

MAPPING GRADE 1 SCIENCE INSTRUCTION

Concept: Interactions with Water

PWC Strand: Physical Science

PWC Objective: 1.4.1

The student will investigate and understand how different common materials interact with water. Key concepts include:

- some liquids will separate when mixed with water, others will not **(SOL 1.3a)**
- some common solids will dissolve in water, others will not **(SOL 1.3b)**
- some substances will dissolve more readily in hot water than in cold water **(SOL 1.3c)**

What Students Should Know (Critical Attributes)	What Students Should Be Able To Do (Essential Skills)
<p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> • What are some properties of water that make it so important to us on Earth? • What liquids mix with water and what liquids do not? • What solids dissolve in water and what solids do not? • How does the temperature of the water affect how solids dissolve? <p><u>Critical Attributes:</u></p> <p>Stem Different types of materials react different when mixed with water.</p> <p>1.3a Some common liquids will mix with water but others will not. For example, vinegar mixes and spreads out in water, but when oil is stirred into water, it will not mix and floats on top of the water instead.</p> <p>1.3b Some everyday solids will dissolve in water but others will not. For example, powdered drink mix, sugar, and salt will break into smaller pieces and may seem to disappear in water, but they are still there. Other solids will not break up when added to water. They either stay on top of the water (float) or they fall to the bottom of the water (sink).</p> <p>1.3c The temperature of the water affects how easily a substance will dissolve in it. Some solids that will dissolve in water dissolve easier when the water is warm. We can observe that sugar dissolves easier and faster in hot or warm water than in cold water.</p>	<ul style="list-style-type: none"> • Describe and apply the term “dissolve.” • Predict and describe how a variety of materials (vinegar, milk, baking soda, powdered drink mix, sugar, salt, sand, oil, soil, rocks) will act when mixed with water. • Classify liquids and solids into those that will dissolve in water and those that will not. Use picture graphs, tables, and/or charts to record and display the information. • Infer that some substances will dissolve more easily in hot water than in cold water by conducting investigations using different temperatures of water.

MAPPING GRADE 1 SCIENCE INSTRUCTION

Concept: Investigating Sound

PWC Strand: Physical Science

PWC Objective: 1.4.2

The student will investigate and understand that objects may vibrate and produce sound. Key concepts include:

- vibrations (SOL 1.2b)
- loud and soft (SOL 1.2b)

What Students Should Know (Critical Attributes)

What Students Should Be Able To Do (Essential Skills)

Essential Questions:

- What makes sound?
- How can we describe sounds we hear?
- What happens to sound if we change the speed of its vibrations?
- How do we make loud or soft sounds?

Critical Attributes:

- 1.2a When objects move back and forth quickly, they push or pull air in invisible waves, or vibrations. Vibration may create sound. Humming, strumming a guitar, or plucking a rubber band creates vibrations that we hear as sound.
- 1.2a Vibrations can pass through solids, liquids, and gases. The size, shape, and thickness of the solid, liquid, or gas determines how fast the vibrations can travel.
- 1.2a Striking an object hard will create a louder sound than striking an object lightly.

- Understand that vibrations may create sound, such as humming, strumming a guitar, or plucking a rubber band.

MAPPING GRADE 1 SCIENCE INSTRUCTION

Concept: Investigating Motion

PWC Strand: Physical Science

PWC Objective: 1.4.3

The student will investigate and understand that moving objects exhibit different kinds of motion. Key concepts include:

- objects may have straight, circular, and back and forth motions **(SOL 1.2a)**
- pushes or pulls can change the movement of an object **(SOL 1.2c)**
- the motion of objects may be observed in toys and in playground activities **(SOL 1.2d)**

What Students Should Know (Critical Attributes)	What Students Should Be Able To Do (Essential Skills)
<p><u>Essential Questions:</u></p> <ul style="list-style-type: none"> • How can we use everyday examples (balls, things with wheels, wind-up toys, tops, rubber balls, and playground equipment) to communicate observations about moving objects? • How can we predict an object's movement by using its size, shape, and the force of the push or pull on it? • What kind of experiments can the student perform to determine an object's movement? • How does an object move? <p><u>Critical Attributes:</u></p> <p>1.2a An objects motion may be described by tracing and measuring its position over time. The motion of objects may be straight, circular, curved, or back and forth.</p> <p>1.2b Pushing or pulling can change the position and motion of objects. For the same object, the size of the change is related to the strength of the push or pull.</p> <p>1.2c Objects can be used to show particular motions like bouncing, rolling, spinning, and swinging back and forth. Simple experiments can be designed to show each of these movements (rolling a ball, swinging an object on a string in circular motion, or using a pendulum).</p>	<ul style="list-style-type: none"> • Describe and classify the motion of an object as straight, circular, curved, or back and forth. • Predict an object's movement using its size, shape, and the force of the push or pull on it. • Design and conduct a simple experiment to determine an object's movement. • Make and communicate observations about moving objects. Examples should include balls, things with wheels, windup toys, tops, rubber bands, and playground equipment.

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What Students Should Know (Critical Attributes)	What Students Should Be Able To Do (Essential Skills)
<p>1.2c The movement of objects can be measured and recorded using standard or non-standard units (using a ruler or hand lengths to measure length or distance).</p> <p>1.2c We can make comparisons of the movement of objects using graphs, pictures, and/or numbers.</p>	<ul style="list-style-type: none">• Record observations of movement (length/distance) using standard (English/metric) and nonstandard units.• Compare the movement of objects using graphs, pictures, and/or numbers.