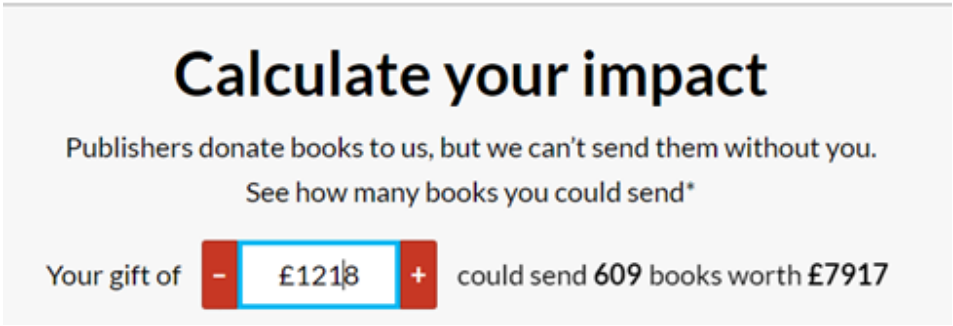
Issue Number 23

Stem stimulator

STEM Fundraising for International Book Aid

Congratulations and a massive thankyou to all students and parents who supported the fundraising for this years STEM charity we have managed to raise a wonderful

£1218. 3 this will make such a difference to lives. A range of wonderful activities occurred across the forms to generate this money like 7A football tournament. Every penny counts so a massive Well done to all.



Books give people power

They provide the information and the inspiration that people need to build a more equal future.

STEM Colours

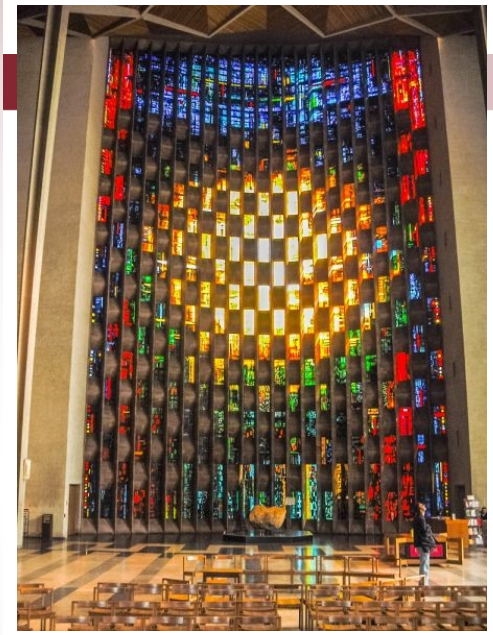
I am delighted to announce that the first of the STEM colours have been awarded this term to Fatima (KS4 year 11) and Jake (KS3 year 8)
Check out the back page for how your son or daughter can achieve this new STEM colour For more information please contact Miss Scanlan– scanlanc@kls.herts.sch.uk

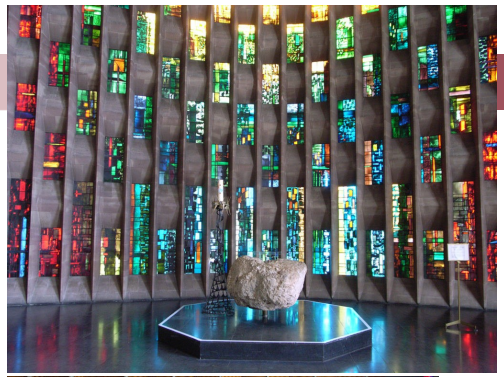
STEM in ART

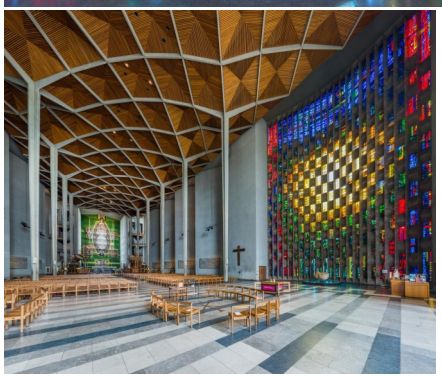
Year 7 students looked at the history of clay

Year 8 students looked at invention of photography on modern art

Year 9 looked at stain glass window designs and making







‘Colour is abnormally bright, since the light comes through the material instead of being reflected from the surface; tone is usually dictated by bounding leads or area joints of some kind. The whole thing is imprisoned within glazing bars that form an inexorable grid and are structurally necessary’.

Kings Langley School
Unlocking Potential for Life

The manufacturing process of the stained glass window has remained the same for thousands of years.

How do we blend traditional processes with new technology in the modern day?

https://www.youtube.com/watch?v=W5NOrG888CI

Kings Langley School
Unlocking Potential for Life

STEM in BUSINESS

In Business, at GCSE level, we looked in year 10 at motivation and training and the effects on technology on both.

For **year 11,** we are in the midst of covering the finance unit regarding sources of finance and cash-flow forecasting which has obvious links to Maths, which has been prevalent in every lesson for the last few weeks.

Year 12 are also immersed in finance and maths, having covered financial performance and ratios, which has been ongoing for numerous weeks with obvious links to Maths.

Year 13 A Level Business, now nearing the end of taught content and having moved onto revision and reiteration for their upcoming final exams, have been looking at all topics including technology and maths with, again, the financial topics that are a prerequisite of this course.

STEM in DRAMA

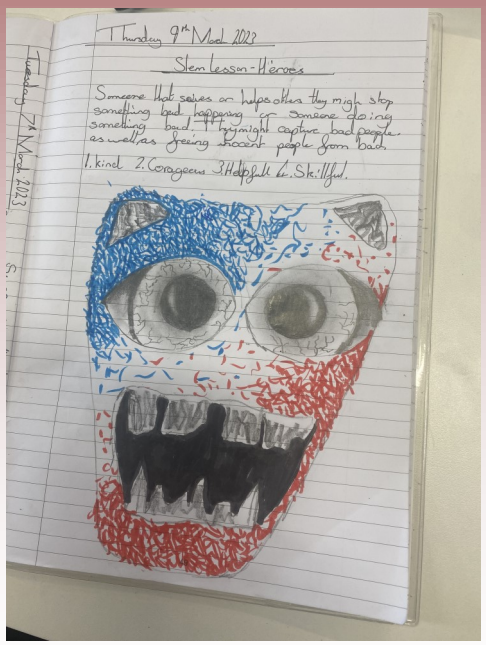
Drama students were challenged to stretch their STEM through 3 different challenges this term. All were based around this year's school show of A Midsummer Night's Dream, with set design, poster design and costume design tasks. We had some wonderful entries to each of the 3 competitions

