Chapter 01 - The Air We Breathe (Testbank)

**Multiple Choice Questions**

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| 1. | Of five major gaseous components of air, which is the only one to vary significantly in concentration from place to place and from day to day?       |  |  | | --- | --- | | A. | water vapor |  |  |  | | --- | --- | | B. | carbon dioxide |  |  |  | | --- | --- | | C. | nitrogen |  |  |  | | --- | --- | | D. | argon | |

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| 2. | Which two gases make up more than 95% of an inhaled breath?       |  |  | | --- | --- | | A. | NO2 and N2 |  |  |  | | --- | --- | | B. | CO2 and O2 |  |  |  | | --- | --- | | C. | O2 and N2 |  |  |  | | --- | --- | | D. | N2 and Ar | |

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| 3. | What is the primary component of an exhaled breath?       |  |  | | --- | --- | | A. | N2 |  |  |  | | --- | --- | | B. | O2 |  |  |  | | --- | --- | | C. | CO2 |  |  |  | | --- | --- | | D. | H2O | |

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| 4. | Which component of the air makes up approximately 100 times more of an exhaled breath than of an inhaled breath?      |  |  | | --- | --- | | A. | Ar |  |  |  | | --- | --- | | B. | O2 |  |  |  | | --- | --- | | C. | O3 |  |  |  | | --- | --- | | D. | CO2 | |

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| 5. | The \_\_\_\_\_\_\_\_ concentration in the air over the desert differs dramatically from that in the air in the tropical rainforest.       |  |  | | --- | --- | | A. | N2 |  |  |  | | --- | --- | | B. | O2 |  |  |  | | --- | --- | | C. | CO2 |  |  |  | | --- | --- | | D. | H2O | |

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| 6. | Which component of the air is an element?       |  |  | | --- | --- | | A. | H2O |  |  |  | | --- | --- | | B. | NO2 |  |  |  | | --- | --- | | C. | O2 |  |  |  | | --- | --- | | D. | CO2 | |

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| 7. | Air is a(n)       |  |  | | --- | --- | | A. | element. |  |  |  | | --- | --- | | B. | compound. |  |  |  | | --- | --- | | C. | mixture. |  |  |  | | --- | --- | | D. | pure substance. | |

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| 8. | Which substance is *not* considered to be an air pollutant?       |  |  | | --- | --- | | A. | N2 |  |  |  | | --- | --- | | B. | SO2 |  |  |  | | --- | --- | | C. | NO2 |  |  |  | | --- | --- | | D. | O3 | |

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| 9. | Ozone is considered an air pollutant in the \_\_\_\_\_\_\_\_ but is a valuable protective layer in the \_\_\_\_\_\_\_\_\_\_.       |  |  | | --- | --- | | A. | troposphere; stratosphere |  |  |  | | --- | --- | | B. | stratosphere; mesosphere |  |  |  | | --- | --- | | C. | stratosphere; troposphere |  |  |  | | --- | --- | | D. | mesosphere; stratosphere | |

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| 10. | A particular sample of air is 2.5% water vapor. Express the concentration of water vapor in parts per million (ppm).       |  |  | | --- | --- | | A. | 0.0000025 ppm |  |  |  | | --- | --- | | B. | 0.025 ppm |  |  |  | | --- | --- | | C. | 250 ppm |  |  |  | | --- | --- | | D. | 25000 ppm | |

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| 11. | The EPA limit for CO is 9 ppm. Express this number as a percentage.       |  |  | | --- | --- | | A. | 90% |  |  |  | | --- | --- | | B. | 9% |  |  |  | | --- | --- | | C. | 0.09% |  |  |  | | --- | --- | | D. | 0.0009% | |

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| 12. | The quantity 0.0000064 g expressed in scientific notation is:       |  |  | | --- | --- | | A. | 6.4 × 106 g |  |  |  | | --- | --- | | B. | 6.4 × 10¯6 g |  |  |  | | --- | --- | | C. | 6.4 × 107 g |  |  |  | | --- | --- | | D. | 6.4 × 10¯7 g | |

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| 13. | The quantity 8.7 × 105 g expressed in standard decimal notation is:       |  |  | | --- | --- | | A. | 0.000087 g |  |  |  | | --- | --- | | B. | 870.000 g |  |  |  | | --- | --- | | C. | 0.0000087 g |  |  |  | | --- | --- | | D. | 870,000 g | |

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| 14. | Which pollutant is present in air as particulate matter?       |  |  | | --- | --- | | A. | soot |  |  |  | | --- | --- | | B. | ozone |  |  |  | | --- | --- | | C. | sulfur dioxide |  |  |  | | --- | --- | | D. | carbon monoxide | |

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| 15. | What two factors are considered when determining the risk assessment for air pollutants?       |  |  | | --- | --- | | A. | exposure and ppm |  |  |  | | --- | --- | | B. | percentage and ppm |  |  |  | | --- | --- | | C. | toxicity and percentage |  |  |  | | --- | --- | | D. | toxicity and exposure | |

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| 16. | When assessing the risk of an air pollutant, which does not play a role in considering someone's exposure to the pollutant?      |  |  | | --- | --- | | A. | a person's lung capacity |  |  |  | | --- | --- | | B. | a person's breathing rate |  |  |  | | --- | --- | | C. | the toxicity of the pollutant |  |  |  | | --- | --- | | D. | the concentration in air of the pollutant | |

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| 17. | The burning of coal produces sulfur dioxide, SO2, a pollutant that slowly reacts in air to form SO3. Sulfur trioxide dissolves into airborne water droplets to form a very corrosive solution of sulfuric acid. Which is a product of burning coal that hastens the transformation of sulfur dioxide into sulfur trioxide?       |  |  | | --- | --- | | A. | carbon dioxide |  |  |  | | --- | --- | | B. | carbon monoxide |  |  |  | | --- | --- | | C. | nitrogen dioxide |  |  |  | | --- | --- | | D. | particles of ash | |

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| 18. | All of these pollutants can be detected by their odors except:       |  |  | | --- | --- | | A. | CO |  |  |  | | --- | --- | | B. | O3 |  |  |  | | --- | --- | | C. | SOx |  |  |  | | --- | --- | | D. | NOx | |

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| 19. | Which pollutant are you more likely to encounter in dangerous concentrations indoors rather than outdoors?       |  |  | | --- | --- | | A. | nitrogen dioxide |  |  |  | | --- | --- | | B. | carbon monoxide |  |  |  | | --- | --- | | C. | ozone |  |  |  | | --- | --- | | D. | sulfur dioxide | |

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| 20. | In general, which airborne material is not likely to be affected by the filters or indoor air handling equipment?       |  |  | | --- | --- | | A. | particulates |  |  |  | | --- | --- | | B. | pollen |  |  |  | | --- | --- | | C. | soot |  |  |  | | --- | --- | | D. | carbon monoxide | |

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| 21. | Which color, as used in the Air Quality Index, warns that the level of a pollutant is hazardous, the most dangerous level?       |  |  | | --- | --- | | A. | orange |  |  |  | | --- | --- | | B. | green |  |  |  | | --- | --- | | C. | yellow |  |  |  | | --- | --- | | D. | maroon | |

