



Primary STEM Workshops & Resources 2023 - 2024



2023-2024 Update...



Workshop Update...

Welcome to our 2023-24 Primary STEM Workshop booklet!

Firstly you will have noticed that we have officially changed our name from SETPOINT Hertfordshire to STEMPOINT.

We are pleased to say that we have held prices for another year. As you know, we have removed our **Lighting it Up Workshop** and replaced it with our new **Super Power Workshop** which has been a huge success (see page 12)!

More information is available on our website: www.stempointeast.org.uk/education/primary/workshops/ and let us know if you have any queries or comments. However we are putting together our new website which will be coming soon so watch this space!

We are also continuing to offer schools the chance to have a free STEM Role Model visit either in person or virtually; for more details, see page 27. You can request a STEM Ambassador free-of-charge to support any of your STEM topics – just let us know and we can arrange this (*subject to their availability*). Don't forget, STEM Ambassadors are also great for cross-curricular topics including literacy!

Our online Teach Meets and primary competitions have proved really popular over the last year, and we continue to offer these services, so look out for flyers with forthcoming opportunities. Or join our [E-Mailing List](#) so you don't miss out!

We look forward to being invited back into your schools over the next few months to help inspire your children with our fun and exciting educational hands-on STEM workshops!

To view our workshops online go to:

<https://www.stempointeast.org.uk/education/primary/workshops/>

Our online booking system is not working at present so please contact Helen Bailey directly using the email: h.bailey@stempoint.org.uk



Workshops

Key: Colour Coded



Science



Computing



Design &
Technology



Maths

Page numbers:

4	Bubbles Science/Investigation/Forces	F & KS1	12	Super Power Science/D&T	KS2
5	Splash Science/Investigation/Forces	F & KS1	13	Smart Toy Engineers Computing/Maths/Problem-solving	Up KS2
6	Me & My Senses Science/Investigation	F & KS1	14	Coding with the BBC micro:bit	Up KS2
7	Light & Dark Science/Technology	UKS1 LKS2	15	Band Rollers D&T/Practical Skills	LKS2
8	Materials Yr1 Science/Investigation	KS1	16	Catapult Challenge D&T/ Computing Practical Skills	Up KS2
9	Materials Yr2 Science/Investigation	KS1	17	Plastazote D&T/Science	Up KS2
10	Circus Science/Forces	KS1 LKS2	18	Balloon Buggies D&T/Science	Up KS2
11	Exploring Materials Science/Investigation	KS2	19	Moving Toys D&T/Science	Up KS2

Plus pages

20

21

22

**Specialist Maths
Workshops**

KS2

Bubbles

Exploration and investigation



Foundation Stage and Key Stage 1 children explore bubbles in an exciting and interactive way.

Most children have blown bubbles at this age and this workshop encourages the children to discuss what bubbles are made of, where bubbles are found, including making bubbles using household items to:-

- investigate the best way of blowing bubbles
- observe bubbles for colours and shapes
- experiment using everyday items to blow bubbles
- predict and test what happens with different shaped bubble blowers
- create bubble pictures.

Weather permitting we go outside and make BIG bubbles using the large bubble makers.

This workshop needs to take place in the school hall.

Full Curriculum Links plus Non-Statutory Opportunities available at:

[Bubbles National Curriculum Links](#)

Follow up activities - free of charge, available with this workshop.

National Curriculum links

FS - Maths: explore characteristics of everyday objects and shapes and use mathematical language to describe them; Exploring and using media and materials: safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function; Being imaginative: children use what they have learnt about media and materials in original ways, thinking about uses and purposes. **Science** - Working Scientifically (KS1); Everyday Materials (Y1); & Uses of Everyday Materials (Y2). **Maths** - Measure and begin to record capacity and volume (Y1); Recognise and name common 2-D and 3-D shapes (Y1); identify and describe the properties of 2-D shapes, including the number of sides and line symmetry in a vertical line (Y2). **English** - Ask relevant questions to extend their understanding and knowledge; Articulate and justify answers, arguments and opinions; Developing a broader, deeper and richer vocabulary.

Plus so much more.....



Cost: A whole day: 3 x 1 1/4 hours approx. sessions/workshops at £390 per day
Morning only: 2 x 1 1/4 hours approx. sessions/workshops at £265 per morning
All materials and equipment provided. Maximum class numbers = 36 pupils

Helpers: You will need to provide 5 adult helpers in addition to the class teacher for each session/workshop

Splash!

Investigations and predictions



'Splash' is WET, involving a lot of water, so it has to be done outdoors.

We only offer it from May to July and the workshop can go ahead even in the rain! Splash is a Upper Foundation and KS1 interactive science workshop, involving lots of scientific enquiry.

Activities include:

- racing different shaped boat hulls
- exploring the reasons why some things float and some sink
- working as a team to build a functioning water supply
- exploring the effects of different sized sails
- testing to see which paddle is best to propel a boat forward

The aims are for your children to have lots of fun and enjoyment in solving problems by:

- asking questions and deciding how to find answers to them
- thinking about what might happen before deciding what to do
- recognising if a test is fair
- carrying out an investigation, and making observations
- comparing what actually happened with their predictions
- describing what happened and trying to explain why.

Full Curriculum Links plus Non-Statutory Opportunities available at: [Splash National Curriculum Links](#)

Follow up activities - free of charge, available with this workshop.

National Curriculum links

FS - Maths: explore characteristics of everyday objects and shapes and use mathematical language to describe them; Exploring and using media and materials: safely use and explore a variety of materials, tools and techniques, experimenting with colour, design, texture, form and function; Being imaginative: children use what they have learnt about media and materials in original ways, thinking about uses and purposes. **Science** - Working Scientifically (KS1); Everyday Materials (Y1); & Uses of Everyday Materials (Y2). **Maths** - Compare, describe and solve practical problems for lengths and heights and time (Y1). **English** - Ask relevant questions to extend their understanding and knowledge; Articulate and justify answers, arguments and opinions; Developing a broader, deeper and richer vocabulary.

Plus so much more.....

**Years
R, 1 & 2**

Cost: A whole day: 3 x 1 1/4 hours approx. sessions/workshops at £390 per day
Morning only: 2 x 1 1/4 hours approx. sessions/workshops at £265 per morning
All materials and equipment provided. Maximum class numbers = 30 pupils

Helpers: You will need to provide 5 adult helpers in addition to the class teacher for each session/workshop

Me and My Senses

Explore Senses through Practical Investigations



This workshop has been running with great success in Hertfordshire schools for a number of years and is an ideal interactive workshop to do alongside classroom work on 'Ourselves'. The children move through a series of activities with their accompanying adult, using a 'hospital record card' for their observations and measurements such as hair colour, hand span, fingerprints etc. Other activities encourage them to test their senses and investigate their bodies' capabilities.



