

Name:

Date:

Class:

Straw Tower Mini-Activities 1 & 2 Worksheet (GrK-5)

Answer Key

Mini-Activity 1: *One-Straw Tall Tower*

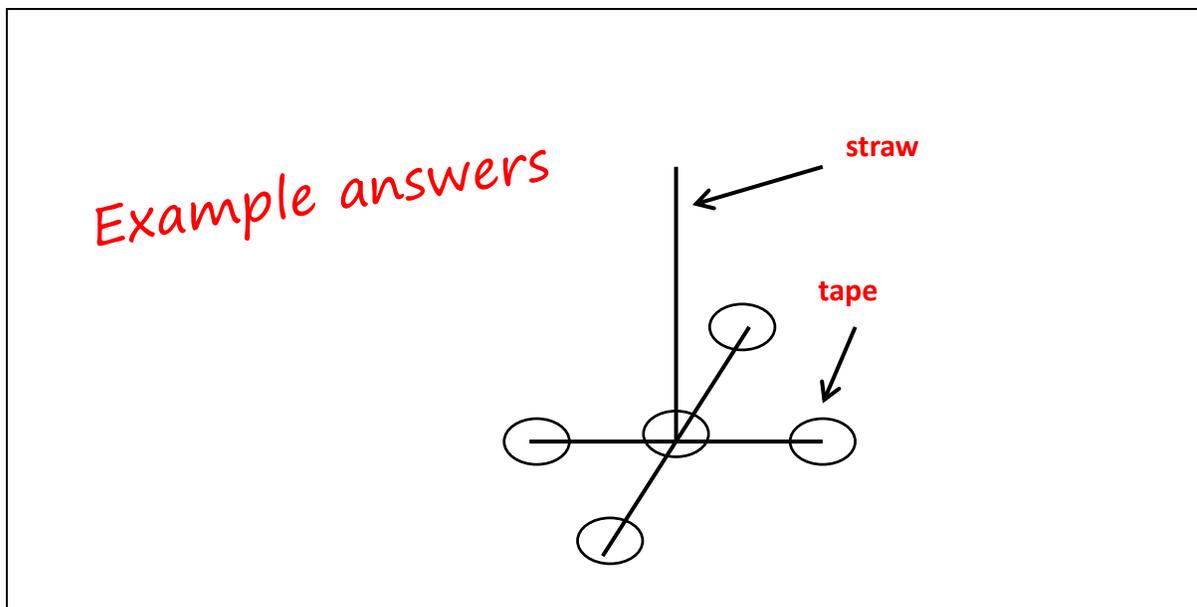
Your design challenge: Following the steps of the engineering design process, figure out the best way to keep one straw held up tall using the fewest number of straws and no more than 5 cm of tape.

1. **Ask:**

Example answer. How do we design and build a one-straw tower within the constraints of 5 cm of tape and the fewest number of plastic drinking straws?

2. **Research the problem:** Compare and contrast feature you see in tall and short towers.
3. **Imagine:** Draw your design solution for how you would keep one straw up by using the fewest amount of additional straws and no more than 5 cm of tape. Label the materials used.

For this design, how many additional straws do you need? 2



4. **Plan:** Are you selecting your design solution or your partner's design solution (or a combination)?

Example answer. We are selecting my plan to build.

5. **Create:** Build your tower.

6. **Test and evaluate:** How did your group's design compare to your classmates' designs?

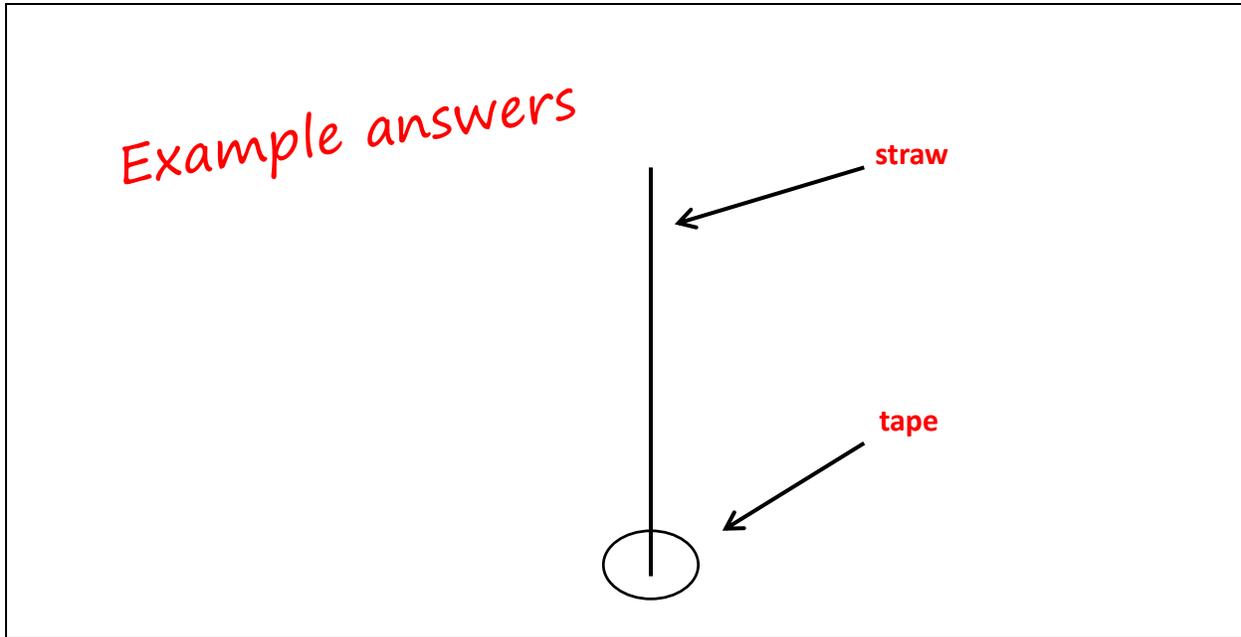
Example answer. Some group designs were the same as our design, while other groups only used one extra straw to keep up the straw tower. A few groups only used the tape as support.

Name:

Date:

Class:

7. **Improve:** After seeing what your classmates have created, draw a new and improved design.
Label the materials used in your design.



8. **Now construct your revised design.** 😊

Mini-Activity 2: *No "Fishing Pole"*

Your design challenge: Make the longest straw pole possible without it becoming like a "fishing pole," where the straw bends at about 45 degrees.

1. Number of straws to make a straw pole before it creates a "fishing pole": 12
2. Why does the straw pole become a "fishing pole" when you add more straws?

Example answer: The straw pole becomes a "fishing pole" when more straws are added because the center of mass is farther away from the base so it has less support and topples over more easily.

3. How can you make a taller straw pole without it bending like a "fishing pole"?

Example answer: You can make a taller straw pole without it becoming a "fishing pole" by adding a wider base and having more support.