girl scouts
of michigan
shore to shore

Roller Coaster Design Challenge 2024

Design the future of amusement parks! Earn a limited edition patch and compete for prizes prior to attending Girl Scout Day at Michigan's Adventure.

Enter GSMISTS' Roller Coaster Challenge and design the future of amusement parks! This engineering and entrepreneurial challenge will spark creativity and collaboration as Girl Scouts work towards designing a thrilling new roller coaster.

All participating Girl Scouts will receive a *Coaster Creator* rocker bar to show off alongside this year's *Girl Scout Day at Michigan's Adventure* patch. Each winning team will receive a FREE parking pass for Girl Scout Day at Michigan's Adventure on June 8th. *Parking pass only valid on June 8th, 2024 – cannot be transferred or exchanged.*

Who Can Enter?

Girl Scout teams of 2-6 members each. Teams may be comprised of Girl Scouts from one or multiple troops – Girl Scouts do NOT have to all be part of the same troop. Teams will be scored and winners announced in each of these three grade level categories:

- Daisy/Brownie Teams
- Junior/Cadette Teams
- Senior/Ambassador Teams

Troops larger than 6 or with Girl Scouts across multiple levels should plan to form multiple teams in order to fit the above criteria.

What are the Challenges?

- Design a Promotional Flyer
- Build a Prototype
- Present Your Process
- Video Sales Pitch

Choose one or complete all four! Pick what challenges your team would like to complete. Each activity is an opportunity to earn points. Detailed rubric and activity information included in this packet.

Up to **5** Winners will be announced for EACH grade level category with submissions scored on:

- Most Overall Points
- Best Prototype
- Best Promotional Poster
- Best Process Presentation
- Best Business Pitch

Roller Coaster Design Challenge Specifics and Scoring Criteria

Choose one or complete all four! Pick what challenges your team would like to complete. Each activity is an opportunity to earn points.

Design a Promotional Flyer (10 points max)

Show off your creativity and art skills by developing a one-page advertisement promoting your concept coaster. Flyers must be hand drawn, no bigger than 8.5"x11".

Points awarded based on:

- Name of roller coaster clearly shown
- Catchy, short description included
- Theme of coaster clearly conveyed
- Good use of color
- Little to no blank space remaining

Build a Prototype (Earn 20+ points)

Make a model to test how your roller coaster could operate! Teams may build a marble roller coaster using household items. Model does not need to be free-standing; existing furniture such as chairs or tables may be incorporated into the model.

Materials permitted:

- Foam pipe insulation/pool noodles
- Paper tubes (can be from paper towels, wrapping paper, etc.)
- Paper plates
- Cardboard
- Masking tape/Duct tape/Scotch tape
- Plastic/paper cups
- Marble

20 points awarded for photo submission of completed prototype.

Additional points available for video demonstration including:

- +5 points for video demonstration
- +1 point for each second of ride time
- +5 points awarded for marble safely coming to a stop at end of ride

Present Your Process (25 points max)

Completed with paper tri-fold board **OR** PowerPoint/Google Slides presentation.

Lots of factors go into creating a safe, fun, and exciting ride, so share what you've learned in the design process! Teams may earn points for each item included in presentation.

- Include sketch of your concept design
- Show your research (What inspired your design? What would your coaster be made of?)
- Identify a Business Plan (Define potential customers, opportunities, etc.)
- Theme of coaster clearly conveyed
- Name of roller coaster clearly shown

Video Sales Pitch (30 points max)

Share your idea with the world – why should an amusement park build your roller coaster? A good idea can't come together without other people on board – as a team, create a video sales pitch to tell everyone why your coaster is the best! Members can reference and show other materials created in other challenge activities. Teams may accrue points for each item included in presentation.

- All team members participate in presentation
- Clearly explain why theme parks should feature a ride like yours
- Identify what type of guests would want to ride your roller coaster
- Identify how your ride is different than current coasters at amusement parks

All teams must submit your photos, videos, or other completed materials

by May 12th

Winning teams announced the week of June 3rd

https://form.jotform.com/GSMISTS/roller-coaster-challenge

Rubric for Roller Coaster Design Challenge

Team Name:

Team Grade Level: Daisy/Brownie   Junior/Cadette   Senior/Ambassador

Promotional Flyer – 10 points max submit via picture, scan, or video.	
Name of roller coaster clearly shown (2 pts.)	
Catchy, short description included. (2 pts)	
Theme of coaster clearly conveyed (2 pts.)	
Good use of color (2 pts.)	
Little to no blank space remaining (2 pts.)	
Comments:	Total_____/ 10 pts
Prototype – 20+ points possible	
Photo submission (20 pts)	
+1 point for each second of ride time (Must be visible in video submission)	
+5 pts for video demonstration	
+5 pts awarded for marble safely coming to a stop at end of ride (Must be visible in video submission)	
Comments:	Total____/ 20+ pts
Presentation – 25 points max (Completed with paper tri-fold board **OR** PowerPoint/Google Slides Presentation)	
Include sketch of your concept design (5 pts.)	
Show your research (What inspired your design? What would your coaster be made of?) (5 pts.)	
Business plan (define potential customers) (5 pts.)	
Theme of coaster clearly conveyed (5 pts.)	
Name of coaster clearly shown (5 pts.)	
Comments:	Total____/ 25 pts

Rubric for Roller Coaster Design Challenge

Video Sales Pitch – up to 30 points max	
All team members participate (5 pts.)	
Clearly explain why theme parks should feature a ride like yours (5 pts.)	
Identify what type of guests would want to ride your roller coaster. (5 pts.)	
Explain how your ride is different than current coasters at amusement parks (5 pts.)	
Clear, concise language (5 pts.)	
Catchy, creative, consistent theme (5 pts.)	
Comments:	Total _____/ 30 pts

Additional Comments:

Total challenges completed: _____/4

Total points awarded across all completed challenges: _____