Moon Area School District Curriculum Map

Course: Science 7
Grade Level: 7
Content Area: Science
Frequency: Full-Year Course

Big Ideas

1. Describe the safe and appropriate use of tools, materials, and techniques to answer questions and solve problems.
2. Explain the parts of a system and their relationship to one another.
3. Describe the use of models as an application of scientific or technological concepts.
4. ID patterns as repeated processes or recurring elements in science and tech.
5. Explain scale as a way of relating concepts and ideas to one another by some measure.
6. ID change as a variable in describing natural and physical systems.
7. Explain and apply scientific and technological knowledge.
8. Apply process knowledge to make and interpret observations.
9. ID and use the elements of scientific inquiry to solve problems.
10. Describe the similarities and differences that characterize diverse living things.
11. Describe the cell as a basic structural and functional unit of living things.
12. Explain that every organism has specific mechanisms by which traits are passed to the next generation via genes.
13. Explain basic concepts of natural selection.
14. Explain how Evolution addresses both the unity and diversity of species, and how it's a unifying principle for the history and diversity on the planet.

Essential Questions

15. How is scientific inquiry performed, interpreted, and communicated?
16. What are the best practices, to use tools, materials, and techniques to answer scientific questions and solve scientific problems?
17. Explain the organization of organisms, and how they live, grow, respond to their environment, and reproduce?
18. How and why do organisms interact with their environment and what are the effects of these interactions?
19. How do systems, and repeated processes work, and interact with one another?
20. How can there be so many similarities among organisms yet so much diversity with biological life? Within species? Between siblings and in a family?
21. How are characteristics passed from one generation to the next?

Primary Resource(s) & Technology:
Elevate Science (Life), Inquiry-based Labs, IXL online software,
Microsoft Teams, Promethean Boards, Student Laptops/iPads

Pennsylvania and/or focus standards referenced at:
www.pdesas.org
www.education.pa.gov

Big Ideas/ EQs	Focus Standard(s)	Assessed Competencies (Key content and skills)	Timeline
3, 4, 5, 6, 7, 8, 9, 15, 16	Scientific Method 3.1.7.A 3.1.7.B 3.1.7.C 3.1.7.E 3.2.7.A 3.2.7.B 3.2.7.C	• Apply the steps of scientific inquiry • Write a clearly stated hypothesis using the "If, Then" technique • Recognize/understand safety symbols and procedures • Apply observational skills to solve scientific problems • Identify/acknowledge assumptions as wrong	Aug - Sept 3 Weeks
1, 2, 4, 9, 10, 17, 18, 19	Ecosystems/Interaction of Living Things 3.1.7.A8 4.1.7.A 4.1.7.C 4.1.7.D	• Explain an ecosystem and it interacts with biotic and abiotic factors, and how those factor interact with each other. • Explain food chains, food webs, and how energy transfers through these systems. • Interpret data based on ecosystems	Sept – Oct 3 Weeks
2, 3, 4, 5, 9, 16, 17, 18, 19	Cycles in Nature 3.1.7.A8 4.1.7.A 4.1.7.C 4.1.7.D	• Explain carbon, nitrogen, and water cycle and ecological succession. • Develop a model representing the carbon cycle. • Create a model for run-off, working to reduce the impact of scour.	Oct – Nov 3 Weeks
1, 2, 3, 4, 6, 8, 9, 10, 15, 16, 17, 18, 19	Plants 3.1.7.A1. 3.1.7.A2. 3.1.7.A4. 3.1.7.A5. 3.1.7.A6. 3.1.7.B1. 3.1.7.B2.	• Identify and explain the function of plant parts • Explain photosynthesis and the relationship to respiration • Explain the difference between vascular/nonvascular plants • Explain the various types of plant reproduction • Perform a chromatography investigation	Nov – Jan 6 Weeks

		• Explain plan tropisms and the impact of the environment of the plant has on it.	
1, 2, 3, 4, 5, 7, 8, 10, 11, 15, 16, 17, 18, 19	Microscopes/Cells 3.1.7.A1. 3.1.7.A2. 3.1.7.A4. 3.1.7.A5. 3.1.7.A6. 3.1.7.B1. 3.1.7.B2.	• How to use a compound light microscope. • Use a microscope to investigate cell organelles, mitosis, animal cells, and plant cells. • Understand and model the structure and functions of cells • Understand and model Cell division. • Explain cell transport.	Jan - March 8 Weeks
1, 2, 4, 5, 7, 9, 10, 11, 12, 13, 14, 17, 19, 20, 21	Heredity/DNA 3.1.7.A1. 3.1.7.A2. 3.1.7.A4. 3.1.7.A5. 3.1.7.A6. 3.1.7.B1. 3.1.7.B2. 3.1.7.B4 3.1.7.C1 3.1.7.C2 4.5.7.D 4.5.8.D	• Understand the interaction of genes/alleles/traits. • Understand the different types of inheritance. • Use a Karyotyping chart. • Understand/create a pedigree chart. • Understand the history/structure of DNA • Understand DNA processes for Replication and Translation	March – April 6 Weeks
1, 2, 6, 8, 9, 10, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21	Nat. Selection/Classification 3.1.7.B1 3.1.7.C1 3.1.7.C2 3.1.7.C3	• Explain how/why we use the classification system. • Use of a dichotomous key. • Understand the mechanism of Natural Selection and how it applies to Evolution	April - May 4 Weeks
1, 2, 7, 8, 10, 13, 14, 15, 16	Dissection 3.1.7.B1 3.1.7.C1 3.1.7.C2 3.1.7.C3	• Explain the systems of living organisms. • Proficient use of dissection tools. • Inquiry-based investigation of organisms. • Comparison of different levels of organisms.	May – June 3 Weeks