Teachers have commented that this is the perfect consolidation or preparation for the 'Animals including Humans' science units and a wonderful opportunity for all children to take part in investigative science. Parent helpers enjoy actively participating in their children's learning and also finding out more about the curriculum at KS1.

This workshop needs to take place in the school hall.

Full Curriculum Links plus Non-Statutory Opportunities available at: [Me & My Senses National Curriculum Links](#) Follow up activities - free of charge, available with this workshop.

National Curriculum links

FS - Maths: use everyday language to talk about size, weight and time;

Understanding the world: Children know about similarities and differences between themselves and others. They can make observations about plants and animals (their own bodies) and explain why some things occur and talk about changes; Being imaginative: children represent their own ideas, thoughts and feelings through role-play. **Science** - Working Scientifically (KS1) asking simple questions and recognising that they can be answered in different ways; Observing closely, using simple equipment; Performing simple tests; Identifying and classifying; Using observations and ideas to suggest answers to questions; Gathering and recording data to help in answering questions; Animals, including Humans (Y1); Animals, including Humans (Y2). **Maths** - Compare, describe and solve practical problems for lengths and heights and time (Y1); Choose and use appropriate standard units to estimate and measure length/height in any direction (m/cm). **English** - **Plus so much more.....**



Cost: A whole day: 2 x 2 1/4 hours sessions/workshops at £390 per day
Morning only: 1 x 2 1/4 hours sessions/workshops at £265 per morning
All materials and equipment provided. Maximum class numbers = 45 pupils

6 Helpers: You will need to provide 6 adult helpers in addition to the class teacher for each session/workshop

Light and Dark



Light cannot be tasted, heard, felt or smelt - but it can be seen, and children can have a lot of fun finding out about it.

This workshop gives Reception, KS1 and lower KS2 children the opportunity to explore light in an exciting and active way, building upon ideas taken from Light and Dark in the curriculum.

Each workshop comes in two parts:

- Using a variety of light sources, a 'blackout tent' and various different objects, children develop the understanding that light is needed in order to see, and that darkness is the absence of light. Using mirrors and periscopes they investigate how light travels.

We bring a selection of toys that use light and shadow screens which children can use to explore shadows for KS2.

- In the second part of the workshop each child makes a small kaleidoscope to take home. They also have an opportunity to go in our black-out tent to see how light is used to stimulate their senses.

This workshop needs to take place in the school hall.

Full Curriculum Links plus Non-Statutory Opportunities available at: [Light & Dark National Curriculum Links](#)

Follow up activities - free of charge, available with this workshop.

National Curriculum links

FS - Communication and Language; Maths; Understanding the world; Exploring and using media and materials. **Science** - Working Scientifically (KS1); Light (Y3) - Recognise that they need light in order to see things and that dark is the absence of light; Notice that light is reflected from surfaces; Recognise that light from the sun can be dangerous and that there are ways to protect their eyes; Recognise that shadows are formed when the light a light source is blocked by a solid object; Find patterns in the way that the size of shadows change. **D&T** - Design; Make; Evaluate; Use Technical Knowledge. **English** - Ask relevant questions to extend their understanding and knowledge; Articulate and justify answers, arguments and opinions; Developing a broader, deeper and richer vocabulary
Plus more.....



Cost: A whole day: 3 x 1 1/4 hours approx. sessions/workshops at £390 per day
Morning only: 2 x 1 1/4 hours approx. sessions/workshops at £265 per morning
All materials and equipment provided. Maximum class numbers = 30 pupils

Helpers: You will need to provide 5 adult helpers in addition to the class teacher for each session/workshop

Materials Yr1

What are things made of and why?



This popular workshop in schools, allows pupils to ask questions such as - What are things made of? Why do we use a particular material for something? What properties does that material have to make it good for purpose?

In small groups, children carry out hands-on, exciting activities to help them meet the 'Everyday Materials' element of the Year 1 programme of study. Activities include, sorting a large set of everyday items, vocabulary developing games and workshop leader led discussion. For the final activity, we use a well-loved traditional tale to engage the class's problem-solving abilities in carrying out a practical experiment.

The workshop works best in the classroom.

Full Curriculum Links plus Non-Statutory Opportunities available at:
[Materials Yr1 National Curriculum Links](#)

Follow up activities - free of charge, available with this workshop.

National Curriculum links

Science - Working Scientifically (KS1); Asking simple questions and recognising that they can be answered in different ways; Observing closely, using simple equipment; Performing simple tests; Identifying and classifying; Using observations and ideas to suggest answers to questions; Gathering and recording data to help in answering questions; Everyday Materials (Y1); Distinguish between an object and the material from which it is made; Identify and name a variety of everyday materials, including wood, plastic, glass, metal, water, and rock; Describe the simple physical properties of a variety of everyday materials; Compare and group together a variety of everyday materials on the basis of their simple physical properties. **Maths** - Compare, describe & solve practical problems for lengths, weights, heights & time (Y1); Measure & begin to record lengths & heights & time (Y1); **English** - Ask relevant questions to extend their understanding & knowledge; Articulate & justify answers, arguments and opinions; Developing a broader, deeper and richer vocabulary.

Plus so much more....



Cost: A whole day: 3 x 1 1/2 hours sessions/workshops at £390 per day
Morning only: 2 x 1 1/2 hours sessions/workshops at £265 per morning
All materials and equipment provided. Maximum class numbers = 30 pupils

8 Helpers: You will need to provide 5 adult helpers in addition to the class teacher for each session/workshop

Materials Yr2

What are things made from?



What are things made from? Why is one material better for a job than another material? How do we decide which material to use?

In pairs, children carry out practical activities designed to support the 'Uses of Everyday Materials' element of the Year 2 programme of study.

Activities include:

- an odd one out challenge
- testing a range of everyday objects for particular properties
- exploring how waterproof different materials are
- using their knowledge to apply a waterproofing layer and testing it

This workshop works best in the classroom.

Full Curriculum Links plus Non-Statutory Opportunities available at:

[Materials Yr2 National Curriculum Links](#)

Follow up activities - free of charge, available with this workshop.

