Harcourt School Publishers
Science
Recommended Course of Study
(Michigan Edition)

HSP Science Recommended Course of Study—Grade 5				
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 Recommended Course of Study—Grade 5				
Getting Ready for Science				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Lesson 1: What Tools Do Scientists Use? (2-13) cont…	• Microscope • Balance	**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.	Recommended Lesson	Vocabulary Cards Transparency IS I-1 Lab Manual, p. LM 15 Transparency RS I-1

HSP Science Recommended Course of Study—Grade 5				
Getting Ready for Science				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Lesson 2: What Inquiry Skills Do Scientists Use? (14-23)	• Investigation • Inquiry • Experiment	**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.	Recommended Lesson	Vocabulary Cards Transparency IS I-2 Lab Manual, p. LM 18 Transparency RS I-2

HSP Science Recommended Course of Study—Grade 5				
Getting Ready for Science				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Lesson 2: What Inquiry Skills Do Scientists Use? (14-23) cont…	• Investigation • Inquiry • Experiment	**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 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.	Recommended Lesson	Vocabulary Cards Transparency IS I-2 Lab Manual, p. LM 18 Transparency RS I-2

HSP Science Recommended Course of Study—Grade 5				
Getting Ready for Science				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
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) 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.	Recommended Lesson	Vocabulary Cards Transparency IS I-3 Lab Manual, p. LM 21 Transparency RS I-3

HSP Science Recommended Course of Study—Grade 5				
Getting Ready for Science				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Lesson 3: What Is the Scientific Method? (24-35) cont…	• Scientific Method • Hypothesis • 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. 35) **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.	Recommended Lesson	Vocabulary Cards Transparency IS I-3 Lab Manual, p. LM 21 Transparency RS I-3

HSP Science Recommended Course of Study—Grade 5				
Getting Ready for Science				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended 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)

HSP Science Recommended Course of Study—Grade 5				
Life Science: Science on Location				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended 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	

HSP Science Recommended Course of Study—Grade 5				
Life Science: Science on Location				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Leaping Lemurs (44-45)	• Lemur • 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.	Recommended Lesson	
Survey of Plants and Animals (46)	• Plants • Animals	**S.IP.05.11** Generate scientific questions based on observations, investigations, and research. **S.IP.05.12** Design and conduct scientific investigations. **S.IP.05.15** 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.	Recommended Lesson	

HSP Science Recommended Course of Study—Grade 5				
Unit A: Processes of Living Things				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Unit Inquiry Lesson (47A-47B)	• Phototropism	**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.RS.05.11** Evaluate the strengths and weaknesses of claims, arguments, and data.	Recommended Lesson	Lab Manual, p. LM 22 – LM 25 Transparencies EX 1 – EX 4

HSP Science Recommended Course of Study—Grade 5				
Unit A: Processes of Living Things				
Lesson Description	**Vocabulary**	**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

HSP Science Recommended Course of Study—Grade 5				
Unit A: Processes of Living Things **Chapter 1: Cells to Body System**				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Below Level Leveled Reader: *Cells to Body Systems* (48C)	• Cells • Tissue • Organ • 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	Below Level Leveled Reader: *Cells to Body Systems*
On Level Leveled Reader: *Amazing Cells, Amazing Bodies* (48C)	• Cells • Tissue • Organ • 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	On Level Leveled Reader: *Amazing Cells, Amazing Bodies*
Challenge Level Leveled Reader: *The Human Body* (48C)	• Cells • Tissue • Organ • 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	Challenge Level Leveled Reader: *The Human Body*

HSP Science Recommended Course of Study—Grade 5				
Unit A: Processes of Living Things **Chapter 1: Cells to Body System**				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended 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

HSP Science Recommended Course of Study—Grade 5				
Unit A: Processes of Living Things Chapter 1: Cells to Body System				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended 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

HSP Science Recommended Course of Study—Grade 5				
Unit A: Processes of Living Things **Chapter 1: Cells to Body System**				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
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	Vocabulary Cards Transparency IS 1-2 Lab Manual, p. LM 31 Transparency RS 1-2 Reading Support and Homework, p. RS 7 – RS8

HSP Science Recommended Course of Study—Grade 5				
Unit A: Processes of Living Things Chapter 1: Cells to Body System				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended 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**				
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	

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**
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 Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Lesson 2: What Are Vertebrates and Invertebrates (100-109)	• Vertebrate • Invertebrate	**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 2-2 Lab Manual, p. LM 40 Transparency RS 2-2 Reading Support and Homework, p. RS 14– RS15

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

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**
Below Level Leveled Reader: *Plant Growth and Reproduction* (114C)	• Plants • Life cycle		Review Lesson – Plant life cycles are covered in the Grade 2 GLCEs. Use as needed.	Below Level Leveled Reader: *Plant Growth and Reproduction*
On Level Leveled Reader: *Plants and How They Grow* (114C)	• Plants • Life cycle		Review Lesson – Plant life cycles are covered in the Grade 2 GLCEs. Use as needed.	On Level Leveled Reader: *Plants and How They Grow*
Challenge Leveled Reader: *The Life of an Oak Tree* (114C)	• Plants • Life cycle		Review Lesson – Plant life cycles are covered in the Grade 2 GLCEs. Use as needed.	Challenge Leveled Reader: *The Life of an Oak Tree*

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**
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

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**
Lesson 2: How Do Plants Reproduce? (126-137)	• Spore • Gymnosperm • Angiosperm • Germinate	**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 and Language Arts options, p. 137) **S.RS.05.15** Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	Review Lesson – Plant growth is covered in the Grade 4 GLCEs. Use as needed.	Vocabulary Cards Transparency IS 3-2 Lab Manual, p. LM 46 Transparency RS 3-2 Reading Support and Homework, p. RS 19– RS20

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 Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended 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.	

