Harcourt School Publishers Science

Recommended Course of Study (Michigan Edition)

		Getting Ready for Science		
Lesson Description	Vocabulary	Michigan Grade Level Content Expectations (Kindergarten)	Lesson Recommendations	Recommended Resources
Getting Ready for Science Opener (x-1)	Science	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.RS.05.12 Describe limitations in personal and scientific knowledge. S.RS.05.16 Design solutions to problems using technology.	Recommended Lesson	
Lesson 1: What Tools Do Scientists Use? (2-13)	Microscope Balance	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IP.05.12 Design and conduct scientific investigations. (Independent Inquiry option) S.IP.05.13 Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens) appropriate to scientific investigations. S.IP.05.14 Use metric measurement devices in an investigation. S.IP.05.15 Construct charts and graphs from data and observations. S.IP.05.16 Identify patterns in data. S.IA.05.11 Analyze information from data tables and graphs to answer scientific questions.	Recommended Lesson	Vocabulary Cards Transparency IS I-1 Lab Manual, p. LM 15 Transparency RS I-1

	HSP Science				
	Re	ecommended Course of Study—Gra	de 5		
		Getting Ready for Science			
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended	
Description		Expectations (Kindergarten)	Recommendations	Resources	
Lesson 1: What	 Microscope 	S.IA.05.12 Evaluate data, claims, and	Recommended	Vocabulary Cards	
Tools Do	 Balance 	personal knowledge through	Lesson		
Scientists Use?		collaborative science discourse.		Transparency IS I-1	
(2-13) cont		S.IA.05.13 Communicate and defend			
		findings of observations and		Lab Manual,	
		investigations using evidence.		p. LM 15	
		S.RS.05.15 Demonstrate scientific			
		concepts through various illustrations,		Transparency RS I-1	
		performances, models, exhibits, and			
		activities.			
		S.RS.05.19 Describe how science and			
		technology have advanced because of			
		the contributions of many people			
		throughout history and across cultures.			

Recommended Resources Vocabulary Cards Transparency IS I-2 Lab Manual, p. LM 18
Vocabulary Cards Transparency IS I-2 Lab Manual, p. LM 18
Transparency IS I-2 Lab Manual, p. LM 18
Lab Manual, p. LM 18
Lab Manual, p. LM 18
p. LM 18
p. LM 18
Transparency RS I-

	HSP Science					
	Recommended Course of Study—Grade 5					
		Getting Ready for Science				
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended		
Description		Expectations (Kindergarten)	Recommendations	Resources		
Lesson 2: What	 Investigation 	S.IA.05.13 Communicate and defend	Recommended	Vocabulary Cards		
Inquiry Skills	 Inquiry 	findings of observations and	Lesson			
Do Scientists	 Experiment 	investigations using evidence.		Transparency IS I-2		
Use?		S.IA.05.14 Draw conclusions from				
(14-23) cont		sets of data from multiple trials of a		Lab Manual,		
		scientific investigation.		p. LM 18		
		S.IA.05.15 Use multiple sources of				
		information to evaluate strengths and		Transparency RS I-2		
		weaknesses of claims, arguments, or				
		data. (Social Studies lesson, p. 23)				
		S.RS.05.15 Demonstrate scientific				
		concepts through various illustrations,				
		performances, models, exhibits, and				
		activities.				
		S.RS.05.16 Design solutions to				
		problems using technology.				

HSP Science Recommended Course of Study—Grade 5 Getting Ready for Science Vocabulary Michigan Grade Level Content Expectations (Kindergarten) Recommendations Resource S: What Scientific Method S.IP.05.11 Generate scientific Recommended Vocabulary Recommended Recommended

Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Description Lesson 3: What Is the Scientific Method? (24-35)	 Scientific Method Hypothesis Evidence 	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IP.05.12 Design and conduct scientific investigations. (Independent Inquiry option & Intervention lesson, p. 30) S.IP.05.13 Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens)	Recommendations Recommended Lesson	Resources Vocabulary Cards Transparency IS I-3 Lab Manual, p. LM 21 Transparency RS I-3
		appropriate to scientific investigations. S.IP.05.14 Use metric measurement devices in an investigation. S.IP.05.15 Construct charts and graphs from data and observations. S.IP.05.16 Identify patterns in data. S.IA.05.11 Analyze information from		
		data tables and graphs to answer scientific questions. S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative science discourse. S.IA.05.13 Communicate and defend findings of observations and investigations using evidence.		

Getting Ready for Science					
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended	
Description	-	Expectations (Kindergarten)	Recommendations	Resources	
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		Getting Ready for Science		
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Review and Test Preparation (36-37)	 Microscope Balance Investigation Inquiry Experiment Scientific Method 	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IP.05.12 Design and conduct scientific investigations. S.IP.05.13 Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens) appropriate to scientific investigations. S.IP.05.14 Use metric measurement devices in an investigation. S.IP.05.15 Construct charts and graphs from data and observations. S.IP.05.16 Identify patterns in data. S.IA.05.11 Analyze information from data tables and graphs to answer scientific questions. S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative science discourse. S.IA.05.13 Communicate and defend findings of observations and investigations using evidence. S.IA.05.14 Draw conclusions from sets of data from multiple trials of a scientific investigation. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. S.RS.05.11 Evaluate the strengths and weaknesses of claims, arguments, and data. S.RS.05.12 Describe limitations in personal and scientific knowledge. S.RS.05.13 Identify the need for evidence in making scientific decisions.	Recommended Lesson	Assessment Guide, p. AG xxv-xxviii Online Assessment www.hspscience.com

Harcourt School Publishers
Science
Recommended Course of Study
Unit A: Processes of Living Things
(Michigan Edition)

	Recommended Course of Study—Grade 5					
		Life Science: Science on Location				
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended		
Description		Expectations (Kindergarten)	Recommendations	Resources		
Hawaiian Islands Humpback Whale National Marine Sanctuary (40-41)	 Humpback Whales Marine Sanctuary 	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative science discourse. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. S.RS.05.11 Evaluate the strengths and weaknesses of claims, arguments, and data. S.RS.05.17 Describe the effect humans and other organisms have on the balance in the natural world.	Recommended Lesson			
The Hidden Zoo (42-43)	 National Zoo Conservation Endangered Species 	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative science discourse. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. S.RS.05.17 Describe the effect humans and other organisms have on the balance in the natural world. S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.	Recommended Lesson			

	Recommended Course of Study—Grade 5				
		Life Science: Science on Location			
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended	
Description		Expectations (Kindergarten)	Recommendations	Resources	
Leaping Lemurs	• Lemur	S.IP.05.11 Generate scientific	Recommended		
(44-45)	 Endangered Species 	questions based on observations,	Lesson		
		investigations, and research.			
		S.IA.05.12 Evaluate data, claims, and			
		personal knowledge through			
		collaborative science discourse.			
		S.IA.05.15 Use multiple sources of			
		information to evaluate strengths and			
		weaknesses of claims, arguments, or			
		data.			
		S.RS.05.17 Describe the effect			
		humans and other organisms have on			
~ _		the balance in the natural world.			
Survey of	• Plants	S.IP.05.11 Generate scientific	Recommended		
Plants and	 Animals 	questions based on observations,	Lesson		
Animals		investigations, and research.			
(46)		S.IP.05.12 Design and conduct			
		scientific investigations.			
		S.IP.05.15 Construct charts and			
		graphs from data and observations.			
		S.IP.05.16 Identify patterns in data.			
		S.IA.05.11 Analyze information from			
		data tables and graphs to answer			
		scientific questions. S.IA.05.13 Communicate and defend			
		findings of observations and investigations using evidence.			
		S.RS.05.15 Demonstrate scientific			
		concepts through various illustrations,			
		performances, models, exhibits, and			
		activities.			
	<u> </u>	activities.			

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Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Unit Inquiry	 Phototropism 	S.IP.05.11 Generate scientific	Recommended	Lab Manual,
Lesson		questions based on observations,	Lesson	p. LM 22 – LM 25
(47A-47B)		investigations, and research.		
		S.IP.05.12 Design and conduct		Transparencies
		scientific investigations. (Independent		EX 1 – EX 4
		Inquiry option)		
		S.IP.05.13 Use tools and equipment		
		(spring scales, stop watches, meter		
		sticks and tapes, models, hand lens)		
		appropriate to scientific investigations.		
		S.IP.05.15 Construct charts and		
		graphs from data and observations.		
		S.IP.05.16 Identify patterns in data.		
		S.IA.05.11 Analyze information from		
		data tables and graphs to answer		
		scientific questions.		
		S.IA.05.12 Evaluate data, claims, and		
		personal knowledge through		
		collaborative science discourse.		
		S.IA.05.13 Communicate and defend		
		findings of observations and		
		investigations using evidence.		
		S.RS.05.11 Evaluate the strengths and		
		weaknesses of claims, arguments, and		
		data.		

	HSP Science Recommended Course of Study—Grade 5					
Lesson Description	Vocabulary	Unit A: Processes of Living Things Michigan Grade Level Content Expectations (Kindergarten)	Lesson Recommendations	Recommended Resources		
Unit Inquiry Lesson (47A-47B) cont	• Phototropism	S.RS.05.12 Describe limitations in personal and scientific knowledge. S.RS.05.13 Identify the need for evidence in making scientific decisions. S.RS.05.15 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities. L.HE.05.11 Explain that the traits of an individual are influenced by both the environment and the genetics of the individual. L.EV.05.12 Describe the physical characteristics (traits) of organisms that help them survive in their environment.	Recommended Lesson	Lab Manual, p. LM 22 – LM 25 Transparencies EX 1 – EX 4		

Recommended Course of Study—Grade 5 Unit A: Processes of Living Things

Lesson	Vocabulary	Michigan Grade Level Content Expectations	Lesson	Recommended
Description		(Kindergarten)	Recommendations	Resources
Below Level Leveled Reader: Cells to Body Systems (48C)	CellsTissueOrganSystem	L.OL.05.41 Identify the general purpose of selected animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive). L.OL.05.42 Explain how animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive) work together to perform selected activities.	Recommended Lesson	Below Level Leveled Reader: Cells to Body Systems
On Level Leveled Reader: Amazing Cells, Amazing Bodies (48C)	CellsTissueOrganSystem	L.OL.05.41 Identify the general purpose of selected animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive). L.OL.05.42 Explain how animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive) work together to perform selected activities.	Recommended Lesson	On Level Leveled Reader: Amazing Cells, Amazing Bodies
Challenge Level Leveled Reader: The Human Body (48C)	CellsTissueOrganSystem	L.OL.05.41 Identify the general purpose of selected animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive). L.OL.05.42 Explain how animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive) work together to perform selected activities.	Recommended Lesson	Challenge Level Leveled Reader: <i>The</i> <i>Human Body</i>

HSP Science Recommended Course of Study—Grade 5 Unit A: Processes of Living Things

Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Chapter 1 Opener (48-49)	Cells Body Systems	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.RS.05.11 Evaluate the strengths and weaknesses of claims, arguments, and data. S.RS.05.12 Describe limitations in personal and scientific knowledge. L.OL.05.41 Identify the general purpose of selected animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive). L.OL.05.42 Explain how animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive) work together to perform selected activities.	Recommended Lesson	Vocabulary Power, p. RS 4

Recommended Course of Study—Grade 5 Unit A: Processes of Living Things

Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Lesson 1: What Are Cells? (50-59)	 Cell Microscopic Cell Membrane Nucleus Cytoplasm Protist 	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IP.05.12 Design and conduct scientific investigations. (Independent Inquiry option) S.IP.05.13 Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens) appropriate to scientific investigations. S.IP.05.15 Construct charts and graphs from data and observations. S.IP.05.16 Identify patterns in data. S.IA.05.11 Analyze information from data tables and graphs to answer scientific questions. S.IA.05.13 Communicate and defend findings of observations and investigations using evidence. S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures L.OL.05.41 Identify the general purpose of selected animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive). L.OL.05.42 Explain how animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive) work together to perform selected activities.	Recommended Lesson	Vocabulary Cards Transparency IS 1-1 Lab Manual, p. LM 28 Transparency RS 1-1 Reading Support and Homework, p. RS 5 – RS 6

Recommended Course of Study—Grade 5

Unit A: Processes of Living Things Chapter 1: Cells to Body System

Lesson	Vocabulary	Michigan Grade Level Content Expectations	Lesson	Recommended
Description Lesson 2: How Do Cells Work Together? (60-69)	 Tissue Organ Organ System Digestive System 	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IP.05.12 Design and conduct scientific investigations. (Independent Inquiry option) S.IP.05.13 Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens) appropriate to scientific investigations. S.IP.05.15 Construct charts and graphs from data and observations. S.IP.05.16 Identify patterns in data. S.IA.05.11 Analyze information from data tables and graphs to answer scientific questions. S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative science discourse. S.IA.05.13 Communicate and defend findings of observations and investigations using evidence. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. (Health option, p. 69) S.RS.05.15 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities. L.OL.05.41 Identify the general purpose of selected animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive). L.OL.05.42 Explain how animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive) work together to perform selected activities.	Recommended Lesson	Resources Vocabulary Cards Transparency IS 1-2 Lab Manual, p. LM 31 Transparency RS 1-2 Reading Support and Homework, p. RS 7 – RS8

Recommended Course of Study—Grade 5 Unit A: Processes of Living Things

Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Lesson 3: How Do Body Systems Work Together? (70-83)	 Circulatory System Respiratory System Skeletal System Muscular System Nervous System Excretory System 	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IP.05.12 Design and conduct scientific investigations. (Independent Inquiry option) S.IP.05.13 Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens) appropriate to scientific investigations. S.IP.05.15 Construct charts and graphs from data and observations. S.IP.05.16 Identify patterns in data. S.IA.05.11 Analyze information from data tables and graphs to answer scientific questions. S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative science discourse. S.IA.05.13 Communicate and defend findings of observations and investigations using evidence. S.IA.05.14 Draw conclusions from sets of data from multiple trials of a scientific investigation. S.RS.05.15 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities. L.OL.05.41 Identify the general purpose of selected animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive). L.OL.05.42 Explain how animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive) work together to perform selected activities.	Recommended Lesson	Vocabulary Cards Transparency IS 1-3 Lab Manual, p. LM 34 Transparency RS 1-3 Reading Support and Homework, p. RS 9 – RS10

HSP Science Recommended Course of Study—Grade 5 Unit A: Processes of Living Things Chapter 1: Cells to Body System

Chapter 1: Cells to Body System					
Lesson Description	Vocabulary	Michigan Grade Level Content Expectations (Kindergarten)	Lesson Recommendations	Recommended Resources	
Science Spin from Weekly Reader: Saving Stephanie (84-85)	• Transplant	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures. L.OL.05.41 Identify the general purpose of selected animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive). L.OL.05.42 Explain how animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive) work together to perform selected activities.	Recommended Lesson	www.hspscience.com	
Chapter 1 Review and Test Preparation (86-87)	 Cell Nucleus Tissue Organ Organ System Digestive System Respiratory System Skeletal System Muscular System Nervous System 	L.OL.05.41 Identify the general purpose of selected animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive). L.OL.05.42 Explain how animal systems (digestive, circulatory, respiratory, skeletal, muscular, nervous, excretory, and reproductive) work together to perform selected activities.	Recommended Lesson	Assessment Guide, p. AG 1-5 Online Assessment: www.hspscience.com	

HSP Science Recommended Course of Study—Grade 5 Unit A: Processes of Living Things

Chapter 2: Classifying Living Things

Lesson Description	Vocabulary	Michigan Grade Level Content Expectations (Kindergarten)	Lesson Recommendations	Recommended Resources
Below Level Leveled Reader: Classifying Living Things (88C)	Classification	L.EV.05.21 Relate degree of similarity in anatomical features to the classification of contemporary organisms.	Recommended Lesson	
On Level Leveled Reader: Classification	Classification	L.EV.05.21 Relate degree of similarity in anatomical features to the classification of contemporary organisms.	Recommended Lesson	
Challenge Leveled Reader: Discovery at Blue Moon Bay	Classification	L.EV.05.21 Relate degree of similarity in anatomical features to the classification of contemporary organisms.	Recommended Lesson	

Recommended Course of Study—Grade 5
Unit A: Processes of Living Things
Chapter 2: Classifying Living Things

Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Chapter 2 Opener (88-89)	Classifying	 S.IP.05.11 Generate scientific questions based on observations, investigations, and research. L.EV.05.21 Relate degree of similarity in anatomical features to the classification of contemporary organisms. 	Recommended Lesson	Vocabulary Power, p. RS 11
Lesson 1: How Are Living Things Grouped? (90-99)	 Classification Kingdom Species 	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IP.05.12 Design and conduct scientific investigations. (Independent Inquiry option) S.IP.05.15 Construct charts and graphs from data and observations. S.IP.05.16 Identify patterns in data. S.IA.05.11 Analyze information from data tables and graphs to answer scientific questions. S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative science discourse. S.IA.05.13 Communicate and defend findings of observations and investigations using evidence. S.RS.05.15 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities. L.EV.05.21 Relate degree of similarity in anatomical features to the classification of contemporary organisms.	Recommended Lesson	Vocabulary Cards Transparency IS 2-1 Lab Manual, p. LM 37 Transparency RS 2-1 Reading Support and Homework, p. RS 12 – RS13

HSP Science Recommended Course of Study—Grade 5 Unit A: Processes of Living Things Chapter 2: Classifying Living Things

Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Lesson 2: What	 Vertebrate 	S.IP.05.11 Generate scientific	Recommended	Vocabulary Cards
Are Vertebrates	 Invertebrate 	questions based on observations,	Lesson	
and		investigations, and research.		Transparency IS 2-2
Invertebrates		S.IP.05.12 Design and conduct		
(100-109)		scientific investigations. (Independent		Lab Manual,
		Inquiry option)		p. LM 40
		S.IP.05.15 Construct charts and		
		graphs from data and observations.		Transparency RS 2-2
		S.IP.05.16 Identify patterns in data.		
		S.IA.05.11 Analyze information from		Reading Support and
		data tables and graphs to answer		Homework,
		scientific questions.		p. RS 14– RS15
		S.IA.05.12 Evaluate data, claims, and		
		personal knowledge through		
		collaborative science discourse.		
		S.IA.05.13 Communicate and defend		
		findings of observations and		
		investigations using evidence.		
		S.RS.05.15 Demonstrate scientific		
		concepts through various illustrations,		
		performances, models, exhibits, and		
		activities.		
		L.EV.05.21 Relate degree of		
		similarity in anatomical features to the		
		classification of contemporary		
		organisms.		

