

early years & primary STEM bulletin

Ideas and inspiration
for for primary
teachers and early
years practitioners

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Adapting to COVID-19



It has been a very challenging 18 months for all involved in education and training, but there is light at the end of the tunnel. The rollout of the COVID-19 vaccination programme combined with the willingness of the majority of the public to adhere to lockdown and associated restrictions means that hopefully, the new academic term will start to resemble some degree of normality.

I have been hugely impressed by how all in education and training have responded positively to the challenges faced due to the pandemic and embraced digital technology to ensure some degree of continuity of learning and support for young people. I am equally proud of how the SSERC team adopted a creative and innovative approach to supporting the education community during the crisis: remote learning, SSERC_TV, SSERC Online Learning self-study courses, return to school COVID-19 guidance and support, sending resource kits to teachers homes to support continued practical professional learning and ensuring that our Young STEM Leader and STEM Ambassador programmes continue to support learners through a range of online opportunities.



It would be easy to concentrate on the negatives associated with the pandemic, but it has driven change that will help shape the new – and better – normal. For SSERC, we have seen increased reach related to digital technology use, and most of our professional learning opportunities were reconfigured to be delivered online.

As an organisation with a reputation for excellence in our hands-on, practical, experiential professional learning, we look forward to seeing the return of delegates to SSERC and supporting more localised face-to-face professional learning. While we see the benefits of adopting a blended approach to professional learning, we will never be persuaded that digital delivery can be an adequate alternative for much of our face-to-face provision, which robustly supports the development of four different kinds of abilities among our colleagues in education: concrete experience, reflective observation, abstract conceptualising and active experimentation; all carried out

within an environment that offers opportunities for safe, professional discussion, dialogue and debate and the development of long-lasting professional networks.

It is encouraging that where there is a significant concern with, and criticism of, some organisations that support education, we have been overwhelmed with powerful messages of support from across the education community in Scotland and The UK. We are a small organisation, but we do punch well above our weight, with ongoing and increasing success. We will continue to listen to those that we serve. We will continue to evolve, grow and develop our products and services. In doing so, we continue to be regarded as a one-stop-shop and the “go-to” organisation for STEM education, training and engagement in Scotland (and beyond). <<

Alastair MacGregor

Alastair MacGregor - Chief Executive Officer



SSERC early years and primary STEM bulletin

The early years and primary STEM bulletins are full of brilliant activities, Health and Safety advice and packed full of useful resources for use in school, at extra-curricular clubs or to support STEM learning at home.

What can SSERC do for you?

SSERC is a not-for-profit limited company and a registered Scottish Charity set up for the benefit of STEM within Scottish Education.

SSERC was formally incorporated and registered as a charity in 1991.

All 32 Scottish Local Authorities are members of SSERC and we provide:

- Professional Learning (PL) for early years practitioners, primary and secondary teachers, school and college technicians and childminders .
- Advisory Service.
- Wider STEM engagement activities including the Young STEM Leader Programme, management of the STEM Ambassadors in Scotland Hub, ENTHUSE Partnerships, the Scottish STEM Placements Programme and Education/ Industry Partnerships.

Our headquarters are in Dunfermline, although our reach is across all parts of Scotland. To find out more about what we could offer you [click here](#).

Home Learning videos

The last 18 months has been a challenge, for those working in education there have been unprecedented challenges. The early years and primary team at SSERC have continued to support practical STEM across all educational settings and at home with the a variety of Home Learning videos that can be used to support learning and

Home Learning videos.



teaching at home, in your setting or as part of a STEM challenge. There are a further videos available through our [early years and primary SSERC TV](#) YouTube channel.

SSERC website

If you have not already subscribed then we'd like to encourage you to do so!

[Registration](#) takes less than a minute, when registering please provide an education email address to allow a username and password to be sent out.

