

Strand I Thinking and Practice

Standard I: Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.

Essential Question: What variables affect the period of a pendulum (a weight on a string)? (How high you lift the weight? How much weight? The length of the string? How strong gravity is?) (2, 3) What would it be like to live on another planet? Which one would be most fun?

Category	Third Grade	End Learning Mastery	Assessment(s)	Resources
Process of Investigation SCIENTIFIC METHOD Benchmark I: Use scientific methods to observe, collect, record, analyze, predict, interpret, and determine reasonableness of data.	<p>1. Make new observations when discrepancies exist between two descriptions of the same object or phenomenon to improve accuracy.</p> <p>2. Recognize the difference between data and opinion.</p> <p>3. Use numerical data in describing and comparing objects, events, and measurements.</p> <p>4. Collect data in an investigation and analyze those data.</p> <p>5. Know that the same scientific laws govern investigations in different times and places.</p>		H-M Science: Unit F, Chpt. 15 Review and Test Prep, Unit Test, pp. F36, F66, pp. F100-104 Science Fair Project: (find) Rubric Assessment	H-M Science Intro: Nature of Science, pp. S1-S16. Chpt.15, pp. F68-98 Activities: F5-98.

Standard I: Understand the processes of scientific investigations and use inquiry and scientific ways of observing, experimenting, predicting, and validating to think critically.

Essential Question: What variables affect the period of a pendulum?

Category	Third Grade	End Learning Mastery	Assessment(s)	Resources
Process of Investigation SCIENTIFIC THINKING Benchmark II: Use scientific thinking and knowledge and communicate findings.	1. Use a variety of methods to display data and present findings. 2. Understand that predictions are based on observations, measurements, and cause-and-effect relationships.		H-M Science Chpt. 15, Review and Test Prep pp. F100-104	H-M Science Chpt. 15, pp. F68-F98 Tool Box pp. H6, H10, H14

KEY
 magenta – intr
 green – devel
 master – red
 progress – bla
 extend – tur

Essential Question:

Category	Third Grade	End Learning Mastery	Assessment(s)	Resources
Process of Investigation MATH SKILLS Benchmark III: Use mathematical skills and vocabulary to analyze data, understand patterns and relationships, and communicate findings.	1. Use numerical data in describing and comparing objects, events, and measurements. 2. Pose a question of interest and present observations and measurements with accuracy. 3. Use various methods to display data and present findings and communicate results in accurate mathematical language.		H-M Science Chpt. 15, Review and Test Prep p. F66, F100-104	H-M Science Chpt. 14-15 pp. F38-F98 Tool Box, pp. H2-H14

Stand II – Content of Science

Standard I (Physical Science): Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.

Essential Question: (1) What happens when a solid “disappears” in a liquid? (2) How do you separate mixtures?

Category	Third Grade	End Learning Mastery	Assessment(s)	Resources
Strand II: Content of Science PHYSICAL SCIENCE Forms of Matter Benchmark I: Recognize that matter has different forms and properties.	1. Identify and compare properties of pure substances and mixtures (e.g., sugar, fruit juice). 2. Separate mixtures based on properties (e.g., by size or by substance; rocks and sand, iron filings and sand, salt and sand).		H-M Science Chpt. 11-12, Review and Test Prep Pages – E60-64	H-M Science Chpt. 11-12 pp. E2-E58 Activities, pages – E5-E58, H7

Essential Question: What happens when sunlight hits water (or ice)?

Category	Third Grade	End Learning Mastery	Assessment(s)	Resources
Strand II: Content of Science PHYSICAL SCIENCE Properties of Matter Benchmark II: Know that energy is needed to get things done and that energy has different forms.	1. Understand that light is a form of energy and can travel through a vacuum. 2. Know that light travels in a straight line until it strikes an object and then it is reflected, refracted, or absorbed. 3. Measure energy and energy changes (e.g., temperature changes). 4. Construct charts or diagrams that relate variables associated with energy changes (e.g., melting of ice over time).		H-M Science Chpt. 12-13, Review and Test Prep, pages – E28, F36	H-M Science Unit E, Matter, Chapter 11 p. E4-18 Chpt. 13 – pages F2-34 Activities, Pages – F5-F98

Standard I (Physical Science): Understand the structure and properties of matter, the characteristics of energy, and the interactions between matter and energy.

