



Full STEM Ahead

The newsletter of the RAiSE Team Issue 9 November 2018

Check out the [Full STEM Ahead](#) site

Support and inspiration at a click of your mouse!

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Save the date

24 Nov - 2 Dec 18 - [National Tree Week](#)

3-9 Dec 18 - [Computer Science Education Week](#) (incorporating Hour of Code)

1 Jan - 21 Feb 19 - [Big Schools Birdwatch](#)

21-27 Jan 19 - [Big Energy Saving Week](#)

26-27 Jan 19 - [Big Garden Birdwatch](#)

5 Feb 19 - [Safer Internet Day](#)

Mar 19 - [Waste Week](#)

8-17 Mar 19 - [British Science Week](#)

14 Mar 19 - [Pi Day](#)

26 Apr—D & G STEM Conference

18 Jun 19 - [Great Science Share Day](#)

What's new online

We've added links to the following pages:

Risk Assessments: [Tinkercad](#)

Properties & Uses of Substances: [Science of Mountain Clothing](#)

Planning: [Aberdeenshire CfE ICT SKILLS Early to 4th level; STEAM-a-Story](#)

[Extra-Curricular Clubs](#): we have added a new page to make it easier to find resources to support lunchtime or afterschool STEM clubs. Many resources would also be ideal for STEM weeks.

Science Skills: [Royal Microscopical Society](#); [Practical Science in Primary](#)

STEM Ambassadors

STEM Ambassadors are volunteers from a wide range of STEM related jobs and disciplines. They offer their time and enthusiasm FREE of charge to help bring STEM subjects to life and demonstrate the value of them in life and careers.

In our area, STEM Ambassadors are co-ordinated via Science Connects, based in Glasgow University. However, while there are many Ambassadors working in and around the central belt, we have not had that many available locally ... until now!

At the end of last term Aileen Hamilton, from Science Connects, spent 4 days in the region working with S6 pupils in a number of schools during the day and with individual volunteers in the evening. As a result we now have a bank of skilled Ambassadors ready and waiting for your call. They can provide expertise and support in a number of areas, from opticians to farmers and engineers to scientists.

If you would like to know more about the scheme and possibly invite an Ambassador to talk to your class or provide some specialist input to a classroom project then please visit the [Science Connects](#) webpage.

Lung Health Input from Professor John Lockhart (UWS)

Stranraer Academy and associated Cluster Primaries were involved recently in engagement with Professor John Lockhart from UWS and the BREATH Project. He visited the schools and delivered input on chronic obstructive pulmonary disease (COPD) and lung health to the learners. It was a fantastic opportunity for the learners to not only learn vital information but also to make connections to citizen science opportunities and increase their STEM capital.

Please take 5 mins to read the press report from UWS <https://www.uws.ac.uk/news/uws-academics-go-back-to-school-for-lung-health/>

We hope to move forward with this project by offering further engagement opportunities within other Clusters across the Authority. To express interest in the meantime please drop me an email (gw08creightonkaren@ea.dumgal.sch.uk).

"At a time when many one-year-olds can navigate YouTube to find Peppa Pig videos, educating children about online safety must start as early as possible."

Kate Forbes MSP, Minister for Digital Economy for the Scottish Government

Computer Science Education Week (incorporating Hour of Code)

This year Computer Science Education Week runs from 3rd to 9th December. To celebrate the RAiSE Team are running an [Hour of Code](#) virtual Expo where your pupils can show off their coding talents.

To take part your pupils will need to:

- Visit <https://hourofcode.com/uk> and click on Activities in the top menu. You don't need to set up any accounts.
- Select one of the following activities:
 - Dance Party
 - Minecraft (any option)
 - The Grinch
 - Star Wars
 - Make a Flappy Game
 - Code with Anna and Elsa
- The tutorials will teach the pupils all the skills they'll need to create their own project or game in the final task. It should take approximately one hour but experience shows most pupils need longer. Keep in mind you can't save these projects so they need to be completed in a single session.
- Once they have completed their project and clicked Finish, they will be given a unique URL (it will look something like this - <https://studio.code.org/c/123456789>). Have them copy it (carefully!) and give it to you.
- Then visit our D&G Computing Science Education Week 2018 Yammer group and create a post to share the URL. It can be anonymous but, if your pupils have media permission, then please share first name and class, and maybe some pictures too.
- While you're in the group tell everyone a little about your class and what you have been doing to deliver computing science. Don't worry if taking part in this Expo is your first experience of coding - everyone has to start somewhere!

