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| 1. Define the following terms: a. science b. chemistry   |  |  | | --- | --- | | *ANSWER:* | a. Science - a framework for gaining and organizing knowledge. It is a procedure for processing and understanding certain information. b. Chemistry - the science that deals with the matter of the universe and the changes it can undergo. | | *POINTS:* | 1 | | *DIFFICULTY:* | easy | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | False | | *TOPICS:* | general concepts definition of chemistry | | *OTHER:* | general chemistry | | *DATE CREATED:* | 12/23/2013 2:41 PM | | *DATE MODIFIED:* | 12/23/2013 2:41 PM | |

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| 2. Define the following terms:  a. Scientific method  b. Natural law  c. Hypothesis  d. Theory   |  |  | | --- | --- | | *ANSWER:* | a. Scientific method - The process that lies at the center of scientific inquiry.  b. Natural law - A statement that describes an observed behavior.  c. Hypothesis - A possible explanation for an observation.  d. Theory - A set of tested hypotheses that gives an overall explanation of some part of nature. | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *QUESTION TYPE:* | Subjective Short Answer | | *HAS VARIABLES:* | False | | *TOPICS:* | The Scientific Method | | *KEYWORDS:* | hypothesis | theory | | *OTHER:* | general chemistry | | *DATE CREATED:* | 12/23/2013 2:41 PM | | *DATE MODIFIED:* | 1/12/2018 1:23 AM | |

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| 3. Which of the following is **not** a step in the scientific method?   |  |  |  | | --- | --- | --- | |  | a. | Make an observation. | |  | b. | Formulate a hypothesis. | |  | c. | Perform an experiment. | |  | d. | Change results to agree with your hypothesis. | |  | e. | Develop a theory (or model). |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *DIFFICULTY:* | easy | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *TOPICS:* | general concepts scientific method | | *OTHER:* | general chemistry | | *DATE CREATED:* | 12/23/2013 2:41 PM | | *DATE MODIFIED:* | 12/23/2013 2:41 PM | |

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| 4. A \_\_\_\_\_\_\_\_\_\_ is a summary of observed behavior, and a \_\_\_\_\_\_\_\_\_\_ is an explanation of behavior.   |  |  |  | | --- | --- | --- | |  | a. | law, measurement | |  | b. | theory, scientific method | |  | c. | theory, law | |  | d. | law, theory | |  | e. | hypothesis, theory |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *DIFFICULTY:* | easy | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | False | | *TOPICS:* | general concepts scientific method | | *KEYWORDS:* | law | theory | | *OTHER:* | general chemistry | | *DATE CREATED:* | 12/23/2013 2:41 PM | | *DATE MODIFIED:* | 12/23/2013 2:41 PM | |

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| 5. Generally, observed behavior that can be formulated into a statement, sometimes mathematical in nature, is called a(n)   |  |  |  | | --- | --- | --- | |  | a. | observation | |  | b. | measurement | |  | c. | theory | |  | d. | natural law | |  | e. | experiment |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1.4 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | False | | *TOPICS:* | general concepts scientific method | | *KEYWORDS:* | law | | *OTHER:* | general chemistry | | *DATE CREATED:* | 12/23/2013 2:41 PM | | *DATE MODIFIED:* | 12/23/2013 2:41 PM | |

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| 6. The statement “The total mass of materials is not affected by a chemical change in the materials” is called a(n) \_\_\_\_\_.   |  |  |  | | --- | --- | --- | |  | a. | observation | |  | b. | measurement | |  | c. | theory | |  | d. | natural law | |  | e. | experiment |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1.4 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | False | | *TOPICS:* | The Scientific Method | | *KEYWORDS:* | law | | *OTHER:* | general chemistry | | *DATE CREATED:* | 12/23/2013 2:41 PM | | *DATE MODIFIED:* | 1/4/2018 1:34 AM | |