HSP Science Recommended Course of Study—Grade 5 Unit A: Processes of Living Things Chapter 2: Classifying Living Things

Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
People in Science (110-111)	 Conservationist Photographer Entomologist 	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures. L.EV.05.21 Relate degree of similarity in anatomical features to the classification of contemporary organisms.	Recommendations Recommended Lesson	www.hspscience.com

HSP Science Recommended Course of Study—Grade 5				
		Unit A: Processes of Living Things		
		Chapter 2: Classifying Living Things		
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Chapter 2	 Classification 	L.EV.05.21 Relate degree of	Recommended	Assessment Guide,
Review and	Kingdom	similarity in anatomical features to the	Lesson	p. AG 7-12
Test Prep	• Species	classification of contemporary		
(112-113)	 Vertebrate 	organisms.		Online Assessment:
	 Invertebrate 			www.hspscience.com

Recommended Course of Study—Grade 5 Unit A: Processes of Living Things

Chapter 3: Plant Growth and Reproduction

Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description	-	Expectations (Kindergarten)	Recommendations	Resources
Below Level	• Plants		Review Lesson –	Below Level Leveled
Leveled Reader:	• Life cycle		Plant life cycles are	Reader: Plant
Plant Growth			covered in the	Growth and
and			Grade 2 GLCEs.	Reproduction
Reproduction			Use as needed.	
(114C)				
On Level	• Plants		Review Lesson –	On Level Leveled
Leveled Reader:	• Life cycle		Plant life cycles are	Reader: Plants and
Plants and How			covered in the	How They Grow
They Grow			Grade 2 GLCEs.	
(114C)			Use as needed.	
Challenge	• Plants		Review Lesson –	Challenge Leveled
Leveled Reader:	• Life cycle		Plant life cycles are	Reader: The Life of
The Life of an			covered in the	an Oak Tree
Oak Tree			Grade 2 GLCEs.	
(114C)			Use as needed.	

Recommended Course of Study—Grade 5

Unit A: Processes of Living Things Chapter 3: Plant Growth and Reproduction

Lesson Description	Vocabulary	Michigan Grade Level Content Expectations (Kindergarten)	Lesson Recommendations	Recommended Resources
Chapter 3 Opener (114-115)	 Growth Reproduction	S.IP.05.11 Generate scientific questions based on observations, investigations, and research.	Review Lesson – Plant growth is covered in the Grade 4 GLCEs. Use as needed.	Vocabulary Power, p. RS 16
Lesson 1: How Do Plants Grow? (116-125)	 Vascular Tissue Xylem Phloem Photosynthesis 	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IP.05.13 Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens) appropriate to scientific investigations. S.IP.05.15 Construct charts and graphs from data and observations. S.IP.05.16 Identify patterns in data. S.IA.05.11 Analyze information from data tables and graphs to answer scientific questions. S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative science discourse. S.IA.05.13 Communicate and defend findings of observations and investigations using evidence. S.RS.05.15 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	Review Lesson – Plant anatomy is covered in the Grade 3 GLCEs. Use as needed.	Vocabulary Cards Transparency IS 3-1 Lab Manual, p. LM 43 Transparency RS 3-1 Reading Support and Homework, p. RS 17– RS18

Recommended Course of Study—Grade 5 Unit A: Processes of Living Things Chapter 3: Plant Growth and Reproduction

	Chapter 3: Plant Growth and Reproduction					
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended		
Description	_	Expectations (Kindergarten)	Recommendations	Resources		
Lesson 2: How	• Spore	S.IP.05.11 Generate scientific	Review Lesson –	Vocabulary Cards		
Do Plants	 Gymnosperm 	questions based on observations,	Plant growth is			
Reproduce?	 Angiosperm 	investigations, and research.	covered in the	Transparency IS 3-2		
(126-137)	 Germinate 	S.IP.05.12 Design and conduct	Grade 4 GLCEs.			
		scientific investigations. (Independent	Use as needed.	Lab Manual,		
		Inquiry option)		p. LM 46		
		S.IP.05.13 Use tools and equipment				
		(spring scales, stop watches, meter		Transparency RS 3-2		
		sticks and tapes, models, hand lens)				
		appropriate to scientific investigations.		Reading Support and		
		S.IP.05.15 Construct charts and		Homework,		
		graphs from data and observations.		p. RS 19– RS20		
		S.IP.05.16 Identify patterns in data.				
		S.IA.05.11 Analyze information from				
		data tables and graphs to answer				
		scientific questions.				
		S.IA.05.12 Evaluate data, claims, and				
		personal knowledge through				
		collaborative science discourse.				
		S.IA.05.13 Communicate and defend				
		findings of observations and				
		investigations using evidence.				
		S.IA.05.15 Use multiple sources of				
		information to evaluate strengths and				
		weaknesses of claims, arguments, or				
		data. (Math and Language Arts				
		options, p. 137)				
		S.RS.05.15 Demonstrate scientific				
		concepts through various illustrations,				
		performances, models, exhibits, and				
		activities.				

HSP Science Recommended Course of Study—Grade 5						
	Unit A: Processes of Living Things Chapter 3: Plant Growth and Reproduction					
Lesson Description	Vocabulary	Michigan Grade Level Content Expectations (Kindergarten)	Lesson Recommendations	Recommended Resources		
Science Spin from Weekly Reader: Farms of the Future (138-139)	Hydroponic	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.	Optional Lesson	www.hspscience.com		

HSP Science
Recommended Course of Study—Grade 5

Unit A: Processes of Living Things Chapter 3: Plant Growth and Reproduction

Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Chapter 3 Review and Test Preparation (140-141)	 Vascular Tissue Xylem Phloem Photosynthesis Spore Gymnosperm Angiosperm Germinate 		Review Lesson – Plant growth is covered in the Grade 4 GLCEs. Use as needed.	Assessment Guide, p. AG 13-18 Online Assessment: www.hspscience.com

HSP Science Recommended Course of Study—Grade 5 Unit A: Processes of Living Things Chapter 4: Animal Growth and Heredity

Lesson Description	Vocabulary	Michigan Grade Level Content Expectations (Kindergarten)	Lesson Recommendations	Recommended Resources
Below Level Leveled Reader: Animal Growth and Heredity	Heredity	L.HE.05.11 Explain that the traits of an individual are influenced by both the environment and the genetics of the individual. L.HE.05.12 Distinguish between inherited and acquired traits.	Recommended Lesson	
On Level Leveled Reader: Heredity	Heredity	L.HE.05.11 Explain that the traits of an individual are influenced by both the environment and the genetics of the individual. L.HE.05.12 Distinguish between inherited and acquired traits.	Recommended Lesson	
Challenge Level Leveled Reader: Designer Plants	Heredity		Review Lesson – Plant growth is covered in the Grade 4 GLCEs. Use as needed.	

Recommended Course of Study—Grade 5

Unit A: Processes of Living Things
Chapter 4: Animal Growth and Heredity

Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Chapter 4	Growth	Expectations (Kindergarten) S.IP.05.11 Generate scientific	Recommended Recommended	Resources Vocabulary Power,
Chapter 4 Opener (142-143)	Growth Heredity	questions based on observations, investigations, and research. L.HE.05.11 Explain that the traits of an individual are influenced by both the environment and the genetics of the individual. L.HE.05.12 Distinguish between	Lesson	p. RS 21
Lesson 1: How Does Cell Division Affect Growth? (144-153)	 Life Cycle Mitosis Chromosome 	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IP.05.12 Design and conduct scientific investigations. (Independent Inquiry option) S.IP.05.13 Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens) appropriate to scientific investigations. S.IP.05.15 Construct charts and graphs from data and observations. S.IP.05.16 Identify patterns in data. S.IA.05.11 Analyze information from data tables and graphs to answer scientific questions.	Recommended Lesson	Vocabulary Cards Transparency IS 4-1 Lab Manual, p. LM 49 Transparency RS 4-1 Reading Support and Homework, p. RS 22– RS23

Unit A: Processes of Living Things Chapter 4: Animal Growth and Heredity

Lesson Description	Vocabulary	Michigan Grade Level Content Expectations (Kindergarten)	Lesson Recommendations	Recommended Resources
Lesson 1: How	Life Cycle	S.IA.05.12 Evaluate data, claims, and	Recommended	Vocabulary Cards
Does Cell	• Mitosis	personal knowledge through	Lesson	,
Division Affect	 Chromosome 	collaborative science discourse.		Transparency IS 4-1
Growth?	•	S.IA.05.13 Communicate and defend		1 2
(144-153)		findings of observations and		Lab Manual,
cont		investigations using evidence.		p. LM 49
		S.IA.05.15 Use multiple sources of		
		information to evaluate strengths and		Transparency RS 4-1
		weaknesses of claims, arguments, or		
		data. (Math and Health options, p.		Reading Support and
		153)		Homework,
		S.RS.05.15 Demonstrate scientific		p. RS 22– RS23
		concepts through various illustrations,		
		performances, models, exhibits, and		
		activities.		
		L.HE.05.11 Explain that the traits of		
		an individual are influenced by both		
		the environment and the genetics of		
		the individual.		
		L.HE.05.12 Distinguish between		
		inherited and acquired traits.		

Recommended Course of Study—Grade 5 Unit A: Processes of Living Things

Chapter 4: Animal Growth and Heredity				
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Lesson 2: How	 Inherited Trait 	S.IP.05.11 Generate scientific	Recommended	Vocabulary Cards
Are	 Dominant Trait 	questions based on observations,	Lesson	
Characteristics	 Recessive Trait 	investigations, and research.		Transparency IS 4-2
Inherited?	• Gene	S.IP.05.12 Design and conduct		
(154-167)		scientific investigations. (Independent		Lab Manual,
		Inquiry option)		p. LM 52
		S.IP.05.15 Construct charts and		
		graphs from data and observations.		Transparency RS 4-2
		S.IP.05.16 Identify patterns in data.		
		S.IA.05.11 Analyze information from		Reading Support and
		data tables and graphs to answer		Homework,
		scientific questions.		p. RS 24– RS25
		S.IA.05.12 Evaluate data, claims, and		
		personal knowledge through		
		collaborative science discourse.		
		S.IA.05.13 Communicate and defend		
		findings of observations and		
		investigations using evidence.		
		S.IA.05.14 Draw conclusions from		
		sets of data from multiple trials of a		
		scientific investigation. (Independent		
		Inquiry option)		
		S.IA.05.15 Use multiple sources of		
		information to evaluate strengths and		
		weaknesses of claims, arguments, or		
		data. (Health option, p. 167)		
		S.RS.05.12 Describe limitations in		
		personal and scientific knowledge.		
		S.RS.05.13 Identify the need for		
		evidence in making scientific		
		decisions.		

Recommended Course of Study—Grade 5
Unit A: Processes of Living Things

	Chapter 4: Animal Growth and Heredity					
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended		
Description		Expectations (Kindergarten)	Recommendations	Resources		
Lesson 2: How	 Inherited Trait 	S.RS.05.15 Demonstrate scientific	Recommended	Vocabulary Cards		
Are	 Dominant Trait 	concepts through various illustrations,	Lesson			
Characteristics	 Recessive Trait 	performances, models, exhibits, and		Transparency IS 4-2		
Inherited?	• Gene	activities.				
(154-167)		S.RS.05.19 Describe how science and		Lab Manual,		
cont		technology have advanced because of		p. LM 52		
		the contributions of many people				
		throughout history and across cultures.		Transparency RS 4-2		
		L.HE.05.11 Explain that the traits of				
		an individual are influenced by both		Reading Support and		
		the environment and the genetics of		Homework,		
		the individual.		p. RS 24– RS25		
		L.HE.05.12 Distinguish between				
Y 2 YY		inherited and acquired traits.	D 1.1	XX 1 1 G 1		
Lesson 3: What	• Instinct	S.IP.05.11 Generate scientific	Recommended	Vocabulary Cards		
Other Factors	• Learned Behavior	questions based on observations,	Lesson	T 10.4.2		
Affect Characteristics?	• Environment	investigations, and research. S.IP.05.15 Construct charts and		Transparency IS 4-3		
				Lah Manyal		
(168-177)		graphs from data and observations. S.IP.05.16 Identify patterns in data.		Lab Manual, p. LM 55		
		S.IA.05.11 Analyze information from		p. LIVI 33		
		data tables and graphs to answer		Transparency RS 4-3		
		scientific questions.		Transparency No 4-3		
		S.IA.05.12 Evaluate data, claims, and		Reading Support and		
		personal knowledge through		Homework,		
		collaborative science discourse.		p. RS 26– RS27		
		S.IA.05.13 Communicate and defend		P. 165 20 16527		
		findings of observations and				
		investigations using evidence.				

Recommended Course of Study—Grade 5 Unit A: Processes of Living Things Chapter 4: Animal Growth and Heredity

Chapter 4: Animal Growth and Heredity					
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended	
Description		Expectations (Kindergarten)	Recommendations	Resources	
	•				

HSP Science Recommended Course of Study—Grade 5 Unit A: Processes of Living Things

Chapter 4: Animal Growth and Heredity

Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
People in Science (178-179)	 Molecular Scientist Genetics 	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.	Recommended Lesson	www.hspscience.com
Chapter 4 Review and Test Preparation (180-181)	 Life Cycle Mitosis Chromosome Dominant Trait Gene Environment 	L.HE.05.11 Explain that the traits of an individual are influenced by both the environment and the genetics of the individual. L.HE.05.12 Distinguish between inherited and acquired traits. L.EV.05.11 Explain how behavioral characteristics (adaptation, instinct, learning, habit) of animals help them to survive in their environment. L.EV.05.12 Describe the physical characteristics (traits) of organisms that help them survive in their environment.	Recommended Lesson	Assessment Guide, p. AG 19-24 Online Assessment: www.hspscience.com

Harcourt School Publishers Science

Recommended Course of Study

Unit B: Interactions Among Living Things

(Michigan Edition)

HSP Science Recommended Course of Study—Grade 5

Unit B: In	teractions An	iong Liv	ing Things
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	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Lesson Description	J 22222 22442 J	Expectations (Kindergarten)	Recommendations	Resources
Unit B Inquiry	Pollution	S.IP.05.11 Generate scientific questions based on	Recommended	Lab Manual,
Lesson	Tonation	observations, investigations, and research.	Lesson	p. LM 56 – LM 59
(183A-183B)		S.IP.05.12 Design and conduct scientific	Lesson	p. Elvi 30 Elvi 37
(103A-103D)		investigations. (Independent Inquiry option)		Transparencies
		S.IP.05.13 Use tools and equipment (spring		EX 5 – EX 8
		scales, stop watches, meter sticks and tapes,		EA 3 - EA 6
		models, hand lens) appropriate to scientific		
		investigations.		
		S.IP.05.15 Construct charts and graphs from data		
		and observations.		
		S.IP.05.16 Identify patterns in data.		
		S.IA.05.11 Analyze information from data tables		
		and graphs to answer scientific questions.		
		S.IA.05.12 Evaluate data, claims, and personal		
		knowledge through collaborative science		
		discourse.		
		S.IA.05.13 Communicate and defend findings of observations and investigations using evidence.		
		S.RS.05.11 Evaluate the strengths and weaknesses		
		of claims, arguments, and data.		
		S.RS.05.12 Describe limitations in personal and		
		scientific knowledge.		
		S.RS.05.13 Identify the need for evidence in		
		making scientific decisions.		
		S.RS.05.15 Demonstrate scientific concepts		
		through various illustrations, performances,		
		models, exhibits, and activities.		
		S.RS.05.16 Design solutions to problems using		
		technology.		
		S.RS.05.17 Describe the effect humans and other		
		organisms have on the balance in the natural		
		world.		

