


**Pool Canvas**

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**Name** Chapter 1--Basic Concepts of Chemistry

**Description**

**Instructions**

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[◀ Add Question Here](#)

Question 1 **Multiple Choice** **0 points**

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**Question** A hypothesis is a

- Answer**
- mathematical formula that models a pattern of behavior.
  - concise statement of a behavior that is always the same under the same conditions.
  - set of experiments designed to test a theory.
  - well-tested, unifying principle that explains a body of facts.
  - ✓ tentative explanation or prediction based upon experimental observations.

[◀ Add Question Here](#)

Question 2 **Multiple Choice** **0 points**

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**Question** A theory is a

- Answer**
- concise statement of a behavior that is always the same under the same conditions.
  - tentative explanation or prediction based upon experimental observations.
  - mathematical formula that models a pattern of behavior.
  - ✓ well-tested, unifying principle that explains a body of facts.
  - set of quantitative numerical data.

[◀ Add Question Here](#)

Question 3 **Multiple Choice** **0 points**

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**Question** All of the following statements concerning green chemistry are correct EXCEPT

- Answer**
- it is better to prevent waste than to treat or clean up waste after it is formed.
  - synthetic methods should be designed to use and generate substances that possess little or no toxicity to human health or the environment.
  - substances used in a chemical process should be chosen to minimize the potential for chemical accidents.
  - raw materials should be renewable whenever technically and economically practical.
  - ✓ chemical syntheses should be done at high enough temperatures to ensure harmful bacteria are destroyed.

[◀ Add Question Here](#)

Question 4 **Multiple Choice** **0 points**

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**Question** Which of the following statements concerning the kinetic-molecular theory of matter is/are CORRECT?

1. Particles in a liquid vibrate back and forth about an average position.
2. Particles in a solid are packed closely together, but are not confined to specific positions.
3. Particles in a gas fly about randomly, colliding with themselves and the walls of their container.

- Answer**
- 1 only
  - 2 only
  - ✓ 3 only
  - 1 and 2
  - 1, 2, and 3

[◀ Add Question Here](#)

Question 5 **Multiple Choice** **0 points**

[Modify](#) [Remove](#)

**Question** Which of the following statements concerning the kinetic-molecular theory of matter is/are CORRECT?

1. Particles in a gas move faster as the temperature increases.
2. Particles in a liquid are packed closely together, but are not confined to specific positions.
3. Particles in a gas vibrate back and forth about an average position.

- Answer**
- 1 only
  - 2 only
  - 3 only
  - ✓ 1 and 2
  - 1, 2, and 3

[◀ Add Question Here](#)

Question 6 **Multiple Choice** **0 points**

[Modify](#) [Remove](#)

**Question** Which one of the following statements is correct?

- Answer**
- A pure substance may be separated by filtration or distillation into two or more components.
  - A heterogeneous mixture is also known as a solution.
  - A heterogeneous mixture is composed of two or more substances in the same phase.
  - ✓ The composition is uniform throughout a homogeneous mixture.
  - The combination of a liquid and a solid always results in a heterogeneous mixture.

[◀ Add Question Here](#)

Question 7 **Multiple Choice** **0 points**

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**Question** Which of the following are likely to form a homogeneous mixture?

1. milk and ice cream blended together with chocolate syrup
2. an egg combined with milk and mixed with a whisk
3. 1 gram table salt combined with 250 mL of water

**Answer**

- 1 only
- 2 only
- 3 only
- 1 and 2
- 1, 2, and 3

[◀ Add Question Here](#)

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Question 8 **Multiple Choice** **0 points**

**Question** Which one of the following is most likely to be a homogeneous mixture?

**Answer**

- blood
- soil
- gasoline
- plain yogurt
- mortar (a mixture of calcium carbonate and sand)

[◀ Add Question Here](#)

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Question 9 **Multiple Choice** **0 points**

**Question** Which one of the following is most likely to be a heterogeneous mixture?

**Answer**

- vinegar (a mixture of acetic acid and water)
- blood
- antifreeze (a mixture of water and ethylene glycol)
- sodium chloride (table salt) dissolved in water
- the air trapped inside a car tire

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Question 10 **Multiple Choice** **0 points**

**Question** Which of the following statements is/are CORRECT?

1. Atoms are the smallest particles of an element that retain the element's chemical properties.
2. Substances composed of only one type of atom are classified as elements.
3. Of the 118 known elements, only 48 occur naturally.