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| 22. | A substance that can be broken down into two or more simpler substances by chemical methods is called a(n)       |  |  | | --- | --- | | A. | compound. |  |  |  | | --- | --- | | B. | mixture. |  |  |  | | --- | --- | | C. | element. |  |  |  | | --- | --- | | D. | isotope. | |

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| 23. | On a Periodic Table, the columns of elements with similar properties are       |  |  | | --- | --- | | A. | periods. |  |  |  | | --- | --- | | B. | groups. |  |  |  | | --- | --- | | C. | rows. |  |  |  | | --- | --- | | D. | metals. | |

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| 24. | The most numerous of the elements are the       |  |  | | --- | --- | | A. | metals. |  |  |  | | --- | --- | | B. | non metals. |  |  |  | | --- | --- | | C. | metalloids. |  |  |  | | --- | --- | | D. | noble gases. | |

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| 25. | Which is *not* a mixture?       |  |  | | --- | --- | | A. | a jar filled with rocks and sand |  |  |  | | --- | --- | | B. | sea water |  |  |  | | --- | --- | | C. | a glass of Kool-Aid |  |  |  | | --- | --- | | D. | sodium chloride | |

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| 26. | Which is *not* a pure substance?       |  |  | | --- | --- | | A. | helium |  |  |  | | --- | --- | | B. | copper wire |  |  |  | | --- | --- | | C. | air |  |  |  | | --- | --- | | D. | sucrose | |

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| 27. | Which squares contain mixtures?          |  |  | | --- | --- | | A. | II and III only |  |  |  | | --- | --- | | B. | III and IV only |  |  |  | | --- | --- | | C. | I, III, and IV only |  |  |  | | --- | --- | | D. | I and IV only | |

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| 28. | Which square(s) contain(s) only an element?          |  |  | | --- | --- | | A. | I only |  |  |  | | --- | --- | | B. | II only |  |  |  | | --- | --- | | C. | I and II only |  |  |  | | --- | --- | | D. | III and IV only | |

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| 29. | Which symbols represent only elements that are metals?          |  |  | | --- | --- | | A. | X and Z |  |  |  | | --- | --- | | B. | X and Q |  |  |  | | --- | --- | | C. | P and L |  |  |  | | --- | --- | | D. | X, R, P, and Q | |

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| 30. | Which symbol(s) represent(s) elements in the noble gas family?          |  |  | | --- | --- | | A. | X and Z |  |  |  | | --- | --- | | B. | P and L |  |  |  | | --- | --- | | C. | Q |  |  |  | | --- | --- | | D. | Y | |

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| 31. | Which differentiates a compound from a mixture of two or more elements?       |  |  | | --- | --- | | A. | The elements in a compound may be present in varying proportions. |  |  |  | | --- | --- | | B. | A compound does not exhibit the individual properties of the elements of which it is composed. |  |  |  | | --- | --- | | C. | A compound is made up of only one element. |  |  |  | | --- | --- | | D. | A compound cannot be made up of more than two elements. | |

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| 32. | Which substance is an element?       |  |  | | --- | --- | | A. | NO2 |  |  |  | | --- | --- | | B. | NaCl |  |  |  | | --- | --- | | C. | N2 |  |  |  | | --- | --- | | D. | CH4 | |

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| 33. | A(n) \_\_\_\_\_\_\_\_\_\_ is a fixed number of atoms held together by chemical bonds in a certain spatial arrangement.       |  |  | | --- | --- | | A. | element |  |  |  | | --- | --- | | B. | ion |  |  |  | | --- | --- | | C. | molecule |  |  |  | | --- | --- | | D. | mixture | |

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| 34. | Which diagram(s) best represent(s) only diatomic molecules?         |  |  | | --- | --- | | A. | I only |  |  |  | | --- | --- | | B. | II only |  |  |  | | --- | --- | | C. | I and II only |  |  |  | | --- | --- | | D. | II and IV only | |

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| 35. | Which diagram(s) best represent(s) only molecules?          |  |  | | --- | --- | | A. | I only |  |  |  | | --- | --- | | B. | II only |  |  |  | | --- | --- | | C. | III only |  |  |  | | --- | --- | | D. | I and II only |  |  |  | | --- | --- | | E. | IV only | |

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| 36. | Which diagram(s) best represent(s) only individual atoms?         |  |  | | --- | --- | | A. | I only |  |  |  | | --- | --- | | B. | II only |  |  |  | | --- | --- | | C. | III only |  |  |  | | --- | --- | | D. | IV only |  |  |  | | --- | --- | | E. | II and III only | |

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| 37. | Except in the case of hydrocarbons, when naming virtually all compounds made up of two elements, the second element mentioned       |  |  | | --- | --- | | A. | ends in "ide." |  |  |  | | --- | --- | | B. | is preceded by "mono" (or occasionally "mon"). |  |  |  | | --- | --- | | C. | is always the more metallic element. |  |  |  | | --- | --- | | D. | is the one present in the greater number of atoms. | |

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| 38. | Based on its name, which carbon compound contains the fewest carbon atoms?       |  |  | | --- | --- | | A. | ethanol |  |  |  | | --- | --- | | B. | methane |  |  |  | | --- | --- | | C. | chlorobutane |  |  |  | | --- | --- | | D. | propyl alcohol | |

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| 39. | P2O5 is the chemical formula for       |  |  | | --- | --- | | A. | pentoxygen diphosphide. |  |  |  | | --- | --- | | B. | diphosphorus pentoxide. |  |  |  | | --- | --- | | C. | dioxygen pentaphosphide. |  |  |  | | --- | --- | | D. | monophosphorus pentoxide. | |

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| 40. | The name of the compound formed by combining carbon atoms   with oxygen atoms   to form   is       |  |  | | --- | --- | | A. | carbon oxide. |  |  |  | | --- | --- | | B. | monocarbon dioxide. |  |  |  | | --- | --- | | C. | carbon dioxide. |  |  |  | | --- | --- | | D. | carbonate. | |

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| 41. | During a chemical reaction,       |  |  | | --- | --- | | A. | atoms are rearranged. |  |  |  | | --- | --- | | B. | some atoms are destroyed and new ones are formed. |  |  |  | | --- | --- | | C. | some elements are destroyed and new ones are formed. |  |  |  | | --- | --- | | D. | the law of conservation of matter and mass may be briefly violated. | |

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| 42. | Choose the proper coefficients for each substance to balance this equation. \_\_\_\_ C2H4*(g)* + \_\_\_\_ O2*(g)* → \_\_\_\_ CO2*(g)* + \_\_\_\_ H2O*(g)*       |  |  | | --- | --- | | A. | 1, 1, 2, 2 |  |  |  | | --- | --- | | B. | 1, 3, 2, 2 |  |  |  | | --- | --- | | C. | 2, 3, 4, 2 |  |  |  | | --- | --- | | D. | 2, 2, 4, 2 | |

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| 43. | Choose the proper coefficients for each substance to yield a balanced equation.         |  |  | | --- | --- | | A. | 1, 1, 1 |  |  |  | | --- | --- | | B. | 2, 1, 1 |  |  |  | | --- | --- | | C. | 2, 1, 2 |  |  |  | | --- | --- | | D. | 1, 1, 2 | |

