

Course Title – Drafting and Design 2	
Implement start year – 2018-2019	
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Unit # 2 – Packaging and Developments	
Transfer Goal – Students will be able to independently create flat pattern developments.	
Stage 1 – Desired Results	
<p style="text-align: center;"><u>Established Goals</u></p> <p style="text-align: center;"><u>2014 New Jersey Student Learning Standards, Strand(s)/CPI #</u></p> <p>8.1 Educational Technology: All students will use digital tools to access, manage, evaluate, and synthesize information in order to solve problems individually and collaborate and to create and communicate knowledge. A. Technology Operations and Concepts: Students demonstrate a sound understanding of technology concepts, systems and operations.</p> <p>8.2 Technology Education, Engineering, Design, and Computational Thinking - Programming: All students will develop an understanding of the nature and impact of technology, engineering, technological design, computational thinking and the designed world as they relate to the individual, global society, and the environment. C. Design: The design process is a systematic approach to solving problems.</p> <ul style="list-style-type: none"> • 8.2.12.C.7 Use a design process to devise a technological product or system that addresses a global problem, provide research, identify trade-offs and constraints, and document the process through drawings that include data and materials. 	<p style="text-align: center;"><u>21st Century Themes</u> <u>(www.21stcenturyskills.org)</u></p> <p><input checked="" type="checkbox"/>_ Global Awareness <input checked="" type="checkbox"/>_ Financial, Economic, Business and Entrepreneurial Literacy <input type="checkbox"/>_ Civic Literacy <input type="checkbox"/>_ Health Literacy <input checked="" type="checkbox"/>_ Environmental Literacy</p> <hr/> <p style="text-align: center;"><u>21st Century Skills</u></p> <p><i>Learning and Innovation Skills:</i> <input checked="" type="checkbox"/>_ Creativity and Innovation <input checked="" type="checkbox"/>_ Critical Thinking and Problem Solving <input checked="" type="checkbox"/>_ Communication and Collaboration</p> <p><i>Information, Media and Technology Skills:</i> <input checked="" type="checkbox"/>_ Information Literacy <input checked="" type="checkbox"/>_ Media Literacy <input checked="" type="checkbox"/>_ ICT (Information, Communications and Technology) Literacy</p>

<p>9.1 21st-Century Life & Career Skills All students will demonstrate the creative, critical thinking, collaboration, and problem-solving skills needed to function successfully as both global citizens and workers in diverse ethnic and organizational cultures.</p> <p>9.1.12.A.1 Apply critical thinking and problem-solving strategies during structured learning experiences.</p>	<p><i>Life and Career Skills:</i></p> <ul style="list-style-type: none"> <input checked="" type="checkbox"/> Flexibility and Adaptability <input checked="" type="checkbox"/> Initiative and Self-Direction <input checked="" type="checkbox"/> Social and Cross-Cultural Skills <input checked="" type="checkbox"/> Productivity and Accountability <input checked="" type="checkbox"/> Leadership and Responsibility
<p><u>Enduring Understandings:</u> <i>Students will understand that . . .</i></p> <p><i>EU 1</i> 2D patterns form 3D objects.</p> <p><i>EU 2</i> using materials efficiently is essential for economics and environmental impacts.</p>	<p><u>Essential Questions:</u></p> <p><i>EU 1</i></p> <ul style="list-style-type: none"> • What types of packages are made from flat pattern developments? • Why are pattern developments essential in various industries? • How can a cylinder or prism be a flat pattern? <p><i>EU 2</i></p> <ul style="list-style-type: none"> • Why is money a factor when determining a package's design? • How can the designer impact the environmental footprint of a package? • What attracts people to buy certain products?
<p><u>Knowledge:</u> <i>Students will know . . .</i></p> <p><i>EU 1</i></p> <ul style="list-style-type: none"> • various pattern developments, such as: a cube, prism, and cylinder. • assembly techniques, such as: scoring, tabs, and cutting. <p><i>EU 2</i></p> <ul style="list-style-type: none"> • materials must be used efficiently in the packaging industry. • different materials are used for different applications. • materials used in packaging have a monetary cost. • various materials impact the environment differently. 	<p><u>Skills:</u> <i>Students will be able to . . .</i></p> <p><i>EU 1</i></p> <ul style="list-style-type: none"> • plan and draw a pattern development. • assemble a pattern development. <p><i>EU 2</i></p> <ul style="list-style-type: none"> • create a package within material constraints. • plan an efficient package. • estimate the cost of a given package.

<ul style="list-style-type: none"> graphics impact consumer interest. 	<ul style="list-style-type: none"> create a pro/con chart explaining the material impact on the environment. analyze and describe graphical features on a package.
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Stage 2 – Assessment Evidence

- Other Recommended Evidence:**
- Design Challenges
 - Teacher observations
 - Project rubric(s)
 - Worksheets
 - Quizzes/tests
 - Drawing Packets
 - Engineering notebook

Stage 3 – Learning Plan

Suggested Learning Activities to Include Differentiated Instruction and Interdisciplinary Connections:

- Teacher led discussion about packages (A)
- Students analyze everyday packages (A,M)
- Packaging design problem worksheet (A,M)
- Teacher led discussion about assembly techniques (A)
- Students present various assembly techniques (M,T)
- Teacher led discussion on tab size and location (A)
- Students create a variety of forms from various patterns (M,T)
- Pro/Con Chart of various materials and their effect on the environment (A,M)
- Teacher led discussion about the importance of graphics (A)
- Cost analysis of various materials (A, M)
- Create a Bill of Materials including a breakdown of costs (M,T)
- Flat pack toy (T)
- Create a package for an existing product (M, T)
- Teacher led discussions on the Engineering Design Process (A)
- Create a solution to the Design Challenge using the engineering design process (M, T)