

## KS2 Balloon Blaster (D&T)

### **As designers we will:**

Explore the use of axles and wheels in vehicles and, along with our work on forces in science, we will explore balanced forces.

We will use our understanding of design and science to take place in the Bottle Car Race Challenge.

Linked to our work in history involving conflict in the past, we will explore the use of catapults and examine the mechanisms involved.

We will take place in the Plastic Spoon Catapult Challenge to see how far we can propel a chocolate Malteser.

We will explore how cams turn rotary motion into linear movement. We will experiment with different forms, create a crawling caterpillar with each segment on its own cam and use this knowledge to design and make our own toy for younger children.

We will explore levers and discover how to create a range of movements by changing the pivotal point. We will use this knowledge to create our very own Flappy Bird toy.

We will discover pulley power and how heavy loads may be lifted with little energy using a pulley. We will design our own pulley mechanisms and combine them with other machines.

We will explore the use of gears and gear trains. We will discover how to 'gear up' to change slow motion into fast and 'gear down' to change fast motion into slow. We will also discover, linked to our work on forces in science, that there is always a trade-off when using machines.

### **As writers we will:**

- Write explanations about our designs
- Write persuasively to seek funding for our designs
- Present information about the link between science and design

### **As artists we will:**

- Draw, paint, sculpt, create textiles or digital media, as appropriate, to give good quality finishes to our products

Gearing down may create more speed but the trade-off is less force.

Finally, we will explore the main types of simple machines: including planes, levers, pulleys, wedges and screws. We will find out the uses of each of them and we will take part in the Balloon Blaster Challenge, where we will be required to make a device that uses all of these machines in order to pop a balloon.

Throughout all of our challenges and tasks we will need to consider the purpose of our work, and design, make and constantly evaluate and refine our products so that they improve over time.

We will also use a range of practical skills and improve our presentation of our products.