

# HUDSONVILLE PUBLIC SCHOOLS ELEMENTARY COURSE FRAMEWORK



COURSE/SUBJECT

Third Grade Science



## ENDURING UNDERSTANDINGS - INQUIRY STANDARDS (Kindergarten - 7th Grade Standards)

<b>Inquiry Process</b>	<b>K-7 Standard S.IP: Develop an understanding that scientific inquiry and reasoning involves observing, questioning, investigating, recording, and developing solutions to problems.</b>
	S.IP.E.1 Inquiry involves generating questions, conducting investigations, and developing solutions to problems through reasoning and observation.
<b>Inquiry Analysis &amp; Communications</b>	<b>K-7 Standard S.IA: Develop an understanding that scientific inquiry and investigations require analysis and communication of findings, using appropriate technology.</b>
	S.IA.E.1 Inquiry includes an analysis and presentation of findings that lead to future questions, research, and investigations.
<b>Reflection &amp; Social Implications</b>	<b>K-7 Standard S.RS: Develop an understanding that claims and evidence for their scientific merit should be analyzed. Understand how scientists decide what constitutes scientific knowledge. Develop an understanding of the importance of reflection on scientific knowledge and its application to new situations to better understand the role of science in society and technology.</b>
	S.RS.E.1 Reflecting on knowledge is the application of scientific knowledge to new and different situations. Reflecting on knowledge requires careful analysis of evidence that guides decision making and the application of science throughout history and within society.

SCIENCE UNIT	STANDARD Which Michigan state standards does the unit address?	KEY CONCEPTS/ VOCABULARY	ASSESSMENTS
<p><b>Unit 1:</b> Changes in Force and Motion (Force, Motion, and Simple Machines)</p>	<p><b>INQUIRY STANDARDS</b></p> <p><b>Process</b></p> <ul style="list-style-type: none"> <li>• S.IP.03.11 Make purposeful observations of motion of objects in terms of direction.</li> <li>• S.IP.03.12 Generate questions based on observations of objects in motion.</li> <li>• S.IP.03.13 Plan and conduct simple and fair investigations to compare and contrast the motion of objects in terms of path and direction.</li> <li>• S.IP.03.14 Manipulate simple tools (for example ruler, meter stick, stop watch/timer) to determine the speed of an object by measuring the time it took to travel a measured distance.</li> <li>• S.IP.03.15 Make accurate measurements with appropriate units (centimeters, meters, seconds, minutes) of the distance an object traveled in a measured time.</li> <li>• S.IP.03.16 Construct simple charts and graphs from data and observations of time and distance of an object's travel.</li> </ul> <p><b>Analysis &amp; Communication</b></p> <ul style="list-style-type: none"> <li>• S.IA.03.11 Summarize information from charts and graphs to answer questions about the speed of a moving object.</li> <li>• S.IA.03.12 Share ideas about changes in motion through purposeful conversation in collaborative groups.</li> <li>• S.IA.03.13 Communicate and present findings of investigations that describe the motion of objects in terms of direction.</li> <li>• S.IA.03.14 Develop research strategies and skills for information gathering and problem solving about determining the speed of a moving object.</li> <li>• S.IA.03.15 Compare and contrast sets of data from multiple trials of an investigation on the motion of objects to explain reasons for differences.</li> </ul> <p><b>Reflection &amp; Social Implications</b></p> <ul style="list-style-type: none"> <li>• S.RS.03.11 Demonstrate similarities and differences in the motion of objects in terms of direction through various illustrations, performances or activities.</li> <li>• S.RS.03.14 Use data/samples as evidence to separate fact from opinion about the speed of an object.</li> <li>• S.RS.03.15 Use evidence when communicating, comparing and contrasting the motion of objects in terms of path and direction.</li> <li>• S.RS.03.16 Identify technology used in everyday life to measure speed.</li> <li>• S.RS.03.17 Identify current problems about changes in the motion of objects that may be solved through the use of technology.</li> <li>• S.RS.03.19 Describe how people such as al Jazari, Isaac Newton, the Wright Brothers, Sakichi Toyoda, and Henry Ford have contributed to science throughout history and across cultures.</li> </ul> <p><b>CONTENT STANDARDS</b></p> <ul style="list-style-type: none"> <li>• P.FM.03.22 Identify the force that pulls objects towards the Earth.</li> <li>• P.FM.03.35 Describe how a push or a pull is a force.</li> <li>• P.FM.03.36 Relate a change in motion of an object to the force that caused the change in motion.</li> <li>• P.FM.03.37 Demonstrate how the change in motion of an object is related to the strength of the force acting upon the object and to the mass of the object.</li> <li>• P.FM.03.38 Demonstrate when an object does not move in response to a force, it is because another force is acting on it.</li> <li>• P.FM.03.41 Describe the motion of objects in terms of the path and direction.</li> <li>• P.FM.03.42 Identify changes in motion (change direction, speeding up, slowing down).</li> <li>• P.FM.03.43 Relate the speed of an object to the distance it travels in a standard amount of time.</li> </ul>	<p>force strength push pull gravity weight mass motion position speed speeding up slowing down faster slower stop start change of motion change of direction moving away from toward around above below behind between through centimeters meters kilometers seconds minutes hours compare and contrast cause stop watches timers clocks with a second hand meter sticks rulers measuring tapes</p>	<p>Unit Assessment</p>

