

1. Lakes

Great Lakes in My World
Unit: Lakes
www.greatlakes.org

Michigan: Science

Strand	Substrand	Code	Standard	Activities																	
				K-8	K-4	3-6	4-8	K-8	4-8	3-6	3-6	K-4	4-8	3-6	4-8	6-8	4-8	6-8	6-8	K-8	
				1	2	3	4	5	6	7	8	9	10	11	12	13	15	14	16	17	
Life Science	Organization of Living Things	L.OL.00.11	Identify that living things have basic needs.					X				X									X
Earth Science	Solid Earth	E.SE.00.11	Identify Earth materials that occur in nature (sand, rocks, soil, water).					X													
Physical Science	Force and Motion	P.FM.00.11	Describe the position of an object (for example: above, below, in front of, behind, on) in relation to other objects around it.		X																
Science Processes	Reflection and Social Implications	S.RS.00.11	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	X	X			X				X									X
Science Processes	Inquiry Analysis and Communication	S.IA.00.13	Communicate and present findings of observations.		X			X				X									
Science Processes	Inquiry Analysis and Communication	S.IA.00.12	Share ideas about science through purposeful conversation.	X	X			X				X									X
Science Processes	Inquiry Analysis and Communication	S.IA.00.14	Develop strategies for information gathering (ask an expert, use a book, make observations, conduct simple investigations, and watch a video).		X			X													X
Science Processes	Inquiry Process	S.IP.00.11	Make purposeful observation of the natural world using the appropriate senses.	X	X			X				X									X
Science Processes	Inquiry Process	S.IP.00.12	Generate questions based on observations.	X				X													
Science Processes	Inquiry Process	S.IP.00.14	Manipulate simple tools (for example: hand lens, pencils, balances, non-standard objects for measurement) that aid observation and data collection.		X																
Life Science	Heredity	L.HE.01.11	Identify characteristics (for example: body coverings, beak shape, number of legs, body parts) that are passed on from parents to young. appropriate senses.					X													
Life Science	Organization of Living Things	L.OL.01.21	Describe the life cycle of animals including the following stages: egg, young, adult; egg, larva, pupa, adult.					X													
Life Science	Organization of Living Things	L.OL.01.13	Identify the needs of animals.					X				X									X

1. Lakes

Strand	Substrand	Code	Standard	1	2	3	4	5	6	7	8	9	10	11	12	13	15	14	16	17
Life Science	Organization of Living Things	E.ES.01.12	Demonstrate the importance of sunlight and warmth in plant growth.								X									
Science Processes	Reflection and Social Implications	S.RS.01.12	Recognize that science investigations are done more than one time.		X															
Science Processes	Reflection and Social Implications	S.RS.01.11	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	X	X			X				X								X
Science Processes	Inquiry Analysis and Communication	S.IA.01.12	Share ideas about science through purposeful conversation.	X	X			X				X								X
Science Processes	Inquiry Analysis and Communication	S.IA.01.13	Communicate and present findings of observations.		X			X				X								X
Science Processes	Inquiry Analysis and Communication	S.IA.01.14	Develop strategies for information gathering (ask an expert, use a book, make observations, conduct simple investigations, and watch a video).		X			X												X
Science Processes	Inquiry Process	S.IP.01.14	Manipulate simple tools (for example: hand lens, pencils, rulers, thermometers, rain gauges, balances, non-standard objects for measurement) that aid observation and data collection.		X															
Science Processes	Inquiry Process	S.IP.01.12	Generate questions based on observations.	X				X												
Science Processes	Inquiry Process	S.IP.01.11	Make purposeful observation of the natural world using the appropriate senses.	X	X			X				X								X
Life Science	Heredity	L.HE.02.13	Identify characteristics of plants (for example: leaf shape, flower type, color, size) that are passed on from parents to young.					X												
Life Science	Organization of Living Things	L.OL.02.22	Describe the life cycle of familiar flowering plants including the following stages: seed, plant, flower, and fruit.					X												
Life Science	Organization of Living Things	L.OL.02.14	Identify the needs of plants.					X				X								X
Science Processes	Reflection and Social Implications	S.RS.02.11	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	X	X			X				X								X
Science Processes	Reflection and Social Implications	S.RS.02.13	Recognize that when a science investigation is done the way it was done before, similar results are expected.		X															
Science Processes	Reflection and Social Implications	S.RS.02.15	Use evidence when communicating scientific ideas									X								
Science Processes	Reflection and Social Implications	S.RS.02.16	Identify technology used in everyday life.		X															
Science Processes	Inquiry Analysis and Communication	S.IA.02.12	Share ideas about science through purposeful conversation.	X	X			X				X								X
Science Processes	Inquiry Analysis and Communication	S.IA.02.13	Communicate and present findings of observations.		X			X				X								X

1. Lakes

Strand	Substrand	Code	Standard	1	2	3	4	5	6	7	8	9	10	11	12	13	15	14	16	17
Science Processes	Inquiry Analysis and Communication	S.IA.02.14	Develop strategies and skills for information gathering and problem solving (books, internet, ask an expert, observation, investigation, technology tools).		X			X												X
Science Processes	Inquiry Process	S.IP.02.11	Make purposeful observation of the natural world using the appropriate senses.	X	X			X				X								X
Science Processes	Inquiry Process	S.IP.02.12	Generate questions based on observations.	X	X			X				X								
Life Science	Organization of Living Things	L.OL.03.32	Identify and compare structures in animals used for controlling body temperature, support, movement, food-getting, and protection (for example: fur, wings, teeth, scales).					X												
Life Science	Organization of Living Things	L.OL.03.41	Classify plants on the basis of observable physical characteristics (roots, leaves, stems, and flowers).							X										
Life Science	Organization of Living Things	L.OL.03.42	Classify animals on the basis of observable physical characteristics (backbone, body coverings, limbs).							X	X									
Life Science	Evolution	L.EV.03.12	Relate characteristics and functions of observable body parts to the ability of animals to live in their environment (sharp teeth, claws, color, body coverings).		X			X			X									
Life Science	Evolution	L.EV.03.11	Relate characteristics and functions of observable parts in a variety of plants that allow them to live in their environment (leaf shape, thorns, odor, color).		X			X							X					
Earth Science	Earth Systems	E.ES.03.51	Describe ways humans are dependent on the natural environment (forests, water, clean air, Earth materials) and constructed environments (homes, neighborhoods, shopping malls, factories, and industry).				X													
Earth Science	Earth Systems	E.ES.03.52	Describe helpful or harmful effects of humans on the environment (garbage, habitat destruction, land management, renewable, and non-renewable resources).				X													
Physical Science	Force and Motion	P.FM.03.22	Identify the force that pulls objects towards the Earth.				X													
Physical Science	Force and Motion	P.FM.03.42	Identify changes in motion (change direction, speeding up, slowing down).				X													
Science Processes	Reflection and Social Implications	S.RS.03.11	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	X		X	X	X		X	X	X		X						X
Science Processes	Reflection and Social Implications	S.RS.03.15	Use evidence when communicating scientific ideas.							X	X									
Science Processes	Reflection and Social Implications	S.RS.03.16	Identify technology used in everyday life.							X										
Science Processes	Reflection and Social Implications	S.RS.03.18	Describe the effect humans and other organisms have on the balance of the natural world.	X			X													X
Science Processes	Inquiry Analysis and Communication	S.IA.03.12	Share ideas about science through purposeful conversation in collaborative groups.				X	X		X	X	X								X

1. Lakes

Strand	Substrand	Code	Standard	1	2	3	4	5	6	7	8	9	10	11	12	13	15	14	16	17
Science Processes	Inquiry Analysis and Communication	S.IA.03.13	Communicate and present findings of observations and investigations.	X	X		X	X		X		X								X
Science Processes	Inquiry Analysis and Communication	S.IA.03.15	Compare and contrast sets of data from multiple trials of a science investigation to explain reasons for differences.				X													
Science Processes	Inquiry Analysis and Communication	S.IA.03.11	Summarize information from charts and graphs to answer scientific questions.		X						X									
Science Processes	Inquiry Analysis and Communication	S.IA.03.14	Develop research strategies and skills for information gathering and problem solving.							X										
Science Processes	Inquiry Process	S.IP.03.14	Manipulate simple tools that aid observation and data collection (for example: hand lens, balance, ruler, meter stick, measuring cup, thermometer, spring scale, stop watch/timer).		X	X				X	X									
Science Processes	Inquiry Process	S.IP.03.15	Make accurate measurements with appropriate units (centimeters, meters, Celsius, grams, seconds, minutes) for the measurement tool.			X					X									
Science Processes	Inquiry Process	S.IP.03.16	Construct simple charts and graphs from data and observations.								X									
Science Processes	Inquiry Process	S.IP.03.11	Make purposeful observation of the natural world using the appropriate senses.	X	X	X	X	X		X	X	X		X						X
Science Processes	Inquiry Process	S.IP.03.12	Generate questions based on observations.	X			X	X		X	X			X						
Life Science	Organization of Living Things	L.OL.04.16	Determine that animals require air, water, and a source of energy and building material for growth and repair.								X									
Life Science	Evolution	L.EV.04.21	Identify individual differences (color, leg length, size, wing size, leaf shape) in organisms of the same kind.					X		X	X									
Life Science	Evolution	L.EV.04.22	Identify how variations in physical characteristics of individual organisms give them an advantage for survival and reproduction.					X			X									
Life Science	Ecosystems	L.EC.04.11	Identify organisms as part of a food chain or food web.					X	X	X	X		X		X		X			X
Life Science	Ecosystems	L.EC.04.21	Explain how environmental changes can produce a change in the food web.					X	X	X	X		X	X	X		X			X
Life Science	Ecosystems	P.EN.04.12	Identify heat and electricity as forms of energy.						X						X					
Physical Science	Energy	P.EN.04.41	Demonstrate how temperature can be increased in a substance by adding energy.						X						X					X
Science Processes	Reflection and Social Implications	S.RS.04.11	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	X	X	X	X	X		X	X		X	X	X		X			X
Science Processes	Reflection and Social Implications	S.RS.04.15	Use evidence when communicating scientific ideas.				X	X		X										
Science Processes	Reflection and Social Implications	S.RS.04.16	Identify technology used in everyday life.			X				X										

1. Lakes

Strand	Substrand	Code	Standard	1	2	3	4	5	6	7	8	9	10	11	12	13	15	14	16	17
Science Processes	Reflection and Social Implications	S.RS.04.18	Describe the effect humans and other organisms have on the balance of the natural world.	X			X										X			X
Science Processes	Inquiry Analysis and Communication	S.IA.04.14	Develop research strategies and skills for information gathering and problem solving.			X		X	X	X										X
Science Processes	Inquiry Analysis and Communication	S.IA.04.13	Communicate and present findings of observations and investigations.	X	X		X	X		X	X		X		X		X			X
Science Processes	Inquiry Analysis and Communication	S.IA.04.11	Summarize information from charts and graphs to answer scientific questions.	X		X					X						X			X
Science Processes	Inquiry Analysis and Communication	S.IA.04.12	Share ideas about science through purposeful conversation in collaborative groups.				X	X		X	X		X		X		X			X
Science Processes	Inquiry Analysis and Communication	S.IA.04.15	Compare and contrast sets of data from multiple trials of a science investigation to explain reasons for differences.			X	X								X		X			
Science Processes	Inquiry Process	S.IP.04.12	Generate questions based on observations.	X			X	X		X	X		X	X	X					
Science Processes	Inquiry Process	S.IP.04.14	Manipulate simple tools that aid observation and data collection (for example: hand lens, balance, ruler, meter stick, measuring cup, thermometer, spring scale, stop watch/timer, graduated cylinder/beaker).		X					X	X									
Science Processes	Inquiry Process	S.IP.04.15	Make accurate measurements with appropriate units (millimeters, centimeters, meters, milliliters, liters, Celsius, grams, seconds, minutes) for the measurement tool.								X									
Science Processes	Inquiry Process	S.IP.04.16	Construct simple charts and graphs from data and observations.								X						X			
Science Processes	Inquiry Process	S.IP.04.13	Plan and conduct simple and fair investigations.	X											X		X			
Science Processes	Inquiry Process	S.IP.04.11	Make purposeful observation of the natural world using the appropriate senses.	X	X		X	X		X	X		X	X	X		X			X
Life Science	Organization of Living Things	L.OL.05.41	Identify the general purpose of selected animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive).								X									
Life Science	Organization of Living Things	L.OL.05.42	Explain how animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive) work together to perform selected activities.								X									
Life Science	Evolution	L.EV.05.21	Relate degree of similarity in anatomical features to the classification of contemporary organisms.								X									
Life Science	Evolution	L.EV.05.11	Explain how behavioral characteristics (adaptation, instinct, learning, habit) of animals help them to survive in their environment.					X	X		X						X			
Life Science	Evolution	L.EV.05.12	Describe the physical characteristics (traits) of organisms that help them survive in their environment.					X	X		X		X		X		X			X

