# Fifth Grade Houghton Mifflin Science Curriculum © 2007
# Ventnor Schools 2008

| **Suggested Time Line** How much time will be spent on this learning | **Essential Questions and Content** What will be taught? | **NJCCC Standards*** What state standards will be met by these objectives? | **Instructional Objectives** What will the students know or be able to do as a result of this instruction? | **Assessment** What evidence will I collect that demonstrate that the students have achieved the objective? | **Instructional Domain** How will the learning be structured? | **Instructional Activities** What will the students do to achieve the objective? |
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| **UNIT A** | **5 Weeks** | | **THE LIFE PROCESSES** | | | |
| **Chapter 1A** ***Cells*** **10 days** | Why are cells so important?<br><br>How do classification systems show relationships among living things?<br><br>How do specialized animal cells build tissues and organs and how are these structures organized into systems? | 5.1.8.A.2<br>5.1.8.B.1-3<br>5.1.8.C.1-2<br>5.2.8.A.1<br>5.5.6.A.1-2<br>5.5.6.B.1<br>5.5.8.A.2 | -Compare and contrast the basic structures of plant and animal cells<br><br>-Use a microscope to identify cell parts and classify organisms based on observed characteristics.<br><br>-Understand the various roles of single-celled organisms<br><br>-Identify 6 kingdoms of living things along with their characteristics<br><br>-Understand how similar cells are organized to form structures<br><br>-Recognize that the human body includes many important systems | -Participation<br>-Teacher observations<br>-Investigate Records<br>-Lesson Wrap-ups<br>-Quizzes<br>-Tests<br>-Essays<br>-Vocabulary<br>-Projects<br>-Student Journals | -Computers/Internet<br>-Brainstorming<br>-Class discussions<br>-Inquiry<br>-Modeling<br>-Independent reading & writing assignments<br>-Peer partner learning<br>-Differentiated Instruction<br>-Critical thinking activities<br>-Group projects<br>-Word Wall | -Read the text book (discuss, analyze and write about the material)<br>-Participate in class discussions<br>-Cooperative learning activities<br>-Experimentation<br>-Internet research and activities<br>-Answer comprehension questions<br>-Workbook<br>-Paired Sharing<br>-Guided Reading<br>-Graphic Organizer |
| **Chapter 2A** ***Plant Systems*** **8 days** | What role does photosynthesis play in the carbon and oxygen cycles?<br><br>How do plants defy gravity by making water go up the stem?<br><br>What systems allow plants to produce food and reproduce?<br>**Cont.** | 5.1.8.B.1-3<br>5.3.8.D.1<br>5.5.6.C.1<br>5.5.8.A.1-2 | - Identify leaf structures and describe their functions in photosynthesis.<br><br>- Understand that vascular and nonvascular plants have specialized structures used to transport materials.<br><br>-Describe the reproduction process in spore-bearing, coniferous, and flowering plants.<br><br>**Cont.** | | | |

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| | How do animals help plants? | | -Use various plants to experiment, predict, collect, and analyze data. | | | |
| **Suggested Time Line** | **Essential Questions and Content** | **NJCCC Standards*** | **Instructional Objectives** | **Assessment** | **Instructional Domain** | **Instructional Activities** |
| **Chapter 3A** ***Traits of Living Things*** **6 days** | What is the role of DNA in how organisms inherit certain types of traits?<br><br>How can adaptation be a trait that is favorable to survival? | 5.1.8.A.3<br>5.2.8.A.1-2<br>5.3.8.D.1<br>5.5.6.B.2<br>5.5.8.B.3 | -Understand combinations of traits and how they are inherited.<br><br>-Demonstrate how traits are inherited<br><br>-Understand that species develop traits that help them to survive.<br><br>-Collect data, observe and demonstrate during experimentation regarding inherited traits, acquired traits, and gene combinations. | -Participation<br>-Teacher observations<br>-Investigate Records<br>-Lesson Wrap-ups<br>-Quizzes<br>-Tests<br>-Essays<br>-Vocabulary<br>-Projects<br>-Student Journals | -Computers/Internet<br>-Brainstorming<br>-Class discussions<br>-Inquiry<br>-Modeling<br>-Independent reading & writing assignments<br>-Peer partner learning<br>-Differentiated Instruction<br>-Critical thinking activities<br>-Group projects<br>-Word Wall | -Read the text book (discuss, analyze and write about the material)<br>-Participate in class discussions<br>-Cooperative learning activities<br>-Experimentation<br>-Internet research and activities<br>-Answer comprehension questions<br>-Workbook<br>-Paired Sharing<br>-Guided Reading<br>-Graphic Organizer |
| **UNIT B: 3 Weeks** | | | **INTERACTIONS AMONG LIVING THINGS** | | | |
| **Chapter 4B** ***Ecosystems, Communities, And Biomes*** **8 days** | How do certain characteristics help animals survive in their native habitats?<br><br>How does energy in an ecosystem flow from one organism to another?<br><br>**Cont.** | 5.1.8.B.1-3<br>5.3.8.D.2<br>5.10.6.A.1-2 | -Describe the roles of producers, consumers, predators, prey, and decomposers within an ecosystem.<br><br>-Compare and contrast ecosystems and biomes.<br><br>-Identify the characteristics of water ecosystems & land biomes.<br><br>**Cont.** | | | |