Harriet B, Ruby Y

Max W, Casper J

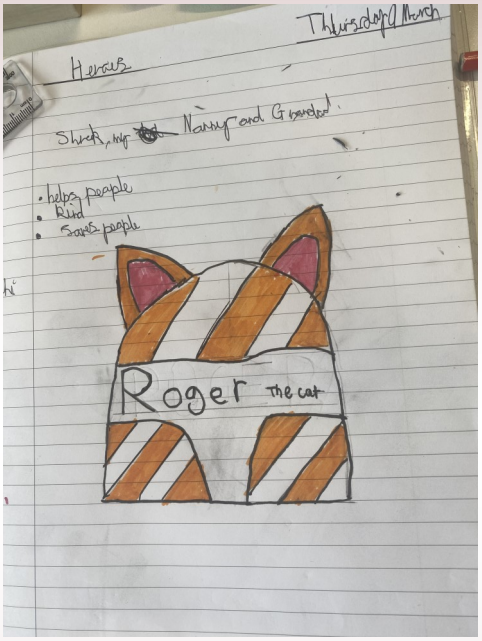
Kiera W, Ava B.

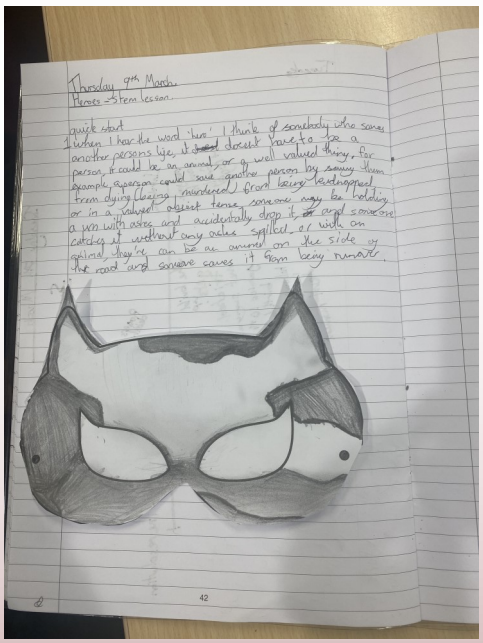
STEM in ENGLISH

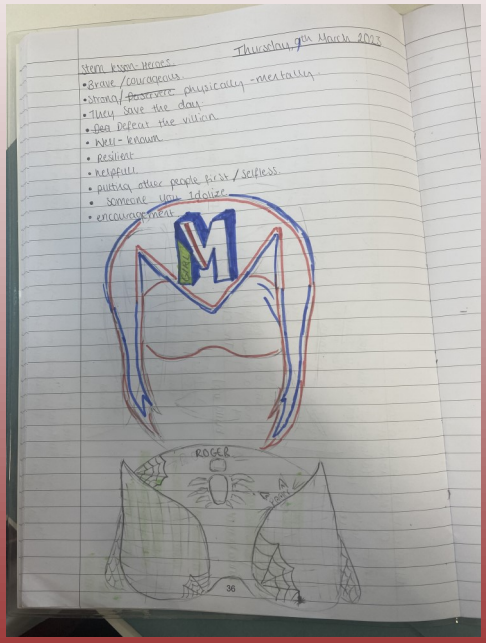


YEAR 7

Tasked with creating a Superhero mask for a character from the book they are exploring in English– My Sisters Lives on the Mantelpiece





