

Scream Machine

Imaginative learning project for year 5/6



Roll up, roll up. You're going on a day trip to a theme park, to soak up the unique sights, smells and sounds of the air. Learn about the science behind roller coasters and write poems that are shaped as a loop the loop. Design a theme park and show your ideas on a digital map. Time for some mini investigations. Cam mechanisms, pendulums, pulleys and prototypes. Let's go behind the scenes to see forces at work. Make a working model of a roller coaster and test it out with uncooked eggs! Cracking stuff! Everyone safe and ok to ride?

DT and Science focus. Key facts:

- Testing a product against the design criteria will highlight anything that needs improvement or redesign
- Pneumatic systems use energy that is stored in compressed air to do work eg inflating a balloon to open a model monster's mouth
- Hydraulic mechanisms work similarly to pneumatic ones but instead of air, the system is filled with a liquid, usually water
- With both pneumatic and hydraulic systems, it is important that the system is air or watertight
- The design of a product needs to take into account the culture of the target audience eg colours might mean very different things in different cultures
- Safety features are often incorporated into products that might cause harm eg child safety caps on medicine bottles
- Many new designs and inventions influenced society eg labour-saving devices in the home reduced the amount of housework

Key Vocabulary

- ⇒ Air resistance: a force that acts on an object when it moves through the air, causing it to slow down
- ⇒ Cam: a shaped piece of metal or plastic that is fixed to a rotating shaft
- ⇒ Centripetal force: a force that makes an object follow a curved path
- ⇒ Drop ride: a ride that includes a fast sudden fall from a height
- ⇒ Gravity: the force that attracts things towards the centre of the Earth
- ⇒ Mechanism: a part of a machine, or several parts that work together
- ⇒ Oscillate: to move back and forth from one position to another

Homework Projects

- ◆ Research the history of fairground rides, and create a powerpoint that includes information, timelines, pictures, films and soundclips
- ◆ Research online to find information about roller coasters from around the world. Which is the oldest? The longest? The scariest? Record your results in a table
- ◆ 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