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| **4B Cont.** | What could happen to an ecosystem when a new population of organisms is introduced? | | -Understand the flow of energy through a food chain.<br><br>-Observe, analyze, and use models during experimentation. | | | |
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| **Chapter 5B** ***Life in Ecosystems*** **8 days** | Decreases in food supply, changes in the climate, relocated species- how do these factors upset the balance of an ecosystem?<br><br>How do plants and animals respond to a world that is always changing?<br><br>Can human activities affect ecosystems in both positive and negative ways? | 5.1.8.B.1-3<br>5.2.8.A.1<br>5.3.8.D.1<br>5.3.8.D.3<br>5.10.6.A.1-2<br>5.10.6.B.1-2<br>5.10.8.A.1 | -Understand the adaptations that allow organisms to survive in their habitats.<br><br>-Identify environmental factors that can affect population size.<br><br>-Recognize that the fossil record provides evidence of changes throughout Earth's history.<br><br>-Describe how human activity can alter the conditions in an ecosystem.<br><br>-Understand that humans can work to preserve species.<br><br>-Observe, hypothesize, and predict during experimentation. | -Participation<br>-Teacher observations<br>-Investigate Records<br>-Lesson Wrap-ups<br>-Quizzes<br>-Tests<br>-Essays<br>-Vocabulary<br>-Projects<br>-Student Journals | -Computers/Internet<br>-Brainstorming<br>-Class discussions<br>-Inquiry<br>-Modeling<br>-Independent reading & writing assignments<br>-Peer partner learning<br>-Differentiated Instruction<br>-Critical thinking activities<br>-Group projects<br>-Word Wall | -Read the text book (discuss, analyze and write about the material)<br>-Participate in class discussions<br>-Cooperative learning activities<br>-Experimentation<br>-Internet research and activities<br>-Answer comprehension questions<br>-Workbook<br>-Paired Sharing<br>-Guided Reading<br>-Graphic Organizer |

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| **UNIT C 5 Weeks** | | | **EARTH'S CHANGING SURFACE** | | | |
| **Chapter 6C *Earth's Changing Surface* 8 days** | What properties are used to identify surface features and how are these surface features mapped?<br><br>How do constructive and deconstructive features shape our Earth? | 5.1.8.B.1-3<br>5.3.8.D.3<br>5.8.8.C.1<br>5.8.8.A | -Identify some features of Earth's surface, including the ocean floors.<br><br>-Recognize weathering can be either mechanical or chemical.<br><br>- Identify destructive forces as those processes that wear down Earth's land features.<br><br>- Recognize that constructive forces build up Earth's surface features.<br><br>-Compare, predict, and infer during experimentation. | -Participation<br>-Teacher observations<br>-Investigate Records<br>-Lesson Wrap-ups<br>-Quizzes<br>-Tests<br>-Essays<br>-Vocabulary<br>-Projects<br>-Student Journals | -Computers/Internet<br>-Brainstorming<br>-Class discussions<br>-Inquiry<br>-Modeling<br>-Independent reading & writing assignments<br>-Peer partner learning<br>-Differentiated Instruction<br>-Critical thinking activities<br>-Group projects<br>-Word Wall | -Read the text book (discuss, analyze and write about the material)<br>-Participate in class discussions<br>-Cooperative learning activities<br>-Experimentation<br>-Internet research and activities<br>-Answer comprehension questions<br>-Workbook<br>-Paired Sharing<br>-Guided Reading<br>-Graphic Organizer |
| **Chapter 7C *Earth's Structure* 8 days** | How does understanding the properties of Earth materials and the physical laws that govern behavior lead to predictions of Earth events?<br><br>How have scientists come together in their theories of plate tectonics? | 5.2.8.A.1<br>5.3.8.B.1<br>5.8.8.A.<br>5.8.8.C.1-2<br>5.8.6.D.1<br>5.8.8.D.1 | -Recognize that the rock record shows that Earth's continents have moved as time has passed.<br><br>-Identify and describe Earth's layers.<br><br>-Recognize that different features and activities are produced at different types of plate boundaries.<br><br>-Identify four basic mountain-building processes- folding, faulting, doming, and volcanic activity.<br><br>-Use models, analyze data, and observe during experimentation. | | | |

