

# Elementary STEM Activity 7

**Subject:** Engineering

## Topic: Bridge Building Challenge

**Grade Level:** 3-5

### Objective:

Students will design and build a bridge and test how much weight it can hold.

### Learning Outcome:

- Identify features of strong structures (support, balance, triangles).
- Work collaboratively to design and test a bridge.
- Use data from testing to improve a design.

### Materials Needed:

- Popsicle sticks
- Glue or tape
- 2 stacks of books (bridge supports)
- Small weights (coins/books)
- Ruler (optional)

### Activity Steps:

1. Show examples of bridges (beam, arch, truss) and discuss strength.
2. In groups, plan a bridge design on paper.
3. Build the bridge using popsicle sticks and glue/tape.
4. Place bridge between two stacks of books and test with small weights.
5. Record how many coins/books it holds before bending/breaking.
6. Improve the design and test again.

### Recording Table:

Test #	Design Feature	Weight Held (coins/books)
1	Original	
2	Improved	

### Discussion Questions:

- What made the bridge strong?
- Where did it start to fail?
- How did teamwork help the design?
- Why do engineers test structures?

### Extension Activity:

Challenge: Build the strongest bridge using a fixed number of sticks (e.g., 20).

### Illustration:

