

Pure Substances & Mixtures

Multiple Choice

Identify the choice that best completes the statement or answers the question.

- _____ 1. Which of these common substances is a homogeneous mixture?
- A. table salt
 - B. pure water
 - C. whole milk
 - D. maple syrup
- _____ 2. Which of these substances is a compound?
- A. carbon
 - B. chlorine
 - C. gold
 - D. acetic acid
- _____ 3. Which of these substances is an example of a solution?
- A. milk
 - B. Brass
 - C. mercury
 - D. concrete
- _____ 4. The four items below were part of a dinner. Each item is a mixture.



Salad dressing

A



Gelatin

B



Whipped cream

C



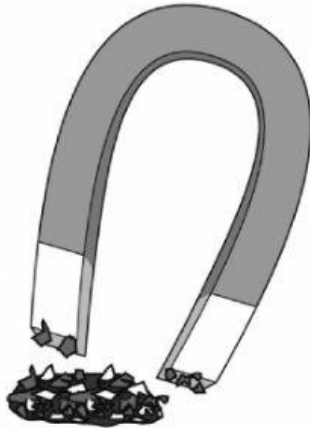
Apple juice

D

Which of these mixtures is a suspension?

- A. A
- B. B
- C. C
- D. D

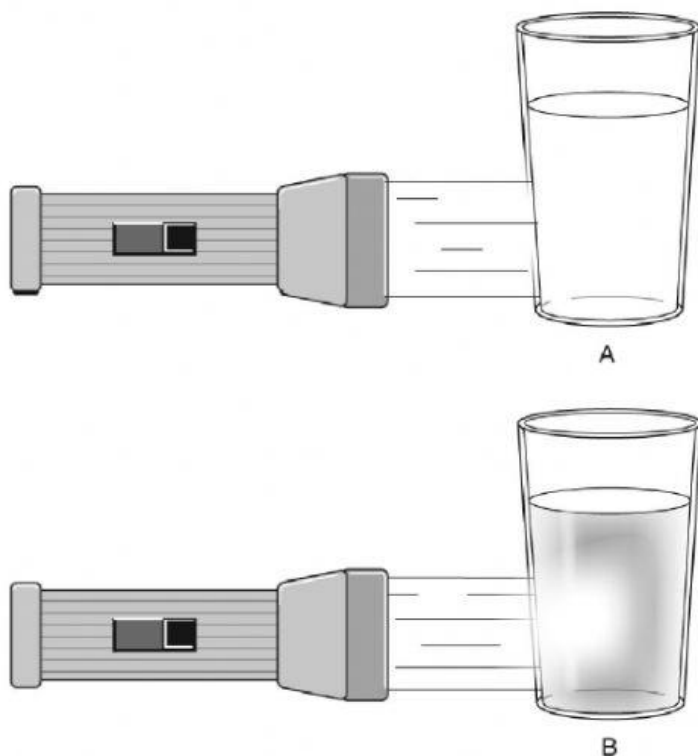
- _____ 5. The diagram below shows a magnet near a pile of particles of iron and sulfur. The magnet attracts the iron, separating it from the mixture.



Based on the diagram, which statement is true?

- A. The parts of a mixture keep their own properties.
- B. The elements in a compound keep their own properties.
- C. The properties of a mixture are different from the properties of its parts.
- D. The properties of a compound are different from the properties of its elements.

6. You know that one of these containers has a mixture in it and one does not. You can only shine a light through them to determine which one is which.



What substance is most likely to be in container A?

- A. water
- B. gelatin
- C. apple juice
- D. mayonnaise

8. Which of the following is a way in which elements and compounds are similar?

- A. Elements and compounds are both pure substances.
- B. Elements and compounds are both listed on the periodic table.
- C. Elements and compounds are both made up of different kinds of atoms.
- D. Elements and compounds can both be broken down by physical changes.

9. A water molecule is made up of one oxygen and two hydrogen atoms. Why is water considered a pure substance?

- A. Water can be broken down by physical means.
- B. Water can be combined with other substances by physical means.
- C. Each water molecule is identical.
- D. Water molecules are made up of different types of atoms.