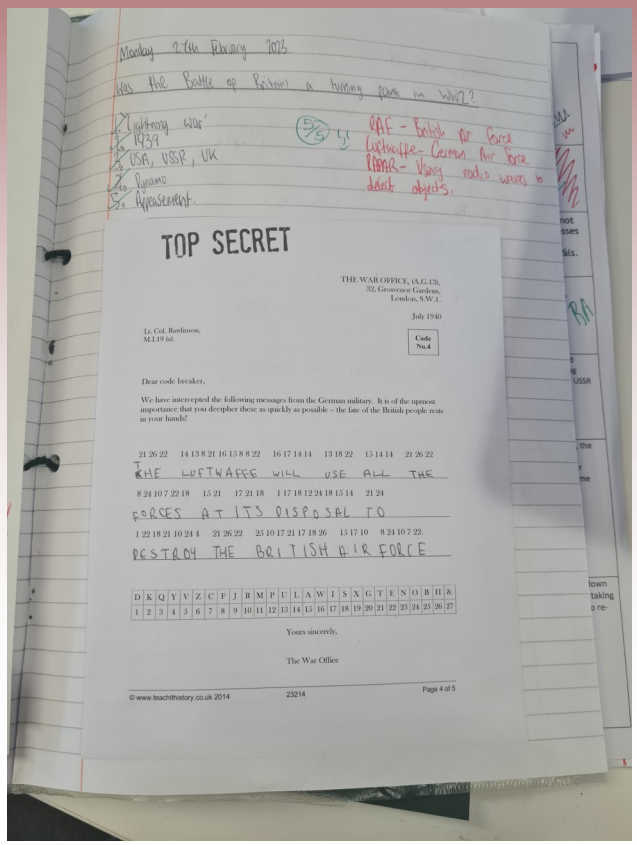


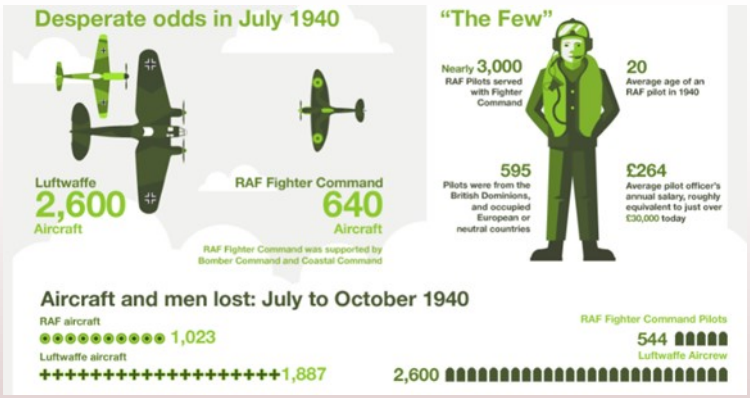
STEM in HISTORY

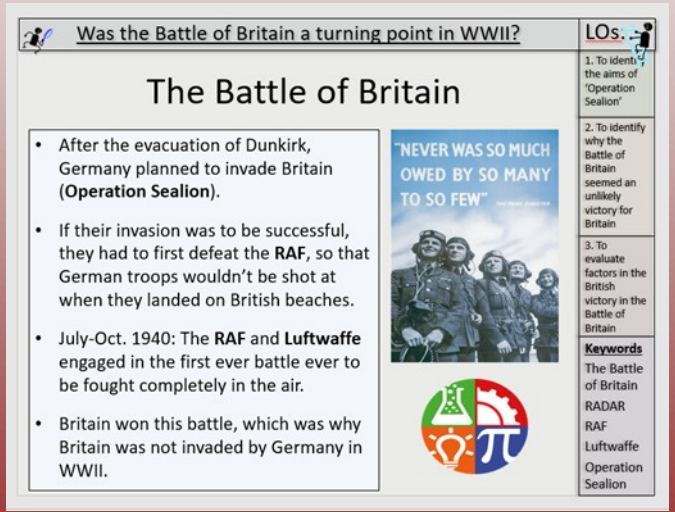
YEAR 9 Battle of Britain

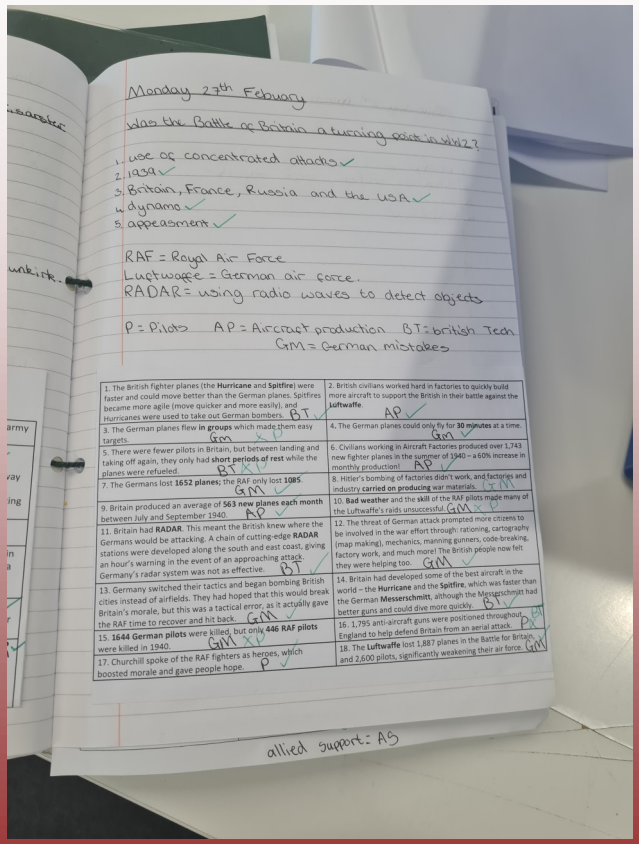
Role of RADAR technology

Role of code-breakers



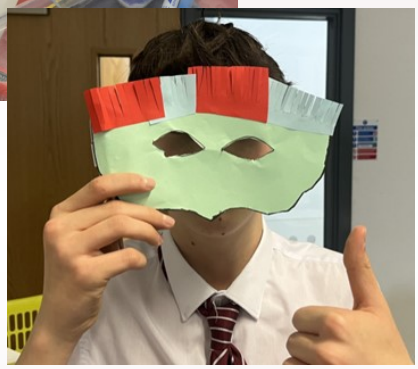




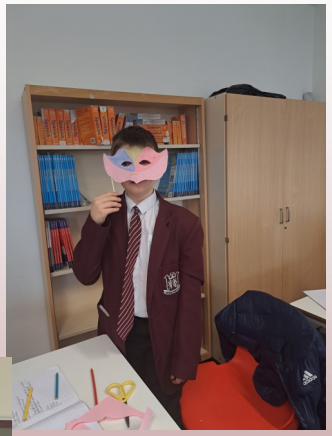


STEM in MFL

creare maschere di Carnevale

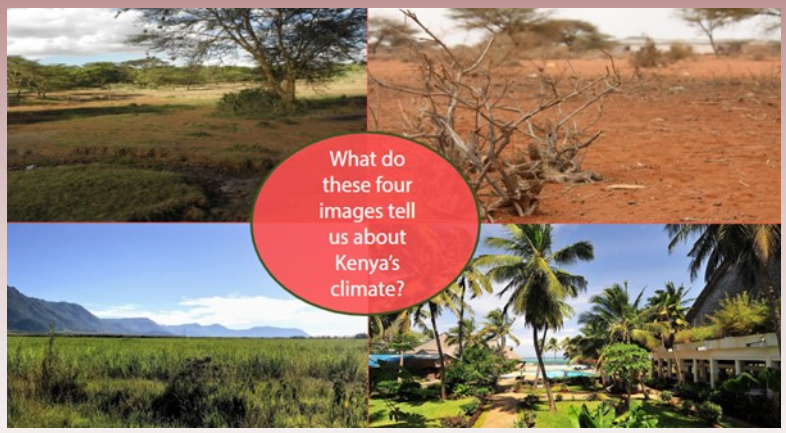


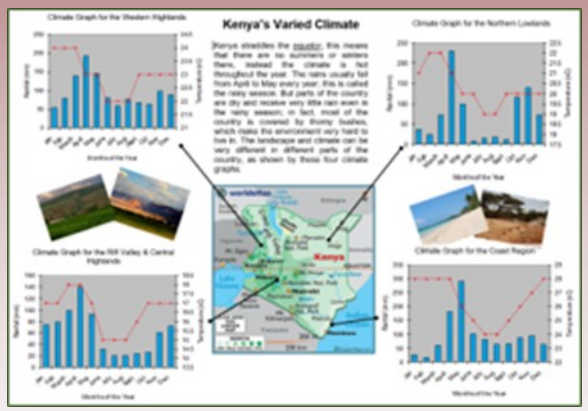
Creation of Venetian masks



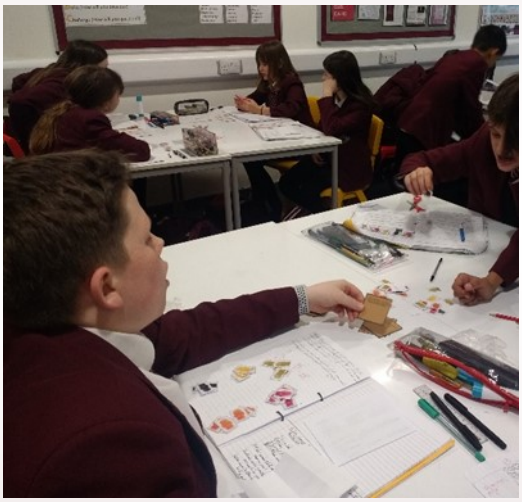
STEM in GEOGRAPHY

Year 7 Looked at graphical data to interpret and explain changes in climate in Kenya





8G – Looked at Factors influencing populations using- Jelly Babies



Jamie and Jake working out what demographic changes are coming their

Jack reading out the scenario for population change in his 'country'.

