



# SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS CLUSTER

## LESSON 3

<b>Lesson Plan Title:</b> Design Process		<b>Instructor:</b>
<b>Suggested Total Time for Lesson (minutes):</b> 45-180 minutes (1-4 days)		
<b>Content Focus - What Will Students Learn? (Content Skill Sets)</b>		
<p>0972.ST.2461.7 Identify principles of the problem-solving process            0972.ST.2461.8 Outline the steps in the design process            0972.ST.2461.10 Analyze Solutions, identifying strengths and weaknesses            0972.ST.2461.11 Develop Details of a Solution            0972.ST.2461.12 Develop, test, and redesign prototypes            0972.ST.2461.28 Make an oral presentation            0972.ST.2461.31 Contribute to a team project            0972.ST.2461.8 Solve problems using appropriate units in engineering systems</p>		
<b>Materials and Resources- What do you need to assemble and prepare before the lesson?</b>		
<b>Materials:</b> <ul style="list-style-type: none"> <li>• Design Process ppt</li> <li>• SWP Digital Notebook or Composition Notebook</li> <li>• Decision Matrix Template or Automated Template</li> <li>• Activity 1 Paper Table Challenge</li> <li>• Paper</li> <li>• Pencil</li> <li>• Scissors</li> <li>• Book(s)</li> <li>• 20 pcs of News Paper</li> <li>• 7 ft Masking Tape</li> </ul>		<b>Resources:</b> <ul style="list-style-type: none"> <li>• Engineering design process activity for kids - paper table challenge DIY. Generation Genius. (2021, August 18). Retrieved January 15, 2022, from <a href="https://www.generationgenius.com/activities/engineering-design-process-activity-for-kids/">https://www.generationgenius.com/activities/engineering-design-process-activity-for-kids/</a></li> <li>• The engineering process: Crash course kids #12.2. YouTube. (2015, May 29). Retrieved January 15, 2022, from <a href="https://youtu.be/fxJWin195kU">https://youtu.be/fxJWin195kU</a></li> </ul>
<b>Lesson Outline: What learning activities will your students do?</b>		
<b>Time</b>	<b>Sequence/Description of Learning Activity</b>	
10-15 minutes	<b>Get Started/Explain:</b> Students will be introduced to the Design Process utilizing the Design Process ppt/The Engineering Process: Crash Course Students will be issued Activity 1 Paper Table Challenge along with the Decision Matrix Template or Automated Template	
30-150 minutes	<b>Discover/Engage/Practice:</b> Students will form groups or teacher may assign groups of 3-4 Students will work within these design teams to create a paper table that can hold a book (or other known weight) at least 6in off a surface.	
10-15 minutes	<b>Check for Understanding/Summarize/Close:</b> Students will explain the challenges of working within Teams Students will elaborate on why it is important to clearly define design constraints prior to creating a product Students will explain how they came about deciding on their designs	
<b>Modifications, Support, and Extensions (for those students with IEP)</b>		
<b>Reflection- Did the students learn the content outlined in the lesson focus? Why or why not?</b>		