Unit 3 - Safety and Structures

Content Area: **Arts**
Course(s): **Wood Arts Tec 1**
Time Period: **Semester 1 & 2**
Length: **3 Weeks**
Status: **Published**

Standards

PS3.C	Relationship Between Energy and Forces
1.5.2.Cr2c	Create art that represents natural and constructed environments. Identify and classify uses of everyday objects through drawings, diagrams, sculptures or other visual means including repurposing objects to make something new.
1.5.2.Re7b	Describe, compare and categorize visual artworks based on subject matter and expressive properties.
MA.K.G.B.5	Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.
8.2.2.ED.4	Identify constraints and their role in the engineering design process.
8.2.2.ITH.4	Identify how various tools reduce work and improve daily tasks.
8.2.2.NT.2	Brainstorm how to build a product, improve a designed product, fix a product that has stopped working, or solve a simple problem.

Enduring Understandings

1. Students will understand that applying the design process to create products within material limitations can lead to innovative solutions that improve sustainability and reduce cost.

2. Students will understand that machines, when used safely, can significantly reduce the effort and time required to process raw materials and build for structural strength.

3. Students will understand that natural forms and previously engineered structures serve as inspiration for design, informing the creation of structurally sound products that can withstand forces and loads.

Essential Questions

1. How does applying the design process, even with material limitations, lead to innovative, sustainable, and cost-effective product solutions?

2. How do machines, when used safely, enhance efficiency in processing raw materials and contribute to building products with superior structural strength?

3. How do natural forms and existing engineered structures inspire the design and creation of products capable of withstanding various forces and loads?

Knowledge & Skills

Safety And Structure Students Will Be Able To:

- Utilize machines safely to form and shape raw materials into a step stool.
- Identify constraints and design a product to solve a problem.
- Brainstorm and Design a product to support load.
- Analyze the impact of using natural resources to build and design.
- Create a product using wood working techniques and machines safely.
- Respond to Art and Designs with constructive feedback.

Machines:

- Miter Saw
- Radial Arm Saw
- Drill Press
- Sanders
- Band Saw
- Router

Resources

Resources:

- Chromebooks for research
- Paper for drawing and design
- Lumber
- Tools and Machines
- Fasteners - Screws, Nails, Glue, ect.
- Finish

Transfer Goals

1. Students will be able to safely design and create a product that effectively balances form and function, utilizing machines and incorporating structural shapes to support intended loads within given material constraints.

2. Students will be able to respond to works of art, critically analyzing their expressive properties and drawing connections to the design and creation processes.

Assessments

Assessments

Modifications

Modifications