

**Title of Book: Twenty-One Elephants**

**Author: Phil Bildner**

**Publisher/Year: Simon & Schuster Children's Publishing/ October 2004**

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**Grade Levels for Recommended Use: Third Grade**

**TEKS: Science, Grade 3.**

Force, motion, and energy.

(6) (A) The student knows that forces cause change and that energy exists in many forms. The student is expected to: explore different forms of energy, including mechanical, light, sound, and thermal in everyday life.

**Brief Summary:**

Hannah witnessed the completion of Brooklyn Bridge, the world's first steel suspension bridge. She believed that she would be able to walk across it to the bigger city. However, Hannah's family, teachers and people from the town casted their doubts and believed the bridge was certain to collapse. Finally, Hannah convinced everyone that the bridge was safe and strong by letting twenty-one elephants cross it.

**Materials needed:**

- (1) 4 pieces of construction paper/ each student
- (2) 1 Printed map of New York and Brooklyn/ each student
- (3) 2cups/ each student
- (4) Several candies

**Suggested Activity:**

During the story, the teacher can discuss with students about what factors that make a bridge strong. After reading the story, the teacher can bring up some general ideas and discussions about force.

Students will receive all the materials for building a bridge. The printed maps of New York and Brooklyn controls the variation of distance. Thus, students can focus on building a stable bridge. They can build a strong bridge either by using more layers of construction paper, or by folding the paper into different shapes.

At the end of the lesson, the teacher can demonstrate how to build the strongest bridge. When we fold the paper into the wavy looking style (like a fan), the bridge can bear more weight than the flat paper because of the method of force triangle.

**References:**

Youtube Video: 21 Elephants

<https://www.youtube.com/watch?v=OcMCUd7zQOY>

**Adapted by: TzuYing Tang (2019)**