1. Lakes

Strand	Substrand	Code	Standard	1	2	3	4	5	6	7	8	9	10	11	12	13	15	14	16	17
Life Science	Evolution	L.EV.05.21	Relate degree of similarity in anatomical features to the classification of contemporary organisms.							X										
Life Science	Heredity	L.HE.05.11	Explain that the traits of an individual are influenced by both the environment and the genetics of the individual.														X			
Science Processes	Reflection and Social Implications	S.RS.05.15	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	X				X		X	X		X	X			X			X
Science Processes	Reflection and Social Implications	S.RS.05.17	Describe the effect humans and other organisms have on the balance in the natural world.	X													X			X
Science Processes	Reflection and Social Implications	S.RS.05.13	Identify the need for evidence in making scientific decisions.							X										
Science Processes	Inquiry Analysis and Communication	S.IA.05.13	Communicate and defend findings of observations and investigations using evidence.							X	X		X		X		X			X
Science Processes	Inquiry Analysis and Communication	S.IA.05.11	Analyze information from data tables and graphs to answer scientific questions.														X			
Science Processes	Inquiry Analysis and Communication	S.IA.05.14	Draw conclusions from sets of data from multiple trials of a scientific investigation.												X		X			
Science Processes	Inquiry Analysis and Communication	S.IA.05.15	Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data.						X	X										X
Science Processes	Inquiry Process	S.IP.05.12	Design and conduct scientific investigations.												X		X			
Science Processes	Inquiry Process	S.IP.05.11	Generate scientific questions based on observations, investigations, and research.	X				X		X	X		X	X	X		X			X
Science Processes	Inquiry Process	S.IP.05.13	Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens) appropriate to scientific investigations.					X		X	X									
Science Processes	Inquiry Process	S.IP.05.14	Use metric measurement devices in an investigation.								X									
Science Processes	Inquiry Process	S.IP.05.15	Construct charts and graphs from data and observations.					X			X						X			
Life Science	Organization of Living Things	L.OL.06.51	Classify producers, consumers, and decomposers based on their source of food (the source of energy and building materials).					X	X		X		X		X					X
Life Science	Organization of Living Things	L.OL.06.52	Distinguish between the ways in which consumers and decomposers obtain energy.					X	X		X		X		X		X			
Life Science	Ecosystems	L.EC.06.11	Identify and describe examples of populations, communities, and ecosystems including the Great Lakes region.		X			X	X	X	X		X	X	X	X	X	X	X	X
Life Science	Ecosystems	L.EC.06.21	Describe common patterns of relationships between and among populations (competition, parasitism, symbiosis, predator/prey).						X		X		X							

1. Lakes

Strand	Substrand	Code	Standard	1	2	3	4	5	6	7	8	9	10	11	12	13	15	14	16	17
Life Science	Ecosystems	L.EC.06.23	Predict how changes in one population might affect other populations based upon their relationships in the food web.											X	X	X				
Life Science	Ecosystems	L.EC.06.32	Identify the factors in an ecosystem that influence changes in population size.										X	X			X		X	
Life Science	Ecosystems	L.EC.06.42	Predict possible consequences of overpopulation of organisms, including humans, (for example: species extinction, resource depletion, climate change, pollution).										X	X		X	X	X	X	X
Life Science	Ecosystems	L.EC.06.41	Describe how human beings are part of the ecosystem of the Earth and that human activity can purposefully, or accidentally, alter the balance in ecosystems.				X						X	X		X	X	X	X	X
Life Science	Ecosystems	L.EC.06.31	Identify the living (biotic) and nonliving (abiotic) components of an ecosystem.		X					X										
Physical Science	Energy	P.EN.06.42	Illustrate how energy can be transferred while no energy is lost or gained in the transfer.						X						X					X
Science Processes	Reflection and Social Implications	S.RS.06.15	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	X	X		X	X		X	X		X	X		X	X		X	X
Science Processes	Reflection and Social Implications	S.RS.06.16	Design solutions to problems using technology.							X										
Science Processes	Reflection and Social Implications	S.RS.06.17	Describe the effect humans and other organisms have on the balance of the natural world.	X												X	X		X	X
Science Processes	Reflection and Social Implications	S.RS.06.13	Identify the need for evidence in making scientific decisions.							X										
Science Processes	Reflection and Social Implications	S.RS.06.14	Evaluate scientific explanations based on current evidence and scientific principles.								X								X	
Science Processes	Inquiry Analysis and Communication	S.IA.06.12	Evaluate data, claims, and personal knowledge through collaborative science discourse.																X	
Science Processes	Inquiry Analysis and Communication	S.IA.06.15	Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data.					X	X	X						X				X
Science Processes	Inquiry Analysis and Communication	S.IA.06.11	Analyze information from data tables and graphs to answer scientific questions.													X	X			
Science Processes	Inquiry Analysis and Communication	S.IA.06.14	Draw conclusions from sets of data from multiple trials of a scientific investigation.												X		X			
Science Processes	Inquiry Analysis and Communication	S.IA.06.13	Communicate and defend findings of observations and investigations using evidence.					X		X	X		X		X	X	X	X	X	X
Science Processes	Inquiry Process	S.IP.06.12	Design and conduct scientific investigations.		X		X								X		X	X	X	
Science Processes	Inquiry Process	S.IP.06.11	Generate scientific questions based on observations, investigations, and research.	X				X		X	X		X	X	X	X	X	X	X	X

1. Lakes

Strand	Substrand	Code	Standard	1	2	3	4	5	6	7	8	9	10	11	12	13	15	14	16	17	
Science Processes	Inquiry Process	S.IP.06.13	Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens, thermometer, models, sieves, microscopes) appropriate to scientific investigations.				X			X	X									X	
Science Processes	Inquiry Process	S.IP.06.14	Use metric measurement devices in an investigation.								X										
Science Processes	Inquiry Process	S.IP.06.15	Construct charts and graphs from data and observations.								X					X	X				
Physical Science	Properties of Matter	P.PM.07.11	Classify substances by their chemical properties (flammability, pH, and reactivity).																X		
Physical Science	Changes in Matter	P.CM.07.22	Compare and contrast the chemical properties of a new substance with the original after a chemical change.																X	X	
Physical Science	Changes in Matter	P.CM.07.23	Describe the physical properties and chemical properties of the products and reactants in a chemical change.																X	X	X
Physical Science	Energy	P.EN.07.43	Explain how light energy is transferred to chemical energy through the process of photosynthesis.						X						X					X	
Physical Science	Energy	P.EN.07.61	Identify that nuclear reactions take place in the sun, producing heat and light.						X						X						
Physical Science	Energy	P.EN.07.62	Explain how only a tiny fraction of light energy from the sun is transformed to heat energy on Earth.						X						X						
Earth Science	Solid Earth	E.SE.07.41	Explain how human activities (surface mining, deforestation, overpopulation, construction and urban development, farming, dams, landfills, and restoring natural areas) change the surface of the Earth and affect the survival of organisms.													X					
Earth Science	Solid Earth	E.SE.07.42	Describe the origins of pollution in the atmosphere, geosphere, and hydrosphere, (car exhaust, industrial emissions, acid rain, and natural sources), and how pollution impacts habitats, climatic change, threatens or endangers species.													X					
Science Processes	Reflection and Social Implications	S.RS.07.15	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	X				X					X			X	X	X	X	X	
Science Processes	Reflection and Social Implications	S.RS.07.17	Describe the effect humans and other organisms have on the balance of the natural world.	X			X									X	X		X	X	
Science Processes	Inquiry Analysis and Communication	S.IA.07.12	Evaluate data, claims, and personal knowledge through collaborative science discourse.																X		
Science Processes	Inquiry Analysis and Communication	S.IA.07.15	Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data.				X	X	X							X				X	
Science Processes	Inquiry Analysis and Communication	S.IA.07.11	Analyze information from data tables and graphs to answer scientific questions.													X	X				

1. Lakes

Strand	Substrand	Code	Standard	1	2	3	4	5	6	7	8	9	10	11	12	13	15	14	16	17
Science Processes	Inquiry Analysis and Communication	S.IA.07.14	Draw conclusions from sets of data from multiple trials of a scientific investigation to draw conclusions.												X		X			
Science Processes	Inquiry Analysis and Communication	S.IA.07.13	Communicate and defend findings of observations and investigations.				X	X					X		X	X	X	X	X	X
Science Processes	Inquiry Process	S.IP.07.11	Generate scientific questions based on observations, investigations, and research.	X			X	X							X	X	X	X	X	X
Science Processes	Inquiry Process	S.IP.07.12	Design and conduct scientific investigations.				X								X		X	X	X	
Science Processes	Inquiry Process	S.IP.07.13	Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens, thermometer, models, sieves, microscopes, hot plates, pH meters) appropriate to scientific investigations.																X	X
Science Processes	Inquiry Process	S.IP.07.15	Construct charts and graphs from data and observations.													X	X			

2. Sand Dunes

Great Lakes in My World
www.greatlakes.org

Unit: Sand Dunes

Michigan: Science

Strand	Substrand	Code	Standard	Activities														
				K-8	4-8	3-6	K-8	3-6	4-8	4-8	4-8	3-6	6-8	4-8	6-8	K-3	4-8	4-8
				1	2	3	4	5	6	8	7	9	10	11	12	13	14	15
Life Science	Organization of Living Things	L.OL.00.11	Identify that living things have basic needs.				X											
Earth Science	Solid Earth	E.SE.00.11	Identify Earth materials that occur in nature (sand, rocks, soil, water).	X			X											
Science Processes	Reflection and Social Implications	S.RS.00.11	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	X													X	
Science Processes	Inquiry Analysis and Communication	S.IA.00.13	Communicate and present findings of observations.				X											
Science Processes	Inquiry Analysis and Communication	S.IA.00.12	Share ideas about science through purposeful conversation.	X			X										X	X
Science Processes	Inquiry Analysis and Communication	S.IA.00.14	Develop strategies for information gathering (ask an expert, use a book, make observations, conduct simple investigations, and watch a video).				X											
Science Processes	Inquiry Process	S.IP.00.11	Make purposeful observation of the natural world using the appropriate senses.	X														X
Science Processes	Inquiry Process	S.IP.00.12	Generate questions based on observations.				X											
Life Science	Heredity	L.HE.01.11	Identify characteristics (for example: body coverings, beak shape, number of legs, body parts) that are passed on from parents to young.				X											
Life Science	Heredity	L.HE.01.12	Classify young animals based on characteristics that are passed on from parents (for example: dogs/puppies, cats/kittens, cows/calves, chicken/chicks).				X											
Life Science	Organization of Living Things	L.OL.01.13	Identify the needs of animals.				X											
Earth Science	Earth Systems	E.ES.01.21	Compare daily changes in the weather related to temperature (cold, hot, warm, cool); cloud cover (cloudy, partly cloudy, foggy); precipitation (rain, snow, hail, freezing rain); wind (breezy, windy, calm).				X											