<p><b>Unit 2:</b> Light and Sound</p>	<p><b>INQUIRY STANDARDS</b></p> <p><b>Process</b></p> <ul style="list-style-type: none"> <li>• S.IP.03.11 Make purposeful observations concerning sound and light.</li> <li>• S.IP.03.12 Generate questions based on observations to understand sound and light.</li> <li>• S.IP.03.13 Plan and conduct simple and fair investigations of sound and light.</li> <li>• S.IP.03.14 Manipulate simple tools that aid observation and data collection in investigations of sound and light.</li> <li>• S.IP.03.15 Make accurate measurements with appropriate units for the measurement tool.</li> <li>• S.IP.03.16 Construct simple charts and graphs from data and observations dealing with sound and light.</li> </ul> <p><b>Analysis &amp; Communication</b></p> <ul style="list-style-type: none"> <li>• S.IA.03.11 Summarize information from data tables and graphs to answer scientific questions about sound and light.</li> <li>• S.IA.03.12 Share ideas about sound and light through purposeful conversation in collaborative groups.</li> <li>• S.IA.03.13 Communicate and present findings of observations and investigations about sound and light using evidence.</li> </ul> <p><b>Reflection &amp; Social Implications</b></p> <ul style="list-style-type: none"> <li>• S.RS.03.11 Demonstrate scientific concepts concerning sound and light through various illustrations, performances, models, exhibits, and activities.</li> <li>• S.RS.03.14 Use data/samples as evidence to separate fact from opinion regarding sound and light.</li> <li>• S.RS.03.15 Use evidence in making scientific decisions about sound and light.</li> <li>• S.RS.03.16 Identify technology associated with sound and light.</li> <li>• S.RS.03.17 Identify current problems on sound and light that may be solved through the use of technology.</li> <li>• S.RS.03.17 Describe how people have contributed to the science of sound and light throughout history and across cultures.</li> </ul> <p><b>CONTENT STANDARDS</b></p> <ul style="list-style-type: none"> <li>• P.EN.03.11 Identify light and sound as forms of energy.</li> <li>• P.EN.03.21 Demonstrate that light travels in a straight path and that shadows are made by placing an object in a path of light.</li> <li>• P.EN.03.22 Describe what happens to light when it travels from air to water (a straw half in water and half in the air looks bent).</li> <li>• P.EN.03.31 Relate sounds to their sources of vibrations (for example: a musical note produced by plucking a guitar string, the sounds of a drum made by striking a drumhead).</li> <li>• P.EN.03.32: Distinguish the effect of fast or slow vibrations as pitch.</li> <li>• P.PM.03.51 Demonstrate how some materials are heated more than others by light that shines on them.</li> <li>• P.PM.03.52 Explain how we need light to see objects: light from a source reflects off objects and enters our eyes.</li> </ul>	<p>light  path of light  sound  sound source  light source  forms of energy  vibrations  thermometer  degrees Celsius  light absorption  light reflection  shadow  pitch  sun as a source of energy  effect</p>	<p>Unit Assessment</p>
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<p><b>Unit 3:</b> Structures and Functions of Living Things (Plants)</p>	<p><b>INQUIRY STANDARDS</b></p> <p><b>Process</b></p> <ul style="list-style-type: none"> <li>• S.IP.03.11 Make purposeful observations of plants and animals using the appropriate senses.</li> <li>• S.IP.03.12 Generate questions based on observations of plants and animals.</li> <li>• S.IP.03.13 Plan and conduct simple and fair investigations.</li> <li>• S.IP.03.14 Manipulate simple tools that aid observation and data collection (hand lens, thermometer, tape measure).</li> <li>• S.IP.03.15 Make accurate measurements with appropriate units (Celsius, centimeters).</li> <li>• S.IP.03.16 Construct simple charts and graphs from data and observations of plants and animals.</li> </ul> <p><b>Analysis &amp; Communication</b></p> <ul style="list-style-type: none"> <li>• S.IA.03.11 Summarize information from charts about structures and functions of plant and animal parts.</li> <li>• S.IA.03.12 Share ideas about plant and animal structures and functions through purposeful conversation in collaborative groups.</li> <li>• S.IA.03.13 Communicate and present findings of observations and investigations.</li> <li>• S.IA.03.14 Develop research strategies and skills for information gathering and problem solving about plants and animals.</li> </ul> <p><b>Reflection &amp; Social Implications</b></p> <ul style="list-style-type: none"> <li>• S.RS.03.11 Demonstrate understanding of plant and animal structures and functions through illustrations, descriptions, or discussions.