

AHMAT STEM Week Report 2023 (D+T)

Intent for the Week

Our aims for the week were for the children to create an item to solve a problem, presented to them in for the form of a Wallace and Gromit '*Cracking Contraptions*'. Children in Key Stage 2 were also supported through Dyson project and engineering boxes to better understand what it takes to be design engineers.

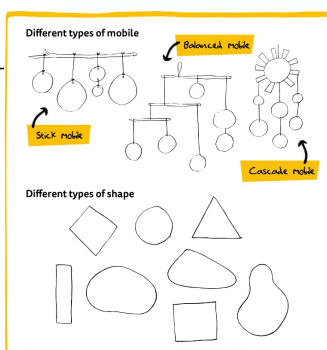
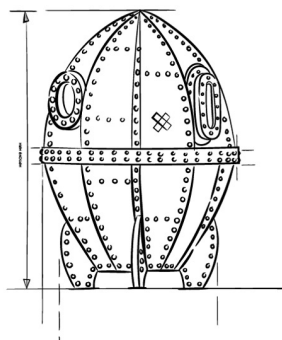
Overview of Activities

Over the course of the day, children were introduced to their end goal, through the introduction of Wallace and Gromit's '*Cracking Contraptions*'. Foundation Stage were challenged to create a rocket to help Wallace and Gromit reach the moon. Key Stage 1 made mobiles to help Wallace and Gromit sleep. Lower Key Stage 2 were tasked with building a motorised fan device to help Wallace score goals against Gromit. Finally, Upper Key Stage 2 had to make brush monsters using an electric circuit to help Wallace clean.



Each key stage was given a specific brief and stimulus to work from, as described below.

EYFS	KS1	LKS2	UKS2
Cracking Contraption: A grand day out Design Brief: Can you design and make a new vehicle to take Wallace and Gromit to the moon?	Cracking Contraption: The Snoozatron Design Brief: Can you design and build a mobile to help Wallace get more sleep? Specification: Must be weighted equally so it is balanced when hung. Must contain geometric shapes. Must use at least 3 different colours.	Cracking Contraption: The Soccomatic Design brief: Can you design and make a contraption to help Wallace score goals against Gromit? Specification: Must move a ball across a surface. Use an electric motor and circuit. Have handmade propellers.	Cracking Contraption: The Crackervac Design brief: Can you design and make a brush monster to clean the floor? Specification: Create an electrical brush cleaning machine. The machine should be powered by a battery and use a motor with a counterweight. The design must be aesthetically pleasing and low cost.

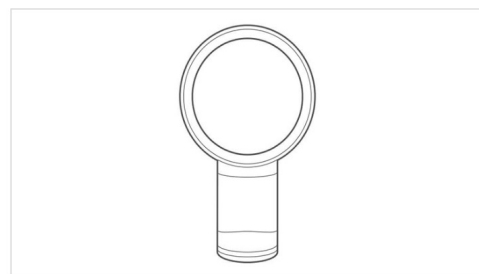
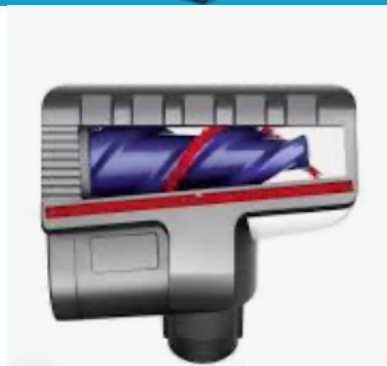


Dyson project boxes

KS2 had an incredible opportunity to explore product design kits loaned to the school by Dyson.

LKS2 learn about James Dyson and his determination to improve upon existing products.

They looked closely at Dyson's fan design and could test it out for themselves!



DYSON AIR MULTIPLIER™ FAN



Years 5 & 6 explored the Dyson vacuum cleaner product box. They were able to test and evaluate the product in terms of appearance, design and functionality.

They were able to disassemble two different Dyson vacuum cleaner heads to see how the product has been improved upon! They were amazed to discover that the anti hair-wrap designed was inspired by the Ancient Egyptian 'Archimedes' screw.

