

# STEM Math - Grade 8

## Packaging Design

Essential Question: How can mathematics be applied to the graphic design of a package?

Student Objective: Students will be able to create tessellations, evaluating material strength and performance; convert two-dimensional drawings to three dimensions; and designing according to specifications

Introduction: Examination of various boxes and recording dimensions in length, width, and height. Discuss the types of objects each 3-D shape (box) can hold, and build a package for an item that will fit within the materials and dimensions provided. Students will construct a telescoping box and add a tessellation design.

Science Focus: Develop abilities for technological design, design a solution or product, implement a proposed design

Technology Focus: Design process, historical perspectives, biographical data on Robert Gair (who changed the packaging industry with paper bags with merchant's names on them as well as developed a technique for mass production of cardboard boxes), troubleshooting.

Engineering Focus: Develop the abilities to apply the design process, problem solving, safety

Mathematics Focus: Apply transformations and use symmetry to analyze mathematical situations, use visualization, spatial reasoning, and geometric reasoning to solve problems. Understand measurable attributes of objects and the units, systems, and processes of measurement. Recognize and apply mathematics in contexts outside of mathematics. Cereal box project: using total volume and working backwards to find the dimensions students will use to create their box. Review tessellations