Don't forget to take a look at some of the other games that get shared. Just copy their URL and type it into the address bar of your browser.

The great thing is all these activities are live now, so what are you waiting for - sign your school up now at [Hour of Code](#) and get coding!

If you do just one thing this month ...

... take a look at [National Technologies Community Home Page](#) from Education Scotland.

It's their easy to navigate one-stop-shop for all things Technologies. Here you'll find guidance documents and resources on planning, assessment and moderation for all the Technologies areas, as well as links to some great teaching resources. If you are teaching 2nd or 3rd level click on the [Go Forth Resources](#) tile for some superb resources linked to the Forth bridges. And for 3rd/4th level (or 2nd level with support) the have a look at the [Aiming for Awesome](#) resources linking the work of the RAF to the Design and Technology curriculum - you'll find it in the 'Engineering Science examples in BGE' folder within the 'BGE' tile.

Maths Week Scotland

We saw some fantastic maths being done by schools across the Authority to celebrate this year's Maths Week Scotland. Take a look at what they got up to in *Showcase Your Talents* below. Many pupils tried the RAiSE Team challenge to use Scratch to create their initials. Working with teachers, we also created resources which linked maths and numeracy to the work of local businesses. Of course, these activities can be done at any time of the year and can be found on our Yammer Group, just search for 'Maths Week Scotland'.

Edina Trust

Could you make use of an additional £600?

We're guessing the answer is 'yes', so make sure you don't miss out by applying for your Edina Trust Grant now. You can apply for up to £600 to support science activities in your school. This could be to pay for the cost of a visit from Generation Science, or a trip to a science centre, or STEM resources including gardening equipment.

You are GUARANTEED to get the £600 (even if you have already received a grant from them)—all you have to do is fill out a short form available from the [Edina Trust](#) site (they even have some pre-filled forms for your to choose from!). If you need any help with your application, get in touch with Bill McLarty (mclarty.household@btinternet.com) who will be happy to help.

Just don't wait too long. This is the last year D&G schools will be eligible to apply so don't miss out.

As featured on Yammer

Did you spot the following on Yammer?

Updates from: The Big Bang; Explorify; RSPB Scotland; RHET; Tomorrow's Engineers; STEM Learning; UK Safer Internet Centre; SSERC; Dumfries House; Education Scotland; Primary Science Teaching Trust; SQA Academy; Keep Scotland Beautiful; Digital Schools; Thinkuknow;

Opportunities from: The Wood Foundation (Global Learning Partnership programme); Natural History Museum (Dippy the Dinosaur); Safer Internet Day; Primary Science Education Conference; BREATH (Lung health); Mindset Education (Mathematical Mindsets CPD); STEM Learning (Teaching Primary Science - Getting Started online CPD); OECD (Effective Science Teaching Strategies webinar)

Challenges and competitions from: Young Engineers and Science Clubs (pH of Scotland [P5-S6 and Terrarium Project [Early Years]]); National Schools Partnership (Egg/Farming Free-Range Art Competition [7-11 years]); The Institute of Engineering & Technology (The Genetic Engineering Challenge [7-18 years]); Cyber First Girls competition; STAT WARS (film challenge); Computer Science Education Week (RAiSE Team Hour of Code challenge); Cyber Schools Programme [14-18 years]

FREE Resources from: Parent Zone (Self Esteem, Digital Safety & Resilience); BBC Own It; Topical Science Update; Royal Society of Chemistry (The science of mountain clothing); Digital Parenting; Digimaps; Go Forth (Bridges); Lantra (Land Based Careers Advice); Fife PSDO (STEAM-a-Story for Early Years); Royal Microscopical Society (free microscope loans); GSK (general STEM)



Missed it?! You can still catch up, just search the group to find old posts quickly.

Upskill Yourself

We know it isn't always easy to get along to our twilight CPDs. If you can't make it there are many excellent online training programmes that you can do at a time that suits you, often at your own pace, and that are FREE!

If you don't know your algorithms from your conditionals then try [Teaching Computing Science Fundamentals](#) from code.org

Get more out of Office 365 and take how you teach with technology to a whole new level by trying some of the [Microsoft for Education](#) courses. You could even sign-up to become a certified [Microsoft Innovative Educator](#).

Feeling a bit unsure as to how to tackle practical science investigations with your whole class (especially if you don't have a learning assistant to support)? Been asked to take the lead on science in your school? Then take a look at the [Teaching Primary Science: Getting Started](#) course from the National STEM Learning Centre. The current course is already underway, and it's not too late to join it, but you can also join the courses starting on the 25th February 2019 or 13th May 2019. It's hosted by Future Learn, who also offer a number of different STEM courses.

