equipment appropriate to the investigation, demonstrate correct techniques, and apply appropriate mathematical concepts	**SC S 08.1.1.d** Select and use equipment appropriate to the investigation, demonstrate correct techniques, and apply appropriate mathematical concepts	**SC M 09.1.1.d** Select and use lab equipment and technology appropriately and accurately	**SC M 10.1.1.d** Select and use lab equipment and technology appropriately and accurately	**SC M 11.1.1.d** Select and use lab equipment and technology appropriately and accurately	**SC S 12.1.1.d** Select and use lab equipment and technology appropriately and accurately
Scientific Observations	**SC S 05.1.1.d** Make relevant observations and measurements	**SC M 06.1.1.e** Make qualitative and quantitative observations	**SC M 07.1.1.e** Make qualitative and quantitative observations	**SC S 08.1.1.e** Make qualitative and quantitative observations	**SC M 09.1.1.e** Use tools and technology to make detailed qualitative and quantitative observations	**SC M 10.1.1.e** Use tools and technology to make detailed qualitative and quantitative observations	**SC M 11.1.1.e** Use tools and technology to make detailed qualitative and quantitative observations	**SC S 12.1.1.e** Use tools and technology to make detailed qualitative and quantitative observations
Scientific Data Collection	**SC S 05.1.1.e** Collect and organize data **SC M 05.1.1.e** Collect and organize data (tables, graphs, charts)	**SC M 06.1.1.f** Record and represent data appropriately and accurately	**SC M 07.1.1.f** Record and represent data appropriately, and review for quality and accuracy	**SC S 08.1.1.f** Record and represent data appropriately and review for quality, accuracy, and relevancy	**SC M 09.1.1.f** Represent and review collected data in a systematic, accurate, and objective manner	**SC M 10.1.1.f** Represent and review collected data in a systematic, accurate, precise, objective and truthful (significant figures) manner	**SC M 11.1.1.f** Represent and review collected data in a systematic, accurate, precise, objective and truthful (significant figures) manner	**SC S 12.1.1.f** Represent and review collected data in a systematic, accurate, and objective manner

Scientific Interpretations, Reflections, and Applications	**SC S 05.1.1.f** Develop a reasonable explanation based on collected data	**SC M 08.1.1.g** Evaluate predictions, draw logical inferences based on observed patterns/relationships, and account for non-relevant information	**SC M 08.1.1.g** Evaluate predictions, draw logical inferences based on observed patterns/relationships, and account for non-relevant information	**SC S 08.1.1.g** Evaluate predictions, draw logical inferences based on observed patterns/relationships, and account for non-relevant information	**SC M 12.1.1.g** Analyze and interpret data, synthesize ideas, formulate and evaluate models, and clarify concepts and explanations	**SC M 12.1.1.g** Analyze and interpret data, synthesize ideas, formulate and evaluate models, and clarify concepts and explanations	**SC M 12.1.1.g** Analyze and interpret data, synthesize ideas, formulate and evaluate models, and clarify concepts and explanations	**SC S 12.1.1.g** Analyze and interpret data, synthesize ideas, formulate and evaluate models, and clarify concepts and explanations
					SC M 09.1.1.h Use results to verify or refute a hypothesis	**SC M 10.1.1.h** Use results to verify or refute a hypothesis	**SC M 11.1.1.h** Use results to verify or refute a hypothesis	**SC S 12.1.1.h** Use results to verify or refute a hypothesis
					SC M 09.1.1.i Propose and/or evaluate possible revisions and alternate explanations	**SC M 10.1.1.i** Propose and/or evaluate possible revisions and alternate explanations	**SC M 11.1.1.i** Propose and/or evaluate possible revisions and alternate explanations	**SC S 12.1.1.i** Propose and/or evaluate possible revisions and alternate explanations
Scientific Communication	**SC S 05.1.1.g** Share information, procedures, and results with peers and/or adults **SC M 05.1.1.g** Share information, procedures, and results with peers and/or adults (science notebooks)	**SC M 06.1.1.h** Share information, procedures, results, and conclusions with appropriate audiences	**SC M 07.1.1.h** Share information, procedures, results, and conclusions with appropriate audiences	**SC S 08.1.1.h** Share information, procedures, results, and conclusions with appropriate audiences	**SC M 09.1.1.j** Share information, procedures, results, conclusions, and defend findings to a scientific community (peers, science fair audience, policy makers)	**SC M 10.1.1.j** Share information, procedures, results, conclusions, and defend findings to a scientific community (peers, science fair audience, policy makers)	**SC M 11.1.1.j** Share information, procedures, results, conclusions, and defend findings to a scientific community (peers, science fair audience, policy makers)	**SC S 12.1.1.j** Share information, procedures, results, conclusions, and defend findings to a scientific community (peers, science fair audience, policy makers)
	SC S 05.1.1.h Provide feedback on scientific investigations	**SC M 06.1.1.i** Analyze and provide appropriate critique of scientific investigations	**SC M 07.1.1.i** Analyze and provide appropriate critique of scientific investigations	**SC S 08.1.1.i** Analyze and provide appropriate critique of scientific investigations		**SC M 10.1.1.k** Evaluate scientific investigations and offer revisions and new ideas as appropriate	**SC M 11.1.1.k** Evaluate scientific investigations and offer revisions and new ideas as appropriate	**SC S 12.1.1.k** Evaluate scientific investigations and offer revisions and new ideas as appropriate

Mathematics	**SC S 05.1.1.i** Use appropriate mathematics in all aspects of scientific inquiry	**SC M 06.1.1.j** Use appropriate mathematics in all aspects of scientific inquiry	**SC M 07.1.1.j** Use appropriate mathematics in all aspects of scientific inquiry	**SC S 08.1.1.j** Use appropriate mathematics in all aspects of scientific inquiry		**SC M 10.1.1.l** Use appropriate mathematics in all aspects of scientific inquiry	**SC M 121.1.1.l** Use appropriate mathematics in all aspects of scientific inquiry	**SC S 12.1.1.l** Use appropriate mathematics in all aspects of scientific inquiry

Reading Comprehension: Informational Text	**LA S 05.1.6** Extract and construct meaning using prior knowledge, applying text information, and monitoring comprehension while reading grade level text	**LA S 06.1.6.e** Summarize, analyze, and synthesize informational text using main idea and supporting details	**LA S 07.1.6.e** Summarize, analyze, and synthesize informational text using main idea and supporting details	**LA S 08.1.6.e** Summarize, analyze, and synthesize informational text using main idea and supporting details	**LA S 12.1.6.d** Summarize, analyze, synthesize, and evaluate informational text
	LA S 05.1.6.e Summarize and analyze the main ideas from informational text	**LA S 06.1.6.f** Apply knowledge of organizational patterns found in informational text (e.g., sequence, description, cause and effect, compare/contrast, fact/opinion)	**LA S 07.1.6.f** Apply knowledge of organizational patterns found in informational text (e.g., sequence, description, cause and effect, compare/contrast, fact/opinion)	**LA S 08.1.6.f** Apply knowledge of organizational patterns found in informational text (e.g., sequence, description, cause and effect, compare/contrast, fact/opinion)	**LA S 12.1.6.e** Apply knowledge of organizational patterns found in informational text (e.g., sequence, description, cause and effect, compare/contrast, fact/opinion, proposition/support, concept definition, question/answer)
	LA S 05.1.6.f Identify the characteristics of organizational patterns found in informational text (e.g., sequence, compare / contrast)	**LA S 06.1.6.g** Apply knowledge of text features to locate information and gain meaning from a text (e.g., index, maps, charts, tables, graphs, headings, subheadings)	**LA S 07.1.6.g** Apply knowledge of text features to locate information and gain meaning from a text (e.g., index, maps, charts, tables, graphs, headings, subheadings)	**LA S 08.1.6.g** Apply knowledge of text features to locate information and gain meaning from a text (e.g., index, maps, charts, tables, graphs, headings, subheadings)	**LA S 12.1.6.f** Analyze and evaluate information from text features (e.g., index, annotations, photographs, charts, tables, graphs, headings, subheadings, lists)

K- 12 Comprehensive Standard: Inquiry, the Nature of Science, and Technology
Students will combine scientific processes and knowledge with scientific reasoning and critical thinking to ask questions about phenomena and propose explanations based on gathered evidence.

