

Reporting Category 1: Matter and Energy

Reporting Category 1: 8th Grade Science Readiness Standards

Name _____

Date _____

Class/Grade _____

1 Expectation: 8.5(B)

If an atom does not undergo fusion or fission, the number of protons within it will never change. This is why the number of protons is used to —

- A determine the amount of energy needed to split an atom.
- B determine the element of an atom.
- C determine the number of covalent bonds an atom can form.
- D determine whether an atom will be reactive.

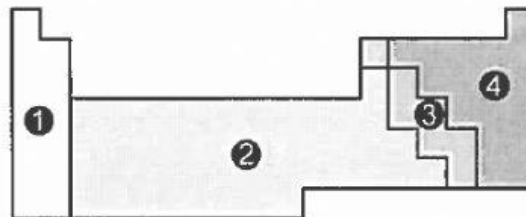
2 Expectation: 8.5(E)

A chemist added hydrochloric acid to a sample of baking soda in a beaker. Immediately the mixture of the two chemicals began to fizz and bubble. Which of the following observations about the fizzing mixture provides evidence of a chemical reaction?

- F The temperature of the beaker did not change.
- G Most of the baking soda appeared to dissolve in the acid.
- H Some of the baking soda remained in the bottom of the beaker.
- J A substance escaped from the beaker in the form of a gas.

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Directions: The diagram below shows the Periodic Table divided into four sections. Use the diagram and your knowledge of science to answer any questions that follow.



3 Expectation: 8.5(C)

An element occurs naturally as a solid with a shiny metallic appearance. It is extremely brittle and can be used to create superconductors. In which section of the diagram would the element most likely be found?

- A 4
- B 2
- C 3
- D 1

4 Expectation: 8.5(C)

An element occurs naturally as a light solid with a shiny metallic appearance. It reacts violently with water at standard temperature and pressure. In which section of the diagram would the element most likely be found?

- F 2
- G 1
- H 3
- J 4

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5 Expectation: 8.5(E)

A food scientist placed a raw egg in a pan and cooked it. The white and yolk became a thick, solid mass. What evidence indicates that a chemical reaction occurred when the egg was cooked?

- A** Water vapor was released as the egg was heated.
 - B** The egg changed from a liquid state to a solid state.
 - C** Some of the raw egg was boiled and released as a gas.
 - D** The cooked egg cannot return to its raw state.
-

6 Expectation: 8.5(C)

There are large blank spaces in the second and third horizontal rows, or periods, in the Periodic Table. These spaces allow elements —

- F** with similar properties to remain in columns, or groups.
 - G** that have not been discovered yet to fit in the table once they are discovered.
 - H** that occur naturally as gases to remain to the left of metals in the table.
 - J** with consecutive atomic numbers to remain in columns, or groups.
-

7 Expectation: 8.5(A)

Most of the mass in an atom is —

- A** contained in the atom's nucleus.
- B** found in the cloud surrounding the nucleus.
- C** contained in the atom's neutrons.
- D** in neither the nucleus nor the cloud surrounding the nucleus.

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8 Expectation: 8.5(A)

The mass of an electron is —

- F** substantially less than the mass of a neutron.
 - G** substantially greater than the mass of a neutron.
 - H** roughly equal to the mass of a neutron.
 - J** exactly equal to the mass of a neutron.
-

9 Expectation: 8.5(E)

A chemist placed a piece of pink paper in a beaker. He placed the beaker over an open gas flame produced by a Bunsen burner. As the paper was heated, it turned black and produced smoke. Later, the flakes of paper crumbled and became ash. Which of the following observations about the burning paper does NOT provide evidence of a chemical reaction?

- A** As the paper burned, it became warmer.
- B** As the paper burned, it transformed into ash.
- C** As the paper burned, it released black smoke.
- D** As the paper burned, its color changed from pink to black.

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10 Expectation: 8.5(E)

Mrs. Rosales performed a demonstration of a chemical reaction for her science students. In a well-ventilated room, she added a sulfuric acid solution to a beaker containing granulated sugar. The mixture immediately became very hot and released water vapor into the air. The sugar appeared to burn and was transformed into a rapidly growing column of solid black material. The experiment also produced a foul-smelling odor. Which observation about the demonstration does NOT provide evidence of a chemical reaction?

- F** The mixture immediately became very hot.
 - G** The sugar was transformed into a solid black material.
 - H** The mixture released a foul-smelling odor.
 - J** Water vapor was released into the air.
-

11 Expectation: 8.5(B)

An atom can become less reactive by —

- A** losing or gaining electrons from its outermost shell.
 - B** losing neutrons from its innermost shell.
 - C** gaining protons only from its outermost shell.
 - D** losing electrons from its nucleus.
-

12 Expectation: 8.5(B)

An element's identity is defined by —

- F** its number of protons.
- G** its number of electrons.
- H** its number of neutrons.
- J** its electrical charge.

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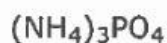
13 Expectation: 8.5(B)

An atom that has a closed shell of valence electrons is —

- A unlikely to have an atomic number.
- B likely to form bonds with other atoms.
- C unlikely to form bonds with other atoms.
- D likely to split apart.

14 Expectation: 8.5(D)

Ammonium phosphate, a chemical common in many fertilizers, has the following chemical formula:



How many hydrogen atoms are found in the most basic unit of ammonium phosphate?

				.		
0	0	0	0		0	0
1	1	1	1		1	1
2	2	2	2		2	2
3	3	3	3		3	3
4	4	4	4		4	4
5	5	5	5		5	5
6	6	6	6		6	6
7	7	7	7		7	7
8	8	8	8		8	8
9	9	9	9		9	9

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15 Expectation: 8.5(B)

The subatomic particles that can form chemical bonds with subatomic particles in other atoms are called —

- A valence neutrons.
- B valence protons and valence electrons.
- C valence protons.
- D valence electrons.

16 Expectation: 8.5(D)

Aspirin, or acetylsalicylic acid, has the following chemical formula:



What is true of aspirin?

- F One aspirin molecule contains one carbon atom, one hydrogen atom, and four oxygen atoms.
- G One aspirin molecule contains nine carbon atoms, eight hydrogen atoms, and four oxygen atoms.
- H One aspirin molecule contains one carbon atom, nine hydrogen atoms, and eight oxygen atoms.
- J One aspirin molecule contains nine carbon atoms, one hydrogen atom, and eight oxygen atoms.