National Curriculum links

Science - Working Scientifically (KS1); Asking simple questions and recognising that they can be answered in different ways; Observing closely, using simple equipment; Performing simple tests; Identifying and classifying; Using observations and ideas to suggest answers to questions; Gathering and recording data to help in answering questions; Everyday Materials (Y2); Identify and compare the suitability of a variety of everyday materials, including wood, metal, plastic, glass, brick, rock, paper and cardboard for particular uses; Find out how the shapes of solid objects made from some materials can be changed by squashing, bending, twisting and stretching. **English** - Ask relevant questions to extend their understanding & knowledge; Articulate & justify answers, arguments and opinions; Developing a broader, deeper and richer vocabulary.

Plus more..

**Year
2**

Cost: A whole day: 3 x 1 1/2 hours sessions/workshops at £390 per day
Morning only: 2 x 1 1/2 hours sessions/workshops at £265 per morning
All materials and equipment provided. Maximum class numbers = 30 pupils

Helpers: You will need to provide 1 adult helpers in addition to the class teacher for each session/workshop

Circus

Five fun forces activities



Your pupils will learn how to balance clowns on a piece of string; see how far their foam rockets go; experiment with magnetism; make spinning tops and see what patterns are made and bounce marbles using different sized tubs!

Circus consists of five practical hands-on activities loosely related to the circus, which all your children can enjoy. The children rotate through each activity in groups, investigating a different type of force.

For lower KS2, the activities are extended.

Our aim is for your children to have lots of fun and enjoyment in:

- investigating
- making
- experimenting
- comparing

This workshop needs to take place in the school hall.

Full Curriculum Links plus Non-Statutory Opportunities available at: [Circus National Curriculum Links](#)

Follow up activities - free of charge, available with this workshop.

National Curriculum links

Science - Working Scientifically (LKS1); Forces and Magnets (Y3). Compare how things move on different surfaces; Notice that some forces need contact between 2 objects, but magnetic forces can act at a distance; Observe how magnets attract or repel each other and attract some materials and not others; Compare and group together a variety of everyday materials on the basis of whether they are attracted to a magnet, and identify some magnetic materials.

DT - Design; Make; Evaluate; Technical knowledge.

Maths - Identify acute and obtuse angles and compare and order angles up to two right angles by size (Y4).

English - Ask relevant questions to extend their understanding & knowledge; Articulate & justify answers, arguments and opinions; Developing a broader, deeper and richer vocabulary.

Plus so much more....



Cost: A whole day: 3 x 1 1/4 hours approx. sessions/workshops at £390 per day
Morning only: 2 x 1 1/4 hours approx. sessions/workshops at £265 per morning
All materials and equipment provided. Maximum class numbers = 30 pupils

10 Helpers: You will need to provide 5 adult helpers in addition to the class teacher for each session/workshop

Exploring Materials

Four thought-provoking
science investigations



Each child will have the opportunity to carry out four different National Curriculum linked practical activities, including classifying, changing and separating materials. Children work through the activities in small groups to create a lava lamp effect; produce gas to blow up balloons; split black ink into all the colours of the rainbow and find out which material is the hardest!

This workshop will help you to deliver some of the curriculum on 'Materials.' SETPOINT will help to raise children's awareness of how scientists work. It builds home school links - all children can take home instructions on how to carry out the experiments. Children, staff and parent-helpers alike love this fun and exciting workshop.

This workshop needs to take place in the school hall.

Full Curriculum Links plus Non-Statutory Opportunities available at: [Exploring Materials National Curriculum Links](#)

Follow up activities - free of charge, available with this workshop.

National Curriculum links

Science - Working Scientifically (LKS2/UKS2); Make systematic and careful observations take accurate measurements using standard units; using a range of scientific equipment with increasing accuracy and precision; Plus more..**States of Matter** (Y4). Compare and group materials together, according to whether they are solids, liquids or gases; **Properties and Changes to Materials (Y5)**. **Maths** - Statistics (Y3,4,5&6); Measurement (Y3,4,5&6). **English** - Ask relevant questions to extend their understanding & knowledge; Articulate & justify answers, arguments and opinions; Developing a broader, deeper and richer vocabulary.

Plus so much more.....



**Years
3 to 6**

Cost: A whole day: 3 x 1 1/2 hours sessions/workshops at £390 per day
Morning only: 2 x 1 1/2 hours sessions/workshops at £265 per morning
All materials and equipment provided. Maximum class numbers = 30 pupils

Helpers: You will need to provide 5 adult helpers in addition to the class teacher for each session/workshop

Super Power

Electrical Circuits and Solar Energy?



In this new workshop, children learn how electricity is made and the different methods of generation, both renewable and non-renewable.

Children learn how a simple electrical circuit is made by getting hands on with the equipment provided and learn about standardised electrical symbols. They also investigate the properties of different materials to see if they are electrical conductors or insulators. They then have the chance to become part of a human electrical circuit!

Children also investigate using solar cells, rather than batteries, to provide the power for a circuit. This is done outside, or on very dull days, inside, using our powerful lamps.

The workshop is best done in the hall but can be adapted for a large classroom.

As well as other areas this workshop covers all Electrical Yr4 & Yr6 elements of the National Curriculum plus Non-Statutory Opportunities will be available.

Curriculum links

Electricity (Y4) identify common appliances that run on electricity. Construct a simple series electrical circuit, identifying and naming its basic parts, including cells, wires, bulbs, switches and buzzers. Identify whether or not a lamp will light in a simple series circuit, based on whether or not the lamp is part of a complete loop with a battery. Recognise that a switch opens and closes a circuit and associate this with whether or not a lamp lights in a simple series circuit. Recognise some common conductors and insulators, and associate metals with being good conductors.

Electricity (Y6) - associate the brightness of a lamp or the volume of a buzzer with the number and voltage of cells used in the circuit (& solar cells) - compare and give reasons for variations in how components function, including the brightness of bulbs, the loudness of buzzers and the on/off position of switches - use recognised symbols when representing a simple circuit in a diagram - use technology purposefully.



Cost: A whole day: 2 x 2 1/2 hours sessions/workshops at £390 per day
Morning only: 1 x 2 1/2 hours sessions/workshops at £265 per morning
All materials and equipment provided. Maximum class numbers = 30 pupils

12 Helpers: You will need to provide 4 adult helpers in addition to the class teacher for each session/workshop

Smart Toy Engineers

Bit:Bot Robots

IT suite not needed as we bring all resources.



The Smart Toy Company has built several prototypes for a new range of programmable wheeled toys. The design team have called the prototypes Bit:Bot and they want to find out how well the prototypes work.

