

Lesson 7 Pegboard Erector Sets I: Building a Railroad Bridge I

Objectives: Students will have the opportunity to experiment with building using a sturdy material and real-life fasteners: nuts, bolts and angle brackets.

Students will discover what makes a strong structure and that some shapes are inherently stronger than others.

Materials: For each student:

∞ Handout on truss bridges and other sturdy beam bridges made with lots of steel triangles. (*Not designed yet*)

For each group of three or four:

∞ Pegboard strips
∞ Nuts, bolts, and angle brackets

Sponge: Handout on truss bridges and other types of sturdy beam bridges that have lots of triangles.

Initial

Discussion: Ask students about the home assignment (Have you seen these types of bridges?) What kinds of bridges did they see? What other kinds of bridges did their families and friends see?

Discuss bridge handout. Discuss why train bridges often have sides made up of metal beams. (Hint: it is not to keep the train from falling off the bridge, but to make the span stronger for the heavy train.)

Project: Students build a bridge using the pegboard erector set. They will need time to experiment with how to connect the pieces. As students are working, have them explain what they are doing to make their bridges strong.

Note that these materials require more time to build with than some of the previous materials.



Vocabulary: Truss bridge – a bridge supported by a framework of beams forming a rigid structure.

Final

Discussion: Groups show projects to class. Discuss what makes the bridge strong, and what the group can do to make it stronger.

Students draw pictures of their projects in their journals.

Clean up: Save bridges for improvement the following class.