Recommended Course of Study—Grade 5

Unit B: Interactions Among Living Things Chapter 5: Energy and Ecosystems

Chapter 5: Energy and Ecosystems					
Lesson Description	Vocabulary	Michigan Grade Level Content Expectations (Kindergarten)	Lesson Recommendations	Recommended Resources	
Below Level Leveled Reader: Energy and Ecosystems (184C)	EnergyEcosystem	L.EV.05.11 Explain how behavioral characteristics (adaptation, instinct, learning, habit) of animals help them to survive in their environment. L.EV.05.12 Describe the physical characteristics (traits) of organisms that help them survive in their environment.	Recommended Lesson	Below Level Leveled Reader: Energy and Ecosystems	
On Level Leveled Reader: The Flow of Energy (184C)	EnergyEcosystem	L.EV.05.11 Explain how behavioral characteristics (adaptation, instinct, learning, habit) of animals help them to survive in their environment. L.EV.05.12 Describe the physical characteristics (traits) of organisms that help them survive in their environment.	Recommended Lesson	On Level Leveled Reader: The Flow of Energy	
Challenge Leveled Reader: Biosphere 2: Lessons Learned (184C)	EnergyEcosystem	L.EV.05.11 Explain how behavioral characteristics (adaptation, instinct, learning, habit) of animals help them to survive in their environment. L.EV.05.12 Describe the physical characteristics (traits) of organisms that help them survive in their environment.	Recommended Lesson	Challenge Leveled Reader: Biosphere 2: Lessons Learned	

Recommended Course of Study—Grade 5

Unit B: Interactions Among Living Things Chapter 5: Energy and Ecosystems

Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Chapter 5 Opener (184-185)	Energy Ecosystems	S.IP.05.11 Generate scientific questions based on observations, investigations, and research.	Review Lesson – Food webs are covered in the Grade 3 GLCEs. Use as needed.	Vocabulary Power, p. RS 29
Lesson 1: How Do Plants Produce Food? (186-195)	 Transpiration Photosynthesis Chlorophyll Producer Consumer 	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IP.05.12 Design and conduct scientific investigations. (independent Inquiry option & Math option, p. 30) S.IP.05.13 Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens) appropriate to scientific investigations. S.IP.05.15 Construct charts and graphs from data and observations. S.IP.05.16 Identify patterns in data. S.IA.05.11 Analyze information from data tables and graphs to answer scientific questions. S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative science discourse. S.IA.05.13 Communicate and defend findings of observations and investigations using evidence. S.RS.05.15 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	Review Lesson – Plant physiology is covered in the Grade 3 GLCEs. Use as needed.	Vocabulary Cards Transparency IS 5-1 Lab Manual, p. LM 62 Transparency RS 5-1 Reading Support and Homework, p. RS 30– RS31

Recommended Course of Study—Grade 5 Unit B: Interactions Among Living Things Chapter 5: Energy and Ecosystems

Chapter 5: Energy and Ecosystems				
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
	EcosystemHerbivore	Michigan Grade Level Content		

	HSP Science				
	R	ecommended Course of Study—Gra	de 5		
		Unit B: Interactions Among Living Thin	gs		
	·	Chapter 5: Energy and Ecosystems			
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended	
Description		Expectations (Kindergarten)	Recommendations	Resources	
Science Spin from Weekly Reader: Trash Man (208-209)	• Pollution	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.	Recommended Lesson	www.hspscience.com	

	HSP Science Recommended Course of Study—Grade 5				
	Un	it B: Interactions Among Living Thir	igs		
Lesson	Lesson Vocabulary Chapter 5: Energy and Ecosystems Lesson Vocabulary Michigan Grade Level Content Lesson Recommended				
Description	•	Expectations (Kindergarten)	Recommendations	Resources	
Chapter 5	Producers		Review Lesson –	Assessment Guide,	
Review and	 Herbivore 		Food webs are	p. AG 31-36	
Test Prep	 Food Chain 		covered in the		
(210-211)	 Decomposers 		Grade 3 GLCEs.	Online Assessment:	
	Food Web		Use as needed.	www.hspscience.com	
	 Energy Pyramid 				

Recommended Course of Study—Grade 5

Unit B: Interactions Among Living Things Chapter 6: Ecosystems and Change

Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description	·	Expectations (Kindergarten)	Recommendations	Resources
Below Level	Ecosystem	L.EV.05.11 Explain how behavioral	Recommended	
Leveled Reader:	 Adaptation 	characteristics (adaptation, instinct, learning,	Lesson	
Ecosystems and		habit) of animals help them to survive in their		
Change		environment.		
		L.EV.05.12 Describe the physical		
		characteristics (traits) of organisms that help		
		them survive in their environment.		
		L.EV.05.13 Describe how fossils provide		
		evidence about how living things and		
		environmental conditions have changed.		
On Level	 Ecosystem 	L.EV.05.11 Explain how behavioral	Recommended	
Leveled Reader:	 Adaptation 	characteristics (adaptation, instinct, learning,	Lesson	
Change in		habit) of animals help them to survive in their		
Ecosystems		environment.		
		L.EV.05.12 Describe the physical		
		characteristics (traits) of organisms that help		
		them survive in their environment.		
		L.EV.05.13 Describe how fossils provide		
		evidence about how living things and		
		environmental conditions have changed.		
Challenge	 Ecosystem 	L.EV.05.11 Explain how behavioral	Recommended	
Leveled Reader:	 Adaptation 	characteristics (adaptation, instinct, learning,	Lesson	
Journal: The		habit) of animals help them to survive in their		
Galapagos		environment.		
Islands		L.EV.05.12 Describe the physical		
		characteristics (traits) of organisms that help		
		them survive in their environment.		
		L.EV.05.13 Describe how fossils provide		
		evidence about how living things and		
		environmental conditions have changed.		

Recommended Course of Study—Grade 5 Unit B: Interactions Among Living Things Chapter 6: Ecosystems and Change

Chapter 6: Ecosystems and Change					
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended	
Description		Expectations (Kindergarten)	Recommendations	Resources	
Lesson 1: How	 Population 	S.IP.05.11 Generate scientific	Recommended	Vocabulary Cards	
Do Organisms	 Community 	questions based on observations,	Lesson		
Compete and	 Competition 	investigations, and research.		Transparency IS 6-1	
Survive in an	 Adaptation 	S.IP.05.12 Design and conduct			
Ecosystem	 Symbiosis 	scientific investigations. (Independent		Lab Manual,	
(214-223)	 Predator 	Inquiry option)		p. LM 68	
	• Prey	S.IP.05.13 Use tools and equipment			
	·	(spring scales, stop watches, meter		Transparency RS 6-1	
		sticks and tapes, models, hand lens)			
		appropriate to scientific investigations.		Reading Support and	
		S.IP.05.15 Construct charts and		Homework,	
		graphs from data and observations.		p. RS 35– RS36	
		S.IP.05.16 Identify patterns in data.			
		S.IA.05.11 Analyze information from			
		data tables and graphs to answer			
		scientific questions.			
		S.IA.05.12 Evaluate data, claims, and			
		personal knowledge through			
		collaborative science discourse.			
		S.IA.05.13 Communicate and defend			
		findings of observations and			
		investigations using evidence.			
		S.IA.05.14 Draw conclusions from			
		sets of data from multiple trials of a			
		scientific investigation.			
		S.IA.05.15 Use multiple sources of			
		information to evaluate strengths and			
		weaknesses of claims, arguments, or			
		data. (Health option, p. 223)			

Recommended Course of Study—Grade 5
Unit B: Interactions Among Living Things
Chanter 6: Ecosystems and Change

	Chapter 6: Ecosystems and Change				
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended	
Description		Expectations (Kindergarten)	Recommendations	Resources	
Lesson 1: How	 Population 	S.RS.05.15 Demonstrate scientific	Recommended	Vocabulary Cards	
Do Organisms	 Community 	concepts through various illustrations,	Lesson		
Compete and	 Competition 	performances, models, exhibits, and		Transparency IS 6-1	
Survive in an	 Adaptation 	activities.			
Ecosystem	 Symbiosis 	L.EV.05.11 Explain how behavioral		Lab Manual,	
(214-223)	 Predator 	characteristics (adaptation, instinct,		p. LM 68	
cont	• Prey	learning, habit) of animals help them			
		to survive in their environment.		Transparency RS 6-1	
		L.EV.05.12 Describe the physical			
		characteristics (traits) of organisms		Reading Support and	
		that help them survive in their		Homework,	
		environment.		p. RS 35– RS36	
Lesson 2: How	 Succession 	S.IP.05.11 Generate scientific	Recommended	Vocabulary Cards	
Do Ecosystems	 Extinction 	questions based on observations,	Lesson		
Change Over		investigations, and research.		Transparency IS 6-2	
Time?		S.IP.05.12 Design and conduct			
(224-233)		scientific investigations. (Independent		Lab Manual,	
		Inquiry option)		p. LM 71	
		S.IP.05.13 Use tools and equipment			
		(spring scales, stop watches, meter		Transparency RS 6-2	
		sticks and tapes, models, hand lens)			
		appropriate to scientific investigations.		Reading Support and	
		S.IP.05.15 Construct charts and		Homework,	
		graphs from data and observations.		p. RS 37– RS38	
		S.IP.05.16 Identify patterns in data.			
		S.IA.05.11 Analyze information from			
		data tables and graphs to answer			
		scientific questions.			
		S.IA.05.12 Evaluate data, claims, and			
		personal knowledge through			
		collaborative science discourse.			

HSP Science Recommended Course of Study—Grade 5 Unit B: Interactions Among Living Things

Chapter 6: Ecosystems and Change

Lesson Description	Vocabulary	Michigan Grade Level Content Expectations (Kindergarten)	Lesson Recommendations	Recommended Resources
Lesson Description Lesson 2: How Do Ecosystems Change Over Time? (224-233) cont	• Succession • Extinction	S.IA.05.13 Communicate and defend findings of observations and investigations using evidence. S.RS.05.15 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities. L.EV.05.13 Describe how fossils provide evidence about how living things and environmental conditions have changed. L.EV.05.14 Analyze the relationship	Recommendations Recommended Lesson	Recommended Resources Vocabulary Cards Transparency IS 6-2 Lab Manual, p. LM 71 Transparency RS 6-2 Reading Support and Homework, p. RS 37– RS38
		of environmental change and catastrophic events (for example: volcanic eruption, floods, asteroid impacts, tsunami) to species extinction.		p. RS 37– RS38

Recommended Course of Study—Grade 5 Unit B: Interactions Among Living Things Chapter 6: Ecosystems and Change

	Chapter 6: Ecosystems and Change				
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended	
Description		Expectations (Kindergarten)	Recommendations	Resources	
Lesson 3: How	 Pollution 	S.IP.05.11 Generate scientific	Recommended	Vocabulary Cards	
Do People	 Acid Rain 	questions based on observations,	Lesson		
Affect	 Habitat 	investigations, and research.		Transparency IS 6-3	
Ecosystems	 Conservation 	S.IP.05.12 Design and conduct			
(234-243)	 Reclamation 	scientific investigations. (Independent		Lab Manual,	
		Inquiry option)		p. LM 74	
		S.IP.05.13 Use tools and equipment			
		(spring scales, stop watches, meter		Transparency RS 6-3	
		sticks and tapes, models, hand lens)			
		appropriate to scientific investigations.		Reading Support and	
		S.IP.05.15 Construct charts and		Homework,	
		graphs from data and observations.		p. RS 39– RS40	
		S.IP.05.16 Identify patterns in data.			
		S.IA.05.11 Analyze information from			
		data tables and graphs to answer			
		scientific questions.			
		S.IA.05.12 Evaluate data, claims, and			
		personal knowledge through			
		collaborative science discourse.			
		S.IA.05.13 Communicate and defend			
		findings of observations and			
		investigations using evidence.			
		S.IA.05.15 Use multiple sources of			
		information to evaluate strengths and			
		weaknesses of claims, arguments, or			
		data. (Literature option, p. 243)			
		S.RS.05.11 Evaluate the strengths and			
		weaknesses of claims, arguments, and			
		data.			
		S.RS.05.12 Describe limitations in			
		personal and scientific knowledge.			

Recommended Course of Study—Grade 5

Unit B: Interactions Among Living Things Chapter 6: Ecosystems and Change

Lesson Description	Vocabulary	Michigan Grade Level Content Expectations (Kindergarten)	Lesson Recommendations	Recommended Resources
Lesson 3: How Do People Affect Ecosystems (234-243) cont	 Pollution Acid Rain Habitat Conservation Reclamation 	S.RS.05.13 Identify the need for evidence in making scientific decisions. S.RS.05.15 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities. S.RS.05.16 Design solutions to problems using technology. S.RS.05.17 Describe the effect humans and other organisms have on the balance in the natural world. S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.	Recommended Lesson	Vocabulary Cards Transparency IS 6-3 Lab Manual, p. LM 74 Transparency RS 6-3 Reading Support and Homework, p. RS 39– RS40
People in Science (244-245)	Botanist Ecological Physiologist	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.	Recommended Lesson	www.hspscience.com

HSP Science Recommended Course of Study—Grade 5 Unit B: Interactions Among Living Things

Chapter 6: Ecosystems and Change

Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Chapter 6 Review and Test Prep (246-247)	 Competition Adaptation Predators Prey Succession Extinction Conservation Reclamation 	L.EV.05.11 Explain how behavioral characteristics (adaptation, instinct, learning, habit) of animals help them to survive in their environment. L.EV.05.12 Describe the physical characteristics (traits) of organisms that help them survive in their environment. L.EV.05.13 Describe how fossils provide evidence about how living things and environmental conditions have changed. L.EV.05.14 Analyze the relationship of environmental change and catastrophic events (for example: volcanic eruption, floods, asteroid impacts, tsunami) to species extinction.	Recommended Lesson	Assessment Guide, p. AG 37-42 Online Assessment: www.hspscience.com

Harcourt School Publishers Science Recommended Course of Study Unit C: Processes that Change the Earth (Michigan Edition)

HSP Science Recommended Course of Study—Grade 5

		Earth Science: Science on Location		
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Crater of Diamonds (250-251)	CarbonGraphiteDiamond	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative science discourse. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.	Review Lesson – Earth materials are covered in the Grade 3 GLCEs. Use as needed.	
Crystal Cave (252-253)	• Crystal	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative science discourse. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data.	Review Lesson – Earth materials are covered in the Grade 3 GLCEs. Use as needed.	

HSP Science Recommended Course of Study—Grade 5					
Lesson Description	Vocabulary	Earth Science: Science on Location Michigan Grade Level Content Expectations (Kindergarten)	Lesson Recommendations	Recommended Resources	
Georgia Marble (254-255)	• Marble	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative science discourse. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. S.RS.05.17 Describe the effect humans and other organisms have on the balance in the natural world. S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.	Review Lesson – Earth materials are covered in the Grade 3 GLCEs. Use as needed.	Resources	

HSP Science Recommended Course of Study—Grade 5

Lesson	Vocabulary	Michigan Grade Level Content Expectations	Lesson	Recommended
Description		(Kindergarten)	Recommendations	Resources
Unit C Inquiry	Buffer	S.IP.05.11 Generate scientific questions based on	Review Lesson –	Lab Manual,
Lesson	• Soil	observations, investigations, and research.	Earth materials are	p. LM 75-78
(257A-257B)		S.IP.05.12 Design and conduct scientific	covered in the	1
		investigations. (Independent Inquiry option)	Grade 3 GLCEs.	Transparencies
		S.IP.05.13 Use tools and equipment (spring scales,	Use as needed.	EX 9 – EX 12
		stop watches, meter sticks and tapes, models, hand		
		lens) appropriate to scientific investigations.		
		S.IP.05.15 Construct charts and graphs from data		
		and observations.		
		S.IP.05.16 Identify patterns in data.		
		S.IA.05.11 Analyze information from data tables		
		and graphs to answer scientific questions.		
		S.IA.05.12 Evaluate data, claims, and personal		
		knowledge through collaborative science discourse.		
		S.IA.05.13 Communicate and defend findings of		
		observations and investigations using evidence.		
		S.RS.05.11 Evaluate the strengths and weaknesses		
		of claims, arguments, and data.		
		S.RS.05.12 Describe limitations in personal and		
		scientific knowledge.		
		S.RS.05.13 Identify the need for evidence in		
		making scientific decisions.		
		S.RS.05.15 Demonstrate scientific concepts		
		through various illustrations, performances,		
		models, exhibits, and activities.		
		S.RS.05.16 Design solutions to problems using		
		technology.		
		S.RS.05.17 Describe the effect humans and other		
		organisms have on the balance in the natural world.		

Recommended Course of Study—Grade 5 Unit C: Processes that Change the Earth Chapter 7: The Rock Cycle

Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Below Level	Rock Cycle		Review Lesson –	Below Level Leveled
Leveled Reader:			Earth materials are	Reader: The Rock
The Rock Cycle			covered in the	Cycle
(258C)			Grade 3 GLCEs.	
			Use as needed.	
On Level	Rock Cycle		Review Lesson –	On Level Leveled
Leveled Reader:	_		Earth materials are	Reader: The Hidden
The Hidden Life			covered in the	Life of Rocks
of Rocks			Grade 3 GLCEs.	
(258C)			Use as needed.	
Challenge	Rock Cycle		Review Lesson –	Challenge Leveled
Leveled Reader:	_		Earth materials are	Reader: Reusing
Reusing Rocks			covered in the	Rocks
(258C)			Grade 3 GLCEs.	
			Use as needed.	

Recommended Course of Study—Grade 5 Unit C: Processes that Change the Earth **Chapter 7: The Rock Cycle**

Lesson	Vocabulary	Michigan Grade Level Content Expectations	Lesson	Recommended
Description		(Kindergarten)	Recommendations	Resources
Chapter 7 Opener (258-259)	• Rock Cycle	S.IP.05.11 Generate scientific questions based on observations, investigations, and research.	Review Lesson – Earth materials are covered in the Grade 3 GLCEs. Use as needed.	Vocabulary Power, p. RS 42
Lesson 1: What Are Minerals? (260-269)	 Mineral Streak Luster Hardness 	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IP.05.12 Design and conduct scientific investigations. (Independent Inquiry option) S.IP.05.13 Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens) appropriate to scientific investigations. S.IP.05.15 Construct charts and graphs from data and observations. S.IP.05.16 Identify patterns in data. S.IA.05.11 Analyze information from data tables and graphs to answer scientific questions. S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative science discourse. S.IA.05.13 Communicate and defend findings of observations and investigations using evidence. S.IA.05.14 Draw conclusions from sets of data from multiple trials of a scientific investigation. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. (Math option, p. 269) S.RS.05.15 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	Review Lesson – Earth materials are covered in the Grade 3 GLCEs. Use as needed.	Vocabulary Cards Transparency IS 7-1 Lab Manual, p. LM 81 Transparency RS 7-1 Reading Support and Homework, p. RS 43– RS 44

Recommended Course of Study—Grade 5 Unit C: Processes that Change the Earth **Chapter 7: The Rock Cycle**

Lesson	Vocabulary	Michigan Grade Level Content Expectations	Lesson	Recommended
Description		(Kindergarten)	Recommendations	Resources
Lesson 2: How Do Rocks Form? (270-281)	 Rock Igneous Rock Deposition Sedimentary Rocks Metamorphi c Rocks 	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IP.05.12 Design and conduct scientific investigations. (Independent Inquiry option) S.IP.05.13 Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens) appropriate to scientific investigations. S.IP.05.15 Construct charts and graphs from data and observations. S.IP.05.16 Identify patterns in data. S.IA.05.11 Analyze information from data tables and graphs to answer scientific questions. S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative science discourse. S.IA.05.13 Communicate and defend findings of observations and investigations using evidence. S.IA.05.14 Draw conclusions from sets of data from multiple trials of a scientific investigation. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. (Art option, p. 281) S.RS.05.15 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities. S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.	Review Lesson – Earth materials are covered in the Grade 3 GLCEs. Use as needed.	Vocabulary Cards Transparency IS 7-2 Lab Manual, p. LM 84 Transparency RS 7-2 Reading Support and Homework, p. RS 45– RS 46

Recommended Course of Study—Grade 5

Unit C: Processes that Change the Earth Chapter 7: The Rock Cycle

Lesson	Vocabulary	Michigan Grade Level Content Expectations	Lesson	Recommended
Description		(Kindergarten)	Recommendations	Resources
Lesson 3: How	Weathering	S.IP.05.11 Generate scientific questions based	Review Lesson –	Vocabulary Cards
Are Rocks	 Erosion 	on observations, investigations, and research.	Earth materials are	-
Change?	Rock Cycle	S.IP.05.12 Design and conduct scientific	covered in the	Transparency IS 7-3
(282-291)		investigations. (Independent Inquiry option)	Grade 3 GLCEs.	
		S.IP.05.13 Use tools and equipment (spring	Use as needed.	Lab Manual,
		scales, stop watches, meter sticks and tapes,		p. LM 87
		models, hand lens) appropriate to scientific		
		investigations.		Transparency RS 7-3
		S.IP.05.15 Construct charts and graphs from		
		data and observations.		Reading Support and
		S.IP.05.16 Identify patterns in data.		Homework,
		S.IA.05.11 Analyze information from data		p. RS 47– RS 48
		tables and graphs to answer scientific questions.		
		S.IA.05.12 Evaluate data, claims, and personal		
		knowledge through collaborative science		
		discourse.		
		S.IA.05.13 Communicate and defend findings		
		of observations and investigations using		
		evidence.		
		S.IA.05.14 Draw conclusions from sets of data		
		from multiple trials of a scientific investigation.		
		S.IA.05.15 Use multiple sources of information		
		to evaluate strengths and weaknesses of claims,		
		arguments, or data. (Social Studies option, p.		
		291)		
		S.RS.05.15 Demonstrate scientific concepts		
		through various illustrations, performances,		
		models, exhibits, and activities.		