Concept	Grade Level Standards							
	Grade 5	**Grade 6**	**Grade 7**	**Grade 8**	**Grade 9**	**Grade 10**	**Grade 11**	**Grade 12**
Nature of Science	**SC S 05.1.2 Students will describe how scientists go about their work.**	**SC M 06.1.2 Students will apply the nature of science to their own investigations.**	**SC M 07.1.2 Students will apply the nature of science to their own investigations.**	**SC S 08.1.2 Students will apply the nature of science to their own investigations.**	**SC M 09.1.2 Students will apply the nature of scientific knowledge to their own investigations and in the evaluation of scientific explanations.**	**SC M 10.1.2 Students will apply the nature of scientific knowledge to their own investigations and in the evaluation of scientific explanations.**	**SC M 11.1.2 Students will apply the nature of scientific knowledge to their own investigations and in the evaluation of scientific explanations.**	**SC S 12.1.2 Students will apply the nature of scientific knowledge to their own investigations and in the evaluation of scientific explanations.**
Scientific Knowledge	**SC S 05.1.2.a** Recognize that scientific explanations are based on evidence and scientific knowledge	**SC M 06.1.2.a** Recognize science is an ongoing process and the scientific community accepts and uses explanations until they encounter new experimental evidence not matching existing explanations	**SC M 07.1.2.a** Recognize science is an ongoing process and the scientific community accepts and uses explanations until they encounter new experimental evidence not matching existing explanations	**SC S 08.1.2.a** Recognize science is an ongoing process and the scientific community accepts and uses explanations until they encounter new experimental evidence not matching existing explanations	**SC M 09.1.2.a** Recognize that scientific explanations must be open to questions, possible modifications, and must be based upon historical and current scientific knowledge	**SC M 10.1.2.a** Recognize that scientific explanations must be open to questions, possible modifications, and must be based upon historical and current scientific knowledge	**SC M 11.1.2.a** Recognize that scientific explanations must be open to questions, possible modifications, and must be based upon historical and current scientific knowledge	**SC S 12.1.2.a** Recognize that scientific explanations must be open to questions, possible modifications, and must be based upon historical and current scientific knowledge
Science and Society	**SC S 05.1.2.b** Recognize that new discoveries are always being made which impact scientific knowledge	**SC M 06.1.2.b** Describe how scientific discoveries influence and change society	**SC M 07.1.2.b** Describe how scientific discoveries influence and change society	**SC S 08.1.2.b** Describe how scientific discoveries influence and change society	**SC M 09.1.2.b** Describe how society influences the work of scientists and how science, technology, and current scientific discoveries influence and change society	**SC M 10.1.2.b** Describe how society influences the work of scientists and how science, technology, and current scientific discoveries influence and change society	**SC M 11.1.2.b** Describe how society influences the work of scientists and how science, technology, and current scientific discoveries influence and change society	**SC S 12.1.2.b** Describe how society influences the work of scientists and how science, technology, and current scientific discoveries influence and change society

Science as a Human Endeavor	**SC S 05.1.2.c** Recognize many different people study science	**SC M 06.1.2.c** Recognize scientists from various cultures have made many contributions to explain the natural world	**SC M 07.1.2.c** Recognize scientists from various cultures have made many contributions to explain the natural world	**SC S 08.1.2.c** Recognize scientists from various cultures have made many contributions to explain the natural world	**SC M.09.1.2.c** Recognize that the work of science results in incremental advances, almost always building on prior knowledge, in our understanding of the world	**SC M 10.1.2.c** Recognize that the work of science results in incremental advances, almost always building on prior knowledge, in our understanding of the world	**SC M 11.1.2.c** Recognize that the work of science results in incremental advances, almost always building on prior knowledge, in our understanding of the world	**SC S 12.1.2.c** Recognize that the work of science results in incremental advances, almost always building on prior knowledge, in our understanding of the world
					SC M 09.1.2.d Research and describe the difficulties experienced by scientific innovators who had to overcome commonly held beliefs of their times to reach conclusions that we now take for granted	**SC M 10.1.2.d** Research and describe the difficulties experienced by scientific innovators who had to overcome commonly held beliefs of their times to reach conclusions that we now take for granted	**SC M 11.1.2.d** Research and describe the difficulties experienced by scientific innovators who had to overcome commonly held beliefs of their times to reach conclusions that we now take for granted	**SC S 12.1.2.d** Research and describe the difficulties experienced by scientific innovators who had to overcome commonly held beliefs of their times to reach conclusions that we now take for granted

K- 12 Comprehensive Standard: Inquiry, the Nature of Science, and Technology
Students will combine scientific processes and knowledge with scientific reasoning and critical thinking to ask questions about phenomena and propose explanations based on gathered evidence.

Concept	Grade Level Standards							
	Grade 5	**Grade 6**	**Grade 7**	**Grade 8**	**Grade 9**	**Grade 10**	**Grade11**	**Grade 12**
Technology	**SC S 05.1.3 Students will solve a simple design problem.**	**SC M 06.1.3 Students will solve a design problem which involves one or two science concepts.**	**SC M 07.1.3 Students will solve a design problem which involves one or two science concepts.**	**SC S 08.1.3 Students will solve a design problem which involves one or two science concepts.**		**SC M 10.1.3 Students will solve a complex design problem.**	**SC M 11.1.3 Students will solve a complex design problem.**	**SC S 12.1.3 Students will solve a complex design problem.**
Abilities to do Technical Design	**SC S 05.1.3.a** Identify a simple problem	**SC M 06.1.3.a** Identify problems for technical design	**SC M 07.1.3.a** Identify problems for technical design	**SC S 08.1.3.a** Identify problems for technical design				
	SC S 05.1.3.b Propose a solution to a simple problem	**SC M 06.1.3.b** Design a solution or product	**SC M 07.1.3.b** Design a solution or product	**SC S 08.1.3.b** Design a solution or product		**SC M 10.1.3.a** Propose designs and choose between alternative solutions of a problem	**SC M 11.1.3.a** Propose designs and choose between alternative solutions of a problem	**SC S 12.1.3.a** Propose designs and choose between alternative solutions of a problem
						SC M 10.1.3.b Assess the limits of a technological design	**SC M 11.1.3.b** Assess the limits of a technological design	**SC S 12.1.3.b** Assess the limits of a technological design
	SC S 05.1.3.c Implement the proposed solution	**SC M 06.1.3.c** Implement the proposed design	**SC M 07.1.3.c** Implement the proposed design	**SC S 08.1.3.c** Implement the proposed design		**SC M 10.1.3.c** Implement the selected solution	**SC M 11.1.3.c** Implement the selected solution	**SC S 12.1.3.c** Implement the selected solution
	SC S 05.1.3.d Evaluate the implementation	**SC M 06.1.3.d** Evaluate completed technological designs or products	**SC M 07.1.3.d** Evaluate completed technological designs or products	**SC S 08.1.3.d** Evaluate completed technological designs or products		**SC M 10.1.3.d** Evaluate the solution and its consequences	**SC M 11.1.3.d** Evaluate the solution and its consequences	**SC S 12.1.3.d** Evaluate the solution and its consequences

