Mississippi Science

Grade One

Life Science L

1 Hierarchical Organization L.1.1

Conceptual Understanding: All living things reproduce, grow, develop, respond to stimuli, and die. Living things require air, food, water, and an environment in which to live. Plants are living things, and each plant part (roots, stem, leaves, and fruit) helps them survive, grow, and reproduce.

1 Students will demonstrate an understanding of the basic needs and structures of plants. L.1.1A

1 Construct explanations using first-hand observations or other media to describe the structures of different plants (i.e., root, stem, leaves, flowers, and fruit). Report findings using drawings, writing, or models. L.1.1A.1

2 Obtain information from informational text and other media to describe the function of each plant part (roots absorb water and anchor the plant, leaves make food, the stem transports water and food, petals attract pollinators, flowers produce seeds, and seeds produce new plants). L.1.1A.2

3 Design and conduct an experiment that shows the absorption of water and how it is transported through the plant. Report observations using drawings, sketches, or models. L.1.1A.3

4 Create a model which explains the function of each plant structure (roots, stem, leaves, petals, flowers, seeds). L.1.1A.4

5 With teacher support, gain an understanding that scientists are humans who use observations and experiments to learn about the natural world. Obtain information from informational text or other media about scientists who have made important observations about plants (e.g., Theophrastus, Gregor Mendel, George Washington Carver, Katherine Esau). L.1.1A.5

2 Reproduction and Heredity L.1.2

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Conceptual Understanding: Plants and animals change with each stage of life. Plants have predictable and observable characteristics at each developmental stage (germination, growth, reproduction, and seed dispersal). Most plants are stationary, so they depend upon animals or the wind for seed dispersal. Plants and animals are similar to their parents and resemble other plants and animals of the same kind.

A Students will demonstrate an understanding of how living things change in form as they go through the general stages of a life cycle L.1.2A

1 Investigate, using observations and measurements (non-standard units), flowering plants (pumpkins, peas, marigolds, or sunflowers) as they change during the life cycle (i.e., germination, growth, reproduction, and seed dispersal). Use drawings, writing, or models to communicate findings. L.1.2A.1

2 Obtain, evaluate, and communicate information through labeled drawings, the life cycle (egg, larva, pupa, adult) of pollinating insects (e.g., bees, butterflies). L.1.2A.2

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3 Ecology and Interdependence L.1.3

Conceptual Understanding: The needs of plants must be met to survive. Sunlight, water, nutrients, and space to grow are necessary for plant growth and repair.

A Students will demonstrate an understanding of what plants need from the environment for growth and repair. L.1.3A

1 Conduct structured investigations to make and test predictions about what plants need to live, grow, and repair including water, nutrients, sunlight, and space. Develop explanations, compare results, and report findings. L.1.3A.1

Conceptual Understanding: Animals, such as insects, depend on other living organisms for food. Many plants depend on insects or other animals for pollination or to move their seeds around so the plant can survive.

B Students will demonstrate an understanding of the interdependence of flowering plants and pollinating insects. L.1.3B

1 Identify the body parts of a pollinating insect (e.g., bee, butterfly) and describe how insects use these parts to gather nectar or disburse pollen. Report findings using drawings, writing, or models. L.1.3B.1

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4 Adaptations and Diversity L.1.4

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Conceptual Understanding: Plants respond to stimuli (e.g., turn their leaves to the sun and use tendrils to grab and support) to adapt to changes in the environment. There are distinct environments in the world that support certain types of plants. Plants have features that help them survive in their environment.

A Students will demonstrate an understanding of the ways plants adapt to their environment in order to survive. L.1.4A

1 Explore the cause-and-effect relationship between plant adaptations and environmental changes (i.e., leaves turning toward the sun, leaves changing color, leaves wilting, or trees shedding leaves). L.1.4A.1

2 Describe how the different characteristics of plants help them to survive in distinct environments (e.g., rain forest, desert, grasslands, forests). L.1.4A.2

3 Create a solution to an agricultural problem (i.e., pollination, seed dispersal, overcrowding). Use an engineering design process to define the problem, design, construct, evaluate, and improve the solution. * L.1.4A.3

Physical Science P

6 Motions, Forces, and Energy P.1.6

Conceptual Understanding: Some objects allow light to pass through them and some objects do not allow any light to pass through them, creating shadows. Very hot objects give off light. Objects reflect light, and objects can only be seen when light is reflected off them. Mirrors and prisms can be used to chan.ge the direction of a light beam.

