Iowa Essential Elements for Science

Grade 5

Physical

1 **PS1: Matter and Its Interactions** PS1

A Structure and Properties of Matter PS1.A

2 Target Level: Measure and compare weights of substances before and after heating, cooling, or mixing substances to show that weight of matter is conserved. EE.5-PS1-2

2 Precursor Level: Compare the weight of an object before and after it changes from a liquid to a solid and from a solid to a liquid. EE.5-PS1-2

2 Initial Level: Recognize the change in state from liquid to solid or from solid to liquid of the same material. EE.5-PS1-2

3 Target Level: Make observations and measurements to identify materials based on their properties (e.g., weight, shape, texture, buoyancy, color, or magnetism). EE.5-PS1-3

3 Precursor Level: Classify materials by physical properties (e.g., weight, shape, texture, buoyancy, color, or magnetism). EE.5-PS1-3

3 Initial Level: Match materials with similar physical properties. EE.5-PS1-3

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2 **PS2: Motion and Stability: Forces and Interactions** PS2

B Types of Interactions PS2.B

1 Target Level: Demonstrate that the gravitational force exerted by Earth on objects is directed down. EE.5-PS2-1

1 Precursor Level: Predict the direction an object will go when dropped. EE.5-PS2-1

1 Initial Level: Recognize the direction an object will go when dropped. EE.5-PS2-1

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3 **PS3: Energy** PS3

D Energy in Chemical Processes and Everyday Life PS3.D

1 Target Level: Create a model to describe that energy in animals' food was once energy from the Sun. EE.5-PS3-1

1 Precursor Level: Use models to describe that plants capture energy from sunlight. EE.5-PS3-1

1 Initial Level: Identify simple models that show that plants need sunlight to grow. EE.5-PS3-1

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Life

1 **LS1: From Molecules to Organisms: Structures and Processes** LS1

C Organization for Matter and Energy Flow in Organisms LS1.C

1 Target Level: Provide evidence that plants need air and water to grow. EE.5-LS1-1

1 Precursor Level: Provide evidence that plants grow. EE.5-LS1-1

1 Initial Level: Distinguish things that grow from things that don't grow. EE.5-LS1-1

2 **LS2: Ecosystems: Interactions, Energy, and Dynamics** LS2

A Interdependent Relationships in Ecosystems LS2.A

1 Target Level: Create a model that shows the movement of matter (e.g., plant growth, eating, composting) through living things. EE.5-LS2-1

1 Precursor Level: Identify a model that shows the movement of matter from plants to animals (e.g., food chain/food web). EE.5-LS2-1

1 Initial Level: Identify common human foods. EE.5-LS2-1

Earth and Space

1 **ESS1: Earth's Place in the Universe** ESS1

B Earth and the Solar System ESS1.B

2 Target Level: Represent and interpret data on a picture, line, or bar graph to show seasonal patterns in the length of daylight hours. EE.5-ESS1-2

2 Precursor Level: Recognize patterns about length of daylight hours over time (e.g., week to week, month to month). EE.5-ESS1-2

2 Initial Level: Order events in daily routine including sunrise and sunset. EE.5-ESS1-2

2 **ESS2: Earth's Systems** ESS2

A Earth Materials and Systems ESS2.A

1 Target Level: Develop a model showing how water (hydrosphere) affects the living things (biosphere) found in a region. EE.5-ESS2-1

1 Precursor Level: Recognize how water (hydrosphere) affects people in a region (e.g., floods, droughts, mudslide, tourism, and recreation). EE.5-ESS2-1

1 Initial Level: Anticipate routine (e.g., clothes to wear, activities to do) to follow when it is raining. EE.5-ESS2-1

3 **ESS3: Earth and Human Activity** ESS3

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C Human Impacts on Earth Systems ESS3.C

1 Target Level: Use information to describe how people can help protect the Earth's resources and how that affects the environment. EE.5-ESS3-1

1 Precursor Level: Compare two methods people can use to help protect the Earth's resources. EE.5-ESS3-1

1 Initial Level: Identify one way to protect a resource of Earth (e.g., put paper in the recycling bin). EE.5-ESS3-1