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**
Chapter 4 Opener (142-143)	• Growth • Heredity	**S.IP.05.11** Generate scientific 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 inherited and acquired traits.	Recommended Lesson	Vocabulary Power, 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

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**
Lesson 1: How Does Cell Division Affect Growth? (144-153) cont…	• Life Cycle • Mitosis • Chromosome •	**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 Health options, p. 153) **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.HE.05.12** Distinguish between inherited and acquired traits.	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

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**
Lesson 2: How Are Characteristics Inherited? (154-167)	• Inherited Trait • Dominant Trait • Recessive Trait • Gene	**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.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 Lesson	Vocabulary Cards Transparency IS 4-2 Lab Manual, p. LM 52 Transparency RS 4-2 Reading Support and Homework, p. RS 24– RS25

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**
Lesson 2: How Are Characteristics Inherited? (154-167) cont…	• Inherited Trait • Dominant Trait • Recessive Trait • Gene	**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. **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	Vocabulary Cards Transparency IS 4-2 Lab Manual, p. LM 52 Transparency RS 4-2 Reading Support and Homework, p. RS 24– RS25
Lesson 3: What Other Factors Affect Characteristics? (168-177)	• Instinct • Learned Behavior • Environment	**S.IP.05.11** Generate scientific questions based on observations, investigations, and research. **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.	Recommended Lesson	Vocabulary Cards Transparency IS 4-3 Lab Manual, p. LM 55 Transparency RS 4-3 Reading Support and Homework, p. RS 26– RS27

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**
Lesson 3: What Other Factors Affect Characteristics? (168-177) cont…	• Instinct • Learned Behavior • Environment	**S.IA.05.15** Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. (Independent Inquiry option, Language Arts and Math options, p. 177) **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.05.17** Describe the effect humans and other organisms have on the balance in the natural world. **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	Vocabulary Cards Transparency IS 4-3 Lab Manual, p. LM 55 Transparency RS 4-3 Reading Support and Homework, p. RS 26– RS27

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**
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

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Science
Recommended Course of Study
Unit B: Interactions Among Living Things
(Michigan Edition)

HSP Science Recommended Course of Study—Grade 5				
Unit B: Interactions Among Living Things				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Unit B Inquiry Lesson (183A-183B)	• 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.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 Lesson	Lab Manual, p. LM 56 – LM 59 Transparencies EX 5 – EX 8

HSP Science Recommended Course of Study—Grade 5				
Unit B: Interactions Among Living Things **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)	• Energy • Ecosystem	**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)	• Energy • Ecosystem	**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)	• Energy • Ecosystem	**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*

HSP Science Recommended Course of Study—Grade 5				
Unit B: Interactions Among Living Things **Chapter 5: Energy and Ecosystems**				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended 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

HSP Science Recommended Course of Study—Grade 5				
Unit B: Interactions Among Living Things **Chapter 5: Energy and Ecosystems**				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Lesson 2: How is Energy Passed Through an Ecosystem? (196-207)	• Ecosystem • Herbivore • Carnivore • Food Chain • Decomposer • Food Web • Energy Pyramid	**S.IP.05.11** Generate scientific questions based on observations, investigations, and research. **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. 207) **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.	Review Lesson – Food webs are covered in the Grade 3 GLCEs. Use as needed.	Vocabulary Cards Transparency IS 5-2 Lab Manual, p. LM 65 Transparency RS 5-2 Reading Support and Homework, p. RS 32– RS33

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

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**
Below Level Leveled Reader: *Ecosystems and Change*	• Ecosystem • Adaptation	**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.	Recommended Lesson	
On Level Leveled Reader: *Change in Ecosystems*	• Ecosystem • Adaptation	**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.	Recommended Lesson	
Challenge Leveled Reader: *Journal: The Galapagos Islands*	• Ecosystem • Adaptation	**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.	Recommended Lesson	

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 1: How Do Organisms Compete and Survive in an Ecosystem (214-223)	• Population • Community • Competition • Adaptation • Symbiosis • Predator • Prey	**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. (Health option, p. 223)	Recommended Lesson	Vocabulary Cards Transparency IS 6-1 Lab Manual, p. LM 68 Transparency RS 6-1 Reading Support and Homework, p. RS 35– RS36

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 1: How Do Organisms Compete and Survive in an Ecosystem (214-223) cont…	• Population • Community • Competition • Adaptation • Symbiosis • Predator • Prey	**S.RS.05.15** Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities. **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	Vocabulary Cards Transparency IS 6-1 Lab Manual, p. LM 68 Transparency RS 6-1 Reading Support and Homework, p. RS 35– RS36
Lesson 2: How Do Ecosystems Change Over Time? (224-233)	• Succession • Extinction	**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 6-2 Lab Manual, p. LM 71 Transparency RS 6-2 Reading Support and Homework, p. RS 37– RS38