Recommended Course of Study—Grade 5 Unit C: Processes that Change the Earth

Chapter 7: The Rock Cycle

Lesson Description	Vocabulary	Michigan Grade Level Content Expectations (Kindergarten)	Lesson Recommendations	Recommended Resources
People in Science (292-293)	• Geologist	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.	Review Lesson – Earth materials are covered in the Grade 3 GLCEs. Use as needed.	www.hspscience.com
Chapter 7 Review and Test Prep (294-295)	 Mineral Streak Luster Igneous Rock Deposition Sedimentary Rock Metamorphic Rock Weathering Erosion Rock Cycle 		Review Lesson – Earth materials are covered in the Grade 3 GLCEs. Use as needed.	Assessment Guide, p. AG 49-53 Online Assessment: www.hspscience.com

Recommended Course of Study—Grade 5 Unit C: Processes that Change the Earth Chanter 8: Fossils

	Chapter 8: Fossils					
Lesson Description	Vocabulary	Michigan Grade Level Content Expectations (Kindergarten)	Lesson Recommendations	Recommended Resources		
Below Level Leveled Reader: Fossils (296C)	• Fossils	L.EV.05.13 Describe how fossils provide evidence about how living things and environmental conditions have changed. L.EV.05.14 Analyze the relationship of environmental change and catastrophic events (for example: volcanic eruption, floods, asteroid impacts, tsunami) to species	Recommendations Recommended Lesson	Resources Below Level Leveled Reader: Fossils		
On Level Leveled Reader: Fossils: Records of History (296C)	• Fossils	extinction. L.EV.05.13 Describe how fossils provide evidence about how living things and environmental conditions have changed. L.EV.05.14 Analyze the relationship of environmental change and catastrophic events (for example: volcanic eruption, floods, asteroid impacts, tsunami) to species extinction.	Recommended Lesson	On Level Leveled Reader: Fossils: Records of History		
Challenge Leveled Reader: It's How Old? (296C)	• Fossils	L.EV.05.13 Describe how fossils provide evidence about how living things and environmental conditions have changed. L.EV.05.14 Analyze the relationship of environmental change and catastrophic events (for example: volcanic eruption, floods, asteroid impacts, tsunami) to species extinction.	Recommended Lesson	Challenge Leveled Reader: It's How Old?		

Recommended Course of Study—Grade 5 Unit C: Processes that Change the Earth

Chapter 8: Fossils

Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
	v ocabalar y	0		
Chapter 8 Opener (296-297)	• Fossil	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.RS.05.11 Evaluate the strengths and weaknesses of claims, arguments, and data. S.RS.05.12 Describe limitations in personal and scientific knowledge. S.RS.05.13 Identify the need for evidence in making scientific decisions. L.EV.05.13 Describe how fossils provide evidence about how living things and environmental conditions	Recommendations Recommended Lesson	Resources Vocabulary Power, p. RS 49
Lesson 1: What Do Fossils Show About Earth's History? (298-309)	 Fossil Mold Cast Index Fossil 	have changed. S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IP.05.12 Design and conduct scientific investigations. S.IP.05.13 Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens) appropriate to scientific investigations. S.IP.05.15 Construct charts and graphs from data and observations. S.IP.05.16 Identify patterns in data. S.IA.05.11 Analyze information from data tables and graphs to answer scientific questions.	Recommended Lesson	Vocabulary Cards Transparency IS 8-1 Lab Manual, p. LM 90 Transparency RS 8-1 Reading Support and Homework, p. RS 50– RS 51

Recommended Course of Study—Grade 5 Unit C: Processes that Change the Earth Chapter 8: Fossils

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Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Lesson 1: What	 Fossil 	S.IA.05.12 Evaluate data, claims, and	Recommended	Vocabulary Cards
Do Fossils	• Mold	personal knowledge through	Lesson	
Show About	• Cast	collaborative science discourse.		Transparency IS 8-1
Earth's History?	 Index Fossil 	S.IA.05.13 Communicate and defend		
(298-309)		findings of observations and		Lab Manual,
cont		investigations using evidence.		p. LM 90
		S.IA.05.15 Use multiple sources of		
		information to evaluate strengths and		Transparency RS 8-
		weaknesses of claims, arguments, or		
		data. (Independent Inquiry option &		Reading Support and
		Math and Language Arts option, p.		Homework,
		309)		p. RS 50– RS 51
		S.RS.05.11 Evaluate the strengths and		
		weaknesses of claims, arguments, and		
		data.		
		S.RS.05.12 Describe limitations in		
		personal and scientific knowledge.		
		S.RS.05.13 Identify the need for		
		evidence in making scientific		
		decisions.		
		S.RS.05.15 Demonstrate scientific		
		concepts through various illustrations,		
		performances, models, exhibits, and		
		activities.		
		L.EV.05.13 Describe how fossils		
		provide evidence about how living		
		things and environmental conditions		
		have changed.		
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Recommended Course of Study—Grade 5 Unit C: Processes that Change the Earth Chapter 8: Fossils

Chapter 8: Fossils					
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended	
Description		Expectations (Kindergarten)	Recommendations	Resources	
Lesson 2: How	 Paleontology 	S.IP.05.11 Generate scientific	Recommended	Vocabulary Cards	
Are Fossils		questions based on observations,	Lesson		
Like Today's		investigations, and research.		Transparency IS 8-2	
Living Things?		S.IP.05.13 Use tools and equipment			
(310-319)		(spring scales, stop watches, meter		Lab Manual,	
		sticks and tapes, models, hand lens)		p. LM 93	
		appropriate to scientific investigations.			
		S.IP.05.15 Construct charts and		Transparency RS 8-2	
		graphs from data and observations.			
		S.IP.05.16 Identify patterns in data.		Reading Support and	
		S.IA.05.11 Analyze information from		Homework,	
		data tables and graphs to answer		p. RS 52– RS 53	
		scientific questions.			
		S.IA.05.12 Evaluate data, claims, and			
		personal knowledge through			
		collaborative science discourse.			
		S.IA.05.13 Communicate and defend			
		findings of observations and			
		investigations using evidence.			
		S.IA.05.15 Use multiple sources of			
		information to evaluate strengths and			
		weaknesses of claims, arguments, or			
		data. (Independent Inquiry option &			
		Math and Social Studies options, p.			
		319)			
		S.RS.05.11 Evaluate the strengths and			
		weaknesses of claims, arguments, and			
		data.			
		S.RS.05.12 Describe limitations in			
		personal and scientific knowledge.			

Recommended Course of Study—Grade 5 Unit C: Processes that Change the Earth

Chapter 8: Fossils

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Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Lesson 2: How	 Paleontology 	S.RS.05.13 Identify the need for	Recommended	Vocabulary Cards
Are Fossils		evidence in making scientific	Lesson	
Like Today's		decisions.		Transparency IS 8-2
Living Things?		S.RS.05.15 Demonstrate scientific		
(310-319)		concepts through various illustrations,		Lab Manual,
cont		performances, models, exhibits, and		p. LM 93
		activities.		
		L.EV.05.13 Describe how fossils		Transparency RS 8-2
		provide evidence about how living		
		things and environmental conditions		Reading Support and
		have changed.		Homework,
		nave enungea.		p. RS 52– RS 53
Science Spin	Rodent	S.IP.05.11 Generate scientific	Recommended	www.hspscience.com
from Weekly	reacht	questions based on observations,	Lesson	www.nspsetenee.com
Reader: Attack		investigations, and research.	Lesson	
of the Guinea-		S.IA.05.15 Use multiple sources of		
Zilla		information to evaluate strengths and		
(320-321)		weaknesses of claims, arguments, or		
(320 321)		data.		
		S.RS.05.19 Describe how science and		
		technology have advanced because of		
		the contributions of many people		
		throughout history and across cultures.		
		L.EV.05.13 Describe how fossils		
		provide evidence about how living		
		things and environmental conditions		
		have changed.		

HSP Science Recommended Course of Study—Grade 5 Unit C: Processes that Change the Earth					
Lesson	Chapter 8: FossilsLessonVocabularyMichigan Grade Level ContentLessonRecommended				
Description	, como unua y	Expectations (Kindergarten)	Recommendations	Resources	
Chapter 8 Review and Test Prep	FossilsMoldIndex Fossil	L.EV.05.13 Describe how fossils provide evidence about how living things and environmental conditions	Recommended Lesson	Assessment Guide, p. AG 55-60	
(322-323)	Paleontology	have changed.		Online Assessment: www.hspscience.com	

Recommended Course of Study—Grade 5 Unit C: Processes that Change the Earth

Chapter 9: Changes to Earth's Surfaces

Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description	-	Expectations (Kindergarten)	Recommendations	Resources
Below Level	 Erosion 		Review Lesson –	Below Level Leveled
Leveled Reader:	 Plate 		Earth's surface	Reader: Changes to
Changes to the	 Crust 		changes are	the Earth's Surface
Earth's Surface			covered in the	
(324C)			Grade 3 GLCEs.	
			Use as needed.	
On Level	• Erosion		Review Lesson –	On Level Leveled
Leveled Reader:	• Plate		Earth's surface	Reader: Ever
Ever Changing	 Crust 		changes are	Changing Earth
Earth			covered in the	
(324C)			Grade 3 GLCEs.	
			Use as needed.	
Challenge	 Erosion 		Review Lesson –	Challenge Leveled
Leveled Reader:	 Plate 		Earth's surface	Reader: Mapping the
Mapping the	 Crust 		changes are	Mountains
Mountains			covered in the	
(324C)			Grade 3 GLCEs.	
			Use as needed.	

Recommended Course of Study—Grade 5 Unit C: Processes that Change the Earth

Chapter 9: Changes to Earth's Surfaces

Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description	•	Expectations (Kindergarten)	Recommendations	Resources
Chapter 9 Opener (324-325)	• Landform	S.IP.05.11 Generate scientific questions based on observations, investigations, and research.	Review Lesson – Earth's surface changes are covered in the Grade 3 GLCEs. Use as needed.	Vocabulary Power, p. RS 54
Lesson 1: What Are Some of Earth's Landforms? (326-335)	 Landform Topography Glacier Sand Dune 	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IP.05.12 Design and conduct scientific investigations. (Independent Inquiry option) S.IP.05.13 Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens) appropriate to scientific investigations. S.IP.05.15 Construct charts and graphs from data and observations. S.IP.05.16 Identify patterns in data. S.IA.05.11 Analyze information from data tables and graphs to answer scientific questions. S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative science discourse. S.IA.05.13 Communicate and defend findings of observations and investigations using evidence. S.IA.05.14 Draw conclusions from sets of data from multiple trials of a scientific investigation. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. (Social Studies option, p. 335) S.RS.05.15 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	Review Lesson – Earth's surface changes are covered in the Grade 3 GLCEs. Use as needed.	Vocabulary Cards Transparency IS 9-1 Lab Manual, p. LM 96 Transparency RS 9-1 Reading Support and Homework, p. RS 55– RS 56

Recommended Course of Study—Grade 5 Unit C: Processes that Change the Earth Chanter 9: Changes to Earth's Surfaces

	Chapter 9: Changes to Earth's Surfaces				
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended	
Description		Expectations (Kindergarten)	Recommendations	Resources	
Lesson 2: What	• Delta	S.IP.05.11 Generate scientific questions	Review Lesson –	Vocabulary Cards	
Causes Changes	 Sinkhole 	based on observations, investigations, and	Earth's surface	-	
to Earth's		research.	changes are	Transparency IS 9-2	
Landforms?		S.IP.05.12 Design and conduct scientific	covered in the		
(336-347)		investigations. (Independent Inquiry option)	Grade 3 GLCEs.	Lab Manual,	
		S.IP.05.13 Use tools and equipment (spring	Use as needed.	p. LM 99	
		scales, stop watches, meter sticks and tapes,			
		models, hand lens) appropriate to scientific		Transparency RS 9-2	
		investigations.			
		S.IP.05.15 Construct charts and graphs from		Reading Support and	
		data and observations.		Homework,	
		S.IP.05.16 Identify patterns in data.		p. RS 57– RS 58	
		S.IA.05.11 Analyze information from data			
		tables and graphs to answer scientific			
		questions.			
		S.IA.05.12 Evaluate data, claims, and			
		personal knowledge through collaborative			
		science discourse.			
		S.IA.05.13 Communicate and defend findings			
		of observations and investigations using			
		evidence.			
		S.IA.05.14 Draw conclusions from sets of			
		data from multiple trials of a scientific			
		investigation.			
		S.IA.05.15 Use multiple sources of			
		information to evaluate strengths and			
		weaknesses of claims, arguments, or data.			
		(Social Studies option)			
		S.RS.05.15 Demonstrate scientific concepts			
		through various illustrations, performances,			
		models, exhibits, and activities.			

Recommended Course of Study—Grade 5 Unit C: Processes that Change the Earth Chapter 9: Changes to Earth's Surfaces

Chapter 9: Changes to Earth's Surfaces				
Lesson Description	Vocabulary	Michigan Grade Level Content Expectations (Kindergarten)	Lesson Recommendations	Recommended Resources
Description Lesson 3: How Do Movements of the Crust Change Earth? (348-359)	 Plate Earthquake Epicenter Fault Magma Lava Volcano 	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IP.05.13 Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens) appropriate to scientific investigations. S.IP.05.14 Use metric measurement devices in an investigation. S.IP.05.15 Construct charts and graphs from data and observations. S.IP.05.16 Identify patterns in data. S.IA.05.11 Analyze information from data tables and graphs to answer scientific questions. S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative science discourse. S.IA.05.13 Communicate and defend findings of observations and investigations using evidence. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. (Social Studies option, p. 359) S.RS.05.15 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	Review Lesson – Earth's surface changes are covered in the Grade 3 GLCEs. Use as needed.	Resources Vocabulary Cards Transparency IS 9-3 Lab Manual, p. LM 102 Transparency RS 9-3 Reading Support and Homework, p. RS 59– RS 60

HSP Science Recommended Course of Study—Grade 5 Unit C: Processes that Change the Earth

Chapter 9: Changes to Earth's Surfaces

Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Science Spin from Weekly Reader: Meltdown! (360-361)	• Glacier	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.	Review Lesson – Earth's surface changes are covered in the Grade 3 GLCEs. Use as needed.	www.hspscience.com
Chapter 9 Review and Test Prep	 Landform Topography Glacier Sand Dune Delta Sinkhole Earthquake Fault Magma Volcano 		Review Lesson – Earth's surface changes are covered in the Grade 3 GLCEs. Use as needed.	Assessment Guide, p. AG 61-66 Online Assessment: www.hspscience.com

Recommended Course of Study—Grade 5 Unit C: Processes that Change the Earth **Chapter 10: Using Resources**

Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description Below Level Leveled Reader: Using Resources	Natural Resources	Expectations (Kindergarten) S.RS.05.17 Describe the effect humans and other organisms have on the balance in the natural world. S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.	Recommendations Recommended Lesson	Resources Below Level Leveled Reader: Using Resources
On Level Leveled Reader: Taking Care of Earth	Natural Resources	S.RS.05.17 Describe the effect humans and other organisms have on the balance in the natural world. S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.	Recommended Lesson	On Level Leveled Reader: Taking Care of Earth
Challenge Leveled Reader: Is This Biodegradable?	Natural ResourcesBiodegradable	S.RS.05.17 Describe the effect humans and other organisms have on the balance in the natural world. S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.	Recommended Lesson	Challenge Leveled Reader: <i>Is This</i> <i>Biodegradable?</i>

Recommended Course of Study—Grade 5

Unit C: Processes that Change the Earth Chapter 10: Using Resources

Lesson Description	Vocabulary	Michigan Grade Level Content Expectations (Kindergarten)	Lesson Recommendations	Recommended Resources
Chapter 10 Opener (364-365)	Resources	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.RS.05.17 Describe the effect humans and other organisms have on the balance in the natural world.	Recommended Lesson	Vocabulary Power, p. RS 61
Lesson 1: How Do People Use Soil and Water Resources? (366-375)	 Renewable Resources Nonrenewable Resources Pollution 	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IP.05.12 Design and conduct scientific investigations. (Independent Inquiry option) S.IP.05.13 Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens) appropriate to scientific investigations. S.IP.05.15 Construct charts and graphs from data and observations. S.IP.05.16 Identify patterns in data. S.IA.05.11 Analyze information from data tables and graphs to answer scientific questions. S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative science discourse. S.IA.05.13 Communicate and defend findings of observations and investigations using evidence. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. (Social Studies option, p. 375) S.RS.05.15 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities. S.RS.05.17 Describe the effect humans and other organisms have on the balance in the natural world. S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.	Recommended Lesson	Vocabulary Cards Transparency IS 10-1 Lab Manual, p. LM 103 Transparency RS 10-1 Reading Support and Homework, p. RS 62– RS 63