	SC S 05.1.3.e Communicate the problem, design, and solution	**SC M 06.1.3.e** Communicate the process of technical design	**SC M 07.1.3.e** Communicate the process of technical design	**SC S 08.1.3.e** Communicate the process of technical design		**SC M 10.1.3.e** Communicate the problem, process, and solution	**SC M 11.1.3.e** Communicate the problem, process, and solution	**SC S 12.1.3.e** Communicate the problem, process, and solution
Understanding of Technical Design	**SC M 05.1.3.f** Apply engineering design and creative thinking to solve practical problems	**SC M 06.1.3.f** Distinguish between scientific inquiry (asking questions about the natural world) and technological design (using science to solve practical problems)	**SC M 07.1.3.f** Distinguish between scientific inquiry (asking questions about the natural world) and technological design (using science to solve practical problems)	**SC S 08.1.3.f** Distinguish between scientific inquiry (asking questions about the natural world) and technological design (using science to solve practical problems)		**SC M 10.1.3.f** Compare and contrast the reasons for the pursuit of science and the pursuit of technology	**SC M 11.1.3.f** Compare and contrast the reasons for the pursuit of science and the pursuit of technology	**SC S 12.1.3.f** Compare and contrast the reasons for the pursuit of science and the pursuit of technology
		SC M 06.1.3.g Describe how science and technology are reciprocal	**SC M 07.1.3.g** Describe how science and technology are reciprocal	**SC S 08.1.3.g** Describe how science and technology are reciprocal		**SC M 10.1.3.g** Explain how science advances with the introduction of new technology	**SC M 11.1.3.g** Explain how science advances with the introduction of new technology	**SC S 12.1.3.g** Explain how science advances with the introduction of new technology
		SC M 06.1.3.h Recognize that solutions have intended and unintended consequences	**SC M 07.1.3.h** Recognize that solutions have intended and unintended consequences	**SC S 08.1.3.h** Recognize that solutions have intended and unintended consequences		**SC M 10.1.3.h** Recognize creativity, imagination, and a good knowledge base are all needed to advance the work of science and engineering	**SC M 11.1.3.h** Recognize creativity, imagination, and a good knowledge base are all needed to advance the work of science and engineering	**SC S 12.1.3.h** Recognize creativity, imagination, and a good knowledge base are all needed to advance the work of science and engineering
		SC M 06.1.3.i Compare and contrast the reporting of scientific knowledge and the reporting of technological knowledge	**SC M 07.1.3.i** Compare and contrast the reporting of scientific knowledge and the reporting of technological knowledge	**SC S 08.1.3.i** Compare and contrast the reporting of scientific knowledge and the reporting of technological knowledge				

K- 12 Comprehensive Standard: Physical Science

Students will integrate and communicate the information, concepts, principles, processes, theories, and models of the Physical Sciences to make connections with the natural and engineered world.

Concepts	Grade Level Standards

	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9	Grade 10	Grade 11	Grade 12
Matter	**SC S 05.2.1 Students will explore and describe the physical properties of matter and its changes.**			**SC S 08.2.1 Students will identify and describe the particulate nature of matter including physical and chemical interactions.**		**SC M 10.2.1 Students will investigate and describe matter in terms of its structure, composition and conservation.**		**SC S 12.2.1 Students will investigate and describe matter in terms of its structure, composition and conservation.**
Force and Motion	**SC S 05.2.2 Students will identify the influence of forces on motion.**		**SC M 07.2.2 Students will investigate and describe forces and motion.**	**SC S 08.2.2 Students will investigate and describe forces and motion.**		**SC M 10.2.2 Students will investigate and describe the nature of field forces and their interactions with matter.**	**SC M 11.2.2 Students will investigate and describe the nature of field forces and their interactions with matter.**	**SC S 12.2.2 Students will investigate and describe the nature of field forces and their interactions with matter.**
Energy	**SC S 05.2.3 Students will observe and identify signs of energy transfer.**	**SC M 06.2.3 Students will identify and describe how energy systems and matter interact.**	**SC M 07.2.3 Students will identify and describe how energy systems and matter interact.**	**SC S 08.2.3 Students will identify and describe how energy systems and matter interact.**		**SC M 10.2.3 Students will describe and investigate energy systems relating to the conservation and interaction of energy and matter.**	**SC M 11.2.3 Students will describe and investigate energy systems relating to the conservation and interaction of energy and matter.**	**SC S 12.2.3 Students will describe and investigate energy systems relating to the conservation and interaction of energy and matter.**

K- 12 Comprehensive Standard: Physical Science
Students will integrate and communicate the information, concepts, principles, processes, theories, and models of the Physical Sciences to make connections with the natural and engineered world.

Concept	Grade Level Standards							
	Grade 5	**Grade 6**	**Grade 7**	**Grade 8**	**Grade 9**	**Grade 10**	**Grade 11**	**Grade 12**
Matter	**SC S 05.2.1 Students will explore and describe the physical properties of matter and its changes.**			**SC S 08.2.1 Students will identify and describe the particulate nature of matter including physical and chemical interactions.**		**SC M 10.2.1 Students will investigate and describe matter in terms of its structure, composition and conservation.**		**SC S 12.2.1 Students will investigate and describe matter in terms of its structure, composition and conservation.**
Properties and Structure of Matter	**SC S 05.2.1.a** Identify mixtures and pure substances			**SC S 08.2.1.a** Compare and contrast elements, compounds, and mixtures		**SC M 10.2.1.a** Identify and describe the role of atoms in elements, compounds and mixtures		
	SC S 05.2.1.b Identify physical properties of matter (color, odor, elasticity, weight, volume)			**SC S 08.2.1.b** Describe physical and chemical properties of matter		**SC M 10.2.1.b** Recognize bonding occurs when outer electrons are transferred (ionic) or shared (covalent) **SC M 10.2.1.c** Use appropriate nomenclature when classifying compounds **SC M 10.2.1.d** Identify the elements contained in organic compounds		**SC S 12.2.1.a** Recognize bonding occurs when outer electrons are transferred (ionic) or shared (covalent)

	SC S 05.2.1.c Use appropriate metric measurements to describe physical properties							
States of Matter	**SC S 05.2.1.d** Identify state changes caused by heating and cooling solids, liquids, and gasses			**SC S 08.2.1.c** Recognize most substances can exist as a solid, liquid, or gas depending on temperature **SC M 08.2.1.d** Explain how most substances can exist as a solid, liquid, or gas depending on temperature		**SC M 10.2.1.e** Describe the energy transfer associated with phase changes between solids, liquids, and gasses		**SC S 12.2.1.b** Describe the energy transfer associated with phase changes between solids, liquids, and gasses
	SC M 05.2.1.e Describe the characteristics of physical change (materials can be changed to their original state)			**SC S 08.2.1.d** Compare and contrast solids, liquids, and gasses based on properties of these states of matter		**SC M 10.2.1.f** Describe the three normal states of matter (solid, liquid, gas) in terms of energy, particle arrangement, particle motion, and strength of bond between molecules **SC M 10.2.1.g** Describe the interrelationship of moles, temperature, pressure and volume within gases **SC M 10.2.1.h** Solve problems using gas laws		**SC S 12.2.1.c** Describe the three normal states of matter (solid, liquid, gas) in terms of energy, particle arrangement, particle motion, and strength of bond between molecules

Physical and Chemical Changes				**SC S 08.2.1.e** Distinguish between physical and chemical changes (phase changes, dissolving, burning, rusting)		**SC M 10.2.1.i** Write, predict and balance types of chemical reactions (neutralization, oxidation/reduction, combustion, decomposition, combination, and single/ double replacement		
				SC S 08.2.1.f Recognize conservation of matter in physical and chemical changes		**SC M 10.2.1.j** Recognize a large number of chemical reactions involve the transfer of either electrons (oxidation/ reduction) or hydrogen ions (acid/base) between reacting ions, molecules, or atoms **SC M 10.2.1.k** Identify factors affecting rates of chemical reactions (temperature, particle size, surface area) **SC M 10.2.1.l** Solve number problems using stoichiometry and the mole concept		**SC S 12.2.1.d** Recognize a large number of chemical reactions involve the transfer of either electrons (oxidation/ reduction) or hydrogen ions (acid/base) between reacting ions, molecules, or atoms **SC S 12.2.1.e** Identify factors affecting rates of chemical reactions (temperature, particle size, surface area)
Atomic Structure						**SC M 10.2.1.m** Recognize the charges and relative locations of subatomic particles (neutrons, protons, electrons)		**SC S 12.2.1.f** Recognize the charges and relative locations of subatomic particles (neutrons, protons, electrons)

						SC M 10.2.1.n Describe properties of atoms, ions, and isotopes		**SC S 12.2.1.g** Describe properties of atoms, ions, and isotopes
Classification of Matter				**SC S 08.2.1.g** Classify substances into similar groups based on physical properties		**SC M 10.2.1.o** Describe the organization of the periodic table of elements with respect to patterns of physical and chemical properties **SC M 10.2.1p** Identify the three types of mixtures: solutions, suspensions and colloids **SC M 10.2.1.q** Explain the factors (temperature, surface area, physical mixing, and the shape of the water molecule) that affect solubility, and use solubility graphs to classify types of solutions **SC M 10.2.1.r** Classify substances by pH: acids, bases and neutrals **SC M 10.2.1.s** Describe periodicity within periods and groups		**SC S 12.2.1.h** Describe the organization of the periodic table of elements with respect to patterns of physical and chemical properties

K- 12 Comprehensive Standard: Physical Science
Students will integrate and communicate the information, concepts, principles, processes, theories, and models of the Physical Sciences to make connections with the natural and engineered world.

