



# Paper Chain Challenge

What is the longest chain you can make from one sheet of paper? Challenge your math skills with this paper chain challenge!

## TEKS:

MATH 3.7: Geometry and measurement. The student applies mathematical process standards to select appropriate units, strategies, and tools to solve problems involving customary and metric measurement.

MATH 5.1 A: The student is expected to apply mathematics to problems arising in everyday life, society, and the workplace.

MATH 5.1 B: The student is expected to use a problem-solving model that incorporates analyzing given information, formulating a plan or strategy, determining a solution, justifying the solution, and evaluating the problem-solving process and the reasonableness of the solution.

MATH 5.1 C: The student is expected to select tools, including real objects, manipulatives, paper and pencil, and technology as appropriate, and techniques, including mental math, estimation, and number sense as appropriate, to solve problems.

## Materials:

- Paper
- Pencil or pen
- Scissors
- Stapler or tape

## How To:

Your challenge is to make the longest paper chain possible from a single sheet of paper. Seems simple, right? In fact, there are even instructions for how to make a paper chain below! However, there are many variables for you to consider:

- How long should you cut each piece of paper?
- How wide should each piece of paper be?
- Is a rectangle the best shape for these pieces of paper?
- What is the best technique to build the circles in the paper chain?

**31 Days of STEM FUN!**

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Grab a piece of paper, scissors, and a stapler or tape, and challenge a friend or family member to see who can make the longest paper chain!

How to make a paper chain:

1. Cut a rectangular strip of paper.
2. Turn this strip of paper into a loop and secure it with a stapler or tape.
3. Cut a second strip of paper that is approximately the same size as the first.
4. Place this strip of paper through your first loop, turn it into a loop, and secure it with a stapler or tape.
5. Repeat this process for additional strips of paper!

## STEM Explanation:

The Longest Paper Chain Challenge required you to use critical thinking, engineering, and math skills! How did you decide where to begin cutting your single sheet of paper to make the longest paper chain? You may have found that planning ahead was essential, or that you had to make adjustments as you constructed your paper chain. If you built a second paper chain, you probably were able to make it even longer than the first! All of this is part of the engineering design process, which engineers use to solve all different types of problems. The engineering design process has the following steps:

1. Define: What problem are you trying to solve? What are you trying to accomplish?
2. Brainstorm: Write down and share every idea that you have. There are no wrong answers and lots of possible solutions! Think about the materials you have and the different ways you can use them to solve the problem.
3. Prototype: Create and build your design. If you are on a team, make sure everyone gets the chance to participate.
4. Test: Experiment with and evaluate your prototype. Does your prototype solve the problem?
5. Redesign: Think of ways to improve your prototype. Redesign as needed.
6. Share: Share your solution!

## Career Connection:

*Engineers* design and develop many different ideas that help solve everyday problems. They use advanced math skills to help them design types of machines, bridges, electronics and much more. There are several different types of engineers that specialize in certain areas such as electrical engineers, mechanical engineers, structural engineers, robotic engineers, etc.

## Resources:

<https://frugalfun4boys.com/stem-paper-chain-contest/>

<https://littlebinsforlittlehands.com/paper-chain-stem-challenge/>

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