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 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 of environmental change and catastrophic events (for example: volcanic eruption, floods, asteroid impacts, tsunami) to species extinction.	Recommended Lesson	Vocabulary Cards Transparency IS 6-2 Lab Manual, p. LM 71 Transparency RS 6-2 Reading Support and Homework, p. RS 37– RS38

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 3: How Do People Affect Ecosystems (234-243)	• Pollution • Acid Rain • Habitat • Conservation • Reclamation	**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. (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 Lesson	Vocabulary Cards Transparency IS 6-3 Lab Manual, p. LM 74 Transparency RS 6-3 Reading Support and Homework, p. RS 39– RS40

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 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 Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended 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 Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Crater of Diamonds (250-251)	• Carbon • Graphite • Diamond	**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				
Earth Science: Science on Location				
Lesson Description	**Vocabulary**	**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.	

HSP Science Recommended Course of Study—Grade 5				
Unit C: Processes that Change the Earth				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Unit C Inquiry Lesson (257A-257B)	• Buffer • Soil	**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.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.	Review Lesson – Earth materials are covered in the Grade 3 GLCEs. Use as needed.	Lab Manual, p. LM 75-78 Transparencies EX 9 – EX 12

HSP Science 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**
Below Level Leveled Reader: *The Rock Cycle* (258C)	• Rock Cycle		Review Lesson – Earth materials are covered in the Grade 3 GLCEs. Use as needed.	Below Level Leveled Reader: *The Rock Cycle*
On Level Leveled Reader: *The Hidden Life of Rocks* (258C)	• Rock Cycle		Review Lesson – Earth materials are covered in the Grade 3 GLCEs. Use as needed.	On Level Leveled Reader: *The Hidden Life of Rocks*
Challenge Leveled Reader: *Reusing Rocks* (258C)	• Rock Cycle		Review Lesson – Earth materials are covered in the Grade 3 GLCEs. Use as needed.	Challenge Leveled Reader: *Reusing Rocks*

HSP Science 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**
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

HSP Science 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**
Lesson 2: How Do Rocks Form? (270-281)	• Rock • Igneous Rock • Deposition • Sedimentary Rocks • Metamorphic 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

HSP Science 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**
Lesson 3: How Are Rocks Change? (282-291)	• Weathering • Erosion • Rock Cycle	**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. 291) **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 7-3 Lab Manual, p. LM 87 Transparency RS 7-3 Reading Support and Homework, p. RS 47– RS 48

HSP Science 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

HSP Science Recommended Course of Study—Grade 5				
Unit C: Processes that Change the Earth 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 extinction.	Recommended Lesson	Below Level Leveled Reader: *Fossils*
On Level Leveled Reader: *Fossils: Records of History* (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	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?*

HSP Science Recommended Course of Study—Grade 5				
Unit C: Processes that Change the Earth Chapter 8: Fossils				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
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 have changed.	Recommended Lesson	Vocabulary Power, p. RS 49
Lesson 1: What Do Fossils Show About Earth's History? (298-309)	• Fossil • Mold • Cast • Index Fossil	**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

HSP Science Recommended Course of Study—Grade 5				
Unit C: Processes that Change the Earth Chapter 8: Fossils				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Lesson 1: What Do Fossils Show About Earth's History? (298-309) cont…	• Fossil • Mold • Cast • Index Fossil	**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 Language Arts option, p. 309) **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.	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

HSP Science Recommended Course of Study—Grade 5				
Unit C: Processes that Change the Earth Chapter 8: Fossils				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Lesson 2: How Are Fossils Like Today's Living Things? (310-319)	• Paleontology	**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.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 Lesson	Vocabulary Cards Transparency IS 8-2 Lab Manual, p. LM 93 Transparency RS 8-2 Reading Support and Homework, p. RS 52– RS 53

HSP Science Recommended Course of Study—Grade 5				
Unit C: Processes that Change the Earth Chapter 8: Fossils				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Lesson 2: How Are Fossils Like Today's Living Things? (310-319) cont…	• Paleontology	**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.	Recommended Lesson	Vocabulary Cards Transparency IS 8-2 Lab Manual, p. LM 93 Transparency RS 8-2 Reading Support and Homework, p. RS 52– RS 53
Science Spin from *Weekly Reader:* Attack of the Guinea-Zilla (320-321)	• Rodent	**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.05.13** Describe how fossils provide evidence about how living things and environmental conditions have changed.	Recommended Lesson	www.hspscience.com

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

HSP Science Recommended Course of Study—Grade 5				
Unit C: Processes that Change the Earth **Chapter 9: Changes to Earth's Surfaces**				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Below Level Leveled Reader: *Changes to the Earth's Surface* (324C)	• Erosion • Plate • Crust		Review Lesson – Earth's surface changes are covered in the Grade 3 GLCEs. Use as needed.	Below Level Leveled Reader: *Changes to the Earth's Surface*
On Level Leveled Reader: *Ever Changing Earth* (324C)	• Erosion • Plate • Crust		Review Lesson – Earth's surface changes are covered in the Grade 3 GLCEs. Use as needed.	On Level Leveled Reader: *Ever Changing Earth*
Challenge Leveled Reader: *Mapping the Mountains* (324C)	• Erosion • Plate • Crust		Review Lesson – Earth's surface changes are covered in the Grade 3 GLCEs. Use as needed.	Challenge Leveled Reader: *Mapping the Mountains*