Concept	Grade Level Standards

	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9	Grade 10	Grade 11	Grade 12
Force and Motion	**SC S 05.2.2 Students will identify the influence of forces on motion.**		**SC M 07.2.2 Students will investigate and describe forces and motion.**	**SC S 08.2.2 Students will investigate and describe forces and motion.**		**SC M 10.2.2 Students will investigate and describe the nature of field forces and their interactions with matter.**	**SC M 11.2.2 Students will investigate and describe the nature of field forces and their interactions with matter.**	**SC S 12.2.2 Students will investigate and describe the nature of field forces and their interactions with matter.**
Vectors and Scalars							**SC M 11.2.2a** Explain the difference between vectors and scalars, give examples of each, and add vectors graphically and mathematically	
Equilibrium							**SC M 11.2.2.b** Recognize that the sum of all forces and the sum of all torques must equal 0 to achieve equilibrium	
Motion	**SC S 05.2.2.a** Describe motion by tracing and measuring an object's position over a period of time (speed) (Grade 4)		**SC M 07.2.2.a** Describe motion of an object by its position and velocity	**SC S 08.2.2.a** Describe motion of an object by its position and velocity (Grade 7)			**SC M 11.2.2.c** Describe motion with respect to displacement and acceleration **SC M 11.2.2.d** Analyze vertical and horizontal velocities in two-dimensional motion	**SC S 12.2.2.a** Describe motion with respect to displacement and acceleration

Motion (continued)							**SC M 11.2.2.e** Measure the acceleration due to gravity	
Inertia / Newton's 1st Law			**SC M 07.2.2.b** Recognize an object that is not being subjected to a force will continue to move at a constant speed in a straight line or stay at rest (Newton's 1st law) **SC M 07.2.2.b** Describe experiments with inertia	**SC S 08.2.2.b** Recognize an object that is not being subjected to a force will continue to move at a constant speed in a straight line or stay at rest (Newton's 1st law) (Grade 7)			**SC M 11.2.2.f** Describe how the law of inertia (Newton's 1st law) is evident in a real-world event	**SC S 12.2.2.b** Describe how the law of inertia (Newton's 1st law) is evident in a real-world event
Forces / Newton's 2nd Law	**SC S 05.2.2.b** Describe changes in motion due to outside forces (push, pull, gravity) (Grade 4)		**SC M 07.2.2.c** Compare the motion of objects related to the effects of balanced and unbalanced forces **SC M 07.2.2.c** Identify and apply the relationship among force, mass and acceleration	**SC S 08.2.2.c** Compare the motion of objects related to the effects of balanced and unbalanced forces (Grade 7)			**SC M 11.2.2.g** Make predictions based on relationships among net force, mass, and acceleration (Newton's 2nd law) **SC M 11.2.2.h** Draw free-body force diagrams for accelerating and non-accelerating objects **SC M 11.2.2.i** Solve problems involving the coefficient of friction **SC M 11.2.2.j** Connect the conservation of momentum to collisions	**SC S 12.2.2.c** Make predictions based on relationships among net force, mass, and acceleration (Newton's 2nd law)

							SC M 11.2.2.k Investigate forces causing circular motion	
Newton's 3rd Law			**SC M 07.2.2.d** Explore Newton's 3rd law (forces act in pairs)				**SC M 11.2.2.l** Recognize that all forces occur in equal and opposite pairs (Newton's 3rd law)	**SC S 12.2.2.d** Recognize that all forces occur in equal and opposite pairs (Newton's 3rd law)
							SC M 11.2.2.m Describe how Newton's 3rd law of motion is evident in a real-world event	**SC S 12.2.2.e** Describe how Newton's 3rd law of motion is evident in a real-world event
Universal Forces	**SC S 05.2.2.c** Describe magnetic behavior in terms of attraction and repulsion (Grade 3) **SC M 05.2.2.c** Describe magnetic behavior in terms of attraction, repulsion and magnetic fields (Grade 3)			**SC S 08.2.2.d** Recognize that everything on or around the Earth is pulled toward the Earth's center by gravitational force			**SC M 11.2.2.n** Describe gravity as a force that each mass exerts on another mass, which is proportional to the masses and the distance between them	**SC S 12.2.2.f** Describe gravity as a force that each mass exerts on another mass, which is proportional to the masses and the distance between them

Universal Forces *(continued)*						**SC M 10.2.2.a** Recognize than an attractive or repulsive electric force exists between two charged particles with respect to sub-atomic particles and/or ions	**SC M 11.2.2.o** Recognize that an attractive or repulsive electric force exists between two charged particles and that this force is proportional to the magnitude of the charges and the distance between them **SC M 11.2.2.p** Explain the concept of an electrical field	**SC S 12.2.2.g** Recognize that an attractive or repulsive electric force exists between two charged particles and that this force is proportional to the magnitude of the charges and the distance between them

K- 12 Comprehensive Standard: Physical Science

Students will integrate and communicate the information, concepts, principles, processes, theories, and models of the Physical Sciences to make connections with the natural and engineered world.

Concept	Grade Level Standards							
	Grade 5	**Grade 6**	**Grade 7**	**Grade 8**	**Grade 9**	**Grade 10**	**Grade 11**	**Grade 12**
Energy	**SC S 05.2.3 Students will observe and identify signs of energy transfer.**	**SC M 06.2.3 Students will identify and describe how energy systems and matter interact.**	**SC M 07.2.3 Students will identify and describe how energy systems and matter interact.**	**SC S 08.2.3 Students will identify and describe how energy systems and matter interact.**		**SC M 10.2.3 Students will describe and investigate energy systems relating to the conservation and interaction of energy and matter.**	**SC M 11.2.3 Students will describe and investigate energy systems relating to the conservation and interaction of energy and matter.**	**SC S 12.2.3 Students will describe and investigate energy systems relating to the conservation and interaction of energy and matter.**
Sound / Mechanical Waves	**SC S 05.2.3.a** Recognize that sound is produced from vibrating objects; the sound can be changed by changing the vibration (Grade 3)	**SC M 06.2.3.a** Recognize that vibrations set up wave-like distur-bances that spread away from the source (sound, seismic, water waves)		**SC S 08.2.3.a** Recognize that vibrations set up wave-like distur-bances that spread away from the source (sound, seismic, water waves) (Grade 6)		**SC M 10.2.3.a** Describe the properties of waves as they apply to chemistry	**SC M 11.2.3.a** Describe mechanical wave properties (speed, wavelength, frequency, amplitude) and how waves travel through a medium	**SC S 12.2.3.a** Describe mechanical wave properties (speed, wavelength, frequency, amplitude) and how waves travel through a medium
		SC M 06.2.3.b Identify that waves move at different speeds in different materials		**SC S 08.2.3.b** Identify that waves move at different speeds in different materials (Grade 6)			**SC M 11.2.3.b** Recognize that the energy in waves can be changed into other forms of energy	**SC S 12.2.3.b** Recognize that the energy in waves can be changed into other forms of energy