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| 44. | Which is the balanced chemical equation showing hydrogen peroxide (H2O2) decomposing into hydrogen (H2) and oxygen (O2)?       |  |  | | --- | --- | | A. | H2O2 → H2 + O2 |  |  |  | | --- | --- | | B. | H2 + O2 → H2O2 |  |  |  | | --- | --- | | C. | 2 H2 + O2 → 2 H2O2 |  |  |  | | --- | --- | | D. | 2 H2O2 → 2 H2 + O2 | |

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| 45. | Which is the balanced chemical equation for the reaction of nitrogen (N2) with oxygen (O2) to form NO?       |  |  | | --- | --- | | A. | 2 NO → N2 + O2 |  |  |  | | --- | --- | | B. | N2 + O2 → NO |  |  |  | | --- | --- | | C. | N2 + O2 → 2 NO |  |  |  | | --- | --- | | D. | NO → N2 + O2 | |

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| 46. | Which shows the balanced equation for the reaction of nitrogen (  ), as it is normally found in our atmosphere, with oxygen (  ), as it is normally found in our atmosphere, to form nitrogen dioxide?       |  |  | | --- | --- | | A. |  |  |  |  | | --- | --- | | B. |  |  |  |  | | --- | --- | | C. |  |  |  |  | | --- | --- | | D. |  | |

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| 47. | The two main products of the combustion of gasoline in an automobile engine are       |  |  | | --- | --- | | A. | oxygen and carbon monoxide. |  |  |  | | --- | --- | | B. | sulfur oxides and nitrogen oxides. |  |  |  | | --- | --- | | C. | sulfur oxides and hydrogen. |  |  |  | | --- | --- | | D. | water and carbon dioxide. | |

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| 48. | Green chemistry is       |  |  | | --- | --- | | A. | the study of how to improve the production of oxygen via photosynthesis. |  |  |  | | --- | --- | | B. | any chemistry having an agricultural base. |  |  |  | | --- | --- | | C. | the cause of the higher temperatures and humidity typically found in greenhouses. |  |  |  | | --- | --- | | D. | the design of products and processes that reduce hazardous substances. | |

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| 49. | Catalytic converters reduce the amount of \_\_\_\_\_\_\_\_ in car exhaust.       |  |  | | --- | --- | | A. | O3 |  |  |  | | --- | --- | | B. | CO2 |  |  |  | | --- | --- | | C. | CO |  |  |  | | --- | --- | | D. | N2 | |

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| 50. | Ozone is a secondary pollutant. A secondary pollutant is       |  |  | | --- | --- | | A. | not as hazardous as a primary pollutant. |  |  |  | | --- | --- | | B. | not produced directly but as the product of the interaction of two or more pollutants. |  |  |  | | --- | --- | | C. | one that is naturally present in our atmosphere. |  |  |  | | --- | --- | | D. | one that is less hazardous than a primary pollutant. | |

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| 51. | There are approximately 2 × 1022 molecules and atoms in each breath we take and the concentration of CO in the air is approximately 9 parts per million. Approximately how many CO molecules are in each breath we take?  3-11-2013      |  |  | | --- | --- | | A. | 2 × 1015 |  |  |  | | --- | --- | | B. | 1.8 × 1017 |  |  |  | | --- | --- | | C. | 2 × 1016 |  |  |  | | --- | --- | | D. | 2 × 1029 | |

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| 52. | Which of the following would be described as "fine particles"?       |  |  | | --- | --- | | A. | SOx |  |  |  | | --- | --- | | B. | NOx |  |  |  | | --- | --- | | C. | O3 |  |  |  | | --- | --- | | D. | 2.5 μm diameter soot | |

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| 53. | Which if the following is the chemical symbol for silver?       |  |  | | --- | --- | | A. | Au |  |  |  | | --- | --- | | B. | Pb |  |  |  | | --- | --- | | C. | Ag |  |  |  | | --- | --- | | D. | Fe | |

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| 54. | Which of the following is a pure substance?       |  |  | | --- | --- | | A. | Lemonade |  |  |  | | --- | --- | | B. | Concrete |  |  |  | | --- | --- | | C. | Gasoline |  |  |  | | --- | --- | | D. | Silver wire | |

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| 55. | The lowest (or closest to the ground) layer of our atmosphere is the          |  |  | | --- | --- | | A. | troposphere. |  |  |  | | --- | --- | | B. | ozone layer. |  |  |  | | --- | --- | | C. | stratosphere. |  |  |  | | --- | --- | | D. | mesosphere. | |

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| 56. | Which is the following *incorrectly* represents a combustion reaction?      |  |  | | --- | --- | | A. | CH4  + 2 O2 → CO2 + 2 H2O |  |  |  | | --- | --- | | B. | S8  + 8 O2 → 8 SO2 |  |  |  | | --- | --- | | C. | N2  + 2 O2 → 2 NO2 |  |  |  | | --- | --- | | D. | C3H8  +  O2 → 3 CO2 | |

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| 57. | Balance this equation P4 + Cl2 → PCl5 with the smallest whole number coefficients. Choose the answer that is the sum of the coefficients. Do not forget coefficients of "one".                                          |  |  | | --- | --- | | A. | 7 |  |  |  | | --- | --- | | B. | 9 |  |  |  | | --- | --- | | C. | 11 |  |  |  | | --- | --- | | D. | 13 |  |  |  | | --- | --- | | E. | 15 | |

**Check All That Apply Questions**

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| 58. | Which of the following are examples of technological advances that have reduced air pollution?     \_\_\_\_  Paint with reduced VOCs  \_\_\_\_  Catalytic converters  \_\_\_\_  Burning gasoline in leaf blowers  \_\_\_\_  Low sulfur Diesel fuels |

**Multiple Choice Questions**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 59. | If 500 mL of air contains 2 x 1022 particles (atoms and molecules), how many particles do you inhale in one day if you breathe 15000 L of air?       |  |  | | --- | --- | | A. | 2 x 1022 |  |  |  | | --- | --- | | B. | 6 x 1026 |  |  |  | | --- | --- | | C. | 1.2 x 1027 |  |  |  | | --- | --- | | D. | 5 x 1024 | |

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| 60. | If we assume that the top of Mt. Everest is the highest land mass on earth, hikers who scale its summit are standing in the       |  |  | | --- | --- | | A. | mesosphere. |  |  |  | | --- | --- | | B. | stratosphere. |  |  |  | | --- | --- | | C. | troposphere. |  |  |  | | --- | --- | | D. | ozone layer. | |

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| 61. | Which square(s) contain(s) only one or more compounds?         |  |  | | --- | --- | | A. | I only |  |  |  | | --- | --- | | B. | II only |  |  |  | | --- | --- | | C. | I and IV only |  |  |  | | --- | --- | | D. | II and III only | |

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| 62. | The chemical formula for nitrogen monoxide is:       |  |  | | --- | --- | | A. | N2O |  |  |  | | --- | --- | | B. | NO |  |  |  | | --- | --- | | C. | NO2 |  |  |  | | --- | --- | | D. | N2O3 | |

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| 63. | Which correctly pairs an indoor pollutant with its source?       |  |  | | --- | --- | | A. | formaldehyde and unvented space heaters |  |  |  | | --- | --- | | B. | O3 and electrical arcing |  |  |  | | --- | --- | | C. | radon and glues and solvents |  |  |  | | --- | --- | | D. | nicotine and paint and paint thinners | |

