

## Unit 1: Introduction to Chemistry

Name: \_\_\_\_\_  
*Text Questions from Wilbraham, et. al.*

1.1

1. What two properties does matter have?
2. What is chemistry?
3. Where, mainly, are inorganic chemicals found?
4. A "pure chemist" doesn't expect what?
5. It has been found that aspirin blocks the production of chemicals that do what two things in the body?
6. Chemistry can help you satisfy your natural desire to understand...
7. A knowledge of chemistry and the other sciences can help you do what three things?

1.2

8. Objects that are large enough to see belong to the \_\_\_\_\_ world, while objects that can only be seen under magnification belong to the \_\_\_\_\_ world.
9. Chemists help find ways to do what three things involving the energy needs of our society?
10. Why does the foam used in drink cups provide excellent insulation?
11. Why are coal, petroleum, and natural gas called fossil fuels?
12. For which government agency were cordless tools first developed?
13. What two things do biochemists want to understand?
14. For chemists to design safe and effective drugs, they must know the \_\_\_\_\_ and \_\_\_\_\_ of the targeted chemicals in the body's cells.

15. The techniques of biotechnology can alter what in living organisms?

16. Chemists use biotechnology to develop plants that are more likely to survive what two things?

17. What can low levels of lead do in growing children?

18. What do scientists assume about the methods used to study the Earth?

19. To study stars, scientists analyze \_\_\_\_\_ from the stars. To study moons and planets, scientists analyze \_\_\_\_\_ from those objects that has been brought back to Earth.

1.3

20. Mystical alchemy focused on concepts like \_\_\_\_\_, while practical alchemy developed...

21. What did the alchemists NOT do?

22. What was the aim of the Royal Society of London?

23. Lavoisier helped to transform chemistry from a science of \_\_\_\_\_ to a science of \_\_\_\_\_.

24. In supporting the phlogiston theory, scientists were ignoring what evidence?

25. What is the scientific method?

26. If you keep the other variables from changing during an experiment, you can relate any change in the \_\_\_\_\_ (or \_\_\_\_\_) variable to changes in the \_\_\_\_\_ (or \_\_\_\_\_) variable.

27. When scientists say that a theory can never be proved, they are leaving open the possibility that...

28. What DOESN'T a law try to do?

29. Why is it often necessary to bring together individuals from different disciplines?

30. Why is the review process good for science?

1.4

31. Effective problem solving involves \_\_\_\_\_ and \_\_\_\_\_ a plan.

32. When calculating, what two things might you have to do?

33. You should check your answer for what two things?

2.4

34. How does a reactant differ from a product?

35. What does the law of conservation of mass state?

3.1

36. What two things does a measurement have?

37. How can you work more easily with very small or very large numbers?

38. In scientific notation, the coefficient is a number greater than or equal to \_\_\_\_ and less than \_\_\_\_.

39. \_\_\_\_\_ is a measure of how close a series of measurements are to one another, while \_\_\_\_\_ is a measure of how close a measurement comes to the true value of the quantity.

40. The \_\_\_\_\_ is the correct value based on reliable references, and the \_\_\_\_\_ is the value you measured in the lab.

41. What do the significant figures in a measurement include?

42. Why must measurements be reported to the correct number of significant figures?

43. The answer to an addition or subtraction calculation should be rounded to...

44. The answer to a multiplication or division calculation should be rounded to...

3.2

45. Without units, it is impossible to \_\_\_\_\_ the measurement clearly to others.

46. What are the five SI units commonly used by chemists?

47. A liter is the volume of a cube that is how big on each edge?

48. 1 L is also equal to...

49. Because 1 L is defined as  $1000 \text{ cm}^3$ , \_\_\_\_\_ and \_\_\_\_\_ are the same volume.

50. Why are accurate volume-measuring devices calibrated at a given temperature?

51. When you hold an ice cube, why does it feel cold?

52. On the Celsius scale, the boiling point of water is \_\_\_\_\_ and the freezing point of water is \_\_\_\_\_.

53. What is NOT used on the Kelvin scale?

54. What are the name and abbreviation of the SI unit for energy?

### 3.3

55. Whenever two measurements are equivalent, a ratio of the two measurements will equal...

56. In a conversion factor, the measurement in the numerator is \_\_\_\_\_ to the measurement in the denominator.

57. Write the two conversion factors for the relationship  $1000 \text{ g} = 1 \text{ kg}$ .

58. What is dimensional analysis?

59. When converting between units, it is often necessary to do what?