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Food, Energy and Water Learning Module Workbooks - Spence et al.

Appendix Table A. Elementary School NGSS.

Table A. *Elementary School Youth (3rd – 5th grade) Next Generation Science Standards. (National Research Council, 2013; NGSS Lead States, 2013).*

Elementary School Youth (3rd – 5th grade) Next Generation Science Standards
Scientific Inquiry with Decimals and Fractions through the Colorful World of m&m's Workbook   ***Exploring Scientific Inquiry and Mathematical Thinking with Skittles Workbook*** • Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution. (3-PS2-2), (4-ESS2-1), (4-PS3-2) • Analyze and interpret data to make sense of phenomena using logical reasoning. (3-LS4-1) • Use evidence (e.g., observations, patterns) to support an explanation. (3-LS3-2), (3-LS4-2) • Represent data in tables and various graphical displays (bar graphs and pictographs) to reveal patterns that indicate relationships. (3-ESS2-1) • Most scientists and engineers work in teams. (4-PS3-4) • Science affects everyday life. (3-ESS3-1), (4-PS3-4)
My Sprouting Bean Seeds Scientific Workbook • Plants acquire their material for growth chiefly from air and water. (5-LS1-1) • Plants and animals have both internal and external structures that serve various functions in growth, survival, behavior, and reproduction. (4-LS1-1) • The food of almost any kind of animal can be traced back to plants. (5-LS2-1) • Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution. (3-PS2-2), (4-ESS2-1), (4-PS3-2) • Analyze and interpret data to make sense of phenomena using logical reasoning. (3-LS4-1) • Use evidence (e.g., observations, patterns) to support an explanation. (3-LS3-2), (3-LS4-2) • Represent data in tables and various graphical displays (bar graphs and pictographs) to reveal patterns that indicate relationships. (3-ESS2-1) • Most scientists and engineers work in teams. (4-PS3-4) • Science affects everyday life. (3-ESS3-1), (4-PS3-4) • Conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered. (5-PS1-4) • Science findings are limited to questions that can be answered with empirical evidence. (5- ESS3-1)
Let's Take a Biochemical Journey Through Osmosis with a Naked Hen Egg Workbook • Matter cycles between the air and soil and among plants, animals, and microbes as these organisms live and die. Organisms obtain gases, and water, from the environment, and release waste matter (gas, liquid, or solid) back into the environment. (5-LS2-1) • Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution. (3-PS2-2), (4-ESS2-1), (4-PS3-2) • Analyze and interpret data to make sense of phenomena using logical reasoning. (3-LS4-1) • Use evidence (e.g., observations, patterns) to support an explanation. (3-LS3-2), (3-LS4-2) • Represent data in tables and various graphical displays (bar graphs and pictographs) to reveal patterns that indicate relationships. (3-ESS2-1) • Most scientists and engineers work in teams. (4-PS3-4) • Science affects everyday life. (3-ESS3-1), (4-PS3-4)
The Beneficial Health Impacts of Fruits and Vegetables Workbook • Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution. (3-PS2-2), (4-ESS2-1), (4-PS3-2) • Analyze and interpret data to make sense of phenomena using logical reasoning. (3-LS4-1) • Use evidence (e.g., observations, patterns) to support an explanation. (3-LS3-2), (3-LS4-2) • Represent data in tables and various graphical displays (bar graphs and pictographs) to reveal patterns that indicate relationships. (3-ESS2-1) • Most scientists and engineers work in teams. (4-PS3-4) • Science affects everyday life. (3-ESS3-1), (4-PS3-4)

Exploring the Link Between Land Management, Plant Growth and Water Quality Using a Mini-Garden Model Workbook

- A system can be described in terms of its components and their interactions. (3-LS4-4)
- Plants acquire their material for growth chiefly from air and water. (5-LS1-1)
- Make observations and/or measurements to produce data to serve as the basis for evidence for an explanation of a phenomenon or test a design solution. (3-PS2-2), (4-ESS2-1), (4-PS3-2)
- Analyze and interpret data to make sense of phenomena using logical reasoning. (3-LS4-1)
- Use evidence (e.g., observations, patterns) to support an explanation. (3-LS3-2), (3-LS4-2)
- Represent data in tables and various graphical displays to reveal patterns that indicate relationships. (3-ESS2-1)
- Most scientists and engineers work in teams. (4-PS3-4)
- Observable phenomena exist from very short to very long time periods. (3-LS4-1)
- Science affects everyday life. (3-ESS3-1), (4-PS3-4)
- Conduct an investigation collaboratively to produce data to serve as the basis for evidence, using fair tests in which variables are controlled and the number of trials considered. (5-PS1-4)
- Science findings are limited to questions that can be answered with empirical evidence. (5- ESS3-1)

Note: NGSS Lead States. 2013. Next Generation Science Standards: For States, By States. Washington, DC: The National Academies Press. https://www.nextgenscience.org/.