

# Mechanical Engineering

People have been playing games for thousands of years. Some are active, like hide-and-seek and soccer. Others, such as tic-tac-toe and Monopoly, are board games. Anyone can use their imagination and what they have on hand to make a game, just like an engineer. Engineers create things that solve problems. They use simple steps to come up with ideas and then make samples, test them out, and improve their ideas. You'll use the same steps to create your own board game.

## Materials:

- Internet
- Cardboard or paper for board game
- Decorations (random art supplies, crayons, markers, etc.) to decorate board
- Pen and paper to plan game

## Steps:

1. Come up with an idea for your board game
2. Design a spinner for your game
3. Test your game and make it better

## Purpose

When I've earned this badge, I will know how to create my own board game and understand what inventors and engineers do.

## Board Games in History

- Senet, a game from ancient Egypt, is the oldest known board game. It's been found in tombs from 3500 to 3100 BCE!
- Mancala most likely started in Egypt and Eritrea between 500 and 700 CE. It was soon played by people across Africa and the Middle East.
- Backgammon comes from ancient Persia and Mesopotamia (or present-day Iran and Iraq).
- Most people think chess started in India before the 7th century.

Have your parent help you navigate this [website](#) to hear about some more of the oldest board games we know about. Have you played any of these games? Would you try some of the other games from this website?

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## Women-designed games

- Monopoly (originally Landlord's Game and reworked by a man and called Monopoly)
- Qwirkle
- Sleeping Queens
- Jenga

## Words to Know

- **Inventors** – people who think of and build new products.
- **Engineers** – people who like to know how things work. They design and build things people use every day like computers, phones, roads, bridges, and cars.
- **Brainstorming** – when people come together and think of new ideas and solutions.
- **Features** – parts of a product that are designed to make them more useful; for example, windshield wipers or automatic door locks are features of a car.
- **Force** – the strength or energy that creates movement; push and pull are examples of force.
- **Friction** – a force that slows down movement; friction happens when two surfaces move across each other.

## Step 1: Come up with an idea for your board game

What is your favorite board game? If you asked a lot of people, you'd get a lot of different answers. Board games can be about anything. Some are about solving mysteries, or being a doctor, or trying to get from one place to another. The one thing they all have in common, besides being fun, is that they started with an idea.

If you could design a board game about anything, what would it be? What is the goal? How do the players move around the board? How does someone win?

## Can you be an inventor?

- Watch Kid President visit some engineers to learn how to invent in this [video](#). You can invent anything you want, even a boardgame!

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## Step 2: Design a spinner for your game

In most games, players take turns. Sometimes they roll dice, sometimes they pick a card, and sometimes they use a spinner to find out what to do on their turn.

A spinner could have instructions other than just how many spaces to move forward—maybe you have to skip a turn, go twice, or trade places on the board with another player. As the designer, you get to decide!

Use the materials you have and your imagination to build a spinner that can twirl and point for your game.

Here is a [video](#) that may help you out.

## Step 3: Test your game and make it better

Failure is a good thing! Scientists, engineers, and inventors know that—they can learn a lot when their ideas don't work. Engineers test their inventions to find out what works and what doesn't. By thinking about how their invention failed, they can figure out how to make it better. Now that you've made your game, try it out to see how it works.

Grab a piece of paper and a pencil to draw up some changes to better your game and keep testing! Once you've created the best version, play with your family and take a picture of you with it. Share these pictures with Girl Scouts everywhere by sending them to [jsejdiu@girlscoutsindiana.org](mailto:jsejdiu@girlscoutsindiana.org).

Now that I've earned this badge, I can give service by making a new game for my friends and family to play.