

Inventions and Innovations

Pacing Guide 2012-2013

Time Frame	SOL Objective	Essential Understandings/Questions	Essential Knowledge/Skills
1 st 9 wks	043 001 026 004 026 027 043 019 020 037 007 010 039 048 038 003 011 042 050	<p>Research technological systems and there related inventions</p> <p>Demonstrate positive work ethic</p> <p>Identify the purposes and goals of the student organization.</p> <p>Demonstrate self representation skills</p> <p>Explain the importance of technology and development of society</p> <p>Describe technological inventions that that have affected society</p> <p>Research technological systems and their related inventions</p> <p>Demonstrate information technology skills</p> <p>Demonstrate an understanding of Internet use and security issues</p> <p>Produce a Presentation</p> <p>Demonstrate creativity and resourcefulness</p> <p>Demonstrate creativity and problem solving skill</p> <p>Use measuring tools</p> <p>Prepare drawings to support the Production of the invention or innovation model.</p> <p>Demonstrate safe tools and equipment</p> <p>Demonstrate teamwork skills.</p> <p>Demonstrate healthy behaviors and safety skills. Construct a model or prototype.</p>	<p><u>Terms to Know</u> Science, Technology, Invention, Innovation Interests, skills, personality, values, TSA Technology Systems</p> <p><u>Skills</u> Represent self by defining personality and interests. Understand the meaning of invention and invention. Identify and describe how inventions and Innovations have impacted society. Determine and describe technology systems. Understand work ethic. Discuss an historical perspective of various inventors, inventions, and innovations.</p> <p><u>Terms to Know</u> Internet Safety, Plagiarism, Creativity,</p> <p><u>Skills</u> Utilize computer software and internet for research and documentation. Describe how various inventions have impacted society. Utilize presentation software to report technological invention and innovation. Use computers to communicate.</p> <p><u>Terms to Know</u> Modeling, scale drawing, sketching, CAD Safety, technical drawing, mock up</p> <p><u>Skills</u> Developing sketches of invention. Using measurement for scale drawing. Complete scale drawing of historic invention. Practice safe use of tools to complete mock up. Share responsibility with a team member. Complete work in a positive and productive manner.</p> <p><u>Terms to Know</u> Design, Portfolio, Design brief, Engineering Design, Design Process</p> <p><u>Skills</u> Maintain a design portfolio.</p>
2 nd 9 wks	031 032 036 042	<p>Explain the design process</p> <p>Explain the characteristics of the design process.</p> <p>Maintain information (e.g, sketches, notes, reports) in a journal/portfolio.</p> <p>Produce a model or prototype of an innovative design</p>	<p><u>Terms to Know</u> Design, Portfolio, Design brief, Engineering Design, Design Process</p> <p><u>Skills</u> Maintain a design portfolio.</p>

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3 rd 9 wks	016	Demonstrate job-specific mathematic skills.	<p><u>Terms to Know</u> Testing, analyzing, prototype, energy, problem solving, critical thinking,</p> <p><u>Skills</u> Design, test and Improve prototype. Safely use tools, materials, equipment and other technology resources. Understand core concepts of technology. Understand design and other problem techniques. Apply core science and math skills. Design, Engineer and develop a prototype Use problem solving process to solve problems.</p> <p><u>Terms to Know</u> Teamwork, production, production plan, bill of materials</p> <p><u>Skills</u> Work individually and cooperatively in groups to apply design process that leads to an invention or invention. Develop higher level thinking skills. Use creativity and critical thinking skills. Use library and other research skills.</p> <p><u>Terms to Know</u> Business, profit, loss, marketing, advertising Media, Principles of Design, Manufacturing, Market research, consumers, patent, copyright</p> <p><u>Skills</u> Produce an original invention and participate in team to market it. Safely use tools, materials, equipment and other technology resources. Design a invention or invention using CAD. Develop a marketing tool using various media.</p>
	040	Evaluate a product in relation to the goal of design and potential improvement.	
	041	Design an improvement for an existing product.	
	039	Use measuring tools	
	048	Prepare drawings to support the Production of the invention or innovation model.	
	038	Demonstrate safe tools and equipment	
	042	Produce a model or prototype of an innovative design	
	033	Explain how inventions and innovations relate to the development of new products, processes, and systems.	
	055	Plan for production of an invention or an innovative product.	
	045	Illustrate best ideas for developing an invention or an innovation.	
	034	Develop designs for presenting to the class.	
	035	Participate as a organized team	
	046	Conduct market research.	
	054	Identify personnel required to operate the business or company.	
4th 9 wks	047	Develop a plan to create a model of an invention or an innovation.	
	029	Explain use of patents and copyrights.	
	056	Produce an invention or an innovative product for a class business or company.	
	038	Demonstrate safe tools and equipment	
	052	Develop advertising techniques to create interest in an invention or an innovation.	
	057	Market a product.	
058	Calculate profit or loss.		

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Notes from the First Nine Weeks	Resources for the First Nine Weeks