



Plugged in Parents Workshop

Design and Technology
Thursday 4th November 2016

*'They come this way
only once so let us litter
their pathways with
quality experiences'*

Agenda

- 1. What is Design and Technology?**
- 2. Skills and Experiences**
- 3. Developing mastery**
- 4. Design and Technology Week**
- 5. Activities and Outcomes**
- 6. What do the children think?**
- 7. Any questions**

What is Design and Technology?

- **Design and technology is an inspiring, rigorous and practical subject.**
- **Using creativity and imagination, pupils design and make products that solve real and relevant problems within a variety of contexts, considering their own and others' needs, wants and values.**

Skills and Experiences

- **Through Design and Technology, children acquire a broad range of subject knowledge and draw on disciplines such as mathematics, science, engineering, computing and art.**
- **Design and Technology encompasses a wide range of practical skills in context.**

Quigley Milestones for Design Technology

Textiles	<ul style="list-style-type: none"> • Shape textiles using templates. • Join textiles using running stitch. • Colour and decorate textiles using a number of techniques (such as dyeing, adding sequins or printing). 	<ul style="list-style-type: none"> • Understand the need for a seam allowance. • Join textiles with appropriate stitching. • Select the most appropriate techniques to decorate textiles. 	<ul style="list-style-type: none"> • Create objects (such as a cushion) that employ a seam allowance. • Join textiles with a combination of stitching techniques (such as back stitch for seams and running stitch to attach decoration). • Use the qualities of materials to create suitable visual and tactile effects in the decoration of textiles (such as a soft decoration for comfort on a cushion).
Electricals and electronics	<ul style="list-style-type: none"> • Diagnose faults in battery operated devices (such as low battery, water damage or battery terminal damage). 	<ul style="list-style-type: none"> • Create series and parallel circuits 	<ul style="list-style-type: none"> • Create circuits using electronics kits that employ a number of components (such as LEDs, resistors, transistors and chips).
Computing	<ul style="list-style-type: none"> • Model designs using software. 	<ul style="list-style-type: none"> • Control and monitor models using software designed for this purpose. 	<ul style="list-style-type: none"> • Write code to control and monitor models or products.
Construction	<ul style="list-style-type: none"> • Use materials to practise drilling, screwing, gluing and nailing materials to make and strengthen products. 	<ul style="list-style-type: none"> • Choose suitable techniques to construct products or to repair items. • Strengthen materials using suitable techniques. 	<ul style="list-style-type: none"> • Develop a range of practical skills to create products (such as cutting, drilling and screwing, nailing, gluing, filing and sanding).
Mechanics	<ul style="list-style-type: none"> • Create products using levers, wheels and winding mechanisms. 	<ul style="list-style-type: none"> • Use scientific knowledge of the transference of forces to choose appropriate mechanisms for a product (such as levers, winding mechanisms, pulleys and gears). 	<ul style="list-style-type: none"> • Convert rotary motion to linear using cams. • Use innovative combinations of electronics (or computing) and mechanics in product designs.

Development of Mastery

- To develop mastery in the subject, pupils will learn how to take risks to become resourceful, innovative, enterprising and capable citizens.
- Through the evaluation of past and present design and technology, they will develop a critical understanding of its impact on daily life and the wider world.

Design and Technology Week

- Design and Technology was refocused through a whole-school theme week which ran from Monday 17th October to Friday 21st October.
- John Maguire of Orbiting Minds was brought in to work with the children from Key Stage 1 on Wednesday 19th October and with the Key Stage 2 children on Thursday 20th October.

Activities and Outcomes

Class 3 DT Weekly Plan

	Learning Objectives	Activities	Assessment Opportunities
Monday	To understand how levers work	<p>Balancing Act - Using only a meter stick and a wooden block, balance two masses in a seesaw kind of structure.</p> <p>Shut that Door! - Carry out an experiment to find out which part of the door you should push to mean that you have used the least amount of effort.</p> <p>Lift off! – An experiment to find out whether a teaspoon or a table spoon would make the best lever to lift a small box of objects</p> <p>To make our own robot toy using levers to make its arms and legs move.</p>	Children understand and use mechanical systems in their products
Tuesday	To understand how pulleys work	<p>Pull together – Use a pulley system to lift a heavy object</p> <p>Think about how pulleys are used to open and close curtains</p>	<p>Children understand and use mechanical systems in their products</p> <p>Children can investigate and analyse a range of existing products</p>
Wednesday	To generate, develop, model and communicate their ideas through discussion	To plan a way of moving your building block without touching the block with your bare hands.	Children use their research and develop their own design criteria to inform the design of innovative, functional, appealing products that are fit for purpose
Thursday	See plans submitted by John Maguire		
Friday	To apply their understanding of computing to program, monitor and control their products.	<p>To learn how to use binary code.</p> <p>To build a robot using Lego We-do</p> <p>To program using the Move the Turtle application on the iPads.</p>	Children can perform everyday tasks confidently and to participate successfully in an increasingly technological world

Key Stage 1



Journeys into Space

Hampton Lucy – Class 1 and Class 2

Introduction

- Journey into Space (projected story book)
- What do you know about space? (this Q&A session would occur as the book is read)
- A journey to the Moon (Physical demonstration plus 3D simulation software to introduce the Moon is a sphere / it gets much larger as we get near to it / it seems flat when we land on it)
- How can we escape from Earth and travel to space and the Moon? (Jumping test, we need a push (THRUST), we need more help)
- Can we use air (gas) to give us a push? ('Blow a feather' demonstration)
- Let's use air (gas) to make a balloon rocket (demonstration)
- Can we use ingredients (fuel) to make the gas for our rocket? ('Baking powder rocket' demo)
- Real Rockets in action (Apollo mission footage)
- The new Manned Deep Space Mission rocket (Space Launch System (SLS) animations)
- Return to the Moon Mission challenge introduction (the need for a rocket design, a mission patch and a rocket with 'fins' to guide it)

Break-out Sessions (mission teams of 2 or 3 pupils)

Class 1 – Design a rocket and mission patch for the Manned Return to the Moon Mission (templates provided, teams could also use the school's construction kits to build model rockets)

Class 2 – Build a working – powered 'finned' rocket for the Manned Return to the Moon Mission

Plenary Session (in the school hall)

Class 1 challenge - to present their rocket and mission patch designs.
to launch rocket team Stomp Rockets.

Class 2 challenge - to successfully blast off their Moon Rockets.

Price: 2 hours at £45 per hour.

Key Stage 2



Robots in Space|

Hampton Lucy - Class 3 and Class 4

Introduction

- Why do we send Robots into space?
- A brief history of the robotic exploration of Mars
- Today's Robot Explorers (orbiters / landers / rovers)
- What have our orbiting robots discovered about Mars (geological features demonstration)
- How do we land on Mars? (uncontrolled and controlled landing animations)
- Future Robotic Missions (sample and return – the need for powered (THRUST) decent and powered ascent robots)
- Mars 2020 Sample and Return Mission Challenge introduction

Break-out Sessions (mission teams of 2 or 3 pupils)

Class 3 – Build and test a working – powered landing stage for the Mars 2020 robot

Class 4 – Build and test a working – powered ascent stage for the Mars 2020 robot

Plenary Session (in the school hall)

Class 3 challenge - to land their robots within a predetermined landing ellipse.

Class 4 challenge - to successfully blast off into low Mars orbit from a fixed decent stage.

Price: 2 hours at £45 per hour.

What do the children think?



Look at our iMovie reflecting on DT Week...



Any questions?

**You are now free to browse the display
of children's work...**