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| 7. A set of tested hypotheses that gives an overall explanation of some part of nature, is called a(n)   |  |  |  | | --- | --- | --- | |  | a. | observation | |  | b. | measurement | |  | c. | theory | |  | d. | natural law | |  | e. | experiment |  |  |  | | --- | --- | | *ANSWER:* | c | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1.4 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | False | | *TOPICS:* | general concepts scientific method | | *KEYWORDS:* | theory | | *OTHER:* | general chemistry | | *DATE CREATED:* | 12/23/2013 2:41 PM | | *DATE MODIFIED:* | 1/3/2018 4:23 AM | |

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| 8. Something done to test a hypothesis that produces new observations is called a(n)   |  |  |  | | --- | --- | --- | |  | a. | observation | |  | b. | measurement | |  | c. | theory | |  | d. | natural law | |  | e. | experiment |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1.4 | | *QUESTION TYPE:* | Multi-Mode (Multiple choice) | | *HAS VARIABLES:* | False | | *TOPICS:* | general concepts scientific method | | *KEYWORDS:* | experiment | | *OTHER:* | general chemistry | | *DATE CREATED:* | 12/23/2013 2:41 PM | | *DATE MODIFIED:* | 12/23/2013 2:41 PM | |

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| 9. A quantitative observation   |  |  |  | | --- | --- | --- | |  | a. | contains a number and a unit | |  | b. | does not contain a number | |  | c. | always makes a comparison | |  | d. | must be obtained through experimentation | |  | e. | is none of these |  |  |  | | --- | --- | | *ANSWER:* | a | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *REFERENCES:* | 1.4 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *TOPICS:* | general concepts scientific method | | *KEYWORDS:* | quantitative | | *OTHER:* | general chemistry | | *DATE CREATED:* | 12/23/2013 2:41 PM | | *DATE MODIFIED:* | 1/3/2018 7:10 AM | |

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| 10. Which of the following is an example of a quantitative observation?   |  |  |  | | --- | --- | --- | |  | a. | The piece of metal is longer than the piece of wood. | |  | b. | Solution 1 is much darker than solution 2. | |  | c. | The liquid in beaker A is blue. | |  | d. | The temperature of the liquid is 60 °C. | |  | e. | Both a and d are quantitative observations. |  |  |  | | --- | --- | | *ANSWER:* | d | | *POINTS:* | 1 | | *DIFFICULTY:* | Moderate | | *REFERENCES:* | 1.2 | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *TOPICS:* | The Scientific Method | | *KEYWORDS:* | Quantitative | | *OTHER:* | general chemistry | | *DATE CREATED:* | 12/23/2013 2:41 PM | | *DATE MODIFIED:* | 1/5/2018 1:13 AM | |

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| 11. A quantitative observation is called a measurement. Is this statement true or false?   |  |  |  | | --- | --- | --- | |  | a. | True | |  | b. | False |  |  |  | | --- | --- | | *ANSWER:* | True | | *POINTS:* | 1 | | *DIFFICULTY:* | Easy | | *QUESTION TYPE:* | True / False | | *HAS VARIABLES:* | False | | *TOPICS:* | The Scientific Method | | *DATE CREATED:* | 1/3/2018 7:03 AM | | *DATE MODIFIED:* | 1/4/2018 1:35 AM | |

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| 12. Which of the following is an example of a qualitative observation?   |  |  |  | | --- | --- | --- | |  | a. | The leaf is 9 cm long. | |  | b. | The temperature of the room increases by 8 °C. | |  | c. | The veins are 3 mm wide. | |  | d. | The weight of the book is 4.5 pounds. | |  | e. | The plant is short. |  |  |  | | --- | --- | | *ANSWER:* | e | | *POINTS:* | 1 | | *DIFFICULTY:* | Moderate | | *QUESTION TYPE:* | Multiple Choice | | *HAS VARIABLES:* | False | | *TOPICS:* | The Scientific Method | | *DATE CREATED:* | 1/3/2018 7:05 AM | | *DATE MODIFIED:* | 1/5/2018 1:11 AM | |