

Scientific Thinking and Technology – Exploring, Scientific Inquiry, and Discovery

Life Science 3.1

A ORGANIZATION FOR MATTER AND ENERGY FLOW IN ORGANISMS

- A Use observations to identify and describe what plants and animals (including humans) need to survive. 3.1 PK.A
 - 1 Sort objects by living and non-living. 3.1 PK.A.1
 - 2 Categorize common living things into plants and animals. 3.1 PK.A.2
 - 3 State that living things need air, food, and water to survive. 3.1 PK.A.3
 - 4 Observe the effect of darkness and light on growing plants. 3.1 PK.A.4
 - 5 Tell the parts of a person, animal, or plant. 3.1 PK.A.5
 - 6 Draw a picture of a person, an animal, or a plant including most of the major observable features. 3.1 PK.A.6
 - 7 Ask questions about objects, organisms, and events. 3.1 PK.A.7
 - 8 Use the five senses and simple equipment to gather data. 3.1 PK.A.8
 - 9 Collect objects during a nature walk. 3.1 PK.A.9
 - 10 Describe observations accurately. 3.1 PK.A.10
 - 11 Compare observations with others. 3.1 PK.A.11
 - 12 Make a prediction about the result of the experiment. 3.1 PK.A.12
 - 13 Observe and document the growth of a living thing through drawings, writing, and/or photos. 3.1 PK.A.13
 - 14 Describe changes in people and animals over time (e.g., losing teeth, growing out of clothing, beans sprouting). 3.1 PK.A.14
 - 15 Care for plants and animals in the classroom. 3.1 PK.A.15
 - 16 Identify changes that occur to animals during the seasons. 3.1 PK.A.16
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A STRUCTURE AND PROPERTIES OF MATTER

- A** Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. 3.2 PK.A
- 1 Recognize the different types of matter (e.g., solid, liquid, gas). 3.2 PK.A.1
 - 2 Describe objects according to size, shape, color, or properties of matter. 3.2 PK.A.2
 - 3 Collect items and sort them according to shape, color, or other attributes. 3.2 PK.A.3
 - 4 Recognize that matter takes on different shapes depending upon its type (e.g., solids have a definite shape, liquids take the shape of their container, gas lacks shape and is present everywhere). 3.2 PK.A.4
 - 5 Ask questions about objects. 3.2 PK.A.5
 - 6 Use the five senses and simple equipment to gather data. 3.2 PK.A.6
 - 7 Make a prediction about the results of the experiment. 3.2 PK.A.7
 - 8 Point out when a change in matter occurs. 3.2 PK.A.8
 - 9 Observe differences in water (e.g., ice cube or snow melting and freezing). 3.2 PK.A.9
 - 10 Notice changes in food substances during cooking. 3.2 PK.A.10
 - 11 Experiment with changes in matter. 3.2 PK.A.11
 - 12 Experiment with changes in substances when combined. 3.2 PK.A.12
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B FORCES AND MOTION

- B** Participate in investigations to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull. 3.2 PK.B
- 1 Comment about the speed or direction of objects during play. 3.2 PK.B.1
 - 2 Demonstrate an understanding of fast, slow, back, forth, start and stop. 3.2 PK.B.2
 - 3 Use the five sense and simple equipment to gather data. 3.2 PK.B.3
 - 4 Experiment with objects or ideas to obtain a result. 3.2 PK.B.4
 - 5 Make predictions about an outcome (e.g., What might happen to a kite when the wind blows or slows down?). 3.2 PK.B.5
 - 6 Describe observations accurately. 3.2 PK.B.6
 - 7 Compare observations with others. 3.2 PK.B.7
 - 8 Push or pull objects with varying size, shape, and weights. 3.2 PK.B.8

C TYPES OF INTERACTIONS

- C Participate in investigations to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object. 3.2 PK.C
 - 1 Demonstrate an understanding of push and pull . 3.2 PK.C.1
 - 2 Participate in activities that involve changes in strength and direction in the pushing and pulling of objects and discuss the outcomes . 3.2 PK.C.2
 - 3 Make predictions about an outcome (e.g., What might happen to a car that is pushed up or down a hill?) . 3.2 PK.C.3
 - 4 Describe observations accurately . 3.2 PK.C.4
 - 5 Compare observations with others . 3.2 PK.C.5
 - 6 Push or pull objects using varying strengths and directions 3.2 PK.C.6

D CONSERVATION OF ENERGY AND ENERGY TRANSFER

- D Recognize that light from the sun has an effect on the earth's surface. 3.2 PK.D
 - 1 Understand the earth's surface could include rocks, sand, soil, water . 3.2 PK.D.1
 - 2 Participate in investigations of the effect of the sun on the earth's surface . 3.2 PK.D.2
- E Participate in simple investigations that will reduce the warming effect of sunlight. 3.2 PK.E
 - 1 Comment on the impact an object has when placed between the sun and the earth's surface (e.g., umbrellas, canopies, and tents) . 3.2 PK.E.1
 - 2 Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area . 3.2 PK.E.2