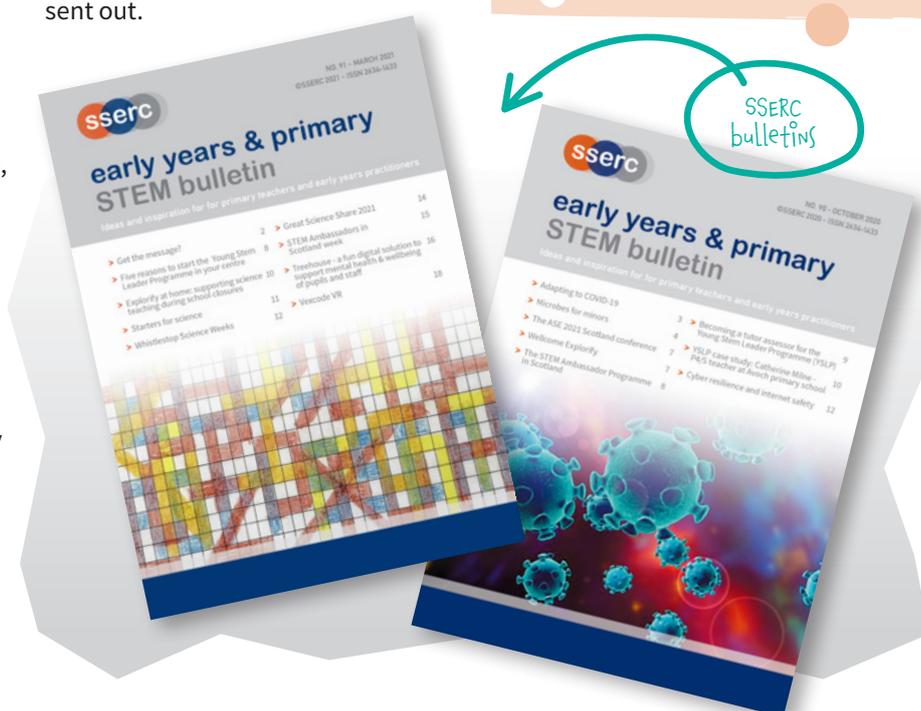
This will allow you to access the full library of our resources including our bulletins.

Bulletins

SSERC produce a bulletin each term, providing advice and ideas for early years and primary practitioners with a STEM focus. You can find our most recent bulletins [here](#).

Note! Certain areas of the website are open for registered users. Please login/register [here](#) to gain access to all our amazing bulletins.

SSERC bulletins



Health and Safety advice

While STEM activities for early years and primary learners are generally far less hazardous than those in secondary schools, that does not mean there are no hazards to be considered. The [Health and safety](#) section of the website is locked to registered users only. We encourage you to create a log in for our site to gain access to guidance and support for delivering engaging, motivating and safe STEM activities to learners. Ultimately, you and your learners are of paramount importance to us so when delivering practical STEM activities please remember 'When in doubt give SSERC a shout'.

Professional Learning



SSERC are proud of the quality and variety of courses offered to early years practitioners and primary teachers and we recognise the need for [PL opportunities](#) in STEM including [Digital Skills](#) which focus on offering support at a time of significant curriculum change.

SSERC have developed a range of courses which focus on practical, hands-on activities that are easily applied in the classroom. Our course offerings range from early years up to, and including, primary-secondary transition and we offer residential, non-residential and remote learning opportunities.

Delegates on ENTHUSE funded residential PL courses are eligible to receive a grant to support their attendance. If you are teaching in a Local Authority funded school in Scotland you qualify for an ENTHUSE Award from STEM Learning which will cover registration and accommodation costs associated with the courses. <<

Inspiring STEM Educators

Early Years & Primary Health & Safety

Home » Health & Safety » Early Years & Primary Health & Safety

Covid-19 guidance. (25th June 2020) We have now published our guidance on how to safely carry out STEM activities in Early Years and Primary. You can download the document [here](#).