Recommended Course of Study—Grade 5

Unit C: Processes that Change the Earth Chapter 10: Using Resources

Chapter 10: Using Resources					
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended	
Description		Expectations (Kindergarten)	Recommendations	Resources	
Lesson 2: How	 Conservation 	S.IP.05.11 Generate scientific	Recommended	Vocabulary Cards	
Can People		questions based on observations,	Lesson		
Conserve		investigations, and research.		Transparency	
Resources?		S.IP.05.12 Design and conduct		IS 10-2	
(376-385)		scientific investigations. (Independent			
		Inquiry option)		Lab Manual,	
		S.IP.05.13 Use tools and equipment		p. LM 108	
		(spring scales, stop watches, meter			
		sticks and tapes, models, hand lens)		Transparency	
		appropriate to scientific investigations.		RS 10-2	
		S.IP.05.15 Construct charts and			
		graphs from data and observations.		Reading Support and	
		S.IP.05.16 Identify patterns in data.		Homework,	
		S.IA.05.11 Analyze information from		p. RS 64– RS 65	
		data tables and graphs to answer			
		scientific questions.			
		S.IA.05.12 Evaluate data, claims, and			
		personal knowledge through			
		collaborative science discourse.			
		S.IA.05.13 Communicate and defend			
		findings of observations and			
		investigations using evidence.			
		S.IA.05.14 Draw conclusions from			
		sets of data from multiple trials of a			
		scientific investigation.			
		S.IA.05.15 Use multiple sources of			
		information to evaluate strengths and			
		weaknesses of claims, arguments, or			
		data. (Math and Health option, p.			
		385)			

Recommended Course of Study—Grade 5

Unit C: Processes that Change the Earth Chanter 10: Using Resources

		Chapter 10: Using Resources		
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Lesson 2: How	 Conservation 	S.RS.05.15 Demonstrate scientific	Recommended	Vocabulary Cards
Can People		concepts through various illustrations,	Lesson	-
Conserve		performances, models, exhibits, and		Transparency
Resources?		activities.		IS 10-2
(376-385)		S.RS.05.17 Describe the effect		
cont		humans and other organisms have on		Lab Manual,
		the balance in the natural world.		p. LM 108
		S.RS.05.19 Describe how science and		
		technology have advanced because of		Transparency
		the contributions of many people		RS 10-2
		throughout history and across cultures.		
				Reading Support and
				Homework,
				p. RS 64– RS 65
People in	Anthropologist	S.IP.05.11 Generate scientific	Recommended	www.hspscience.com
Science	 Microbiologist 	questions based on observations,	Lesson	
(386-387)	_	investigations, and research.		
		S.IA.05.15 Use multiple sources of		
		information to evaluate strengths and		
		weaknesses of claims, arguments, or		
		data.		
		S.RS.05.17 Describe the effect		
		humans and other organisms have on		
		the balance in the natural world.		
		S.RS.05.19 Describe how science and		
		technology have advanced because of		
		the contributions of many people		
		throughout history and across cultures.		

HSP Science Recommended Course of Study—Grade 5					
	Ţ	Unit C: Processes that Change the Earth	1		
T	X 7 1 1	Chapter 10: Using Resources	Τ	D 1.1	
Lesson Description	Vocabulary	Michigan Grade Level Content Expectations (Kindergarten)	Lesson Recommendations	Recommended Resources	
Chapter 10 Review and Test Prep (388-389)	 Renewable Resources Nonrenewable Resources Pollution Conservation 	S.RS.05.17 Describe the effect humans and other organisms have on the balance in the natural world. S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.	Recommended Lesson	Assessment Guide, p. AG 61-66 Online Assessment: www.hspscience.com	

Harcourt School Publishers Science Recommended Course of Study Unit D: Cycles on Earth and in Space (Michigan Edition)

	Recommended Course of Study—Grade 5				
		Unit D: Cycles on Earth and in Space			
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended	
Description		Expectations (Kindergarten)	Recommendations	Resources	
Unit D Inquiry	 Erosion 	S.IP.05.11 Generate scientific	Review Lesson –	Lab Manual,	
Lesson		questions based on observations,	Changes to the	p. LM 109 – LM 112	
(391A-391B)		investigations, and research.	surface of the Earth		
		S.IP.05.12 Design and conduct	are covered in the	Transparencies	
		scientific investigations. (Independent	Grade 3 GLCEs.	EX 13 – EX 16	
		Inquiry option)	Use as needed.		
		S.IP.05.13 Use tools and equipment			
		(spring scales, stop watches, meter			
		sticks and tapes, models, hand lens)			
		appropriate to scientific investigations.			
		S.IA.05.13 Communicate and defend			
		findings of observations and			
		investigations using evidence.			
		S.RS.05.15 Demonstrate scientific			
		concepts through various illustrations,			
		performances, models, exhibits, and			
		activities.			
		S.RS.05.16 Design solutions to			
		problems using technology.			
		S.RS.05.17 Describe the effect			
		humans and other organisms have on			
		the balance in the natural world.			
		S.RS.05.19 Describe how science and			
		technology have advanced because of			
		the contributions of many people			
		throughout history and across cultures.			

Recommended Course of Study—Grade 5

Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Below Level	 Weather 		Review Lesson –	Below Level Leveled
Leveled Reader:	 Water cycle 		The water cycle is	Reader: Weather and
Weather and			covered in the	the Water Cycle
the Water Cycle			Grade 2 GLCEs.	·
(392C)			Use as needed.	
On Level	Hurricane		Optional Lesson-	On Level Leveled
Leveled Reader:			Weather is covered	Reader: Sun, Rain,
Sun, Rain,			in the Grade 7	Hurricane!
Hurricane!			GLCEs.	
(392C)				
Challenge	• Weather		Optional Lesson-	Challenge Leveled
Leveled Reader:	 Forecast 		Weather is covered	Reader: Will It Rain?
Will It Rain?			in the Grade 7	
(392C)			GLCEs.	

Recommended Course of Study—Grade 5

Chapter 11: Weather and the Water Cycle					
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended	
Description		Expectations (Kindergarten)	Recommendations	Resources	
Chapter 11 Opener (392-393) Lesson 1: What	WeatherWater CycleAtmosphere	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IP.05.11 Generate scientific questions based on	Optional Lesson— Weather is covered in the Grade 7 GLCEs. Optional Lesson—	Vocabulary Power, p. RS 67 Vocabulary Cards	
Causes Weather? (394-403)	 Troposphere Air Pressure Local Winds Prevailing Winds 	observations, investigations, and research. S.IP.05.12 Design and conduct scientific investigations. (Independent Inquiry option) S.IP.05.13 Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens) appropriate to scientific investigations. S.IP.05.15 Construct charts and graphs from data and observations. S.IP.05.16 Identify patterns in data. S.IA.05.11 Analyze information from data tables and graphs to answer scientific questions. S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative science discourse. S.IA.05.13 Communicate and defend findings of observations and investigations using evidence. S.IA.05.14 Draw conclusions from sets of data from multiple trials of a scientific investigation. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. (Health option, p. 403) S.RS.05.15 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	Weather is covered in the Grade 7 GLCEs.	Transparency IS 11-1 Lab Manual, p. LM 115 Transparency RS 11-1 Reading Support and Homework, p. RS 68– RS 69	

Recommended Course of Study—Grade 5

Chapter 11: Weather and the Water Cycle					
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended	
Description		Expectations (Kindergarten)	Recommendations	Resources	
Lesson 2: What Conditions Affect the Water Cycle? (404-413)	 Water Cycle Evaporation Condensation Humidity Precipitation 	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IP.05.12 Design and conduct scientific investigations. (Independent Inquiry option) S.IP.05.13 Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens) appropriate to scientific investigations. S.IP.05.14 Use metric measurement devices in an investigation. S.IP.05.15 Construct charts and graphs from data and observations. S.IP.05.16 Identify patterns in data. S.IA.05.11 Analyze information from data tables and graphs to answer scientific questions. S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative science discourse. S.IA.05.13 Communicate and defend findings of observations and investigations using evidence. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. (Math and Social Studies option, p. 413) S.RS.05.15 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities. S.RS.05.17 Describe the effect humans and other organisms have on the balance in the natural world.	Optional Lesson—Weather is covered in the Grade 7 GLCEs.	Resources Vocabulary Cards Transparency IS 11-2 Lab Manual, p. LM 118 Transparency RS 11-2 Reading Support and Homework, p. RS 70– RS 71	

Recommended Course of Study—Grade 5

		Chapter 11: Weather and the Water Cyc	le	
Lesson	Vocabulary	Michigan Grade Level Content Expectations	Lesson	Recommended
Description	-	(Kindergarten)	Recommendations	Resources
Lesson 3: How	Air Mass	S.IP.05.11 Generate scientific questions based	Optional Lesson-	Vocabulary Cards
Can Patterns in	 Front 	on observations, investigations, and research.	Weather is covered	
Weather Be	 Climate 	S.IP.05.12 Design and conduct scientific	in the Grade 7	Transparency
Observed?		investigations. (Independent Inquiry option)	GLCEs.	IS 11-3
(414-425)		S.IP.05.13 Use tools and equipment (spring		
		scales, stop watches, meter sticks and tapes,		Lab Manual,
		models, hand lens) appropriate to scientific		p. LM 121
		investigations.		
		S.IP.05.14 Use metric measurement devices in		Transparency
		an investigation.		RS 11-3
		S.IP.05.15 Construct charts and graphs from		
		data and observations.		Reading Support and
		S.IP.05.16 Identify patterns in data.		Homework,
		S.IA.05.11 Analyze information from data		p. RS 72– RS 73
		tables and graphs to answer scientific questions.		
		S.IA.05.12 Evaluate data, claims, and personal		
		knowledge through collaborative science		
		discourse.		
		S.IA.05.13 Communicate and defend findings		
		of observations and investigations using		
		evidence.		
		S.IA.05.14 Draw conclusions from sets of data		
		from multiple trials of a scientific investigation.		
		S.IA.05.15 Use multiple sources of information		
		to evaluate strengths and weaknesses of claims,		
		arguments, or data. (Math and Social Studies		
		options, p. 425)		
		S.RS.05.15 Demonstrate scientific concepts		
		through various illustrations, performances,		
		models, exhibits, and activities.		

Lesson Description	Vocabulary	Michigan Grade Level Content Expectations (Kindergarten)	Lesson Recommendations	Recommended Resources
Science Spin from Weekly Reader: On the Lookout (426-427)	• Forecast	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.	Optional Lesson—Weather is covered in the Grade 7 GLCEs.	www.hspscience.com
Chapter 11 Review and Test Prep (428-429)	 Atmosphere Air Pressure Local Wind Prevailing winds Water Cycle Evaporation Condensation Precipitation Air Mass Climate 		Optional Lesson—Weather is covered in the Grade 7 GLCEs.	Assessment Guide, p. AG 79-84 Online Assessment: www.hspscience.com

Recommended Course of Study—Grade 5

Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Below Level	 Ocean 		Optional Lesson –	Below Level Leveled
Leveled Reader:			Oceans are covered	Reader: Earth's
Earth's Oceans			in the Grade 7	Oceans
(430C)			GLCEs.	
On Level	 Ocean 		Optional Lesson –	On Level Leveled
Leveled Reader:			Oceans are covered	Reader: Powerful
Powerful			in the Grade 7	Oceans
Oceans			GLCEs.	
(430C)				
Challenge	 Ocean 		Optional Lesson –	Challenge Leveled
Leveled Reader:			Oceans are covered	Reader: Discovering
Discovering the			in the Grade 7	the Secrets of the Sea
Secrets of the			GLCEs.	
Sea				
(430C)				

Recommended Course of Study—Grade 5

Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Chapter 12 Opener (430-431) Lesson 1: What Are the Oceans Like? (432-441)	 Oceans Salinity Water Pressure Continental Shelf Continental Slope Abyssal 		Recommendations Optional Lesson – Oceans are covered in the Grade 7 GLCEs. Optional Lesson – Oceans are covered in the Grade 7 GLCEs.	Vocabulary Power, p. RS 74 Vocabulary Cards Transparency IS 12-1 Lab Manual, p. LM 124
	Plain	and observations. S.IP.05.16 Identify patterns in data. S.IA.05.11 Analyze information from data tables and graphs to answer scientific questions. S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative science discourse. S.IA.05.13 Communicate and defend findings of observations and investigations using evidence. S.IA.05.14 Draw conclusions from sets of data from multiple trials of a scientific investigation. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. (Health option, p. 441) S.RS.05.15 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.		Transparency RS 12-1 Reading Support and Homework, p. RS 75– RS 76

Recommended Course of Study—Grade 5

Chapter 12: Earth's Oceans					
Lesson	Vocabulary	Michigan Grade Level Content Expectations	Lesson	Recommended	
Description		(Kindergarten)	Recommendations	Resources	
Lesson 2: How	• Wave	S.IP.05.11 Generate scientific questions based on	Recommended	Vocabulary Cards	
Does Ocean	 Current 	observations, investigations, and research.	Lesson – Stress		
Water Move?	• Tide	S.IP.05.12 Design and conduct scientific	tides.	Transparency	
(442-451)		investigations. (Independent Inquiry option)		IS 12-2	
		S.IP.05.13 Use tools and equipment (spring			
		scales, stop watches, meter sticks and tapes,		Lab Manual,	
		models, hand lens) appropriate to scientific		p. LM 127	
		investigations.			
		S.IP.05.15 Construct charts and graphs from data		Transparency	
		and observations.		RS 12-2	
		S.IP.05.16 Identify patterns in data.			
		S.IA.05.11 Analyze information from data tables		Reading Support and	
		and graphs to answer scientific questions.		Homework,	
		S.IA.05.12 Evaluate data, claims, and personal		p. RS 77– RS 78	
		knowledge through collaborative science			
		discourse.			
		S.IA.05.13 Communicate and defend findings of			
		observations and investigations using evidence.			
		S.IA.05.14 Draw conclusions from sets of data			
		from multiple trials of a scientific investigation.			
		S.IA.05.15 Use multiple sources of information			
		to evaluate strengths and weaknesses of claims,			
		arguments, or data. (Math option, p. 451)			
		S.RS.05.15 Demonstrate scientific concepts			
		through various illustrations, performances,			
		models, exhibits, and activities.			
		E.ST.05.25 Explain the tides of the oceans as			
		they relate to the gravitational pull and orbit of			
		the moon.			

Recommended Course of Study—Grade 5

Lesson	Vocabulary	Michigan Grade Level Content Expectations	Lesson	Recommended
	v ocubului y	_		
Description Lesson 3: What Forces Shape Shorelines? (452-461)		Kindergarten) S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IP.05.12 Design and conduct scientific investigations. (Independent Inquiry option) S.IP.05.13 Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens) appropriate to scientific investigations. S.IP.05.15 Construct charts and graphs from data and observations. S.IP.05.16 Identify patterns in data. S.IA.05.11 Analyze information from data tables and graphs to answer scientific questions. S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative science discourse. S.IA.05.13 Communicate and defend findings of observations and investigations using evidence. S.IA.05.14 Draw conclusions from sets of data from multiple trials of a scientific investigation. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. (Social Studies option, p. 461) S.RS.05.15 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities. S.RS.05.17 Describe the effect humans and other organisms have on the balance in the	Recommendations Optional Lesson – Oceans are covered in the Grade 7 GLCEs.	Recommended Resources Vocabulary Cards Transparency IS 12-3 Lab Manual, p. LM 130 Transparency RS 12-3 Reading Support and Homework, p. RS 79– RS 80

		Chapter 12. Earth's Occans		
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
People in Science (462-463)	ScientistProfessor	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.	Optional Lesson – Oceans are covered in the Grade 7 GLCEs.	www.hspscience.com
Chapter 12 Review and Test Prep (464-465)	 Continental Shelf Continental Slope Abyssal Plain Wave Current Tide Headland Tide Pool 		Optional Lesson – Oceans are covered in the Grade 7 GLCEs.	Assessment Guide, p. AG 85-90 Online Assessment: www.hspscience.com

Lesson	Vocabulary	Michigan Grade Level Content Expectations (Kindergarten)	Lesson Recommendations	Recommended Resources
Below Level Leveled Reader: Earth, Moon and Beyond (466D)	EarthSunMoon	E.ES.05.61 Demonstrate using a model, seasons as the result of variations in the intensity of sunlight caused by the tilt of the Earth on its axis, and revolution around the sun. E.ES.05.62 Explain how the revolution of the Earth around the sun defines a year.	Recommended Lesson	Below Level Leveled Reader: Earth, Moon and Beyond
On Level Leveled Reader: Earth and Beyond (466D)	EarthSunMoon	E.ES.05.61 Demonstrate using a model, seasons as the result of variations in the intensity of sunlight caused by the tilt of the Earth on its axis, and revolution around the sun. E.ES.05.62 Explain how the revolution of the Earth around the sun defines a year.	Recommended Lesson	On Level Leveled Reader: Earth and Beyond
Challenge Leveled Reader: Planet Data (466D)	• Planets	E.ST.05.21 Describe the motion of planets and moons in terms of rotation on axis and orbits due to gravity.	Recommended Lesson	Challenge Leveled Reader: <i>Planet Data</i>

Recommended Course of Study—Grade 5

Lesson	Vocabulary	Michigan Grade Level Content Expectations	Lesson	Recommended
Description	-	(Kindergarten)	Recommendations	Resources
Chapter 13 Opener (466-467)	• Earth • Moon	S.IP.05.11 Generate scientific questions based on observations, investigations, and research.	Recommended Lesson	Vocabulary Power, p. RS 81
Lesson 1: How Does Earth's Orbit Affect the Seasons? (468-477)	 Sun Rotate Revolve Orbit Equator 	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IP.05.12 Design and conduct scientific investigations. (Independent Inquiry option) S.IP.05.13 Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens) appropriate to scientific investigations. S.IP.05.15 Construct charts and graphs from data and observations. S.IP.05.16 Identify patterns in data. S.IA.05.11 Analyze information from data tables and graphs to answer scientific questions. S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative science discourse. S.IA.05.13 Communicate and defend findings of observations and investigations using evidence. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. (Social Studies option, p. 477) S.RS.05.15 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities. E.ES.05.61 Demonstrate using a model, seasons as the result of variations in the intensity of sunlight caused by the tilt of the Earth on its axis, and revolution around the sun. E.ES.05.62 Explain how the revolution of the Earth around the sun defines a year.	Recommended Lesson	Transparency IS 13-1 Lab Manual, p. LM 133 Transparency RS 13-1 Reading Support and Homework, p. RS 82- RS 83