Visitors and STEM ambassadors

In addition to the planned D&T projects, pupils were able to hear about a wide range of STEM related careers from visitors to school, and through meeting with STEM ambassadors remotely.

Arthur White, a friend to the Trust and member of Maidenhead Astronomical society visited years 5 & 6 to talk all about stargazing.

Stem Ambassador career presentations included:

Rosie – A medical statistician

Vicky – An astronomer

Parvathy – Tech to save the planet

Ben – An electronics designer



Pupil Voice

Here are some of the things the children said about their Design and Technology day:

Foundation:

'We used a bottle and we needed to bang it. The rocket went really high!' Milo

'When you squidged the bottle more it went higher.' Oscar



Key Stage 1

'It was tricky to make because of the string and tying all the knots.' Hettie

'I made a cascade with a really big green triangle at the bottom. First, we made the shapes, then we made the spiral and attached it all.' Roran

'I made a stick mobile. I hung shapes by tying string and placing it where we wanted it to go. We had to make it equal. We had to use the same paper and cut the shapes the same size so it would balance' Victoria





Pupil Voice

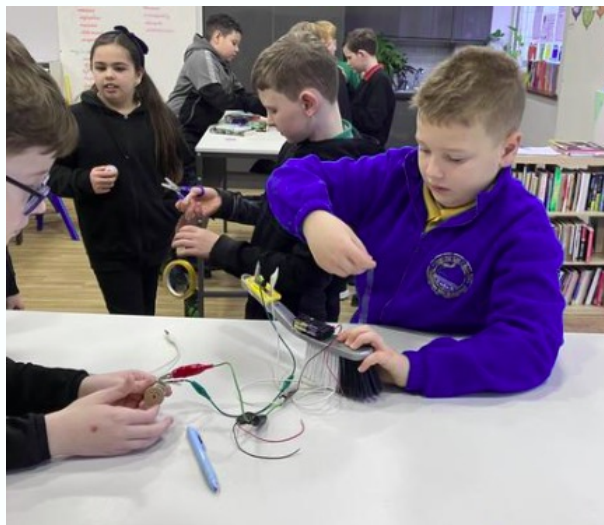
Lower Key Stage 2

'We were making fans. I made mine from a milk bottle and a propeller.' Stefan

'We had to make the fan spin. The easy bit was making the circuit and hard bit was putting it all together.' Molly

'The bladeless fan is safer because you can't get your fingers trapped in it.' Aaryan





Pupil Voice

Upper Key Stage 2

'Engineers need to think outside the box to keep making things better and better and better.'

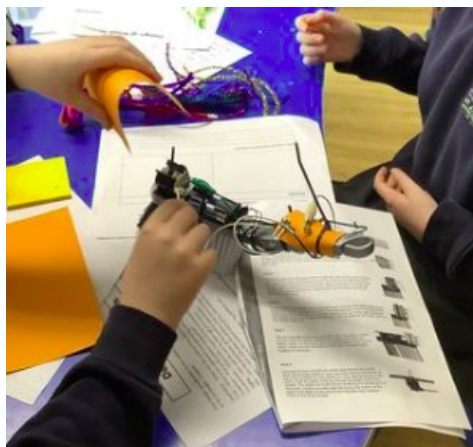
Penelope

'I liked being able to dismantle the pieces of the vacuum head and work together to memorise what we had done.'

Ella G

'I liked the engineering because we got to see how different the first prototype vacuum was and how it changed.'

