



Concept Attainment Quiz

Name: Key Date: _____

I. Vocabulary Matching

Match each term on the right to the correct definition.

- | | |
|--|--------------|
| 1. <u>C</u> The basic building block of matter; made of electron(s), proton(s), and neutron(s) | A. Matter |
| 2. <u>B</u> The smallest unit of a compound | B. Molecule |
| 3. <u>D</u> Solid material whose atoms are arranged in an ordered pattern | C. Atom |
| 4. <u>A</u> Anything with both volume and mass | D. Crystal |
| 5. <u>E</u> Matter with consistent properties throughout | E. Substance |

II. Identification

Use the clues provided to fill in the blanks.

Word Bank

atoms	protons	pattern	space
elements	compounds	crystals	subscript
molecules	electrons	matter	substance
neutrons	solid		

- Atoms can be combined to form molecules of various substances.
- In crystals, atoms are arranged in an ordered pattern.
- Anything that takes up space is called matter.
- Protons have a positive charge, neutrons have no charge, and electrons have a negative charge.
- A solid has a definite volume and shape.



Concept Attainment Quiz

Name: _____ Date: _____

I. Vocabulary Matching

Match each term on the right to the correct definition.

- | | |
|---|----------------------|
| 1. <u>B</u> Occurs when one or more substances change to produce one or more different substances | A. Chemical property |
| 2. <u>A</u> A property that requires a chemical interaction to observe | B. Chemical reaction |
| 3. <u>D</u> A large amount of something | C. Physical property |
| 4. <u>E</u> Has definite composition and properties | D. Bulk quantities |
| 5. <u>C</u> A property that is observed without making changes to the substance | E. Pure substance |

II. Identification

Use the clues provided to fill in the blanks.

Word Bank

different	elements	bulk quantities	density
the same	natural resources	pure substance	

- If a chemical reaction occurs, the properties of substances before and after the substances interact must be different.
- Density is a property that can be used to identify an unknown substance.
- Each pure substance has characteristic physical and chemical properties that can be used to identify it.
- When a chocolate bar melts, the chemical properties of that substance are the same.



Concept Attainment Quiz

Name: _____ Date: _____

I. Vocabulary Matching

Match each term on the right to the correct definition.

- | | |
|---|----------------------|
| 1. <u>E</u> Formed when two or more atoms chemically combine | A. Reactants |
| 2. <u>B</u> A process that leads to the transformation of one set of chemical substances to another | B. Chemical reaction |
| 3. <u>C</u> Smallest part of a substance | C. Atom |
| 4. <u>A</u> The substances initially involved in a chemical reaction | D. Product |
| 5. <u>D</u> The substance that is produced from a chemical reaction | E. Molecule |

II. Identification

Use the clues provided to fill in the blanks.

Word Bank

color	molecules	precipitate	temperature
gas	evidence	odor	light

- In a chemical process, atoms that make up a substance are regrouped into different molecules to form new substances with different properties.
- A temperature increase or decrease and the production of light are both signs that a chemical reaction may have occurred.
- A precipitate is a solid substance that forms and separates from a solution and may indicate that a chemical reaction has occurred.
- An unexpected change in color is a sign that a chemical reaction may have occurred.
- Substances giving off a smell, or odor, while being combined is also an indicator of a chemical reaction.

Name: _____ Date: _____

Characteristics of Chemical Reactions Quiz

1 A student mixes a solid powder into a beaker of fluid. Which of the following would indicate that a chemical change has definitely occurred?

- The powder all dissolves into the liquid and can no longer be seen.
- The powder pulls together into large solid clumps of material.
- The mass of liquid is now less than the mass of the combined liquid and solid before they were mixed.
- Some of the powder is dissolved into the liquid but some of it settles on the bottom of the beaker.

2 Which of the following is NOT an indicator of a chemical reaction?

- A phase change
- A temperature change
- A color change
- A gas being created

3 Hydrogen and oxygen react to form water. At an atomic level, how do we know that a chemical reaction has occurred?

- Hydrogen molecules are negative, and oxygen positive.
- For every oxygen atom, two hydrogen atoms are needed.
- The hydrogen and oxygen atoms regroup into a new molecule.
- Oxygen atoms are much larger than hydrogen atoms.

4 The chart below shows the results of combining various substances.

	Color Change?	Gas Formed?	Temperature Change?
Substance A combined with Substance B	No	Yes	No
Substance C combined with Substance D	No	No	No

Which of the following statements is true?

- We know combining Substances A and B resulted in a chemical reaction because a gas was formed.
 - We know combining Substances C and D resulted in a chemical reaction because of the lack of a temperature change.
 - We know combining Substances A and B resulted in a chemical reaction because of the lack of a temperature change.
 - We know that neither combinations resulted in a chemical reaction because neither one had a color change.
-
- 5 Which of the following is the best description of the results of a chemical reaction?
- A new substance with different properties is formed.
 - The substance seems to disappear after dissolving in water.
 - The substance changes from liquid to solid at a low temperature.
 - The reaction can be reversed to get back the original substance.
-

Rust forming on a piece of iron is an example of which of the following: *

2 points

- A physical change because the process can be reversed
- The natural process of decay as metallic ions age
- A chemical change because oxygen atoms from the atmosphere bonded with the iron atoms and formed a new substance.
- A violation of the laws of physics because new mass has been created
- This is a required question

The chart below shows the results of combining various substances. Which of the following statements is true? *