**Answer**

- 1 only
- 2 only
- 3 only
- 1 and 2
- 1, 2, and 3

[◀ Add Question Here](#)

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Question 11 **Multiple Choice** **0 points**

**Question** The most recently named element, number 112, was recently named after which famous scientist?

**Answer**

- Sir Walter Rayleigh
- Nicolaus Copernicus
- Richard Oppenheimer
- Isaac Asimov
- Sir Isaac Newton

[◀ Add Question Here](#)

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Question 12 **Multiple Choice** **0 points**

**Question** What is the correct symbol for potassium?

**Answer**

- P
- Pm
- K
- Pt
- Po

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Question 13 **Multiple Choice** **0 points**

**Question** What is the correct symbol for silver?

**Answer**

- S
- Si
- Ag
- Sr
- Au

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Question 14 **Multiple Choice** **0 points**

**Question** What is the name of the element with the symbol B?

**Answer**

- barium
- beryllium
- bismuth
- boron

bromine

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**Answer**

- cerium
- carbon
- chromium
- cadmium
- chlorine

[Add Question Here](#)[Modify](#) [Remove](#)Question 16 **Multiple Choice** **0 points****Question** Which one of the following substances is classified as an element?

**Answer**

- I<sub>2</sub>
- NO
- KCl
- C<sub>6</sub>H<sub>12</sub>O<sub>6</sub>
- CO

[Add Question Here](#)[Modify](#) [Remove](#)Question 17 **Multiple Choice** **0 points****Question** An electrically charged atom or group of atoms is a(n) \_\_\_\_\_.

**Answer**

- element
- ion
- molecule
- heterogeneous mixture
- solution

[Add Question Here](#)[Modify](#) [Remove](#)Question 18 **Multiple Choice** **0 points****Question** A pure substance composed of two or more different elements is a(n) \_\_\_\_\_.

**Answer**

- ion
- heterogeneous mixture
- chemical compound
- solid
- solution

[Add Question Here](#)[Modify](#) [Remove](#)Question 19 **Multiple Choice** **0 points****Question** A(n) \_\_\_\_\_ is a pure substance that is composed of only one type of atom.

**Answer**

- ion
- solution
- element
- molecule
- gas

[Add Question Here](#)[Modify](#) [Remove](#)Question 20 **Multiple Choice** **0 points****Question** Which one of the following substances is classified as a chemical compound?

**Answer**

- He
- Nb
- Na
- NO
- Co

[Add Question Here](#)[Modify](#) [Remove](#)Question 21 **Multiple Choice** **0 points****Question** Which term best describes methane, CH<sub>4</sub>?

**Answer**

- homogeneous mixture
- ion
- element
- chemical compound
- atom

[Add Question Here](#)[Modify](#) [Remove](#)Question 22 **Multiple Choice** **0 points****Question** Which of the following statements concerning water, H<sub>2</sub>O, is/are CORRECT?

1. H<sub>2</sub>O is a chemical compound.
2. H<sub>2</sub>O is a homogeneous mixture of hydrogen and oxygen.
3. The percentage of hydrogen in H<sub>2</sub>O is dependent upon where the water is obtained.

- Answer**
- 1 only
  - 2 only
  - 3 only
  - 1 and 2
  - 2 and 3

[◀ Add Question Here](#)

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Question 23 **Multiple Choice** **0 points**

**Question** Which one of the following statements is not a comparison of physical properties?

- Answer**  Potassium reacts with water more quickly than calcium reacts with water.
- The electrical conductivity of aluminum is greater than copper.
  - The density of copper is less than the density of lead.
  - The solubility of NaCl in hot water is greater than the solubility in cold water.
  - The boiling point of water is greater than the boiling point of ethanol.

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Question 24 **Multiple Choice** **0 points**

**Question** Which of the following statements is/are CORRECT?

1. The conduction of electricity through copper wire is a chemical change.
2. The rusting of iron is a chemical change.
3. The evaporation of ammonia at  $-33.3\text{ }^{\circ}\text{C}$  is a chemical change.

- Answer**
- 1 only
  - 2 only
  - 3 only
  - 2 and 3
  - 1, 2, and 3

[◀ Add Question Here](#)

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Question 25 **Multiple Choice** **0 points**

**Question** Which one of the following statements is not a comparison of physical properties?

- Answer**
- Mercury and gallium are both liquids at  $50\text{ }^{\circ}\text{C}$ .
  - Oxygen is more soluble in water than helium.
  - Silver and gold are malleable metals.
  - Oxygen and nitrogen are both liquids at  $-200\text{ }^{\circ}\text{C}$ .
  - Calcium dissolves more quickly than iron in acids.

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Question 26 **Multiple Choice** **0 points**

**Question** An intensive property of a substance is

- Answer**  independent of the amount present.
- dependent on its volume, but not its mass.
  - not affected by its temperature.
  - dependent only on its temperature.
  - dependent only on its mass and volume.