Faith, Lola, Phoebe and Rebecca – Faith is having to move some people from her country to another country due to a fresh scenario.

Bea, Max, Otto and Beth – checking their population cohorts before the next round of scenarios.

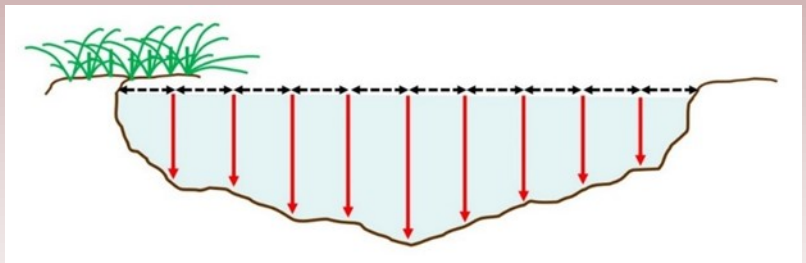
Alice, Olivia, Abbie and Sophia – have their population structures sorted, before changes come their way!

STEM in GEOGRAPHY

Year 9 measured the SUDS at KLS

On a cold day these students valiantly measured the infiltration rate of a swale and the dimensions of a swale itself.

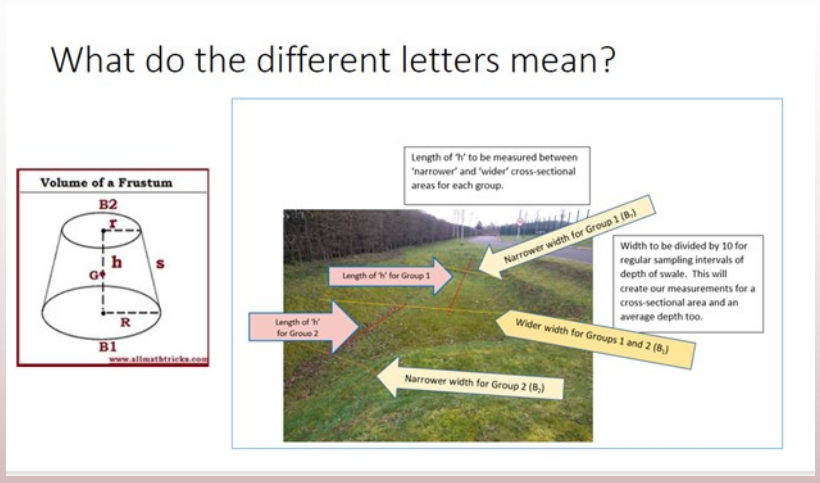
Riley, Pooja and Ethan starting to measure the cross – section of the deeper swale



Measuring the width at the far end of the shallower swale, to then sub-divide into 10 for depth measurements.

9G got one of the swales / frustum of a cone volume to be 80.9m^3 and 9P got the other swale to be 134.8m^3 The infiltration data was wonderfully contrasting between the two sites – within the swale and beyond the swale, with the water down the infiltration tube moving much faster on the edge of the swale than within the swale. All proof that the swales are indeed working

Infiltration Rate – within the swale



Left bank	1 Width of strip 82 cm	2 Width of strip 82 cm	3 Width of strip 82 cm	4 Width of strip 82cm	5 Width of strip 82cm	6 Width of strip 82 cm	7 Width of strip 82 cm	8 Width of strip 82 cm	9 Width of strip 82 cm	Right Bank
Depth	20 cm	30 cm	47 cm	35 cm	95 cm	40 cm	70 cm	80 cm	75 cm	
Area of strip	1640 cm^2	2460 cm^2	3854 cm^2	2870 cm^2	7790 cm^2	3280 cm^2	5740 cm^2	6560 cm^2	6150 cm^2	
Total Area of this wider sampling site =Area of B1 ____40,344 cm^2 403.44m2										

STEM in GRAPHICS

Year 12 have been learning about the importance of prototype development in the design process. The year 12 have been testing out card, clay and Styrofoam models for their children's toothbrushes.

STEM in TECHNOLOGY

F24 Kit Car has made it to the outside world for testing…

STEM in PRODUCT DESIGN

We took an intermediate team made up of four year 10 students (Reece , Jacob , Lois and Areeb) and an advanced team consisting of four year 12 students (Grace r, Eva , Louis and Ruby) to Ashlyns for a D&T Tournament. The challenge was to build a mobile hoist to transport a train carriage carrying hazardous chemicals that had been derailed. The fact that hardly any of the 31 teams completed the task in its entirety illustrates how hard the challenge was.

The students were outstanding on the day and it was great to see the support and collaboration shown between the two teams. I am please to report that the year 12 team came third in the Advanced competition.

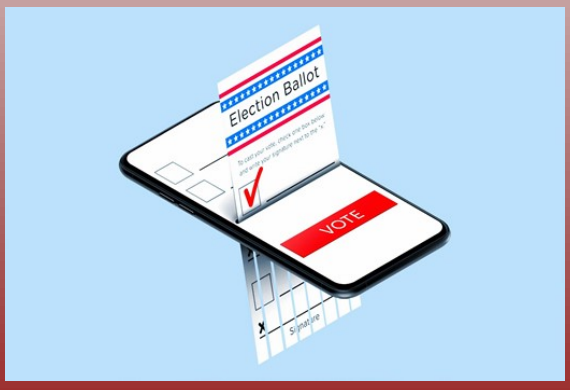
STEM in PSHE

PSHE STEM summary

In year 8 students explored the benefits of technology in improving their learning (learning to learn and metacognition). The 'learning to learn' lessons used examples how technology can be used to develop learning skills such as problem solving, imagination and memory.

In year 9 students looked at gambling. Technology has made gambling more sophisticated and enticing. Students discussed how gambling companies are using modern technology such as creating apps to lure people into gambling.