</li> <li>• S.RS.03.14 Use samples as evidence to separate fact from opinion when classifying plants and animals.</li> <li>• S.RS.03.15 Use evidence when communicating about plants and animals.</li> <li>• S.RS.03.16 Identify technology used in everyday life when taking temperatures, making measurements, and making a Power Point presentation.</li> <li>• S.RS.03.17 Identify current problems about plants and animals that may be solved through the use of technology.</li> <li>• S.RS.03.18 Describe the effect invasive species have on the balance of the natural world.</li> <li>• S.RS.03.19 Describe how people such as Barbara McClintock and Jean Lamarck have contributed to science throughout history and across cultures.</li> </ul> <p><b>CONTENT STANDARDS</b></p> <ul style="list-style-type: none"> <li>• L.OL.03.31: Describe the function of the following plant parts: flower, stem, root, and leaf.</li> <li>• L.OL.03.41 Classify plants on the basis of observable physical characteristics (roots, leaves, stems, and flowers).</li> <li>• L.EV.03.11 Relate characteristics and functions of observable parts in a variety of plants that allow them to live in their environment (for example: leaf shape, thorns, odor, color).</li> </ul>	<p>air color plant environment minerals plant root flowers stem leaf organism survival of organisms temperature Celsius thermometer centimeter support movement food getting protection structure function physical characteristics compare classify</p>	<p>Unit Assessment</p>
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<p><b>Unit 3:</b> Structures and Functions of Living Things (Animals)</p>	<p><b>INQUIRY STANDARDS</b></p> <p><b>Process</b></p> <ul style="list-style-type: none"> <li>• S.IP.03.11 Make purposeful observations of plants and animals using the appropriate senses.</li> <li>• S.IP.03.12 Generate questions based on observations of plants and animals.</li> <li>• S.IP.03.13 Plan and conduct simple and fair investigations.</li> <li>• S.IP.03.14 Manipulate simple tools that aid observation and data collection (hand lens, thermometer, tape measure).</li> <li>• S.IP.03.15 Make accurate measurements with appropriate units (Celsius, centimeters).</li> <li>• S.IP.03.16 Construct simple charts and graphs from data and observations of plants and animals.</li> </ul> <p><b>Analysis &amp; Communication</b></p> <ul style="list-style-type: none"> <li>• S.IA.03.11 Summarize information from charts about structures and functions of plant and animal parts.</li> <li>• S.IA.03.12 Share ideas about plant and animal structures and functions through purposeful conversation in collaborative groups.</li> <li>• S.IA.03.13 Communicate and present findings of observations and investigations.</li> <li>• S.IA.03.14 Develop research strategies and skills for information gathering and problem solving about plants and animals.</li> </ul> <p><b>Reflection &amp; Social Implications</b></p> <ul style="list-style-type: none"> <li>• S.RS.03.11 Demonstrate understanding of plant and animal structures and functions through illustrations, descriptions, or discussions.</li> <li>• S.RS.03.14 Use samples as evidence to separate fact from opinion when classifying plants and animals.</li> <li>• S.RS.03.15 Use evidence when communicating about plants and animals.</li> <li>• S.RS.03.16 Identify technology used in everyday life when taking temperatures, making measurements, and making a Power Point presentation.</li> <li>• S.RS.03.17 Identify current problems about plants and animals that may be solved through the use of technology.</li> <li>• S.RS.03.18 Describe the effect invasive species have on the balance of the natural world.</li> <li>• S.RS.03.19 Describe how people such as Barbara McClintock and Jean Lamarck have contributed to science throughout history and across cultures.</li> </ul> <p><b>CONTENT STANDARDS</b></p> <ul style="list-style-type: none"> <li>• L.OL.03.32 Identify and compare structures in animals used for controlling body temperature, support, movement, food getting, and protection (fur, wings, teeth, claws, scales)</li> <li>• L.OL.03.42 Classify animals on the basis of observable physical characteristics (backbone, body covering, limbs).</li> <li>• L.EV.03.12: Relate characteristics and functions of observable body parts to the ability of animals to live in their environment (for example: sharp teeth, claws, odor, body coverings).</li> </ul>	<p>air color environment minerals organism survival of organisms temperature Celsius thermometer centimeter support movement food getting protection structure function physical characteristics compare classify</p>	<p>Unit Assessment</p>
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**Unit 4: Earth Materials, Change, and Resources**