2 points

	Color Change?	Gas Formed?	Temperature Change?
Substance A combined with Substance B	No	Yes	No
Substance C combined with Substance D	No	No	No

- We know combining substances A & B resulted in a chemical reaction because a gas was formed.
- We know combining substances C & D resulted in a chemical reaction because of the lack of a temperature change.
- We know combining substances A & B resulted in a chemical reaction because of the lack of a temperature change.
- We know that neither combinations resulted in a chemical reaction because neither one had a color change.
- This is a required question

Which of the following is a sign that a chemical reaction is taking place? *

2 points

- Gives off heat and light
- There is a color change and an odor
- It gives off smoke and produces a gas from a liquid
- ALL of these examples are signs of a chemical reaction
- ! This is a required question

Which of the following is the best description of the results of a chemical reaction? *

2 points

- A new substance with different properties is formed.
- The substance seems to disappear after dissolving in water.
- The substance changes from liquid to solid at a low temperature
- The reaction can be reversed to get back the original substance
- ! This is a required question

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Which of the following are accurate headings for each column? *

2 points

Column A	Column B
State of matter	Flammability
Color	Corrosion
Melting Point	Oxidation
Odor	Reactivity with water
Density	
Conductivity	

- Column A = Physical Properties; Column B = Chemical Properties
- Column A = Chemical Properties; Column B = Physical Properties
- Column A = Observable Properties; Column B = Non-Observable Properties
- Column A = Non-Observable Properties; Column B = Observable Properties

The following liquids are poured into a glass jar. Which is the correct order, from top to bottom, of the column that would form? *

2 points

Liquid A	Density: 4 g/cm ³
Liquid B	Density: 6 g/cm ³
Liquid C	Density: 2 g/cm ³

- Liquid C (top), Liquid A, Liquid B (bottom)
- Liquid C (top), Liquid B, Liquid A (bottom)
- Liquid B (top), Liquid A, Liquid C (bottom)
- Liquid B (top), Liquid C, Liquid A (bottom)

A table comparing four metals is provided. A sample known to be one of the four listed in the table was heated to a temperature of 350 C but remained a solid. The sample was found to have a density greater than 6 and to be a good conductor of electricity. During the flame test, the sample produced a blue flame. Based on this information, what is the identity of this sample? *

2 points

Metal	Melting Point (°C)	Density (g/cm ³)	Flame Test Color	Electrical Conductivity
Zinc	419.53	7.14	Blue	Good
Lead	327.5	11.34	Blue/White	Poor
Tin	231.93	5.77	Blue/White	Fair
Iron	1538	7.87	Gold	Good

- Zinc
- Lead
- Tin
- Iron

A student finds the mass and volume of four mystery liquids. We know that density equal the mass of a substance divided by the volume of a substance. The student knows that the density of water is 1 g/mL. Using the data table below, Which of the four mystery liquids can be correctly identified as water? * 2 points

Liquid	Mass (g)	Volume (mL)
W	5	5
X	6	2
Y	2	1
Z	8	2

- W
- X
- Y
- Z

Which of the following statements is true? * 2 points

- Cutting paper is an example of a chemical reaction because a new substance is formed and the process cannot be undone.
- Freezing water is an example of a chemical reaction because a new substance is formed and the process cannot be undone.
- Burning paper is an example of a chemical reaction because a new substance is formed and the process cannot be undone.
- Melting ice is an example of a chemical reaction because a new substance is formed and the process cannot be undone.
- This is a required question

Physical & Chemical Properties and Changes, & Signs of Chemical Change.

Your email address (mertzma@lc-ps.net) will be recorded when you submit this form. Not you? [Switch account](#)

* Required

Matching vocabulary

An unexpected change in color or odor while being combined is also an indicator of a chemical reaction * 6 points

Choose

When the number of atoms on the left side of the arrow is equal to the number of atoms on the right side of the arrow, the equation is balanced * 3 points

Choose

The number placed in front of a chemical symbol in a balanced equation to show how many molecules of that substance are present. *

Choose

Coefficient

Mass divided by volume =

Density *

Choose

The substances initially involved in a chemical reaction, on the left side of the arrow is called the.... *

reactants

Choose

Flammability, ability to rust, and ability to tarnish are all examples of a

_____.*

physical property

Chemical property

A property that requires a chemical interaction to observe is called a

chemical.*

property

Choose

Density, boiling point, melting point, and color are all examples of a _____ * 3 points

physical property

Chemical property

Matter cannot be created or destroyed in a chemical reaction. The total number of atoms is conserved and the mass does not change. The atoms are just rearranged to form a different substance. * 3 points

LOCOM

Choose

A temperature increase or decrease and the production of light are both signs that a chemical reaction may have occurred. * 3 points

Choose

The smallest part of matter. * 3 points

ATOM

Choose

A property that is observed without making changes to the atomic structure of the substance is a physical * 3 points

property

Choose

The substance that is produced from a chemical reaction, on the right side of the arrow is called the... * 3 points

product

Choose

When a solid substance is formed from a liquid solution, we call that a _____. * 3 points

precipitate

Choose

This occurs when one or more substances reacts with another substance and produces one or more new substances with a different atomic arrangement. * 3 points

Chemical change / reaction

Choose

The number written slightly lower and to the right of a chemical to show how many atoms of that element are present. * 3 points

Subscript

Choose

In a chemical process, atoms that make up a substance are regrouped into different _____ to form new substances with different properties. * 3 points

molecules

Choose