



# Build it!

Look around—much of what you see is constructed: houses, stores, libraries, schools, roads, bridges, cell towers and other structures. All of these structures were designed and engineered using STEM practices.



Children follow the same process as working engineers when they:

**Explore** building materials and ask, *What will we make? How will we do it?*

**Create** as they try out their ideas: *How can we build it? What materials do we need?*

**Improve** their designs to make them better, using different shapes, sizes and materials: *How can we make it taller? Stronger? What will happen if we...?*

**Represent** as they make simple visual plans to build structures, then draw pictures of their structures.

As children design, experiment, construct, refine and solve problems, they use STEM practices:

- Explore and compare the properties of different building materials.
- Decide what function a building will have and design and build a structure to meet that need.
- Explore different design elements to make a structure stronger and more stable.
- Build and rebuild more complicated structures using a variety of materials—experiment with size and balance.



# Building Challenges



Collect a variety of building materials: blocks, Legos®, cardboard boxes, plastic containers, cereal and shoe boxes, toilet or paper towel tubes, straws, cups, eggs cartons, bottle caps and lids—use your imagination! Take time to explore the materials and discuss all the building possibilities.

**Towering Towers:** Discuss which building materials you'll use to build your towers: *Which material will be best for the base? How tall can we build a tower? How can we keep it from falling down? How can we make it taller? What will happen if we use more than one kind of material?*

**Enclosed Structures:** Design and build a structure for an ant, a car, a giraffe. *What's the same about these structures? What's different?*

**Building Bridges:** Use paper cups or columns of blocks to create the span of your bridge. Use a flat sheet of paper for your first bridge, then test its strength with objects of equal weight. Experiment building different paper bridges: arch, pleat (make folds in) the paper, and use several sheets of paper. *What did you notice about the different bridges? Which held the most objects?*



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