2. Sand Dunes

Strand	Substrand	Code	Standard	1	2	3	4	5	6	8	7	9	10	11	12	13	14	15
Earth Science	Solid Earth	E.SE.01.12	Describe how Earth materials contribute to the growth of plant and animal life.	X			X											
Science Processes	Reflection and Social Implications	S.RS.01.11	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	X												X		
Science Processes	Inquiry Analysis and Communication	S.IA.01.12	Share ideas about science through purposeful conversation.	X			X									X		X
Science Processes	Inquiry Analysis and Communication	S.IA.01.13	Communicate and present findings of observations.				X											
Science Processes	Inquiry Analysis and Communication	S.IA.01.14	Develop strategies for information gathering (ask an expert, use a book, make observations, conduct simple investigations, and watch a video).				X											
Science Processes	Inquiry Process	S.IP.01.12	Generate questions based on observations.				X											
Science Processes	Inquiry Process	S.IP.01.11	Make purposeful observation of the natural world using the appropriate senses.	X			X											X
Life Science	Heredity	L.HE.02.13	Identify characteristics of plants (for example: leaf shape, flower type, color size) that are passed on from parents to young.				X											
Life Science	Organization of Living Things	L.OL.02.22	Describe the life cycle of familiar flowering plants including the following stages: seed, plant, flower, and fruit.				X											
Life Science	Organization of Living Things	L.OL.02.14	Identify the needs of plants.				X											
Earth Science	Solid Earth	E.SE.02.21	Describe the major landforms of the surface of the Earth (mountains, plains, plateaus, valleys, hills).	X														
Science Processes	Reflection and Social Implications	S.RS.02.11	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	X												X		
Science Processes	Inquiry Analysis and Communication	S.IA.02.12	Share ideas about science through purposeful conversation.	X			X									X		X
Science Processes	Inquiry Analysis and Communication	S.IA.02.13	Communicate and present findings of observations.				X											
Science Processes	Inquiry Analysis and Communication	S.IA.02.14	Develop strategies and skills for information gathering and problem solving (books, internet, ask an expert, observation, investigation, technology tools).				X											
Science Processes	Inquiry Process	S.IP.02.11	Make purposeful observation of the natural world using the appropriate senses.	X			X											X
Science Processes	Inquiry Process	S.IP.02.12	Generate questions based on observations.				X											
Life Science	Organization of Living Things	L.OL.03.32	Identify and compare structures in animals used for controlling body temperature, support, movement, food-getting, and protection (for example: fur, wings, teeth, scales).				X					X						
Life Science	Evolution	L.EV.03.12	Relate characteristics and functions of observable body parts to the ability of animals to live in their environment (sharp teeth, claws, color, body coverings).				X					X						

2. Sand Dunes

Strand	Substrand	Code	Standard	1	2	3	4	5	6	8	7	9	10	11	12	13	14	15
Life Science	Evolution	L.EV.03.11	Relate characteristics and functions of observable parts in a variety of plants that allow them to live in their environment (leaf shape, thorns, odor, color).				X					X						
Earth Science	Solid Earth	E.SE.03.13	Recognize and describe different types of Earth materials (mineral, rock, clay, boulder, gravel, sand, soil, water, and air).	X		X		X									X	
Earth Science	Solid Earth	E.SE.03.14	Recognize that rocks are made up of minerals.			X		X									X	
Earth Science	Solid Earth	E.SE.03.22	Identify and describe natural causes of change in the Earth's surface (erosion, glaciers, volcanoes, landslides, and earthquakes).			X											X	
Earth Science	Earth Systems	E.ES.03.51	Describe ways humans are dependent on the natural environment (forests, water, clean air, Earth materials) and constructed environments (homes, neighborhoods, shopping malls, factories, and industry).															X
Earth Science	Earth Systems	E.ES.03.52	Describe helpful or harmful effects of humans on the environment (garbage, habitat destruction, land management, renewable, and non-renewable resources).		X													X
Science Processes	Reflection and Social Implications	S.RS.03.11	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	X	X			X				X					X	
Science Processes	Reflection and Social Implications	S.RS.03.15	Use evidence when communicating scientific ideas.					X										
Science Processes	Reflection and Social Implications	S.RS.03.18	Describe the effect humans and other organisms have on the balance of the natural world.		X													X
Science Processes	Inquiry Analysis and Communication	S.IA.03.12	Share ideas about science through purposeful conversation in collaborative groups.		X		X	X				X					X	X
Science Processes	Inquiry Analysis and Communication	S.IA.03.13	Communicate and present findings of observations and investigations.				X	X				X						
Science Processes	Inquiry Analysis and Communication	S.IA.03.15	Compare and contrast sets of data from multiple trials of a science investigation to explain reasons for differences.	X														
Science Processes	Inquiry Analysis and Communication	S.IA.03.14	Develop research strategies and skills for information gathering and problem solving.				X					X						
Science Processes	Inquiry Process	S.IP.03.11	Make purposeful observation of the natural world using the appropriate senses.	X	X	X	X	X				X						X
Science Processes	Inquiry Process	S.IP.03.11	Plan and conduct simple and fair investigations.					X										
Science Processes	Inquiry Process	S.IP.03.12	Generate questions based on observations.				X	X				X						
Life Science	Organization of Living Things	L.OL.04.15	Determine that plants require air, water, light, and a source of energy and building material for growth and repair.			X												
Life Science	Evolution	L.EV.04.21	Identify individual differences (color, leg length, size, wing size, leaf shape) in organisms of the same kind.				X				X	X						X
Life Science	Evolution	L.EV.04.22	Identify how variations in physical characteristics of individual organisms give them an advantage for survival and reproduction.				X			X	X	X						

2. Sand Dunes

Strand	Substrand	Code	Standard	1	2	3	4	5	6	8	7	9	10	11	12	13	14	15
Life Science	Ecosystems	L.EC.04.11	Identify organisms as part of a food chain or food web.				X			X	X	X						X
Life Science	Ecosystems	L.EC.04.21	Explain how environmental changes can produce a change in the food web.							X	X							X
Science Processes	Reflection and Social Implications	S.RS.04.11	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	X	X			X	X	X	X	X		X				X
Science Processes	Reflection and Social Implications	S.RS.04.15	Use evidence when communicating scientific ideas.					X	X									
Science Processes	Reflection and Social Implications	S.RS.04.18	Describe the effect humans and other organisms have on the balance of the natural world.		X													X
Science Processes	Inquiry Analysis and Communication	S.IA.04.14	Develop research strategies and skills for information gathering and problem solving.				X					X						
Science Processes	Inquiry Analysis and Communication	S.IA.04.13	Communicate and present findings of observations and investigations.				X	X	X	X	X	X						
Science Processes	Inquiry Analysis and Communication	S.IA.04.11	Summarize information from charts and graphs to answer scientific questions.						X									
Science Processes	Inquiry Analysis and Communication	S.IA.04.12	Share ideas about science through purposeful conversation in collaborative groups.	X	X		X	X	X	X	X	X		X				X
Science Processes	Inquiry Analysis and Communication	S.IA.04.15	Compare and contrast sets of data from multiple trials of a science investigation to explain reasons for differences.						X									
Science Processes	Inquiry Process	S.IP.04.12	Generate questions based on observations.				X	X	X	X	X	X						
Science Processes	Inquiry Process	S.IP.04.16	Construct simple charts and graphs from data and observations.						X									
Science Processes	Inquiry Process	S.IP.04.13	Plan and conduct simple and fair investigations.					X	X									
Science Processes	Inquiry Process	S.IP.04.11	Make purposeful observation of the natural world using the appropriate senses.	X	X	X	X	X	X	X	X	X		X				X
Life Science	Evolution	L.EV.05.11	Explain how behavioral characteristics (adaptation, instinct, learning, habit) of animals help them to survive in their environment.			X	X			X	X	X						X
Life Science	Evolution	L.EV.05.12	Describe the physical characteristics (traits) of organisms that help them survive in their environment.			X	X		X	X	X	X						X
Life Science	Evolution	L.EV.05.13	Describe how fossils provide evidence about how living things and environmental conditions have changed.							X	X							
Life Science	Heredity	L.HE.05.11	Explain that the traits of an individual are influenced by both the environment and the genetics of the individual.									X						
Physical Science	Force and Motion	P.FM.05.21	Distinguish between contact forces and non-contact forces.					X										
Science Processes	Reflection and Social Implications	S.RS.05.15	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	X	X			X	X		X			X				X
Science Processes	Reflection and Social Implications	S.RS.05.17	Describe the effect humans and other organisms have on the balance in the natural world.		X													X
Science Processes	Reflection and Social Implications	S.RS.05.13	Identify the need for evidence in making scientific decisions.					X	X	X								

2. Sand Dunes

Strand	Substrand	Code	Standard	1	2	3	4	5	6	8	7	9	10	11	12	13	14	15
Science Processes	Inquiry Analysis and Communication	S.IA.05.13	Communicate and defend findings of observations and investigations using evidence.				X	X	X	X	X	X						
Science Processes	Inquiry Analysis and Communication	S.IA.05.11	Analyze information from data tables and graphs to answer scientific questions.						X									
Science Processes	Inquiry Analysis and Communication	S.IA.05.14	Draw conclusions from sets of data from multiple trials of a scientific investigation.						X									
Science Processes	Inquiry Analysis and Communication	S.IA.05.15	Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data.				X					X						X
Science Processes	Inquiry Analysis and Communication	S.IA.05.12	Evaluate data, claims, and personal knowledge through collaborative science discourse.						X					X				
Science Processes	Inquiry Process	S.IP.05.16	Identify patterns in data.						X									
Science Processes	Inquiry Process	S.IP.05.12	Design and conduct scientific investigations.					X	X									
Science Processes	Inquiry Process	S.IP.05.11	Generate scientific questions based on observations, investigations, and research.		X		X	X	X	X	X	X		X				X
Science Processes	Inquiry Process	S.IP.05.15	Construct charts and graphs from data and observations.						X									
Life Science	Organization of Living Things	L.OL.06.51	Classify producers, consumers, and decomposers based on their source of food (the source of energy and building materials).				X											
Life Science	Organization of Living Things	L.OL.06.52	Distinguish between the ways in which consumers and decomposers obtain energy.				X											
Life Science	Ecosystems	L.EC.06.11	Identify and describe examples of populations, communities, and ecosystems including the Great Lakes region.							X	X	X	X				X	X
Life Science	Ecosystems	L.EC.06.21	Describe common patterns of relationships between and among populations (competition, parasitism, symbiosis, predator/prey).				X											
Life Science	Ecosystems	L.EC.06.32	Identify the factors in an ecosystem that influence changes in population size.			X				X	X	X	X					
Life Science	Ecosystems	L.EC.06.42	Predict possible consequences of overpopulation of organisms, including humans, (for example: species extinction, resource depletion, climate change, pollution).		X								X	X	X			X
Life Science	Ecosystems	L.EC.06.41	Describe how human beings are part of the ecosystem of the Earth and that human activity can purposefully, or accidentally, alter the balance in ecosystems.		X							X	X	X	X			X
Life Science	Ecosystems	L.EC.06.31	Identify the living (biotic) and nonliving (abiotic) components of an ecosystem.							X	X	X	X					X
Earth Science	Earth in Space and Time	E.ST.06.41	Explain how Earth processes (erosion, mountain building, and glacier movement) are used for the measurement of geologic time through observing rock layers.			X		X	X									
Earth Science	Solid Earth	E.SE.06.13	Describe how soil is a mixture made up of weather eroded rock and decomposed organic material.					X	X									