Chapter 01 - The Air We Breathe (Testbank) Key

**Multiple Choice Questions**

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 1. | Of five major gaseous components of air, which is the only one to vary significantly in concentration from place to place and from day to day?       |  |  | | --- | --- | | **A.** | water vapor |  |  |  | | --- | --- | | B. | carbon dioxide |  |  |  | | --- | --- | | C. | nitrogen |  |  |  | | --- | --- | | D. | argon |   Think about differences in humidity. |

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| *American - Chapter 01 #1 Blooms Level: 1. Remember Section: 01.02 Topic: Study of Chemistry* |

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| 2. | Which two gases make up more than 95% of an inhaled breath?       |  |  | | --- | --- | | A. | NO2 and N2 |  |  |  | | --- | --- | | B. | CO2 and O2 |  |  |  | | --- | --- | | **C.** | O2 and N2 |  |  |  | | --- | --- | | D. | N2 and Ar |   Think about the two main components of the atmosphere. |

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| *American - Chapter 01 #2 Blooms Level: 1. Remember Section: 01.02 Topic: Study of Chemistry* |

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| 3. | What is the primary component of an exhaled breath?       |  |  | | --- | --- | | **A.** | N2 |  |  |  | | --- | --- | | B. | O2 |  |  |  | | --- | --- | | C. | CO2 |  |  |  | | --- | --- | | D. | H2O |   The main component of an exhaled breath is the same as the main component of an inhaled breath. |

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| *American - Chapter 01 #3 Blooms Level: 1. Remember Section: 01.02 Topic: Study of Chemistry* |

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| 4. | Which component of the air makes up approximately 100 times more of an exhaled breath than of an inhaled breath?      |  |  | | --- | --- | | A. | Ar |  |  |  | | --- | --- | | B. | O2 |  |  |  | | --- | --- | | C. | O3 |  |  |  | | --- | --- | | **D.** | CO2 | |

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| *American - Chapter 01 #4 Blooms Level: 2. Understand Section: 01.02 Topic: Study of Chemistry* |

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| 5. | The \_\_\_\_\_\_\_\_ concentration in the air over the desert differs dramatically from that in the air in the tropical rainforest.       |  |  | | --- | --- | | A. | N2 |  |  |  | | --- | --- | | B. | O2 |  |  |  | | --- | --- | | C. | CO2 |  |  |  | | --- | --- | | **D.** | H2O |   Think about the dry air in the desert. |

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| *American - Chapter 01 #5 Blooms Level: 2. Understand Section: 01.02 Topic: Study of Chemistry* |

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| 6. | Which component of the air is an element?       |  |  | | --- | --- | | A. | H2O |  |  |  | | --- | --- | | B. | NO2 |  |  |  | | --- | --- | | **C.** | O2 |  |  |  | | --- | --- | | D. | CO2 |   Only one of these contains all the same type of atom. |

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| *American - Chapter 01 #6 Blooms Level: 2. Understand Section: 01.06 Subtopic: Elements Subtopic: Molecules Topic: Components of Matter Topic: Study of Chemistry* |

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| 7. | Air is a(n)       |  |  | | --- | --- | | A. | element. |  |  |  | | --- | --- | | B. | compound. |  |  |  | | --- | --- | | **C.** | mixture. |  |  |  | | --- | --- | | D. | pure substance. |   There are several substances in air. |

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| *American - Chapter 01 #7 Blooms Level: 2. Understand Section: 01.06 Subtopic: Classification of Matter Topic: Components of Matter* |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 8. | Which substance is *not* considered to be an air pollutant?       |  |  | | --- | --- | | **A.** | N2 |  |  |  | | --- | --- | | B. | SO2 |  |  |  | | --- | --- | | C. | NO2 |  |  |  | | --- | --- | | D. | O3 |   One if these is the primary component of uncontaminated air while the rest are pollutants. |

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| *American - Chapter 01 #8 Blooms Level: 1. Remember Section: 01.03 Subtopic: Classification of Matter Topic: Components of Matter Topic: Study of Chemistry* |

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| 9. | Ozone is considered an air pollutant in the \_\_\_\_\_\_\_\_ but is a valuable protective layer in the \_\_\_\_\_\_\_\_\_\_.       |  |  | | --- | --- | | **A.** | troposphere; stratosphere |  |  |  | | --- | --- | | B. | stratosphere; mesosphere |  |  |  | | --- | --- | | C. | stratosphere; troposphere |  |  |  | | --- | --- | | D. | mesosphere; stratosphere |   Remember that we live in the troposphere. |

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| *American - Chapter 01 #9 Blooms Level: 2. Understand Section: 01.02 Topic: Environmental Chemistry* |

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| 10. | A particular sample of air is 2.5% water vapor. Express the concentration of water vapor in parts per million (ppm).       |  |  | | --- | --- | | A. | 0.0000025 ppm |  |  |  | | --- | --- | | B. | 0.025 ppm |  |  |  | | --- | --- | | C. | 250 ppm |  |  |  | | --- | --- | | **D.** | 25000 ppm |   Percent is parts per hundred. One hundred is 10,000 times less than one million. |

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| *American - Chapter 01 #10 Blooms Level: 3. Apply Section: 01.02 Subtopic: Measurements Topic: Study of Chemistry* |

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| 11. | The EPA limit for CO is 9 ppm. Express this number as a percentage.       |  |  | | --- | --- | | A. | 90% |  |  |  | | --- | --- | | B. | 9% |  |  |  | | --- | --- | | C. | 0.09% |  |  |  | | --- | --- | | **D.** | 0.0009% |   Percent is parts per hundred. One hundred is 10,000 times less than one million. |

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| *American - Chapter 01 #11 Blooms Level: 3. Apply Section: 01.02 Subtopic: Measurements Topic: Study of Chemistry* |

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| 12. | The quantity 0.0000064 g expressed in scientific notation is:       |  |  | | --- | --- | | A. | 6.4 × 106 g |  |  |  | | --- | --- | | **B.** | 6.4 × 10¯6 g |  |  |  | | --- | --- | | C. | 6.4 × 107 g |  |  |  | | --- | --- | | D. | 6.4 × 10¯7 g |   Negative powers of ten move the decimal to the left. |

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| *American - Chapter 01 #12 Blooms Level: 3. Apply Section: 01.03 Subtopic: Scientific Notation Topic: Study of Chemistry* |

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| 13. | The quantity 8.7 × 105 g expressed in standard decimal notation is:       |  |  | | --- | --- | | A. | 0.000087 g |  |  |  | | --- | --- | | B. | 870.000 g |  |  |  | | --- | --- | | C. | 0.0000087 g |  |  |  | | --- | --- | | **D.** | 870,000 g |   Positive powers of ten move the decimal to the right. |

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| *American - Chapter 01 #13 Blooms Level: 3. Apply Section: 01.03 Subtopic: Measurements Subtopic: Scientific Notation Topic: Study of Chemistry* |

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| 14. | Which pollutant is present in air as particulate matter?       |  |  | | --- | --- | | **A.** | soot |  |  |  | | --- | --- | | B. | ozone |  |  |  | | --- | --- | | C. | sulfur dioxide |  |  |  | | --- | --- | | D. | carbon monoxide |   Particulate matter is solid not gaseous. |

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| *American - Chapter 01 #14 Blooms Level: 1. Remember Section: 01.02 Subtopic: Fundamental Definitions Topic: Study of Chemistry* |