And if you just want to refresh your knowledge on a specific aspect of science, then we highly recommend [Reach Out CPD](#). Created by TigTag and Imperial College London, it gives practical teaching ideas for science across the levels, as well as developing your own knowledge and understanding.

If you do give any of these a try, or you've discovered a great resource we haven't mentioned, then please share on the Full STEM Ahead Yammer group.

CPD coming soon

Book now through CPD solutions.

- 22 Nov 18 - Addressing Gender Imbalance - Troqueer PS
- 26 Nov 18 - The Subsea Channel - Rephad PS
- 27 Nov 18 - The Subsea Channel - Closeburn PS
- 28 Nov 18 - Addressing Gender Imbalance - Castle Douglas PS
- 29 Nov 18 - Addressing Gender Imbalance - Hecklegirth PS
- 3 Dec 18 - Introduction to Scratch Coding - Gretna PS
- 4 Dec 18 - Introduction to Scratch Coding - Kirkcudbright PS
- 5 Dec 18 - Introduction to Scratch Coding - Rephad PS
- 6 Dec 18 - Introduction to Scratch Coding - Closeburn PS
- 8 Jan 19 - Lego WeDo - Rephad PS
- 14 Jan 19 - Textiles Technology - Gretna PS
- 15 Jan 19 - Textiles Technology - Kirkcudbright PS
- 21 Jan 19 - Textiles Technology - Rephad PS
- 22 Jan 19 - Textiles Technology - Closeburn PS
- 4 Feb 19 - Science Skills - Closeburn PS
- 5 Feb 19 - Science Skills - Rephad PS
- 11 Feb 19 - Science Skills - Kirkcudbright PS
- 12 Feb 19 - Science Skills - Gretna PS
- 30 Apr 19 - Technology to Enhance Literacy - Gretna PS
- 1 May 19 - Technology to Enhance Literacy - Kirkcudbright PS
- 7 May 19 - Technology to Enhance Literacy - Rephad PS
- 8 May 19 - Technology to Enhance Literacy - Closeburn PS

FIRST in Scotland!

Fifty-one pupils from 8 schools from across the region were the first in Scotland to attend a FIRST Lego League Junior (FLL Jnr) Challenge Expo on 11th October at Dumfries & Galloway College thanks to support from The Wood Foundation, Energy Skills Partnership (ESP) and The Institute of Engineering and Technology (IET).

Throughout last term, the teams had been finding out more about how water is used, and creating a model demonstrating an aspect of water use built entirely with Lego and incorporating a working pump using a Lego WeDo 2.0. As well as developing their research and design skills, the challenge also encouraged team working, resilience and fun!

The challenge culminated with a fantastic day at the College, where pupils showcased their models. The College were fantastic hosts and also provide pupils and staff with a tour of their engineering facilities and lunch. The focus of the day was very much on celebrating achievement and having fun. While non-competitive, expert reviewers chatted to all the teams and awarded certificates and medals to every team in recognition of an exceptional aspect of their model and display.

The feedback from the schools has been overwhelmingly positive, with everyone saying they would do it again and would recommend it to others. So why not try it yourself? Plans are already in progress to run another Expo in June.

The current challenge is 'Mission Moon'. For each team (up to 6 pupils aged 9-10), you will need access to a Lego WeDo 2.0 kit and the challenge Inspire Kit. The Inspire Kit contains all the key Lego blocks you will need to build the moon rocket model (and then some!) plus Engineering Notebooks for the pupils and a detailed Meeting Guide for the project leader. It is available from the IET and costs £35 which is great value for the Lego alone. To register you need to identify the Expo you plan to attend. At the moment the Scottish colleges, include Dumfries & Galloway, aren't listed but they should be up in January. Make sure you are subscribed to our Yammer group to be the first to know when it goes live.

If you would like more information about any aspect of the FLL Jnr or Expo, contact Carol on gw08moyescarol@ea.dumgal.sch.uk or 07990 888929.



The Super Lego Masters from Closeburn Primary School who won the Artistic Eye Award for their eye-catching Show Me Poster

Digi Maps

Digimap for Schools is a fun, intuitive online resource developed by EDiNA at the University of Edinburgh. By bringing historical mapping, aerial photography and detailed current day mapping into a simple engaging user interface, Digimap for Schools becomes an essential digital resource in your STEM toolkit; tying together many Technology, Mathematics and Social Studies Es&Os across 1st-4th level and beyond.

