

# The Billy Goats Gruff Bridge

## The Challenge

Students are challenged to design and build a bridge that will hold all three billy goats for more than 30 seconds.

## Materials

- Books
- Ruler
- Toothpicks
- Mini marshmallows
- Large marshmallows (3 per team)
- Tape
- Billy Goat cut outs
- The Three Billy Goats Gruff book

## The Criteria

- Bridges must use only the provided materials (toothpicks and mini marshmallows).
- Bridges must support all three billy goats (large marshmallows with goats taped on them) for at least 30 seconds.

## The Constraints

- Bridges must be at least 9" in length.
- Bridges will be tested by placing the bridge between two stacks of books that are placed 7" apart.
- Billy goats will be placed on the bridge one at a time. Once the last billy goat has been placed, the bridge will need to support their weight for at least 30 seconds.

## Warm Up (15 minutes)

- Introduce yourself and ask the students to introduce themselves.
- Read the book The Three Billy Goats Gruff.
- Talk about the challenge and constraints. Show the students the materials and brainstorm some ways of making bridges.
- Divide the students into group of 2 or 3 to work together.

### Main Activity (30 minutes)

- Start the students with cutting out and making their three goats taped onto big marshmallows.
- Once the goats are made, they can start building their bridges. Have a few stacks of books on the carpet where the students can test their bridges as they go.
- Encourage the model of building - testing - redesign/rebuild

### Wrap Up

- All students gather on the carpet in a circle and each group will test out their bridges.
- Conclude with which bridges worked the best and why.