

Fayette R-III

CMS- Curriculum Guide for 7th Grade Science

Fayette R-III Mission: To educate all students to be ethical, successful citizens.

The 7th grade Science Learning Goals are based on the Missouri Learning Standards. The Missouri Learning Standards define the knowledge and skills students need to succeed in college, other postsecondary training and careers. This document is designed to make clear what each child should know and be able to do by the end of 7th grade science.

Course Description: Seventh grade science consists of 3 basic units of study: **Matter and Energy:**

Students learn about magnetism, electricity, heat and energy transformation and wave properties.

Space: Students learn about celestial bodies in our solar system and how they move in predictable patterns based on their interactions. **Force and Motion:** Students learn about changes in motion by forces and recognize the impact of work done with or without simple machines.

Students will be given opportunities to use scientific measurement and experimental design skills to answer testable questions. Technology is used as a tool throughout the units to support learning and to give evidence of learning. Students will develop skills in scientific literacy, by asking questions, reading relevant research, testing ideas through prediction and experimentation, observing and analyzing data, synthesizing current results with the work of past scientists and communicating findings and further refining ideas. They will be expected to conduct investigations that involve systematic observations, carefully collected and relevant data, and develop logical conclusions.

Course Rationale: The Science Department of the Fayette School District believes that science is a diverse subject that encompasses many fields of investigation and interests. The primary goals of Fayette science courses are to equip students with an understanding of scientific concepts and principles, to develop students' critical thinking and problem solving skills in a variety of contexts, and to foster students' clear communication of their knowledge with others. We recognize that it is important to teach students methods of using current technology and outside resources to research information and help them make informed decisions for the purpose of better participation in the world around them. To accomplish these goals, students will participate in a variety of instructional activities and will develop information gathering, reading, writing, comprehension, and problem-solving skills both as individuals and as group members.

7 th Grade Science Student Learning Goals	Standard Alignment
1. Students will be able to evaluate the principles of scientific inquiry and utilize scientific measurement and design to conduct experiments.	6-8 ETS.1, 6-8 ETS.3
2. Students will be able to explain and demonstrate how energy is transferred to or from an object as it moves.	PS3.A.2, PS3.B.1
3. Students will interpret data that describes how kinetic energy and mass affects the speed of an object.	PS3.A.1
4. Students will apply scientific principles to design, construct, and test a device that either minimizes or maximizes thermal energy transfer.	PS3.A.3, PS3.A.4
5. Students will use mathematical representations to describe a simple model for waves that includes how the amplitude is related to the energy in a wave.	PS4.A.1

6. Students will use a model to describe reflection, absorption, and transmittal of waves through various materials.	PS4.A.2
7. Students will plan and conduct investigations to provide evidence that the change in an object's motion depends on the mass of the object and sum of the forces on the object.	PS2.A.1, PS2.A.2
8. Students will analyze diagrams and experimental data to determine the factors that affect the strength of electric and magnetic forces.	PS2.B.1, PS2.B.3
9. Students will develop and use a model of the Earth-sun-moon system to explain cyclic patterns of lunar phases, eclipses, and seasons of Earth across a year.	ESS1.A.1, ESS1.A.2
10. Students will use models and data to describe the role of gravity in the motions within the solar system and to support the claim that gravitational interactions depend on the mass of interacting objects.	ESS1.A.3, PS2.B.2
11. Students will analyze and interpret data to determine scale properties of objects in the solar system.	ESS1.B.1

Resources:

Textbook –Prentice Hall- Science Explorer, Nitty Gritty Science Interactive Notebook

Board approved: April 16, 2018