Lesson	Vocabulary	Chapter 13: Earth, Moon and Beyond Michigan Grade Level Content	Lesson	Recommended
Description	, consular y	Expectations (Kindergarten)	Recommendations	Resources
Lesson 2: How do Earth and the Moon Compare? (478-487)	 Moon Crater Moon Phase Eclipse Refraction 	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IP.05.12 Design and conduct scientific investigations. (Independent Inquiry option) S.IP.05.13 Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens) appropriate to scientific investigations. S.IP.05.14 Use metric measurement devices in an investigation. S.IP.05.15 Construct charts and graphs from data and observations. S.IP.05.16 Identify patterns in data. S.IA.05.11 Analyze information from data tables and graphs to answer scientific questions. S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative science discourse. S.IA.05.13 Communicate and defend findings of observations and investigations using evidence. S.IA.05.14 Draw conclusions from sets of data from multiple trials of a scientific investigation.	Recommended Lesson	Vocabulary Cards Transparency IS 13-2 Lab Manual, p. LM 136 Transparency RS 13-2 Reading Support and Homework, p. RS 84– RS 85

Recommended Course of Study—Grade 5
Unit D: Cycles on Earth and in Space
Chapter 13: Farth Moon and Beyond

		Chapter 13: Earth, Moon and Beyond		
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Lesson 2: How	• Moon	S.RS.05.15 Demonstrate scientific concepts	Recommended	Vocabulary Cards
do Earth and the	 Crater 	through various illustrations, performances,	Lesson	
Moon	 Moon Phase 	models, exhibits, and activities.		Transparency
Compare?	 Eclipse 	S.RS.05.19 Describe how science and		IS 13-2
(478-487)	 Refraction 	technology have advanced because of the		
cont		contributions of many people throughout		Lab Manual,
		history and across cultures.		p. LM 136
		E.ST.05.22 Explain moon phases as they		
		relate to the position of the moon in its orbit		Transparency
		around the Earth, resulting in the amount of		RS 13-2
		observable reflected light.		D 1: C 1
		E.ST.05.24 Explain lunar and solar eclipses		Reading Support and
		based on the relative positions of the Earth, moon, and sun, and the orbit of the moon.		Homework, p. RS 84– RS 85
		moon, and sun, and the orbit of the moon.		p. NS 64- NS 63
Lesson 3: What	• Star	S.IP.05.11 Generate scientific questions	Recommended	Vocabulary Cards
Makes Up Our	Solar System	based on observations, investigations, and	Lesson	
Solar System?	 Constellation 	research.		Transparency
(488-501)	 Planet 	S.IP.05.12 Design and conduct scientific		IS 13-3
	 Universe 	investigations. (Independent Inquiry		
	 Galaxy 	option)		Lab Manual,
		S.IP.05.13 Use tools and equipment (spring		p. LM 139
		scales, stop watches, meter sticks and tapes,		
		models, hand lens) appropriate to scientific		Transparency
		investigations.		RS 13-3
		S.IP.05.15 Construct charts and graphs		D 1: G
		from data and observations.		Reading Support and
		S.IP.05.16 Identify patterns in data.		Homework,
		S.IA.05.11 Analyze information from data		p. RS 86– RS 87
		tables and graphs to answer scientific		
		questions.		

HSP Science Recommended Course of Study—Grade 5 Unit D: Cycles on Earth and in Space Chapter 13: Farth Moon and Beyond

		Chapter 13: Earth, Moon and Beyond		
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Lesson 3: What	• Star	S.IA.05.12 Evaluate data, claims, and	Recommended	Vocabulary Cards
Makes Up Our	 Solar System 	personal knowledge through	Lesson	
Solar System?	 Constellation 	collaborative science discourse.		Transparency
(488-501)	 Planet 	S.IA.05.13 Communicate and defend		IS 13-3
cont	 Universe 	findings of observations and		
	 Galaxy 	investigations using evidence.		Lab Manual,
		S.IA.05.15 Use multiple sources of		p. LM 139
		information to evaluate strengths and		
		weaknesses of claims, arguments, or		Transparency
		data. (Literature option, p. 501)		RS 13-3
		S.RS.05.15 Demonstrate scientific		
		concepts through various illustrations,		Reading Support and
		performances, models, exhibits, and		Homework,
		activities.		p. RS 86– RS 87
		S.RS.05.19 Describe how science and		
		technology have advanced because of		
		the contributions of many people		
		throughout history and across cultures.		
		E.ST.05.11 Design a model that		
		describes the position and relationship		
		of the planets and other objects		
		(comets and asteroids) to the sun.		
		E.ST.05.21 Describe the motion of		
		planets and moons in terms of rotation		
		on axis and orbits due to gravity.		
		E.ST.05.23 Recognize that nighttime		
		objects (stars and constellations) and		
		the sun appear to move because the		
		Earth rotates on its axis and orbits the		
		sun.		

Recommended Course of Study—Grade 5

		Chapter 13: Earth, Moon and Beyond		
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Science Spin from Weekly Reader: Beyond the Shuttle (502-503)	Space Shuttle	s.IP.05.11 Generate scientific questions based on observations, investigations, and research. s.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. s.Rs.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.	Recommended Lesson	www.hspscience.com
Chapter 13 Review and Test Prep (504-505)	 Revolve Orbit Equator Moon Crater Eclipse Solar System Constellation Universe Galaxy 	E.ES.05.61 Demonstrate using a model, seasons as the result of variations in the intensity of sunlight caused by the tilt of the Earth on its axis, and revolution around the sun. E.ES.05.62 Explain how the revolution of the Earth around the sun defines a year. E.ST.05.11 Design a model that describes the position and relationship of the planets and other objects (comets and asteroids) to the sun. E.ST.05.21 Describe the motion of planets and moons in terms of rotation on axis and orbits due to gravity. E.ST.05.22 Explain moon phases as they relate to the position of the moon in its orbit around the Earth, resulting in the amount of observable reflected light. E.ST.05.23 Recognize that nighttime objects (stars and constellations) and the sun appear to move because the Earth rotates on its axis and orbits the sun. E.ST.05.24 Explain lunar and solar eclipses based on the relative positions of the Earth, moon, and sun, and the orbit of the moon.	Recommended Lesson	Assessment Guide, p. AG 91-96 Online Assessment: www.hspscience.com

Harcourt School Publishers
Science
Recommended Course of Study
Unit E: Matter and Energy
(Michigan Edition)

	K	ecommended Course of Study—Gra Physical Science: Science on Location	ue 5	
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description	v ocabulat y	Expectations (Kindergarten)	Recommendations	Resources
Advanced Animations (508-509)	• Animatronic	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative science discourse. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures. P.FM.05.34 Relate the size of change in motion to the strength of unbalanced forces and the mass of the object. P.FM.05.41 Explain the motion of an object relative to its point of reference. 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.	Recommended Lesson	
Circus Center, San Francisco (510-511)	• Circus	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative science discourse.	Recommended Lesson	

	Re	commended Course of Study—Gra	de 5	
	T	Physical Science: Science on Location	T	T
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Circus Center, San Francisco (510-511) cont	• Circus	 S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. P.FM.05.34 Relate the size of change in motion to the strength of unbalanced forces and the mass of the object. P.FM.05.41 Explain the motion of an object relative to its point of reference. 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. 	Recommended Lesson	
U. S. Olympic Training Center (512-513)	• Flume	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative science discourse. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.	Recommended Lesson	

		Unit E: Matter and Energy		
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Unit E Inquiry	 Paper 	S.IP.05.11 Generate scientific	Recommended	Lab Manual,
Lesson		questions based on observations,	Lesson – Stress the	p. 140-143
(515A-515B)		investigations, and research.	recycling theme of	
		S.IP.05.12 Design and conduct	this lesson.	Transparencies
		scientific investigations. (Independent		EX 17 – EX 20
		Inquiry option)		
		S.IP.05.13 Use tools and equipment		
		(spring scales, stop watches, meter		
		sticks and tapes, models, hand lens)		
		appropriate to scientific investigations.		
		S.IP.05.15 Construct charts and		
		graphs from data and observations.		
		S.IP.05.16 Identify patterns in data.		
		S.IA.05.11 Analyze information from		
		data tables and graphs to answer		
		scientific questions.		
		S.IA.05.12 Evaluate data, claims, and		
		personal knowledge through		
		collaborative science discourse.		
		S.IA.05.13 Communicate and defend		
		findings of observations and		
		investigations using evidence.		
		S.IA.05.14 Draw conclusions from		
		sets of data from multiple trials of a		
		scientific investigation.		
		S.RS.05.11 Evaluate the strengths and		
		weaknesses of claims, arguments, and		
		data.		

HSP Science
Recommended Course of Study—Grade 5

	Recommended Course of Study—Grade 5					
		Unit E: Matter and Energy				
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended		
Description	-	Expectations (Kindergarten)	Recommendations	Resources		
Unit E Inquiry	 Paper 	of claims, arguments, and data.	Recommended	Lab Manual,		
Lesson		S.RS.05.12 Describe limitations in	Lesson – Stress the	p. 140-143		
(515A-515B)		personal and scientific knowledge.	recycling theme of			
cont		S.RS.05.13 Identify the need for	this lesson.	Transparencies		
		evidence in making scientific		EX 17 – EX 20		
		decisions.				
		S.RS.05.15 Demonstrate scientific				
		concepts through various illustrations,				
		performances, models, exhibits, and				
		activities.				
		S.RS.05.16 Design solutions to				
		problems using technology.				
		S.RS.05.19 Describe how science and				
		technology have advanced because of				
		the contributions of many people				
		throughout history and across cultures.				
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Recommended Course of Study—Grade 5 Unit E: Matter and Energy

Chapter 14: Properties of Matter

Lesson Description	Vocabulary	Michigan Grade Level Content Expectations (Kindergarten)	Lesson Recommendations	Recommended Resources
Below Level	• Matter		Review Lesson –	Below Level Leveled
Leveled Reader:			Matter is covered in	Reader: Properties
Properties of			the Grade 4	of Matter
Matter			GLCEs. Use as	
			needed.	
On Level	• Matter		Review Lesson –	On Level Leveled
Leveled Reader:			Matter is covered in	Reader: It's Good to
It's Good to			the Grade 4	Know About Matter
Know About			GLCEs. Use as	
Matter			needed.	
Challenge	 Matter 		Review Lesson –	Challenge Leveled
Leveled Reader:			Matter is covered in	Reader: Organization
Organization is			the Grade 4	is the Key
the Key			GLCEs. Use as	
			needed.	

Recommended Course of Study—Grade 5

Unit E: Matter and Energy Chapter 14: Properties of Matter

Chapter 14: Properties of Matter					
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended	
Description		Expectations (Kindergarten)	Recommendations	Resources	
Chapter 14	• Matter	S.IP.05.11 Generate scientific questions	Review Lesson –	Vocabulary Power,	
Opener		based on observations, investigations, and	Matter is covered in	p. RS 89	
(516-517)		research.	the Grade 4 GLCEs.		
Lesson 1: What	• Volume	S.IP.05.11 Generate scientific questions	Review Lesson –	Vocabulary Cards	
Is the Structure	• Storm	based on observations, investigations, and	Matter is covered in		
of Matter?	 Molecule 	research.	the Grade 4	Transparency	
(518-529)	 Nucleus 	S.IP.05.12 Design and conduct scientific	GLCEs. Use as	IS 14-1	
	 Element 	investigations. (Independent Inquiry option)	needed.		
	 Periodic 	S.IP.05.13 Use tools and equipment (spring		Lab Manual,	
	Table	scales, stop watches, meter sticks and tapes,		p. LM 146	
		models, hand lens) appropriate to scientific			
		investigations.		Transparency	
		S.IP.05.15 Construct charts and graphs from		RS 14-1	
		data and observations.			
		S.IP.05.16 Identify patterns in data.		Reading Support and	
		S.IA.05.11 Analyze information from data		Homework,	
		tables and graphs to answer scientific		p. RS 90– RS 91	
		questions.			
		S.IA.05.12 Evaluate data, claims, and			
		personal knowledge through collaborative			
		science discourse.			
		S.IA.05.13 Communicate and defend findings			
		of observations and investigations using			
		evidence.			
		S.IA.05.15 Use multiple sources of information to evaluate strengths and			
		information to evaluate strengths and weaknesses of claims, arguments, or data.			
		((Math and Health options, p. 529)			
		S.RS.05.15 Demonstrate scientific concepts			
		through various illustrations, performances,			
		models, exhibits, and activities.			

Recommended Course of Study—Grade 5

Unit E: Matter and Energy Chapter 14: Properties of Matter

Lesson	Vocabulary	Michigan Grade Level Content Expectations	Lesson	Recommended
Description	-	(Kindergarten)	Recommendations	Resources
Lesson 2: What	 Physical 	S.IP.05.11 Generate scientific questions based	Review Lesson –	Vocabulary Cards
Are Physical	Change	on observations, investigations, and research.	Matter is covered in	
Properties and	 Density 	S.IP.05.12 Design and conduct scientific	the Grade 4	Transparency
Changes	 Mixture 	investigations. (Independent Inquiry option)	GLCEs. Use as	IS 14-2
(530-541)	 Solution 	S.IP.05.13 Use tools and equipment (spring	needed.	
		scales, stop watches, meter sticks and tapes,		Lab Manual,
		models, hand lens) appropriate to scientific		p. LM 149
		investigations.		
		S.IP.05.14 Use metric measurement devices in		Transparency
		an investigation.		RS 14-2
		S.IP.05.15 Construct charts and graphs from		
		data and observations.		Reading Support and
		S.IP.05.16 Identify patterns in data.		Homework,
		S.IA.05.11 Analyze information from data		p. RS 92 – RS 93
		tables and graphs to answer scientific questions.		
		S.IA.05.12 Evaluate data, claims, and personal		
		knowledge through collaborative science		
		discourse.		
		S.IA.05.13 Communicate and defend findings		
		of observations and investigations using		
		evidence.		
		S.IA.05.15 Use multiple sources of information		
		to evaluate strengths and weaknesses of claims,		
		arguments, or data. (Social Studies option, p.		
		541)		
		S.RS.05.15 Demonstrate scientific concepts		
		through various illustrations, performances,		
		models, exhibits, and activities.		

HSP Science Recommended Course of Study—Grade 5 Unit E: Matter and Energy

T	Chapter 14: Properties of Matter				
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended	
Description		Expectations (Kindergarten)	Recommendations	Resources	
	• Combustibility • Reactivity	Michigan Grade Level Content			

Unit E: Matter and Energy Chapter 14: Properties of Matter

		Chapter 14. Troperties of Matter		
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
People in Science (550-551)	 Oceanographer Nobel Prize 	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.	Review Lesson – Matter is covered in the Grade 4 GLCEs. Use as needed.	www.hspscience.com
Chapter 14 Review and Test Prep (552-553)	 Atom Molecule Nucleus Periodic Table Element Density Solution Combustibility 		Review Lesson – Matter is covered in the Grade 4 GLCEs. Use as needed.	Assessment Guide, p. AG 103-108 Online Assessment: www.hspscience.com

Recommended Course of Study—Grade 5

Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description	-	Expectations (Kindergarten)	Recommendations	Resources
Below Level	 Energy 		Review lesson –	Below Level Leveled
Leveled Reader:			Kinetic Energy and	Reader: Energy
Energy			Potential Energy	
			are covered in	
			Grade 3 GLCEs.	
			Use as needed.	
On Level	• Energy		Review lesson –	On Level Leveled
Leveled Reader:			Sound energy is	Reader: It Takes
It Takes Energy			covered in Grade 3	Energy
			GLCEs. Use as	
			needed.	
Challenge	 Energy 		Review lesson –	Challenge Leveled
Leveled Reader:			Kinetic Energy and	Reader: Wind
Wind Energy			Potential Energy	Energy
			are covered in	
			Grade 3 GLCEs.	
			Use as needed.	

Recommended Course of Study—Grade 5

T	T *	Chapter 15: Energy	Γ.	
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Chapter 15	• Energy	S.IP.05.11 Generate scientific	Review lesson –	Vocabulary Power,
Opener		questions based on observations,	Kinetic Energy and	p. RS 96
(554-555)		investigations, and research.	Potential Energy	
			are covered in	
			Grade 3 GLCEs.	
Lesson 1: What	• Energy	S.IP.05.11 Generate scientific	Review lesson –	Vocabulary Cards
Are Kinetic and	Kinetic Energy	questions based on observations,	Kinetic Energy and	3
Potential	Potential Energy	investigations, and research.	Potential Energy	Transparency
Energy?	Energy Transfer	S.IP.05.12 Design and conduct	are covered in	IS 15-1
(556-565)		scientific investigations. (Independent	Grade 3 GLCEs.	
		Inquiry option)	Use as needed.	Lab Manual,
		S.IP.05.13 Use tools and equipment		p. LM 155
		(spring scales, stop watches, meter		
		sticks and tapes, models, hand lens)		Transparency
		appropriate to scientific investigations.		RS 15-1
		S.IP.05.14 Use metric measurement		
		devices in an investigation.		Reading Support and
		S.IP.05.15 Construct charts and		Homework,
		graphs from data and observations.		p. RS 97– RS 98
		S.IP.05.16 Identify patterns in data.		
		S.IA.05.11 Analyze information from		
		data tables and graphs to answer		
		scientific questions.		
		S.IA.05.12 Evaluate data, claims, and		
		personal knowledge through		
		collaborative science discourse.		
		S.IA.05.13 Communicate and defend		
		findings of observations and		
		investigations using evidence.		
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Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Lesson 1: What Are Kinetic and Potential Energy? (556-565) cont	 Energy Kinetic Energy Potential Energy Energy Transfer 	s.IA.05.14 Draw conclusions from sets of data from multiple trials of a scientific investigation. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. (Language Arts option) S.RS.05.15 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities. S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.	Review lesson – Kinetic Energy and Potential Energy are covered in Grade 3 GLCEs.	Vocabulary Cards Transparency IS 15-1 Lab Manual, p. LM 155 Transparency RS 15-1 Reading Support and Homework, p. RS 97– RS 98

Chapter 15: Energy					
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended	
Description		Expectations (Kindergarten)	Recommendations	Resources	
Lesson 2: What	Solar Energy	S.IP.05.11 Generate scientific	Review lesson –	Vocabulary Cards	
Are Some	• Light	questions based on observations,	Energy is covered		
Forms of	 Chemical Energy 	investigations, and research.	in Grade 3 GLCEs.	Transparency	
Energy?	 Mechanical Energy 	S.IP.05.12 Design and conduct	Use as needed.	IS 15-2	
(566-577)	 Electrical Energy 	scientific investigations. (Independent			
		Inquiry option)		Lab Manual,	
		S.IP.05.13 Use tools and equipment		p. LM 158	
		(spring scales, stop watches, meter			
		sticks and tapes, models, hand lens)		Transparency	
		appropriate to scientific investigations.		RS 15-2	
		S.IP.05.15 Construct charts and			
		graphs from data and observations.		Reading Support and	
		S.IP.05.16 Identify patterns in data.		Homework,	
		S.IA.05.11 Analyze information from		p. RS 99– RS 100	
		data tables and graphs to answer			
		scientific questions.			
		S.IA.05.12 Evaluate data, claims, and			
		personal knowledge through			
		collaborative science discourse.			
		S.IA.05.13 Communicate and defend			
		findings of observations and			
		investigations using evidence. S.RS.05.15 Demonstrate scientific			
		concepts through various illustrations,			
		performances, models, exhibits, and activities.			
		S.RS.05.19 Describe how science and			
		technology have advanced because of			
		the contributions of many people			
		throughout history and across cultures.			
		anoughout mistory and across cultures.			