HSP Science Recommended Course of Study—Grade 5				
Unit C: Processes that Change the Earth Chapter 9: Changes to Earth's Surfaces				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended 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

HSP Science Recommended Course of Study—Grade 5				
Unit C: Processes that Change the Earth Chapter 9: Changes to Earth's Surfaces				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Lesson 2: What Causes Changes to Earth's Landforms? (336-347)	• Delta • Sinkhole	**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) **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 9-2 Lab Manual, p. LM 99 Transparency RS 9-2 Reading Support and Homework, p. RS 57– RS 58

HSP Science Recommended Course of Study—Grade 5				
Unit C: Processes that Change the Earth **Chapter 9: Changes to Earth's Surfaces**				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
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.	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 Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended 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

HSP Science 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**
Below Level Leveled Reader: *Using Resources*	• 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	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 Resources • Biodegradable	**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: *Is This Biodegradable?*

HSP Science
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

HSP Science 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**
Lesson 2: How Can People Conserve Resources? (376-385)	• Conservation	**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 and Health option, p. 385)	Recommended Lesson	Vocabulary Cards Transparency IS 10-2 Lab Manual, p. LM 108 Transparency RS 10-2 Reading Support and Homework, p. RS 64– RS 65

HSP Science 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**
Lesson 2: How Can People Conserve Resources? (376-385) cont…	• Conservation	**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 10-2 Lab Manual, p. LM 108 Transparency RS 10-2 Reading Support and Homework, p. RS 64– RS 65
People in Science (386-387)	• Anthropologist • Microbiologist	**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	www.hspscience.com

HSP Science 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 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)

HSP Science Recommended Course of Study—Grade 5				
Unit D: Cycles on Earth and in Space				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Unit D Inquiry Lesson (391A-391B)	• Erosion	**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.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.	Review Lesson – Changes to the surface of the Earth are covered in the Grade 3 GLCEs. Use as needed.	Lab Manual, p. LM 109 – LM 112 Transparencies EX 13 – EX 16

HSP Science Recommended Course of Study—Grade 5				
Unit D: Cycles on Earth and in Space Chapter 11: Weather and the Water Cycle				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Below Level Leveled Reader: *Weather and the Water Cycle* (392C)	• Weather • Water cycle		Review Lesson – The water cycle is covered in the Grade 2 GLCEs. Use as needed.	Below Level Leveled Reader: *Weather and the Water Cycle*
On Level Leveled Reader: *Sun, Rain, Hurricane!* (392C)	• Hurricane		Optional Lesson– Weather is covered in the Grade 7 GLCEs.	On Level Leveled Reader: *Sun, Rain, Hurricane!*
Challenge Leveled Reader: *Will It Rain?* (392C)	• Weather • Forecast		Optional Lesson– Weather is covered in the Grade 7 GLCEs.	Challenge Leveled Reader: *Will It Rain?*

HSP Science Recommended Course of Study—Grade 5				
Unit D: Cycles on Earth and in Space Chapter 11: Weather and the Water Cycle				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Chapter 11 Opener (392-393)	• Weather • Water Cycle	**S.IP.05.11** Generate scientific questions based on observations, investigations, and research.	Optional Lesson– Weather is covered in the Grade 7 GLCEs.	Vocabulary Power, p. RS 67
Lesson 1: What Causes Weather? (394-403)	• Atmosphere • Troposphere • Air Pressure • Local Winds • Prevailing Winds	**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. (Health option, p. 403) **S.RS.05.15** Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	Optional Lesson– Weather is covered in the Grade 7 GLCEs.	Vocabulary Cards Transparency IS 11-1 Lab Manual, p. LM 115 Transparency RS 11-1 Reading Support and Homework, p. RS 68– RS 69

HSP Science Recommended Course of Study—Grade 5				
Unit D: Cycles on Earth and in Space Chapter 11: Weather and the Water Cycle				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended 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.	Vocabulary Cards Transparency IS 11-2 Lab Manual, p. LM 118 Transparency RS 11-2 Reading Support and Homework, p. RS 70– RS 71

HSP Science Recommended Course of Study—Grade 5				
Unit D: Cycles on Earth and in Space Chapter 11: Weather and the Water Cycle				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Lesson 3: How Can Patterns in Weather Be Observed? (414-425)	• Air Mass • Front • Climate	**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. **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.	Optional Lesson– Weather is covered in the Grade 7 GLCEs.	Vocabulary Cards Transparency IS 11-3 Lab Manual, p. LM 121 Transparency RS 11-3 Reading Support and Homework, p. RS 72– RS 73

HSP Science Recommended Course of Study—Grade 5				
Unit D: Cycles on Earth and in Space **Chapter 11: Weather and the Water Cycle**				
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