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| 15. | What two factors are considered when determining the risk assessment for air pollutants?       |  |  | | --- | --- | | A. | exposure and ppm |  |  |  | | --- | --- | | B. | percentage and ppm |  |  |  | | --- | --- | | C. | toxicity and percentage |  |  |  | | --- | --- | | **D.** | toxicity and exposure |   Remember that some things are poisonous in a short time frame and others are toxic after long time frames. |

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| *American - Chapter 01 #15 Blooms Level: 2. Understand Section: 01.03 Topic: Environmental Chemistry* |

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| 16. | When assessing the risk of an air pollutant, which does not play a role in considering someone's exposure to the pollutant?      |  |  | | --- | --- | | A. | a person's lung capacity |  |  |  | | --- | --- | | B. | a person's breathing rate |  |  |  | | --- | --- | | **C.** | the toxicity of the pollutant |  |  |  | | --- | --- | | D. | the concentration in air of the pollutant | |

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| *American - Chapter 01 #16 Blooms Level: 2. Understand Section: 01.03 Topic: Environmental Chemistry* |

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| 17. | The burning of coal produces sulfur dioxide, SO2, a pollutant that slowly reacts in air to form SO3. Sulfur trioxide dissolves into airborne water droplets to form a very corrosive solution of sulfuric acid. Which is a product of burning coal that hastens the transformation of sulfur dioxide into sulfur trioxide?       |  |  | | --- | --- | | A. | carbon dioxide |  |  |  | | --- | --- | | B. | carbon monoxide |  |  |  | | --- | --- | | C. | nitrogen dioxide |  |  |  | | --- | --- | | **D.** | particles of ash |   This transformation takes place on solid particles. |

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| *American - Chapter 01 #17 Blooms Level: 2. Understand Section: 01.11 Topic: Environmental Chemistry Topic: Study of Chemistry* |

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| 18. | All of these pollutants can be detected by their odors except:       |  |  | | --- | --- | | **A.** | CO |  |  |  | | --- | --- | | B. | O3 |  |  |  | | --- | --- | | C. | SOx |  |  |  | | --- | --- | | D. | NOx |   Remember that you might need a detector for this substance in your home for protection. |

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| *American - Chapter 01 #18 Blooms Level: 1. Remember Section: 01.03 Topic: Environmental Chemistry* |

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| 19. | Which pollutant are you more likely to encounter in dangerous concentrations indoors rather than outdoors?       |  |  | | --- | --- | | A. | nitrogen dioxide |  |  |  | | --- | --- | | **B.** | carbon monoxide |  |  |  | | --- | --- | | C. | ozone |  |  |  | | --- | --- | | D. | sulfur dioxide |   This comes from the incomplete combustion of hydrocarbon fuels. |

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| *American - Chapter 01 #19 Blooms Level: 1. Remember Section: 01.02 Subtopic: States of Matter Topic: Environmental Chemistry* |

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| 20. | In general, which airborne material is not likely to be affected by the filters or indoor air handling equipment?       |  |  | | --- | --- | | A. | particulates |  |  |  | | --- | --- | | B. | pollen |  |  |  | | --- | --- | | C. | soot |  |  |  | | --- | --- | | **D.** | carbon monoxide |   Filters cannot trap gases. |

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| *American - Chapter 01 #20 Blooms Level: 2. Understand Section: 01.02 Subtopic: States of Matter Topic: Environmental Chemistry* |

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| 21. | Which color, as used in the Air Quality Index, warns that the level of a pollutant is hazardous, the most dangerous level?       |  |  | | --- | --- | | A. | orange |  |  |  | | --- | --- | | B. | green |  |  |  | | --- | --- | | C. | yellow |  |  |  | | --- | --- | | **D.** | maroon |   This is similar to other color-coded warning systems. |

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| *American - Chapter 01 #21 Blooms Level: 1. Remember Section: 01.04 Topic: Environmental Chemistry* |

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| 22. | A substance that can be broken down into two or more simpler substances by chemical methods is called a(n)       |  |  | | --- | --- | | **A.** | compound. |  |  |  | | --- | --- | | B. | mixture. |  |  |  | | --- | --- | | C. | element. |  |  |  | | --- | --- | | D. | isotope. |   Mixtures are separable by physical means. |

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| *American - Chapter 01 #23 Blooms Level: 1. Remember Section: 01.06 Subtopic: Classification of Matter Subtopic: Fundamental Definitions Topic: Components of Matter Topic: Study of Chemistry* |

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| 23. | On a Periodic Table, the columns of elements with similar properties are       |  |  | | --- | --- | | A. | periods. |  |  |  | | --- | --- | | **B.** | groups. |  |  |  | | --- | --- | | C. | rows. |  |  |  | | --- | --- | | D. | metals. |   Periods and rows go across. |

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| *American - Chapter 01 #24 Blooms Level: 1. Remember Section: 01.06 Subtopic: Periodic Table Topic: Components of Matter Topic: Study of Chemistry* |

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| 24. | The most numerous of the elements are the       |  |  | | --- | --- | | **A.** | metals. |  |  |  | | --- | --- | | B. | non metals. |  |  |  | | --- | --- | | C. | metalloids. |  |  |  | | --- | --- | | D. | noble gases. |   These are green in the periodic table in your textbook. |

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| *American - Chapter 01 #26 Blooms Level: 1. Remember Subtopic: Periodic Table Topic: Components of Matter* |

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| 25. | Which is *not* a mixture?       |  |  | | --- | --- | | A. | a jar filled with rocks and sand |  |  |  | | --- | --- | | B. | sea water |  |  |  | | --- | --- | | C. | a glass of Kool-Aid |  |  |  | | --- | --- | | **D.** | sodium chloride |   Mixtures include more than one pure substance. |

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| *American - Chapter 01 #28 Blooms Level: 2. Understand Section: 01.06 Subtopic: Fundamental Definitions Subtopic: Properties of Matter Topic: Components of Matter* |

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| 26. | Which is *not* a pure substance?       |  |  | | --- | --- | | A. | helium |  |  |  | | --- | --- | | B. | copper wire |  |  |  | | --- | --- | | **C.** | air |  |  |  | | --- | --- | | D. | sucrose |   Mixtures are not pure substances. |

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| *American - Chapter 01 #29 Blooms Level: 2. Understand Section: 01.06 Subtopic: Properties of Matter Topic: Components of Matter* |

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| 27. | Which squares contain mixtures?          |  |  | | --- | --- | | A. | II and III only |  |  |  | | --- | --- | | **B.** | III and IV only |  |  |  | | --- | --- | | C. | I, III, and IV only |  |  |  | | --- | --- | | D. | I and IV only |   Mixtures will have different substances in the same box. |

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| *American - Chapter 01 #30 Blooms Level: 3. Apply Section: 01.06 Section: 01.07 Subtopic: Molecules Subtopic: Properties of Matter Topic: Components of Matter* |

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| 28. | Which square(s) contain(s) only an element?          |  |  | | --- | --- | | A. | I only |  |  |  | | --- | --- | | **B.** | II only |  |  |  | | --- | --- | | C. | I and II only |  |  |  | | --- | --- | | D. | III and IV only |   Elements will only have one type of atom in the box. |

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| *American - Chapter 01 #31 Blooms Level: 3. Apply Section: 01.06 Section: 01.07 Subtopic: Elements Subtopic: Fundamental Definitions Topic: Components of Matter* |