Earth and Space Science 3.3

A WEATHER AND CLIMATE

- A Identify seasons that correspond with observable conditions and identify how weather affects daily life. 3.3 PK.A
 - 1 Name the four seasons and an observable condition for that season (e.g., falling leaves, snow, rain, buds on trees, or green grass) . 3.3 PK.A.1
 - 2 Match types of clothing or activities to seasonal weather conditions (e.g., we use an umbrella when it is raining; we wear coats, hats, scarves, and mittens when it's cold outside) . 3.3 PK.A.2
 - 3 Use a thermometer as a tool for measuring temperature . 3.3 PK.A.3
 - 4 Talk about current weather events that affect the community . 3.3 PK.A.4
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A AGRICULTURAL AND ENVIRONMENTAL SYSTEMS AND RESOURCES

- A** Identify natural resources available to people in their daily lives. 3.4 PK.A
- 1 State that living things need air, food, and water to survive. 3.4 PK.A.1
 - 2 Understand that the things we use can be made from things found in the environment. 3.4 PK.A.2
 - 3 Match simple items used by people to its natural resource (e.g., milk to cow, wood for building to tree, wool to sheep). 3.4 PK.A.3
 - 4 Understand that natural resources are materials that come from the environment and are used by people. 3.4 PK.A.4
 - 5 Discuss and use natural items collected from the immediate environment. 3.4 PK.A.5
 - 6 Label human needs as air, food, water, shelter, clothing. 3.4 PK.A.6
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D SUSTAINABILITY AND STEWARDSHIP

- D** Engage in activities that reduce the impact of humans on the local environment. 3.4 PK.D
- 1 Identify how litter can have a negative impact on the environment. 3.4 PK.D.1
 - 2 Participate in experiments that show how litter can impact the environment. 3.4 PK.D.2
 - 3 Identify ways that litter should be handled. 3.4 PK.D.3
 - 4 Sort waste into those things that can be recycled and those things that cannot. 3.4 PK.D.4
 - 5 Practice recycling as part of classroom routine. 3.4 PK.D.5
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**A APPLYING, MAINTAINING, AND ASSESSING TECHNOLOGICAL PRODUCTS AND
SYSTEMS**

A Identify and use everyday symbols. 3.5 PK.A

- 1 Label symbols including road signs, symbols for persons with disabilities, and icons on a screen. 3.5 PK.A.1
- 2 Use symbols to represent or communicate an idea or a solution to a problem. 3.5 PK.A.2

C Identify various technologies used in everyday life. 3.5 PK.C

- 1 Label technology with appropriate vocabulary when using or shown (e.g., telephone, cell phone, computer, TV, camera, tablet, e-reader, Smart board). 3.5 PK.C
- 2 Discuss personal experiences with technology. 3.5 PK.C.2

E Explain the helpful and harmful effects of technology. 3.5 PK.E

- 1 Label technology with appropriate vocabulary when using or shown (e.g., telephone, cell phone, computer, TV, camera, tablet, e-reader, Smart board). 3.5 PK.E.1
- 2 Discuss personal experiences with technology. 3.5 PK.E.2
- 3 Identify how technology affects daily lives. 3.5 PK.E.3
- 4 Describe different types of technology. 3.5 PK.E.4
- 5 Discuss how technology use could be helpful or harmful. 3.5 PK.E.5

K Safely use tools to complete tasks. 3.5 PK.K

- 1 Identify different tools. 3.5 PK.K.1
- 2 Use tools for intended purpose. 3.5 PK.K.2
- 3 Discuss the ways in which tools can be used safely. 3.5 PK.K.3
- 4 Follow established rules (e.g., time limit, handling with care, putting away) when using tools. 3.5 PK.K.4
- 5 Choose tools that are appropriate for an identified task. 3.5 PK.K.5

M DESIGN AND DESIGN THINKING IN TECHNOLOGY AND ENGINEERING EDUCATION

- M** Demonstrate essential skills of the engineering design process. 3.5 PK.M
- 1 Identify the steps of the engineering design process (Ask, Imagine, Plan, Create, Improve) . 3.5 PK.M.1
 - 2 Participate in activities that use the steps of the engineering design process 3.5 PK.M.2
 - a Ask – Define the problem . 3.5 PK.M.2.A
 - b Imagine – Brainstorm possible solutions . 3.5 PK.M.2.B
 - c Plan – Research ideas and explore possibilities . Establish criteria and constraints . Consider alternative solutions and select an approach . 3.5 PK.M.2.C
 - d Create – Develop a design proposal . Make or model a prototype . Test and evaluate . 3.5 PK.M.2.D
 - e Improve – Refine the design, create the solution, communicate the results . 3.5 PK.M.2.E
- N** Participate in simple investigations to determine how things work. 3.5 PK.N
- 1 Engage is listening, questioning, and discussing . 3.5 PK.N.1
 - 2 Ask questions about how things work . 3.5 PK.N.2
 - 3 Observe and discuss how things work . 3.5 PK.N.3
 - 4 Take things apart and put them back together 3.5 PK.N.4
- S** Apply design concepts, principles, and processes through play and exploration. 3.5 PK.S

X INTEGRATION OF KNOWLEDGE, TECHNOLOGIES, AND PRACTICES

- X** Develop a plan in order to complete a task. 3.5 PK.X

CC NATURE AND CHARACTERISTICS OF TECHNOLOGY AND ENGINEERING

- CC** Discuss the roles of scientists, engineers, technologists, and others who work with technology. 3.5 PK.CC
- 1 Act out roles' scientists, engineers, technologists, and others who work with technology . 3.5 PK.CC.1
 - 2 Examine and explore different careers and discuss the similarities and differences in the way that those careers use technology . 3.5 PK.CC.2