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| **Chapter 8C** ***Using Resources Wisely*** **8 days** | How do humans impact the diversity and stability of ecosystems?<br><br>What are the best means of extending the life of nonrenewable resources? | 5.1.8.B.1-3<br>5.3.8.D.1<br>5.10.6.B.1-2<br>5.10.8.B.1 | -Recognize that conservation and alternate energy sources extend the life of nonrenewable resources<br><br>-Identify fossil fuels as the most widely used energy sources<br><br>-Recognize the importance of topsoil<br><br>-Identify the 3 R's as ways to conserve resources<br><br>-Understand that resources are not evenly distributed<br><br>-Use models, observe, and collaborate during experimentation | -Participation<br>-Teacher observations<br>-Investigate Records<br>-Lesson Wrap-ups<br>-Quizzes<br>-Tests<br>-Essays<br>-Vocabulary<br>-Projects<br>-Student Journals | -Computers/Internet<br>-Brainstorming<br>-Class discussions<br>-Inquiry<br>-Modeling<br>-Independent reading & writing assignments<br>-Peer partner learning<br>-Differentiated Instruction<br>-Critical thinking activities<br>-Group projects<br>-Word Wall | -Read the text book (discuss, analyze and write about the material)<br>-Participate in class discussions<br>-Cooperative learning activities<br>-Experimentation<br>-Internet research and activities<br>-Answer comprehension questions<br>-Workbook<br>-Paired Sharing<br>-Guided Reading<br>-Graphic Organizer |
| **UNIT D 4 Weeks** | | | **EARTH SCIENCE** | | | |
| **Chapter 9D** ***Weather and Climate*** **6 days** | How do changes in one part of an Earth system affect other parts of the system?<br><br>How does technology impact the way scientists study weather? | 5.1.8.B.1-3<br>5.3.8.A.1<br>5.8.8.B.1<br>5.8.8.D.1 | -Define climate and recognize that average temperature and precipitation are its most important characteristics.<br><br>-Identify 3 major climate zones.<br><br>-Recognize that Earth is surrounded by the atmosphere.<br><br>-Describe how natural cycles affect the troposphere.<br><br>-Compare and collaborate during experimentation. | | | |

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| **Chapter 10D** ***Earth and it's Moons*** **6 days** | What causes Earth's seasons?<br><br>Why does the moon have phases? | 5.1.8.B.1-3<br>5.3.8.D.1<br>5.8.6.A | -Recognize the tilt of Earth's axis, the curvature of its surface, and its revolution around the sun account for seasons.<br><br>-Identify the moon's periods of rotation and phases.<br><br>-Recognize when a lunar eclipse occurs.<br><br>-Use models and compare during experimentation. | -Participation<br>-Teacher observations<br>-Investigate Records<br>-Lesson Wrap-ups<br>-Quizzes<br>-Tests<br>-Essays<br>-Vocabulary<br>-Projects<br>-Student Journals | -Computers/Internet<br>-Brainstorming<br>-Class discussions<br>-Inquiry<br>-Modeling<br>-Independent reading & writing assignments<br>-Peer partner learning<br>-Differentiated Instruction<br>-Critical thinking activities<br>-Group projects<br>-Word Wall | -Read the text book (discuss, analyze and write about the material)<br>-Participate in class discussions<br>-Cooperative learning activities<br>-Experimentation<br>-Internet research and activities<br>-Answer comprehension questions<br>-Workbook<br>-Paired Sharing<br>-Guided Reading<br>-Graphic Organizer |
| **Chapter 11D** ***Exploring Space*** **8 days** | How do science and technology influence each other?<br><br>What evidence supports scientific theories relating to our solar system? | 5.1.8.B.1-3<br>5.3.8.B.1<br>5.3.8.C.1<br>5.4.6.A.1<br>5.4.6.B.1 | -Recognize the components of the solar system.<br><br>-Explain that the sun's gravity keeps objects in orbits.<br><br>-Recognize that telescopes provide a great deal of information about objects in outer space.<br><br>-Differentiate between space probes and space craft carrying crews.<br><br>-Name and describe the stages in the life cycle of a star and understand how stars are classified.<br><br>-Research, use models, and use numbers during experimentation | | | |