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| --- | --- | --- | --- | --- | --- | --- | --- | --- | --- |
| 29. | Which symbols represent only elements that are metals?          |  |  | | --- | --- | | **A.** | X and Z |  |  |  | | --- | --- | | B. | X and Q |  |  |  | | --- | --- | | C. | P and L |  |  |  | | --- | --- | | D. | X, R, P, and Q |   Non-metals reside in the upper right corner of the periodic table. |

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| *American - Chapter 01 #33 Blooms Level: 2. Understand Subtopic: Periodic Table Topic: Components of Matter* |

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| 30. | Which symbol(s) represent(s) elements in the noble gas family?          |  |  | | --- | --- | | A. | X and Z |  |  |  | | --- | --- | | B. | P and L |  |  |  | | --- | --- | | **C.** | Q |  |  |  | | --- | --- | | D. | Y |   Noble gases are in the far right column of the periodic table. |

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| *American - Chapter 01 #34 Blooms Level: 1. Remember Section: 01.06 Subtopic: Scientific Method Topic: Components of Matter* |

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| 31. | Which differentiates a compound from a mixture of two or more elements?       |  |  | | --- | --- | | A. | The elements in a compound may be present in varying proportions. |  |  |  | | --- | --- | | **B.** | A compound does not exhibit the individual properties of the elements of which it is composed. |  |  |  | | --- | --- | | C. | A compound is made up of only one element. |  |  |  | | --- | --- | | D. | A compound cannot be made up of more than two elements. |   Remember that compounds are elements bound together by chemical bonds. |

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| *American - Chapter 01 #35 Blooms Level: 3. Apply Section: 01.06 Subtopic: Classification of Matter Subtopic: Fundamental Definitions Topic: Components of Matter* |

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| 32. | Which substance is an element?       |  |  | | --- | --- | | A. | NO2 |  |  |  | | --- | --- | | B. | NaCl |  |  |  | | --- | --- | | **C.** | N2 |  |  |  | | --- | --- | | D. | CH4 |   Only one has just one symbol in the formula. |

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| *American - Chapter 01 #37 Blooms Level: 2. Understand Section: 01.06 Section: 01.07 Subtopic: Elements Topic: Components of Matter* |

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| 33. | A(n) \_\_\_\_\_\_\_\_\_\_ is a fixed number of atoms held together by chemical bonds in a certain spatial arrangement.       |  |  | | --- | --- | | A. | element |  |  |  | | --- | --- | | B. | ion |  |  |  | | --- | --- | | **C.** | molecule |  |  |  | | --- | --- | | D. | mixture |   Remember which of these have more than one element that are also bonded together. |

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| *American - Chapter 01 #38 Blooms Level: 1. Remember Section: 01.07 Subtopic: Fundamental Definitions Subtopic: Molecules Topic: Components of Matter* |

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| 34. | Which diagram(s) best represent(s) only diatomic molecules?         |  |  | | --- | --- | | A. | I only |  |  |  | | --- | --- | | **B.** | II only |  |  |  | | --- | --- | | C. | I and II only |  |  |  | | --- | --- | | D. | II and IV only |   The prefix di- means two. |

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| *American - Chapter 01 #39 Blooms Level: 2. Understand Section: 01.07 Subtopic: Elements Subtopic: Molecules Topic: Components of Matter* |

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| 35. | Which diagram(s) best represent(s) only molecules?          |  |  | | --- | --- | | A. | I only |  |  |  | | --- | --- | | B. | II only |  |  |  | | --- | --- | | C. | III only |  |  |  | | --- | --- | | **D.** | I and II only |  |  |  | | --- | --- | | E. | IV only |   Molecules have multiple atom bound together. |

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| *American - Chapter 01 #40 Blooms Level: 2. Understand Section: 01.07 Subtopic: Classification of Matter Subtopic: Elements Subtopic: Molecules Topic: Components of Matter* |

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| 36. | Which diagram(s) best represent(s) only individual atoms?         |  |  | | --- | --- | | A. | I only |  |  |  | | --- | --- | | B. | II only |  |  |  | | --- | --- | | **C.** | III only |  |  |  | | --- | --- | | D. | IV only |  |  |  | | --- | --- | | E. | II and III only |   The atoms are not bound to other atoms. |

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| *American - Chapter 01 #41 Blooms Level: 2. Understand Section: 01.07 Subtopic: Elements Subtopic: Molecules Topic: Components of Matter* |

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| 37. | Except in the case of hydrocarbons, when naming virtually all compounds made up of two elements, the second element mentioned       |  |  | | --- | --- | | **A.** | ends in "ide." |  |  |  | | --- | --- | | B. | is preceded by "mono" (or occasionally "mon"). |  |  |  | | --- | --- | | C. | is always the more metallic element. |  |  |  | | --- | --- | | D. | is the one present in the greater number of atoms. |   Remember that more non-metallic atoms go second and have this ending. |

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| *American - Chapter 01 #42 Blooms Level: 2. Understand Section: 01.08 Subtopic: Nomenclature Topic: Components of Matter* |

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| 38. | Based on its name, which carbon compound contains the fewest carbon atoms?       |  |  | | --- | --- | | A. | ethanol |  |  |  | | --- | --- | | **B.** | methane |  |  |  | | --- | --- | | C. | chlorobutane |  |  |  | | --- | --- | | D. | propyl alcohol |   Mother Eats Peanut Butter |

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| *American - Chapter 01 #43 Blooms Level: 2. Understand Section: 01.08 Subtopic: Nomenclature Topic: Components of Matter* |

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| 39. | P2O5 is the chemical formula for       |  |  | | --- | --- | | A. | pentoxygen diphosphide. |  |  |  | | --- | --- | | **B.** | diphosphorus pentoxide. |  |  |  | | --- | --- | | C. | dioxygen pentaphosphide. |  |  |  | | --- | --- | | D. | monophosphorus pentoxide. |   See table 1.6 for the naming prefixes. |

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| *American - Chapter 01 #44 Blooms Level: 2. Understand Section: 01.08 Subtopic: Nomenclature Topic: Components of Matter* |

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| 40. | The name of the compound formed by combining carbon atoms   with oxygen atoms   to form   is       |  |  | | --- | --- | | A. | carbon oxide. |  |  |  | | --- | --- | | B. | monocarbon dioxide. |  |  |  | | --- | --- | | **C.** | carbon dioxide. |  |  |  | | --- | --- | | D. | carbonate. |   Count your atoms and remember that there is no prefix on a lone element that is named first. |

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| *American - Chapter 01 #45 Blooms Level: 2. Understand Section: 01.08 Subtopic: Measurements Topic: Components of Matter* |

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| 41. | During a chemical reaction,       |  |  | | --- | --- | | **A.** | atoms are rearranged. |  |  |  | | --- | --- | | B. | some atoms are destroyed and new ones are formed. |  |  |  | | --- | --- | | C. | some elements are destroyed and new ones are formed. |  |  |  | | --- | --- | | D. | the law of conservation of matter and mass may be briefly violated. |   Remember that the laws of conservation of mass and energy are always followed in chemical reactions. |

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| *American - Chapter 01 #46 Blooms Level: 2. Understand Section: 01.09 Subtopic: Elements Subtopic: Molecules Topic: Components of Matter Topic: Study of Chemistry* |

