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early years & primary STEM bulletin

Ideas and inspiration for primary teachers and early years staff

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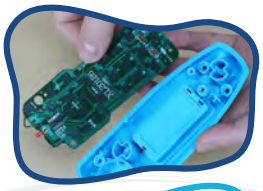

Tinkering - reducing the risks

Find out how to safely engage with tinkering activities. Includes a video guide that highlights the key safety considerations.

Upcoming Professional Learning opportunities

A range of professional learning events and courses open to practitioners in Scotland.

Maths Week Scotland - STEMazing structures talk

A case study showing how STEM Ambassadors could work with learners in your setting.

Primary Science Teaching Awards

Encouraging you to nominate outstanding primary science teachers for this year's awards sponsored by The Primary Science Teaching Trust

Young STEM Leader Week

This year's Young STEM Leader Week will take place on 31st October – 4th November.

Welcome back for the Great Science Share for Schools 2023!

Get involved with the Great Science Share for Schools this session.

Tinkering - reducing the risks

Taking items apart presents a range of learning opportunities for all ages; however, it is important that tinkering activities are as safe as possible. Along with this article, we have produced a video guide to highlight the key safety considerations.

Learning opportunities through tinkering

- Learning through play – exploration, enquiry, investigation
- Roleplay
- Literacy skills – talking, listening, describing
- Turn taking
- Using tools safely – fine motor skills
- Assessing risk
- Ideal opportunity to use magnification devices, including digital microscopes

Items to avoid

Please be aware that some electrical appliances are not safe to disassemble, except by a trained professional. Simply unplugging an appliance does not necessarily make it safe to take apart.

TV units, screens and computer monitors should not be used for tinkering. Older TVs, monitors and laptop screens can contain dangerous chemicals, including lead and mercury. Some units also carry the risk of electrocution via high voltage capacitors that can hold their charge for a significant amount of time.

Electrical appliances with a plug carry the risk of the plug or wires being cut off and inserted into a socket, causing electrocution. To reduce this risk, completely remove and dispose of the plug and connecting wires in advance, so learners cannot insert these parts into a socket. Avoiding mains-powered equipment altogether is a safer option.

Under no circumstances should smoke detectors be used for tinkering, as some smoke detectors - old or newer - contain radioactive sources.

Which items are safer to tinker with?

Safer options include:

- Landline telephones
- Torches
- Reasonably modern pocket radios
- Computer keyboards (remove batteries from wireless keyboards)
- Clocks
- Clockwork toys
- Simple electronic toys with buttons, such as a musical toy phone

If your item is battery-powered, remove the batteries (also known as cells) in advance of the tinkering activity.

Avoid providing learners with equipment containing button cells (also known as button batteries) and tools to remove these. Button cells are extremely dangerous if swallowed.

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Some equipment enclosures are of a snap-fit design, which often requires leverage with some force. Avoiding this type of item is safer due to risks from prising open the snap-fit cover. Instead, use items which can be unscrewed or opened without excessive force.

Taking items apart

When disassembling items with learners, it is safer to avoid hammers and electrical tools. Instead, we would recommend using a set of screwdrivers and pliers. Demonstrate the safe use of these tools and work out the possible dangers with the children and how to minimise the risk; for example, wearing safety goggles. Close supervision may be necessary depending on the stage and experience of the learners.
Be aware of the risks of inhaling harmful dust from printed circuit boards (PCBs) in some items – you may wish to open the item in advance wearing a face mask, and remove dust with a hoover.

Ideally, carry out the disassembly in an area without electrical sockets or any source of electrical supply, and warn learners not to insert any parts into an electrical socket.

Never disassemble individual components – if something cannot be explored by carefully pulling apart or unscrewing, it should not be broken down further (for example, by breaking or cutting it apart).

Avoid reassembly

We recommend disassembly only, and no attempt should be made to rebuild and test the item due to risks caused by incorrect reassembly.

