

Science - Kindergarten

Course #: E3002, E3009

Course Description:

The performance expectations in kindergarten help students formulate answers to questions such as: “What happens if you push or pull an object harder? Where do animals live and why do they live there? What is the weather like today and how is it different from yesterday?” Students are expected to develop understanding of patterns and variations in local weather and the purpose of weather forecasting to prepare for, and respond to, severe weather. Students are able to apply an understanding of the effects of different strengths or different directions of pushes and pulls on the motion of an object to analyze a design solution. Students are also expected to develop understanding of what plants and animals need to survive and the relationship between their needs and where they live. The crosscutting concepts of patterns; cause and effect; systems and system models; interdependence of science, engineering, and technology; and influence of engineering, technology, and science on society and the natural world are called out as organizing concepts for these disciplinary core ideas. In the kindergarten performance expectations, students are expected to demonstrate grade-appropriate proficiency in asking questions, developing and using models, planning and carrying out investigations, analyzing and interpreting data, designing solutions, engaging in argument from evidence, and obtaining, evaluating, and communicating information. Students are expected to use these practices to demonstrate understanding of the core ideas.

Course Proficiencies:

The following is a list of skills and concepts students will be proficient in upon successful completion of this course. These proficiencies form the basis of assessment of each student's achievement. Students who demonstrate understanding can:

1. Use observations to describe patterns of what plants and animals need to survive. **(K-LS1-1)**
2. Construct an argument supported by evidence for how plants and animals can change the environment to meet their needs. **(K-ESS2-2)**
3. Use a model to represent the relationship between the needs of different plants or animals and the places they live. **(K-ESS3-1)**
4. Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment. **(K-ESS3-3)**
5. Make observations to determine the effect of sunlight on Earth's surface. **(K-PS3-1)**
6. Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area. **(K-PS3-2)**

7. Use and share observations of local weather conditions to describe patterns over time. **(K-ESS2-1)**
8. Ask questions to obtain information about the purpose of weather forecasting to prepare for, and respond to, severe weather. **(K-ESS3-2)**
9. Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object. **(K-PS2-1)**
10. Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull. **(K-PS2-2)**
11. Ask questions, make observations, and gather information about a real-world problem that can be solved through the development of a new or improved object or tool. **(K-2-ETS1-1)**
12. Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem. **(K-2-ETS1-2)**
13. Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs. **(K-2-ETS1-3)**
14. Select and use technology applications effectively and productively to gather, evaluate and use the information to explore a problem, develop a solution, and communicate ideas. **(8.1.2.A.2, 8.1.2.A.4, 8.1.2.E.1, 8.1.2.F.1)**
15. Develop an understanding of the nature and impact of technology, engineering, design, and computational thinking on the individual, global society, and the environment. **(8.2.2.A.4, 8.2.2.B.2, 8.2.2.C.1-4, 8.2.2.D.1, 8.2.2.E.1)**
16. Relate how the skills and knowledge acquired lay the foundation for future academic and career success. **(9.2.4.A.3, 9.2.4.A.4)**

Assessment:

In kindergarten, student progress in science is measured through teacher observation of students as they work with science materials, work with their peers and independently, and by the questions they ask and answer. Students will also maintain a science journal to record their observations, analyze data and draw conclusions.

Board Adopted Materials:

Teaching Resources and Related Student Materials:

Title: FOSS (Full Options Science System) Next Generation

Modules:

1. Trees and Weather
2. Animals Two by Two
3. Materials and Motion

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