From simple to use point and click dynamic measurement tools to learner-added labels, text-boxes and photographs this excellent browser based resource engages young audiences with information about their local area.

Visit the web site and You Tube channel for excellent open educational resources and ideas on how to use the service meeting a number of CforE experiences and outcomes:

Digimap for Schools home page <https://digimapforschools.edina.ac.uk>

Learning Resources <https://dfsresources.edina.ac.uk>

YouTube channel <https://www.youtube.com/user/digimapforschools>

Webinar schedule <http://digimapforschools.blogs.edina.ac.uk/webinars/>

We are looking at organising bespoke CLPL opportunities for this resource from the EDiNA team. Please let Karen Creighton know if you would be interested. She is more than happy to discuss it's capabilities and give a small demo too. Multiple registrations will be eligible for reduction in price.

Feedback

It has been great to see so many colleagues at our twilight CPD sessions. We hear so many positive comments at the end of the sessions, but could we ask you to put that in writing too?

Following a session Karen Creighton will be send you an evaluation form by email. This is important to us as your feedback gives us an opportunity to improve future sessions. We will also send you a follow-up survey approximately 6 months later. This helps us to understand how useful the training has been and what impact it has had for your class.

As well as helping us to improve and develop our training, we are also required to submit evaluation information as part of our funding agreement, so it is really important to us.

Please don't ignore the email—it only takes a few minutes to complete and return the form.

School Showcase

Kelloholm



Primary 6 at Kelloholm also took part in the RAiSE Maths Week Scotland Challenge using Beebots and Scratch to write code programmes to "draw" their initials/names. Again, thank you to Mrs White for sharing this learning with us all. P6 and P7 also attended Sanquhar Academy to complete one of the Maths Week Scotland with Business Links Challenges. They worked in groups along with the S3 class to complete the Brown Brothers challenge. In the afternoon the learners found out about the careers in the Brown Brothers factory and where the employees used maths in their daily work.

Kirkinner



Kirkinner Primary School P1s had fun with counting, ordering, recognising and writing numbers during Maths Week Scotland. They got dirty digging up the potatoes that had been grown in the school garden. They counted them with the help of P3/4 and there were an amazing 85 potatoes altogether! The learners then had a go at forming some of the numbers they have been working on. Back in class they also worked in pairs to order and sequence numbers 0-10. It was great to see them all enjoying the activities.

Are you running an afterschool club, have entered a competition or just have some great STEM curricular work? Have it showcased in the Full STEM Ahead newsletter.

Don't be shy! If you have a piece of work or activity you would like us to share with fellow practitioners across Dumfries and Galloway, then send a photograph and short description (no more than 150 words) to gw08moyescarol@ea.dumgal.sch.uk and look out for yourself in next month's issue! Even better, upload it to our Yammer group.

Sandhead & Drummore



South Rhins Primaries; Sandhead and Drummore celebrated Maths Week Scotland by participating in a variety of maths based activities to help promote a positive attitude towards numeracy and maths. The week started off with a fun afternoon where parents and family members were invited into school to play board games. This proved to be a great success! Throughout the week; children also participated in an online maths competition on Sumdog; where they competed against other pupils and schools. The week was rounded off as both partnership schools spent the day together. Throughout the day a variety of maths activities were rotated; Sumdog games on the computers; maths challenges that proved to be a right brain teaser (even for some of the staff!) and a fantastic selection of board games. The highlight of the day had to be the Xplorer workshop held in the hall. The younger children thoroughly enjoyed playing with and controlling Beebot and the older children got to build and program a Lego model that moved. The whole week was a fantastic, fun experience; thoroughly enjoyed by all and signified that maths is not at all boring!!