Disposal

Once items have been disassembled, ensure that the pieces are collected carefully. Parts can often be recycled following your Local Authority's guidance. Electrical equipment and parts cannot be simply binned and must be disposed of according to the Waste Electrical and Electronic Equipment (WEEE) regulations.

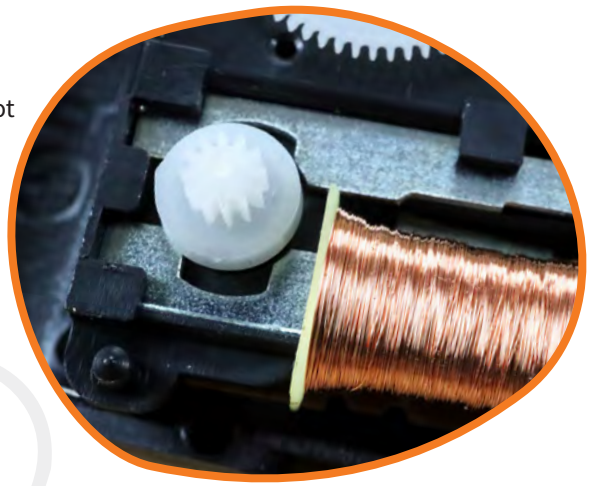
After tinkering

Clothes should be brushed down, and hands washed thoroughly after tinkering activities.

Explain to learners and families that it is not safe for children to take items or appliances apart without supervision, for example, on their own at home.

Risk assessment

The above advice is provided to underpin the planning of these kinds of tinkering activities and support you in creating your own risk assessment. Your risk assessment should take into account the age, stage and behaviour of the learners and your experience working with the group, as this would be different for each group of learners. Ensure



that the learners and all adults in the classroom are involved in the risk assessment process. Everyone involved must be aware of the risks and how to minimise them, to learn in a way that is as safe as possible.

- Consult the Association for Science Education's "Be Safe! Fourth Edition" (the Health and Safety Handbook for Science and Technology in Early Years and Primary).
- Follow local authority and school advice.
- Any questions? Contact us at primary@sserc.scot for Early Years and Primary STEM Health and Safety advice.

Upcoming Professional Learning opportunities

The SSERC Early Years and Primary Team offer a range of professional learning events and courses open to practitioners in Scotland. Most of our courses come at no cost to your setting or are fully funded. You can find more information and apply for a place here. Please note that places on SSERC courses are limited, and offer emails will be sent out shortly after the closing date.

SSERC Meet

An online professional learning twilight for multiple staff at no cost to your setting. Depending on the theme of the SSERC Meet, relevant resources are sent to your setting.

ENTHUSE-funded course

This is a course which may have face-to-face, online or self-study elements. Your setting pays for the course in advance, and once the course activities and evaluations are completed, the cost is reimbursed via ENTHUSE funding. <<

Event	Details	Date(s)
Christmas STEM	SSERC Meet – no cost to your setting.	21 November 2022
Christmas STEM	SSERC Meet – no cost to your setting.	24 November 2022
Making Nature a Home	SSERC Meet – no cost to your setting.	1 March 2023
Making Nature a Home	SSERC Meet – no cost to your setting.	7 March 2023
Sustainable STEM	ENTHUSE-funded 2-day course at SSERC in Dunfermline.	30-31 March 2023
Early Level STEM Day	A face-to-face course at SSERC in Dunfermline. There is a cost associated with this course (click here for details).	4 May 2023
Chemical Changes	SSERC Meet with two twilight sessions – you must be able to attend Part 1 and Part 2. No cost to your setting.	Part 1: 10 May 2023 Part 2: 24 May 2023
Investigating the Human Body	ENTHUSE-funded 2-day course at SSERC in Dunfermline.	12-13 May 2023
Chemical Changes	SSERC Meet with two twilight sessions – you must be able to attend Part 1 and Part 2. No cost to your setting.	Part 1: 15 May 2023 Part 2: 29 May 2023

Find out more...

