

Learning Target: I can plan and carry out investigations of physical changes by manipulating, separating, and mixing dry and liquid materials.

Learning Target: I can plan and carry out an investigation to determine if a chemical change occurred based on observable evidence (color, gas, temperature change, odor, new substance produced).



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.



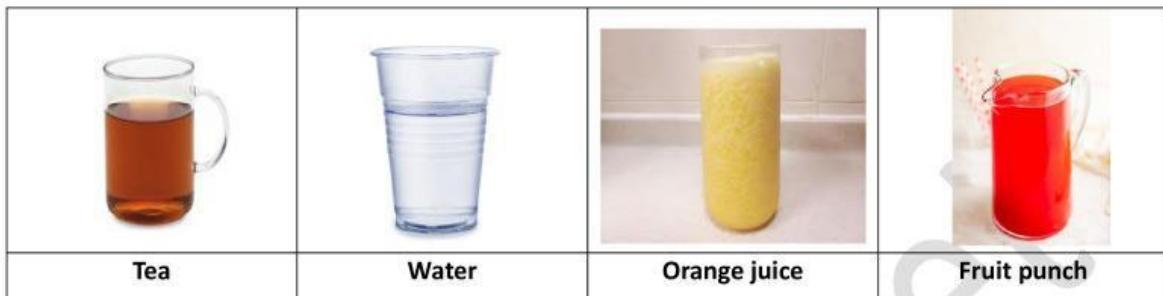
The student wants to separate the materials to demonstrate that the mixture experienced a physical change. Which THREE methods should the student use?

- 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.



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	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Salt	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>
Chocolate chips	<input type="checkbox"/>	<input type="checkbox"/>	<input type="checkbox"/>

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

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