

Review & Recap: PHYSICAL PROPERTIES & CHANGES

PART 1 - MATCHING

- | | |
|----------------------|---|
| 1. Physical property | a. how easily a substance dissolves in another substance |
| 2. Solubility | b. an objects attraction to another object (magnetic, electric) |
| 3. Density | c. an observable characteristic without modifying the object. |
| 4. Physical change | d. a change in state (solid, liquid, gas) of an object |
| 5. Polarity | e. how tightly of loosely atoms are packed in a substance. |

PART 2 - WAYS MATTER PHYSICALLY CHANGES

Physical changes involve physically altering or modifying the appearance of a substance without altering the chemical makeup of that substance. The size, shape, color, length, or state of the object may change, but the chemical composition of that substance remains the same. For example, tearing paper into small pieces changes the appearance of the paper, however the substance remains paper. A phase change is also considered a physical change. It involves adding or removing energy between the 3 states, or phases, of matter. The 3 primary states of matter are solid, liquid and gas. An ice cube melting changes states from solid to liquid, however the chemical makeup of the substance is still water (H₂O). One way to identify a physical change is to consider whether or not the change is reversible. An ice cube melting into liquid can be frozen and turned into a solid again. Consider these ways for physical changing matter:

- | | | | | |
|---------------|------------|-------------|---------------|-----------------|
| 1. Crushing | 2. Melting | 3. Boiling | 4. Condensing | 5. Breaking |
| 6. Dissolving | 7. Tearing | 8. Freezing | 9. Cutting | 10. Evaporating |

1. List 5 actions to physically change matter:

2. True or False: Physical changes *may* be reversible. Circle one: True False
3. True or False: A new substance is created during a physical change. Circle one: True False
4. Think of 1 example (other than ice cube to water and back) that can be classified as a physical change.

PART 3 - SENTENCE COMPLETION

- We tested the _____ of sugar by observing if it could dissolve in water after 5 minutes.
- Color, size, shape, smell and texture are all examples of _____.
- Depending on an objects' _____ that object will sink or float in water.
- We witnessed _____ when the magnet attracted iron filings in our mixture lab.
- An object undergoes a _____ when it is melted, frozen, mixed, crushed, boiled, etc

PART 4 - REAL LIFE APPLICATION

	OBJECT	TWO PHYSICAL PROPERTIES	ONE WAY TO PHYSICALLY CHANGE IT
1.			
2.			
3.			
4.			
5.			

PART 5 - MAGIC SQUARE

Directions: Match the number of the statement best describing the word in the box and Write it on the line below the word. If they are all right, each column and row will total the same MAGIC NUMBER. Good luck!

physical property # _____	solubility # _____	density # _____	TOTAL _____
physical change # _____	polarity # _____	melting # _____	_____
evaporating # _____	freezing # _____	phases # _____	_____

TOTAL: _____

- The ability of one substance to dissolve in another substance, forming a homogeneous mixture.
- A synonym for "state" of matter. There are 3 primary ones are solid, liquid and gas.
- Altering the appearance of a substance while maintaining its chemical composition/atomic makeup.
- Adding heat/energy to a liquid resulting in the formation of a gas.
- Having a positive or negative charge and being attracted to a certain magnetic pole.
- How tightly packed atoms are in a substance. The ratio of mass to volume of an object/substance.
- Adding heat/energy to a solid resulting in the formation of liquid.
- Characteristics of a substance/object that are observed without altering the substance.
- Removing heat/energy from a liquid resulting in the formation of a solid.

Review & Recap: **TEACHER ANSWER KEY** **PHYSICAL PROPERTIES & CHANGES**

PART I - MATCHING

- | | |
|----------------------|---|
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| 3. Density | c. an observable characteristic without modifying the object. |
| 4. Physical change | d. a change in state (solid, liquid, gas) of an object |
| 5. Polarity | e. how tightly of loosely atoms are packed in a substance. |

PART 2 - WAYS MATTER PHYSICALLY CHANGES

Physical changes involve physically altering or modifying the appearance of a substance without altering the chemical makeup of that substance. The size, shape, color, length, or state of the object may change, but the chemical composition of that substance remains the same. For example, tearing paper into small pieces changes the appearance of the paper, however the substance remains paper. A phase change is also considered a physical change. It involves adding or removing energy between the 3 states, or phases, of matter. The 3 primary states of matter are solid, liquid and gas. An ice cube melting changes states from solid to liquid, however the chemical makeup of the substance is still water (H₂O). One way to identify a physical change is to consider whether or not the change is reversible. An ice cube melting into liquid can be frozen and turned into a solid again. Consider these ways for physical changing matter:

- | | | | | |
|---------------|------------|-------------|---------------|-----------------|
| 1. Crushing | 2. Melting | 3. Boiling | 4. Condensing | 5. Breaking |
| 6. Dissolving | 7. Tearing | 8. Freezing | 9. Cutting | 10. Evaporating |

1. List 5 actions to physically change matter:

Any of the 10 choices listed above.

2. True or False: Physical changes *may* be reversible. Circle one: **True** False
3. True or False: A new substance is created during a physical change. Circle one: True **False**
4. Think of 1 example (other than ice cube to water and back) that can be classified as a physical change.

Tearing paper, lava cooling to rock, melting metal, etc. answers may vary.

PART 3 - SENTENCE COMPLETION

- We tested the solubility of sugar by observing if it could dissolve in water after 5 minutes.
- Color, size, shape, smell and texture are all examples of physical properties.
- Depending on an objects' density that object will sink or float in water.
- We witnessed polarity when the magnet attracted iron filings in our mixture lab.
- An object undergoes a physical change when it is melted, frozen, mixed, crushed, boiled, etc

PART 4 - REAL LIFE APPLICATION

	OBJECT	TWO PHYSICAL PROPERTIES	ONE WAY TO PHYSICALLY CHANGE IT
1.			
2.			
3.	Answers will vary - ensure characteristics and actionable items		
4.	are listed		
5.			

PART 5 - MAGIC SQUARE

Directions: Match the number of the statement best describing the word in the box and Write it on the line below the word. If they are all right, each column and row will total the same MAGIC NUMBER. Good luck!

physical property # <u>8</u>	solubility # <u>1</u>	density # <u>6</u>	<u>15</u>
physical change # <u>3</u>	polarity # <u>5</u>	melting # <u>7</u>	<u>15</u>
evaporating # <u>4</u>	freezing # <u>9</u>	phases # <u>2</u>	<u>15</u>
TOTAL: <u>15</u>	<u>15</u>	<u>15</u>	

- The ability of one substance to dissolve in another substance, forming a homogeneous mixture.
- A synonym for "state" of matter. There are 3 primary ones are solid, liquid and gas.
- Altering the appearance of a substance while maintaining its chemical composition/atomic makeup.
- Adding heat/energy to a liquid resulting in the formation of a gas.
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- Adding heat/energy to a solid resulting in the formation of liquid.
- Characteristics of a substance/object that are observed without altering the substance.
- Removing heat/energy from a liquid resulting in the formation of a solid.