Essential Question: What kinds of materials are affected by magnets and how? (4) Where is this question going?

Category	Third Grade	End Learning Mastery	Assessment(s)	Resources
<p>Strand II: Content of Science</p> <p>PHYSICAL SCIENCE Forces of Matter</p> <p>Benchmark III: Identify forces and describe the motion of objects.</p>	<p>1. Recognize that magnets can produce motion by attracting some materials (e.g., steel) and have no effect on others (e.g., plastics).</p> <p>2. Describe how magnets have poles (N and S) and that like poles repel each other while unlike poles attract.</p> <p>3. Observe that some forces produce motion without objects touching (e.g., magnetic force on nails).</p> <p>4. Describe motion on different time scales (e.g., the slow motion of a plant toward light, the fast motion of a tuning fork).</p>		<p>H-M Science Chpt. 13 Review & Test Prep, pages – F100-104</p>	<p>H-M Science Chpt. 15, pages – F68-F98 Activities, pages – F5-F98, H10</p>

Strand II Content of Science – LIFE SCIENCE

Standard II (Life Science): Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.

Essential Question: (1, 2) How do animals adapt to fill different ecological niches? (3, 4)? It's not clear what they are getting at here – are they looking for mammals vs. reptiles, monocots vs. dicots, or what?

Category	Third Grade	End Learning Mastery	Assessment(s)	Resources
<p>Strand II: Content of Science</p> <p>LIFE SCIENCE Forms & Structure</p> <p>Benchmark I: Know that living things have diverse forms, structures, functions, and habitats.</p>	<p>1. Know that an adaptation in physical structure or behavior can improve an organism's chance for survival (e.g., horned toads, chameleons, cacti, mushrooms).</p> <p>2. Observe that plants and animals have structures that serve different functions (e.g., shape of animals' teeth).</p> <p>3. Classify common animals according to their observable characteristics (e.g., body coverings, structure).</p> <p>4. Classify plants according to their characteristics (e.g., tree leaves, flowers, seeds).</p>		<p>H-M Science Chpt. 1-3, pages – A30, A64, A92-96</p>	<p>H-M Science Chpt. 1-3, pages – A2-A96 Activities, pages – A5-A90</p>

Standard II (Life Science): Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.

Essential Question: 1) How do living things change their environments? (2) How do animals adapt to fill different ecological niches? Given a specific niche (e.g., large predator, grazer, swamp herbivore), what animals have filled it in the past and fill it now?

Category	Third Grade	End Learning Mastery	Assessment(s)	Resources
<p>Strand II: Content of Science</p> <p>LIFE SCIENCE Life Forms in the Environment</p> <p>Benchmark II: Know that living things have similarities and differences and that living things change over time</p>	<p>1. Identify how living things cause changes to the environments in which they live, and that some of these changes are detrimental to the organism and some are beneficial.</p> <p>2. Know that some kinds of organisms that once lived on Earth have become extinct (e.g., dinosaurs) and that others resemble those that are alive today (e.g., alligators, sharks).</p>		<p>H-M Science Chpt. 4-5, Review and Test Prep, pages – B38, B68-72</p>	<p>H-M Science Chpt. 4-5 pages, B2-B66 Activities Pages – D5-D90, H10</p>

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Strand II Content of Science – LIFE SCIENCE

Standard II (Life Science): Understand the properties, structures, and processes of living things and the interdependence of living things and their environments.

Essential Question: (1) How do living things (specifically, germs) change their environment (specifically, the body)? (2) If you could only eat one food for the rest of your life, what food would keep you the healthiest?

Category	Third Grade	End Learning Mastery	Assessment(s)	Resources
Strand II: Content of Science LIFE SCIENCE Life Forms in the Environment Benchmark III: Know the parts of the human body and their functions	1. Know that bacteria and viruses are germs that affect the human body. 2. Describe the nutrients needed by the human body.		H-M Science Chpt. 4, Review and Test Prep, pages – B38	H-M Science Chpt. 4, pages – B20- B36 Activities, pages – B-5, H18-H23

Strand II Content of Science – EARTH AND SPACE SCIENCE

Standard III (Earth and Space Science): Understand the structure of Earth, the solar system, and the universe, the interconnections among them, and the processes and interactions of Earth's systems.

