Pennsylvania Learning Standards for Early Childhood

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

Physical Science 3.2

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

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 omment 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

Environmental Literacy and Sustainability 3.4

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

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

Technology and Engineering 3.5

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