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| 42. | Choose the proper coefficients for each substance to balance this equation. \_\_\_\_ C2H4*(g)* + \_\_\_\_ O2*(g)* → \_\_\_\_ CO2*(g)* + \_\_\_\_ H2O*(g)*       |  |  | | --- | --- | | A. | 1, 1, 2, 2 |  |  |  | | --- | --- | | **B.** | 1, 3, 2, 2 |  |  |  | | --- | --- | | C. | 2, 3, 4, 2 |  |  |  | | --- | --- | | D. | 2, 2, 4, 2 |   Make sure that the total number of each element is the same on both sides of the equation.  The large coefficient multiplies through. |

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| *American - Chapter 01 #47 Blooms Level: 3. Apply Section: 01.09 Subtopic: Chemical Formulas Subtopic: Writing and Balancing Chemical Equations Topic: Chemical Reactions Topic: Components of Matter* |

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| 43. | Choose the proper coefficients for each substance to yield a balanced equation.         |  |  | | --- | --- | | A. | 1, 1, 1 |  |  |  | | --- | --- | | B. | 2, 1, 1 |  |  |  | | --- | --- | | **C.** | 2, 1, 2 |  |  |  | | --- | --- | | D. | 1, 1, 2 |   Make sure that the total number of each element is the same on both sides of the equation.  The large coefficient multiplies through |

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| *American - Chapter 01 #48 Blooms Level: 3. Apply Section: 01.09 Subtopic: Chemical Formulas Subtopic: Writing and Balancing Chemical Equations Topic: Chemical Reactions* |

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| 44. | Which is the balanced chemical equation showing hydrogen peroxide (H2O2) decomposing into hydrogen (H2) and oxygen (O2)?       |  |  | | --- | --- | | **A.** | H2O2 → H2 + O2 |  |  |  | | --- | --- | | B. | H2 + O2 → H2O2 |  |  |  | | --- | --- | | C. | 2 H2 + O2 → 2 H2O2 |  |  |  | | --- | --- | | D. | 2 H2O2 → 2 H2 + O2 |   Make sure that the total number of each element is the same on both sides of the equation.  The large coefficient multiplies through |

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| *American - Chapter 01 #49 Blooms Level: 3. Apply Section: 01.09 Subtopic: Writing and Balancing Chemical Equations Topic: Chemical Reactions* |

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| 45. | Which is the balanced chemical equation for the reaction of nitrogen (N2) with oxygen (O2) to form NO?       |  |  | | --- | --- | | A. | 2 NO → N2 + O2 |  |  |  | | --- | --- | | B. | N2 + O2 → NO |  |  |  | | --- | --- | | **C.** | N2 + O2 → 2 NO |  |  |  | | --- | --- | | D. | NO → N2 + O2 |   Make sure that the total number of each element is the same on both sides of the equation.  The large coefficient multiplies through |

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| *American - Chapter 01 #50 Blooms Level: 2. Understand Section: 01.09 Subtopic: Writing and Balancing Chemical Equations Topic: Chemical Reactions* |

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| 46. | Which shows the balanced equation for the reaction of nitrogen (  ), as it is normally found in our atmosphere, with oxygen (  ), as it is normally found in our atmosphere, to form nitrogen dioxide?       |  |  | | --- | --- | | A. |  |  |  |  | | --- | --- | | B. |  |  |  |  | | --- | --- | | **C.** |  |  |  |  | | --- | --- | | D. |  |   Oxygen and nitrogen are diatomic molecules as found in nature. |

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| *American - Chapter 01 #51 Blooms Level: 2. Understand Section: 01.09 Subtopic: Writing and Balancing Chemical Equations Topic: Chemical Reactions* |

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| 47. | The two main products of the combustion of gasoline in an automobile engine are       |  |  | | --- | --- | | A. | oxygen and carbon monoxide. |  |  |  | | --- | --- | | B. | sulfur oxides and nitrogen oxides. |  |  |  | | --- | --- | | C. | sulfur oxides and hydrogen. |  |  |  | | --- | --- | | **D.** | water and carbon dioxide. |   All hydrocarbon combustion reactions make these two products. |

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| *American - Chapter 01 #52 Blooms Level: 1. Remember Section: 01.10 Subtopic: Writing and Balancing Chemical Equations Topic: Chemical Reactions Topic: Environmental Chemistry* |

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| 48. | Green chemistry is       |  |  | | --- | --- | | A. | the study of how to improve the production of oxygen via photosynthesis. |  |  |  | | --- | --- | | B. | any chemistry having an agricultural base. |  |  |  | | --- | --- | | C. | the cause of the higher temperatures and humidity typically found in greenhouses. |  |  |  | | --- | --- | | **D.** | the design of products and processes that reduce hazardous substances. |   This is about cleaner chemistry in all fields. |

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| *American - Chapter 01 #53 Blooms Level: 1. Remember Section: 01.05 Topic: Environmental Chemistry* |

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| 49. | Catalytic converters reduce the amount of \_\_\_\_\_\_\_\_ in car exhaust.       |  |  | | --- | --- | | A. | O3 |  |  |  | | --- | --- | | B. | CO2 |  |  |  | | --- | --- | | **C.** | CO |  |  |  | | --- | --- | | D. | N2 |   Think about which is a direct tailpipe pollutant. |

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| *American - Chapter 01 #55 Blooms Level: 1. Remember Section: 01.10 Topic: Environmental Chemistry* |

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| 50. | Ozone is a secondary pollutant. A secondary pollutant is       |  |  | | --- | --- | | A. | not as hazardous as a primary pollutant. |  |  |  | | --- | --- | | **B.** | not produced directly but as the product of the interaction of two or more pollutants. |  |  |  | | --- | --- | | C. | one that is naturally present in our atmosphere. |  |  |  | | --- | --- | | D. | one that is less hazardous than a primary pollutant. |   This has nothing to do with safety. |

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| *American - Chapter 01 #57 Blooms Level: 1. Remember Section: 01.12 Topic: Environmental Chemistry* |

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| 51. | There are approximately 2 × 1022 molecules and atoms in each breath we take and the concentration of CO in the air is approximately 9 parts per million. Approximately how many CO molecules are in each breath we take?  3-11-2013      |  |  | | --- | --- | | A. | 2 × 1015 |  |  |  | | --- | --- | | **B.** | 1.8 × 1017 |  |  |  | | --- | --- | | C. | 2 × 1016 |  |  |  | | --- | --- | | D. | 2 × 1029 | |

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| *American - Chapter 01 Blooms Level: 3. Apply Section: 01.14 Subtopic: Dimensional Analysis / Unit Conversion Subtopic: Measurements Subtopic: Scientific Notation Topic: Components of Matter* |

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| 52. *(p. 23)* | Which of the following would be described as "fine particles"?       |  |  | | --- | --- | | A. | SOx |  |  |  | | --- | --- | | B. | NOx |  |  |  | | --- | --- | | C. | O3 |  |  |  | | --- | --- | | **D.** | 2.5 μm diameter soot |   Remember that these are solids and not gases. |

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| *American - Chapter 01 #59 Blooms Level: 2. Understand Section: 01.02 Subtopic: Classification of Matter Topic: Components of Matter Topic: Environmental Chemistry* |

