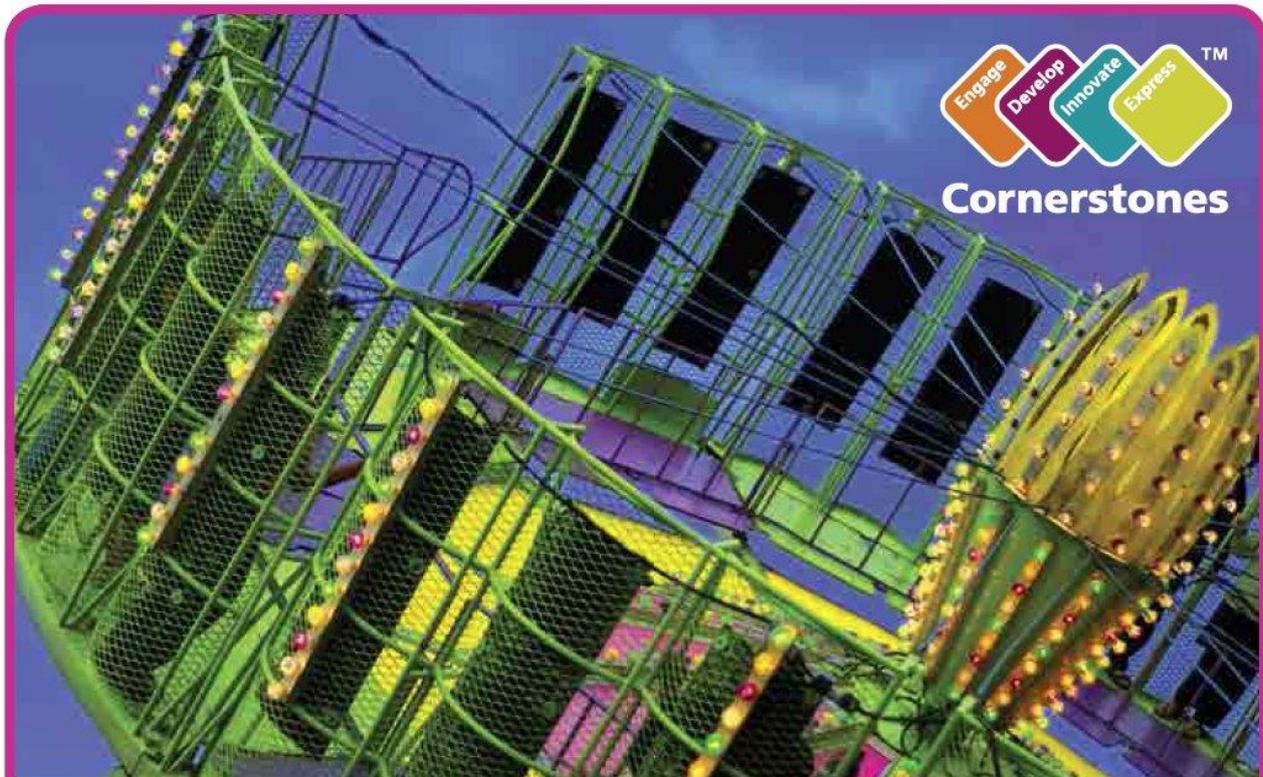




Fairfields
PRIMARY SCHOOL

My learning journey through:



Scream Machine

Imaginative Learning Project for Year 5 Children

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 fair. Learn about the science behind roller coasters! Okay, ready to ride? Don't forget to scream if you want to go faster.

Year 5

Knowledge that will help me on my journey:

Forces

A force is a push or a pull. To make an object move, such as a roller coaster carriage, a force must be applied to the object. Nothing will move without a force pushing or pulling. Roller coaster carriages don't have engines so they rely on forces to keep them moving.

Gravity

Gravity is a force that pulls objects toward each other. On Earth, gravity pulls all objects towards its centre. On a roller coaster ride, gravity pulls the carriage faster on a downhill slope and slows the carriage down as it climbs uphill parts of the ride.

Friction

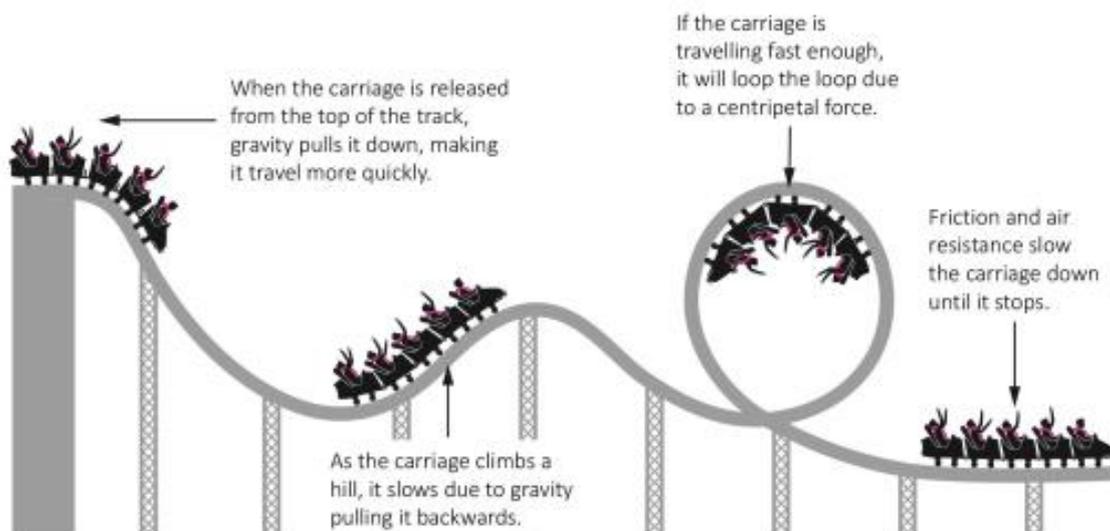
Friction is a force between two surfaces that rub together. Friction slows down a moving object and produces heat. The amount of friction depends on the types of materials that rub together. Using a smooth mat on a helter-skelter slide creates less friction than using a rough mat so the rider would travel faster.