Light	**SC S 05.2.3.b** Recognize that light travels in a straight line and can be reflected by an object (mirror)						**SC M 11.2.3.c** Recognize that light can behave as a wave (diffraction and interference)	**SC S 12.2.3.c** Recognize that light can behave as a wave (diffraction and interference)
	SC S 05.2.3.c Recognize that light can travel through certain materials and not others (transparent, translucent, opaque)	**SC M 06.2.3.c** Recognize that light interacts with matter by transmission (including refraction), absorption, or scattering (including reflection)		**SC S 08.2.3.c** Recognize that light inter-acts with matter by trans-mission (including refrac-tion), absorption, or scattering (including reflection) (Grade 6)			**SC M 11.2.3.d** Quantify the laws of reflection and refraction	
		SC M 06.2.3.d Recognize that to see an object, light from the surface of the object must enter the eye; the color seen depends on the properties of the surface and the color of the available light sources		**SC S 08.2.3.d** Recognize that to see an object, light from the sur-face of the object must enter the eye; the color seen depends on the properties of the surface and the color of the available light sources (Grade 6)				

Heat							**SC M 11.2.3.e** Distinguish between temperature (a measure of the average kinetic energy of atomic or molecular motion) and heat (the quantity of thermal energy that transfers due to a change in temperature) **SC M 11.2.3.f** Quantify heat transfer	**SC S 12.2.3.d** Distinguish between temperature (a measure of the average kinetic energy of atomic or molecular motion) and heat (the quantity of thermal energy that transfers due to a change in temperature)
	SC S 05.2.3.d Identify ways to generate heat (friction, burning, incandescent light bulb) (Grade 4)		**SC M 07.2.3.a** Recognize that heat moves from warmer objects to cooler objects until both reach the same temperature **SC M 07.2.3.a** Identify the three ways heat moves from warmer objects to cooler objects (convection, conduction, radiation)	**SC S 08.2.3.e** Recognize that heat moves from warmer objects to cooler objects until both reach the same temperature (Grade 7)			**SC M 11.2.3.g** Compare and contrast methods of heat transfer and the interaction of heat with matter via conduction, convection, and radiation	**SC S 12.2.3.e** Compare and contrast methods of heat transfer and the interaction of heat with matter via conduction, convection, and radiation
Electricity / Magnetism	**SC S 05.2.3.f** Recognize that the transfer of electricity in an electrical circuit requires a closed loop (Grade 3)						**SC M 11.2.2.h** Define electrical resistance in terms of voltage and current, and relate them to power	

Electricity / Magnetism (continued)							**SC M 11.2.3.i** Recognize that the production of electromagnetic waves is a result of changes in the motion of charges or by a changing magnetic field	**SC S 12.2.3.f** Recognize that the production of electromagnetic waves is a result of changes in the motion of charges or by a changing magnetic field
							SC M 11.2.3.j Compare and contrast segments of the electromagnetic spectrum (radio, micro, infrared, visible, ultraviolet, x-rays, gamma) based on frequency and wavelength	**SC S 12.2.3.g** Compare and contrast segments of the electromagnetic spectrum (radio, micro, infrared, visible, ultraviolet, x-rays, gamma) based on frequency and wavelength
Nuclear							**SC M 11.2.3.k** Recognize that nuclear reactions (fission, fusion, radioactive decay) convert a fraction of the mass of interacting particles into energy, and this amount of energy is much greater than the energy in chemical interactions	**SC S 12.2.3.h** Recognize that nuclear reactions (fission, fusion, radioactive decay) convert a fraction of the mass of interacting particles into energy, and this amount of energy is much greater than the energy in chemical interactions

Conservation		**SC M 06.2.3.e** Describe transfer of energy from electrical and magnetic sources to different energy forms (heat, light, sound)	**SC M 07.2.3.b** Describe transfer of energy from electrical and magnetic sources to different energy forms (heat)	**SC S 08.2.3.f** Describe transfer of energy from electrical and magnetic sources to different energy forms (heat, light, sound) **SC M 08.2.3.f** Describe transfer of energy from electrical and magnetic sources to different energy forms (heat, light, sound, chemical)				
		SC M 06.2.3.f Recognize all energy is neither created nor destroyed	**SC M 07.2.3.c** Recognize all energy is neither created nor destroyed	**SC S 08.2.3.g** Recognize all energy is neither created nor destroyed			**SC M 11.2.3.l** Interpret the law of conservation of energy to make predictions for the outcome of an event	**SC S 12.2.3.i** Interpret the law of conservation of energy to make predictions for the outcome of an event
Mechanical Energy							**SC M 11.2.3.m** Identify that all energy can be considered to be either kinetic, potential, or energy contained by a field (e.g. electromagnetic waves) **SC M 11.2.3.n** Compare and contrast power and energy **SC M 11.2.3.o** Calculate and explain elastic potential energy for a metallic spring	**SC S 12.2.3.j** Identify that all energy can be considered to be either kinetic, potential, or energy contained by a field (e.g. electromagnetic waves)

Chemical Energy						**SC M 10.2.3.b** Identify endothermic and exothermic reactions		**SC S 12.2.3.k** Identify endothermic and exothermic reactions

K- 12 Comprehensive Standard: Life Science

Students will integrate and communicate the information, concepts, principles, processes, theories, and models of the Life Sciences to make connections with the natural and engineered world.

Concepts	Grade Level Standards

	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9	Grade 10	Grade 11	Grade 12
Structure and Function of Living Systems	**SC S 05.3.1 Students will investigate and compare the characteristics of living things.**		**SC M 07.3.1 Students will investigate and describe the structure and function of living organisms.**	**SC S 08.3.1 Students will investigate and describe the structure and function of living organisms.**	**SC M 09.3.1 Students will investigate and describe the chemical basis of the growth, development, and maintenance of cells.**			**SC S 12.3.1 Students will investigate and describe the chemical basis of the growth, development, and maintenance of cells.**
Heredity	**SC S 05.3.2 Students will identify variations of inherited characteristics and life cycles.**		**SC M 07.3.2 Students will investigate and describe the relationship between reproduction and heredity.**	**SC S 08.3.2 Students will investigate and describe the relationship between reproduction and heredity.**	**SC M 09.3.2 Students will describe the molecular basis of reproduction and heredity.**			**SC S 12.3.2 Students will describe the molecular basis of reproduction and heredity.**
Flow of Matter and Energy in Ecosystems	**SC S 05.3.3 Students will describe relationships within an ecosystem.**	**SC M 06.3.3 Students will describe populations and ecosystems.**		**SC S 08.3.3 Students will describe populations and ecosystems.**	**SC M 09.3.3 Students will describe, on a molecular level, the cycling of matter and the flow of energy between organisms and their environment.**			**SC S 12.3.3 Students will describe, on a molecular level, the cycling of matter and the flow of energy between organisms and their environment.**
Biodiversity	**SC S 05.3.4 Students will describe changes in organisms over time.**			**SC S 08.3.4 Students will identify characteristics of organisms that help them survive.**	**SC M 09.3.4 Students will describe the theory of biological evolution.**			**SC S 12.3.4 Students will describe the theory of biological evolution.**

K- 12 Comprehensive Standard: Life Science Students will integrate and communicate the information, concepts, principles, processes, theories, and models of the Life Sciences to make connections with the natural and engineered world.	
Concept	**Grade Level Standards**