Working in pairs your pupils act as test engineers first learning how to program Bit:Bot, then finding out how Bit:Bot behaves by carrying out a series of experiments and finally using the data collected to program Bit:Bot to successfully navigate a test track.

Our aims are to:

- provide a stimulating and practical activity suitable for all abilities, which compliments learning in school
- learn how to program the BBC micro:bit computer using block code
- carry out experiments by making accurate measurements, recording results, drawing and interpreting graphs
- develop numeracy, logical thinking, analytical and problem solving skills
- improve team working and communication skills
- provide more experienced programmers the opportunity to use imagination and creativity

This workshop requires use of the hall.

Full Curriculum Links plus Non-Statutory Opportunities available at: [Smart Toy Engineers National Curriculum Links](#)

Follow up activities - free of charge, available with this workshop.

Cost: A whole day: 2 x 2 1/4 hours approx. sessions/workshops at £390 per day
Morning only: 1 x 2 1/4 hours approx. sessions/workshops at £265 per morning
All materials and equipment provided. Maximum class numbers = 32 pupils

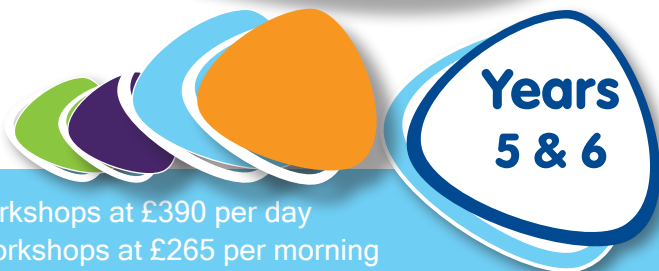
Teacher supervision only, although parents with an interest/skill in programming are welcome, we will provide a volunteer STEM Ambassador to assist this workshop subject to availability.

This workshop is only suitable for Year 5 pupils from the spring term onwards.

National Curriculum links

Computing - Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts; Use sequence, selection, and repetition in programs; work with variables and various forms of input and output; Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. **Science** - Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary; Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs; Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations.

Maths - Make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. Apply their mathematical knowledge to science and other subjects.; **D&T** -Technical Knowledge - **English** - **Plus so much more..**



Coding with the BBC micro:bit

Miss Smart & the diamond thief



Miss Smart owns a very large diamond which she keeps in a safe with a programmable alarm, sensors and lights. She has heard that a gang of thieves are planning to steal the diamond and she must write some computer programs to stop them. Working in pairs your pupils take on the role of programmers, learning how to write code to stop the thieves from stealing the diamond. After some initial exercises your class are encouraged to use their imagination to develop their own solutions to stop the intruders.

Our aims are to:

- Provide a stimulating and practical activity, suitable for all abilities, which compliments learning in school
- Learn to program the BBC micro:bit computer using block code
- Introduce flow diagrams, sequencing and binary concepts
- Develop logical thinking, analytical and problem solving skills
- Improve team working and communication skills
- Provide an opportunity to use imagination and creativity

This workshop works best in a classroom.

IT suite not needed as we bring all resources.

Full Curriculum Links plus Non-Statutory Opportunities available at: [Coding with the BBC micro:bit Curriculum Links](#)

Follow up activities - free of charge, available with this workshop.

National Curriculum links

Computing - Design, write and debug programs that accomplish specific goals, including controlling or simulating physical systems; solve problems by decomposing them into smaller parts; Use sequence, selection, and repetition in programs; work with variables and various forms of input and output; Use logical reasoning to explain how some simple algorithms work and to detect and correct errors in algorithms and programs. **Science** - Recording data and results of increasing complexity using scientific diagrams and labels, classification keys, tables, scatter graphs, bar and line graphs; Reporting and presenting findings from enquiries, including conclusions, causal relationships and explanations of and a degree of trust in results, in oral and written forms such as displays and other presentations. **Maths** - Pupils should make rich connections across mathematical ideas to develop fluency, mathematical reasoning and competence in solving increasingly sophisticated problems. They should also apply their mathematical knowledge to science and other subjects; **D&T** - Technical Knowledge - apply knowledge of computing to program, monitor and control their products **English** ask relevant questions to extend their understanding and knowledge; Articulate and justify answers, arguments and opinions; Developing a broader, deeper and richer vocabulary- **Plus so much more..**

Years
5 & 6

Cost: A whole day: 2 x 2 1/4 hours approx. sessions/workshops at £390 per day
Morning only: 1 x 2 1/4 hours approx. sessions/workshops at £265 per morning
All materials and equipment provided. Maximum class numbers = 30 pupils

Teacher supervision only, although parents with an interest/skill in programming are welcome.

14 This workshop is only suitable for Year 5 pupils from the spring term onwards.

Band Rollers

Using and understanding energy



During this workshop, pupils have the opportunity to investigate the energy required to drive a simple toy and use a range of tools to construct it.

The aims are to provide Year 3 and 4 pupils with an enjoyable, stimulating workshop; to investigate the potential energy that can be stored in an elastic band, its release and use to drive/power a toy.

They are taken step-by-step through the stages in making the band roller, being encouraged to measure, mark out, cut using a junior hacksaw, assemble, join and combine components accurately. They will also learn how to use the tools safely and properly and test the band roller (which they keep) and then race others. Finally they will reflect on the design, identifying ways it could be improved.

This workshop needs to take place in the school hall.

Full Curriculum Links plus Non-Statutory Opportunities available at: [Band Rollers National Curriculum Links](#)

Follow up activities - free of charge, available with this workshop.

National Curriculum links

D&T - Design - Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups; Generate, develop, model and communicate their ideas through discussion; Make - Select from and use a wider range of tools and equipment to perform practical tasks [for example, cutting, shaping, joining and finishing], accurately; Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities; Evaluate - Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work; Understand how key events and individuals in design and technology have helped shape the world; Technical knowledge - Understand and use mechanical systems in their products (for example, gears, pulleys, cams, levers and linkages). Science Working Scientifically (LKS2). **Maths** - Measurement - measure, compare, add and subtract: lengths (m/cm/mm) (Y3); Estimate, compare and calculate different measures (Y4); **English** - Articulate & justify answers, arguments and opinions; Developing a broader, deeper and richer vocabulary. **Plus so much more....**



Cost: A whole day: 2 x 2 1/4 hours sessions/workshops at £390 per day
Morning only: 1 x 2 1/4 hours sessions/workshops at £265 per morning
All materials and equipment provided. Maximum class numbers = 30 pupils

Helpers: You will need to provide 3 adult helpers in addition to the class teacher for each session/workshop

Catapult Challenge



This practical problem-solving workshop is technology based and has been used in the past by schools to fit in with a topic on the Romans but works equally well as a stand-alone exciting engineering challenge for your class.

