SPRING GROVE AREA SCHOOL DISTRICT

PLANNED COURSE OVERVIEW

Course Title: Science	**Length of Course:** Full Year
Grade Level(s): 6	**Periods Per Cycle:** 6
Units of Credit: NA	**Length of Period:** 30 Minutes
Classification: Required	**Total Instructional Time:** 90 Hours

Course Description

This course provides students with a foundation of skills in Life, Earth, Physical Science, Environmental Literacy and Sustainability, and Engineering and Technology.

Instructional Strategies, Learning Practices, Activities, and Experiences

Anchor Charts	Interaction Sequence	Reports and Speeches
Anticipatory Sets	Internet Research	Research
Bell Ringers	Journals	Small Group Interventions
Class Discussions	Paper and Pencil Activities	Teacher Demonstrations
Closure	Posted Objectives	Teacher Made Tests
Critical Thinking	Practice Exercises	Technology Integration
Graphic Organizers	Presentations	Videos/DVDs
Guided Reading	PSSA Released Materials	Wait Time
Higher Level Questioning	Question-Answer Relationships	Wait Time Extended
Homework	Quizzes	

Assessments

Homework	Projects	Teacher Made Tests and Quizzes
Oral Projects	Reports	PSSA Practice Materials
Presentations	Teacher Observations	PSSA Item Samplers

Materials/Resources

Guest Speakers	CK Science 6	SAS (Standards Aligned System)
Internet	Leveled Readers	Supplemental Readings
CK-12 Online Textbook	Resource Books	Videos/DVDs

Adopted: 9/21/88

Revised: 8/15/90, 9/3/91, 11/18/98, 11/15/01, 8/20/07, 5/19/14, 5/22/23

Physical Science	
CONTENT/KEY CONCEPTS	**OBJECTIVES/STANDARDS**
Structure and Properties of Matter **Forces and Interactions** **Relationship Between Energy and Forces**	3.2.6-8.A Develop models to describe the atomic composition of simple molecules and extended structures. 3.2.6-8.B Develop a model that predicts and describes changes in the particle motion, temperature and state of a pure substance when thermal energy is added or removed. 3.2.6-8.G Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects. 3.2.6-8.H Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object and the mass of the object. 3.2.6-8.I Ask questions about data to determine the factors that affect the strength of electric and magnetic forces. 3.2.6-8.J Construct and present arguments using evidence to support the claim that gravitational interactions are attractive and depend on the masses of interacting objects. 3.2.6-8.K Conduct an investigation and evaluate the experimental design to provide evidence that fields exist between objects exerting forces on each other even though the objects are not in contact. 3.2.6-8.P Develop a model to describe that when the arrangement of objects interacting at a distance changes, different amounts of potential energy are stored in the system.

Environmental Literacy and Sustainability	
CONTENT/KEY CONCEPTS	**OBJECTIVES/STANDARDS**
Structure, Function, and Information Processing **Matter and Energy in Organisms and Ecosystems** **Growth, Development, and Reproduction of Organisms** **Agricultural Systems**	3.1.6-8.F Construct a scientific explanation based on evidence for the role of photosynthesis in the cycling of matter and flow of energy into and out of organisms. 3.1.6-8.D Arguments based on empirical evidence and scientific reasoning to support an explanation for how characteristic animal behaviors and specialized plant structures affect the probability of successful reproduction of animals and plants, respectively. 3.3.6-8L Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects. 3.3.6-8.M Apply scientific principles to design a method for monitoring and minimizing human impact on the environment. 3.4.6-8.A Develop a model to describe how agricultural and food systems function, including the sustainable use of natural resources and the production, processing, and management of food, fiber, and energy.

Environmental Literacy Skills	
CONTENT/KEY CONCEPTS	**OBJECTIVES/STANDARDS**
Environmental Experiences	3.4.6-8.E Collect, analyze, and interpret environmental data to describe a local environment.
Evaluating Solutions	3.4.6-8.F Obtain and communicate information on how integrated pest management could improve indoor and outdoor environments.

3.5 Engineering and Design	
CONTENT/KEY CONCEPTS	**OBJECTIVES/STANDARDS**
Design Thinking in Technology and Engineering Education **Applying, Maintaining, Assessing and Evaluating Technological Products and Systems** **Integration of Knowledge, Technologies, and Practices**	3.5.6-8.W Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions. 3.1.6-8.U Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. 3.5.6-8.O Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success. 3.5.6-8.W Develop a model to generate data for iterative testing and modification of a proposed object, tool, or process such that an optimal design can be achieved.