	Grade 5	**Grade 6**	**Grade 7**	**Grade 8**	**Grade 9**	**Grade 10**	**Grade 11**	**Grade 12**
Structure and Function of Living Systems	**SC S 05.3.1 Students will investigate and compare the characteristics of living things.**		**SC M 07.3.1 Students will investigate and describe the structure and function of living organisms.**	**SC S 08.3.1 Students will investigate and describe the structure and function of living organisms.**	**SC M 09.3.1 Students will investigate and describe the chemical basis of the growth, development, and maintenance of cells.**			**SC S 12.3.1 Students will investigate and describe the chemical basis of the growth, development, and maintenance of cells.**
Characteristics of Life	**SC S 05.3.1.a** Compare and contrast characteristics of living and nonliving things (Grades 3, 4)		**SC M 07.3.1.a** Recognize the levels of organization in living organisms (cells, tissues, organs, organ systems, organisms)	**SC S 08.3.1.a** Recognize the levels of organization in living organisms (cells, tissues, organs, organ systems, organisms) (Grade 7)	**SC M 09.3.1.a** Identify the complex molecules (carbohydrates, lipids, proteins, nucleic acids) that make up living organisms			**SC S 12.3.1.a** Identify the complex molecules (carbohydrates, lipids, proteins, nucleic acids) that make up living organisms
Cellular Composition of Organisms			**SC M 07.3.1.b** Recognize that all organisms are composed of one or many cells; that these cells must grow, divide, and use energy; and that all cells function similarly	**SC S 08.3.1.b** Recognize that all organisms are composed of one or many cells; that these cells must grow, divide, and use energy; and that all cells function similarly (Grade 7)	**SC M 09.3.1.b** Identify the form and function of sub-cellular structures that regulate cellular activities			**SC S 12.3.1.b** Identify the form and function of sub-cellular structures that regulate cellular activities

Cellular Composition of Organisms *(continued)*			**SC M 07.3.1.c** Recognize specialized cells perform specialized functions in multicellular organisms	**SC S 08.3.1.c** Recognize specialized cells perform specialized functions in multicellular organisms (Grade 7)	**SC M 09.3.1.c** Describe the cellular functions of photosynthesis, respiration, cell division, protein synthesis, transport of materials, energy capture/release and enzyme function			**SC S 12.3.1.c** Describe the cellular functions of photosynthesis, respiration, cell division, protein synthesis, transport of materials, and energy capture/release
			SC M 07.3.1.d Identify the organs and functions of the major systems of the human body and describe ways that these systems interact with each other	**SC S 08.3.1.d** Identify the organs and functions of the major systems of the human body and describe ways that these systems interact with each other (Grade 7)				
Characteristics of Living Organisms	**SC S 05.3.1.b** Identify how parts of plants and animals function to meet basic needs (e.g., leg of an insect helps an insect move, root of a plant helps the plant obtain water) (Grades 3, 4)				**SC M 09.3.1.d** Explain the goal of modern evolutionary classification.			
Behavior				**SC S 08.3.1.e** Describe how plants and animals respond to environmental stimuli	**SC M 09.3.1.e** Describe how an organism senses changes in its internal or external environment and responds to ensure survival			**SC S 12.3.1.d** Describe how an organism senses changes in its internal or external environment and responds to ensure survival

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Concept	**Grade Level Standards**

	Grade 5	**Grade 6**	**Grade 7**	**Grade 8**	**Grade 9**	**Grade 10**	**Grade 11**	**Grade 12**
Heredity	**SC S 05.3.2 Students will identify variations of inherited characteristics and life cycles.**		**SC M 07.3.2 Students will investigate and describe the relationship between reproduction and heredity.**	**SC S 08.3.2 Students will investigate and describe the relationship between reproduction and heredity.**	**SC M 09.3.2 Students will describe the molecular basis of reproduction and heredity.**			**SC S 12.3.2 Students will describe the molecular basis of reproduction and heredity.**
Inherited Traits	**SC S 05.3.2.a** Identify inherited characteristics of plants and animals (Grades 3, 4)		**SC M 07.3.2.a** Recognize that hereditary information is contained in genes within the chromosomes of each cell	**SC S 08.3.2.a** Recognize that hereditary information is contained in genes within the chromosomes of each cell (Grade 7)	**SC M 09.3.2.a** Identify that information passed from parents to offspring is coded in DNA molecules			**SC S 12.3.2.a** Identify that information passed from parents to offspring is coded in DNA molecules
					SC M 09.3.2.b Describe the basic structure of DNA and its function in genetic inheritance			**SC S 12.3.2.b** Describe the basic structure of DNA and its function in genetic inheritance

					SC M 09.3.2.c Recognize how mutations could help, harm, or have no effect on individual organisms			**SC S 12.3.2.c** Recognize how mutations could help, harm, or have no effect on individual organisms
Reproduction	**SC S 05.3.2.b** Identify the life cycle of an organism (Grades 3, 4)		**SC M 07.3.2.b** Compare and contrast sexual and asexual reproduction	**SC S 08.3.2.b** Compare and contrast sexual and asexual reproduction (Grade 7)	**SC M 09.3.2.d** Describe that sexual reproduction results in a largely predictable, variety of possible gene combinations in the offspring of any two parents (simple Mendelian genetics)			**SC S 12.3.2.d** Describe that sexual reproduction results in a largely predictable, variety of possible gene combinations in the offspring of any two parents

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Concept	**Grade Level Standards**

	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9	Grade 10	Grade 11	Grade 12
Flow of Matter and Energy in Ecosystems	**SC S 05.3.3 Students will describe relationships within an ecosystem.**	**SC M 06.3.3 Students will describe populations and ecosystems.**		**SC S 08.3.3 Students will describe populations and ecosystems.**	**SC M 09.3.3 Students will describe, on a molecular level, the cycling of matter and the flow of energy between organisms and their environment.**			**SC S 12.3.3 Students will describe, on a molecular level, the cycling of matter and the flow of energy between organisms and their environment.**
Flow of Energy	**SC S 05.3.3.a** Diagram and explain a simple food chain beginning with the Sun **SC M 05.3.3.a** Diagram and explain a simple food chain and food web beginning with the Sun	**SC M 06.3.3.a** Diagram and explain the flow of energy through a simple food web		**SC S 08.3.3.a** Diagram and explain the flow of energy through a simple food web (Grade 6)	**SC M 09.3.3.a** Explain how the stability of an ecosystem is increased by biological diversity			**SC S 12.3.3.a** Explain how the stability of an ecosystem is increased by biological diversity
	SC S 05.3.3.b Identify the role of producers, consumers, and decomposers in an ecosystem	**SC M 06.3.3.b** Compare the roles of producers, consumers, and decomposers in an ecosystem		**SC S 08.3.3.b** Compare the roles of producers, consumers, and decomposers in an ecosystem (Grade 6)				

Ecosystems	**SC S 05.3.3.c** Recognize the living and nonliving factors that impact the survival of organisms in an ecosystem	**SC M 06.3.3.c** Recognize that producers transform sunlight into chemical energy through photosynthesis		**SC S 08.3.3.c** Recognize that producers transform sunlight into chemical energy through photosynthesis (Grade 6)	**SC M 09.3.3.b** Recognize that atoms and molecules cycle among living and nonliving components of the biosphere			**SC S 12.3.3.b** Recognize that atoms and molecules cycle among living and nonliving components of the biosphere
				SC S 08.3.3.d Determine the biotic and abiotic factors that impact the number of organisms an ecosystem can support	**SC M 09.3.3.c** Explain how distribution and abundance of different organisms in ecosystems are limited by the availability of matter and energy and the ability of the ecosystem to recycle materials			**SC S 12.3.3.c** Explain how distribution and abundance of different organisms in ecosystems are limited by the availability of matter and energy and the ability of the ecosystem to recycle materials
		SC M 06.3.3.d Recognize a population is all the individuals of a species at a given place and time		**SC S 08.3.3.e** Recognize a population is all the individuals of a species at a given place and time (Grade 6)				
		SC M 06.3.3.e Identify symbiotic relationships among organisms		**SC S 08.3.3.f** Identify symbiotic relationships among organisms (Grade 6)				
Impact on Ecosystems	**SC S 05.3.3.d** Recognize all organisms cause changes, some beneficial and some detrimental, in the environment where they live			**SC S 08.3.3.g** Identify positive and negative effects of natural and human activity on an ecosystem	**SC M 09.3.3.d** Analyze factors which may influence environmental quality			**SC S 12.3.3.d** Analyze factors which may influence environmental quality

	SC M 05.3.3.d Describe beneficial and detrimental changes organisms cause in their environment							

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Concept	**Grade Level Standards**