____ 10. What type of substance is always made up of a single type of atom?

- A. mixture
- B. element
- C. molecule
- D. compound

____ 11. Which is an example of a colloid?

- A. butter
- B. homogenized milk
- C. salad dressing
- D. sugar water

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Answer Section

MULTIPLE CHOICE

1. ANS: D

- A is incorrect because table salt is a compound.
B is incorrect because pure water is a compound.
C is incorrect because whole milk is a colloid, which is a heterogeneous mixture.
D is correct because maple syrup is the same throughout.

PTS: 1

DIF: Cognitive Complexity: Low | Depth of Knowledge 1: Recall | Student Level: Basic | Bloom's Traditional: Knowledge | Bloom's Revised: Remembering

REF: 7bbdad0-09ec-11e0-a95d-001e33aa91d2

OBJ: G6_PC_85380_PureSubstancesAndMixtures

TOP: Mixtures: Name examples of common mixtures and classify them based on their properties.

KEY: homogeneous mixture | heterogeneous mixture MSC: moduleH_u1_Lesson4 Quiz

2. ANS: D

- A is incorrect because carbon is an element.
B is incorrect because chlorine is an element.
C is incorrect because uranium is an element.
D is correct because ammonia is a compound containing carbon, oxygen, and hydrogen.

PTS: 1

DIF: Cognitive Complexity: Moderate | Depth of Knowledge 2: Basic Application of Skill | Student Level: Average | Bloom's Traditional: Comprehension | Bloom's Revised: Understanding

REF: 7bc22dd0-09ec-11e0-a95d-001e33aa91d2

OBJ: G6_PC_85380_PureSubstancesAndMixtures

TOP: Pure Substances: Elements and Compounds: Name and classify examples of common elements and compounds.

KEY: substance | element | compound MSC: moduleH_u1_Lesson4 Quiz

3. ANS: B

- A is incorrect because milk is a colloidal mixture.
B is correct because brass is a homogeneous mixture of two metals.
C is incorrect because mercury is a liquid element.
D is incorrect because concrete is a heterogeneous mixture.

PTS: 1

DIF: Cognitive Complexity: Moderate | Depth of Knowledge 3: Strategic Thinking | Student Level: Average | Bloom's Traditional: Analysis | Bloom's Revised: Analyzing

REF: 7bc5fe60-09ec-11e0-a95d-001e33aa91d2

OBJ: G6_PC_85380_PureSubstancesAndMixtures

TOP: Mixtures: Name examples of common mixtures and classify them based on their properties.

KEY: solution | colloid | homogeneous mixture MSC: moduleH_u1_Lesson4 Quiz

4. ANS: A

- A is correct because the parts of this mixture will separate over time.
B is incorrect because a gelatin dessert is a colloid.
C is incorrect because whipped cream is a colloid.
D is incorrect because apple juice is a solution.

PTS: 1

DIF: Cognitive Complexity: Low | Depth of Knowledge 2: Basic Application of Skill | Student Level: Basic
| Bloom's Traditional: Application | Bloom's Revised: Analyzing

REF: 74951510-fda6-11df-8e11-001e33aa91d2

OBJ: G6_PC_85380_PureSubstancesAndMixtures

TOP: Mixtures: Classify mixtures as solutions, colloids, and suspensions.

KEY: mixture | colloid | suspension | solution

MSC: Nature of Science | Uses visual element | moduleH_u1 Pretest

5. ANS: A

A is correct because physical properties, such as magnetism, can be used to separate parts of a mixture.

B is incorrect because the properties of a compound differ from the properties of its elements.

C is incorrect because the parts of a mixture keep their own properties.

D is incorrect because, although this statement is true, it does not reflect what is shown in the diagram.

PTS: 1

DIF: Cognitive Complexity: Moderate | Depth of Knowledge 3: Strategic Thinking | Student Level: Average
| Bloom's Traditional: Analysis | Bloom's Revised: Analyzing

REF: 7b9132c0-09ec-11e0-a95d-001e33aa91d2

OBJ: G6_PC_85380_PureSubstancesAndMixtures

TOP: Mixtures: Devise methods by which to separate the components of various mixtures.

KEY: mixture | compound | property

MSC: Nature of Science | Uses visual element | moduleH_u1 Unit Test A

6. ANS: A

A is correct because a light beam would travel through water as it does in container A.

B is incorrect because gelatin is a colloid and so would block some of the light.

C is incorrect because apple juice is a solution and so would block some of the light.

D is incorrect because mayonnaise is a colloid and so would block some of the light.