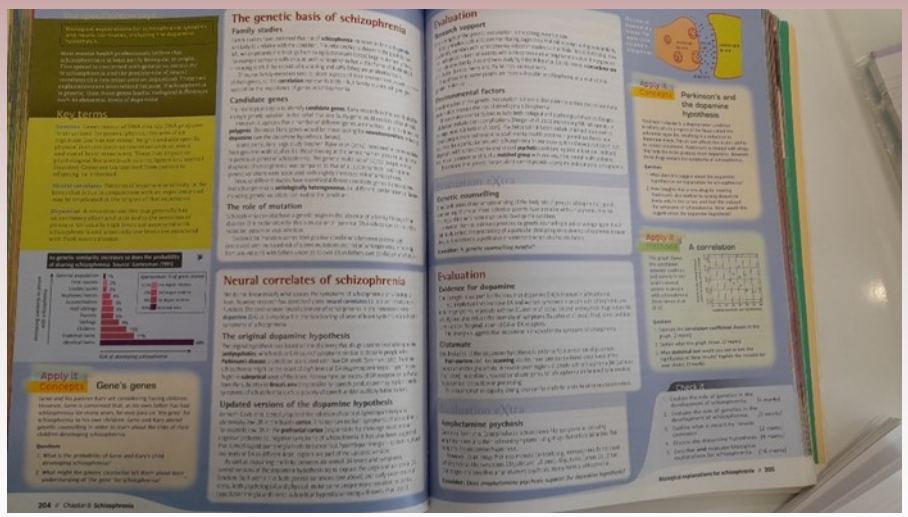
In year 10 students looked at how technology is used in some countries during elections. Students discussed the benefits of electronic voting such as votes being counted quicker.



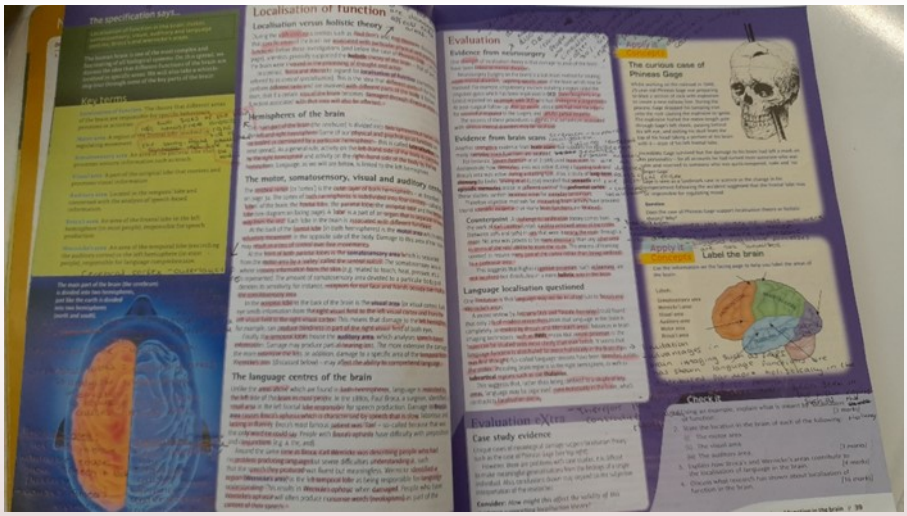
STEM in PSYCHOLOGY

Psychology

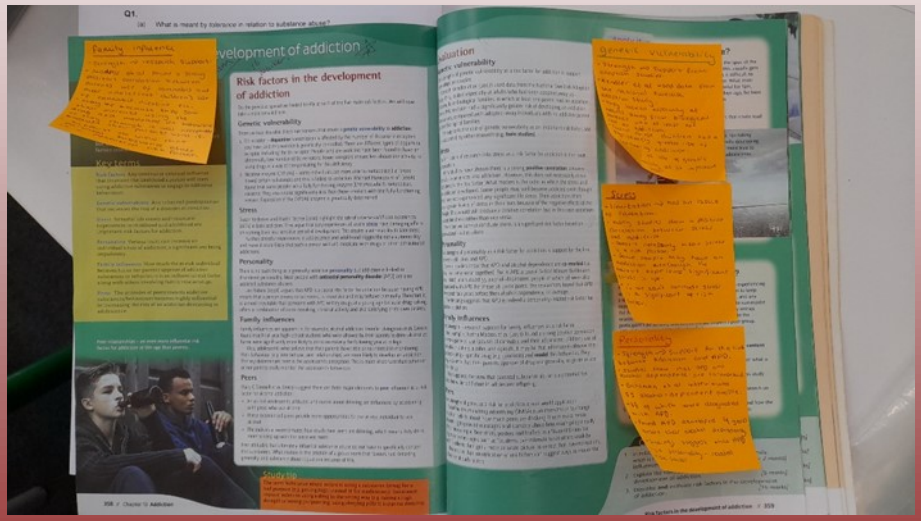
All of psychology as a subject involves STEM, particularly biology, chemistry and maths. As can be seen by the examples above and below of some of the topics studied in Year 13. For schizophrenia above, we review research into the concordance rates of onset in twin studies as well as neurochemical explanations such as the dopamine hypothesis. All psychological explanations and theories are backed up by empirical research data.



studying the anatomy and function of processes in the human brain, students learn about endogenous pacemakers that control our biological rhythms such as the sleep wake cycle but also how certain functions are localised in specific areas of the brain e.g. the occipital region governs sight.



Addiction is another topic studied on many levels from brain neurochemistry and genetic mechanisms which predispose individuals to addiction as well as stress and peer influence in the environment.

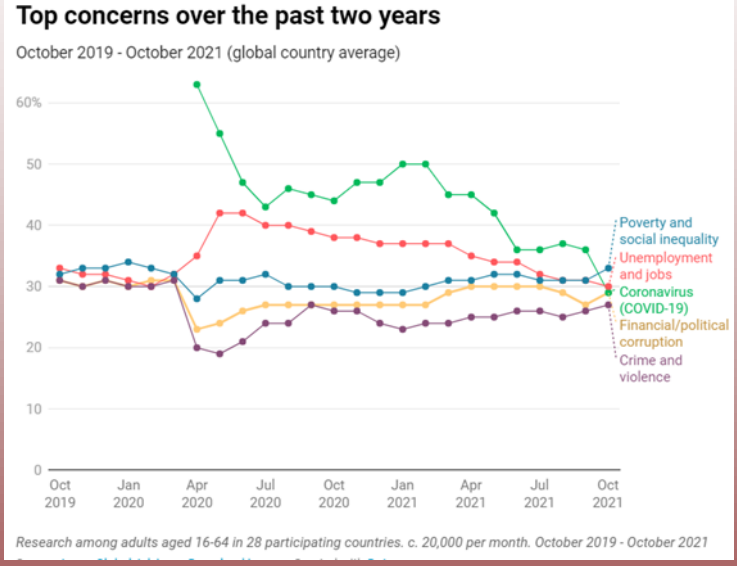


STEM in SOCIOILOGY

Q1 **What would you say is the most important issue facing Britain today?**
Q2 **What do you see as other important issues facing Britain today?**
Base: 1,027 British adults 18+

