

Steve Jobs



Technical Knowledge

- understand how more advanced mechanical systems used in their products enable changes in movement and force
- understand how more advanced electrical and electronic systems can be powered and used in their products [for example, circuits with heat, light, sound and movement as inputs and outputs]
- apply computing and use electronics to embed intelligence in products that respond to inputs [for example, sensors] and control outputs [for example, actuators] using programmable components [for example, microcontrollers]

Knowledge categories:
Technical Knowledge/ Design Process.

Cycle B STEM Mechanisms Cams and gears Educational Toy

I can refine my design to address a problem and test my ideas, suggesting what modifications need to be made. (deep)

I can evaluate and where necessary improve both the function and aesthetical features of my design. (advancing)

I can draw and annotate diagrams to show the function of different shaped cams (basic)

I can refine my design to address a problem and test my ideas, suggesting what modifications need to be made. (deep)

I can evaluate and where necessary improve the strength of the chassis using my knowledge of materials. (advancing)

Cycle A Electronic Motors – Battery powered vehicle

I can draw and annotate diagrams to show the effect of a motor on a pulley, a propeller, a fan and on gears, axles and wheels (basic)

Knowledge categories:
Design Process/
Practical Knowledge/Technical Knowledge

Key Stage Three

Knowledge categories: Technical Knowledge/ Design Process

I can draw and create series and parallel circuits. (basic)

Cycle B Electronics Paper circuits

I can disassemble products (Light up Christmas cards) and identify the components that the product is made from. (advancing)

I can investigate how my design could be enhanced by using more LEDs (deep)

YEAR 5/6

I can investigate how forces are used in the modern-day products. (deep)

I can explain how forces are used in my design. (advancing)

Knowledge categories: Technical Knowledge/ Design Process

Cycle A STEM Mechanisms Pneumatics Moving Monsters

I can describe what 'input' and 'output' are in relation to my design. (basic)

YEAR 3/4

Knowledge categories: Technical Knowledge/ Design Process

I can modify my design to make it wind powered and suggest suitable materials and manufacturing methods. (deep)

Knowledge categories:
Technical Knowledge/
Practical Knowledge
Design Process

YEAR 2

Mechanisms – wheels and axles (STEM)

I can experiment with a variety of different ways to attach wheels and axles in your products. (advancing)

I can explain what happens to the slider rod without a guide bridge. (advancing)

I can make a slider mechanism with a curved slot and another with a wavy slot. (basic)

Mechanical Systems - Sliders

YEAR 1

FS2

PD ELG: Fine Motor Skills
Use a range of small tools, including scissors, paint brushes and cutlery;

Expressive Arts and Design:
Creating with Materials
Safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function; - Share their creations, explaining the process they have used;