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| **DATE TAUGHT** | **STANDARD** |
|  | **Science as Inquiry The Abilities Necessary to Do Scientific Inquiry** |
|  | 1. Write a testable question or hypothesis when given a topic (SI-H-A1) |
|  | 2. Describe how investigations can be observation, description, literature survey, classification, or experimentation (SI-H-A2) |
|  | 3. Plan and record step-by-step procedures for a valid investigation, select equipment and materials, and identify variables and controls (SI-H-A2) |
|  | 4. Conduct an investigation that includes multiple trials and record, organize, and display data appropriately (SI-H-A2) |
|  | 5. Utilize mathematics, organizational tools, and graphing skills to solve problems (SIH-A3) 6. Use technology when appropriate to enhance laboratory investigations and presentations of findings (SI-H-A3) |
|  | 7. Choose appropriate models to explain scientific knowledge or experimental results (e.g., objects, mathematical relationships, plans, schemes, examples, role-playing, computer simulations) (SI-H-A4) |
|  | 8. Give an example of how new scientific data can cause an existing scientific explanation to be supported, revised, or rejected (SI-H-A5) |
|  | 9. Write and defend a conclusion based on logical analysis of experimental data (SI-HA6) (SI-H-A2) |
|  | 10. Given a description of an experiment, identify appropriate safety measures (SI-H-A7) |
|  | **Understanding Scientific Inquiry** |
|  | 11. Evaluate selected theories based on supporting scientific evidence (SI-H-B1) |
|  | 12. Cite evidence that scientific investigations are conducted for many different reasons (SI-H-B2) |
|  | 13. Identify scientific evidence that has caused modifications in previously accepted theories (SI-H-B2) |
|  | 14. Cite examples of scientific advances and emerging technologies and how they affect society (e.g., MRI, DNA in forensics) (SI-H-B3) |
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|  | 15. Analyze the conclusion from an investigation by using data to determine its validity (SI-H-B4) |
|  | 16. Use the following rules of evidence to examine experimental results: (a) Can an expert's technique or theory be tested, has it been tested, or is it simply a subjective, conclusive approach that cannot be reasonably assessed for reliability? (SI-H-B5) (SI-H-B1) (SI-H-B4) |
|  | (b) Has the technique or theory been subjected to peer review and publication? |
|  | (c) What is the known or potential rate of error of the technique or theory when applied? |
|  | (d) Were standards and controls applied and maintained? |
|  | (e) Has the technique or theory been generally accepted in the scientific community? |
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|  | **Life Science The Cell** |
|  | 1. Compare prokaryotic and eukaryotic cells (LS-H-A1) |
|  | 2. Identify and describe structural and functional differences among organelles (LS-HA1) |
|  | 3. Investigate and describe the role of enzymes in the function of a cell (LS-H-A1) |
|  | 4. Compare active and passive cellular transport (LS-H-A2) |
|  | 5. Analyze the movement of water across a cell membrane in hypotonic, isotonic, and hypertonic solutions (LS-H-A2) |
|  | 6. Analyze a diagram of a developing zygote to determine when cell differentiation occurs (LS-H-A3) |
|  | **The Molecular Basis of Heredity** |
|  | 7. Identify the basic structure and function of nucleic acids (e.g., DNA, RNA) (LS-H-B1) |
|  | 8. Describe the relationships among DNA, genes, chromosomes, and proteins (LS-HB1) |
|  | 9. Compare mitosis and meiosis (LS-H-B2) |
|  | 10. Analyze pedigrees to identify patterns of inheritance for common genetic disorders (LS-H-B3) |
|  | 11. Calculate the probability of genotypes and phenotypes of offspring given the parental genotypes (LS-H-B3) |
|  | 12. Describe the processes used in modern biotechnology related to genetic engineering (LS-H-B4) (LS-H-B1) |
|  | 13. Identify possible positive and negative effects of advances in biotechnology (LS-HB4) (LS-H-B1) |
|  | **Biological Evolution** |
|  | 14. Analyze evidence on biological evolution, utilizing descriptions of existing investigations, computer models, and fossil records (LS-H-C1) |
|  | 15. Compare the embryological development of animals in different phyla (LS-H-C1) (LSH-A3) |
|  | 16. Explain how DNA evidence and fossil records support Darwin’s theory of evolution (LS-H-C2) |
|  | 17. Explain how factors affect gene frequency in a population over time (LS-H-C3) |
|  | 18. Classify organisms from different kingdoms at several taxonomic levels, using a dichotomous key (LS-H-C4) |
|  | 19. Compare characteristics of the major kingdoms (LS-H-C5) |
|  | 20. Analyze differences in life cycles of selected organisms in each of the kingdoms (LSH-C6) |
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|  | 21. Compare the structures, functions, and cycles of viruses to those of cells (LS-H-C7) |
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| **DATE TAUGHT** | **STANDARD** |
|  | 22. Describe the role of viruses in causing diseases and conditions (e.g., AIDS, common colds, smallpox, influenza, warts) (LS-H-C7) (LS-H-G2) |
|  | **Interdependence of Organisms** |
|  | 23. Illustrate the flow of carbon, nitrogen, and water through an ecosystem (LS-H-D1) (SE-H-A6) |
|  | 24. Analyze food webs by predicting the impact of the loss or gain of an organism (LS-HD2) |
|  | 25. Evaluate the efficiency of the flow of energy and matter through a food chain/pyramid (LS-H-D2) |
|  | 26. Analyze the dynamics of a population with and without limiting factors (LS-H-D3) |
|  | 27. Analyze positive and negative effects of human actions on ecosystems (LS-H-D4) (SE-H-A7) |
|  | **Matter, Energy, and Organization of Living Systems** |
|  | 28. Explain why ecosystems require a continuous input of energy from the Sun (LS-H-E1) |
|  | 29. Use balanced equations to analyze the relationship between photosynthesis and cellular respiration (LS-H-E1) |
|  | 30. Explain the role of adenosine triphosphate (ATP) in a cell (LS-H-E2) |
|  | 31. Compare the levels of organization in the biosphere (LS-H-E3) |
|  | **Systems and the Behavior of Organisms**) |
|  | 32. Analyze the interrelationships of organs in major systems (LS-H-F1) (LS-H-E3) |
|  | 33. Compare structure to function of organs in a variety of organisms (LS-H-F1) |
|  | 34. Explain how body systems maintain homeostasis (LS-H-F2) |
|  | 35. Explain how selected organisms respond to a variety of stimuli (LS-H-F3) |
|  | 36. Explain how behavior affects the survival of species (LS-H-F4) Personal and Community Health |
|  | 37. Explain how fitness and health maintenance can result in a longer human life span (LS-H-G1) |
|  | 38. Discuss mechanisms of disease transmission and processes of infection (LS-H-G2) (LS-H-G4) |
|  | 39. Compare the functions of the basic components of the human immune system (LSH-G3 |
|  | 40. Determine the relationship between vaccination and immunity (LS-H-G3) |
|  | 41. Describe causes, symptoms, treatments, and preventions of major communicable and non-communicable diseases (LS-H-G4) |
|  | 42. Summarize the uses of selected technological developments related to the prevention, diagnosis, and treatment of diseases or disorders (LS-H-G5) |
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