British STEAM Week For the Family

8th - 12th March 2021

Introduction

British STEAM Week is a ten-day celebration of

Science, Technology, Engineering, Arts and Maths that will take place between

5-14th March 2021!

We have put this document together to share where you can access resources and more information on the importance of engaging in STEAM learning. We have also shared some of the success stories of pupils who have taken part in the STEAM opportunities available throughout the past couple of years.

And the best part .... there are STEAM activities for the WHOLE family to try. Beware though some are quite messy... but LOTS of fun. Please share your photos with us!

ENJOY

@missyoungchem
@BishySTEAM

@missyoungchem
@rainbow.class.lass

The importance of STEAM learning

STEAM based education creates critical thinkers, increases science literacy and enables the next generation of innovators. Innovation leads to new products and processes that sustain our economy. This innovation and science literacy depends on a solid knowledge base in the STEAM areas.

Why is it important?

STEM underpins much of Scotland's economy. It is a key part of major sectors such as:

- Creative industries
- Life sciences
- Energy
- Food and drink
- Financial and business
- Universities
- Tourism

Find more info at: DYW Developing the Young Workforce | STEM Nation | Education Scotland Foghlam Alba

STEMFLIX


THE
UNIVERSE


THE MARS
GENERATION


A
PLASTIC
OCEAN


DREAM
BIG
ENGINEERING OUR WORLD

BBC iPlayer

BBC iPlayer – The Dengineers – Series 3: 3. Observatory Den

BBC iPlayer – Attenborough and the Giant Dinosaur

BBC iPlayer – Forces of Nature with Brian Cox – 4. The Pale Blue Dot

BBC – People of Science with Professor Brian Cox

BBC iPlayer – Blue Planet II – Series 1: 2. The Deep

BBC – People of Science with Professor Brian Cox

BBC iPlayer – Seven Worlds, One Planet

Horrible Histories – CBBC – BBC

prime video

NEW SPACE ADVENTURES: ASTERIODS AND COMETS

THE MENTAL HEALTH SHOW

NEW SPACE ADVENTURES: JUPITER

A LEGO BRICKUMENTARY

Careers

Opportunities in
Science, Technology, Engineering, Arts, Maths.

To name a few....!

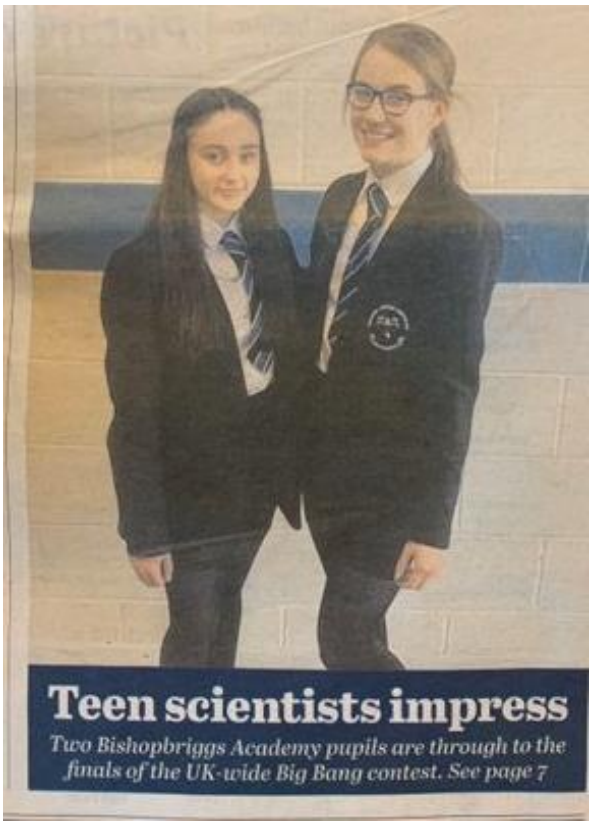
Challenging Stereotypes

To inspire more girls to study STEAM subjects at school and to consider a STEM career we need to continue to tackle the gender stereotypes they are exposed to! We have put together some INSPIRING WOMEN IN STEM

Go to https://www.stemwomen.co.uk/blog/2020/07/inspiring-women-in-stem-posters to learn more about these female role models

Celebrating Success

Over the past year we have had a number of Bishopbriggs Academy pupils who took part in STEAM activities. We hope to see more people get involved so watch this space for even more opportunities!