While it is certainly the case that science and technology activities for early years and in primary schools are generally far less hazardous than those in secondary schools, that does not mean there are no hazards to be considered.

In addition, the younger pupils are often more at risk due to their age and inexperience than their older counterparts. Also, science and technology is often taught by teachers who do not have a background in the subject.

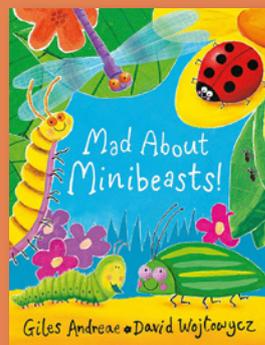
Thus a source of reliable, easy to understand Health and Safety advice for early years and primary schools is of the greatest importance. That is what these pages are for.

Be Safe! – The key document here is the ASE publication Be Safe! Every school should have at least one copy. If you don't have one, you can get them from the ASE online bookshop [here](#).



STEM by the Book

New resource



SSERC are delighted to be able to share our new on-line resource **STEM by the Book**.

We have taken inspiration from a range of well-known (and not so familiar) children's books and linked them to a range of SSERC practical activities - designed to support STEM and Literacy.

With an increased emphasis on building literacy skills post-lockdown we feel that this new resource will be really useful in supporting settings across the country.

We are sharing 10 sets of activities initially and we will add more to the website over the coming months. Each activity is closely linked to the story and makes use of easy to access resources.

We have selected books and activities linked to CfE Early, First and Second Level Experiences and Outcomes - designed to support reading, listening and talking. With an emphasis on understanding, analysing, evaluating and investigating - the resource aims to engage learners with increasingly complex ideas, structures and specialist vocabulary for different purposes. <<





- > Treehouse just got **BIGGER!** (watch video)
- > New (much) shorter intro video



"Transformational Leadership Experience for Middle Leaders in Schools"

Now with Professional Recognition Status



Marty the Robot

Are you looking for new STEM resources for your classroom? Robotical is offering FREE, two-week trials with Marty the Robot - a REAL walking, programmable robot to teach the basics of coding and robotics in a fun, hands-on way. Suitable for ages 5+, Marty comes with a full suite of teaching resources, from lesson plans and teacher guides to classroom-ready presentations. We'll even cover the cost of shipping and returns!

Sign up here!



Robotical is on a mission to bring learning to life and spark the imagination of young learners. We strive to engage, equip and inspire the next generation of engineers and scientists; providing them with increasingly engaging and accessible tools & the know-how to help them build a better tomorrow. We design and manufacture Marty the Robot, a fully-programmable, walking, dancing, football-playing robot, that is the best value educational humanoid on the market today. <<

What teachers and children think of Marty the Robot



PRIMARY SCIENCE TEACHING TRUST

PSTT has a wealth of free resources to support teaching, learning, assessment and subject leadership in primary science.



I BET YOU DIDN'T KNOW...

Introducing cutting-edge science research projects and providing a rich content for learning.

<https://pstt.org.uk/resources/curriculum-materials/cutting-edge-science-primary-schools>

WHISTLESTOP SCIENCE WEEKS

WHISTLESTOP SCIENCE WEEKS

Ready-made themed daily suggestions for mini science events.

<https://pstt.org.uk/resources/curriculum-materials/Whistlestop-Science-Weeks>

STARTERS FOR SCIENCE

STARTERS FOR SCIENCE

A series of five-minute videos created to support teachers to get started with practical science enquiry.

<https://pstt.org.uk/resources/curriculum-materials/Starters-for-Science>

Pictures for Talk

IN PRIMARY SCIENCE

PICTURES FOR TALK BOOKLET

Using a picture as a stimulus for children to engage in effective talk in science.

<https://pstt.org.uk/resources/curriculum-materials/Pictures-for-Talk>



SCIENCE AND STEM CLUBS

Off the shelf resources for running extra-curricular clubs for children, with Children's University accreditation.