2. Sand Dunes

Strand	Substrand	Code	Standard	1	2	3	4	5	6	8	7	9	10	11	12	13	14	15
Earth Science	Solid Earth	E.SE.06.11	Explain how physical and chemical weathering lead to erosion and the formation of soils and sediments.	X		X		X	X									
Earth Science	Solid Earth	E.SE.06.12	Explain how waves, wind, water, and glacier movement, shape and reshape the land surface of the Earth by eroding rock in some areas and depositing sediments in other areas.	X		X		X	X									
Earth Science	Solid Earth	E.SE.06.14	Compare different soil samples based on particle size and texture.					X	X									
Science Processes	Reflection and Social Implications	S.RS.06.15	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.		X			X	X	X	X	X		X				X
Science Processes	Reflection and Social Implications	S.RS.06.17	Describe the effect humans and other organisms have on the balance of the natural world.		X										X			X
Science Processes	Reflection and Social Implications	S.RS.06.13	Identify the need for evidence in making scientific decisions.					X	X						X			
Science Processes	Reflection and Social Implications	S.RS.06.11	Evaluate the strengths and weaknesses of claims, arguments, and data.												X			
Science Processes	Reflection and Social Implications	S.RS.06.16	Design solutions to problems using technology.															X
Science Processes	Reflection and Social Implications	S.RS.06.12	Describe limitations in personal and scientific knowledge.															X
Science Processes	Reflection and Social Implications	S.RS.06.14	Evaluate scientific explanations based on current evidence and scientific principles.	X											X			
Science Processes	Inquiry Analysis and Communication	S.IA.06.12	Evaluate data, claims, and personal knowledge through collaborative science discourse.						X				X	X	X			
Science Processes	Inquiry Analysis and Communication	S.IA.06.15	Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data.				X				X				X			X
Science Processes	Inquiry Analysis and Communication	S.IA.06.11	Analyze information from data tables and graphs to answer scientific questions.						X				X		X			
Science Processes	Inquiry Analysis and Communication	S.IA.06.14	Draw conclusions from sets of data from multiple trials of a scientific investigation.						X									
Science Processes	Inquiry Analysis and Communication	S.IA.06.13	Communicate and defend findings of observations and investigations using evidence.				X	X	X	X	X	X	X		X			
Science Processes	Inquiry Process	S.IP.06.12	Design and conduct scientific investigations.					X	X									
Science Processes	Inquiry Process	S.IP.06.11	Generate scientific questions based on observations, investigations, and research.		X		X	X	X	X	X	X	X	X	X			X
Science Processes	Inquiry Process	S.IP.06.15	Construct charts and graphs from data and observations.						X				X					
Science Processes	Inquiry Process	S.IP.06.16	Identify patterns in data.						X									
Life Science	Organization of Living Things	L.OL.07.63	Describe evidence that plants make, use and store food.				X											
Physical Science	Energy	P.EN.07.31	Identify examples of waves, including sound waves, seismic waves, and waves on water.						X									

2. Sand Dunes

Strand	Substrand	Code	Standard	1	2	3	4	5	6	8	7	9	10	11	12	13	14	15
Physical Science	Energy	P.EN.07.33	Demonstrate how waves transfer energy when they interact with matter (for example: tuning fork in water, waves hitting a beach, earthquake knocking over buildings).						X									
Earth Science	Solid Earth	E.SE.07.41	Explain how human activities (surface mining, deforestation, overpopulation, construction and urban development, farming, dams, landfills, and restoring natural areas) change the surface of the Earth and affect the survival of organisms.		X									X	X			X
Earth Science	Solid Earth	E.SE.07.42	Describe the origins of pollution in the atmosphere, geosphere, and hydrosphere, (car exhaust, industrial emissions, acid rain, and natural sources), and how pollution impacts habitats, climatic change, threatens or endangers species.		X									X				X
Earth Science	Solid Earth	E.SE.07.82	Analyze the flow of water between the components of a watershed, including surface features (lakes, streams, rivers, wetlands) and groundwater.										X					
Science Processes	Reflection and Social Implications	S.RS.07.11	Evaluate the strengths and weaknesses of claims, arguments, and data.															X
Science Processes	Reflection and Social Implications	S.RS.07.13	Identify the need for evidence in making scientific decisions.						X									X
Science Processes	Reflection and Social Implications	S.RS.07.14	Evaluate scientific explanations based on current evidence and scientific principles.															X
Science Processes	Reflection and Social Implications	S.RS.07.15	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	X	X				X	X	X			X				X
Science Processes	Reflection and Social Implications	S.RS.07.16	Design solutions to problems using technology.															X
Science Processes	Reflection and Social Implications	S.RS.07.17	Describe the effect humans and other organisms have on the balance of the natural world.		X													X
Science Processes	Inquiry Analysis and Communication	S.IA.07.12	Evaluate data, claims, and personal knowledge through collaborative science discourse.						X				X	X	X			
Science Processes	Inquiry Analysis and Communication	S.IA.07.15	Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data.				X								X			X
Science Processes	Inquiry Analysis and Communication	S.IA.07.11	Analyze information from data tables and graphs to answer scientific questions.						X				X	X				
Science Processes	Inquiry Analysis and Communication	S.IA.07.14	Draw conclusions from sets of data from multiple trials of a scientific investigation to draw conclusions.						X									
Science Processes	Inquiry Analysis and Communication	S.IA.07.13	Communicate and defend findings of observations and investigations.				X		X	X	X		X	X				
Science Processes	Inquiry Process	S.IP.07.11	Generate scientific questions based on observations, investigations, and research.		X		X		X	X	X		X	X	X			X
Science Processes	Inquiry Process	S.IP.07.12	Design and conduct scientific investigations.					X										
Science Processes	Inquiry Process	S.IP.07.15	Construct charts and graphs from data and observations.					X					X					
Science Processes	Inquiry Process	S.IP.07.16	Identify patterns in data.					X										

3. Wetlands

Great Lakes in My World
www.greatlakes.org

Unit: Wetlands

Michigan: Science

Strand	Substrand	Code	Standard	Activities												
				K-4	K-2	4-8	4-8	4-8	K-8	K-3	4-8	3-6	4-8	4-8	4-8	4-8
				1	2	3	4	5	6	7	8	9	10	11	12	13
Life Science	Organization of Living Things	L.OL.00.11	Identify that living things have basic needs.	X	X					X						
Science Processes	Reflection and Social Implications	S.RS.00.11	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	X	X					X						
Science Processes	Inquiry Analysis and Communication	S.IA.00.13	Communicate and present findings of observations.							X						
Science Processes	Inquiry Analysis and Communication	S.IA.00.12	Share ideas about science through purposeful conversation.	X						X						
Science Processes	Inquiry Process	S.IP.00.11	Make purposeful observation of the natural world using the appropriate senses.							X						
Science Processes	Inquiry Process	S.IP.00.12	Generate questions based on observations.							X						
Life Science	Heredity	L.HE.01.11	Identify characteristics (for example: body coverings, beak shape, number of legs, body parts) that are passed on from parents to young. appropriate senses.							X						
Life Science	Organization of Living Things	L.OL.01.21	Describe the life cycle of animals including the following stages: egg, young, adult; egg, larva, pupa, adult.	X	X					X						
Life Science	Organization of Living Things	L.OL.01.13	Identify the needs of animals.	X	X					X						
Science Processes	Reflection and Social Implications	S.RS.01.11	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	X	X					X						
Science Processes	Inquiry Analysis and Communication	S.IA.01.12	Share ideas about science through purposeful conversation.	X						X						
Science Processes	Inquiry Analysis and Communication	S.IA.01.13	Communicate and present findings of observations.							X						
Science Processes	Inquiry Process	S.IP.01.12	Generate questions based on observations.							X						
Science Processes	Inquiry Process	S.IP.01.11	Make purposeful observation of the natural world using the appropriate senses.							X						
Life Science	Organization of Living Things	L.OL.02.14	Identify the needs of plants.	X	X					X						

3. Wetlands

Strand	Substrand	Code	Standard	1	2	3	4	5	6	7	8	9	10	11	12	13
Science Processes	Reflection and Social Implications	S.RS.02.11	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	X	X					X						
Science Processes	Inquiry Analysis and Communication	S.IA.02.12	Share ideas about science through purposeful conversation.	X						X						
Science Processes	Inquiry Analysis and Communication	S.IA.02.13	Communicate and present findings of observations.							X						
Science Processes	Inquiry Process	S.IP.02.11	Make purposeful observation of the natural world using the appropriate senses.							X						
Science Processes	Inquiry Process	S.IP.02.12	Generate questions based on observations.							X						
Life Science	Organization of Living Things	L.OL.03.32	Identify and compare structures in animals used for controlling body temperature, support, movement, food-getting, and protection (for example: fur, wings, teeth, scales).									X				
Life Science	Organization of Living Things	L.OL.03.42	Classify animals on the basis of observable physical characteristics (backbone, body coverings, limbs).									X				
Life Science	Evolution	L.EV.03.12	Relate characteristics and functions of observable body parts to the ability of animals to live in their environment (sharp teeth, claws, color, body coverings).							X	X					
Life Science	Evolution	L.EV.03.11	Relate characteristics and functions of observable parts in a variety of plants that allow them to live in their environment (leaf shape, thorns, odor, color).							X						
Science Processes	Reflection and Social Implications	S.RS.03.11	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	X						X	X					
Science Processes	Inquiry Analysis and Communication	S.IA.03.12	Share ideas about science through purposeful conversation in collaborative groups.							X	X					
Science Processes	Inquiry Analysis and Communication	S.IA.03.13	Communicate and present findings of observations and investigations.							X						
Science Processes	Inquiry Analysis and Communication	S.IA.03.14	Develop research strategies and skills for information gathering and problem solving.									X				
Science Processes	Inquiry Process	S.IP.03.11	Make purposeful observation of the natural world using the appropriate senses.							X	X					
Science Processes	Inquiry Process	S.IP.03.12	Generate questions based on observations.							X						
Life Science	Organization of Living Things	L.OL.04.15	Determine that plants require air, water, light, and a source of energy and building material for growth and repair.						X	X		X	X	X		
Life Science	Organization of Living Things	L.OL.04.16	Determine that animals require air, water, and a source of energy and building material for growth and repair.						X	X	X			X		
Life Science	Evolution	L.EV.04.21	Identify individual differences (color, leg length, size, wing size, leaf shape) in organisms of the same kind.								X					
Life Science	Evolution	L.EV.04.22	Identify how variations in physical characteristics of individual organisms give them an advantage for survival and reproduction.								X					
Science Processes	Reflection and Social Implications	S.RS.04.11	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	X		X	X	X	X		X	X	X	X	X	X
Science Processes	Reflection and Social Implications	S.RS.04.15	Use evidence when communicating scientific ideas.											X		