	Grade 5	**Grade 6**	**Grade 7**	**Grade 8**	**Grade 9**	**Grade 10**	**Grade 11**	**Grade 12**
Biodiversity	**SC S 05.3.4 Students will describe changes in organisms over time.**			**SC S 08.3.4 Students will identify characteristics of organisms that help them survive.**	**SC M 09.3.4 Students will describe the theory of biological evolution.**			**SC S 12.3.4 Students will describe the theory of biological evolution.**
Biological Adaptations	**SC S 05.3.4.a** Describe adaptations made by plants or animals to survive environmental changes (Grades 4, 5) **SC M 05.3.4.a** Describe adaptations made by animals to survive environmental changes			**SC S 08.3.4.a** Describe how an inherited characteristic enables an organism to improve its survival rate	**SC M 09.3.4.a** Identify different types of adaptations necessary for survival (morphological, physiological, behavioral)			**SC S 12.3.4.a** Identify different types of adaptations necessary for survival (morphological, physiological, behavioral)

Biological Evolution				**SC S 08.3.4.b** Recognize the extinction of a species is caused by the inability to adapt to an environmental change	**SC M 09.3.4.b** Recognize that the concept of biological evolution is a theory which explains the consequence of the interactions of: (1) the potential for a species to increase its numbers, (2) the genetic variability of offspring due to mutation and recombination of genes, (3) a finite supply of the resources required for life, and (4) the ensuing selection by the environment of those offspring better able to survive and leave offspring			**SC S 12.3.4.b** Recognize that the concept of biological evolution is a theory which explains the consequence of the interactions of: (1) the potential for a species to increase its numbers, (2) the genetic variability of offspring due to mutation and recombination of genes, (3) a finite supply of the resources required for life, and (4) the ensuing selection by the environment of those offspring better able to survive and leave offspring
				SC S 08.3.4.c Use anatomical features of an organism to infer similarities among other organisms	**SC M 09.3.4.c** Explain how natural selection provides a scientific explanation of the fossil record and the molecular similarities among the diverse species of living organisms			**SC S 12.3.4.c** Explain how natural selection provides a scientific explanation of the fossil record and the molecular similarities among the diverse species of living organisms

					SC M 09.3.4.d Apply the theory of biological evolution to explain diversity of life over time			**SC S 12.3.4.d** Apply the theory of biological evolution to explain diversity of life over time

K- 12 Comprehensive Standard: Earth and Space Sciences Students will integrate and communicate the information, concepts, principles, processes, theories, and models of Earth and Space Sciences to make connections with the natural and engineered world.	
Concepts	**Grade Level Standards**

	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9	Grade 10	Grade 11	Grade 12
Earth in Space	**SC S 05.4.1 Students will observe and describe characteristics, patterns, and changes in the sky.**			**SC S 08.4.1 Students will investigate and describe Earth and the solar system.**		**SC M 10.4.1 Students will investigate and describe the known universe.**		**SC S 12.4.1 Students will investigate and describe the known universe.**
Earth Structures and Processes	**SC S 05.4.2 Students will observe and describe Earth's materials, structure, and processes.**	**SC M 06.4.2 Students will investigate and describe Earth's structure, systems, and processes.**	**SC M 07.4.2 Students will investigate and describe Earth's structure, systems, and processes.**	**SC S 08.4.2 Students will investigate and describe Earth's structure, systems, and processes.**	**SC M 09.4.2 Students will investigate the relationships among Earth's structure, systems, and processes.**		**SC M 11.4.2 Students will investigate the relationships among Earth's structure, systems, and processes.**	**SC S 12.4.2 Students will investigate the relationships among Earth's structure, systems, and processes.**
Energy in Earth's Systems	**SC S 05.4.3 Students will observe and describe the effects of energy changes on Earth.**		**SC M 07.4.3 Students will investigate and describe energy in Earth's systems.**	**SC S 08.4.3 Students will investigate and describe energy in Earth's systems.**	**SC M 09.4.3 Students will investigate and describe the relationships among the sources of energy and their effects on Earth's systems.**		**SC M 11.4.3 Students will investigate and describe the relationships among the sources of energy and their effects on Earth's systems.**	**SC S 12.4.3 Students will investigate and describe the relationships among the sources of energy and their effects on Earth's systems.**
Earth's History	**SC S 05.4.4 Students will describe changes in Earth.**	**SC M 06.4.4 Students will use evidence to draw conclusions about changes in Earth.**		**SC S 08.4.4 Students will use evidence to draw conclusions about changes in Earth.**	**SC M 09.4.4 Students will explain the history and evolution of Earth.**			**SC S 12.4.4 Students will explain the history and evolution of Earth.**

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Concept	**Grade Level Standards**

	Grade 5	**Grade 6**	**Grade 7**	**Grade 8**	**Grade 9**	**Grade 10**	**Grade 11**	**Grade 12**
Earth in Space	**SC S 05.4.1 Students will observe and describe characteristics, patterns, and changes in the sky.**			**SC S 08.4.1 Students will investigate and describe Earth and the solar system.**		**SC M 10.4.1 Students will investigate and describe the known universe.**		**SC S 12.4.1 Students will investigate and describe the known universe.**
Objects in the Sky and Universe	**SC S 05.4.1.a** Recognize that the observed shape of the Moon changes from day to day during a one month period **SC M 05.4.1.a** Identify relationships between the Earth and Moon over time			**SC S 08.4.1.a** Describe the components of the solar system (the Sun, planets, moons, asteroids, comets)		**SC M 10.4.1.a** Describe the formation of the universe using the Big Bang Theory		**SC S 12.4.1.a** Describe the formation of the universe using the Big Bang Theory
						SC M 10.4.1.b Recognize that stars, like the Sun, transform matter into energy by nuclear reactions which leads to the formation of other elements		**SC S 12.4.1.b** Recognize that stars, like the Sun, transform matter into energy by nuclear reactions which leads to the formation of other elements

						SC M 10.4.1.c Describe stellar evolution		**SC S 12.4.1.c** Describe stellar evolution
Motion of Objects in the Solar System	**SC S 05.4.1.b** Recognize the motion of objects in the sky (the Sun, the Moon, stars) change over time in recognizable patterns **SC M 05.4.1b** Identify basic relationships between the Sun, Earth and Moon (day, night, month, year)			**SC S 08.4.1.b** Describe the relationship between motion of objects in the solar system and the phenomena of day, year, eclipses, phases of the Moon and seasons				
Gravitational Effects				**SC S 08.4.1.c** Describe the effects of gravity on Earth (tides) and the effect of gravity on objects in the solar system				

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Concept	**Grade Level Standards**

	Grade 5	**Grade 6**	**Grade 7**	**Grade 8**	**Grade 9**	**Grade 10**	**Grade 11**	**Grade 12**
Earth Structures and Processes	**SC S 05.4.2 Students will observe and describe Earth's materials, structure, and processes.**	**SC M 06.4.2 Students will investigate and describe Earth's structure, systems, and processes.**	**SC M 07.4.2 Students will investigate and describe Earth's structure, systems, and processes.**	**SC S 08.4.2 Students will investigate and describe Earth's structure, systems, and processes.**	**SC M 09.4.2 Students will investigate the relationships among Earth's structure, systems, and processes.**		**SC M 11.4.2 Students will investigate the relationships among Earth's structure, systems, and processes.**	**SC S 12.4.2 Students will investigate the relationships among Earth's structure, systems, and processes.**
Properties of Earth Materials	**SC S 05.4.2.a** Describe the characteristics of rocks, minerals, soil, water, and the atmosphere (Grade 4)	**SC M 06.4.2.a** Describe the layers of Earth (core, mantle, crust, atmosphere)		**SC S 08.4.2.a** Describe the layers of Earth (core, mantle, crust, atmosphere) (Grade 6)	**SC M 09.4.2.a** Recognize how Earth materials move through geochemical cycles (carbon, nitrogen, oxygen) resulting in chemical and physical changes in matter			**SC S 12.4.2.a** Recognize how Earth materials move through geochemical cycles (carbon, nitrogen, oxygen) resulting in chemical and physical changes in matter
		SC M 06.4.2.b Describe the physical composition of soil		**SC S 08.4.2.b** Describe the physical composition of soil (Grade 6)				
		SC M 06.4.2.c Recognize the different levels of the atmosphere	**SC M 07.4.2.c** Describe the mixture of gasses in Earth's atmosphere and how the atmosphere's properties change at different elevations	**SC S 08.4.2.c** Describe the mixture of gasses in Earth's atmosphere and how the atmosphere's properties change at different elevations (Grades 6, 7)				