Water and air resistance

Water and air resistance are types of friction. Water and air push against objects moving through them and slow the objects down. Many roller coaster carriages are streamlined, meaning they are designed to reduce air resistance.

Centripetal force

Centripetal force keeps an object moving in a circle at a constant speed. On a swing ride, the chains of the swings exert a centripetal force on the swing seat and the rider, keeping them travelling at a constant speed in a circle.



Glossary

air resistance A force that acts on an object when it moves through the air, causing it to slow down.

cam A mechanism that changes one type of motion into another type of motion.

force A push or pull that can change an object's speed, shape or direction of movement.

gear A mechanism that is used to change the speed, force or direction of a motion.

gravity A force that pulls things towards each other.

inverted carriage A roller coaster carriage that sits under the rail.

linkage A mechanism that is used to direct force or motion where it is needed.

lever A simple mechanism that is used to move a load with less effort.

machine A piece of equipment with moving parts that works when given power, such as electricity. Machines help people perform difficult tasks.

pendulum A weight on a thread or stick that swings from side to side.

pulley A mechanism that is used to lift a load with less effort.

streamlined Designed to move more easily through air or water.

What I'd like to learn...



The end of our journey.....

Science Knowledge

Date

-Gravity is a force of attraction. Anything with a mass can exert a gravitational pull on another object. The Earth's large mass exerts a gravitational pull on all objects on Earth, making dropped objects fall to the ground.

-Friction, air resistance and water resistance are forces that oppose motion and slow down moving objects. These forces can be useful, such as bike brakes and parachutes, but sometimes we need to minimise their effects, such as streamlining boats and planes to move through water or air more easily and using lubricants and ball bearings between two surfaces to reduce friction.

-Mechanisms, such as levers, pulleys and gears, give us a mechanical advantage. A mechanical advantage is a measurement of how much a simple machine multiplies the force that we put in. The bigger the mechanical advantage, the less force we need to apply.

Art and Design Knowledge

Date

Imaginative and fantasy landscapes are artworks that usually have traditional features of landscapes, such as plants, physical and human features, but they have been created from the artist's imagination and do not exist in the real world.

Design Technology Knowledge

Date

Testing a product against a design criteria will highlight anything that need improvement or redesign. Changes are often made to a design during manufacture.

Electrical circuits can be controlled by an on off switch or by a variable resistor that can adjust the size of the current in the circuit. Real life examples are a dimmer switch or a volume control.

Various methods can be used to support a framework, these include cross braces, guy ropes and diagonal struts

Computing Knowledge

Date

Sequences of instructions (algorithms) that contain IF, THEN and OTHERWISE statements are called selections. The computer will complete operations based on whether the conditions of these selections are met or not.

Using prior knowledge and experience of computing Knowledge can be applied to unfamiliar hardware to solve a problem successfully.

Sensors can be combined to control a physical system, such as using motion, light and sound sensors to control a road network of traffic lights and level crossings.

Creating, selecting and combining a range of texts, images, sound clips and videos for given purposes could include creating a web page, slide show presentation, short film or an animation.

Using prior knowledge and experience of computing Knowledge can be applied to create content using unfamiliar programs or apps.

Sensing tools or apps have features that can be used for an investigation and the findings can be interpreted. For example, a sound sensor or app can be used to investigate the pitch of instruments.

A range of technologies can be selected, used and combined, such as using different hardware and software to create a solution that will have an impact on others.

Geography Knowledge

Date

Major cities around the world include London in the UK, New York in the USA, Shanghai in China, Istanbul in Turkey, Moscow in Russia, Manila in the Philippines, Lagos in Nigeria, Nairobi in Kenya, Baghdad in Iraq, Damascus in Syria and Mecca in Saudi Arabia.

Transport networks can be tangible, such as rails, roads or canals, or intangible, such as air and sea corridors. These networks link places together and allow for the movement of people and goods. Transport networks are usually built where there is a high demand for the movement of people or goods. They run between places where journeys start or finish, such as airports, bus stations, ferry terminals or railway stations.

