

TechCard Power-it Kit

Curriculum	Topics & Knowledge	The view from TechCard
Design & Technology KS1	Design purposeful, functional appealing products.	As a design and make resource, TechCard combines well with a wide range of materials and its accurate perforated grid makes models with working mechanisms achievable.
	Use a range of tools and equipment to perform practical tasks like cutting, shaping, joining and finishing. Explore and use mechanisms for example, levers, sliders, wheels and axles.	Used on its own or combined with other materials using TechCard develops these important skills. The TechCard Power-it Kit uses simple mechanisms to explore forces. Pupils discover that the mechanisms and machines we use do not create force but alter the forces applied to them and make them more useful.
KS2	Understand and use electrical systems in their products such as circuits incorporating switches, bulbs, buzzers and motors.	TechCard is ideally suited to the addition of a wide range of commonly available electrical components and project worksheets are available to support these activities.

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Science KS1	Develop scientific knowledge and conceptual understanding through specific disciplines including physics.	The Power-it Kit explores the world of forces through air power. Pupils learn that forces keep our world moving but that even the most complex phenomenon can be seen in terms of simple pushes and pulls.
	To enable pupils to experience and observe phenomenon including in the humanly constructed world around them.	Both the natural world and the world we have constructed are kept moving by forces. The Power-it Kit explores forces through the simple action of moving air but the principles investigated can be applied to the way all forces work.
KS2	Working Scientifically	Working scientifically is a key element of the curriculum. Working with TechCard, following instructions, working methodically and then, through the 'Follow the Force' section, observing, testing and measuring are all important aspects of scientific method.
	Electricity Construct simple circuits with basic components. Using batteries and understanding switches.	TechCard is ideal for building working models incorporating simple circuits using batteries, motors, bulbs and buzzers. Information is available on a range of projects that incorporate commonly available electrical components enabling pupils to build their own electrically powered and controlled projects.
	Forces Understand the forces of gravity, air resistance and friction and that mechanisms can change the forces acting on them.	Building and testing TechCard projects gives pupils the opportunity to investigate these important phenomenon in an engaging hands-on way. While pupils encounter all of these concepts working with the TechCard Power-it Kit, the kit is particularly focussed on how forces can be directed to carry out useful work. They discover that air is a substance that offers resistance but can also be used to transmit force and that friction is a force encountered by everything that moves.

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Maths KS1	Measurement Compare, describe, measure and record distance, weight and time.	Constructing the models in the TechCard Power-it Kit develops measuring skills and an understanding of measurement. Through the 'Follow the Force' section pupils are involved in measuring, recording and comparing both time and distance in a practical way that brings the concepts to life.
	Recognise two and three dimensional shapes.	Following the illustrated instructions pupils are introduced to the relationship between drawn two dimensional shapes and their drawn three dimensional representations. Furthermore, they see the relationship between these and the real three dimensional shapes they represent. This knowledge is extended as pupils form the rigid three dimensional shapes from the two dimensional elements supplied in the kit.
	Describe position, direction and movement.	The 'Follow the Force' section involves pupils in investigating and describing each model in relation to the position, direction and movement of various key elements.
KS2	Ratio & Proportion Solving problems involving the relative sizes of similar shapes and quantities.	Pupils investigate a range of mechanisms that proportionately change the forces acting on them. For example, the end of a beam travels twice the distance of the force applied to it with the mechanism therefore increasing the distance travelled by a ratio of 2:1.