Properties of Earth Materials *(continued)*		**SC M 06.4.2.d** Describe evidence of Earth's magnetic field		**SC S 08.4.2.d** Describe evidence of Earth's magnetic field (Grade 6)				
Earth's Processes	**SC S 05.4.2.b** Identify weathering, erosion, and deposition as processes that build up or break down Earth's surface (Grade 4)	**SC M 06.4.2.e** Compare and contrast constructive and destructive forces (deposition, erosion, weathering, plate motion causing uplift, volcanoes, earthquakes) that impact Earth's surface		**SC S 08.4.2.e** Compare and contrast constructive and destructive forces (deposition, erosion, weathering, plate motion causing uplift, volcanoes, earthquakes) that impact Earth's surface (Grade 6)			**SC M 11.4.2.a** Describe how heat convection in the mantle propels the plates comprising Earth's surface across the face of the globe (plate tectonics)	**SC S 12.4.2.b** Describe how heat convection in the mantle propels the plates comprising Earth's surface across the face of the globe (plate tectonics)
		SC M 06.4.2.f Describe the rock cycle		**SC S 08.4.2.f** Describe the rock cycle (Grade 6)				
			SC M 07.4.2.g Describe the water cycle (evaporation, condensation, precipitation)	**SC S 08.4.2.g** Describe the water cycle (evaporation, condensation, precipitation) (Grade 7)				
Use of Earth Materials	**SC S 05.4.2.c** Identify how Earth materials are used (fuels, building materials, sustaining plant life) (Grade 4)			**SC S 08.4.2.h** Classify Earth materials as renewable or nonrenewable	**SC M 09.4.2.b** Evaluate the impact of human activity and natural causes on Earth's resources (groundwater, rivers, land, fossil fuels)			**SC S 12.4.2.c** Evaluate the impact of human activity and natural causes on Earth's resources (groundwater, rivers, land, fossil fuels)

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Concept	**Grade Level Standards**

	Grade 5	**Grade 6**	**Grade 7**	**Grade 8**	**Grade 9**	**Grade 10**	**Grade 11**	**Grade 12**
Energy in Earth's Systems	**SC S 05.4.3 Students will observe and describe the effects of energy changes on Earth.**		**SC M 07.4.3 Students will investigate and describe energy in Earth's systems.**	**SC S 08.4.3 Students will investigate and describe energy in Earth's systems**	**SC M 09.4.3 Students will investigate and describe the relationships among the sources of energy and their effects on Earth's systems.**		**SC M 11.4.3 Students will investigate and describe the relationships among the sources of energy and their effects on Earth's systems.**	**SC S 12.4.3 Students will investigate and describe the relationships among the sources of energy and their effects on Earth's systems.**
Energy Sources	**SC S 05.4.3.a** Describe the Sun's warming effect on the land and water (Grade 3)		**SC M 07.4.3.a** Describe how energy from the Sun influences the atmosphere and provides energy for plant growth	**SC S 08.4.3.a** Describe how energy from the Sun influences the atmosphere and provides energy for plant growth (Grade 7)			**SC M 11.4.3.a** Describe how radiation, conduction, and convection transfer heat in Earth's systems	**SC S 12.4.3.a** Describe how radiation, conduction, and convection transfer heat in Earth's systems
					SC M 09.4.3.a Identify external sources of heat energy in Earth's systems		**SC M 11.4.3.b** Identify internal sources of heat energy in Earth's systems	**SC S 12.4.3.b** Identify internal and external sources of heat energy in Earth's systems
					SC M 09.4.3.b Compare and contrast benefits of renewable and nonrenewable energy sources			**SC S 12.4.3.c** Compare and contrast benefits of renewable and nonrenewable energy sources

Weather and Climate	**SC S 05.4.3.b** Observe, measure, and record changes in weather (temperature, wind direction and speed, precipitation) (Grade 3)		**SC M 07.4.3.b** Identify factors that influence daily and seasonal changes on Earth (tilt of the Earth, humidity, air pressure, air masses)	**SC S 08.4.3.b** Identify factors that influence daily and seasonal changes on Earth (tilt of the Earth, humidity, air pressure, air masses) (Grade 7)				
	SC S 05.4.3.c Recognize the difference between weather, climate, and seasons (Grade 3)		**SC M 07.4.3.c** Describe atmospheric movements that influence weather and climate (air masses, jet stream)	**SC S 08.4.3.c** Describe atmospheric movements that influence weather and climate (air masses, jet stream) (Grade 7)	**SC M 09.4.3.c** Describe natural influences (Earth's rotation, mountain ranges, oceans, differential heating) on global climate			**SC S 12.4.3.d** Describe natural influences (Earth's rotation, mountain ranges, oceans, differential heating) on global climate

K- 12 Comprehensive Standard: Earth and Space Sciences
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Concept	Grade Level Standards							
	Grade 5	**Grade 6**	**Grade 7**	**Grade 8**	**Grade 9**	**Grade 10**	**Grade 11**	**Grade 12**
Earth's History	**SC S 05.4.4 Students will describe environments based on fossil evidence.**	**SC M 06.4.4 Students will use evidence to draw conclusions about changes in Earth.**		**SC S 08.4.4 Students will use evidence to draw conclusions about changes in Earth.**	**SC M 09.4.4 Students will explain the history and evolution of Earth.**			**SC S 12.4.4 Students will explain the history and evolution of Earth.**
Past / Present Earth	**SC S 05.4.4.a** Describe how slow processes (erosion, weathering, deposition) and rapid processes (landslides, volcanic eruptions, earthquakes) change Earth's surface **(**Grade 4)	**SC M 06.4.4.a** Recognize that the earth processes we see today are similar to those that occurred in the past (uniformity of processes)		**SC S 08.4.4.a** Recognize that the earth processes we see today are similar to those that occurred in the past (uniformity of processes) (Grade 6)	**SC M 09.4.4.a** Recognize that in any sequence of sediments or rocks that has not been overturned, the youngest sediments or rocks are at the top of the sequence and the oldest are at the bottom (law of superposition)			**SC S 12.4.4.a** Recognize that in any sequence of sediments or rocks that has not been overturned, the youngest sediments or rocks are at the top of the sequence and the oldest are at the bottom (law of superposition)
		SC M 06.4.4.b Describe how environmental conditions have changed through use of the fossil record		**SC S 08.4.4.b** Describe how environmental conditions have changed through use of the fossil record (Grade 6)	**SC M 09.4.4.b** Interpret Earth's history by observing rock sequences, using fossils to correlate the sequences at various locations, and using data from radioactive dating methods			**SC S 12.4.4.b** Interpret Earth's history by observing rock sequences, using fossils to correlate the sequences at various locations, and using data from radioactive dating methods

					SC M 09.4.4.c Compare and contrast the physical and biological differences of the early Earth with the planet we live on today			**SC S 12.4.4.c** Compare and contrast the physical and biological differences of the early Earth with the planet we live on today

SECONDARY SCIENCE COURSES

	Grade 5	Grade 6	Grade 7	Grade 8	Grade 9	Grade 10	Grade 11	Grade 12
				Science 8	Biology	Chemistry Physical Science I: Chemistry	Physics Physical Science II: Physics	Astronomy Zoology Environmental Science Human Physiology AP Environ-mental Science AP Biology AP Chemistry AP Physics B ..... 0334 Chemistry *Only if a student has completed Physical Science I: Chemistry during tenth or eleventh grade* 0352 Physics *Only if a student has completed Physical Science II: Physics during tenth or eleventh grade*
						IB courses are offered at MNHS only. Introduction to IB Chemistry and IB Physics IB Biology SL IB Biology HL I IB Biology HL II IB Chemistry HL I IB Chemistry HL II IB Physics SL IB Physics HL I IB Physics HL II		