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| 53. | Which if the following is the chemical symbol for silver?       |  |  | | --- | --- | | A. | Au |  |  |  | | --- | --- | | B. | Pb |  |  |  | | --- | --- | | **C.** | Ag |  |  |  | | --- | --- | | D. | Fe |   Silver was known during ancient times and has an unusual symbol. |

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| *American - Chapter 01 #61 Blooms Level: 1. Remember Subtopic: Periodic Table Topic: Components of Matter* |

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| 54. | Which of the following is a pure substance?       |  |  | | --- | --- | | A. | Lemonade |  |  |  | | --- | --- | | B. | Concrete |  |  |  | | --- | --- | | C. | Gasoline |  |  |  | | --- | --- | | **D.** | Silver wire |   Remember that pure substances have only one component. |

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| *American - Chapter 01 #62 Blooms Level: 2. Understand Section: 01.06 Subtopic: Classification of Matter Topic: Components of Matter* |

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| 55. | The lowest (or closest to the ground) layer of our atmosphere is the          |  |  | | --- | --- | | **A.** | troposphere. |  |  |  | | --- | --- | | B. | ozone layer. |  |  |  | | --- | --- | | C. | stratosphere. |  |  |  | | --- | --- | | D. | mesosphere. |   Think about which layer we live in and that is its relative warm. |

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| *American - Chapter 01 #64 Blooms Level: 1. Remember Section: 01.05 Topic: Environmental Chemistry* |

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| 56. | Which is the following *incorrectly* represents a combustion reaction?      |  |  | | --- | --- | | A. | CH4  + 2 O2 → CO2 + 2 H2O |  |  |  | | --- | --- | | B. | S8  + 8 O2 → 8 SO2 |  |  |  | | --- | --- | | C. | N2  + 2 O2 → 2 NO2 |  |  |  | | --- | --- | | **D.** | C3H8  +  O2 → 3 CO2 | |

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| *American - Chapter 01 Blooms Level: 3. Apply Section: 01.09 Subtopic: Writing and Balancing Chemical Equations Topic: Chemical Reactions* |

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| 57. | Balance this equation P4 + Cl2 → PCl5 with the smallest whole number coefficients. Choose the answer that is the sum of the coefficients. Do not forget coefficients of "one".                                          |  |  | | --- | --- | | A. | 7 |  |  |  | | --- | --- | | B. | 9 |  |  |  | | --- | --- | | C. | 11 |  |  |  | | --- | --- | | D. | 13 |  |  |  | | --- | --- | | **E.** | 15 |   Be sure to balance all elements on either side of the equation and add all the coefficients including any "ones". |

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| *American - Chapter 01 #67 Section: 01.09 Subtopic: Writing and Balancing Chemical Equations Topic: Chemical Reactions* |

**Check All That Apply Questions**

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| 58. | Which of the following are examples of technological advances that have reduced air pollution?       |  |  | | --- | --- | | **X** | Paint with reduced VOCs | | **X** | Catalytic converters | | \_\_ | Burning gasoline in leaf blowers | | **X** | Low sulfur Diesel fuels |   One if these is a major cause of outdoor pollution while the others are improvements. |

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| *American - Chapter 01 #68 Blooms Level: 2. Understand Section: 01.10 Section: 01.11 Section: 01.12 Topic: Environmental Chemistry* |

**Multiple Choice Questions**

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| 59. | If 500 mL of air contains 2 x 1022 particles (atoms and molecules), how many particles do you inhale in one day if you breathe 15000 L of air?       |  |  | | --- | --- | | A. | 2 x 1022 |  |  |  | | --- | --- | | **B.** | 6 x 1026 |  |  |  | | --- | --- | | C. | 1.2 x 1027 |  |  |  | | --- | --- | | D. | 5 x 1024 |   Remember that 500 mL is 0.5L and make sure your units cancel when you do the calculation. |

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| *American - Chapter 01 #69 Blooms Level: 3. Apply Section: 01.14 Subtopic: Dimensional Analysis / Unit Conversion Subtopic: Measurements Subtopic: Scientific Notation Topic: Components of Matter* |

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| 60. | If we assume that the top of Mt. Everest is the highest land mass on earth, hikers who scale its summit are standing in the       |  |  | | --- | --- | | A. | mesosphere. |  |  |  | | --- | --- | | B. | stratosphere. |  |  |  | | --- | --- | | **C.** | troposphere. |  |  |  | | --- | --- | | D. | ozone layer. |   Remember that they are still on land and this layer encompasses all the land. |

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| *American - Chapter 01 #70 Blooms Level: 2. Understand Section: 01.05 Topic: Environmental Chemistry* |

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| 61. | Which square(s) contain(s) only one or more compounds?         |  |  | | --- | --- | | **A.** | I only |  |  |  | | --- | --- | | B. | II only |  |  |  | | --- | --- | | C. | I and IV only |  |  |  | | --- | --- | | D. | II and III only |   Different compounds will have different combinations of different elements. |

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| *American - Chapter 01 #71 Blooms Level: 2. Understand Section: 01.06 Subtopic: Elements Subtopic: Molecules Subtopic: States of Matter Topic: Components of Matter* |

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| 62. | The chemical formula for nitrogen monoxide is:       |  |  | | --- | --- | | A. | N2O |  |  |  | | --- | --- | | **B.** | NO |  |  |  | | --- | --- | | C. | NO2 |  |  |  | | --- | --- | | D. | N2O3 |   Remember your prefixes for naming molecules. |

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| *American - Chapter 01 #73 Blooms Level: 2. Understand Section: 01.07 Subtopic: Nomenclature Topic: Components of Matter* |

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| 63. | Which correctly pairs an indoor pollutant with its source?       |  |  | | --- | --- | | A. | formaldehyde and unvented space heaters |  |  |  | | --- | --- | | **B.** | O3 and electrical arcing |  |  |  | | --- | --- | | C. | radon and glues and solvents |  |  |  | | --- | --- | | D. | nicotine and paint and paint thinners |   Think about the sources of nicotine, radon and formaldehyde. |

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| *American - Chapter 01 #75 Blooms Level: 2. Understand Section: 01.13 Topic: Environmental Chemistry* |

Chapter 01 - The Air We Breathe (Testbank) Summary

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| --- | --- |
| *Category* | *# of Questions* |
| American - Chapter 01 | 63 |
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| Blooms Level: 2. Understand | 30 |
| Blooms Level: 3. Apply | 13 |
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| Section: 01.03 | 6 |
| Section: 01.04 | 1 |
| Section: 01.05 | 3 |
| Section: 01.06 | 13 |
| Section: 01.07 | 8 |
| Section: 01.08 | 4 |
| Section: 01.09 | 8 |
| Section: 01.10 | 3 |
| Section: 01.11 | 2 |
| Section: 01.12 | 2 |
| Section: 01.13 | 1 |
| Section: 01.14 | 2 |
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| Subtopic: Classification of Matter | 7 |
| Subtopic: Dimensional Analysis / Unit Conversion | 2 |
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| Subtopic: Fundamental Definitions | 6 |
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| Subtopic: Molecules | 8 |
| Subtopic: Nomenclature | 4 |
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| Subtopic: Properties of Matter | 3 |
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| Subtopic: Scientific Notation | 4 |
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| Topic: Chemical Reactions | 8 |
| Topic: Components of Matter | 31 |
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