

Project Focus: Scream Machines

Suggestions of activities children might like to complete:

- Plan a trip to a local theme park for your family. Calculate how much it will cost, how long it will take to get there and write an itinerary for the day.
- Research the history of fairground rides, and create a PowerPoint presentation that includes information, timelines, pictures, film and sound clips.
- Make a flipbook animation of a roller coaster ride that includes a loop the loop.
- Use the web to investigate mathematical data about a range of different theme park rides. Find information such as the ride's length, g-force, type and height. Use your data to create spreadsheets or charts, then interpret and find relationships and patterns.
- Explore your home and the surrounding area to look for machines, toys and other objects that use cams, gears, levers and pulleys. Take photos and create a montage of all the different mechanisms found.
- Make a loop the loop using flexible track. Modify the track until a marble or toy car can successfully make it round the loop. Challenge other family members to get the marble or car to fly off the end and land in a pot by changing the trajectory. Keep a tally to show your success rate.
- Use a technical construction toy, such as Lego Technic, Meccano or Fischertechnik to make a simple crane or beam crane with pulleys and nylon twine. Use a force meter to see how much force is required to lift a mass using different numbers of pulleys.
- Research and write a biographical account of Walter Elias Disney, animator and entrepreneur. Find the location of Disney theme parks around the world.

Suggestions of possible places to visit, books or websites to research:

- https://dep.disney.go.com/sodi_app/index.html?st=2 The Science of Disney Imagineering: An excellent program on the Disney Imagineering website that allows children to create their own roller coasters. Designers have to use their understanding of lift and velocity to make sure the carriage stays on the track.
- <https://discoverykids.com/uk/> Build a Coaster! A simple, fun activity that allows children to create their own roller coaster by choosing different pieces of track. An inbuilt 'Fear-o-Meter' rates the scariness of the finished rides. Amazing marble run Epic Christmas Marble Run
- <https://www.youtube.com/watch?v=kwedBdWIRuQ> A six-minute video showing a huge marble run, from an obvious enthusiast!
- <https://www.youtube.com/watch?v=9SphgMxwD5M&list=PLF4DCD1EE19D50969&index=48> Goliath Roller Coaster ride from the rider's perspective.
- <https://vimeo.com/49266486> - A great one-minute animation demonstrating a range of basic cam mechanisms.
- *The Way Things Work* by David Macaulay and Neil Ardley.
- *Fairgrounds (Explore!)* by Jane Bingham.