<https://pstt.org.uk/resources/curriculum-materials/childrens-university-stem-clubs>

SCIENCE FUN AT HOME

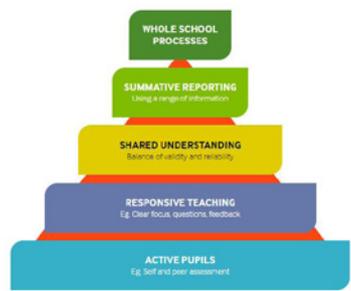
SCIENCE FUN AT HOME
Simple and engaging practical science activities, originally created to support learning at home.

<https://pstt.org.uk/resources/curriculum-materials/Science-Fun-at-Home>



WOW SCIENCE
Searching out the best primary science activities.

<https://wowscience.co.uk/>



TEACHER ASSESSMENT IN PRIMARY SCIENCE (TAPS) *Developing guidance and resources to support teachers and schools.*

<https://pstt.org.uk/resources/curriculum-materials/assessment>

SCIENCE AT WORK

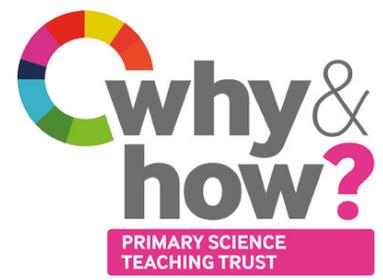
SCIENCE AT WORK
Meet past and present scientists and to learn more about people who do jobs that use science.

<https://pstt.org.uk/resources/curriculum-materials/Science-at-Work>



CITY SCIENCE STARS
Engaging practical science activities for primary school children, using links to football, other sports and space.

<https://pstt.org.uk/resources/curriculum-materials/city-science-stars>



Website: www.pstt.org.uk/resources
Facebook: @primaryscienceteachingtrust
Twitter: @PSTT_whyhow

Digital leadership in schools and the impact of the Young STEM Leader Programme

by **Steve Beattie**

Two years ago, I was tasked with STEM development at my school and was told that the Young STEM Leader Programme was something worth being involved in. I was fortunate to get to work with a range of educators from primary and secondary backgrounds across Scotland with the emphasis of using the STEM subjects to build confidence and capacity in our young people. After the pilot year and being under the restrictions of a pandemic, I applied to and was successful in being appointed to the role of Associate Regional Trainer and Verifier (ARTAV). While in post as an ARTAV, I have supported practitioners across the Tayside Regional Improvement Collaborative, while still developing and delivering YSLP in my own school.



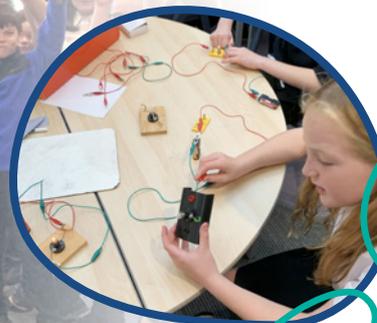
Depute Head Teacher at Hayshead Primary School, Angus (@HaysheadPrimary) Associate Regional Trainer and Verifier (ARTAV) for the Young STEM Leader Programme

Hayshead Primary School STEM and Digital Journey

Hayshead Primary School is in an area of deprivation with an average of 40% of pupils in each class having additional support needs. The school itself caters for over 500 children with 50 members of staff. Coupled with policies such as the Digital

Learning and Teaching Strategy for Scotland and evidence collected across our community, there was a need to utilise digital tools more effectively, which started our digital journey in 2017. This became an improvement priority, where staff confidence was low, pupils' skills were limited and thus there was no clear pathway to using these skills for learning, life and work.

On working in partnership with our school community we began to act on developing our digital skills and competences, while also providing greater focus on all the STEM subjects. Our pupil voice, particularly our Digital Leaders (Primary pupils aged between 8 to 12) had an active role in upskilling pupils, staff and parents. This helped to build our reputation in STEM delivery. >>



Examples of STEM and digital technologies being used and led by children.