	Q1 %	Q1/2 %
Common Market/Brexit/EU/Europe	57	65
NHS/Hospitals/Healthcare	3	36
Crime/Law and Order/ASB	3	22
Education/Schools	1	21
Poverty/Inequality	3	17
Housing	2	15
Pollution/environment	3	15
Economy	3	15
Lack of faith in politics/politicians/government	4	15
Immigration/immigrants	3	10
Public services in general	1	8
Drug abuse	1	8
Ageing population/Social care for elderly	1	7
Unemployment	1	7
Low pay/Minimum Wage/fair wages	1	7
Pensions/social security/benefits	*	5
Race relations	*	5
Taxation	*	4
Inflation/Prices	1	4
Transport/public transport	*	4
Defence/foreign affairs/terrorism	1	4
Morality/individual behaviour/lifestyle	*	4
Population levels/overpopulation	1	3
Petrol prices/fuel	0	3
Pound/exchange rate/value of pound	*	3
Local government/council tax	*	3
Animal welfare	*	2
Privatisation	*	2

In Sociology mainly maths is used to generate data which can be used to understand the make-up of society but also where there is need e.g. poverty, the need for housing or education, which can form the basis of government policy. Students learn basic research methods and look at examples of how this data helps us understand the way society functions. The government uses statistics generated by the Office for National Statistics which is the UK's largest independent producer of official statistics, it is the executive office of the UK Statistics Authority, a non-ministerial department which reports directly to the UK Parliament. Other independent research companies such as Ipsos Mori also release data on current trends and attitudes in society.



The government is the largest funding agency for social research. The Department of Health, Work and Pensions and Education and the Home Office, all have large research budgets and commission research from university sociologists and other academics to develop their policies. The ESRC is an independent government funded body for the promotion of social science research, spending around £130 million in 2012-13 on grants to social science researchers.

Far from being a dry and dusty academic subject, sociology, through research (STEM) is involved in shaping and changing society for the better by trying to inform and improve government policies for those who most need it!

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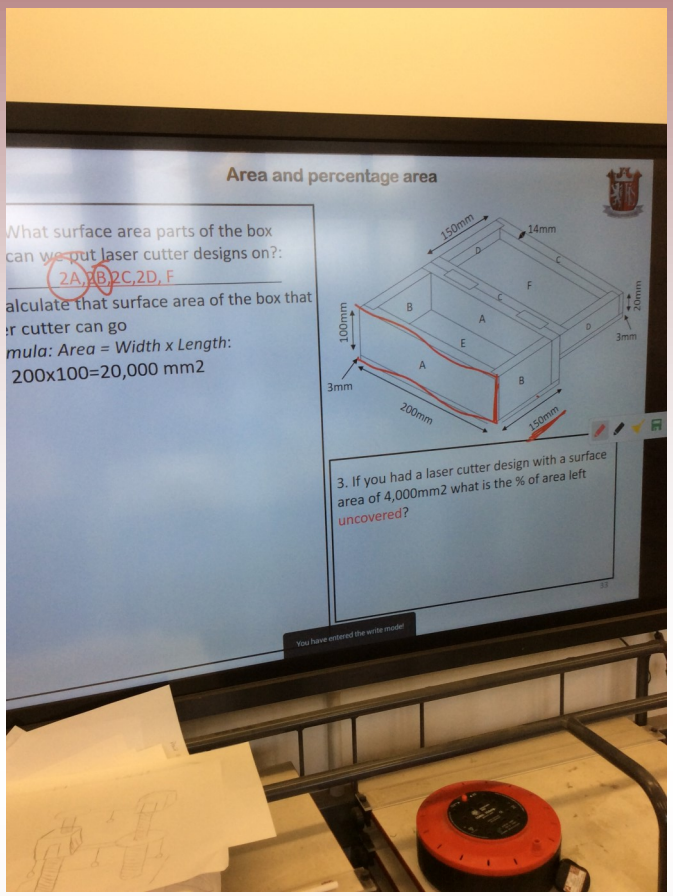
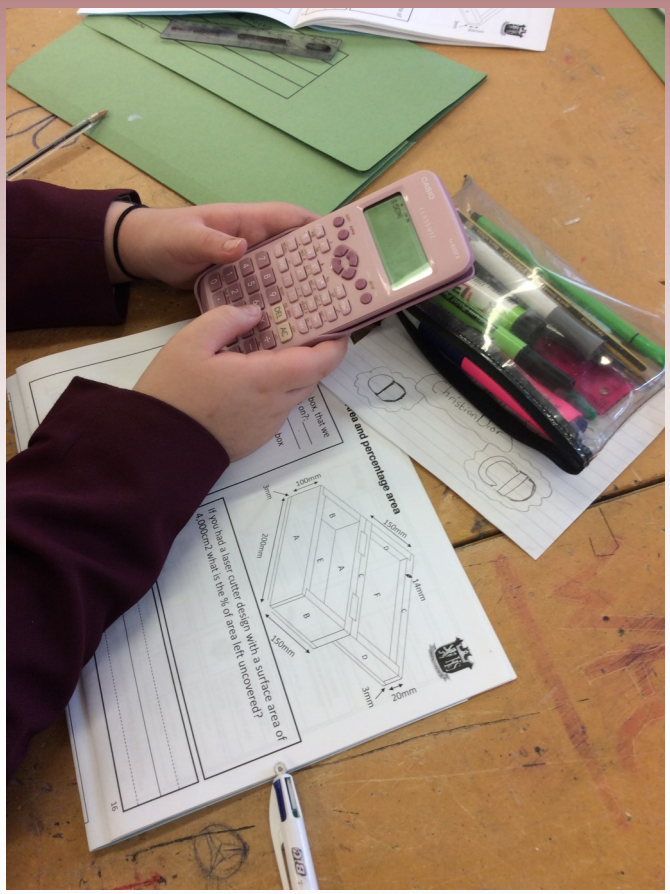
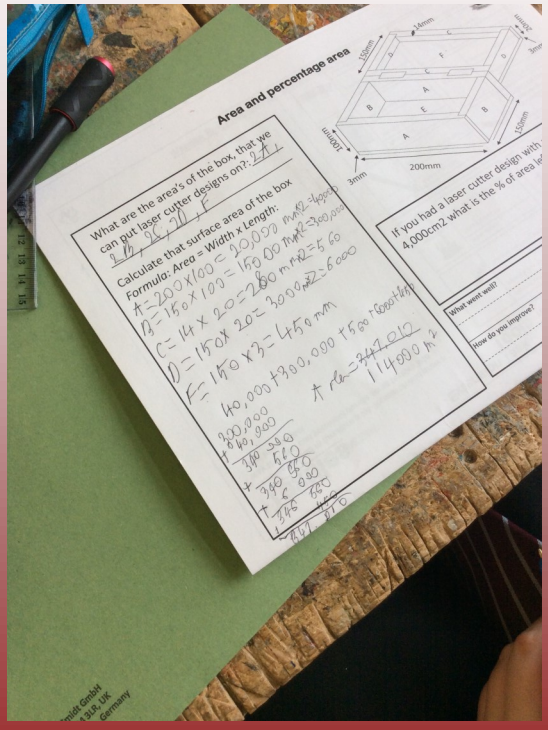
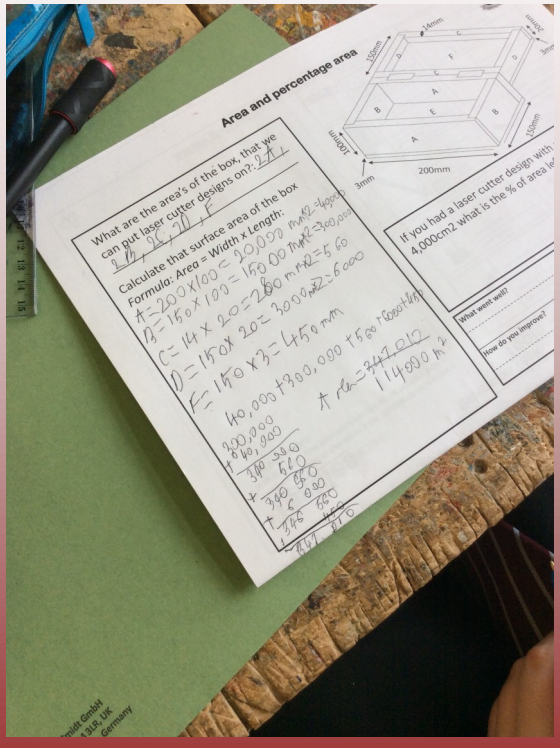
STEM in RESISTANT MATERIALS