**INQUIRY STANDARDS**

**Process**

- S.IP.03.11 Make purposeful observations of earth materials to describe them in terms of color, particle, size, texture, and ability to hold water.
- S.IP.03.11 Make purposeful observations of rocks and minerals to determine that rocks are made up of minerals.
- S.IP.03.12 Generate questions based on observations of earth materials.
- S.IP.03.13 Plan and conduct simple and fair investigations to determine the ability of earth materials to hold water.
- S.IP.03.14 Manipulate simple tools that aid observation and data collection (hand lens, balance, scale, graduated cylinder, stop watch/timer).
- S.IP.03.15 Make accurate measurements with appropriate units (grams, centimeters, milliliters, minutes, seconds) for the measuring tool.
- S.IP.03.16 Construct simple charts and graphs from data and observations generated in Earth material investigation.

**Analysis & Communication**

- S.IA.03.11 Summarize information from charts and graphs to determine the ability of a variety of earth materials to hold water.
- S.IA.03.12 Share ideas about earth materials through purposeful conversation in collaborative groups.
- S.IA.03.13 Communicate and present findings of observations and investigations into earth materials.
- S.IA.03.14 Develop research strategies and skills for information gathering to find out about a variety of earth materials that are used to construct common items and used as fuels for heating and transportation.
- S.IA.03.15 Compare and contrast sets of data from multiple trials of the earth material investigation to explain reasons for differences.

**Reflection & Communication**

- S.RS.03.11 Use data/samples as evidence to separate fact from opinion regarding the ability of different earth materials to hold water.
- S.RS.03.12 Use evidence when communicating findings from earth material investigations.
- S.RS.03.13 Demonstrate how earth materials are used to construct some common objects and are taken from the Earth as fuels for heating and transportation through illustrations and models.
- S.RS.03.14 Identify technology used to find and remove earth materials to be used for building and fuel.
- S.RS.03.16 Describe the effect humans have on the balance of the natural world through the used of earth materials.

**CONTENT STANDARDS**

- E.ES.03.41 Identify natural resources (metals, fuels, fresh water, soil, and forests).
- E.ES.03.42 Classify renewable (fresh water, forests) and non-renewable (fuels, metals) resources.
- E.ES.03.43 Describe ways humans are protecting, extending and restoring resources (recycle, reuse, reduce, renewal).
- E.ES.03.44 Recognize that paper, metal, glass, and some plastics can be recycled.
- E.ES.03.51 Describe ways humans are dependent on the natural environment (forests, water, clean air, earth materials) and constructed environments (homes, neighborhoods, shopping malls, factories, and industry).
- E.ES.03.52 Describe helpful or harmful effects of humans on the environment (garbage, habitat destruction, land management, renewable and non-renewable resources).
- E.SE.03.13 Recognize and describe different types of earth materials (mineral, rock, clay, boulder, gravel, sand, soil).
- E.SE.03.14 Recognize that rocks are made up of minerals.
- E.SE.03.22 Identify and describe natural causes of change in the Earth's surface (erosion, glaciers, volcanoes, landslides, and earthquakes).
- E.SE.03.31 Identify earth materials used to construct some common objects (bricks, buildings, roads, glass).
- E.SE.03.32 Describe how materials taken from the Earth can be used as fuels for heating and transportation.

boulder  
 Earth materials  
 rock  
 clay  
 sand  
 gravel  
 soil  
 soil texture  
 soil color  
 water  
 wind  
 ice  
 helpful change  
 changes in the Earth's surface  
 harmful change  
 earthquake  
 erosion  
 landslide  
 glacier  
 metal  
 mineral  
 oil  
 recycle  
 reduce  
 reuse  
 renewal  
 rock breakage  
 volcanic eruptions  
 weathered rock  
 weathering  
 natural resources  
 renewable  
 resources non-renewable  
 resources  
 metals  
 fuels  
 freshwater  
 forests  
 natural  
 environment  
 constructed  
 environment  
 garbage  
 habitat destruction  
 land management  
 crude oil  
 natural gas  
 coal

**Solid Earth Assessment**

<b>Unit 5: Recycling</b>	<b>CONTENT STANDARDS</b> <ul style="list-style-type: none"> <li>• E.ES.03.43 Describe ways humans are protecting, extending and restoring resources (recycle, reuse, reduce, renewal).</li> <li>• E.ES.03.44 Recognize that paper, metal, glass, and some plastics can be recycled.</li> </ul>	recycle reduce reuse renewal natural resources renewable resources non- renewable resources garbage habitat destruction land management	Unit Assessment
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