A Students will demonstrate an understanding that light is required to make objects visible. P.1.6A

1 Construct explanations using first-hand observations or other media to describe how reflected light makes an object visible. P.1.6A.1

2 Use evidence from observations to explain how shadows form and change with the position of the light source. * (Just for demonstration purpose) P.1.6A.2

Conceptual Understanding: Vibrations of matter can create sound, and sound can make an object vibrate. Humans use sound and light to communicate over long distances.

B Students will demonstrate an understanding of sound. P.1.6B

1 Conduct an investigation to provide evidence that vibrations create sound (e.g., pluck a guitar string) and that sound can create vibrations (e.g., feeling sound through a speaker). P.1.6B.1

2 Create a device that uses light and/or sound to communicate over a distance (e.g., signal lamp with a flashlight). Use an engineering design process to define the problem, design, construct, evaluate, and improve the device. * P.1.6B.2

Ea **arth's Systems and Cycles** E.1.9

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Conceptual Understanding: Weather is a combination of temperature, sunlight, wind, snow, or rain in a particular place at a particular time. People measure weather conditions (temperature, precipitation) to describe and record the weather and to notice patterns over time. Temperature and precipitation can change with the seasons. Some kinds of severe weather (hurricanes, tornados, floods, and droughts) are more likely to occur in certain regions. Meteorologists forecast severe weather so that communities can prepare for and respond appropriately.

A Students will demonstrate an understanding of the patterns of weather by describing, recording, and analyzing weather data to answer questions about daily and seasonal weather patterns. E.1.9A

1 Analyze and interpret data from observations and measurements to describe local weather conditions (including temperature, wind, and forms of precipitation). E.1.9A.1

2 Develop and use models to predict weather conditions associated with seasonal patterns and changes. E.1.9A.2

3 Construct an explanation for the general pattern of change in daily temperatures by measuring and calculating the difference between morning and afternoon temperatures. E.1.9A.3

4 Obtain and communicate information about severe weather conditions to explain why certain safety precautions are necessary. E.1.9A.4

Conceptual Understanding: The Earth is made of different materials, including rocks, soil, and water (nonliving things). Plants and animals, including humans, depend on the Earth's land, water, and air to live and grow. Animals, including humans, can change the environment (e.g., shape of the land, the flow of water).

B Students will demonstrate an understanding of models (drawings or maps) to describe how water and land are distributed on Earth. E.1.9B

1 Locate, classify, and describe bodies of water (oceans, rivers, lakes, and ponds) on the Earth's surface using maps, globes, or other media. E.1.9B.1

2 Generate and answer questions to explain the patterns and location of frozen and liquid bodies of water on Earth using maps, globes, or other media. E.1.9B.2

3 With teacher guidance, plan and conduct a structured investigation to determine how the movement of water can change the shape of the land on Earth. E.1.9B.3

10 Earth's Resources E.1.10

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Conceptual Understanding: Water is essential to life on Earth. Humans and other living things are dependent on clean water to survive. Water is an Earth material, and like all of Earth's resources, the amount of water is limited. Continued health and survival of humans are dependent on solutions that maintain clean water sources.

A Students will demonstrate an understanding of human dependence on clean and renewable water resources E.1.10A

1 Obtain and evaluate informational texts and other media to generate and answer questions about water sources and human uses of clean water. E.1.10A.1

2 Communicate solutions that will reduce the impact of humans on the use and quality of water in the local environment. E.1.10A.2

3 Create a device that will collect free water to meet a human need (e.g., household drinking water, watering plants/animals, cleaning). Use an engineering design process to define the problem, design, construct, evaluate, and improve the device. * E.1.10A.3