Teen scientists impress

Two Bishopbriggs Academy pupils are through to the finals of the UK-wide Big Bang contest. See page 7

In 2020 we had two S3 girls who WOW'ed the judges with their design for an allergen detecting wristband for the Big Bang Competition and they got through to the finals. The girls even got a motion set for them in Parliament. Well done! Can't wait to see more from them.

The Big Bang
UK Young Scientists & Engineers Fair

BISHOPBRIGGS ACADEMY

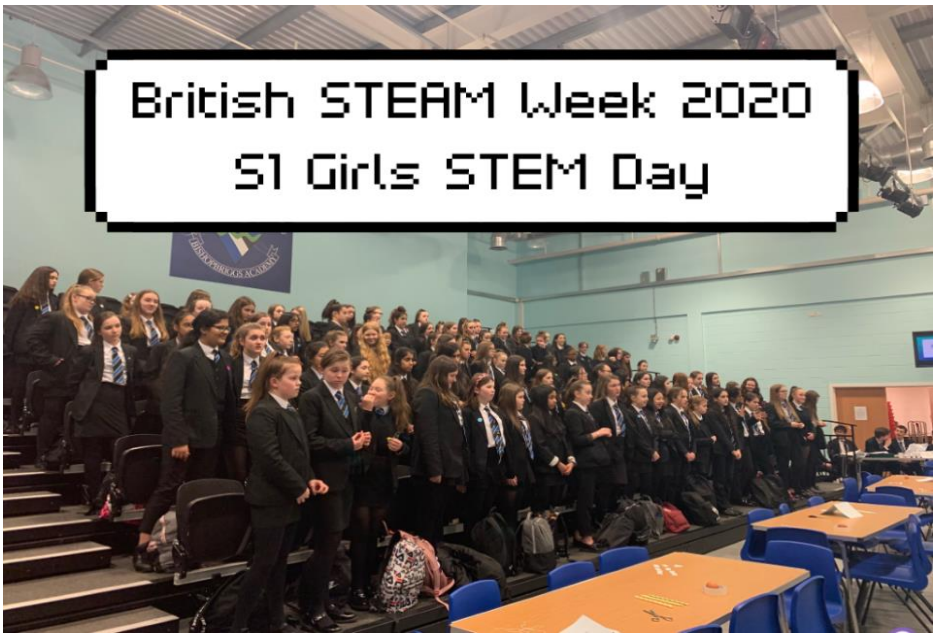
Bishy STEAM Rainbow Challenge

For one week in May, pupils and their families, teachers and our cluster primaries came together virtually through a photography competition which involved us taking pictures of our colourful week in lockdown.

On our return to school in August 2020, everyone involved could see their efforts spread across the school in the form of banners and a window display.

We hope to bring you more fun STEAM challenges this year!

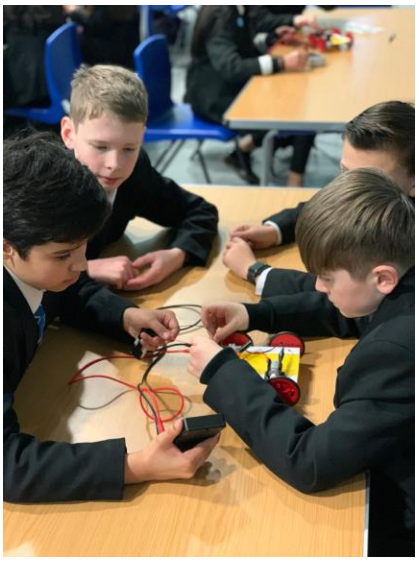
During British STEAM Week in 2020 there were various clubs on offer around the school. Here we can see some photos from our Science Club which ran Mon-Fri and included events like the 'Balloon Challenge' and 'CSI Investigation'.



