Blackhawk School District

CURRICULUM

Course Title:	**Technology Education**
Grade Level(s):	**7th**
Periods Per Week:	**5**
Length of Course:	**7 weeks**
Credits:	**N/A**
Faculty Author(s):	**Matthew J. Foley**
Date:	**MAY 2017**

COURSE DESCRIPTION: This course is a science, technology, engineering and math *(STEM)* driven course. Seventh grade students will explore aerospace engineering, history of flight, theory of flight, various propulsion systems relating to flight, and a specific focus on measurement, during the seven week related arts cycle. Each student will design, produce and evaluate several projects of varied difficulty. Components of transportation technology, communication technology, energy and power technology, bio-related technology, construction technology and medical technology may also be incorporated. Students will also utilize creative problem solving methods and engineering practices, coupled with state of the art manufacturing processes and software applications to develop prototypes of solutions to various design challenges.

COURSE OUTLINE	OBJECTIVES (PA standard)	PROPOSED TIME / ACTUAL TIME	RESOURCES	LESSON REFLECTION (for future revisions)
1. Course overview A. Goals B. Room Orientation	**3.4.7.A1** Explain how technology is closely linked to creativity, which has resulted in innovation and invention	1pd	Course Syllabus Physical Lab tour.	
2. Measurement pretest	**3.4.7.C1** Describe how design as a creative planning process leads to useful products and systems	1pd	Instructor produced test	
3. Intro to the history of flight. A. Montgolfier Bros B. Sir George Cayley C. Wright Bros	**3.4.7.B4** Explain how many inventions and innovations have evolved by using deliberate and methodical processes of tests and refinements.	2pd	Instructor led demonstrations and discussion. Promethean lesson.	
4. Intro to the theory of flight A. Bernoulli's principle B. Newton's laws pertaining to flight	**3.4.7.C1** Describe how troubleshooting as a problem solving method may identify a cause of a malfunction in a technological system.	2pd	Promethean lesson on airfoils and the forces acting on an aircraft. Video on flight control surfaces.	
5. Intro to balsa airplane activity	**3.4.7.C1** Describe how design as a creative planning process leads to useful products and systems	1pd	Instructor led lesson showing all the materials, machines and processes involved in making the items.	
6. Construct Balsa airplane.	**3.4.7.C2** Explain how modeling, testing, evaluating and modifying are used to transform ideas into practical solutions.	6pd	Tools, materials, instructor help in modeling the techniques. Instructor produced guides and plans.	

7. Intro to Foam glider project 8. Construct Foam glider 9. Discuss aviation aerospace careers 10. Measurement 11. Measurement post test	**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. **3.4.7.A3** Explain how knowledge gained from other fields of study has a direct effect on the development of technological products and systems. **3.4.7.C1** Describe how design as a creative planning process leads to useful products and systems	3pd 10pd 2pd 5pd 1pd 1pd + or – Some may need additional time	Instructor led demonstrations and discussion. Promethean lesson. Video Tools, materials, instructor help in modeling the techniques. Instructor led demonstrations and discussion. Promethean lesson Personalized one on one instruction based on pretest results LAB cleanup/reset	