Find more information and apply for a place **here**.

Maths Week Scotland - STEMazing structures talk

STEM Ambassadors are people who work in STEM-focused careers or have a STEM-focused background who volunteer their time to help engage and inspire young learners.

STEM AMBASSADOR HUB

STEM AMBASSADORS IN SCOTLAND

STEM Ambassadors can engage Primary aged learners by running practical workshops, leading short careers talks or supporting teachers by providing meaningful input on topic-specific lessons.

As part of Maths Week Scotland, the STEM Ambassador hub ran several online Maths-themed talks throughout the week open to learners across Scotland. One of our most popular talks was STEMazing Structures, run by one of our most dedicated STEM Ambassadors, Anne Okafor.

Anne gave an exciting interactive talk to Primary aged pupils across the country showcasing how she used maths in her career as a Construction Planner and highlighted the importance of 'The STEMazing 3C's'; Curiosity, Creativity and Courageousness.

Learners were able to try out the '3C's' by taking part in Anne's exciting investigation, where they tested the strength of different shapes by balancing books on four triangular columns and compared this to how many books they could stack on four cylindrical columns. The triangle-shaped columns could hold many fewer books, due to the weaknesses in the edges of the columns, because the circle columns have no edges, they could withstand to hold a lot more weight! Trying different shapes allowed the learners to understand that different shapes work better for different jobs.

Learners loved hearing from Anne and being able to ask her questions directly, asking everything from what the biggest building she has worked on to what her favourite shape was!

Feedback received has been highly positive, with children engaged and focussed whilst proactively learning about the importance of STEM in the real world and getting to experience the 3C's in action!

Arrange a STEM Ambassador visit online or face-to-face

If you would like a STEM Ambassador to be involved in your setting, here is how it works.

Login or register on the STEM database at www.stem.org.uk and add an activity giving as much detail as possible about what you would like the ambassadors to do, and we will do the rest.

When you add an activity, Ambassadors can get in touch to register their interest; we also promote the activities through our communications with our volunteers to help you get the right person for your request.

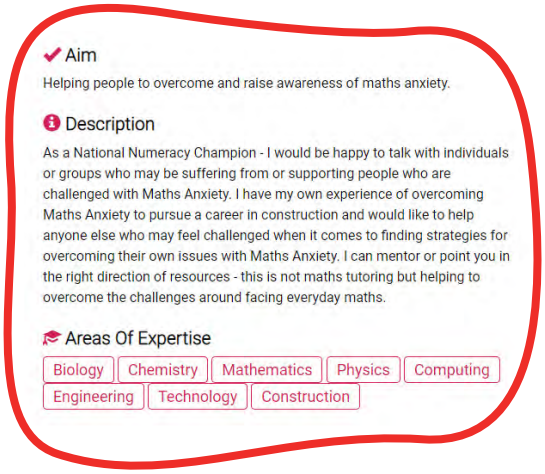
More information on requesting ambassadors can be found in our Teachers Guide to STEM Ambassadors.

Ambassador offers

Not sure how you would like a STEM Ambassador to help? Why not browse our ambassador offers.

Many of our ambassadors have created examples of presentations or workshops they are willing to deliver to help you engage with them. For more information click here.

From marine mammal presentations to an insight into a career in clinical research, there is something for everyone. <<



Primary Science Teaching Awards - nominations for the 2022 PSTAs have now been extended!

The Primary Science Teaching Trust are the proud sponsor of the Primary Science Teacher Awards (PSTA), which are supported by the Royal Society, the Association for Science Education and TTS Group.

We would like to encourage you to nominate outstanding primary science teachers for this year's awards.