During the workshop, children will be guided through the main parts of catapult construction, each making a small catapult which they can keep. They will then work in pairs to use construction kits, provided by us, to tackle a challenge set by the workshop leader. There is a competitive element to the challenge with certificates awarded in specific categories. Every child is encouraged to review their own successes during the workshop and is awarded a personalised certificate of achievement.

This workshop can take place in the classroom.

Full Curriculum Links plus Non-Statutory Opportunities available at: [Catapult Challenge National Curriculum Links](#)

Follow up activities - free of charge, available with this workshop.

National Curriculum links

D&T - Design - Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups; Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design; Make - Select from and use a wider range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing), accurately; Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities; Evaluate - Investigate and analyse a range of existing products; Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work; Understand how key events and individuals in design and technology have helped shape the world; Technical knowledge - Understand and use mechanical systems in their products (for example, gears, pulleys, cams, levers and linkages). **Science** Working Scientifically (LKS2/UKS2) **Maths** - Estimate compare & calculate different measures (Y4);

Plus so much more....

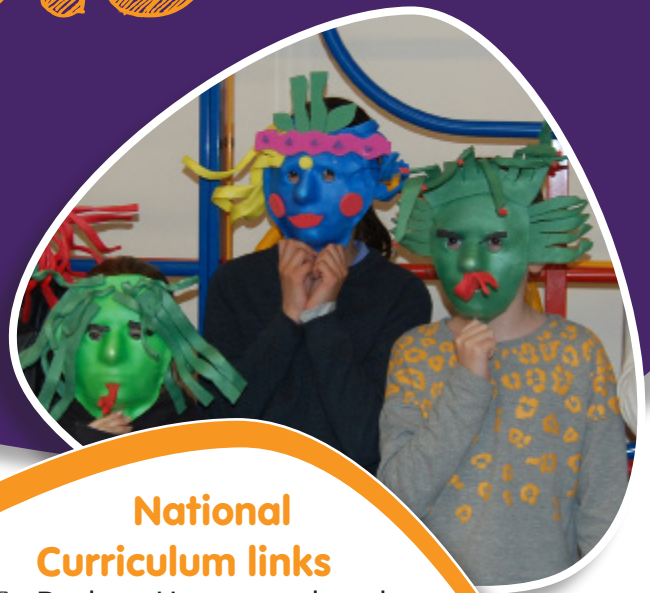


Cost: A whole day: 2 x 2 1/2 hours sessions/workshops at £390 per day
Morning only: 1 x 2 1/2 hours sessions/workshops at £265 per morning
All materials and equipment provided. Maximum class numbers = 30 pupils

16 Helpers: You will need to provide 1 adult helper in addition to the class teacher for each session/workshop

Plastazote

A SMART material workshop



During this workshop each pupil designs and makes a Plastazote model/mask of their own to take home. The models made are usually pre-arranged to tie into your own teaching plans.

Plastazote is a SMART material with properties that can be significantly changed in a controlled way by external stimuli, in this case, temperature. It is safe, non-toxic polyethylene foam. It can be cut with scissors, marked with pencil or biro, joined, embossed and painted. Its real impact is when it is MOULDED into fantastic shapes through the use of heat.

Science:

- Investigate the characteristics of the material and relate these to a variety of commercial uses

Design & Technology:

- Use your imagination to create amazing 3D masks and mini-beasts or link it to other projects you are working on.

This workshop works best in the hall.

Full Curriculum Links plus Non-Statutory Opportunities available at: [Plastazote National Curriculum Links](#)

Follow up activities - free of charge, available with this workshop.

National Curriculum links

D&T - Design - Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups; Generate, develop, model and communicate their ideas through discussion, annotated sketches, cross-sectional and exploded diagrams, prototypes, pattern pieces and computer-aided design; Make - Select from and use a wider range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing), accurately; Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities; Evaluate - Investigate and analyse a range of existing products; Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work; Understand how key events and individuals in design and technology have helped shape the world; **Science** - Working Scientifically (LKS2/UKS2); Properties & Change to Materials (Y5) Compare and group together everyday materials on the basis of their properties, including their hardness, solubility, transparency, conductivity (electrical and thermal), and response to magnets; Give reasons, based on evidence from comparative and fair tests, for the particular uses of everyday materials, including metals, wood and plastic; Demonstrate that dissolving, mixing and changes of state are reversible changes

English - Plus so much more..

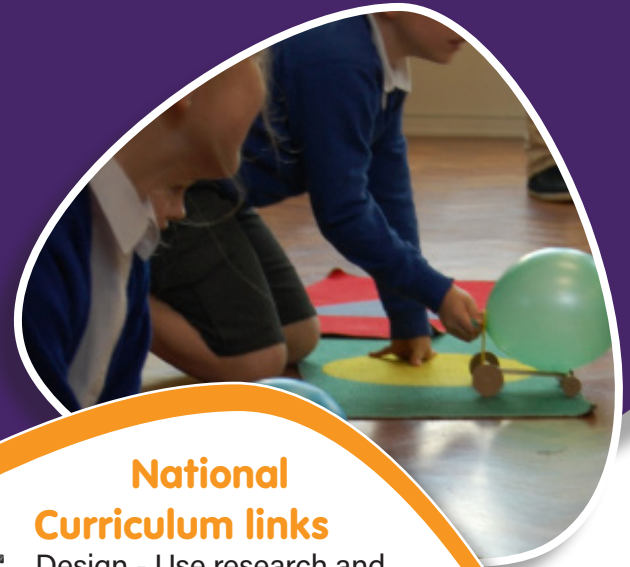


Cost: A whole day: 2 x 2 1/2 hours sessions/workshops at £390 per day
Morning only: 1 x 2 1/2 hours sessions/workshops at £265 per morning
All materials and equipment provided. Maximum class numbers = 30 pupils

Helpers: You will need to provide 4 adult helpers in addition to the class teacher for each session/workshop

Balloon Buggies

Learn forces and motion
through D&T



Balloon Buggies is a fun, practical workshop in which the pupils have the opportunity to investigate factors affecting the movement of a balloon-powered buggy. Initial investigations are with Lego, then the children make their own buggy with wood and plastic and test it.

