

Hook:  
VR Headsets on a rollercoaster



# Scream Machine

## Focus: Geography/Science



### Knowledge:

- What is gravity?
- What is a gear?
- What is a pulley?
- What is a lever?
- What effect does using a gear/ lever/ pulley have?
- Why do people use them?
- Where are they used?
- What is the effect of air resistance and water resistance?
- How do people use air and water resistance?
- What are the poles of a magnet?
- Will the magnets attract or repel?
- What are the 8 points of a compass?
- What is 6 figure grid referencing?
- What are the human and physical features of the UK?
- Why are theme parks located where they are?
- What are the similarities and differences between the location of theme parks in the UK and theme parks abroad?
- What are the main cities near to the main theme parks in the UK?
- What are the transport links like?
- Locate the theme parks on a map and say which county they are in.
- What is the difference between a town and a city?
- What is a key? How are they used?

### Learning Journey:

Use maps to explore where theme parks are located in the UK and why they are there. E.g. easy links to main roads / railway etc / located near cities however if they are large they are further out based on large open spaces.

### Learning Journey:

Recap prior learning about gravity and explore what other forces might slow down a roller coaster.  
Science investigation - testing parachutes, dropping things into water etc.

### Learning Journey:

Design a new theme park - use a map to locate an ideal location for a new theme park and why it would be suitable / successful there. Write a short explanation for their pitch.

Explore gears, levers and pulleys (see experiment sets)

### Learning Journey:

Design a new roller coaster ride including what different forces will be used and how you will slow it down e.g. water resistance etc.

Design a prototype of the ride including how the ride will move in order to pitch it (e.g. they turn a handle and it makes the log flume go down or they turn a handle and the ride drops down)

### Vocabulary:

Gravity	Compass, atlas, grid reference, gravity, human, physical, key, similarities, differences, town, city, transport links, road links, county, Europe
Lever	
Pulley	
Group	
Classify	
Air resistance	
Water resistance	
Poles	
Magnets	
Attract	
Repel	

Characteristic foci:  
Creativity / articulation

### Skills:

use maps, atlases, globes and digital/computer mapping to locate countries and describe features studied

Explain the 4 points of a compass

Draw designs and be able to annotate effectively

Use fieldwork to observe, measure, record and present the human and physical features in the local area using a range of methods, including sketch maps, plans and graphs, and digital technologies.

use the 8 points of a compass, 4 and 6-figure grid references, symbols and key (including the use of Ordnance Survey maps) to build their knowledge of the United Kingdom and the wider world

· explore falling objects and raise questions about the effects of air resistance

· observe how different objects such as parachutes

· record information on a graph

### Curriculum Coverage:

- human geography, including: types of settlement and land use, economic activity including trade links, and the distribution of natural resources including energy, food, minerals and water
- 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
- recognise that some mechanisms including levers, pulleys and gears allow a smaller force to have a greater effect
- Technical: understand and use mechanical systems in their products [for example, gears, pulleys, cams, levers and linkages]
- Design: generate, develop, model and communicate their ideas through discussion, annotated sketches, prototypes

### Learning Journey:

Make a demo of the ride using a gear / lever / pulley system to operate.

Practice entire pitch ready for the boardroom.

Trip / Visitor:

### Display Plan:

Children's light and day explanations, photographs of investigations

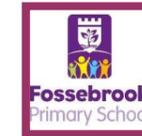
### Outcome:

**Dragons Den pitch** to sell their new theme park (where etc), their new ride (force to stop and demo using gear/pulley system).



# Scream Machine

## Focus: Geography/DT



### What do they already know?

Science Y3

**Physics: Forces**

- What is a force?
- How do objects move on different surfaces?
- What are magnets?
- Which materials will magnets attract?
- Do objects need to touch for forces to have effect?
- How many poles do magnets have and what are they called?

Geography

Y1: What are the four countries and capital cities in the UK?

- What continent can the UK be found?

Y2: **Autumn 1: Street Detectives**

- What is a human feature?
- What is a physical feature?
- What are the 4 compass directions?
- What is a map?
- Why do we use a map?
- What is a key?
- What is a bird's eye view?
- What is a continent?

### How will they remember it?

Mini Quizzes

Reading texts around the subject (links to English / GR)

Homework projects

### Which resources will I need?

VR headsets

DT equipment:

Cardboard

Saws

Dowling

Gears/leavers/pulleys

### What do I need to know to be able to teach this?

Theme parks in the UK—location

Mechanisms

Forces and friction used to make RC move and slow down