3. Wetlands

Strand	Substrand	Code	Standard	1	2	3	4	5	6	7	8	9	10	11	12	13
Science Processes	Reflection and Social Implications	S.RS.04.18	Describe the effect humans and other organisms have on the balance of the natural world.			X		X							X	X
Science Processes	Inquiry Analysis and Communication	S.IA.04.14	Develop research strategies and skills for information gathering and problem solving.									X	X		X	X
Science Processes	Inquiry Analysis and Communication	S.IA.04.13	Communicate and present findings of observations and investigations.						X	X		X	X	X	X	X
Science Processes	Inquiry Analysis and Communication	S.IA.04.11	Summarize information from charts and graphs to answer scientific questions.											X		
Science Processes	Inquiry Analysis and Communication	S.IA.04.12	Share ideas about science through purposeful conversation in collaborative groups.	X			X	X	X		X	X	X	X	X	X
Science Processes	Inquiry Process	S.IP.04.12	Generate questions based on observations.						X	X		X	X	X		
Science Processes	Inquiry Process	S.IP.04.16	Construct simple charts and graphs from data and observations.											X		
Science Processes	Inquiry Process	S.IP.04.13	Plan and conduct simple and fair investigations.				X	X					X	X	X	
Science Processes	Inquiry Process	S.IP.04.11	Make purposeful observation of the natural world using the appropriate senses.			X	X	X	X		X	X	X	X	X	X
Life Science	Evolution	L.EV.05.11	Explain how behavioral characteristics (adaptation, instinct, learning, habit) of animals help them to survive in their environment.						X	X	X					
Life Science	Evolution	L.EV.05.12	Describe the physical characteristics (traits) of organisms that help them survive in their environment.						X	X	X	X			X	
Life Science	Evolution	L.EV.05.21	Relate degree of similarity in anatomical features to the classification of contemporary organisms.									X				
Life Science	Heredity	L.HE.05.11	Explain that the traits of an individual are influenced by both the environment and the genetics of the individual.									X	X			
Life Science	Heredity	L.HE.05.12	Distinguish between inherited and acquired traits.									X	X			
Science Processes	Reflection and Social Implications	S.RS.05.15	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.			X	X	X	X		X	X	X	X	X	X
Science Processes	Reflection and Social Implications	S.RS.05.17	Describe the effect humans and other organisms have on the balance in the natural world.			X		X							X	X
Science Processes	Reflection and Social Implications	S.RS.05.13	Identify the need for evidence in making scientific decisions.												X	
Science Processes	Inquiry Analysis and Communication	S.IA.05.13	Communicate and defend findings of observations and investigations using evidence.												X	X
Science Processes	Inquiry Analysis and Communication	S.IA.05.11	Analyze information from data tables and graphs to answer scientific questions.												X	
Science Processes	Inquiry Analysis and Communication	S.IA.05.14	Draw conclusions from sets of data from multiple trials of a scientific investigation.												X	X
Science Processes	Inquiry Analysis and Communication	S.IA.05.15	Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data.									X	X			X
Science Processes	Inquiry Analysis and Communication	S.IA.05.12	Evaluate data, claims, and personal knowledge through collaborative science discourse.												X	X
Science Processes	Inquiry Process	S.IP.05.16	Identify patterns in data.												X	
Science Processes	Inquiry Process	S.IP.05.12	Design and conduct scientific investigations.				X	X					X	X	X	

3. Wetlands

Strand	Substrand	Code	Standard	1	2	3	4	5	6	7	8	9	10	11	12	13
Science Processes	Inquiry Process	S.IP.05.11	Generate scientific questions based on observations, investigations, and research.			X			X		X	X	X	X	X	X
Science Processes	Inquiry Process	S.IP.05.15	Construct charts and graphs from data and observations.											X		
Life Science	Organization of Living Things	L.OL.06.51	Classify producers, consumers, and decomposers based on their source of food (the source of energy and building materials).												X	
Life Science	Organization of Living Things	L.OL.06.52	Distinguish between the ways in which consumers and decomposers obtain energy.												X	
Life Science	Ecosystems	L.EC.06.11	Identify and describe examples of populations, communities, and ecosystems including the Great Lakes region.			X		X	X		X	X	X		X	X
Life Science	Ecosystems	L.EC.06.32	Identify the factors in an ecosystem that influence changes in population size.												X	
Life Science	Ecosystems	L.EC.06.42	Predict possible consequences of overpopulation of organisms, including humans, (for example: species extinction, resource depletion, climate change, pollution).			X		X								X
Life Science	Ecosystems	L.EC.06.41	Describe how human beings are part of the ecosystem of the Earth and that human activity can purposefully, or accidentally, alter the balance in ecosystems.			X		X							X	X
Life Science	Ecosystems	L.EC.06.31	Identify the living (biotic) and nonliving (abiotic) components of an ecosystem.					X	X		X				X	
Earth Science	Solid Earth	E.SE.06.13	Describe how soil is a mixture made up of weather eroded rock and decomposed organic material.											X		
Earth Science	Solid Earth	E.SE.06.11	Explain how physical and chemical weathering lead to erosion and the formation of soils and sediments.				X	X	X					X		
Earth Science	Solid Earth	E.SE.06.12	Explain how waves, wind, water, and glacier movement, shape and reshape the land surface of the Earth by eroding rock in some areas and depositing sediments in other areas.				X							X		
Earth Science	Solid Earth	E.SE.06.14	Compare different soil samples based on particle size and texture.				X		X					X	X	
Science Processes	Reflection and Social Implications	S.RS.06.15	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.			X	X	X	X		X	X	X	X	X	X
Science Processes	Reflection and Social Implications	S.RS.06.17	Describe the effect humans and other organisms have on the balance of the natural world.			X		X							X	X
Science Processes	Reflection and Social Implications	S.RS.06.13	Identify the need for evidence in making scientific decisions.											X		
Science Processes	Inquiry Analysis and Communication	S.IA.06.12	Evaluate data, claims, and personal knowledge through collaborative science discourse.											X	X	
Science Processes	Inquiry Analysis and Communication	S.IA.06.15	Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data.								X	X				X
Science Processes	Inquiry Analysis and Communication	S.IA.06.11	Analyze information from data tables and graphs to answer scientific questions.											X		
Science Processes	Inquiry Analysis and Communication	S.IA.06.14	Draw conclusions from sets of data from multiple trials of a scientific investigation.											X	X	
Science Processes	Inquiry Analysis and Communication	S.IA.06.13	Communicate and defend findings of observations and investigations using evidence.											X	X	X

3. Wetlands

Strand	Substrand	Code	Standard	1	2	3	4	5	6	7	8	9	10	11	12	13
Science Processes	Inquiry Process	S.IP.06.12	Design and conduct scientific investigations.				X	X					X	X	X	
Science Processes	Inquiry Process	S.IP.06.11	Generate scientific questions based on observations, investigations, and research.						X		X	X	X	X	X	X
Science Processes	Inquiry Process	S.IP.06.15	Construct charts and graphs from data and observations.											X		
Science Processes	Inquiry Process	S.IP.06.16	Identify patterns in data.											X		
Life Science	Organization of Living Things	L.OL.07.61	Recognize the need for light to provide energy for the production of carbohydrates, proteins and fats.												X	
Life Science	Organization of Living Things	L.OL.07.63	Describe evidence that plants make, use and store food.						X				X		X	
Earth Science	Solid Earth	E.SE.07.41	Explain how human activities (surface mining, deforestation, overpopulation, construction and urban development, farming, dams, landfills, and restoring natural areas) change the surface of the Earth and affect the survival of organisms.			X		X							X	X
Earth Science	Solid Earth	E.SE.07.42	Describe the origins of pollution in the atmosphere, geosphere, and hydrosphere, (car exhaust, industrial emissions, acid rain, and natural sources), and how pollution impacts habitats, climatic change, threatens or endangers species.			X		X							X	X
Earth Science	Solid Earth	E.SE.07.81	Explain the water cycle and describe how evaporation, transpiration, condensation, cloud formation, precipitation, infiltration, surface runoff, ground water, and absorption occur within the cycle.				X	X							X	
Earth Science	Solid Earth	E.SE.07.82	Analyze the flow of water between the components of a watershed, including surface features (lakes, streams, rivers, wetlands) and groundwater.				X	X	X						X	
Science Processes	Reflection and Social Implications	S.RS.07.13	Identify the need for evidence in making scientific decisions.											X		
Science Processes	Reflection and Social Implications	S.RS.07.15	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.			X	X	X	X		X		X	X	X	X
Science Processes	Reflection and Social Implications	S.RS.07.17	Describe the effect humans and other organisms have on the balance of the natural world.			X		X							X	X
Science Processes	Inquiry Analysis and Communication	S.IA.07.12	Evaluate data, claims, and personal knowledge through collaborative science discourse.											X	X	
Science Processes	Inquiry Analysis and Communication	S.IA.07.15	Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data.										X			X
Science Processes	Inquiry Analysis and Communication	S.IA.07.11	Analyze information from data tables and graphs to answer scientific questions.											X		
Science Processes	Inquiry Analysis and Communication	S.IA.07.14	Draw conclusions from sets of data from multiple trials of a scientific investigation to draw conclusions.											X	X	
Science Processes	Inquiry Analysis and Communication	S.IA.07.13	Communicate and defend findings of observations and investigations.											X	X	X
Science Processes	Inquiry Process	S.IP.07.11	Generate scientific questions based on observations, investigations, and research.						X		X		X	X	X	X
Science Processes	Inquiry Process	S.IP.07.12	Design and conduct scientific investigations.				X	X				X		X	X	

3. Wetlands

Strand	Substrand	Code	Standard	1	2	3	4	5	6	7	8	9	10	11	12	13
Science Processes	Inquiry Process	S.IP.07.15	Construct charts and graphs from data and observations.												X	
Science Processes	Inquiry Process	S.IP.07.16	Identify patterns in data.												X	

4. Human Communities

Strand	Substrand	Code	Standard	Activities												
				4-8	3-6	K-4	K-4	4-8	3-6	4-8	4-8	4-8	4-8	K-3	4-8	
				1	2	3	4	5	6	7	8	9	10	11	12	
Life Science	Organization of Living Things	L.OL.00.11	Identify that living things have basic needs.			X	X									
Life Science	Organization of Living Things	L.OL.00.12	Identify and compare living and nonliving things			X										
Earth Science	Solid Earth	E.SE.00.11	Identify Earth materials that occur in nature (sand, rocks, soil, water).			X										
Science Processes	Reflection and Social Implications	S.RS.00.11	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.			X	X								X	
Science Processes	Inquiry Analysis and Communication	S.IA.00.13	Communicate and present findings of observations.				X									
Science Processes	Inquiry Analysis and Communication	S.IA.00.12	Share ideas about science through purposeful conversation.				X									
Science Processes	Inquiry Process	S.IP.00.11	Make purposeful observation of the natural world using the appropriate senses.			X	X									
Science Processes	Inquiry Process	S.IP.00.12	Generate questions based on observations.				X									
Life Science	Organization of Living Things	L.OL.01.13	Identify the needs of animals.			X	X									
Earth Science	Earth Systems	E.ES.01.11	Identify the sun as the most important source of heat which warms the land, air, and water of the Earth.				X									
Science Processes	Reflection and Social Implications	S.RS.01.11	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.			X	X								X	
Science Processes	Inquiry Analysis and Communication	S.IA.01.12	Share ideas about science through purposeful conversation.				X									
Science Processes	Inquiry Analysis and Communication	S.IA.01.13	Communicate and present findings of observations.				X									
Science Processes	Inquiry Process	S.IP.01.12	Generate questions based on observations.				X									
Science Processes	Inquiry Process	S.IP.01.11	Make purposeful observation of the natural world using the appropriate senses.			X	X									

