

Lego Super Machines Challenge!

Become a Lego Engineer!

Welcome, Super Engineer! Today, we're going on an adventure with Lego to build amazing moving machines! We'll discover special 'tricks' called simple machines that engineers use to make things work.

What You'll Learn Today:

- What simple machines are (we'll focus on **levers** and **wheels & axles!**).
- How to use these simple machines in your awesome Lego creations.
- How to be a creative problem-solver, just like a real engineer!

Get Ready, Set, Go! (Lesson Steps)

Step 1: What are Simple Machines? (10-15 minutes)

Imagine trying to lift something really heavy, or move something far away. Simple machines help make that work easier! Let's talk about two simple machines:

- **Levers:** Think of a seesaw! A lever is a stiff bar that rests on a support (called a fulcrum) and is used to help lift or move things. Can you make a simple lever with a few Lego bricks? Try using a long brick and a small brick as a fulcrum. Can it lift another small brick?
- **Wheels and Axles:** Cars have them, wagons have them! A wheel and axle is a wheel with a rod (axle) through its center that helps things roll or turn. Can you find Lego pieces to make a wheel and axle?

Look around you. Can you spot anything that works like a lever or uses wheels and axles?

Step 2: Your Engineering Challenge! (10 minutes for design, 30-45 minutes for building)

Your Mission: Design and build a Lego creation that uses at least one simple machine (a lever or wheels and axles or both!) to do something cool. Maybe it's:

- A vehicle that can carry a small Lego figure.
- A machine that can launch a tiny Lego piece.
- A tool that can pick up another Lego brick.
- A fun ride for your Lego friends!

First, Sketch Your Idea! Like all great engineers, let's draw a quick plan. What will you build? What simple machine will it use? How will it work? (Use your paper and pencils/crayons for this).

Now, Build It! Time to grab those Legos and bring your design to life! Don't worry if your first idea doesn't work perfectly - that's what engineering is all about! Try different things, change your design, and have fun problem-solving.

Step 3: Lego Engineering Showcase! (10-15 minutes)

It's time to show off your amazing creation!

- Tell me all about your machine. What is its name? What does it do?
- What simple machine(s) did you use? How does it help your machine work? (Point it out!)
- What was the most fun part of building it?
- What was a tricky part, and how did you solve it?
- Can we test it out?

Super Engineer Debrief (5 minutes)

Wow, you did an incredible job today! You learned about simple machines and used your amazing creativity to build something unique with Lego. You are a true Lego Engineer!

Remember, simple machines are everywhere. Keep an eye out for them! What will you engineer next?