Minnesota Science

Grade 1

Adopted 2019

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Life Science

1. Asking questions and defining problems. 1L.1.1
    1. Students will be able to ask questions about aspects of the phenomena they observe, the conclusions they draw from their models or scientific investigations, each other's ideas, and the information they read. 1L.1.1.1
        1. Ask questions based on observations about the similarities and differences between young plants and animals and their parents. 1L.1.1.1.1
1. Developing and using models. 1L.3.1
    1. Students will be able to develop, revise, and use models to represent the students' understanding of phenomena or systems as they develop questions, predictions and/or explanations, and communicate ideas to others. 1L.3.1.1
        1. Develop a simple model based on evidence to represent how plants or animals use their external parts to help them survive, grow, and meet their needs. 1L.3.1.1.1
2. Constructing explanations and designing solutions 1L.3.2
    2. Students will be able to use their understanding of scientific principles and the engineering design process to design solutions that meet established criteria and constraints. 1L.3.2.2
        2. Plan and design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs. 1L.3.2.2.2
2. Obtaining, evaluating and communicating information. 1L.4.2
    1. Students will be able to read and interpret multiple sources to obtain information, evaluate the merit and validity of claims and design solutions, and communicate information, ideas, and evidence in a variety of formats. 1L.4.2.1
        2. Obtain information using various features of texts and other media to determine patterns in the behavior of parents and offspring that help offspring survive. 1L.4.2.1.2

Physical Science

2. Planning and carrying out investigations. 1P.1.2

    1. Students will be able to design and conduct investigations in the classroom, laboratory, and/or field to test students' ideas and questions, and will organize and collect data to provide evidence to support claims the students make about phenomena. 1P.1.2.1

        1. Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate. 1P.1.2.1.1

1. Analyzing and interpreting data. 1P.2.1

    1. Students will be able to represent observations and data in order to recognize patterns in the data, the meaning of those patterns, and possible relationships between variables. 1P.2.1.1

        1. Identify and describe patterns obtained from testing different materials and determine which materials have the properties that are best suited for producing and/or transmitting sound. 1P.2.1.1.1

2. Constructing explanations and designing solutions. 1P.3.2

    2. Students will be able to use their understanding of scientific principles and the engineering design process to design solutions that meet established criteria and constraints. 1P.3.2.2

        1. Design and build a device that uses light or sound to solve the problem of communicating over a distance. 1P.3.2.2.1

2. Obtaining, evaluating and communicating information. 1P.4.2

    2. Students will be able to gather information about and communicate the methods that are used by various cultures, especially those of Minnesota American Indian Tribes and communities, to develop explanations of phenomena and design solutions to problems. 1P.4.2.2

        1. Communicate solutions that use materials to provide shelter, food, or warmth needs for communities including Minnesota American Indian Tribes and communities. 1P.4.2.2.1

Earth and Space Science

2. Using mathematics and computational thinking. 1E.2.2
    1. Students will be able to use mathematics to represent physical variables and their relationships; compare mathematical expressions to the real world; and engage in computational thinking as they use or develop algorithms to describe the natural or designed worlds. 1E.2.2.1
        1. Use quantitative data to identify and describe patterns in the amount of time it takes for Earth processes to occur and determine whether they occur quickly or slowly. 1E.2.2.1.1
1. Engaging in argument from evidence. 1E.4.1
    1. Students will be able to engage in argument from evidence for the explanations the students construct, defend and revise their interpretations when presented with new evidence, critically evaluate the scientific arguments of others, and present counterarguments. 1E.4.1.1
        1. Construct an argument based on observational evidence for how plants and animals (including humans) can change the non-living aspects of the environment to meet their needs. 1E.4.1.1.1
    2. Students will be able to argue from evidence to justify the best solution to a problem or to compare and evaluate competing designs, ideas, or methods. 1E.4.1.2
        1. Construct an argument with evidence to evaluate multiple solutions designed to slow or prevent wind or water from changing the shape of the land. 1E.4.1.2.1
2. Obtaining, evaluating and communicating information. 1E.4.2
    1. Students will be able to read and interpret multiple sources to obtain information, evaluate the merit and validity of claims and design solutions, and communicate information, ideas, and evidence in a variety of formats. 1E.4.2.1
        1. Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment. 1E.4.2.1.1