HSP Science Recommended Course of Study—Grade 5				
Unit D: Cycles on Earth and in Space Chapter 12: Earth's Oceans				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Below Level Leveled Reader: *Earth's Oceans* (430C)	• Ocean		Optional Lesson – Oceans are covered in the Grade 7 GLCEs.	Below Level Leveled Reader: *Earth's Oceans*
On Level Leveled Reader: *Powerful Oceans* (430C)	• Ocean		Optional Lesson – Oceans are covered in the Grade 7 GLCEs.	On Level Leveled Reader: *Powerful Oceans*
Challenge Leveled Reader: *Discovering the Secrets of the Sea* (430C)	• Ocean		Optional Lesson – Oceans are covered in the Grade 7 GLCEs.	Challenge Leveled Reader: *Discovering the Secrets of the Sea*

HSP Science Recommended Course of Study—Grade 5				
Unit D: Cycles on Earth and in Space Chapter 12: Earth's Oceans				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Chapter 12 Opener (430-431)	• Oceans	**S.IP.05.11** Generate scientific questions based on observations, investigations, and research.	Optional Lesson – Oceans are covered in the Grade 7 GLCEs.	Vocabulary Power, p. RS 74
Lesson 1: What Are the Oceans Like? (432-441)	• Salinity • Water Pressure • Continental Shelf • Continental Slope • Abyssal Plain	**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. (Health option, p. 441) **S.RS.05.15** Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	Optional Lesson – Oceans are covered in the Grade 7 GLCEs.	Vocabulary Cards Transparency IS 12-1 Lab Manual, p. LM 124 Transparency RS 12-1 Reading Support and Homework, p. RS 75– RS 76

HSP Science Recommended Course of Study—Grade 5				
Unit D: Cycles on Earth and in Space Chapter 12: Earth's Oceans				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Lesson 2: How Does Ocean Water Move? (442-451)	• Wave • Current • Tide	**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. 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 Lesson – Stress tides.	Vocabulary Cards Transparency IS 12-2 Lab Manual, p. LM 127 Transparency RS 12-2 Reading Support and Homework, p. RS 77– RS 78

HSP Science Recommended Course of Study—Grade 5				
Unit D: Cycles on Earth and in Space Chapter 12: Earth's Oceans				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Lesson 3: What Forces Shape Shorelines? (452-461)	• Shore • Headland • Tide Pool • Jetty	**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 natural world.	Optional Lesson – Oceans are covered in the Grade 7 GLCEs.	Vocabulary Cards Transparency IS 12-3 Lab Manual, p. LM 130 Transparency RS 12-3 Reading Support and Homework, p. RS 79– RS 80

HSP Science Recommended Course of Study—Grade 5				
Unit D: Cycles on Earth and in Space Chapter 12: Earth's Oceans				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
People in Science (462-463)	• Scientist • Professor	**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

HSP Science Recommended Course of Study—Grade 5				
Unit D: Cycles on Earth and in Space Chapter 13: Earth, Moon and Beyond				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Below Level Leveled Reader: *Earth, Moon and Beyond* (466D)	• Earth • Sun • Moon	**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)	• Earth • Sun • Moon	**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: *Planet Data*

HSP Science Recommended Course of Study—Grade 5				
Unit D: Cycles on Earth and in Space Chapter 13: Earth, Moon and Beyond				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended 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	Vocabulary Cards Transparency IS 13-1 Lab Manual, p. LM 133 Transparency RS 13-1 Reading Support and Homework, p. RS 82– RS 83

HSP Science Recommended Course of Study—Grade 5				
Unit D: Cycles on Earth and in Space Chapter 13: Earth, Moon and Beyond				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended 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

HSP Science Recommended Course of Study—Grade 5				
Unit D: Cycles on Earth and in Space Chapter 13: Earth, Moon and Beyond				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Lesson 2: How do Earth and the Moon Compare? (478-487) cont…	• Moon • Crater • Moon Phase • Eclipse • Refraction	**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. **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.05.24** Explain lunar and solar eclipses based on the relative positions of the Earth, moon, and sun, and the orbit of the moon.	Recommended Lesson	Vocabulary Cards Transparency IS 13-2 Lab Manual, p. LM 136 Transparency RS 13-2 Reading Support and Homework, p. RS 84– RS 85
Lesson 3: What Makes Up Our Solar System? (488-501)	• Star • Solar System • Constellation • Planet • Universe • Galaxy	**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 13-3 Lab Manual, p. LM 139 Transparency RS 13-3 Reading Support and Homework, p. RS 86– RS 87

HSP Science Recommended Course of Study—Grade 5				
Unit D: Cycles on Earth and in Space Chapter 13: Earth, Moon and Beyond				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Lesson 3: What Makes Up Our Solar System? (488-501) cont…	• Star • Solar System • Constellation • Planet • Universe • Galaxy	**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. 501) **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. **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 Lesson	Vocabulary Cards Transparency IS 13-3 Lab Manual, p. LM 139 Transparency RS 13-3 Reading Support and Homework, p. RS 86– RS 87

HSP Science Recommended Course of Study—Grade 5				
Unit D: Cycles on Earth and in Space Chapter 13: Earth, Moon and Beyond				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended 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)

HSP Science Recommended Course of Study—Grade 5				
Physical Science: Science on Location				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended 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	

HSP Science Recommended Course of Study—Grade 5				
Physical Science: Science on Location				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended 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	

