



Mechanical Engineering: Roller Coaster



Badge Overview

Engineer your own roller coaster and see how its design affects its speed. When you've earned this badge, you'll have learned about engineering and motion by building and testing a roller coaster.

Badge Components

1. Make a simple roller coaster car

Use paper or card, tape and, markers or crayons to make a model roller coaster car.

- Think about the theme of the ride.
- How many people will be in each car?
- Where will they sit?
- Are you inspired by any rides you have been on or seen before?

2. Build a model of a roller coaster

First design your roller coaster; make a beautiful drawing of what it is going to look like.

- You need to make the roller coaster high at the beginning of the track so it will have enough **Potential Energy** (stored energy) to convert into **Kinetic Energy** (motion Energy) so it will make it all the way around your track.

Now build your track! You might have to make some alterations to your plan as you just like a real engineer does to make sure it is safe. You can build your t

- Paper, tape, soda bottles etc.—this [website](#) has detailed instructions for you to use or you can watch one of these videos for inspiration: [video 1](#), [video 2](#), or [video 3](#).

OR

- Foam pipe insulation—this [website](#) has detailed instructions for you to use or you can watch this [video](#).

3. Test your roller coaster

Now the fun bit!! Test your roller coaster and make improvements if you need to. Demonstrate your amazing roller coaster to someone in your house.

Materials

- Marble or ball bearing
- Paper and card
- Markers or crayons
- Tape
- Scissors
- Foam pipe insulation (Optional)
- Recyclables (Optional)

Florida Educational Standards

The content of all Girl Scout national proficiency Badges and Journeys have been correlated by grade level to national and state learning objectives.

Click here for more information on how Girl Scout Badge-work supports Florida's educational standards.

We love to see Girl Scouts in action. Snap a photo and send it to marcomm@gssef.org.

Include her name, troop# and the name of the badge she's working on and we'll feature her.

Finished with your badge? Now buy it for your Girl Scout Uniform. Order online at <https://www.girlscoutshop.com/SOUTHEAST-FLORIDA-COUNCIL> and we'll ship it for free.

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