Massachusetts Science and Technology/Engineering

Grade 5

Adopted 2016

Earth and Space Sciences

ESS1. Earth's Place in the Universe ESS1

5-ESS1-1. Use observations, first-hand and from various media, to argue that the Sun is a star that appears larger and brighter than other stars because it is closer to Earth. 5-ESS1-1

5-ESS1-2. Use a model to communicate Earth's relationship to the Sun, Moon, and other stars that explain (a) why people on Earth experience day and night, (b) patterns in daily changes in length and direction of shadows over a day, and (c) changes in the apparent position of the Sun, Moon, and stars at different times during a day, over a month, and over a year. 5-ESS1-2

ESS2. Earth's Systems ESS2

5-ESS2-1. Use a model to describe the cycling of water through a watershed through evaporation, precipitation, absorption, surface runoff, and condensation. 5-ESS2-1

5-ESS2-2. Describe and graph the relative amounts of salt water in the ocean; fresh water in lakes, rivers, and ground water; and fresh water frozen in glaciers and polar ice caps to provide evidence about the availability of fresh water in Earth's biosphere. 5-ESS2-2

ESS3. Earth and Human Activity ESS3

5-ESS3-1. Obtain and combine information about ways communities reduce human impact on the Earth's resources and environment by changing an agricultural, industrial, or community practice or process. 5-ESS3-1

5-ESS3-2(MA). Test a simple system designed to filter particulates out of water and propose one change to the design to improve it. 5-ESS3-2(MA)

Life Science

LS1. From Molecules to Organisms: Structures and Processes LS1

5-LS1-1. Ask testable questions about the process by which plants use air, water, and energy from sunlight to produce sugars and plant materials needed for growth and reproduction. 5-LS1-1

LS2. Ecosystems: Interactions, Energy, and Dynamics LS2

5-LS2-1. Develop a model to describe the movement of matter among producers, consumers, decomposers, and the air, water, and soil in the environment to (a) show that plants produce sugars and plant materials, (b) show that animals can eat plants and/or other animals for food, and (c) show that some organisms, including fungi and bacteria, break down dead organisms and recycle some materials back to the air and soil. 5-LS2-1

5-LS2-2(MA). Compare at least two designs for a composter to determine which is most likely to encourage decomposition of materials. 5-LS2-2(MA)

Physical Science

PS1. Matter and Its Interactions PS1

5-PS1-1. Use a particle model of matter to explain common phenomena involving gases, and phase changes between gas and liquid and between liquid and solid. 5-PS1-1

5-PS1-2. Measure and graph the weights (masses) of substances before and after a reaction or phase change to provide evidence that regardless of the type of change that occurs when heating, cooling, or combining substances, the total weight (mass) of matter is conserved. 5-PS1-2

5-PS1-3. Make observations and measurements of substances to describe characteristic properties of each, including color, hardness, reflectivity, electrical conductivity, thermal conductivity, response to magnetic forces, and solubility. 5-PS1-3

5-PS1-4. Conduct an experiment to determine whether the mixing of two or more substances results in new substances with new properties (a chemical reaction) or not (a mixture). 5-PS1-4

PS2. Motion and Stability: Forces and Interactions PS2

5-PS2-1. Support an argument with evidence that the gravitational force exerted by Earth on objects is directed toward Earth's center. 5-PS2-1

PS3. Energy PS3

5-PS3-1. Use a model to describe that the food animals digest (a) contains energy that was once energy from the sun, and (b) provides energy and nutrients for life processes, including body repair, growth, motion, body warmth, and reproduction. 5-PS3-1

Technology/Engineering

ETS3. Technological Systems ETS3

3-5-ETS3-1(MA). Use informational text to provide examples of improvements to existing technologies (innovations) and the development of new technologies (inventions). Recognize that technology is any modification of the natural or designed world done to fulfill human needs or wants. 5.3-5-ETS3-1(MA)

3-5-ETS3-2(MA). Use sketches or drawings to show how each part of a product or device relates to other parts in the product or device. 5.3-5-ETS3-2(MA)