4. Human Communities

Strand	Substrand	Code	Standard	1	2	3	4	5	6	7	8	9	10	11	12
Life Science	Organization of Living Things	L.OL.02.14	Identify the needs of plants.			X	X								
Earth Science	Fluid Earth	E.FE.02.11	Identify water sources (wells, springs, lakes, rivers, oceans).				X								
Earth Science	Fluid Earth	E.FE.02.12	Identify household uses of water (drinking, cleaning, food preparation).				X								
Science Processes	Reflection and Social Implications	S.RS.02.11	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.			X	X							X	
Science Processes	Inquiry Analysis and Communication	S.IA.02.12	Share ideas about science through purposeful conversation.				X								
Science Processes	Inquiry Analysis and Communication	S.IA.02.13	Communicate and present findings of observations.				X								
Science Processes	Inquiry Process	S.IP.02.11	Make purposeful observation of the natural world using the appropriate senses.			X	X								
Science Processes	Inquiry Process	S.IP.02.12	Generate questions based on observations.				X								
Earth Science	Earth Systems	E.ES.03.41	Identify natural resources (metals, fuels, fresh water, fertile soil, and forests).				X			X					
Earth Science	Earth Systems	E.ES.03.42	Classify renewable (fresh water, fertile soil, forests) and non-renewable (fuels, metals) resources.							X					
Earth Science	Earth Systems	E.ES.03.43	Describe ways humans are protecting, extending, and restoring resources (recycle, reuse, reduce, renewal).						X	X					
Earth Science	Earth Systems	E.ES.03.44	Recognize that paper, metal, glass, and some plastics can be recycled.						X	X					
Earth Science	Earth Systems	E.ES.03.51	Describe ways humans are dependent on the natural environment (forests, water, clean air, Earth materials) and constructed environments (homes, neighborhoods, shopping malls, factories, and industry).						X	X					
Earth Science	Earth Systems	E.ES.03.52	Describe helpful or harmful effects of humans on the environment (garbage, habitat destruction, land management, renewable, and non-renewable resources).						X	X					
Science Processes	Reflection and Social Implications	S.RS.03.11	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.			X	X			X				X	
Science Processes	Reflection and Social Implications	S.RS.03.18	Describe the effect humans and other organisms have on the balance of the natural world.			X	X		X	X				X	
Science Processes	Inquiry Analysis and Communication	S.IA.03.13	Communicate and present findings of observations and investigations.							X					
Science Processes	Inquiry Analysis and Communication	S.IA.03.15	Compare and contrast sets of data from multiple trials of a science investigation to explain reasons for differences.							X					
Science Processes	Inquiry Process	S.IP.03.16	Construct simple charts and graphs from data and observations.							X					
Science Processes	Inquiry Process	S.IP.03.11	Make purposeful observation of the natural world using the appropriate senses.		X	X	X								
Science Processes	Inquiry Process	S.IP.03.12	Generate questions based on observations.				X								
Life Science	Organization of Living Things	L.OL.04.15	Determine that plants require air, water, light, and a source of energy and building material for growth and repair.			X	X								

4. Human Communities

Strand	Substrand	Code	Standard	1	2	3	4	5	6	7	8	9	10	11	12
Life Science	Organization of Living Things	L.OL.04.16	Determine that animals require air, water, and a source of energy and building material for growth and repair.			X	X								
Science Processes	Reflection and Social Implications	S.RS.04.11	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	X		X	X			X		X	X	X	
Science Processes	Reflection and Social Implications	S.RS.04.14	Use data/samples as evidence to separate fact from opinion.											X	
Science Processes	Reflection and Social Implications	S.RS.04.18	Describe the effect humans and other organisms have on the balance of the natural world.	X		X	X		X	X	X	X	X	X	
Science Processes	Inquiry Analysis and Communication	S.IA.04.13	Communicate and present findings of observations and investigations.				X			X		X	X		
Science Processes	Inquiry Analysis and Communication	S.IA.04.11	Summarize information from charts and graphs to answer scientific questions.									X	X		
Science Processes	Inquiry Analysis and Communication	S.IA.04.12	Share ideas about science through purposeful conversation in collaborative groups.				X					X	X		
Science Processes	Inquiry Analysis and Communication	S.IA.04.15	Compare and contrast sets of data from multiple trials of a science investigation to explain reasons for differences.							X		X	X		
Science Processes	Inquiry Process	S.IP.04.12	Generate questions based on observations.				X								
Science Processes	Inquiry Process	S.IP.04.14	Manipulate simple tools that aid observation and data collection (for example: hand lens, balance, ruler, meter stick, measuring cup, thermometer, spring scale, stop watch/timer, graduated cylinder/beaker).							X					
Science Processes	Inquiry Process	S.IP.04.16	Construct simple charts and graphs from data and observations.									X	X		
Science Processes	Inquiry Process	S.IP.04.11	Make purposeful observation of the natural world using the appropriate senses.	X	X	X	X								
Science Processes	Reflection and Social Implications	S.RS.05.11	Evaluate the strengths and weaknesses of claims, arguments, and data.									X	X		
Science Processes	Reflection and Social Implications	S.RS.05.15	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	X						X		X	X		X
Science Processes	Reflection and Social Implications	S.RS.05.17	Describe the effect humans and other organisms have on the balance in the natural world.	X					X	X	X	X	X		X
Science Processes	Reflection and Social Implications	S.RS.05.13	Identify the need for evidence in making scientific decisions.												
Science Processes	Inquiry Analysis and Communication	S.IA.05.13	Communicate and defend findings of observations and investigations using evidence.							X		X	X		
Science Processes	Inquiry Analysis and Communication	S.IA.05.11	Analyze information from data tables and graphs to answer scientific questions.									X	X		
Science Processes	Inquiry Analysis and Communication	S.IA.05.14	Draw conclusions from sets of data from multiple trials of a scientific investigation.							X		X	X		
Science Processes	Inquiry Analysis and Communication	S.IA.05.15	Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data.							X		X	X		
Science Processes	Inquiry Analysis and Communication	S.IA.05.12	Evaluate data, claims, and personal knowledge through collaborative science discourse.									X	X		
Science Processes	Inquiry Process	S.IP.05.16	Identify patterns in data.							X		X	X		

4. Human Communities

Strand	Substrand	Code	Standard	1	2	3	4	5	6	7	8	9	10	11	12
Science Processes	Inquiry Process	S.IP.05.15	Construct charts and graphs from data and observations.							X		X	X		
Life Science	Ecosystems	L.EC.06.32	Identify the factors in an ecosystem that influence changes in population size.								X				
Life Science	Ecosystems	L.EC.06.42	Predict possible consequences of overpopulation of organisms, including humans, (for example: species extinction, resource depletion, climate change, pollution).						X	X		X			X
Life Science	Ecosystems	L.EC.06.41	Describe how human beings are part of the ecosystem of the Earth and that human activity can purposefully, or accidentally, alter the balance in ecosystems.						X	X		X			X
Science Processes	Reflection and Social Implications	S.RS.06.15	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	X						X		X	X		X
Science Processes	Reflection and Social Implications	S.RS.06.17	Describe the effect humans and other organisms have on the balance of the natural world.	X					X	X	X	X	X		X
Science Processes	Reflection and Social Implications	S.RS.06.14	Evaluate scientific explanations based on current evidence and scientific principles.									X			
Science Processes	Inquiry Analysis and Communication	S.IA.06.12	Evaluate data, claims, and personal knowledge through collaborative science discourse.									X	X		
Science Processes	Inquiry Analysis and Communication	S.IA.06.15	Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data.							X		X	X		
Science Processes	Inquiry Analysis and Communication	S.IA.06.11	Analyze information from data tables and graphs to answer scientific questions.									X	X		
Science Processes	Inquiry Analysis and Communication	S.IA.06.14	Draw conclusions from sets of data from multiple trials of a scientific investigation.							X		X	X		
Science Processes	Inquiry Analysis and Communication	S.IA.06.13	Communicate and defend findings of observations and investigations using evidence.							X		X	X		
Science Processes	Inquiry Process	S.IP.06.15	Construct charts and graphs from data and observations.							X		X	X		
Science Processes	Inquiry Process	S.IP.06.16	Identify patterns in data.							X		X	X		
Earth Science	Solid Earth	E.SE.07.41	Explain how human activities (surface mining, deforestation, overpopulation, construction and urban development, farming, dams, landfills, and restoring natural areas) change the surface of the Earth and affect the survival of organisms.							X	X	X			X
Earth Science	Solid Earth	E.SE.07.42	Describe the origins of pollution in the atmosphere, geosphere, and hydrosphere, (car exhaust, industrial emissions, acid rain, and natural sources), and how pollution impacts habitats, climatic change, threatens or endangers species.							X	X	X			X
Science Processes	Reflection and Social Implications	S.RS.07.11	Evaluate the strengths and weaknesses of claims, arguments, and data.									X	X		
Science Processes	Reflection and Social Implications	S.RS.07.14	Evaluate scientific explanations based on current evidence and scientific principles.									X			
Science Processes	Reflection and Social Implications	S.RS.07.15	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	X						X		X	X		X
Science Processes	Reflection and Social Implications	S.RS.07.17	Describe the effect humans and other organisms have on the balance of the natural world.	X						X	X	X	X		X

4. Human Communities

Strand	Substrand	Code	Standard	1	2	3	4	5	6	7	8	9	10	11	12
Science Processes	Inquiry Analysis and Communication	S.IA.07.12	Evaluate data, claims, and personal knowledge through collaborative science discourse.									X	X		
Science Processes	Inquiry Analysis and Communication	S.IA.07.15	Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data.							X		X	X		
Science Processes	Inquiry Analysis and Communication	S.IA.07.11	Analyze information from data tables and graphs to answer scientific questions.									X	X		
Science Processes	Inquiry Analysis and Communication	S.IA.07.14	Draw conclusions from sets of data from multiple trials of a scientific investigation to draw conclusions.							X		X	X		
Science Processes	Inquiry Analysis and Communication	S.IA.07.13	Communicate and defend findings of observations and investigations.							X		X	X		
Science Processes	Inquiry Process	S.IP.07.11	Generate scientific questions based on observations, investigations, and research.	X											
Science Processes	Inquiry Process	S.IP.07.15	Construct charts and graphs from data and observations.							X		X	X		
Science Processes	Inquiry Process	S.IP.07.16	Identify patterns in data.							X		X	X		

5. History

Unit: History

Michigan: Science

Strand	Substrand	Code	Standard	Activities												
				4-8 1	3-6 2	K-4 3	3-6 4	4-8 5	3-6 6	4-8 7	6-8 8	6-8 9	K-3 10	4-8 11		
Science Processes	Reflection and Social Implications	S.RS.00.11	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.			X										
Science Processes	Inquiry Analysis and Communication	S.IA.00.13	Communicate and present findings of observations.			X										
Science Processes	Inquiry Analysis and Communication	S.IA.00.12	Share ideas about science through purposeful conversation.			X										
Science Processes	Inquiry Process	S.IP.00.11	Make purposeful observation of the natural world using the appropriate senses.			X										
Science Processes	Inquiry Process	S.IP.00.12	Generate questions based on observations.			X										
Science Processes	Reflection and Social Implications	S.RS.01.11	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.			X										
Science Processes	Inquiry Analysis and Communication	S.IA.01.12	Share ideas about science through purposeful conversation.			X										
Science Processes	Inquiry Analysis and Communication	S.IA.01.13	Communicate and present findings of observations.			X										
Science Processes	Inquiry Process	S.IP.01.12	Generate questions based on observations.			X										
Science Processes	Inquiry Process	S.IP.01.11	Make purposeful observation of the natural world using the appropriate senses.			X										
Science Processes	Reflection and Social Implications	S.RS.02.11	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.			X										
Science Processes	Inquiry Analysis and Communication	S.IA.02.12	Share ideas about science through purposeful conversation.			X										
Science Processes	Inquiry Analysis and Communication	S.IA.02.13	Communicate and present findings of observations.			X										
Science Processes	Inquiry Process	S.IP.02.11	Make purposeful observation of the natural world using the appropriate senses.			X										
Science Processes	Inquiry Process	S.IP.02.12	Generate questions based on observations.			X										
Earth Science	Earth Systems	E.ES.03.41	Identify natural resources (metals, fuels, fresh water, fertile soil, and forests).			X	X									