STEM lesson with year 8's. We did a math's lesson where we worked out the surface area of the storage box we are making. We used the formula of surface area (W x L) to do this and we did this for all surface areas and added them together.





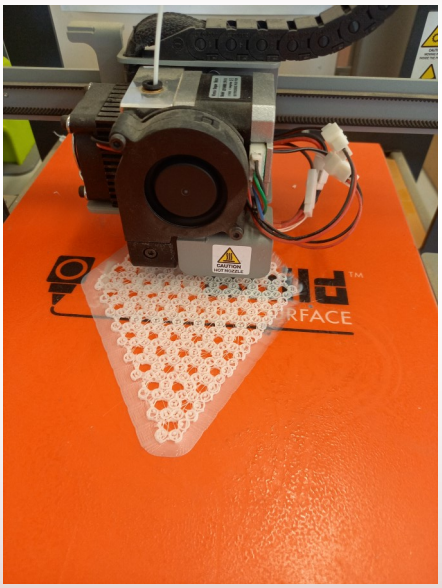
STEM in SCIENCE

YEAR 12 Fish head/gill dissection

STEM in TEXTILES

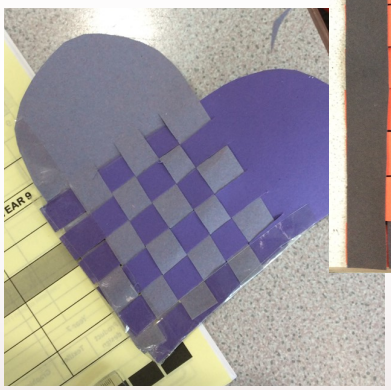
As part of STEM week in KS3 textiles we look at some of the different careers in the textiles industry, this could be a textiles scientist who creates new fabrics that have the potential to be used for medical purposes or can conduct electricity to make smart clothing, or interior designers, textiles artists and costume makers who are part of the growing creative industry in the UK. This gives students an insight into textiles beyond being just a domestic activity but rather a potential STEM career. Practically we looked at measurements tessellation and weaving patterns

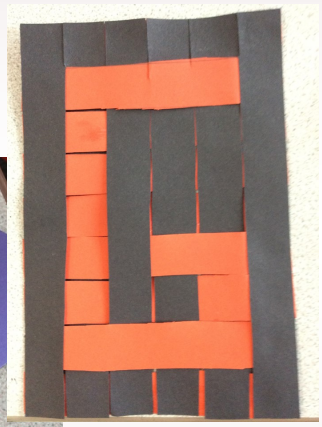
In KS5 we looked at fibres and yarn in detail and why they all have different properties to create the variety of fabrics we wear everyday. We looked at images of fibres and yarns under a microscope to understand why some fabrics are shiner, warmer or more textured than others. We also looked at constructing patterns with 3D and lazer cutting in fabrics.



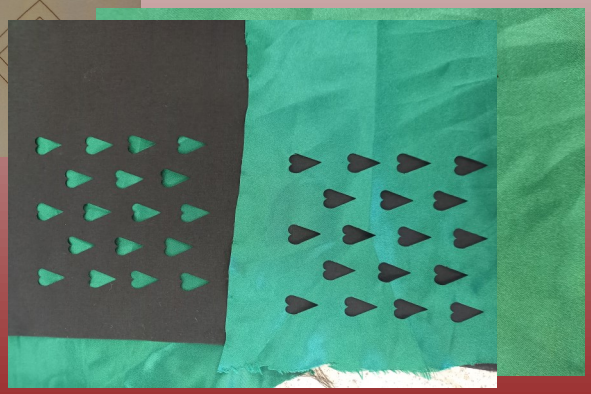
Year 12 experimenting with 3D printing fabrics tessellation considered

Year 7 weaving experiments





Year 12 experimenting with creating Lazer cut fabrics



Cook up something new from a library book!

