

Toilet Paper Test

Celebrate National Toilet Paper Day by taking the TP rope challenge and discovering how strong your toilet paper really is!

Materials:

- 1 roll of toilet paper
- 3 oz. paper cup
- Small piece of string
- Lots of small weights such as pennies or washers

The Challenge

Create a toilet paper rope with high tensile strength!

Make it strong!

Tensile strength refers to how much tension it takes for a material to break. Toilet paper isn't known for being super strong, so you will have to brainstorm ways to make it stronger. Make a few different types of ropes, at least 12 inches long.

For example:

- Layer sections of toilet paper until you have a thick stack.
- Braid the toilet paper using three, four, or five strands.
- Twist the paper in different ways to make it stronger.

Test it!

1. Punch two holes near the top of the cup.
2. Loop the string through both holes of the cup, and then tie the two loose ends together.
3. Test your ropes one at a time by threading the toilet paper rope through the loop of the string. Hold the toilet paper rope by both ends, allowing the cup to dangle below.
4. Slowly add weights to the cup until the toilet paper rope breaks. Which rope held the most weight before breaking?

Take it further!

Head to the store and look for a toilet paper that is different than the one you already tested. Buy a roll or two and try the experiment again. You could compare store-brand rolls and name-brand rolls, ultra-strong versus quilted, or 1-ply versus 2-ply. Compare your results to see which toilet paper is the strongest.