The awards are open to all current Primary Teachers (full or part-time, in schools in the UK, the Channel Islands and the Isle of Man only) who:

- are innovative and creative in teaching science;
- inspire colleagues and contribute to developing science in their school and beyond;
- engage pupils in the excitement and fascination of science.
- support colleagues in their own and also in other schools, locally, regionally or nationally, to raise the profile of science and the quality of primary school science provision.

Established in 2003, the awards are generally presented during the annual PSTT College Conference, where family, friends and colleagues gather to recognise their outstanding achievements.

Each winner becomes a Primary Science Teacher of the Year. Winners are automatically inducted into the Primary Science Teacher College as a PSTT College Fellow, where they have access to many benefits, including funding in excess of £500,000 to help shape primary science for the better.

SSERC supports the PSTT College Fellows in Scotland - as a Regional Mentor - and we have been delighted to see the number of Scottish PSTT Fellows rise to fifteen as of 2021!

With the support of the Primary Science Teacher College, College Fellows help raise the profile of science in their own schools and beyond.

Nominations close at midnight on the 13th of January 2023. <<

How are you benefiting from the

Primary Science Teaching Trust?

PSTT's mission is to see excellent science teaching throughout the UK by supplying free teaching resources and support for teachers. Here are just some ways to get the most from PSTT...

SUBSCRIBE

PSTT publishes a free Why&How? termly magazine for anyone interested in primary science, providing readers with resources, climate science information, images to spark science conversation and much more.

SUPPORT

PSTT offers resources to support teaching, learning, assessment and subject leadership in primary science. Resources cover cross-curricular learning as well as teaching and learning science in Early Years.

NOMINATE

PSTT sponsors the Primary Science Teacher Awards. This award celebrates outstanding primary science teaching across the UK. Teachers gain access to a wealth of funding opportunities and support.

why& how?
PRIMARY SCIENCE TEACHING TRUST

Registered Charity Number: 1190196

Young STEM Leader Week

The Young STEM Leader team are delighted to announce that this year's Young STEM Leader Week will take place on 31st October – 4th November.

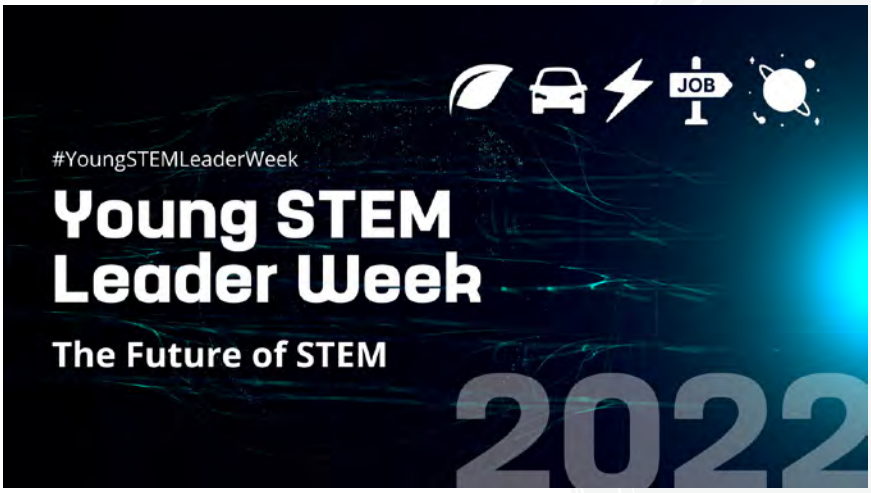
Last year, over 3000 YSLs engaged with the programme and this year's event has even more exciting opportunities to engage with. This year's theme will be 'The Future of STEM' and will have plenty of different ways for your YSLs to get involved including live online events, activities for them to lead andsocial media challenges. To showcase The Future of STEM, each day has its own theme.

Themes of the YSL week 2022

Monday 31 October	The future of **energy**
Tuesday 1 November	The future of **nature**
Wednesday 2 November	The future of **space**
Thursday 3 November	The future of **transport**
Friday 4 November	**Careers** of the future

Young STEM Leaders completing any level of the programme can get involved and lead activities, events or interactions to engage learners across your learning community.