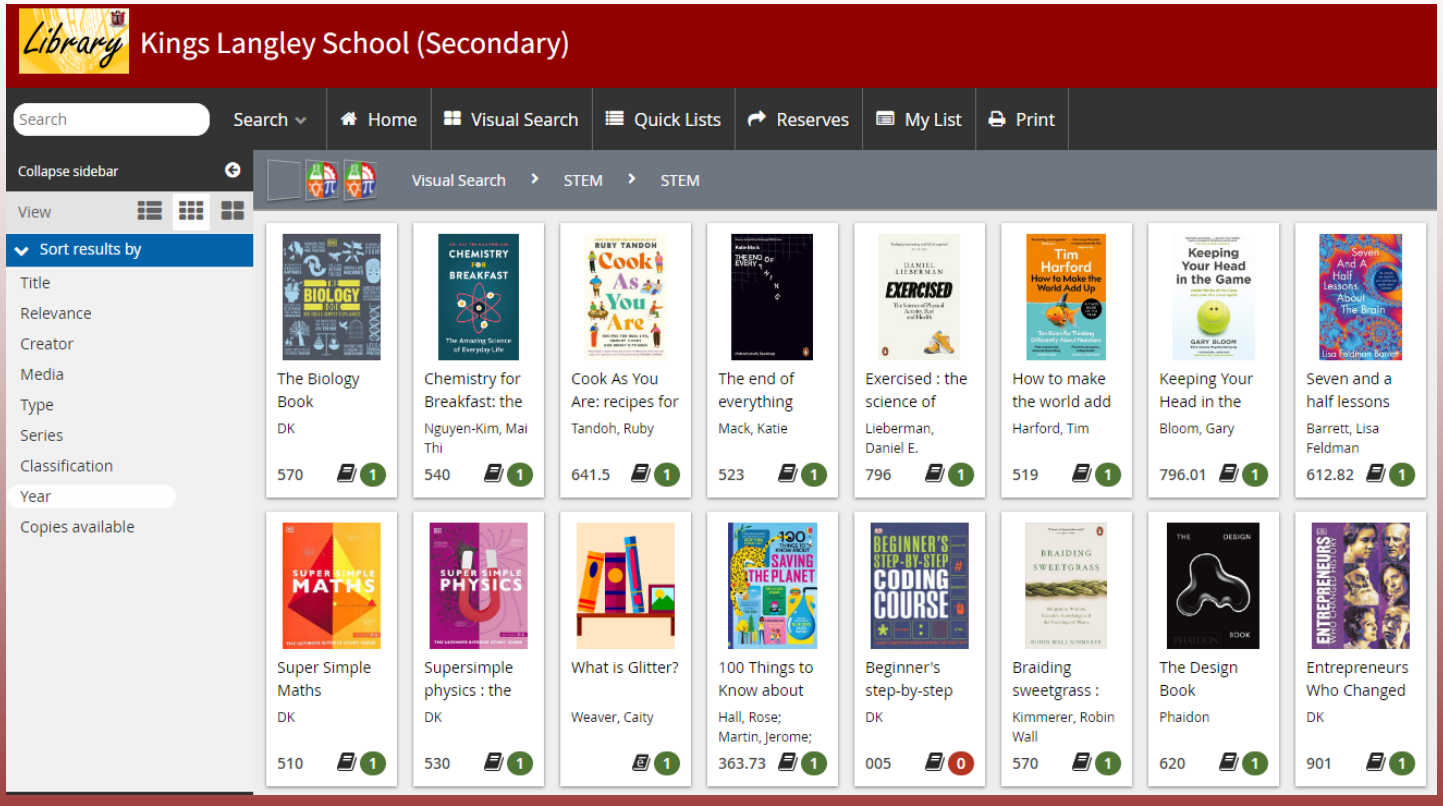
The library's collection of recipe and food books includes ideas for a variety of budgets and dietary needs, cuisines from all over the world, and information about techniques, nutrition, and sustainability.

Follow Us on Social Media: @klslibrary @klslibraryuk

STEM Reads @klslibrary!

How to find STEM books in the library

While you can always browse the shelves in the library to find STEM reads, or ask Ms Hill for recommendations, there is also an easy way to look for STEM books online: using our library website! Go to **https://bit.ly/klslibrary** to visit our home page, then click **Visual Search**, and then the **STEM logo**. From here, you can look through our books related to any of the STEM subjects:



STEM Fair

Why not get involved with this years STEM fair– Five fantastic competitions to enter into. Speak to your form tutor or Miss Scanlan for an entry form.

STEM Fair 2023

Wednesday 21st June 4:30pm to 8pm

Five great competitions.

1. Inventor Design Challenge
2. Lego Master Challenge
3. Cake decorator Challenge
4. DT recycling challenge *new this year*
5. ART sculpture challenge *new this year*

Individual or group entries

Kings Langley School KS3 STEM Fair challenges
Wednesday 21th June 2023 430pm to 8pm

Competitions

Don't miss your chance to win great prizes

What to do next;-

1. Decide if you want to work on your own or in a group
2. Decide which Competitions you want to enter- you can enter more than one
3. Return the signed letter to Miss Scanlan stating which competitions you are entering by 19th May
4. Start working on your project
5. Bring in your work to Miss Scanlan by Monday 19th June 2023 and cakes on the day in the morning 21st June 2023

STEM Colours

	Bronze	Silver	Gold	Platinum	Diamond
Extra-curricular	Attend one extra-curricular STEM club for two terms.	Attend one extra-curricular STEM club for at least a further two terms	Assist a member of staff in the running of an extra-curricular STEM club for a year term, assuming a role of responsibility.	Plan and run an extra-curricular STEM group for a year.	Take an active role with specific responsibilities for STEM such setting up and leading a STEM activity
Leadership	Become a student leader within an area of STEM, for a minimum of two terms.	Become a student leader within an area of STEM, for a minimum of three terms, taking responsibility for a specific activity/ event.	Become a student leader within an area of STEM for at least three terms, assuming a specific role of responsibility where you contribute to the running of events.	Become a student leader within an area of STEM, for at least two years, assuming a specific role of responsibility where you lead others.	Lead a student group/club within an area of STEM, taking responsibility for its planning, design, content and delivery.
Personal Development	Submit one article to the STEM newsletter or contribute to STEM subject display board **or** Enter at least one STEM form competition	Submit two articles to the STEM newsletter or contribute to STEM subject display board within a school year **or** Enter at least two STEM competitions over the year	Submit one article to the STEM newsletter each term or contribute to STEM subject display board each term **or** Enter at least three STEM competitions (one per term)	Via the STEM newsletter, write an article to be included in local press about a positive aspect of your school **or** Enter the STEM fair individually or as a team	Produce a STEM student magazine for a STEM subject area of the school over a year. **or** Lead a team or support a primary school team to enter the STEM fair
School and Wider Community	Take part in a STEM school or community fundraising event	Contribute to a STEM school or community fundraising event assuming a role of responsibility	Lead a STEM school or community fundraising event assuming a role of responsibility	Organise a STEM school or community fundraising event assuming a role of responsibility	Lead on, or assist the support of students in a STEM fundraising event across the school