Leswalt, Portpatrick & Kirkcolm



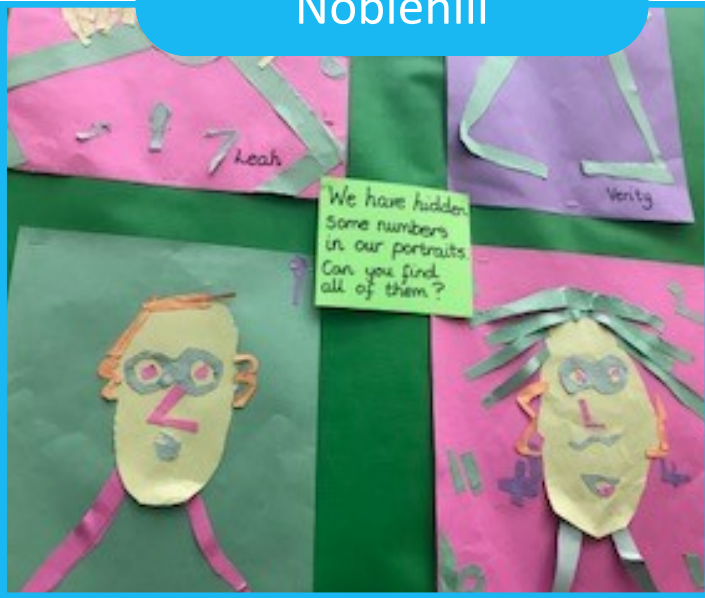
The North Rhins Partnership schools have been busy celebrating Maths Week Scotland which ran from 10th – 16th September. The aim of the week was to raise the profile of maths and awareness of how maths is everywhere. Each day was given a different theme for pupils to explore. The week kicked off with pupils getting creative and exploring 'Maths in Art.' The younger classes studied artist Paul Klee's work which uses various 2D shapes and then designed their own 'Castle and Sun.' The older pupils created some parabolic curve line designs, creating curved shapes from the intersection of straight lines. Some beautiful artwork was produced by pupils! Pupils then explored 'Maths in ICT' and participated in the D&G RAISE team's Beebot and Scratch challenges. The younger pupils programmed a Beebot and the older pupils used the coding website Scratch to draw specific letters and spell out a given word. In the middle of the week, parents and family members were invited into school to bake some tasty treats alongside pupils. The younger pupils practised counting out ingredients to make Rugby Slice, and the older pupils were practising weighing and reading scales to make Rocky Road. Later in the week, pupils participated in various active games exploring how Maths is in PE, exercising both our bodies and our minds! Maths Week came to an end with pupils exploring 'Maths Outside.' The younger classes used natural materials to aid them with counting and the older pupils participated in a maths scavenger hunt, finding different examples of various mathematical concepts outdoors, including 2D and 3D shapes, angles, and lines of symmetry. Over the course of the week, some families were busy taking part in our 'Maths is Everywhere' homework challenge, finding examples of Maths in and around the home. Pupils brought in some fantastic and very creative collages. Pupils had a great week of fun exploring Maths and we can truly say that Maths is everywhere!

Lincluden



Lincluden P3 class had great fun exploring shape, position and movement with their Beebots during Maths Week Scotland.

Noblehill



Noblehill were very busy during Maths Week Scotland. P3/2 spent time making different shapes with lollipop sticks. The learners had to work out what they needed to make sides equal/ different and make shapes bigger or smaller than others. They now know about hexagons, pentagons, octagons and even quadrilaterals. P4 made pieces of artwork using numbers for the shapes - very creative! P7A worked in small groups to solve numeracy problems. They then had to record, show and explain how they solved (or didn't solve the problem) to the rest of the class. There were lots of great ideas and even some friendly disagreements!! The trickiest part was deciding on what strategies to use. As a starter to their Shape and Angle, Symmetry and Transformation work, the class revised different types of angles and triangles.

Hardgate, Lochrutton & Springholm



Penninghame



Mrs McQuat has a great Tinkering Space set up in her P1 Classroom at Penninghame. The pupils are currently looking at Electricity and have had a great time taking an old heater and a Dyson to pieces; exploring all the parts that are inside and discussing how it works.

"We looked at the Dyson Hoover to find out how it worked. It sooks up the rubbish and puts it in the clear bit. We can take it off to empty it and it goes to the bin lorry. Sometimes the Hoover doesn't sook up stuff. It might be broken or the pipes get blocked. we unblocked it so Mrs McQuat could Hoover again!" P1 Pupil.

"We have a tinker area in our class. We take things apart with screwdrivers to find out how they work. The heater has a fuse in the plug to help it work. The curly wire heats up when you plug it in and the little blows the hot air out and makes you feel warm and sweat!!" P1 Pupil.

Mathematicians at Work! Hardgate, Lochrutton and Springholm Partnership came together for Scottish Maths Week recently. The children worked together across the partnership on a range of Math challenges, applying the skills and knowledge they have been learning in their classes. The children used shape, measure and numeracy skills to solve problems from the real world including engineering and art based challenges (the Primary 1 children even used music to help them learn numbers). It was a really enjoyable day with the children showing real enthusiasm for the challenges. We look forward to seeing them becoming the mathematicians of the future.

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