The aims are to provide Year 5 and 6 pupils with an enjoyable and stimulating workshop; to investigate the design possibilities of a balloon powered buggy using Lego; to develop their ideas and explain them clearly, planning their own buggy within certain boundaries. They are encouraged to measure accurately and use tools properly to measure, mark out, cut using a junior hacksaw, assemble, join and combine components accurately. They will also learn how use the tools safely and properly, to test the buggy (which they keep) and then race others. Finally they reflect on the design, identifying ways it could be improved.

National Curriculum links

D&T - Design - Use research and develop design criteria to inform the design of innovative, functional, appealing products that are fit for purpose, aimed at particular individuals or groups; Generate, develop, model and communicate their ideas through discussion, prototypes. Make - Select from and use a wider range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing), accurately; Select from and use a wider range of materials and components, including construction materials, textiles and ingredients, according to their functional properties and aesthetic qualities; Evaluate - Investigate and analyse a range of existing products; Evaluate their ideas and products against their own design criteria and consider the views of others to improve their work; Understand how key events and individuals in design and technology have helped shape the world; Technical knowledge - Apply their understanding of how to strengthen, stiffen and reinforce more complex structures; **Science** - Working Scientifically (UKS2); Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary; Taking measurements, with increasing accuracy and precision, taking repeat readings when appropriate; **Maths** - Measurement - measure, compare, add and subtract: lengths (m/cm/mm); **English** - Ask relevant questions to extend their understanding and knowledge; Articulate and justify answers, arguments and opinions; **Plus more..**

Full Curriculum Links plus Non-Statutory Opportunities available at: [Balloon Buggies National Curriculum Links](#)

Follow up activities - free of charge, available with this workshop.

Cost: A whole day: 2 x 2 1/2 hours sessions/workshops at £390 per day
Morning only: 1 x 2 1/2 hours sessions/workshops at £265 per morning
All materials and equipment provided. Maximum class numbers = 30 pupils

Helpers: You will need to provide 3 adult helpers in addition to the class teacher for each session/workshop

This workshop requires use of the school hall.

Years
5 & 6

Moving Toys

Cam mechanisms



A design & technology practical activity in which the pupils learn about controlling movement with a cam mechanism as a simple toy.

Pupils investigate a collection of moving toys containing cam mechanisms that produce different movements. The children then construct their own moving toy/cam mechanism using various materials, which they keep.

Our aim is to provide Yr 5 & 6 pupils with an enjoyable stimulating workshop.

Children will:

- Learn about different types of cam mechanisms and the movements they produce - understand the characteristics of each component part and its use - measure, mark out, cut, join, assemble and combine components accurately - learn how to use tools safely and accurately.

Children will then be encouraged to test the finished mechanism and to reflect on what they have made.

This workshop requires use of the school hall.

Full Curriculum Links plus Non-Statutory Opportunities available at: [Moving Toys National Curriculum Links](#)

Follow up activities - free of charge, available with this workshop.

National Curriculum links

D&T - Make - Use a wider range of tools and equipment to perform practical tasks (for example, cutting, shaping, joining and finishing), accurately; Evaluate their own design criteria and consider the views of others to improve their work; Technical knowledge - Apply their understanding of how to strengthen, stiffen and reinforce more complex structures; Understand and use mechanical systems in their products (for example, gears, pulleys, cams, levers and linkages); **Science** - Working Scientifically (UKS2); Planning different types of scientific enquiries to answer questions, including recognising and controlling variables where necessary; Taking measurements, using a range of scientific equipment, with increasing accuracy and precision, taking repeat readings when appropriate. **Maths** - Measurement; (Y4); Convert between different units of metric measure (centimetre and millimetre (Y5); **English** - Ask relevant questions to extend their understanding and knowledge; Articulate and justify answers, arguments and opinions; Developing a broader, deeper and richer vocabulary

Plus so much more..



Cost: A whole day: 2 x 2 1/2 hours sessions/workshops at £390 per day
Morning only: 1 x 2 1/2 hours sessions/workshops at £265 per morning
All materials and equipment provided. Maximum class numbers = 30 pupils

Helpers: You will need to provide 3 adult helpers in addition to the class teacher for each session/workshop

Motivating Maths Workshop

Led by Karen Gordon - Maths Advisor

This workshop is an excellent opportunity for pupils in Years 5 & 6 who are currently working below expectations for their age and need a boost. The day includes problem solving and confidence building, activities to encourage the children to have fun with maths, at the same time motivating them to achieve their potential.

This is also a fantastic CPD opportunity for teachers.

You may nominate up to 6 pupils for this workshop. All children and accompanying adults are expected to bring along a packed lunch for the day and all children to wear their school uniform.



We will have 2 date options and host schools to choose from this year as we are offering our Maths Catch Up Workshop for the new year 6 pupils - for more information contact: admin@stempointeast.org.uk



Please note -

If you are interested in hosting one of these workshops, you will receive 6 pupil places free of charge!

Please get in touch if you are interested!

Cost: £25 per pupil (no cost for the accompanying teacher) Pupil(s) MUST be accompanied by a teacher or TA from the school (not a parent).

Maths Mastermind Workshop

Led by Karen Gordon - Maths Advisor

This exciting day is suitable for pupils in Years 3 & 4 who show a real interest and aptitude for mathematics and who are working above expectations. The experience will offer able mathematicians the chance to collaborate with children of similar abilities and interests and delve more deeply into investigations.

This is also a fantastic CPD opportunity for teachers.

You may nominate up to 6 pupils for this workshop. All children and accompanying adults are expected to bring along a packed lunch for the day and all children to wear their school uniform.

Usually we have 2 date options and host schools for you to choose from.

To register for our maths workshops look out for flyers through county mailing/ school post or emails going straight to your school admin@ account.

For more information contact:
admin@stempointeast.org.uk



Please note -

If you are interested in hosting one of these workshops, you will receive 6 pupil places free of charge.

Please get in touch if you are interested!

Cost: £25 per pupil (no cost for the accompanying teacher) Pupil(s) MUST be accompanied by a teacher or TA from the school (not a parent).

Help & Prepare for SATS Maths Workshops

Led by Samantha Burns & Karen Gordon
- Maths Advisors & Assessors

These fantastic 'Help and Prepare' for SATS Maths Workshops take place in the few weeks leading up to the year 6 SATS and are very popular so book on fast!

Places fill up quickly so please look out for flyers relating to these workshops in county/school post or contact us for more details.

