

ROLLERCOASTER FORCES

Session Brief | U KS2

(1 Hour)

This session provides an overview of different forces affecting rides at our theme park and how energy helps rollercoasters work. Pupils will consider what makes a rollercoaster feel so fast, then they will explore the different forces affecting our rides in more detail, conducting experiments into friction, gravity and air resistance to help understand them better. Finally, pupils will have the opportunity to experiment with K'Nex to bring together everything they have learned in a visual and active way by getting their carriage to loop the loop!

Session Content

- What is a force?
- How rollercoasters work-energy and gravity with k'nex loop experiment.
- Discussion about G forces.
- Air resistance on rollercoasters- k'nex loop experiment continued.
- Friction on rollercoasters-look at real wheels.
- Using magnets on rollercoasters.

National Curriculum Links

- Explain that unsupported objects fall towards the Earth because of the force of gravity acting between the Earth and the falling object.
- Identify the effects of air resistance, water resistance and friction, that act between moving surfaces.
- Describe magnets as having two poles.

Pre-visit

- Pupils could build a marble rollercoaster using cardboard tubing, masking tape and experiment with the different forces—looking at decreasing friction, increasing gravity.

During visit

- Take photos of the rollercoasters in action.

Post-visit

- Annotate the rollercoaster photographs with the different forces acting upon them.
- Improve on their marble rollercoaster using new knowledge gained while at Drayton Manor Park.
- Create a poster explaining rollercoaster forces.