YOUNG STEM LEADER

As part of their Young STEM Leader award, some of our S5 pupils planned and led STEAM activities throughout British STEAM Week. Here we can see photos from an S1 STEM day that involved pupils taking part in the Egg Parachute Challenge.

YOUNG STEM leader
led by sserc



smallpeice
Dare to imagine

University of Glasgow

EDF ENERGY

Some other events including two 'Girls into Engineering' workshops, a trip to Hunterston B Nuclear Power Station and a Geography/Physics IDL project on Transport.

Education Scotland
Foghlam Alba

IMPROVING GENDER BALANCE & EQUALITIES

Challenges for you to try as a family

On the next few pages you will see some fun at-home STEAM activities that you can do with minimal resources... let us know what ones you try and we would love to see photos!

Tag us:

@missyoungchem
@BishySTEAM

@missyoungchem
@rainbow.class.lass

STEAM

Family Learning

Lava Lamp

Materials:

- A clean plastic bottle, try to use one with smooth sides
- water
- Vegetable Oil (or you could use Mineral or Baby Oil instead)
- Fizzing tablets (such as Alka Seltzer)
- Food Colouring

Instructions:

- Fill the bottle up about 1/4th (1 quarter) with water.
- Pour the vegetable oil in the bottle until is almost full. You may want to use a measuring cup with a spout or a funnel. You may have to wait a couple of minutes for the oil and water to separate.
- Add a few drops of your favorite food colouring. Watch as the color sinks through the oil. Did your drops of color mix with the water immediately or float in between for a few minutes?
- Break your fizzy tablet in half and drop part of it into the bottle. Get ready ... here come the bubbly blobs!
- You can even get a flashlight, turn off the lights and drop in another half tablet. This time shine the flashlight through the lava lamp while the blobs are bubbling!

How it Works:

The oil floats on top of the water because it is less dense or lighter than water. The food colouring has the same density as the water so it sink through the oil and mixes with the water. When you add the tablet it sinks to the bottom then starts to dissolve. As it dissolves it makes gas, carbon dioxide. Gas or air, is lighter than water so it floats to the top. The air bubbles bring some coloured water with them to the top. When the air comes out of the coloured water blob, the water gets heavy again and sinks. It does this over and over again until the tablet is completely dissolved.

Cornflour slime- a messy one!

Some substances sometimes just can't make up their mind whether they're a liquid or a solid! See what we mean with this messy experiment

What you need

Cornflour, water, a wooden spoon, a bowl.

What you do

Step 1

Pour half a box of cornflour into a bowl. Then gradually pour water over and mix until it looks and feels like custard (add food colouring at this point if you want)

Step 2

Run your fingers through the liquid.

Step 3

Now try and punch the mixture with your fist.

What happens?

When you run your fingers through it, it acts like a liquid. But when you punch it, it becomes hard and behaves like a solid. (If it doesn't, try adding some more cornflour.)