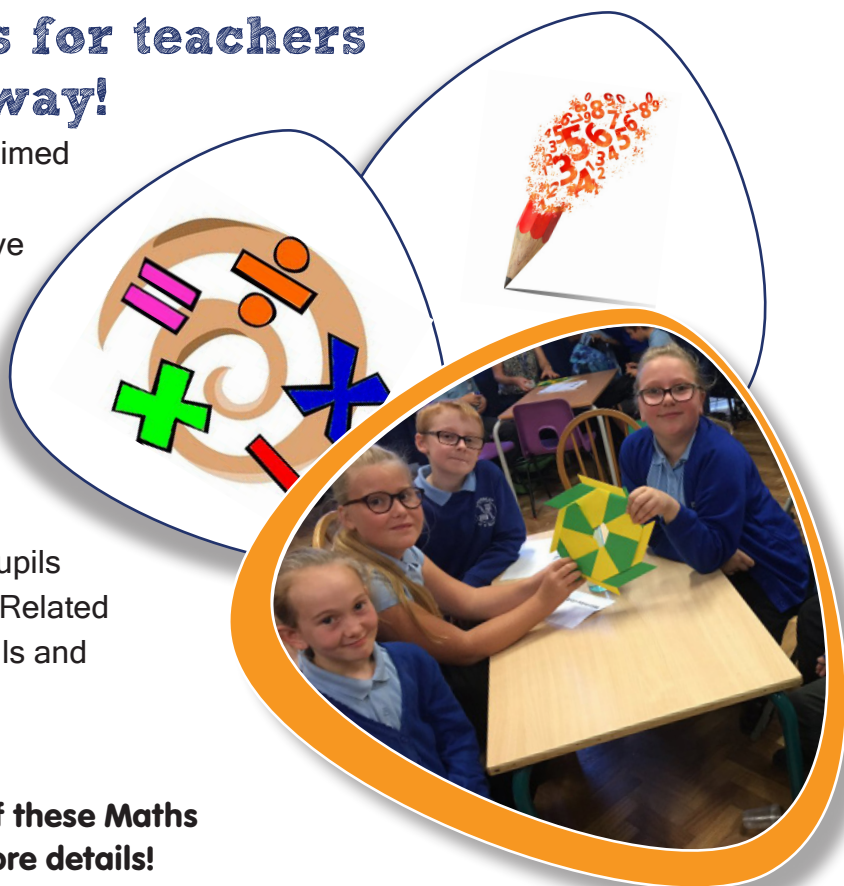
Includes resources for teachers to take away!

Our 'Help & Prepare for SATS' series is aimed at those either Achieving ARE (Age-Related Expectations) or are Above ARE and both have been written for pupils in Year 6 who are getting ready for their upcoming SATS.

Achieving ARE workshops help pupils get to grips with mathematics and problem-solving.

Above ARE workshops are suitable for pupils who are currently working ABOVE Age Related Expectations, helping them practise skills and problem-solving.

If you are interested in hosting one of these Maths Workshops please get in touch for more details!



Picture: Wormley Primary at a Motivating Maths Workshop

Cost: £25 per pupil (no cost for the accompanying teacher) Pupil(s) MUST be accompanied by a teacher or TA from the school (not a parent).

British Science Week 2023 & SETPOINT Resources

Create-a-Tree Primary Paper Engineering Challenge 2024

A free, fun, practical, problem-solving competition for all primary school children to take part in during British Science Week - 8th to 17th March 2024

Look out for flyers sent to schools!

Funding available from British Science Association for underrepresented schools:

If you work with underrepresented groups in STEM, there is financial support available to cover the costs of undertaking awards. Grants are closed and will reopen again in the Autumn term

More details here:

<https://help.crestawards.org/portal/en/kb/articles/crest-for-underrepresented-audiences-funding>

Primary Loan Resources

We have equipment that schools can borrow to enhance science/technology weeks or other projects. You can book by telephone or email - collection and delivery is via the SETPOINT office in Stevenage. Some items are very popular, so do book early!

There is a small administrative charge of **£15 per loan**. We rely on you ensuring that all kits are returned in a timely fashion, correctly sorted and packed, please.

K'NEX construction boxes (10 per school) - 4 pupils per box can work in teams to build a large model. Contact us for ideas of what to build or visit: <https://www.knexusergroup.org.uk/en/knex-free-downloads.html>

FUNMATHS RoadShow boxes Loan comprises of a set of 4 boxes suitable for years 1 - 6. Each box consists of 25 activities. Supervision is needed. A fantastic resource to enhance maths learning in a fun way.



Enrichment Ideas

STEM Ambassadors



Who are STEM Ambassadors and how can they help?

STEM Ambassadors work or study in a STEM field and are passionate about communicating their subject to young people. Ambassadors are free of charge and can support teachers in curricular and extra-curricular work as well as encourage pupils to further explore the world of science, technology, engineering and mathematics. They work with both teachers and pupils in a variety of ways such as helping with our primary workshops, technology challenges, giving talks or answering questions by email and are also a valuable resource for science or technology clubs.

A Free Resource for Schools!

To request a **STEM Ambassador** teachers need to open a free STEM Learning account so that you can request STEM Ambassadors direct from the platform:



<https://www.stem.org.uk/stem-ambassadors/schools-and-colleges>

Or visit the link below for lots of FREE STEM activities to support schools:

<https://www.stem.org.uk/>

Request a Role Model for your School

We're offering primary schools across the East of England the chance for pupils to (virtually) meet someone working in STEM - Science, Technology, Engineering and Maths

A STEM Ambassador will talk about their job, how exciting/interesting it is and what made them choose that path.

Interested? Get in touch or:

[REGISTER HERE!](#)

STEMPOINT **STEM AMBASSADOR HUB**

Role Models in STEM

'Meet a STEM Ambassador'

We're offering primary schools across the East of England the chance for pupils to meet (virtually or face to face) someone working in STEM - (Science, Technology, Engineering and Maths)

This could be online at an assembly during a class lesson or at an after-school club.

Would you be interested in receiving a free, 20-30 minutes talk from one of our STEM Ambassadors?

The talks will be aimed at years 4, 5 & 6.

A STEM Ambassador will talk about their job, how exciting/interesting it is and what made them choose that path. The visit can be set up by you via video link or in person invited into your school, and they may use Powerpoints, videos, pictures, cartoons, or talk straight to the camera to make it engaging and accessible for your pupils. STEM Ambassadors are asked to share the presentation with you in advance and they all hold a DBS Enhanced Certificate. You can choose the area of STEM you are interested in when you register online via the link below.