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| **UNIT E**<br>**4.5 Weeks** | | | **THE NATURE OF MATTER** | | | |
| **Chapter 12E**<br>***Structure of Matter***<br>**8 days** | How do properties of materials determine their use?<br><br>How has the atomic model changed over time? | 5.1.8.B.1-3<br>5.2.8.A.1<br>5.6.6.A.1<br>5.6.8.A.1<br>5.6.8.A.3<br>5.6.8.B.1-2<br>5.6.6.B.1 | -Recognize atoms as fundamental particles of matter and identify their basic parts.<br><br>-Define elements and recognize that they are organized and grouped according to their properties.<br><br>-Identify a compound as a substance made of two or more elements that are chemically combined.<br><br>Recognize that the properties of a compound differ from those of the elements that make it up.<br><br>-Predict, classify, and infer during experimentation. | -Participation<br>-Teacher observations<br>-Investigate Records<br>-Lesson Wrap-ups<br>-Quizzes<br>-Tests<br>-Essays<br>-Vocabulary<br>-Projects<br>-Student Journals | -Computers/Internet<br>-Brainstorming<br>-Class discussions<br>-Inquiry<br>-Modeling<br>-Independent reading & writing assignments<br>-Peer partner learning<br>-Differentiated Instruction<br>-Critical thinking activities<br>-Group projects<br>-Word Wall | -Read the text book (discuss, analyze and write about the material)<br>-Participate in class discussions<br>-Cooperative learning activities<br>-Experimentation<br>-Internet research and activities<br>-Answer comprehension questions<br>-Workbook<br>-Paired Sharing<br>-Guided Reading<br>-Graphic Organizer |
| **Chapter 13E**<br>***Characteristics of Matter***<br>**8 days** | How can materials be identified?<br><br>How does matter change? | 5.1.8.B.1-3<br>5.3.8.B.1<br>5.3.8.C.1<br>5.6.6.A.2-4<br>5.6.6.B.1<br>5.6.8.B.3<br>5.6.8.A.4 | -Observe and describe physical properties.<br><br>-Recognize that a physical change does not involve a change in the type of matter undergoing change.<br><br>-Recognize that the same amount of matter exists before and after a chemical change takes place.<br><br>-Identify solutions as mixtures and alloys as solutions made up of two or more metals.<br>-Use numbers, compare, and predict during experimentation. | | | |

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| **Chapter 14E** ***Changes of State*** **6 days** | What are three states of matter?<br><br>How does matter change state? | 5.1.8.B.1-3<br>5.3.8.C.1<br>5.6.6.A.4<br>5.6.8.A.2 | -Identify some properties of each state of matter.<br>-Recognize that matter exists in three states or phases.<br>-Recognize that matter can change from one state to another.<br>-Identify a change in state as a physical change.<br>-Make observations and calculate volume during experimentation. | -Participation<br>-Teacher observations<br>-Investigate Records<br>-Lesson Wrap-ups<br>-Quizzes<br>-Tests<br>-Essays<br>-Vocabulary<br>-Projects<br>-Student Journals | -Computers/Internet<br>-Brainstorming<br>-Class discussions<br>-Inquiry<br>-Modeling<br>-Independent reading & writing assignments<br>-Peer partner learning<br>-Differentiated Instruction<br>-Critical thinking activities<br>-Group projects<br>-Word Wall | -Read the text book (discuss, analyze and write about the material)<br>-Participate in class discussions<br>-Cooperative learning activities<br>-Experimentation<br>-Internet research and activities<br>-Answer comprehension questions<br>-Workbook<br>-Paired Sharing<br>-Guided Reading<br>-Graphic Organizer |
| **UNIT F 6 Weeks** | | | **FORMS OF ENERGY** | | | |
| **Chapter 15F** ***Forces, Motion, and Work*** **8 days** | How would the universe be different if one or more of the laws of motion were suspended?<br><br>What causes magnetism? | 5.1.8.B.1-3<br>5.3.8.C.1<br>5.7.6.A.1-3<br>5.7.8.A.1-2 | -Discover how changes in mass and force affect an object's motion.<br>-Recognize the effects of balanced and unbalanced forces.<br>-Differentiate among speed, velocity, and acceleration.<br>-Recognize that work is done when a force moves an object a distance.<br>-Explain how magnetism is a force acting between magnets and magnetic objects.<br>-Measure, compare, and infer during experimentation. | | | |