And it's not only learners that can get involved, there will also be networking and Professional Learning opportunities for Tutor Assessors.

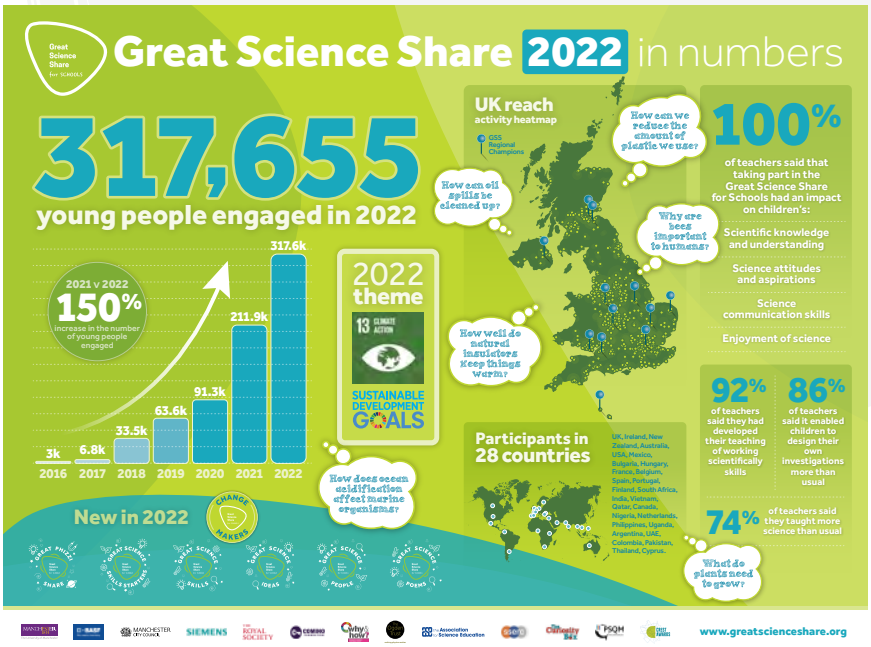


Find out more...

To learn more about the Young STEM Leader programme and start delivering it in your school community or youth group, visit **www.youngstemleader.scot**, email us at **youngstemleader@sserc.scot** or check out our **@YoungSTEMLeader**.

Welcome back for the Great Science Share for Schools 2023!

SSERC is delighted to be one of the GSSfS Regional Champions in Scotland, and there is a lot to celebrate.



In 2022 GSSfS successfully involved 317,655 young people in asking, investigating and sharing scientific questions. As a learner-centred, inclusive, non-competitive and collaborative campaign, GSSfS has seen a 66% increase in engagement since 2022, with participants joining in from 28 different countries.

SSERC celebrated the day on the 14th of June as we officially opened the SSERC Digital Garden. This year-long project involved learners from a local primary school in designing, constructing, planting and cultivating this garden space - with a focus on digital skills.

Earlier this month, we received news that the Great Science Share for Schools has been shortlisted for a prestigious THE Award in the Widening Participation Initiative of The Year category.

GSSfS 2023 will culminate on **Tuesday, the 13th of June, 2023**. But you can hold your GSSfS celebration at a time to suit you.

The 2023 theme is '***Science Around Us***', focusing on global sustainability, climate change and making a difference.

Find out more Welcome back! Celebrating the successes of 2022 and anticipating the 2023 campaign - The Great Science Share for Schools

Register now to get involved in GSSfS 2023 to inspire question asking, investigating and sharing. The Great Science Share for Schools <<

The SSERC Bulletin is published by SSERC 1-3 Pitreavie Court South Pitreavie Business Park Dunfermline KY11 8UU
Managing editor: Alastair MacGregor Telephone 01383 626070 enquiries@sserc.scot www.sserc.scot