Name

4. Explain the functions of unique plant structures including the cell wall, chloroplasts, and critical parts of the flower and seed

3. Explain how the cell membrane controls movement of substances both into and out of the cell and within the cell

2. Describe the biological criteria that needs to be met in order for an organism to be considered alive

1. Explain why all scientific knowledge is subject to change as new evidence becomes available to the scientific community

8. Calculate the mean of a set of values. (5, 13, 27, 1, 23, 11, 9, 10)

7. Explain how the cell membrane controls movement of substances both into and out of the cell and within the cell

6. Distinguish between viruses and bacteria, and give examples of each

5. Explain the interaction between pigments, adsorption of light, and reflection of light

12. Explain how the cell membrane maintains homeostasis

11. Analyze the similarities and differences among (a) plant verses animal cells and (b) eukaryotic verses prokaryotic cells

10. Explain the difference between organic and inorganic compounds

9. Identify subatomic particles, and describe how they are arranged in atoms

16. Compare the types of bonding between atoms to form molecules.

15. Define and explain the unique properties of water that are essential to living things.

14. Define and provide an example of the following: genotype, phenotype, dominant allele, recessive allele, dominant alleles, homozygous, heterozygous, and carrier

13. Construct and interpret Punnett squares and pedigree charts (e.g., calculate and predict phenotypic and genotypic ratios and probabilities). Parents are tall (heterozygous) and short.

20. Describe and Contrast these types of cell transport: osmosis, diffusion, facilitated diffusion, and active transport

19. List the 8 levels in the hierarchy of taxa.

18. Explain the fundamental principles of the pH scale and the consequences of having the different concentrations of hydrogen and hydroxide ions

17. Define and provide examples of each level or organization (organism, organ system, organ, tissue, cell, organelle, molecule, atom, subatomic particle)

24. Describe the basic process of meiosis

23. Describe the basic structure and function of DNA, mRNA, tRNA, amino acids, and proteins

22. Contrast the structure and function of subcellular components of motility (e.g., cilia, flagella)

21. Describe the general structure and function(s), including common functional groups, of monosaccharaides, disaccharides, polysaccharides, carbohydrates, fatty acids, glycerol, glycerides, lipids, amino acids, dipeptides, polypeptides, proteins, and nucleic acids

28. Explain why men are more likely to get colorblindness, baldness, or other sex linked traits.

27. Transcribe this sequence

A T C A A G G C A

26. Describe the experiments of major scientists in determining the structure of DNA

25. Explain how photosynthetic organisms use the processes of photosynthesis and respiration

32. Explain the binomial nomenclature system

31. What is the difference between ancestral and derived traits?

30. Describe the light-dependent and the light-independent reactions of photosynthesis

29. What is trisomy 21 (downs syndrome) and how is it caused?

36. Explain the biological definition of evolution.

35. In photosynthesis, how do the products of the light-dependent reaction relate to the products of the light-independent reactions?

34. Construct a dichotomous key for the following objects: a tennis ball, a soccer ball, and a football

33. What are the functions of xylem and phloem?

40. What are the steps of the scientific method?

39. How does ATP store energy? (Hint: What is the difference between ADP and ATP?)

38. Describe the process of how proteins are made. (Start with DNA and finish with amino acids being strung together).

37. What was Mendel’s law of independent assortment?

44. What is the difference between primary and secondary succession?

43. What is natural selection?

42. Compare Darwin’s theories to Lamarck’s theories.

41. Draw a cladogram for the following organisms: a mini pony, a horse, and a unicorn.

48. What is the difference between a food chain and food web?

47. What 5 responses that allow species to adapt to their environment?

46. What is antibiotic resistance? What causes it and how can you prevent it?

45. What are the major systems and organs of the human body?