

K-8 Loudon County Summer Scholars Guide 2019-2020

Rising Grade ____ 7th grade Science _____

School ____ Greenback _____

Curriculum covered during the previous year that requires continued retention and repetition for students:

1. ENERGY – Students should possess an understanding of energy in objects. Energy is classified as kinetic (moving) energy and potential (stored) energy. Students should analyze the properties and compare kinetic, elastic potential, gravitational potential, electric potential, chemical and thermal energy.
2. ENERGY TRANSFORMATION- Energy can be transferred or transformed but not created or destroyed. The method of energy transfer include work, heat, and radiation.
3. KINETIC ENERGY- Students will know that kinetic energy is directly proportional to mass and velocity.
4. THERMAL ENERGY- Students can conduct an investigation by how thermal energy is transferred from one object to another through radiation, conduction, and convection.
5. OCEAN CURRENTS- Students are familiar with the unequal heating of the earth's surface. Students should develop an understanding that deep ocean currents are driven by density. Gather evidence to justify that differences in salt concentrations are leading to the global water movement.
6. CLIMATE/ HEAT TRANSFER- Students should construct an explanation on how atmospheric flow, geographic features and ocean currents affect the climate of a region through heat transfer.
7. WEATHER- Analyze and interpret data from weather conditions, weather maps, satellites, and radar to predict probable local weather patterns and conditions. Students need to be able to make weather predictions based on weather patterns and global factors influencing climate.
8. WEATHER (MASS AND PRESSURE) – Students need to explain the relationships among pressure systems, frontal boundaries, and weather conditions.
9. RENEWABLE AND NONRENEWABLE RESOURCES- Renewable resources will be replenished during a human lifetime. Nonrenewable resources will not be replenished during a human's lifetime.
10. ALTERNATIVE ENERGY SOURCES- Students need to be able to recognize that energy efficiency can be measured in alternative energy sources. Efficiency will depend on location and environmental factors.

Curriculum for the upcoming school year of which students should be aware, and areas that might be a challenge for students, with suggestions on how students can prepare for the upcoming year:

1. LIFE SCIENCE- Preparations include understanding of the vocabulary associated with the standards.
 - a. Students should be able to consider the transfer of energy among producers, consumers, and decomposers.
 - b. Energy transferred in ecosystems is continually cycled through the ecosystem.
 - c. Ecosystems are classified using climate data, biotic, and abiotic factors. These factors include temperature and patterns of global ocean and wind currents, along with the temperature of air. Climate dictates the type of abiotic factors present in an ecosystem.
2. ENGINEERING DESIGN- Preparations should include practice using the engineering design process.
 - a. Evaluate design constraints on solutions for maintaining ecosystems and biodiversity.

Design and test different solutions that impact energy transfer

Suggested Summer Reading:

Chapter books on grade level and informational text on grade level

Suggested Activities/Practice Assignments

Chemical Potential Energy, Scavengers, Meteorological Data, Protocol, Climate Change, Cause and Effect, Criteria, Variable, Electrical Conductor, Conductivity, Independent Variable, Dependent Variable, Ocean Current, Technology, Asteroid, Bias, Biome, Prototype, Biotic, Control, Biosphere.