5. History

Strand	Substrand	Code	Standard	1	2	3	4	5	6	7	8	9	10	11
Earth Science	Earth Systems	E.ES.03.51	Describe ways humans are dependent on the natural environment (forests, water, clean air, Earth materials) and constructed environments (homes, neighborhoods, shopping malls, factories, and industry).			X	X							
Earth Science	Earth Systems	E.ES.03.52	Describe helpful or harmful effects of humans on the environment (garbage, habitat destruction, land management, renewable, and non-renewable resources).			X								
Science Processes	Reflection and Social Implications	S.RS.03.11	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.			X								
Science Processes	Reflection and Social Implications	S.RS.03.16	Identify technology used in everyday life.						X					
Science Processes	Reflection and Social Implications	S.RS.03.17	Identify current problems that may be solved through the use of technology.						X					
Science Processes	Reflection and Social Implications	S.RS.03.18	Describe the effect humans and other organisms have on the balance of the natural world.			X	X							
Science Processes	Inquiry Analysis and Communication	S.IA.03.12	Share ideas about science through purposeful conversation in collaborative groups.			X								
Science Processes	Inquiry Analysis and Communication	S.IA.03.13	Communicate and present findings of observations and investigations.			X								
Science Processes	Inquiry Process	S.IP.03.11	Make purposeful observation of the natural world using the appropriate senses.			X								
Science Processes	Inquiry Process	S.IP.03.12	Generate questions based on observations.			X								
Life Science	Organization of Living Things	L.OL.04.15	Determine that plants require air, water, light, and a source of energy and building material for growth and repair.				X							
Life Science	Organization of Living Things	L.OL.04.16	Determine that animals require air, water, and a source of energy and building material for growth and repair.				X							
Life Science	Ecosystems	L.EC.04.21	Explain how environmental changes can produce a change in the food web.						X					
Science Processes	Reflection and Social Implications	S.RS.04.11	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.			X								
Science Processes	Reflection and Social Implications	S.RS.04.16	Identify technology used in everyday life.						X					
Science Processes	Reflection and Social Implications	S.RS.04.17	Identify current problems that may be solved through the use of technology.						X					
Science Processes	Reflection and Social Implications	S.RS.04.18	Describe the effect humans and other organisms have on the balance of the natural world.	X		X	X			X				X
Science Processes	Inquiry Analysis and Communication	S.IA.04.13	Communicate and present findings of observations and investigations.			X								
Science Processes	Inquiry Analysis and Communication	S.IA.04.12	Share ideas about science through purposeful conversation in collaborative groups.			X								
Science Processes	Inquiry Process	S.IP.04.12	Generate questions based on observations.			X								
Science Processes	Inquiry Process	S.IP.04.16	Construct simple charts and graphs from data and observations.	X				X						
Science Processes	Inquiry Process	S.IP.04.11	Make purposeful observation of the natural world using the appropriate senses.			X								
Earth Science	Earth Systems	E.ES.05.61	Demonstrate and explain seasons using a model.				X							

5. History

Strand	Substrand	Code	Standard	1	2	3	4	5	6	7	8	9	10	11
Science Processes	Reflection and Social Implications	S.RS.05.17	Describe the effect humans and other organisms have on the balance in the natural world.	X			X			X				X
Science Processes	Reflection and Social Implications	S.RS.05.19	Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.						X					
Science Processes	Inquiry Process	S.IP.05.16	Identify patterns in data.					X						
Science Processes	Inquiry Process	S.IP.05.15	Construct charts and graphs from data and observations.	X										
Life Science	Ecosystems	L.EC.06.11	Identify and describe examples of populations, communities, and ecosystems including the Great Lakes region.				X			X		X		X
Life Science	Ecosystems	L.EC.06.42	Predict possible consequences of overpopulation of organisms, including humans, (for example: species extinction, resource depletion, climate change, pollution).	X						X		X		X
Life Science	Ecosystems	L.EC.06.41	Describe how human beings are part of the ecosystem of the Earth and that human activity can purposefully, or accidentally, alter the balance in ecosystems.	X			X			X		X		X
Earth Science	Solid Earth	E.SE.06.11	Explain how physical and chemical weathering lead to erosion and the formation of soils and sediments.							X				
Science Processes	Reflection and Social Implications	S.RS.06.17	Describe the effect humans and other organisms have on the balance of the natural world.	X			X			X		X		X
Science Processes	Reflection and Social Implications	S.RS.06.19	Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.						X					
Science Processes	Inquiry Analysis and Communication	S.IA.06.12	Evaluate data, claims, and personal knowledge through collaborative science discourse.									X		
Science Processes	Inquiry Analysis and Communication	S.IA.06.15	Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data.									X		
Science Processes	Inquiry Analysis and Communication	S.IA.06.11	Analyze information from data tables and graphs to answer scientific questions.									X		
Science Processes	Inquiry Analysis and Communication	S.IA.06.13	Communicate and defend findings of observations and investigations using evidence.									X		
Science Processes	Inquiry Process	S.IP.06.15	Construct charts and graphs from data and observations.	X								X		
Science Processes	Inquiry Process	S.IP.06.16	Identify patterns in data.					X				X		
Earth Science	Solid Earth	E.SE.07.41	Explain how human activities (surface mining, deforestation, overpopulation, construction and urban development, farming, dams, landfills, and restoring natural areas) change the surface of the Earth and affect the survival of organisms.	X						X		X		X
Earth Science	Solid Earth	E.SE.07.42	Describe the origins of pollution in the atmosphere, geosphere, and hydrosphere, (car exhaust, industrial emissions, acid rain, and natural sources), and how pollution impacts habitats, climatic change, threatens or endangers species.	X						X		X		X
Science Processes	Reflection and Social Implications	S.RS.07.17	Describe the effect humans and other organisms have on the balance of the natural world.	X						X		X		X
Science Processes	Inquiry Analysis and Communication	S.IA.07.12	Evaluate data, claims, and personal knowledge through collaborative science discourse.									X		

5. History

Strand	Substrand	Code	Standard	1	2	3	4	5	6	7	8	9	10	11
Science Processes	Inquiry Analysis and Communication	S.IA.07.15	Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data.									X		
Science Processes	Inquiry Analysis and Communication	S.IA.07.11	Analyze information from data tables and graphs to answer scientific questions.									X		
Science Processes	Inquiry Analysis and Communication	S.IA.07.13	Communicate and defend findings of observations and investigations.									X		
Science Processes	Inquiry Process	S.IP.07.15	Construct charts and graphs from data and observations.	X				X				X		
Science Processes	Inquiry Process	S.IP.07.16	Identify patterns in data.									X		

6. Geology and Water Flow

Great Lakes in My World
www.greatlakes.org

Unit: Geology and Water Flow

Michigan: Science

Strand	Substrand	Code	Standard	Activities													
				4-8 1	K-8 2	4-8 3	K-3 4	4-8 5	4-8 6	3-6 7	4-8 8	6-8 9	6-8 10	K-3 11	4-8 12		
Science Processes	Reflection and Social Implications	S.RS.00.11	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.		X		X		X							X	
Science Processes	Inquiry Analysis and	S.IA.00.13	Communicate and present findings of observations.						X								
Science Processes	Inquiry Analysis and	S.IA.00.12	Share ideas about science through purposeful conversation.						X							X	
Science Processes	Inquiry Process	S.IP.00.11	Make purposeful observation of the natural world using the appropriate senses.		X		X		X							X	
Science Processes	Inquiry Process	S.IP.00.12	Generate questions based on observations.						X								
Earth Science	Earth Systems	E.ES.01.11	Identify the sun as the most important source of heat which warms the land, air, and water of the Earth.				X										
Earth Science	Earth Systems	E.ES.01.21	Compare daily changes in the weather related to temperature (cold, hot, warm, cool); cloud cover (cloudy, partly cloudy, foggy); precipitation (rain, snow, hail, freezing rain); wind (breezy, windy, calm).				X		X								
Earth Science	Earth Systems	E.ES.01.23	Describe severe weather characteristics.						X								
Physical Science	Properties of Matter	P.PM.01.22	Demonstrate that water as a liquid takes on the shape of various containers.						X								
Science Processes	Reflection and Social Implications	S.RS.01.11	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.		X		X		X							X	
Science Processes	Inquiry Analysis and	S.IA.01.12	Share ideas about science through purposeful conversation.						X							X	
Science Processes	Inquiry Analysis and	S.IA.01.13	Communicate and present findings of observations.						X								
Science Processes	Inquiry Process	S.IP.01.12	Generate questions based on observations.						X								
Science Processes	Inquiry Process	S.IP.01.11	Make purposeful observation of the natural world using the appropriate senses.		X		X		X							X	
Earth Science	Solid Earth	E.SE.02.21	Describe the major landforms of the surface of the Earth (mountains, plains, plateaus, valleys, hills).		X				X							X	
Earth Science	Fluid Earth	E.FE.02.11	Identify water sources (wells, springs, lakes, rivers, oceans).				X		X								
Earth Science	Fluid Earth	E.FE.02.12	Identify household uses of water (drinking, cleaning, food preparation).													X	
Earth Science	Fluid Earth	E.FE.02.13	Describe the properties of water as a liquid (visible, flowing, shape of container and recognize rain, dew, and fog as water in its liquid state.				X		X							X	

6. Geology and Water Flow

Strand	Substrand	Code	Standard	1	2	3	4	5	6	7	8	9	10	11	12
Earth Science	Fluid Earth	E.FE.02.14	Describe the properties of water as a solid (hard, visible, frozen, cold) and recognize ice, snow, and hail as water in its solid state.				X		X						X
Earth Science	Fluid Earth	E.FE.02.21	Describe how rain collects on the surface of the Earth and flows downhill into bodies of water (streams, rivers, lakes, oceans) or into the ground.				X		X						X
Earth Science	Fluid Earth	E.FE.02.22	Describe the major bodies of water on the Earth's surface (lakes, ponds, oceans, rivers, streams).		X		X		X						X
Science Processes	Reflection and Social Implications	S.RS.02.11	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.		X		X		X						X
Science Processes	Inquiry Analysis and	S.IA.02.12	Share ideas about science through purposeful conversation.						X						X
Science Processes	Inquiry Analysis and	S.IA.02.13	Communicate and present findings of observations.						X						
Science Processes	Inquiry Process	S.IP.02.11	Make purposeful observation of the natural world using the appropriate senses.		X		X		X						X
Science Processes	Inquiry Process	S.IP.02.12	Generate questions based on observations.						X						
Earth Science	Solid Earth	E.SE.03.13	Recognize and describe different types of Earth materials (mineral, rock, clay, boulder, gravel, sand, soil, water, and air).						X	X					
Earth Science	Solid Earth	E.SE.03.14	Recognize that rocks are made up of minerals.							X					
Earth Science	Solid Earth	E.SE.03.22	Identify and describe natural causes of change in the Earth's surface (erosion, glaciers, volcanoes, landslides, and earthquakes).		X				X	X					X
Earth Science	Earth Systems	E.ES.03.41	Identify natural resources (metals, fuels, fresh water, fertile soil, and forests).						X						
Earth Science	Earth Systems	E.ES.03.51	Describe ways humans are dependent on the natural environment (forests, water, clean air, Earth materials) and constructed environments (homes, neighborhoods, shopping malls, factories, and industry).				X								
Science Processes	Reflection and Social Implications	S.RS.03.11	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.		X		X		X	X					X
Science Processes	Reflection and Social Implications	S.RS.03.18	Describe the effect humans and other organisms have on the balance of the natural world.		X										
Science Processes	Inquiry Analysis and	S.IA.03.12	Share ideas about science through purposeful conversation in collaborative groups.						X	X					X
Science Processes	Inquiry Analysis and	S.IA.03.13	Communicate and present findings of observations and investigations.						X	X					
Science Processes	Inquiry Analysis and	S.IA.03.14	Develop research strategies and skills for information gathering and problem solving.							X					
Science Processes	Inquiry Process	S.IP.03.11	Make purposeful observation of the natural world using the appropriate senses.		X		X		X	X					X
Science Processes	Inquiry Process	S.IP.03.12	Generate questions based on observations.						X	X					
Life Science	Ecosystems	L.EC.04.11	Identify organisms as part of a food chain or food web.									X			
Life Science	Ecosystems	L.EC.04.21	Explain how environmental changes can produce a change in the food web.									X			
Science Processes	Reflection and Social Implications	S.RS.04.11	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.		X	X		X	X		X				X
Science Processes	Reflection and Social Implications	S.RS.04.18	Describe the effect humans and other organisms have on the balance of the natural world.	X	X	X					X				

