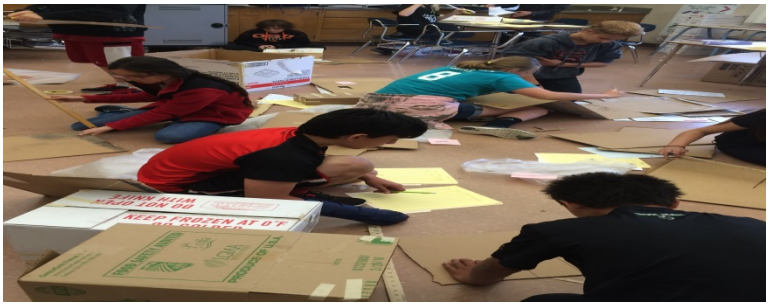
Goldilocks & the 3 Chairs

***Standards:* CCSS.MC.4.MD.A.1, CCSS.MC.7.G.A.1, CCSS.MC.7.G.B.6, MS-ETS1-1, MMS-ETS1-2, MS-ETS1-3**

SUMMARY

This unit will introduce middle grades math and science students to the engineering design process as a spiral from teacher to student directed design utilizing math and science content.



RESOURCES

Unit Overview

Lesson 1: Paper Chair

Lesson 2: Blueprint for Chair

Lesson 3: Build Your Cardboard Chair

More Resources

STANDARDS

Standards of Practice: Math: Construct viable arguments and critique the reasoning of others, model with mathematics. Use appropriate tools strategically.
Science and Engineering: Developing and using models, using mathematics and computational thinking, Designing solutions (for engineering). Obtaining, evaluating, and communicating information

Content Standards (science and math):
CCSS.MATH.CONTENT.4.MD.A.1 Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. CCSS.MATH.CONTENT.7.G.A.1 Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale. CCSS.MATH.CONTENT.7.G.B.6 Solve real-world and mathematical problems involving area, volume and surface area of 2D & 3D objects composed of triangles, quadrilaterals, polygons, cubes, and right prisms. MS-ETS1-1. Define the criteria and constraints of a design problem with sufficient precision to ensure a successful solution, taking into account relevant scientific principles and potential impacts on people and the natural environment that may limit possible solutions. MS-ETS1-2. Evaluate competing design solutions using a systematic process to determine how well they meet the criteria and constraints of the problem. MS-ETS1-3. Analyze data from tests to determine similarities and differences among several design solutions to identify the best characteristics of each that can be combined into a new solution to better meet the criteria for success.

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