HSP Science Recommended Course of Study—Grade 5				
Unit E: Matter and Energy				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Unit E Inquiry Lesson (515A-515B)	• Paper	**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.05.11** Evaluate the strengths and weaknesses of claims, arguments, and data.	Recommended Lesson – Stress the recycling theme of this lesson.	Lab Manual, p. 140-143 Transparencies EX 17 – EX 20

HSP Science Recommended Course of Study—Grade 5				
Unit E: Matter and Energy				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Unit E Inquiry Lesson (515A-515B) cont…	• Paper	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.05.19** Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.	Recommended Lesson – Stress the recycling theme of this lesson.	Lab Manual, p. 140-143 Transparencies EX 17 – EX 20

HSP Science 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 Leveled Reader: *Properties of Matter*	• Matter		Review Lesson – Matter is covered in the Grade 4 GLCEs. Use as needed.	Below Level Leveled Reader: *Properties of Matter*
On Level Leveled Reader: *It's Good to Know About Matter*	• Matter		Review Lesson – Matter is covered in the Grade 4 GLCEs. Use as needed.	On Level Leveled Reader: *It's Good to Know About Matter*
Challenge Leveled Reader: *Organization is the Key*	• Matter		Review Lesson – Matter is covered in the Grade 4 GLCEs. Use as needed.	Challenge Leveled Reader: *Organization is the Key*

HSP Science 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**
Chapter 14 Opener (516-517)	• Matter	**S.IP.05.11** Generate scientific questions based on observations, investigations, and research.	Review Lesson – Matter is covered in the Grade 4 GLCEs.	Vocabulary Power, p. RS 89
Lesson 1: What Is the Structure of Matter? (518-529)	• Volume • Storm • Molecule • Nucleus • Element • Periodic Table	**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 and Health options, p. 529) **S.RS.05.15** Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	Review Lesson – Matter is covered in the Grade 4 GLCEs. Use as needed.	Vocabulary Cards Transparency IS 14-1 Lab Manual, p. LM 146 Transparency RS 14-1 Reading Support and Homework, p. RS 90– RS 91

HSP Science 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**
Lesson 2: What Are Physical Properties and Changes (530-541)	• Physical Change • Density • Mixture • Solution	**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. 541) **S.RS.05.15** Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	Review Lesson – Matter is covered in the Grade 4 GLCEs. Use as needed.	Vocabulary Cards Transparency IS 14-2 Lab Manual, p. LM 149 Transparency RS 14-2 Reading Support and Homework, p. RS 92 – RS 93

HSP Science 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**
Lesson 3: What Are Chemical Properties and Changes? (542-549)	• Combustibility • Reactivity	**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) **S.RS.05.15** Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	Review Lesson – Matter is covered in the Grade 4 GLCEs. Use as needed.	Vocabulary Cards Transparency IS 14-3 Lab Manual, p. LM 152 Transparency RS 14-3 Reading Support and Homework, p. RS 94– RS 95

HSP Science 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**
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

HSP Science Recommended Course of Study—Grade 5				
Unit E: Matter and Energy Chapter 15: Energy				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Below Level Leveled Reader: *Energy*	• Energy		Review lesson – Kinetic Energy and Potential Energy are covered in Grade 3 GLCEs. Use as needed.	Below Level Leveled Reader: *Energy*
On Level Leveled Reader: *It Takes Energy*	• Energy		Review lesson – Sound energy is covered in Grade 3 GLCEs. Use as needed.	On Level Leveled Reader: *It Takes Energy*
Challenge Leveled Reader: *Wind Energy*	• Energy		Review lesson – Kinetic Energy and Potential Energy are covered in Grade 3 GLCEs. Use as needed.	Challenge Leveled Reader: *Wind Energy*

HSP Science Recommended Course of Study—Grade 5				
Unit E: Matter and Energy Chapter 15: Energy				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Chapter 15 Opener (554-555)	• Energy	**S.IP.05.11** Generate scientific questions based on observations, investigations, and research.	Review lesson – Kinetic Energy and Potential Energy are covered in Grade 3 GLCEs.	Vocabulary Power, p. RS 96
Lesson 1: What Are Kinetic and Potential Energy? (556-565)	• Energy • Kinetic Energy • Potential Energy • Energy Transfer	**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.	Review lesson – Kinetic Energy and Potential Energy are covered in Grade 3 GLCEs. Use as needed.	Vocabulary Cards Transparency IS 15-1 Lab Manual, p. LM 155 Transparency RS 15-1 Reading Support and Homework, p. RS 97– RS 98

HSP Science Recommended Course of Study—Grade 5				
Unit E: Matter and Energy **Chapter 15: Energy**				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended 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

HSP Science Recommended Course of Study—Grade 5				
Unit E: Matter and Energy Chapter 15: Energy				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Lesson 2: What Are Some Forms of Energy? (566-577)	• Solar Energy • Light • Chemical Energy • Mechanical Energy • Electrical Energy	**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.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 – Energy is covered in Grade 3 GLCEs. Use as needed.	Vocabulary Cards Transparency IS 15-2 Lab Manual, p. LM 158 Transparency RS 15-2 Reading Support and Homework, p. RS 99– RS 100