[◀ Add Question Here](#)

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Question 27 **Multiple Choice** **0 points**

**Question** Which of the following are extensive properties: mass, volume, and/or density?

- Answer**
- mass only
  - volume only
  - density only
  - mass and volume
  - volume and density

[◀ Add Question Here](#)

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Question 28 **Multiple Choice** **0 points**

**Question** All of the following are examples of intensive properties EXCEPT

- Answer**
- melting point.
  - color.
  - volume.
  - density.
  - boiling point.

[◀ Add Question Here](#)

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Question 29 **Multiple Choice** **0 points**

**Question** All of the following are examples of chemical change EXCEPT

- Answer**  the dissolving of sugar in water.
- the rusting of iron.
  - the combustion of gasoline.
  - the tarnishing of silver.
  - the decomposition of cinnabar (HgS) to mercury metal upon heating.

[◀ Add Question Here](#)

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Question 30 **Multiple Choice** **0 points**

**Question** Which of the following observations is/are examples of chemical change?

1. Iron (Fe) rusts, forming  $\text{Fe}_2\text{O}_3$ .
2. The density of water increases when it changes from a solid to a liquid.
3. Sodium chloride melts at  $801^\circ\text{C}$ .

**Answer**  1 only  
 2 only  
 3 only  
 1 and 2  
 2 and 3

[Add Question Here](#)

Question 31 **Multiple Choice** **0 points**

[Modify](#) [Remove](#)

**Question** Which of the following observations is/are examples of physical change?

1. The density of water decreases when it solidifies.
2. Aluminum melts when heated above  $660^\circ\text{C}$ .
3. Hydrogen peroxide ( $\text{H}_2\text{O}_2$ ) decomposes to water and oxygen.

**Answer**  1 only  
 2 only  
 3 only  
 1 and 2  
 1, 2, and 3

[Add Question Here](#)

Question 32 **Multiple Choice** **0 points**

[Modify](#) [Remove](#)

**Question** A battery-operated power tool, such as a cordless drill, converts

**Answer**  electrostatic energy to chemical potential energy.  
 mechanical energy to electrostatic energy.  
 thermal energy to mechanical energy.  
 thermal energy to gravitational energy.  
 chemical potential energy to mechanical energy.

[Add Question Here](#)

Question 33 **Multiple Choice** **0 points**

[Modify](#) [Remove](#)

**Question** Which of the following lists contains only forms of kinetic energy?

**Answer**  electrostatic, gravitational, and mechanical energy  
 gravitational, mechanical, and electrical energy  
 thermal, acoustic, and mechanical energy  
 chemical, thermal, and acoustic energy  
 gravitational, chemical, and electrostatic energy

[Add Question Here](#)

Question 34 **Multiple Choice** **0 points**

[Modify](#) [Remove](#)

**Question** Of the following types of energy, which is/are classified as potential energy?

1. chemical energy
2. electrostatic energy
3. gravitational energy

**Answer**  1 only  
 2 only  
 3 only  
 2 and 3  
 1, 2, and 3

[Add Question Here](#)

Question 35 **Essay** **0 points**

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**Question** Substances like hydrogen ( $\text{H}_2$ ) and oxygen ( $\text{O}_2$ ) that are composed of only one type of atom are classified as \_\_\_\_\_.

**Answer** elements

[Add Question Here](#)

Question 36 **Essay** **0 points**

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**Question** Properties, such as color and density, which can be observed or measured without changing the composition of a substance are called \_\_\_\_\_ properties.

**Answer** physical

[Add Question Here](#)

Question 37 **Essay** **0 points**

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**Question** A mass of 10 g of table salt dissolves in water to form a(n) \_\_\_\_\_ mixture (i.e., a mixture that is uniform throughout).

**Answer** homogeneous

[Add Question Here](#)

Question 38 **Essay** **0 points**

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**Question** A(n) \_\_\_\_\_ is the smallest particle of an element that retains the characteristic chemical properties of that element.

**Answer** atom

[Add Question Here](#)

Question 39 **Essay** **0 points**

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**Question** The \_\_\_\_\_ of a substance is defined as its mass per unit volume.

**Answer** density

[◀ Add Question Here](#)

Question 40 **Essay**

**0 points**

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**Question** Density is an example of a(n) \_\_\_\_\_ property, which is one that does not depend on the amount of a substance.

**Answer** intensive

[◀ Add Question Here](#)

Question 41 **Essay**

**0 points**

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**Question** \_\_\_\_\_ energy is the energy associated with the separation of two electrical charges.

**Answer** Electrostatic

[◀ Add Question Here](#)

Question 42 **Essay**

**0 points**

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**Question** Potential energy possessed by water at the top of a waterfall is known as \_\_\_\_\_ energy.

**Answer** gravitational

[◀ Add Question Here](#)

Question 43 **Essay**

**0 points**

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**Question** The law of \_\_\_\_\_ states that the total energy of the universe is constant.

**Answer** conservation of energy

[◀ Add Question Here](#)

OK