Dyersburg Middle School
[Science]

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Course Description:
The areas of science addressed this year will be topics from physical and life science (1st 9 weeks), life and earth science (2nd 9 weeks), earth science (3rd 9 weeks), and earth and life science (4th 9 weeks). Students will attend science for 4.5 weeks during each nine-week period. Students will conclude the 4.5 weeks science class with an exam.

Student Learning Outcomes:
Development of science and engineering practices will continue throughout the school year as students learn to be successful in cooperative science lab groups. Student progress toward mastery of the objectives from each nine weeks will be demonstrated by an exam. By the completion of the course, students will demonstrate an understanding of the sixth grade state mandated curriculum and exhibit growth toward these objectives as measured by the TCAP and benchmark test.

Textbook:
McGraw Hill

Assessments:
Lesson Quizzes/Topic Tests/ELS Snapshots/Benchmarks/Exams

Topics by Quarter:

- **Quarter 1**

6.PS3: Energy
1) Analyze the sources of energy in a system to gather evidence supporting that energy is conserved during transfers of kinetic, potential (elastic, gravitational, and chemical), and/or thermal energy.
2) Use a model to gather evidence to support changes to a system that can be caused by transfers of sound or thermal energy (i.e., conduction, convection, or radiation).
6.ETS1: Engineering Design
1) Design, evaluate, and improve a possible solution for maintaining biodiversity of ecosystems. 2) Design, construct, and test a device that either minimizes or

maximizes thermal energy transfer by combining solutions or parts of solutions to solve a problem that can be communicated and explained to others.

- **Quarter 2**

6.LS2: Ecosystems: Interactions, Energy, and Dynamics

1) Use data to evaluate and communicate the impact of environmental variables, both living and nonliving (e.g., food, water, oxygen, and other resources), on population size within a system.
2) Construct an explanation that predicts patterns of competitive, symbiotic, and predatory interactions among organisms across ecosystems.
3) Use a model to construct an explanation about the transfer of energy through a food web and energy pyramid in an ecosystem.
4) Construct an explanation that uses abiotic (e.g., precipitation, temperature, soil) and biotic (e.g., biodiversity, number of organisms) patterns in earth's terrestrial and aquatic ecosystems (e.g., tundra, taiga, deciduous forest, desert, grasslands, rainforest, marine, and freshwater) as measures of ecosystem health.
5) Analyze existing evidence about the effect of a specific invasive species on native populations in Tennessee and design a solution to mitigate its impact.

6.ETS1: Engineering Design

1) Design, evaluate, and improve a possible solution for maintaining biodiversity of ecosystems. 2) Design, construct, and test a device that either minimizes or maximizes thermal energy transfer by combining solutions or parts of solutions to solve a problem that can be communicated and explained to others.

- **Quarter 3**

6.ESS2: Earth's Systems

1) Diagram oceanic and atmospheric convection patterns in a system that flow due to uneven heating of the earth.
2) Gather evidence to justify that oceanic convection currents in a system are caused by the sun's transfer of thermal energy and differences in salinity leading to global water movement.
3) Construct an explanation for how atmospheric flow, geographic features, and ocean currents affect the climate of a region through heat transfer.
4) Develop and use a model to describe the cycling of water through Earth's systems driven by energy from the sun and the force of gravity.
5) Analyze and interpret data to determine the impact of humans and other organisms on the water cycle, landforms (e.g., rain shadow effect) and atmospheric systems.
6) Develop a model to explain the role of greenhouse gases in regulating the Earth's average surface temperature and keeping it habitable.
7) Collect data to provide evidence for how the interactions of air masses result in changes in local weather conditions and how that data can be used to predict probable local weather patterns.

- **Quarter 4**

6.ESS3: Earth and Human Activity

1) Use data to explain the consumption and sustainability of natural resources (non-renewable and renewable) and the resulting impact on Earth's system.
2) Investigate and compare existing and developing technologies that utilize renewable and alternative energy resources.
3) Obtain, evaluate, and communicate information about the impacts of human activities on the biosphere including conservation, habitat management, species endangerment, and extinction.