SPRING GROVE AREA SCHOOL DISTRICT

PLANNED COURSE OVERVIEW

Course Title: Innovation Workshop 7	**Length of Course:** ½ marking period (22 days)
Grade Level(s): 7	**Periods Per Cycle:** 6
Units of Credit: 0.125	**Length of Period:** 47 minutes
Classification: Required	**Total Instructional Time:** 17 hours

Course Description

Innovation Workshop 7 is an introduction to activities that will challenge the students to utilize problem-solving skills and design thinking in an inquiry-focused setting. Students will have the opportunity to explore topics that will support the curriculum in their core classes and raise their awareness regarding future academic and career pursuits. Students will ask questions, conduct research, refine questions based on research, and develop new questions that are relevant to understanding problems, global issues, or challenges. The teacher will facilitate learning activities that allow the students to refine their critical thinking skills by applying scientific investigation and the engineering design process.

Instructional Strategies, Learning Practices, Activities, and Experiences

Critical Thinking	Building	Class Discussion
Problem Solving	Testing and Redesigning	Flexible Groups
Researching	Bell Ringers	Teacher Demonstration
Planning and Prototyping		

Assessments

Unit Projects	Reflective Writing	Online Discussion Posts
Design/Project Rubrics	Observation	

Materials/Resources

Spheros	Online resources/journals	Measurement tools
Makerspace Equipment and Supplies		

Adopted: 5/20/2019
Revised:

Design Process	
CONTENT/KEY CONCEPTS	**OBJECTIVES/STANDARDS**
Design Thinking Process • Define Problem • Research • Brainstorm • Prototype • Test • Modify and Retest	**3.4.7.C1** – Describe how design, as a creative planning process, leads to useful products and systems. **3.4.7.C2** – Explain how modeling, testing, evaluating, and modifying are used to transform ideas into practical solutions.

Structures	
CONTENT/KEY CONCEPTS	**OBJECTIVES/STANDARDS**
• Shape • Form and Function • Strength • Characteristics of Materials • Design Process	**3.4.7.C2** – Explain how modeling, testing, evaluating, and modifying are used to transform ideas into practical solutions. **3.4.8.C3** – Analyze how a multi-disciplinary approach to problem-solving will yield greater results. **3.4.7.D1** – Identify and collect information about everyday problems that can be solved by technology and generate ideas and requirements for solving a problem. **13.1.8.B** – Relate careers to personal interests, abilities, and aptitudes. **13.1.8.C** – Explain how both traditional and nontraditional careers offer or hinder career opportunities. **13.1.8.F** – Analyze the relationship of school subjects, extracurricular activities, and community experiences to career preparation. **13.3.8.E** – Identify and apply time management strategies as they relate to both personal and work situations.

Transportation	
CONTENT/KEY CONCEPTS	**OBJECTIVES/STANDARDS**
• Simple machines • Friction • Force • Efficiency • Energy	**3.4.7.C2 –** Explain how modeling, testing, evaluating, and modifying are used to transform ideas into practical solutions. **3.4.8.C3 –** Analyze how a multi-disciplinary approach to problem-solving will yield greater results. **3.4.7.D1 –** Identify and collect information about everyday problems that can be solved by technology and generate ideas and requirements for solving a problem. **13.1.8.B –** Relate careers to personal interests, abilities, and aptitudes. **13.1.8.C –** Explain how both traditional and nontraditional careers offer or hinder career opportunities. **13.1.8.F –** Analyze the relationship of school subjects, extracurricular activities, and community experiences to career preparation. **13.3.8.E –** Identify and apply time management strategies as they relate to both personal and work situations.

Robotics	
CONTENT/KEY CONCEPTS	**OBJECTIVES/STANDARDS**
• Command • Variable • Loop • Condition • Debug • Sequence	**3.4.7.C2** – Explain how modeling, testing, evaluating, and modifying are used to transform ideas into practical solutions. **13.1.8.B** – Relate careers to personal interests, abilities, and aptitudes. **1B.AP.10** – Create programs that include sequences, events, loops, and conditionals. **2.AP.14** – Create procedures with parameters to organize code and make it easier to reuse.