6. Geology and Water Flow

Strand	Substrand	Code	Standard	1	2	3	4	5	6	7	8	9	10	11	12
Science Processes	Inquiry Analysis and	S.IA.04.14	Develop research strategies and skills for information gathering and problem solving.							X					X
Science Processes	Inquiry Analysis and	S.IA.04.13	Communicate and present findings of observations and investigations.						X	X	X				
Science Processes	Inquiry Analysis and	S.IA.04.11	Summarize information from charts and graphs to answer scientific questions.			X									
Science Processes	Inquiry Analysis and	S.IA.04.12	Share ideas about science through purposeful conversation in collaborative groups.			X			X	X	X				X
Science Processes	Inquiry Process	S.IP.04.12	Generate questions based on observations.						X	X					
Science Processes	Inquiry Process	S.IP.04.14	Manipulate simple tools that aid observation and data collection (for example: hand lens, balance, ruler, meter stick, measuring cup, thermometer, spring scale, stop watch/timer, graduated cylinder/beaker).	X		X									
Science Processes	Inquiry Process	S.IP.04.15	Make accurate measurements with appropriate units (millimeters, centimeters, meters, milliliters, liters, Celsius, grams, seconds, minutes) for the measurement tool.	X		X									
Science Processes	Inquiry Process	S.IP.04.16	Construct simple charts and graphs from data and observations.			X									
Science Processes	Inquiry Process	S.IP.04.11	Make purposeful observation of the natural world using the appropriate senses.		X	X		X	X	X	X				X
Physical Science	Force and Motion	P.FM.05.41	Explain the motion of an object relative to its point of reference.								X				
Physical Science	Force and Motion	P.FM.05.42	Describe the motion of an object in terms of distance, time and direction, as the object moves, and in relationship to other objects.								X				
Physical Science	Force and Motion	P.FM.05.43	Illustrate how motion can be measured and represented on a graph.								X				
Science Processes	Reflection and Social Implications	S.RS.05.15	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.		X	X		X	X	X	X				X
Science Processes	Reflection and Social Implications	S.RS.05.17	Describe the effect humans and other organisms have on the balance in the natural world.	X	X	X					X				
Science Processes	Inquiry Analysis and	S.IA.05.13	Communicate and defend findings of observations and investigations using evidence.						X	X	X				
Science Processes	Inquiry Analysis and	S.IA.05.11	Analyze information from data tables and graphs to answer scientific questions.			X									
Science Processes	Inquiry Analysis and	S.IA.05.15	Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data.												X
Science Processes	Inquiry Analysis and	S.IA.05.12	Evaluate data, claims, and personal knowledge through collaborative science discourse.			X					X				
Science Processes	Inquiry Process	S.IP.05.16	Identify patterns in data.			X									
Science Processes	Inquiry Process	S.IP.05.11	Generate scientific questions based on observations, investigations, and research.		X	X		X	X	X	X				X
Science Processes	Inquiry Process	S.IP.05.13	Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens) appropriate to scientific investigations.	X		X									
Science Processes	Inquiry Process	S.IP.05.14	Use metric measurement devices in an investigation.	X		X									
Science Processes	Inquiry Process	S.IP.05.15	Construct charts and graphs from data and observations.			X									

6. Geology and Water Flow

Strand	Substrand	Code	Standard	1	2	3	4	5	6	7	8	9	10	11	12
Life Science	Ecosystems	L.EC.06.11	Identify and describe examples of populations, communities, and ecosystems including the Great Lakes region.					X							
Life Science	Ecosystems	L.EC.06.42	Predict possible consequences of overpopulation of organisms, including humans, (for example: species extinction, resource depletion, climate change, pollution).	X		X					X	X	X		
Life Science	Ecosystems	L.EC.06.41	Describe how human beings are part of the ecosystem of the Earth and that human activity can purposefully, or accidentally, alter the balance in ecosystems.	X		X					X	X	X		
Earth Science	Earth in Space and Time	E.ST.06.41	Explain how Earth processes (erosion, mountain building, and glacier movement) are used for the measurement of geologic time through observing rock layers.	X					X						X
Earth Science	Earth in Space and Time	E.ST.06.42	Describe how fossils provide important evidence of how life and environmental conditions have changed.						X						
Earth Science	Solid Earth	E.SE.06.13	Describe how soil is a mixture made up of weather eroded rock and decomposed organic material.							X					
Earth Science	Solid Earth	E.SE.06.11	Explain how physical and chemical weathering lead to erosion and the formation of soils and sediments.		X				X	X					X
Earth Science	Solid Earth	E.SE.06.12	Explain how waves, wind, water, and glacier movement, shape and reshape the land surface of the Earth by eroding rock in some areas and depositing sediments in other areas.	X	X				X	X					X
Earth Science	Solid Earth	E.SE.06.14	Compare different soil samples based on particle size and texture.							X					
Earth Science	Solid Earth	E.SE.06.41	Explain how Earth processes (erosion, mountain building, and glacier movement) are used for the measurement of geologic time through observing rock layers.		X					X					X
Science Processes	Reflection and Social Implications	S.RS.06.15	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.			X		X	X	X	X	X	X		X
Science Processes	Reflection and Social Implications	S.RS.06.17	Describe the effect humans and other organisms have on the balance of the natural world.	X	X	X					X	X	X		
Science Processes	Reflection and Social Implications	S.RS.06.14	Evaluate scientific explanations based on current evidence and scientific principles.										X		
Science Processes	Inquiry Analysis and	S.IA.06.12	Evaluate data, claims, and personal knowledge through collaborative science discourse.			X					X		X		
Science Processes	Inquiry Analysis and	S.IA.06.15	Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data.								X	X			X
Science Processes	Inquiry Analysis and	S.IA.06.11	Analyze information from data tables and graphs to answer scientific questions.			X									
Science Processes	Inquiry Analysis and	S.IA.06.14	Draw conclusions from sets of data from multiple trials of a scientific investigation.										X		
Science Processes	Inquiry Analysis and	S.IA.06.13	Communicate and defend findings of observations and investigations using evidence.						X	X			X		
Science Processes	Inquiry Process	S.IP.06.12	Design and conduct scientific investigations.										X		
Science Processes	Inquiry Process	S.IP.06.11	Generate scientific questions based on observations, investigations, and research.		X	X		X	X	X	X		X		X

6. Geology and Water Flow

Strand	Substrand	Code	Standard	1	2	3	4	5	6	7	8	9	10	11	12
Science Processes	Inquiry Process	S.IP.06.13	Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens, thermometer, models, sieves, microscopes) appropriate to scientific investigations.	X		X							X		
Science Processes	Inquiry Process	S.IP.06.14	Use metric measurement devices in an investigation.	X		X									
Science Processes	Inquiry Process	S.IP.06.15	Construct charts and graphs from data and observations.		X	X									
Science Processes	Inquiry Process	S.IP.06.16	Identify patterns in data.			X							X		
Physical Science	Energy	P.EN.07.61	Identify that nuclear reactions take place in the sun, producing heat and light.										X		
Physical Science	Energy	P.EN.07.62	Explain how only a tiny fraction of light energy from the sun is transformed to heat energy on Earth.										X		
Earth Science	Earth Systems	E.ES.07.11	Demonstrate, using a model or drawing, the relationship between the warming by the sun of the Earth and the water cycle as it applies to the atmosphere (evaporation, water vapor, warm air rising, cooling, condensation, clouds).									X	X		X
Earth Science	Solid Earth	E.SE.07.42	Describe the origins of pollution in the atmosphere, geosphere, and hydrosphere, (car exhaust, industrial emissions, acid rain, and natural sources), and how pollution impacts habitats, climatic change, threatens or endangers species.	X		X						X	X		
Earth Science	Solid Earth	E.SE.07.71	Compare and contrast the difference and relationship between climate and weather.										X		
Earth Science	Solid Earth	E.SE.07.72	Describe how different weather occurs due to the constant motion of the atmosphere from the energy of the sun reaching the surface of the Earth.										X		
Earth Science	Solid Earth	E.SE.07.73	Explain how the temperature of the oceans affects the different climates on Earth because water in the oceans holds a large amount of heat.										X		
Earth Science	Solid Earth	E.SE.07.81	Explain the water cycle and describe how evaporation, transpiration, condensation, cloud formation, precipitation, infiltration, surface runoff, ground water, and absorption occur within the cycle.			X		X			X		X		X
Earth Science	Solid Earth	E.SE.07.82	Analyze the flow of water between the components of a watershed, including surface features (lakes, streams, rivers, wetlands) and groundwater.			X		X			X				X
Science Processes	Reflection and Social Implications	S.RS.07.14	Evaluate scientific explanations based on current evidence and scientific principles.										X		
Science Processes	Reflection and Social Implications	S.RS.07.15	Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.		X	X		X	X		X	X	X		X
Science Processes	Reflection and Social Implications	S.RS.07.17	Describe the effect humans and other organisms have on the balance of the natural world.	X	X	X					X	X	X		
Science Processes	Inquiry Analysis and	S.IA.07.12	Evaluate data, claims, and personal knowledge through collaborative science discourse.			X					X		X		

6. Geology and Water Flow

Strand	Substrand	Code	Standard	1	2	3	4	5	6	7	8	9	10	11	12
Science Processes	Inquiry Analysis and	S.IA.07.15	Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data.									X			X
Science Processes	Inquiry Analysis and	S.IA.07.11	Analyze information from data tables and graphs to answer scientific questions.			X									
Science Processes	Inquiry Analysis and	S.IA.07.14	Draw conclusions from sets of data from multiple trials of a scientific investigation to draw conclusions.										X		
Science Processes	Inquiry Analysis and	S.IA.07.13	Communicate and defend findings of observations and investigations.						X		X		X		
Science Processes	Inquiry Process	S.IP.07.11	Generate scientific questions based on observations, investigations, and research.		X	X		X	X		X		X		X
Science Processes	Inquiry Process	S.IP.07.12	Design and conduct scientific investigations.										X		
Science Processes	Inquiry Process	S.IP.07.13	Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens, thermometer, models, sieves, microscopes, hot plates, pH meters) appropriate to scientific investigations.	X		X							X		
Science Processes	Inquiry Process	S.IP.07.14	Use metric measurement devices in an investigation.	X		X									
Science Processes	Inquiry Process	S.IP.07.15	Construct charts and graphs from data and observations.			X									
Science Processes	Inquiry Process	S.IP.07.16	Identify patterns in data.			X							X		