HSP Science Recommended Course of Study—Grade 5				
Unit E: Matter and Energy Chapter 15: Energy				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended 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				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended 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.**	Vocabulary Cards Transparency IS 15-4 Lab Manual, p. LM 164 Transparency RS 15-4 Reading Support and Homework, p. RS 103– RS 104

HSP Science Recommended Course of Study—Grade 5				
Unit E: Matter and 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, p. RS 103– RS 104
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.**	www.hspscience.com

HSP Science Recommended Course of Study—Grade 5				
Unit E: Matter and Energy Chapter 15: Energy				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Chapter 15 Review and Test Prep (600-601)	• Energy • Kinetic Energy • Potential Energy • Solar Energy • Chemical Energy • Conduction • Convection • Radiation • Conservation • Renewable Resource		Review lesson – Energy is covered in Grade 3 GLCEs. Use as needed.	Assessment Guide, p. AG 109-114 Online Assessment: www.hspscience.com

HSP Science Recommended Course of Study—Grade 5				
Unit E: Matter and Energy Chapter 16: Electricity				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Below Level Leveled Reader: *Electricity* (602D)	• **Electricity**	**S.RS.05.19** Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.		Below Level Leveled Reader: *Electricity*
On Level Leveled Reader: *Charge It! How Electricity Works* (602D)	• **Electricity**	**S.RS.05.19** Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.		On Level Leveled Reader: *Charge It! How Electricity Works*
Challenge Leveled Reader: *What Can Robots Do?* (602D)	• **Electricity**	**S.RS.05.19** Describe how science and technology have advanced because of the contributions of many people throughout history and across cultures.		Challenge Leveled Reader: *What Can Robots Do?*

HSP Science Recommended Course of Study—Grade 5				
Unit E: Matter and Energy Chapter 16: Electricity				
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

HSP Science Recommended Course of Study—Grade 5				
Unit E: Matter and Energy Chapter 16: Electricity				
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

HSP Science Recommended Course of Study—Grade 5				
Unit E: Matter and Energy Chapter 16: Electricity				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended 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.	Vocabulary Cards Transparency IS 16-2 Lab Manual, p. LM 170 Transparency RS 16-2 Reading Support and Homework, p. RS 108– RS 109

HSP Science Recommended Course of Study—Grade 5				
Unit E: Matter and Energy Chapter 16: Electricity				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended 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

HSP Science Recommended Course of Study—Grade 5				
Unit E: Matter and Energy Chapter 16: Electricity				
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

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**
Below Level Leveled Reader: *Sound and Light* (638C)	• Sound • Light		Review lesson – Light energy, sound energy and waves are covered in Grade 3 GLCEs. Use as needed.	Below Level Leveled Reader: *Sound and Light*
On Level Leveled Reader: *Understanding Sound and Light* (638C)	• Sound • Light		Review lesson – Light energy, sound energy and waves are covered in Grade 3 GLCEs. Use as needed.	On Level Leveled Reader: *Understanding Sound and Light*
Challenge Leveled Reader: *On Tiptoes at the Top of the World* (638C)	• Sound • Light		Review lesson – Light energy, sound energy and waves are covered in Grade 3 GLCEs. Use as needed.	Challenge Leveled Reader: *On Tiptoes at the Top of the World*

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**
Chapter 17 Opener (638-639)	• Sound • Light	**S.IP.05.11** Generate scientific questions based on observations, investigations, and research.	Review lesson – Light energy, sound energy and waves are covered in Grade 3 GLCEs. Use as needed.	Vocabulary Power, p. RS 112
Lesson 1: What Is Sound? (640-651)	• Vibration • Volume • Pitch • Frequency	**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 options, p. 651) **S.RS.05.15** Demonstrate scientific concepts through various illustrations, performances, models, exhibits, and activities.	Review lesson – Sound energy and waves are covered in Grade 3 GLCEs. Use as needed.	Vocabulary Cards Transparency IS 17-1 Lab Manual, p. LM 176 Transparency RS 17-1 Reading Support and Homework, p. RS 113– RS 114

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

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

HSP Science Recommended Course of Study—Grade 5				
Unit F: Forces and Motion				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Unit F Inquiry Lesson (669-669B)	• Rocket	**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.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.05.19** 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. **P.FM.05.22** Demonstrate contact and non-contact forces to change the motion of an object.	Recommended Lesson	Lab Manual, p. LM 180 – LM 183 Transparencies EX 21 – EX 24

HSP Science Recommended Course of Study—Grade 5				
Unit F: Forces and Motion				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Unit F Inquiry Lesson (669-669B) cont…	• Rocket	**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. **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	Lab Manual, p. LM 180 – LM 183 Transparencies EX 21 – EX 24

HSP Science Recommended Course of Study—Grade 5				
Unit F: Forces and Motion Chapter 18: Forces				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Below Level Leveled Reader: *Forces* (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. **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.	Recommended Lesson	Below Level Leveled Reader: *Forces*
On Level Leveled Reader: *Forces at Work* (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…

HSP Science Recommended Course of Study—Grade 5				
Unit F: Forces and Motion Chapter 18: 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*

HSP Science Recommended Course of Study—Grade 5				
Unit F: Forces and Motion Chapter 18: Forces				
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

