Learning Target: I can plan and carry out investigations of physical changes by manipulating, separating, and mixing dry and liquid materials.
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Chemical & Physical Changes Review Station Questions

1. A student fills a tray with water and places the tray in the freezer. Three hours later, the student removes the tray from the freezer and makes observations.

Student Observations

- **The water is solid.**
- **The water does not flow.**
- **The water keeps its shape in any container.**
- **The color of the water has changed to white.**

The student claims that changing the temperature of water causes a physical change that turns water into ice.

Which argument BEST supports the student's claim?

A. Ice forms because heat is added, causing the particles to move faster. This makes the ice flow

B. Ice forms because heat is removed, causing the particles to move slower. This changes the water from a liquid to a solid.

C. Ice forms because heat is removed, causing the particles to move slower. This makes the ice change its shape.

D. Ice forms because heat is added, causing the particles to move faster. This changes the color of the water from clear to white.

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2. Which TWO groups are performing investigations that demonstrate physical changes?

A.

Group 1
Step 1: pour 250 mL of milk into a cup **Step 2:** add 30 mL of vinegar to the cup **Step 3:** count the number of solids formed

B.

Group 2
Step 1: pour 250 g of sand into a dish **Step 2:** add 30 g of iron shaving to the dish **Step 3:** run a magnet over the dish to remove the iron shavings

C.

Group 3
Step 1: add 250 mL of vinegar into a dish **Step 2:** add 30 g of copper pennies to the dish **Step 3:** record the change to the surface of the pennies

D.

Group 4
Step 1: pour 250 mL of water into a glass **Step 2:** add 30 g of salt to the water **Step 3:** allow the water to evaporate from the glass

E.

Group 5
Step 1: spray 250 g of iron with hydrogen peroxide **Step 2:** sprinkle the 30 g of salt onto the iron **Step 3:** count the time it takes for the iron to rust

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3. The following question has two parts. First, answer Part A. Then, answer Part B.

Part A:

The teacher has the students write down different physical changes that occur with paper. The students' list is shown.

- Folding paper
- Coloring paper
- Burning paper
- Cutting paper

Which of the changes is incorrectly called a physical change?

A. Folding paper

B. Coloring paper

C. Burning paper

D. Cutting paper

Part B:

Which BEST supports the choice from Part A?

A. Changing the shape of paper causes it to form a new substance.

B. Adding color to paper causes it to form a new substance.

C. The different pieces of cut paper form a new substance.

D. Burning paper causes it to form a new substance.

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4. The student creates a mixture, as shown which is a bowl of sand that contains screws and wood shavings in it.

The student wants to separate the materials to demonstrate that the mixture experienced a physical change. Which THREE methods should the student use?

A. use a strainer to remove the sand

B. add water to dissolve the sand

C. use a magnet to attract the screws

D. hand pick out the wood shavings

E. burn the wood shavings

F. melt the screws

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5. The diagram below shows four liquids: tea, water, orange juice, and fruit punch.

			
Tea	**Water**	**Orange juice**	**Fruit punch**

Which of the liquids are mixtures that could be separated?

A. only orange juice and fruit punch

B. only tea, water, and fruit punch

C. only tea, orange juice, and fruit punch

D. only water and tea

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6. The student heats and freezes three different materials. The table shows her results.

Material	State of Material Before	State After Freezing to 0° Celsius	State After Heating to 0° Celsius
Chocolate chips	Solid	Solid	Liquid
Cooking oil	Liquid	Solid	Liquid
Salt	Solid	Solid	Solid

Which materials experienced a physical change? Select After Heating, After Freezing, or No Change next to each material.

	After Heating	After Freezing	No Change
Cooking oil	☐	☐	☐
Salt	☐	☐	☐
Chocolate chips	☐	☐	☐

Teacher Notes: The following materials will be used to complete the labs above

- **Ice**
- **Water**
- **Milk**
- **Vinegar**
- **Bowls**
- **Sand**
- **Salt**
- **Pennies**
- **Orange juice**
- **Magnet**
- **Glass cup**
- **Hydrogen peroxide**
- **Iron shavings**
- **Plates**
- **Open flame**
- **Screws**
- **Wood shavings**
- **Tea**
- **Fruit punch**
- **Color pencils**
- **Hot plate**
- **Chocolate chips**
- **Cooking oil**

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