PTS: 1

DIF: Cognitive Complexity: Moderate | Depth of Knowledge 3: Strategic Thinking | Student Level: Average
| Bloom's Traditional: Analysis | Bloom's Revised: Analyzing

REF: 74cd1500-fda6-11df-8e11-001e33aa91d2

OBJ: G6_PC_85380_PureSubstancesAndMixtures

TOP: Mixtures: Classify mixtures as solutions, colloids, and suspensions.

KEY: solution | colloid | mixture

MSC: Nature of Science | Uses visual element | moduleH_u1 Unit Test B

7. ANS: D

A is incorrect because carbon is a black solid, and sucrose is a white, crystalline solid.

B is incorrect because oxygen is a colorless gas, and sucrose is a white, crystalline solid.

C is incorrect because hydrogen is a colorless gas, and sucrose is a white, crystalline solid.

D is correct because the properties of a compound differ from the properties of the elements that make it up.

PTS: 1

DIF: Cognitive Complexity: Low | Depth of Knowledge 2: Basic Application of Skill | Student Level:
Average | Bloom's Traditional: Comprehension | Bloom's Revised: Understanding

REF: 774a9820-fda6-11df-8e11-001e33aa91d2

OBJ: G6_PC_85380_PureSubstancesAndMixtures

TOP: Pure Substances: Elements and Compounds: Name and classify examples of common elements and
compounds. | How particles combine: Describe different ways in which the particles that make up matter can

combine to form various substances. KEY: compound | property | element
MSC: moduleH_Module Review

8. ANS: A

A is correct because each atom that makes up an element or molecule that makes up a compound is identical.
B is incorrect because only elements are listed on the periodic table.

C is incorrect because each atom that makes up an element or molecule that makes up a compound is identical.

D is incorrect because neither elements nor compounds can be broken down by physical changes.

PTS: 1

DIF: Cognitive Complexity: Moderate | Student Level: Average | Depth of Knowledge 2: Basic Application of Skill | Bloom's Traditional: Comprehension | Bloom's Revised: Understanding

REF: 79b65840-09ec-11e0-a95d-001e33aa91d2

OBJ: G6_PC_85380_PureSubstancesAndMixtures

TOP: Pure Substances: Elements and Compounds: Classify elements and compounds as two types of pure substances. KEY: element | compound | pure substance

MSC: moduleH_u1 Unit Test A

9. ANS: C

A is incorrect because pure substances cannot be broken down through physical means.

B is incorrect because water molecules cannot be combined with other substances through physical means. Changing the makeup of a water molecule would require a chemical change.

C is correct because the particles that make up pure substances are identical throughout the substance.

D is incorrect because this explains why water is considered a compound, but it does not explain why it is a pure substance.

PTS: 1

DIF: Bloom's Traditional: Analysis | Bloom's Revised: Analyzing | Cognitive Complexity: High | Depth of Knowledge 3: Strategic Thinking | Student Level: Advanced

OBJ: G6_PC_85380_PureSubstancesAndMixtures

TOP: Pure Substances: Elements and Compounds: Classify elements and compounds as two types of pure substances.

KEY: compound | classifying pure substances | pure substances | classifying compounds | properties of compounds MSC: moduleH_u1 Unit Review

10. ANS: B

A is incorrect because a mixtures always contain more than one type of atom.

B is correct because an element is made up of one type of atom.

C is incorrect because a molecule can be made up of more than one type of atom. A water molecule is an example of a molecule made up of two types of atom (hydrogen and oxygen).

D is incorrect because a compound is made up of two or more types of atoms that are chemically combined.

PTS: 1

DIF: Cognitive Complexity: Low | Depth of Knowledge 1: Recall | Student Level: Basic | Bloom's Traditional: Knowledge | Bloom's Revised: Remembering

REF: 7bbd99f0-09ec-11e0-a95d-001e33aa91d2

OBJ: G6_PC_85380_PureSubstancesAndMixtures

TOP: How particles combine: Describe different ways in which the particles that make up matter can combine to form various substances. KEY: mixture | element | matter

MSC: moduleH_u1_Lesson4 Quiz

11. ANS: A PTS: 1

12. ANS: D PTS: 1

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| 13. ANS: C | PTS: 1 |
| 14. ANS: B | PTS: 1 |
| 15. ANS: A | PTS: 1 |