Recommended Course of Study—Grade 5

Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Lesson 3: How Is Heat Transferred? (578-587)	 Heat System Conduction Convection Radiation Reflection 	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IP.05.12 Design and conduct scientific investigations. (Independent Inquiry option) S.IP.05.13 Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens) appropriate to scientific investigations. S.IP.05.15 Construct charts and graphs from data and observations. S.IP.05.16 Identify patterns in data. S.IA.05.11 Analyze information from data tables and graphs to answer scientific questions. S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative science discourse. S.IA.05.13 Communicate and defend findings of observations and investigations using evidence. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. (Language Arts option, p. 587) S.RS.05.15 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities. S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.	Review lesson – Thermal energy is covered in Grade 3 GLCEs. Use as needed.	Vocabulary Cards Transparency IS 15-3 Lab Manual, p. LM 161 Transparency RS 15-3 Reading Support and Homework, p. RS 101– RS 102

HSP Science Recommended Course of Study—Grade 5 Unit E: Matter and Energy Chapter 15: Energy

		Chapter 15: Energy		
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Lesson 4: How Do People Use Energy Resources? (588-597)	 Fossil Resource Nonrenewable Resource Conservation Renewable Resource Pollution 	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IP.05.12 Design and conduct scientific investigations. (Independent Inquiry option) S.IP.05.13 Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens) appropriate to scientific investigations. S.IP.05.14 Use metric measurement devices in an investigation. S.IP.05.15 Construct charts and graphs from data and observations. S.IP.05.16 Identify patterns in data. S.IA.05.11 Analyze information from data tables and graphs to answer scientific questions. S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative science discourse. S.IA.05.13 Communicate and defend findings of observations and investigations using evidence. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. (Social Studies option, p. 597)	Recommended Lesson – Stress S.RS.05.17.	Transparency IS 15-4 Lab Manual, p. LM 164 Transparency RS 15-4 Reading Support and Homework, p. RS 103– RS 104

Unit E: Matter and Energy Chapter 15: Energy

		Chapter 15: Energy		
Lesson Description	Vocabulary	Michigan Grade Level Content Expectations (Kindergarten)	Lesson Recommendations	Recommended Resources
Lesson 4: How Do People Use Energy Resources? (588-597) cont	 Fossil Resource Nonrenewable Resource Conservation Renewable Resource Pollution 	S.RS.05.15 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities. S.RS.05.16 Design solutions to problems using technology. S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures. S.RS.05.17 Describe the effect humans and other organisms have on the balance in the natural world.	Recommended Lesson – Stress S.RS.05.17.	Vocabulary Cards Transparency IS 15-4 Lab Manual, p. LM 164 Transparency RS 15-4 Reading Support and Homework,
Science Spin from Weekly Reader: Dream Machine (598-599)	Hydrogen power	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. S.RS.05.17 Describe the effect humans and other organisms have on the balance in the natural world. S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.	Recommended Lesson – Stress S.RS.05.17.	p. RS 103– RS 104 www.hspscience.com

Recommended Course of Study—Grade 5 Unit E: Matter and Energy Chapter 15: Energy

Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Chapter 15	• Energy		Review lesson –	Assessment Guide,
Review and	Kinetic Energy		Energy is covered	p. AG 109-114
Test Prep	 Potential Energy 		in Grade 3 GLCEs.	
(600-601)	 Solar Energy 		Use as needed.	Online Assessment:
	 Chemical Energy 			www.hspscience.com
	 Conduction 			
	 Convection 			
	 Radiation 			
	 Conservation 			
	 Renewable 			
	Resource			

Recommended Course of Study—Grade 5

Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description	, v	Expectations (Kindergarten)	Recommendations	Resources
Below Level	• Electricity	S.RS.05.19 Describe how science and		Below Level Leveled
Leveled Reader:		technology have advanced because of		Reader: Electricity
Electricity		the contributions of many people		
(602D)		throughout history and across cultures.		
On Level	• Electricity	S.RS.05.19 Describe how science and		On Level Leveled
Leveled Reader:		technology have advanced because of		Reader: Charge It!
Charge It! How		the contributions of many people		How Electricity
Electricity		throughout history and across cultures.		Works
Works				
(602D)				
Challenge	• Electricity	S.RS.05.19 Describe how science and		Challenge Leveled
Leveled Reader:		technology have advanced because of		Reader: What Can
What Can		the contributions of many people		Robots Do?
Robots Do?		throughout history and across cultures.		
(602D)				

Recommended Course of Study—Grade 5

Lesson Description	Vocabulary	Michigan Grade Level Content Expectations (Kindergarten)	Lesson Recommendations	Recommended Resources
Chapter 16 Opener (602-603)	Electricity	S.IP.05.11 Generate scientific questions based on observations, investigations, and research.	Review lesson – Electricity is covered in Grade 4 GLCEs. Use as needed.	Vocabulary Power, p. RS 105
Lesson 1: How Are Electricity and Magnetism Related? (604-613)	Electricity Electromagnet	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IP.05.12 Design and conduct scientific investigations. (Independent Inquiry option) S.IP.05.13 Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens) appropriate to scientific investigations. S.IP.05.15 Construct charts and graphs from data and observations. S.IP.05.16 Identify patterns in data. S.IA.05.11 Analyze information from data tables and graphs to answer scientific questions. S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative science discourse. S.IA.05.13 Communicate and defend findings of observations and investigations using evidence.	Review lesson – Electricity is covered in Grade 4 GLCEs. Use as needed.	Vocabulary Cards Transparency IS 16-1 Lab Manual, p. LM 167 Transparency RS 16-1 Reading Support and Homework, p. RS 106– RS 107

Lesson Description	Vocabulary	Michigan Grade Level Content Expectations (Kindergarten)	Lesson Recommendations	Recommended Resources
Lesson 1: How Are Electricity and Magnetism Related? (604-613) cont	Electricity Electromagnet	S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. (Health options, p. 613) S.RS.05.15 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities. S.RS.05.16 Design solutions to problems using technology. S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.	Review lesson – Electricity is covered in Grade 4 GLCEs. Use as needed.	Vocabulary Cards Transparency IS 16-1 Lab Manual, p. LM 167 Transparency RS 16-1 Reading Support and Homework, p. RS 106– RS 107

	Chapter 16: Electricity				
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended	
Description		Expectations (Kindergarten)	Recommendations	Resources	
Lesson 2: What Are Static and Current Electricity? (614-623)	 Static Electricity Electric Current Current Electricity Conductor Insulator 	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IP.05.12 Design and conduct scientific investigations. (Independent Inquiry option) S.IP.05.13 Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens) appropriate to scientific investigations. S.IP.05.15 Construct charts and graphs from data and observations. S.IP.05.16 Identify patterns in data. S.IA.05.11 Analyze information from data tables and graphs to answer scientific questions. S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative science discourse. S.IA.05.13 Communicate and defend findings of observations and investigations using evidence. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. (Social Studies option, p. 623) S.RS.05.15 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities. S.RS.05.16 Design solutions to problems using technology. S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.	Review lesson – Electricity is covered in Grade 4 GLCEs. Use as needed.	Transparency IS 16-2 Lab Manual, p. LM 170 Transparency RS 16-2 Reading Support and Homework, p. RS 108– RS 109	

Recommended Course of Study—Grade 5

	Chapter 16: Electricity				
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended	
Description		Expectations (Kindergarten)	Recommendations	Resources	
Lesson 3: What Are Electric Circuits? (624-633)	Electric Circuit Series Circuit Parallel Circuit	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IP.05.12 Design and conduct scientific investigations. (Independent Inquiry option) S.IP.05.13 Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens) appropriate to scientific investigations. S.IP.05.15 Construct charts and graphs from data and observations. S.IP.05.16 Identify patterns in data. S.IA.05.11 Analyze information from data tables and graphs to answer scientific questions. S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative science discourse. S.IA.05.13 Communicate and defend findings of observations and investigations using evidence. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. (Math option, p. 633) S.RS.05.15 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities. S.RS.05.16 Design solutions to problems using technology. S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.	Review lesson – Electricity is covered in Grade 4 GLCEs. Use as needed.	Vocabulary Cards Transparency IS 16-3 Lab Manual, p. LM 173 Transparency RS 16-3 Reading Support and Homework, p. RS 110– RS 111	

Lesson Description	Vocabulary	Michigan Grade Level Content Expectations (Kindergarten)	Lesson Recommendations	Recommended Resources
People in Science (634-635)	 Mathematician Electricity Engineering Physics 	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.	Review lesson – Electricity is covered in Grade 4 GLCEs. Use as needed.	www.hspscience.com
Chapter 16 Review and Test Prep (636-637)	 Electricity Electromagnet Static Electricity Current Electricity Conductor Insulator Series Circuit Parallel Circuit 		Review lesson – Electricity is covered in Grade 4 GLCEs. Use as needed.	Assessment Guide, p. AG 115-120 Online Assessment: www.hspscience.com

Recommended Course of Study—Grade 5
Unit E: Matter and Energy
Chapter 17: Sound and Light

Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Below Level	 Sound 		Review lesson –	Below Level Leveled
Leveled Reader:	 Light 		Light energy, sound	Reader: Sound and
Sound and			energy and waves	Light
Light			are covered in	
(638C)			Grade 3 GLCEs.	
			Use as needed.	
On Level	 Sound 		Review lesson –	On Level Leveled
Leveled Reader:	 Light 		Light energy, sound	Reader:
Understanding			energy and waves	Understanding Sound
Sound and			are covered in	and Light
Light			Grade 3 GLCEs.	
(638C)			Use as needed.	
Challenge	 Sound 		Review lesson –	Challenge Leveled
Leveled Reader:	 Light 		Light energy, sound	Reader: On Tiptoes
On Tiptoes at			energy and waves	at the Top of the
the Top of the			are covered in	World
World			Grade 3 GLCEs.	
(638C)			Use as needed.	

Recommended Course of Study—Grade 5

Unit E: Matter and Energy Chapter 17: Sound and Light

Chapter 17 Opener (638-639) Light S.IP.05.11 Generate scientific questions based on observations, investigations, and research. Light energy are covered Grade 3 Use as 1 Lesson 1: What Is Sound? (640-651) Volume Pitch Frequency S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IP.05.12 Design and conduct scientific waves a investigations. (Independent Inquiry option) S.IP.05.13 Use tools and equipment (spring scales) In Grad	3 GLCEs.
investigation. S.IP.05.15 Construct charts and graphs from data and observations. S.IP.05.16 Identify patterns in data. S.IA.05.11 Analyze information from data tables and graphs to answer scientific questions. S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative science discourse. S.IA.05.13 Communicate and defend findings of observations and investigations using evidence. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data.(Math and Social Studies options, p. 651) S.RS.05.15 Demonstrate scientific concepts through various illustrations, performances, models,	Lab Manual, p. LM 176 Transparency RS 17-1 Reading Support Homework, p. RS 113- RS 11

Unit E: Matter and Energy Chapter 17: Sound and Light

	Chapter 17: Sound and Light			
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Lesson 2: What Is Light? (652-663)	 Reflection Opaque Translucent Transparent Refraction Concave Lens Convex Lens 	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IP.05.12 Design and conduct scientific investigations. (Independent Inquiry option) S.IP.05.13 Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens) appropriate to scientific investigations. S.IP.05.15 Construct charts and graphs from data and observations. S.IP.05.16 Identify patterns in data. S.IA.05.11 Analyze information from data tables and graphs to answer scientific questions. S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative science discourse. S.IA.05.13 Communicate and defend findings of observations and investigations using evidence. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. (Health options, p. 663) S.RS.05.15 Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities. S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.	Review lesson – Light energy is covered in Grade 3 GLCEs. Use as needed.	Vocabulary Cards Transparency IS 17-2 Lab Manual, p. LM 179 Transparency RS 17-2 Reading Support and Homework, p. RS 115– RS 116

HSP Science Recommended Course of Study—Grade 5 Unit E: Matter and Energy Chapter 17: Sound and Light

Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Science Spin from Weekly Reader: A Sound Idea (664-665)	• Bionic	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IA.05.15 Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.	Review lesson – Sound energy and waves are covered in Grade 3 GLCEs. Use as needed.	www.hspscience.com

HSP Science				
Recommended Course of Study—Grade 5				

Unit E: Matter and Energy Chapter 17: Sound and Light

Lesson Description	Vocabulary	Michigan Grade Level Content Expectations (Kindergarten)	Lesson Recommendations	Recommended Resources
		Expectations (Kindergarten)		
Chapter 17	 Volume 		Review lesson –	Assessment Guide,
Review and	• Pitch		Sound energy and	p. AG 121-126
Test Prep	 Opaque 		waves are covered	
(666-667)	 Translucent 		in Grade 3 GLCEs.	Online Assessment:
	 Transparent 		Use as needed.	www.hspscience.com
	 Refraction 			
	 Concave Lens 			
	 Convex Lens 			

Harcourt School Publishers
Science
Recommended Course of Study
Unit F: Forces and Motion
(Michigan Edition)

HSP Science
Recommended Course of Study—Grade 5

on ommendations ommended on	Recommended Resources Lab Manual, p. LM 180 – LM 183 Transparencies
ommended	Lab Manual, p. LM 180 – LM 183
	p. LM 180 – LM 183
on	
	Transparencies
	Transparencies
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	EX 21 – EX 24

Chapter 18: Forces					
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended	
Description		Expectations (Kindergarten)	Recommendations	Resources	
Below Level	• Force	S.RS.05.19 Describe how science and	Recommended	Below Level Leveled	
Leveled Reader:		technology have advanced because of	Lesson	Reader: Forces	
Forces		the contributions of many people			
(670C)		throughout history and across cultures.			
		P.FM.05.21 Distinguish between			
		contact forces and non-contact forces.			
		P.FM.05.22 Demonstrate contact and			
		non-contact forces to change the			
		motion of an object.			
		P.FM.05.31 Describe what happens			
		when two forces act on an object in			
		the same or opposing directions.			
		P.FM.05.32 Describe how constant			
		motion is the result of balanced (zero			
		net) forces.			
		P.FM.05.33 Describe how changes in			
		the motion of objects are caused by a			
		non-zero net (unbalanced) force.			
		P.FM.05.34 Relate the size of change			
		in motion to the strength of			
		unbalanced forces and the mass of the			
		object.			
		P.FM.05.41 Explain the motion of an			
		object relative to its point of reference.			
On Level	• Force	S.RS.05.19 Describe how science and	Recommended	On Level Leveled	
Leveled Reader:		technology have advanced because of	Lesson	Reader: Forces at	
Forces at Work		the contributions of many people		Work cont	
(670C)		throughout history and across cultures.			
		P.FM.05.21 Distinguish between			
		contact forces and non-contact forces.			

Lesson Description	Vocabulary	Michigan Grade Level Content Expectations (Kindergarten)	Lesson Recommendations	Recommended Resources
On Level Leveled Reader: Forces at Work cont (670C)	• Force	S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures. P.FM.05.21 Distinguish between contact forces and non-contact forces.	Recommended Lesson	On Level Leveled Reader: Forces at Work cont
Challenge Leveled Reader: Machines of the Ancient World (670C)	• Force	S.RS.05.19 Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures. P.FM.05.34 Relate the size of change in motion to the strength of unbalanced forces and the mass of the object. P.FM.05.41 Explain the motion of an object relative to its point of reference. 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.	Recommended Lesson	Challenge Leveled Reader: Machines of the Ancient World

Lesson Description	Vocabulary	Michigan Grade Level Content Expectations (Kindergarten)	Lesson Recommendations	Recommended Resources
Chapter 18 Opener (670-671)	• Forces	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. P.FM.05.21 Distinguish between contact forces and non-contact forces. P.FM.05.22 Demonstrate contact and non-contact forces to change the motion of an object. P.FM.05.31 Describe what happens when two forces act on an object in the same or opposing directions. P.FM.05.32 Describe how constant motion is the result of balanced (zero net) forces.	Recommended Lesson	Vocabulary Power, p. RS 118
Lesson 1: What Forces Affect Objects on Earth Every Day? (672-681)	 Force Friction Gravity Gravitational Force Magnetic Magnetic Force 	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IP.05.12 Design and conduct scientific investigations. (Independent Inquiry option) S.IP.05.13 Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens) appropriate to scientific investigations. S.IP.05.15 Construct charts and graphs from data and observations. S.IP.05.16 Identify patterns in data. S.IA.05.11 Analyze information from data tables and graphs to answer scientific questions. S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative science discourse.	Recommended Lesson	Vocabulary Cards Transparency IS 18-1 Lab Manual, p. LM 186 Transparency RS 18-1 Reading Support and Homework, p. RS 119– RS 120

Chapter 18: Forces					
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended	
Description		Expectations (Kindergarten)	Recommendations	Resources	
Lesson 1: What	• Force	S.IA.05.13 Communicate and defend	Recommended	Vocabulary Cards	
Forces Affect	 Friction 	findings of observations and investigations	Lesson		
Objects on	 Gravity 	using evidence.		Transparency	
Earth Every	 Gravitational 	S.IA.05.15 Use multiple sources of		IS 18-1	
Day?	Force	information to evaluate strengths and			
(672-681)	 Magnetic 	weaknesses of claims, arguments, or data.		Lab Manual,	
cont	 Magnetic 	(Social Studies option, p. 681)		p. LM 186	
	Force	S.RS.05.15 Demonstrate scientific concepts			
		through various illustrations, performances,		Transparency	
		models, exhibits, and activities.		RS 18-1	
		S.RS.05.19 Describe how science and			
		technology have advanced because of the		Reading Support and	
		contributions of many people throughout		Homework,	
		history and across cultures.		p. RS 119– RS 120	
		P.FM.05.21 Distinguish between contact			
		forces and non-contact forces.			
		P.FM.05.22 Demonstrate contact and non-			
		contact forces to change the motion of an			
		object.			
		P.FM.05.31 Describe what happens when			
		two forces act on an object in the same or			
		opposing directions.			
		P.FM.05.32 Describe how constant motion			
		is the result of balanced (zero net) forces.			
		P.FM.05.33 Describe how changes in the			
		motion of objects are caused by a non-zero			
		net (unbalanced) force.			
		P.FM.05.34 Relate the size of change in			
		motion to the strength of unbalanced forces			
		and the mass of the object.			