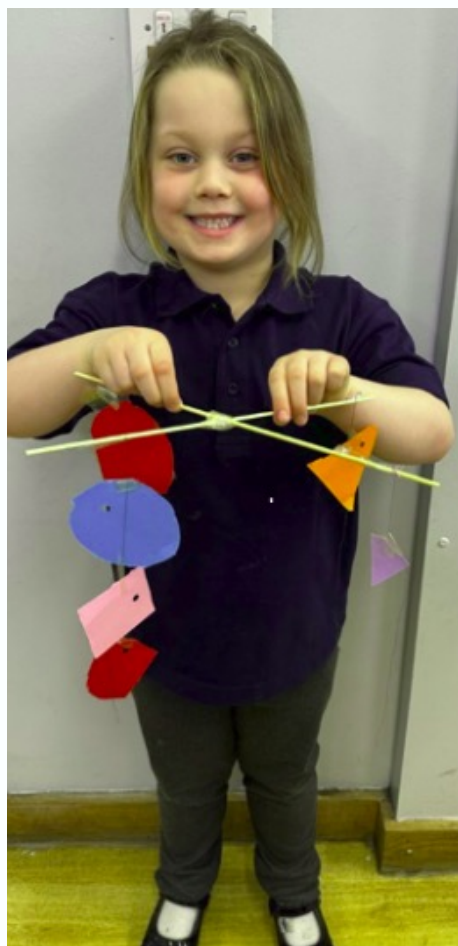
Ruby



Impact Statement

The children enjoyed taking part in the design and technology activities. All 3 school experienced a 'buzz' around both STEM days. The ability to explore existing products through the Dyson boxes was invaluable for our older learners. They were able to articulate the skills needed to become a design engineer and have an improved understanding of how designs are made, prototypes are developed and evaluated in order to make changes and improvements.

Children in Foundation and Key Stage 1 benefitted from the *Cracking Contraptions* stimuli. The short videos gave them a clear understanding of what they were being asked to create, and related the outcome to characters they were already familiar with.



AHMAT STEM Week – Computing Report 2024

Intent for the Week

Our aims for the computing day were to introduce the basics of coding to the EYFS classes, for KS1 to become familiar with stop motion animation and the process behind it, and for KS2 to become familiar with the new coding device - the micro: bit - which has been a recent addition to the trust.

Overview of Activities

EYFS

The children in Foundation used new 'coding critters' to explore the basics of coding. They were given the chance to experiment with creating simple sets of instructions to make Jack the Mouse and Ranger the dog to move to a variety of objects such as the kennel, a swing and a tree. The children created their instructions using arrow cards to support their visualisation of the instructions needed.



KS1

The children in KS1 began by learning about stop motion animation and how it's made, looking at how Aardman Animation create their animations. The children then had a go at creating a simple stop motion in order to become familiar with the process, before creating a storyboard for their own animation story. They then worked in groups to take a series of photographs to create their stop motion animation. They ended the day with a movie premier, sharing their creations with their class.

KS2

The children in KS1 began by learning about the history of animation, and how it has progressed as technology has developed. The children then had a chance to experiment with the new micro: bit devices, as gain and understanding of how they worked and the multitude of coding options available on the device.

The children in Year 3 and 4 then went on to create their own simple animation of a moving insect whilst the children in Year 5 and 6 created a more complex dancing man animation.



Pupil Voice

EYFS:



KS1

HR – Stop motion is where you take lots of photos of an object, which you move a little bit each time. You put them together to make a movie.

BA – I enjoyed taking the photos once the others had moved the character a tiny bit.

JT – Remembering to move the characters just a little bit each time was challenging, but after a practice go we got better at this.

IC – In my stop motion I made my polar bear play hide and seek. I had to move it just a tiny but and take a picture. Then move it and take another picture.

MK – It was hard to hold the camera still. You have to make sure that you don't have your arm in when you take the picture. I learnt to put one hand behind my back so that it wasn't in the picture.

CS - I learnt that I had to be very careful moving the animals that they didn't fall or the movie wouldn't be smooth.



KS2

LJ – A micro: bit is a mini computer You can attach it to a laptop and you can write instructions for it.

SB – A micro: bit is a tiny computer, it's got a compass, a USB charger, a microphone and once you plug it into a laptop you can do coding on it, we coded animations.

MH – I learnt to make pictures without having to draw them by coding them on the micro: bit.

LCT – It was similar to Scratch coding.

VB – I liked exploring the make code website to see the different codes you can create.



Impact Statement

From speaking with the children, it is clear that they thoroughly enjoyed the computing day. They were able to confidently speak about their learning, including facts they had learnt about animation as well as discussing the process they went through to create their final animation. The coding task built upon their previous learning about coding, and their computing skills were showcased through the well thought out animations produced.

KS2 enjoyed the use of the micro: bit devices, especially being given the time and freedom to explore the device independently and discover the many different functions which the device can perform.