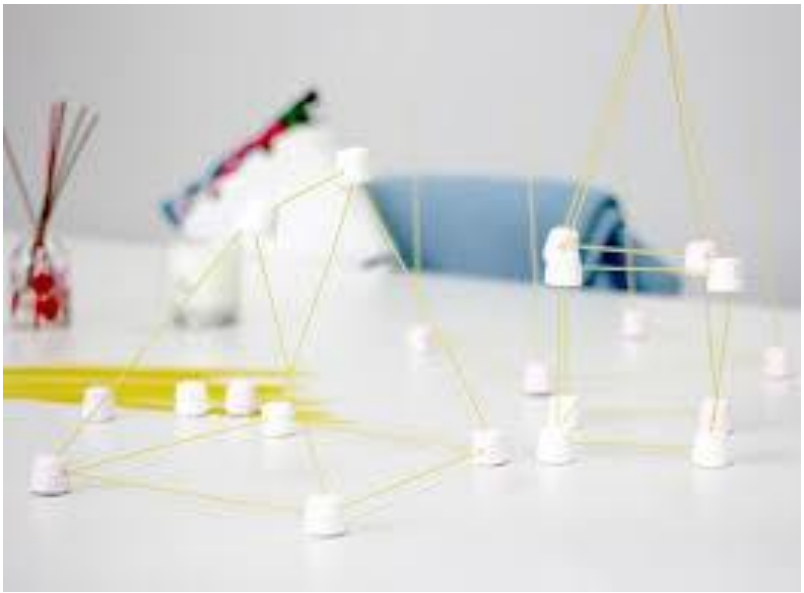
How and why

The cornflour particles are suspended in the water, so it flows like a liquid. But when you apply a force to it, the particles lock together, acting like a solid. As soon as the force stops, the slime goes back to being runny.

Spaghetti Tower Challenge

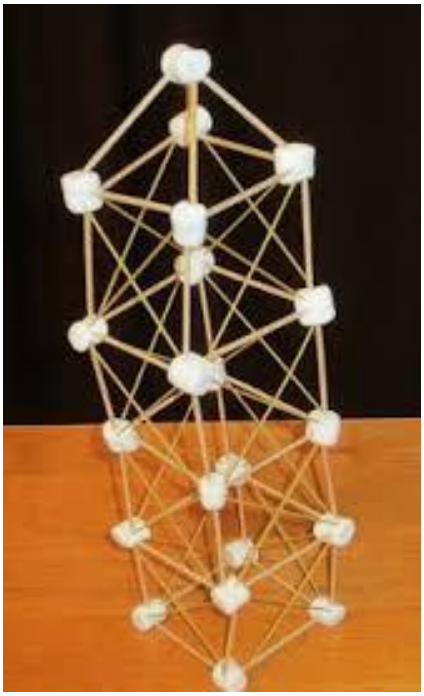
What you need

- Pack of dry spaghetti
- Pack of Marshmallows .....
- Scissors might be handy too ! ....And that's all!



Your task is to build a tower using only spaghetti and marshmallows. See how tall you can build your tower and let us know!

HINTS ... You might want to use scissors to cut spaghetti shorter and did you know that triangles are particularly strong!



Grow a Rainbow!

What you need

- Kitchen roll
- Felt tips (not sharpies/permanent)
- Water
- 2 Small Glasses
- Paper clip and thread

What to do ?

-Cut your kitchen towel into the shape of a rainbow.

· Use felt tip pens (not permanent markers) to colour a rainbow about 2cm up on each end of rainbow.

· Attach a paper clip to the top of your rainbow and tie some thread to it. This will give you something to hold on to.

· Pour some water into your two tubs.

· Hold your rainbow so both ends are submerged into the water.

Tip - if you don't want to hold your rainbow, attach your paper clip to a glass to support your rainbow.

This science experiment is a great example of chromatography. Chromatography is a way of separating out a mixture of chemicals. If you ever got a paper with ink wet you would have seen the ink move across the page in streaks.

Capillary action makes the marker dye move up the paper towel. The water moves upward through the paper towel, lifting the washable dye molecules with it. Because the washable markers are water based, they disperse in water.

DID YOU KNOW ? If you were try this experiment with permanent markers it would not work. This is because the markers are not water based (they are alcohol based) so the dye in the marker does not travel with the water

Maze Builder

What you need

- Card board box / lid / cereal box would also do
- Straws / lollipop sticks
- Marble / something that can go round your maze
- Make your maze ... see below for ideas