HSP Science Recommended Course of Study—Grade 5 Unit F: Forces and Motion

Chapter 18: Forces				
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description	,	Expectations (Kindergarten)	Recommendations	Resources
Lesson 2: What	Balanced Forces	S.IP.05.11 Generate scientific	Recommended	Vocabulary Cards
Are Balanced	 Unbalanced Forces 	questions based on observations,	Lesson	
and Unbalanced	 Net Force 	investigations, and research.		Transparency
Forces?	 Buoyant Force 	S.IP.05.12 Design and conduct		IS 18-2
(682-691)		scientific investigations. (Independent		
		Inquiry option)		Lab Manual,
		S.IP.05.13 Use tools and equipment		p. LM 189
		(spring scales, stop watches, meter		
		sticks and tapes, models, hand lens)		Transparency
		appropriate to scientific investigations.		RS 18-2
		S.IP.05.14 Use metric measurement		
		devices in an investigation.		Reading Support and
		S.IP.05.15 Construct charts and		Homework,
		graphs from data and observations.		p. RS 121– RS 122
		S.IP.05.16 Identify patterns in data.		
		S.IA.05.11 Analyze information from		
		data tables and graphs to answer		
		scientific questions.		
		S.IA.05.12 Evaluate data, claims, and		
		personal knowledge through		
		collaborative science discourse.		
		S.IA.05.13 Communicate and defend		
		findings of observations and		
		investigations using evidence.		
		S.RS.05.15 Demonstrate scientific		
		concepts through various illustrations,		
		performances, models, exhibits, and		
		activities.		
		P.FM.05.31 Describe what happens		
		when two forces act on an object in		
		the same or opposing directions.		

	Chapter 18: Forces					
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended		
Description		Expectations (Kindergarten)	Recommendations	Resources		
Lesson 2: What Are Balanced and Unbalanced Forces? (682-691) cont	 Balanced Forces Unbalanced Forces Net Force Buoyant Force 	P.FM.05.32 Describe how constant motion is the result of balanced (zero net) forces. P.FM.05.33 Describe how changes in the motion of objects are caused by a non-zero net (unbalanced) force. P.FM.05.43 Illustrate how motion can be measured and represented on a graph. (Transparency 18-2	Recommended Lesson	Vocabulary Cards Transparency IS 18-2 Lab Manual, p. LM 189 Transparency RS 18-2 Reading Support and Homework, p. RS 121– RS 122		
Lesson 3: What is Work, and How is it Measured? (692-701)	 Work Simple Machine Lever Fulcrum Wheel and Axle Pulley Inclined Plane 	S.IP.05.11 Generate scientific questions based on observations, investigations, and research. S.IP.05.12 Design and conduct scientific investigations. (Independent Inquiry) S.IP.05.13 Use tools and equipment (spring scales, stop watches, meter sticks and tapes, models, hand lens) appropriate to scientific investigations. S.IP.05.14 Use metric measurement devices in an investigation. S.IP.05.15 Construct charts and graphs from data and observations. S.IP.05.16 Identify patterns in data. S.IA.05.11 Analyze information from data tables and graphs to answer scientific questions.	Recommended Lesson	Vocabulary Cards Transparency IS 18-3 Lab Manual, p. LM 192 Transparency RS 18-3 Reading Support and Homework, p. RS 123– RS 124		

Chapter 18: Forces					
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended	
Description		Expectations (Kindergarten)	Recommendations	Resources	
Lesson 3: What	• Work	S.IA.05.12 Evaluate data, claims, and	Recommended	Vocabulary Cards	
is Work, and	 Simple Machine 	personal knowledge through	Lesson		
How is it	• Lever	collaborative science discourse.		Transparency	
Measured?	• Fulcrum	S.IA.05.13 Communicate and defend		IS 18-3	
(692-701)	 Wheel and Axle 	findings of observations and			
	• Pulley	investigations using evidence.		Lab Manual,	
	 Inclined Plane 	S.IA.05.15 Use multiple sources of		p. LM 192	
		information to evaluate strengths and			
		weaknesses of claims, arguments, or		Transparency	
		data. (Social Studies option, p. 701)		RS 18-3	
		S.RS.05.15 Demonstrate scientific			
		concepts through various illustrations,		Reading Support and	
		performances, models, exhibits, and		Homework,	
		activities.		p. RS 123– RS 124	
		S.RS.05.19 Describe how science and			
		technology have advanced because of			
		the contributions of many people			
		throughout history and across cultures.			
		P.FM.05.33 Describe how changes in			
		the motion of objects are caused by a			
		non-zero net (unbalanced) force.			
		P.FM.05.34 Relate the size of change			
		in motion to the strength of			
		unbalanced forces and the mass of the			
		object.			
		P.FM.05.41 Explain the motion of an			
		object relative to its point of reference.			
		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.			

	Chapter 18: Forces					
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended		
Description	_	Expectations (Kindergarten)	Recommendations	Resources		
People in	Aeronautical	S.IP.05.11 Generate scientific	Recommended	www.hspscience.com		
Science	Engineer	questions based on observations,	Lesson	_		
(702-703)	_	investigations, and research.				
		S.IA.05.15 Use multiple sources of				
		information to evaluate strengths and				
		weaknesses of claims, arguments, or				
		data.				
		S.RS.05.19 Describe how science and				
		technology have advanced because of				
		the contributions of many people				
		throughout history and across cultures.				
		P.FM.05.33 Describe how changes in				
		the motion of objects are caused by a				
		non-zero net (unbalanced) force.				
		P.FM.05.34 Relate the size of change				
		in motion to the strength of				
		unbalanced forces and the mass of the				
		object.				
		P.FM.05.41 Explain the motion of an				
		object relative to its point of reference.				
Chapter 18	• Friction	P.FM.05.21 Distinguish between	Recommended	Assessment Guide,		
Review and	• Gravity	contact forces and non-contact forces.	Lesson	p. AG 133-138		
Test Prep	Balanced Force	P.FM.05.22 Demonstrate contact and				
(704-705)	Net Force	non-contact forces to change the		Online Assessment:		
	• Work	motion of an object.		www.hspscience.com		
	Simple Machine	P.FM.05.31 Describe what happens				
	• Lever	when two forces act on an object in				
	• Fulcrum	the same or opposing directions.				
	• Pulley	P.FM.05.32 Describe how constant				
	 Inclined Plane 	motion is the result of balanced (zero				
		net) forces.				

Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Lesson Description Chapter 18 Review and Test Prep (704-705)	• Friction • Gravity • Balanced Force • Net Force • Work • Simple Machine • Lever • Fulcrum • Pulley • Inclined Plane	P.FM.05.33 Describe how changes in the motion of objects are caused by a non-zero net (unbalanced) force. P.FM.05.34 Relate the size of change in motion to the strength of unbalanced forces and the mass of the object. P.FM.05.41 Explain the motion of an object relative to its point of reference. 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. P.FM.05.43 Illustrate how motion can	Recommendations Recommended Lesson	Resources Assessment Guide, p. AG 133-138 Online Assessment: www.hspscience.com

	Chapter 19: Motion				
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended	
Description		Expectations (Kindergarten)	Recommendations	Resources	
Below Level	• Motion	S.RS.05.19 Describe how science and	Recommended	Below Level Leveled	
Leveled Reader:		technology have advanced because of	Lesson	Reader: Motion	
Motion		the contributions of many people			
(706C)		throughout history and across cultures.			
		P.FM.05.32 Describe how constant			
		motion is the result of balanced (zero			
		net) forces.			
		P.FM.05.33 Describe how changes in			
		the motion of objects are caused by a			
		non-zero net (unbalanced) force.			
		P.FM.05.34 Relate the size of change			
		in motion to the strength of			
		unbalanced forces and the mass of the			
		object.			
		P.FM.05.41 Explain the motion of an			
		object relative to its point of reference.			
		P.FM.05.42 Describe the motion of an			
		object in terms of distance, time and			
		direction, as the object moves, and in			
O T 1		relationship to other objects.	D 1.1	0 7 17 1 1	
On Level	• Motion	S.RS.05.19 Describe how science and	Recommended	On Level Leveled	
Leveled Reader:		technology have advanced because of	Lesson	Reader: Motion and	
Motion and		the contributions of many people		Movement	
Movement		throughout history and across cultures.			
(706C)		P.FM.05.32 Describe how constant			
		motion is the result of balanced (zero			
		net) forces. P. F.M. 05. 33. Describe how changes in			
		P.FM.05.33 Describe how changes in the motion of objects are caused by a			
		non-zero net (unbalanced) force.			
		non-zero net (unoaranceu) rorce.			

Recommended Course of Study—Grade 5

Chapter 19: Motion				
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
On Level	 Motion 	P.FM.05.34 Relate the size of change	Recommended	On Level Leveled
Leveled Reader:		in motion to the strength of	Lesson	Reader: Motion and
Motion and		unbalanced forces and the mass of the		Movement
Movement		object.		
cont		P.FM.05.41 Explain the motion of an		
(706C)		object relative to its point of reference.		
		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.		
Challenge	• Motion	S.RS.05.19 Describe how science and	Recommended	Challenge Leveled
Leveled Reader:		technology have advanced because of	Lesson	Reader: Adventure of
Adventure of		the contributions of many people		Kittyhawk
Kittyhawk		throughout history and across cultures.		
(706C)		P.FM.05.32 Describe how constant		
		motion is the result of balanced (zero		
		net) forces.		
		P.FM.05.33 Describe how changes in		
		the motion of objects are caused by a		
		non-zero net (unbalanced) force. P.FM.05.34 Relate the size of change		
		in motion to the strength of		
		unbalanced forces and the mass of the		
		object.		
		P.FM.05.41 Explain the motion of an		
		object relative to its point of reference.		
		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.		
		to outer objects.		
	<u> </u>		I	l

	Chapter 19: Motion				
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended	
Description		Expectations (Kindergarten)	Recommendations	Resources	
Chapter 19	• Motion	S.IP.05.11 Generate scientific questions	Recommended	Vocabulary Power,	
Opener		based on observations, investigations, and	Lesson	p. RS 125	
(706-707)		research.			
		P.FM.05.33 Describe how changes in the			
		motion of objects are caused by a non-zero			
		net (unbalanced) force.			
		P.FM.05.34 Relate the size of change in			
		motion to the strength of unbalanced forces			
		and the mass of the object.			
		P.FM.05.41 Explain the motion of an object			
		relative to its point of reference.			
		P.FM.05.42 Describe the motion of an			
		object in terms of distance, time and			
		direction, as the object moves, and in			
T 1 XX	D :::	relationship to other objects.	D 1.1	V 1 1 0 1	
Lesson 1: What	• Position	S.IP.05.11 Generate scientific questions	Recommended	Vocabulary Cards	
Factors Affect	• Speed	based on observations, investigations, and	Lesson	Тиом от от от от	
Motion?	• Velocity	research.		Transparency IS 19-1	
(708-719)	Acceleration	S.IP.05.12 Design and conduct scientific investigations. (Independent Inquiry		15 19-1	
		option)		Lab Manual,	
		S.IP.05.13 Use tools and equipment (spring		p. LM 195	
		scales, stop watches, meter sticks and tapes,		p. Livi 173	
		models, hand lens) appropriate to scientific		Transparency	
		investigations.		RS 19-1	
		S.IP.05.15 Construct charts and graphs			
		from data and observations.		Reading Support and	
		S.IP.05.16 Identify patterns in data.		Homework,	
		S.IA.05.11 Analyze information from data		p. RS 126– RS 127	
		tables and graphs to answer scientific		1	
		questions.			

Recommended Course of Study—Grade 5

Lesson Description Lesson 1: What Factors Affect	Vocabulary • Position	Michigan Grade Level Content Expectations (Kindergarten)	Lesson	Recommended
Lesson 1: What	Position	Expectations (Kindergarten)	D 1.4	
	• Position		Recommendations	Resources
	• Speed	S.IA.05.12 Evaluate data, claims, and personal knowledge through collaborative	Recommended Lesson	Vocabulary Cards
Motion? (708-719) cont	 Speed Velocity Acceleration 	, ,	Recommended	
		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.		

HSP Science Recommended Course of Study—Grade 5 Unit F: Forces and Motion

Chapter 19: Motion					
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended	
Description	•	Expectations (Kindergarten)	Recommendations	Resources	
Lesson 2: What	Inertia	S.IP.05.11 Generate scientific	Recommended	Vocabulary Cards	
Are the Laws of		questions based on observations,	Lesson		
Motion?		investigations, and research.		Transparency	
(720-731)		S.IP.05.12 Design and conduct		IS 19-2	
		scientific investigations. (Independent			
		Inquiry option)		Lab Manual,	
		S.IP.05.13 Use tools and equipment		p. LM 198	
		(spring scales, stop watches, meter			
		sticks and tapes, models, hand lens)		Transparency	
		appropriate to scientific investigations.		RS 19-2	
		S.IP.05.14 Use metric measurement			
		devices in an investigation.		Reading Support and	
		S.IP.05.15 Construct charts and		Homework,	
		graphs from data and observations.		p. RS 128– RS 129	
		S.IP.05.16 Identify patterns in data.			
		S.IA.05.11 Analyze information from			
		data tables and graphs to answer			
		scientific questions.			
		S.IA.05.12 Evaluate data, claims, and			
		personal knowledge through			
		collaborative science discourse.			
		S.IA.05.13 Communicate and defend			
		findings of observations and			
		investigations using evidence.			
		S.IA.05.14 Draw conclusions from			
		sets of data from multiple trials of a			
		scientific investigation.			
		S.IA.05.15 Use multiple sources of			
		information to evaluate strengths and			
		weaknesses of claims, arguments, or			
		data. (Social Studies option, p. 731)			

	Chapter 19: Motion					
Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended		
Description		Expectations (Kindergarten)	Recommendations	Resources		
Lesson 2: What	 Inertia 	S.RS.05.15 Demonstrate scientific	Recommended	Vocabulary Cards		
Are the Laws of		concepts through various illustrations,	Lesson			
Motion?		performances, models, exhibits, and		Transparency		
(720-731)		activities.		IS 19-2		
cont		S.RS.05.19 Describe how science and				
		technology have advanced because of		Lab Manual,		
		the contributions of many people		p. LM 198		
		throughout history and across cultures.				
		P.FM.05.31 Describe what happens		Transparency		
		when two forces act on an object in		RS 19-2		
		the same or opposing directions.				
		P.FM.05.32 Describe how constant		Reading Support and		
		motion is the result of balanced (zero		Homework,		
		net) forces.		p. RS 128– RS 129		
		P.FM.05.33 Describe how changes in				
		the motion of objects are caused by a				
		non-zero net (unbalanced) force.				
		P.FM.05.34 Relate the size of change				
		in motion to the strength of				
		unbalanced forces and the mass of the				
		object.				
		P.FM.05.41 Explain the motion of an				
		object relative to its point of reference.				
		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.				

Lesson	Vocabulary	Michigan Grade Level Content	Lesson	Recommended
Description		Expectations (Kindergarten)	Recommendations	Resources
Science Spin	Restraints	S.IP.05.11 Generate scientific	Recommended	www.hspscience.com
from Weekly	 Black Box 	questions based on observations,	Lesson	
Reader:		investigations, and research.		
Building a Safer		S.IA.05.15 Use multiple sources of		
Race Car		information to evaluate strengths and		
(732-733)		weaknesses of claims, arguments, or		
		data.		
		S.RS.05.19 Describe how science and		
		technology have advanced because of		
		the contributions of many people		
		throughout history and across cultures.		
		P.FM.05.33 Describe how changes in		
		the motion of objects are caused by a		
		non-zero net (unbalanced) force.		
		P.FM.05.34 Relate the size of change		
		in motion to the strength of		
		unbalanced forces and the mass of the		
		object.		
		P.FM.05.41 Explain the motion of an		
		object relative to its point of reference.		
		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.		
		r		

Lesson Description	Vocabulary	Michigan Grade Level Content Expectations (Kindergarten)	Lesson Recommendations	Recommended Resources
Chapter 19 Review and Test Prep (734-735)	 Speed Velocity Acceleration Inertia 	P.FM.05.32 Describe how constant motion is the result of balanced (zero net) forces. P.FM.05.33 Describe how changes in the motion of objects are caused by a non-zero net (unbalanced) force. P.FM.05.34 Relate the size of change in motion to the strength of unbalanced forces and the mass of the object. P.FM.05.41 Explain the motion of an object relative to its point of reference. 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. P.FM.05.43 Illustrate how motion can be measured and represented on a graph.	Recommended Lesson	Assessment Guide, p. AG 139-144 Online Assessment: www.hspscience.com