Young STEM Leaders in action: face-to-face and online.



Impact of the YSLP

To increase the impact of STEM across the school, we signed up to the pilot of Education Scotland's STEM Nation award and the YSLP pilot simultaneously. This was based on the need to provide a more rigorous approach and opportunity for children to become positive role models for STEM and to increase engagement and appreciation of STEM across the learning community. The YSLP was a perfect fit: it focuses on peer-to-peer activities led for and by children, which also helped achieve the *Leadership in STEM* element of the STEM Nation award.

The YSLP was first to run parallel with our Digital Leaders who used this platform to teach robotics to other pupils. This year has seen the YSLs provide support in the recruitment of new Digital Leaders, where existing Digital Leaders had to plan, create and deliver activities to support the application and interview phase. They collaborated and met on Teams due to COVID-19 restrictions and, created PowerPoints and videos to provide support and encouragement so that all children could be included, no matter their academic level. The YSLs created the applications and a tool to track and provide feedback. In person interviews were carried out, which tested each STEM Leader in how they questioned and empathised with the interviewees.

This was the first time our children had led this type of process and this method will be used in future. The YSLs grew in confidence, became more resilient, effectively communicated as a team and developed important skills required for the world of work.

As well as developing STEM and digital skills, the children involved have achieved accreditation and enhanced an existing programme already in place. This required very little extra work as the YSLP website provided clear and precise instructions on how to complete each section. For the children receiving input and lessons from the YSLs, they have shown an increase STEM capital and are currently undertaking YSL2 themselves.

The YSLP does not need to be carried out in isolation, in fact I would discourage this. The programme could be introduced to a specific group like we have done but could have a positive effect with a whole class group at YSL2 or YSL3.

Next steps and future planning

Those continuing as YSLs within our school will seek further opportunities to share their journey and learn from others so that they can provide support when With the effective partnership set up between us and our associated secondary school, Arbroath Academy, our qualified YSLs will return to us and support STEM development at our school, while also being able to continue to work towards the formal levels of the YSLP at secondary school.

Due to the high level of ASN in each class and being a resourced school with an ASD specialism, I feel the YSLP lends itself nicely to meeting the needs of all learners as the award can be carried out in several ways which does not discriminate against those with barriers to their learning. I envisage more children being part of the YSLP in the new session and beyond.

Steve Beattie is an Associate Regional Trainer and Verifier (ARTAV) for the YSLP, supporting centres across Tayside. To reach him email Steve.Beattie@sserc.scot. <<

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 youngstemleader@sserc.scot or check out our [@YoungSTEMLeader](https://www.instagram.com/YoungSTEMLeader).

Fasten your seatbelt and watch 'indi' go!



Sphero introduce their new robot 'indi' aimed at primary 1-3 to help teach the importance of computational thinking.

Speed into STEAM with Indi - the most approachable, entry-level, learning robot for students aged 4+. indi inspires imaginative play-based learning by empowering students to design and build their own mazes while teaching critical problem-solving and computational thinking skills. With its on-board colour sensor and colour cards, indi provides

endless opportunities to rev students' creativity with or without the need of an app.

Build custom mazes, solve puzzles, and take control of the wheel to drive. Teach coding concepts to beginners and kick programming into high gear with even more options to spark interest in computer science in the free Sphero Edu Jr app. <<



STEM Ambassador resources for Maths Week Scotland

Maths Week Scotland took place in the week beginning 27th September 2021. Of course every day is a maths day and you can still access lots of wonderful resources developed by SSERC and the STEM Ambassadors.

Below you will find a link to our schools guide outlining all the resources available, the suggested level and additional information about STEM Ambassadors and how else you can get involved with Maths Week.

You can access Maths Week Scotland resources [here](#).