<https://forms.office.com/e/pvFZU5mXEu>

For more information contact: l.bailey@stempointeast.org.uk

CREST Awards

CREST Awards and Resources

The **CREST Awards scheme** is an education scheme run by the British Science Association for young people, providing science enrichment activities to inspire and engage 5-to-19-year olds. **CREST** gives pupils the chance to participate in hands-on science through investigations and enquiry-based learning, supporting them to solve real-life STEM challenges through practical investigation and discussion. CREST Awards can be run in schools, after school clubs, or at home. They have also developed a Primary National Curriculum Mapping Tool see here for more information: <https://primarylibrary.crestawards.org/crest-in-the-primary-curriculum/64889478>

With CREST, children will have fun developing their problem solving and communication skills.

Star and SuperStar levels are designed to be easy-to-run for children typically aged 5-7 and 7-11 years. Children gain an Award by completing eight challenges, which are available to download from the CREST resource library. They also provide helpful tips sheets for you to use, explaining the scientific themes and offering guidance on conversation topics for your children.

You can download **CREST Star and SuperStar** passport templates for your pupils to track their progress once you create a free account. When your pupils have completed 8 different 1 hour activities, they can receive a certificate and a fabric badge for the cost of £1 per pupil.

CREST Discovery Awards are great for years 5 & 6 , £3 per pupil and 5 hours of work - Machine Learning - AI project is a great one to start with this term, low cost resources with a topic which is extremely current!

<http://www.crestawards.org/run-crest-awards/crest-star/>

For free resources and ideas for activities to download go to:

<https://primarylibrary.crestawards.org/>



Other Resources and links

STEMPOINT

For free STEM learning resources

go to: <https://www.stem.org.uk/resources>

Other resources

Amazonas Comics: <http://amazonascomics.com/>

Association for Science Education: <https://www.ase.org.uk/reso>

CREST Awards: <https://primarylibrary.crestawards.org/>

Explorify: <https://explorify.uk/>

Hertfordshire Opportunities Portal: <https://www.hopinto.co.uk/>

Institution of Civil Engineers: <https://www.ice.org.uk/knowledge-and-resources/ice-library>

Institute of Mathematics & Its Applications/Maths Careers: <https://www.mathscareers.org.uk/>

Institution of Mechanical Engineers: <https://www.imeche.org/careers-education>

Institute of Physics: <https://www.iop.org/education/index.html>

Mitsubishi Electric - The Learning Curve: <https://www.the-learning-curve.org.uk/home>

Primary Science Teaching Trust: <https://pstt.org.uk/>

Roche Primary Free Resources: <https://www.stempointeast.org.uk/education/primary/resources/primary-school-resources-roche/>

Royal Society of Biology: <https://www.rsb.org.uk/teachers>

Royal Society of Chemistry: <https://edu.rsc.org/>

Tomorrow's Engineers: <https://www.tomorrowsengineers.org.uk/>

Wellcome Genome Campus: <https://publicengagement.wellcomegenomecampus.org/>



Don't miss out on our posts on social media. Follow us on:



Twitter: [@STEMPOINT_](https://twitter.com/STEMPOINT_)



& Facebook: [STEMPOINT](https://www.facebook.com/STEMPOINT)

Useful Information including Cancellation Policy

STEMPOINT.....

You will see our new logo - STEMPOINT - on all of our information that we send to schools. This reflects that much of the work we do, including the STEM Ambassador programme and CREST Awards covers the whole of the East of England. Our STEMPOINT logo will appear on our Primary Newsletter as well as flyers.

Please book early...

Demand for workshops can be high, especially during British Science Week which takes place in March, therefore we recommend that you book early to avoid disappointment. However it is always worthwhile giving us a call to check availability.

Please note we have a new mainline telephone number: 01438 419450

All our workshop leaders and helpers have a current DBS.

Adult helpers:

Our workshops cannot take place without the help of adults/parent helpers, which the school must provide. The number varies depending on workshop (this information is included in this booklet). We ask that the class teacher is not included in this number, as they will need to monitor the class and interact where necessary. During the pandemic some schools have utilised our [STEM Ambassadors](#) for this where parents were unable to get involved.

For the Specialist Maths Workshops:

Places are allocated on a first come first served basis. Once we have received your registration, we will email you to confirm your place(s). Once confirmed, we are unable to offer refunds unless your place(s) can be offered to another school on the waiting list. Please note, once you have registered you will be invoiced even if you fail to attend on the day.

Cancellation policy for all workshops:

If you reschedule for another date there will be no cancellation charge as long as we have at least 2 week's notice. *A charge of £50 will be made if you reschedule within 1 week.*

If a workshop is cancelled more than 8 weeks in advance, no charge will be made.

If a workshop is cancelled less than 8 weeks in advance, a charge of £50 will be incurred.

If a workshop is cancelled less than 1 week in advance, a charge of £150 will be incurred.

You will be invoiced after the workshop takes place unless otherwise requested.

Safeguarding Policy - This can be requested at any time via admin@stempoint.org.uk

Bad Weather - We reserve the right to postpone workshops due to extreme weather conditions.

Useful Information Continued;

Whole days and morning only sessions:

If you have a small group/school, we offer morning session/s for almost all our workshops.

Morning sessions: These consist of either one or two workshops depending on the workshop itself.

Most upper KS2 workshops have only two sessions per day, one in the morning and one in the afternoon.

In some cases we can offer two different workshops morning and afternoon to suit smaller schools, however you will need to call the office to arrange. Please note: this does not apply to all of our workshops.

Follow up activities:

We are offering FREE follow up activities to schools that book our workshops.

These are in the form of a PowerPoint presentation which will be emailed to you after the workshop has taken place if requested. We've introduced this to help you maximise the benefits of a STEMPOINT workshop by keeping your pupils inspired by STEM.

The updated National Curriculum links are available on each workshop page on our website, however, **please note:** our workshops may not cover all of the links in great depth as we are restricted by time, however you have the opportunity to cover them further in these follow up activities you will be receiving from us once your workshop has taken place.

And don't forget....all our workshops provide lots of opportunities for you to gather photographic evidence for your records.





STEMPOINT is an educational charity whose aim is to inspire young people about STEM.

We have over 35 years' experience of delivering high-quality STEM workshops to both primary and secondary schools, and provide insight and greater awareness of how STEM subjects can lead to fascinating and worthwhile careers.

MBDA

We are hosted by a large engineering company in Stevenage. Thanks to their generous support, we are able to offer our workshops at a subsidised price to schools.



Telephone: 01438 419450

Email: admin@stempoint.org.uk

www.stempointeast.org.uk

A company limited by guarantee, registered in England & Wales Company No 4466571 Charity No 1094254

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SG1 2DA**