

# Teaching STEM through Fairy Tales

---

## The Billy Goats Gruff

### The Challenge

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

### The Criteria

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

### The Constraints

- Bridges must be at least 9" in length.
- Student may use a maximum of 20 toothpicks and 10 gumdrops/mini-marshmallows.
- 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.

### The Materials

- |  |  |
|--|--|
| <input type="checkbox"/> Books                         | <input type="checkbox"/> Large Marshmallows (3 per team) |
| <input type="checkbox"/> Ruler (1 per team)            | <input type="checkbox"/> Tape                            |
| <input type="checkbox"/> Toothpicks                    | <input type="checkbox"/> Stopwatches                     |
| <input type="checkbox"/> Gumdrops or mini-marshmallows | <input type="checkbox"/> <a href="#">Billy Goats</a>     |

Think of Ideas: How do we solve the problem?



Find a Solution:  
Which idea will work best?

Design:  
How will we design and build it?

Test and Evaluate: How do we know we solved the problem? What can be improved?

*Share your Success!*