Essential Question: 1, 2) What would it be like to live on another planet? (e.g., what is a “day” and a “year” for different planets? What is the weather like? What is the gravity like?) (3, 4) Why do we see different constellations at different seasons and why do they move around the pole star at night? (5) What do telescopes show us that ancient people couldn't see?

Category	Third Grade	End Learning Mastery	Assessment(s)	Resources
<p>Strand II: Content of Science</p> <p>EARTH & SPACE SCIENCE</p> <p>Universe/Solar System</p> <p>Benchmark I: Know the structure of the solar system and the objects in the universe</p>	<p>1. Describe the objects in the solar system (e.g., sun, Earth and other planets, moon) and their features (e.g., size, temperature).</p> <p>2. Describe the relationships among the objects in the solar system (e.g., relative distances, orbital motions).</p> <p>3. Observe that the pattern of stars stays the same as they appear to move across the sky nightly.</p> <p>4. Observe that different constellations can be seen in different seasons.</p> <p>5. Know that telescopes enhance the appearance</p>		<p>H-M Science Chpt. 8-10, Review and Test Prep, pages – D32, D62, D92-96</p>	<p>H-M Science Chpt. 8-10, pages – D2-90 Activities, pages – D43-83, D60, D90</p>

	of some distant objects in the sky (e.g., the moon, planets).			
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Standard III (Earth and Space Science): Understand the structure of Earth, the solar system, and the universe, the interconnections among them, and the processes and interactions of Earth's systems.

Essential Question: (1, 2) How was Los Alamos different in the past? What do local fossils tell us about local history? (3) What is wind? (4) Where does rain come from?

Category	Third Grade	End Learning Mastery	Assessment(s)	Resources
<p>Strand II: Content of Science</p> <p>EARTH & SPACE SCIENCE Earth</p> <p>Benchmark II: Know the structure and formation of Earth and its atmosphere and the processes that shape them</p>	<p>1. Know that Earth's features are constantly changed by a combination of slow and rapid processes that include the action of volcanoes, earthquakes, mountain building, biological changes, erosion, and weathering.</p> <p>2. Know that fossils are evidence of earlier life and provide data about plants and animals that lived long ago.</p> <p>3. Know that air takes up space, is colorless, tasteless, and odorless, and exerts a force.</p> <p>4. Identify how water exists in the air in different forms (e.g., in clouds and fog as tiny droplets; in rain, snow,</p>		<p>H-M Science Chpt. 6-8, Review and Test Prep pages – C36, C68-72, D32</p>	<p>H-M Science Chpt. 6-8, pages – C2-66, D2-D30 Activities, pages - A55, C5-C66</p>

	and hail) and changes from one form to another through various processes (e.g., freezing/condensation, precipitation, evaporation).			
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Strand III Science & Society – DISCOVER / INVENT Scientific Influence

Standard I: Understand how scientific discoveries, inventions, practices, and knowledge influence, and are influenced by, individuals and societies.

Essential Question: 1, 4) How do we protect food from germs and pests? (2) ?? What a lame benchmark! (3) How do you make a house last 500 years?

Category	Third Grade	End Learning Mastery	Assessment(s)	Resources
Strand III: Science and Society Discover / Invent Scientific Influence Benchmark I: Describe how science influences decisions made by individuals and societies	1. Describe how food packaging (e.g., airtight containers, date) and preparation (heating, cooling, salting, smoking, drying) extend food life and the safety of foods (e.g., elimination of bacteria). 2. Know that science produces information for the manufacture and recycling of materials (e.g., materials that can be recycled [aluminum, paper, plastic] and others that cannot [gasoline]). 3. Know that naturally occurring materials (e.g.,		Individual Projects: Investigation of a discovery or invention with an impact on the way people live. Rubric assessment	H-M Science Intro: The Nature of Science, pages - S2-S16

	<p>wood, clay, cotton, animal skins) may be processed or combined with other materials to change their properties.</p> <p>4. Know that using poisons can reduce the damage to crops caused by rodents, weeds, and insects, but their use may harm other plants, animals, or the environment.</p>			
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KEY

magenta – introduce
green – develop
master – red
progress – black
extend - turquoise

Bibliography

Houghton-Mifflin Science

“H-M Science”

(Activity Sections of H-M Science)

Math and Science Toolbox

“Toolbox”

Investigate Activities:

“Activities”