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| **Chapter 16F** ***Energy and Waves*** **8 days** | How can energy be transferred from one kind to another?<br><br>How are sounds made?<br><br>What are some properties of light? | 5.1.8.B.1-3<br>5.3.8.D.1<br>5.7.8.B.2<br>5.7.6.B.2<br>5.7.8.B.1 | -Identify different forms of energy and recognize that energy can change from one form to another.<br><br>-Recognize that waves can transfer energy<br><br>-Understand how mechanical waves travel and that they move only energy forward.<br><br>-Recognize that light interacts with matter in different ways.<br><br>-Recognize that visible light contains light of different wavelengths.<br><br>-Predict, hypothesize, and analyze data during experimentation. | -Participation<br>-Teacher observations<br>-Investigate Records<br>-Lesson Wrap-ups<br>-Quizzes<br>-Tests<br>-Essays<br>-Vocabulary<br>-Projects<br>-Student Journals | -Computers/Internet<br>-Brainstorming<br>-Class discussions<br>-Inquiry<br>-Modeling<br>-Independent reading & writing assignments<br>-Peer partner learning<br>-Differentiated Instruction<br>-Critical thinking activities<br>-Group projects<br>-Word Wall | -Read the text book (discuss, analyze and write about the material)<br>-Participate in class discussions<br>-Cooperative learning activities<br>-Experimentation<br>-Internet research and activities<br>-Answer comprehension questions<br>-Workbook<br>-Paired Sharing<br>-Guided Reading<br>-Graphic Organizer |
| **Chapter 17F** ***Temperature and Heat*** ***6 days*** | What is thermal energy?<br><br>How does thermal energy spread? | 5.1.8.B.1-3<br>5.3.8.C.1<br>5.7.6.B.1<br>5.7.8.B.3 | -Identify temperature as a measure of the average kinetic energy of the particles in a substance.<br><br>-Compare and contrast thermal energy and temperature.<br><br>-Compare and contrast the ways thermal energy can be transferred.<br><br>Recognize some familiar conductors and insulators of thermal energy.<br><br>-Measure and use variables during experimentation. | | | |

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| **Chapter 18F *Electrical Energy* 8 days** | How is electricity produced?<br><br>What is an electric circuit?<br><br>How do people use electricity? | 5.1.8.B.1-3<br>5.3.8.A.1<br>5.7.6.B.3<br>5.7.8.B.2 | Compare types of electricity and explain how it is produced.<br><br>-Identify mechanical energy sources.<br><br>-Explore electricity and magnetism.<br><br>-Identify parts and interpret diagrams of an electric circuit.<br><br>-Describe familiar energy transformations from electrical energy into mechanical energy. | -Participation<br>-Teacher observations<br>-Investigate Records<br>-Lesson Wrap-ups<br>-Quizzes<br>-Tests<br>-Essays<br>-Vocabulary<br>-Projects<br>-Student Journals | -Computers/Internet<br>-Brainstorming<br>-Class discussions<br>-Inquiry<br>-Modeling<br>-Independent reading & writing assignments<br>-Peer partner learning<br>-Differentiated Instruction<br>-Critical thinking activities<br>-Group projects<br>-Word Wall | -Read the text book (discuss, analyze and write about the material)<br>-Participate in class discussions<br>-Cooperative learning activities<br>-Experimentation<br>-Internet research and activities<br>-Answer comprehension questions<br>-Workbook<br>-Paired Sharing<br>-Guided Reading<br>-Graphic Organizer |

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