HSP Science Recommended Course of Study—Grade 5				
Unit F: Forces and Motion Chapter 18: Forces				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Lesson 1: What Forces Affect Objects on Earth Every Day? (672-681) cont…	• Force • Friction • Gravity • Gravitational Force • Magnetic • Magnetic Force	**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. 681) **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. **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.	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

HSP Science Recommended Course of Study—Grade 5				
Unit F: Forces and Motion Chapter 18: Forces				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Lesson 2: What Are Balanced and Unbalanced Forces? (682-691)	• Balanced Forces • Unbalanced Forces • Net Force • Buoyant 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.05.14** 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.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.	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

HSP Science Recommended Course of Study—Grade 5				
Unit F: Forces and Motion Chapter 18: Forces				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended 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

HSP Science Recommended Course of Study—Grade 5				
Unit F: Forces and Motion Chapter 18: Forces				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Lesson 3: What is Work, and How is it Measured? (692-701)	• Work • Simple Machine • Lever • Fulcrum • Wheel and Axle • Pulley • Inclined Plane	**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. 701) **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. **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.	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

HSP Science Recommended Course of Study—Grade 5				
Unit F: Forces and Motion Chapter 18: Forces				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
People in Science (702-703)	• Aeronautical Engineer	**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. **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.	Recommended Lesson	www.hspscience.com
Chapter 18 Review and Test Prep (704-705)	• Friction • Gravity • Balanced Force • Net Force • Work • Simple Machine • Lever • Fulcrum • Pulley • Inclined Plane	**P.FM.05.21** 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	Assessment Guide, p. AG 133-138 Online Assessment: www.hspscience.com

HSP Science Recommended Course of Study—Grade 5				
Unit F: Forces and Motion **Chapter 18: Forces**				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
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 be measured and represented on a graph.	Recommended Lesson	Assessment Guide, p. AG 133-138 Online Assessment: www.hspscience.com

HSP Science Recommended Course of Study—Grade 5				
Unit F: Forces and Motion Chapter 19: Motion				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Below Level Leveled Reader: *Motion* (706C)	• Motion	**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.05.32** 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.	Recommended Lesson	Below Level Leveled Reader: *Motion*
On Level Leveled Reader: *Motion and Movement* (706C)	• Motion	**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.05.32** 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.	Recommended Lesson	On Level Leveled Reader: *Motion and Movement*

HSP Science Recommended Course of Study—Grade 5				
Unit F: Forces and Motion Chapter 19: Motion				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
On Level Leveled Reader: *Motion and Movement cont…* (706C)	• Motion	**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	On Level Leveled Reader: *Motion and Movement*
Challenge Leveled Reader: *Adventure of Kittyhawk* (706C)	• Motion	**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.05.32** 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.	Recommended Lesson	Challenge Leveled Reader: *Adventure of Kittyhawk*

HSP Science Recommended Course of Study—Grade 5				
Unit F: Forces and Motion Chapter 19: Motion				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Chapter 19 Opener (706-707)	• Motion	**S.IP.05.11** Generate scientific questions based on observations, investigations, and 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 relationship to other objects.	Recommended Lesson	Vocabulary Power, p. RS 125
Lesson 1: What Factors Affect Motion? (708-719)	• Position • Speed • Velocity • Acceleration	**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 19-1 Lab Manual, p. LM 195 Transparency RS 19-1 Reading Support and Homework, p. RS 126– RS 127

HSP Science Recommended Course of Study—Grade 5				
Unit F: Forces and Motion Chapter 19: Motion				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Lesson 1: What Factors Affect Motion? (708-719) cont…	• Position • Speed • Velocity • Acceleration	**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. 719) **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. **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.	Recommended Lesson	Vocabulary Cards Transparency IS 19-1 Lab Manual, p. LM 195 Transparency RS 19-1 Reading Support and Homework, p. RS 126– RS 127

HSP Science Recommended Course of Study—Grade 5				
Unit F: Forces and Motion Chapter 19: Motion				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Lesson 2: What Are the Laws of Motion? (720-731)	• Inertia	**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. **S.IA.05.15** Use multiple sources of information to evaluate strengths and weaknesses of claims, arguments, or data. (Social Studies option, p. 731)	Recommended Lesson	Vocabulary Cards Transparency IS 19-2 Lab Manual, p. LM 198 Transparency RS 19-2 Reading Support and Homework, p. RS 128– RS 129

HSP Science Recommended Course of Study—Grade 5				
Unit F: Forces and Motion **Chapter 19: Motion**				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Lesson 2: What Are the Laws of Motion? (720-731) cont…	• Inertia	**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. **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. **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	Vocabulary Cards Transparency IS 19-2 Lab Manual, p. LM 198 Transparency RS 19-2 Reading Support and Homework, p. RS 128– RS 129

HSP Science Recommended Course of Study—Grade 5				
Unit F: Forces and Motion Chapter 19: Motion				
Lesson Description	**Vocabulary**	**Michigan Grade Level Content Expectations (Kindergarten)**	**Lesson Recommendations**	**Recommended Resources**
Science Spin from *Weekly Reader:* Building a Safer Race Car (732-733)	• Restraints • Black Box	**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. **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.	Recommended Lesson	www.hspscience.com

HSP Science Recommended Course of Study—Grade 5				
Unit F: Forces and Motion Chapter 19: Motion				
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