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HIGHLAND STEM CONFERENCE

SUPPORTING PRACTITIONERS TO RAISE
ASPIRATIONS IN SCIENCE EDUCATION

Wednesday 20th of
February, 2019
Ben Wyvis Primary, IV7 8BE

Organised by:

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@STEMinthehighlands



Welcome to the Highland STEM Conference!

Thank you for joining us for the 2019 Highland STEM Conference. This is the third year Highland Council has hosted a February Science in-set, and we're excited you're joining us as we step into the exciting world of STEM: Science, Technology, Engineering, and Maths.

Today is all about enabling Highland practitioners to deliver high quality STEM learning opportunities back in their own setting. We have a fantastic range of workshops for practitioners working with learners at Early Level right through to Second Level Learners. You will find a timetable of the workshops on page 4, and descriptions of each workshop on pages 5-11.

So, please make the most of the day, get stuck into the workshops and make contact with STEM Ambassadors and organisations that can support your school to deliver engaging learning opportunities.

When you have made your selection and are ready to book into your workshops, please complete the [online workshop booking form](#).

Information for Attendees:

Parking at Ben Wyvis Primary is extremely limited, please car share when possible.

We will break for lunch from 13:35-14:30. **Please bring a packed lunch** as I'm sorry to say, on this occasion, we are not able to provide. Join us in the Hall where there will be a range of exhibitors displaying STEM resources and opportunities for your school or setting.



Science as a context for Literacy and Numeracy

This workshop will explore how to embed science in learning across the curriculum and introduce resources developed by the RSC for school to use with topic work.

CfE Level: 2nd
Session: 4 (14:30-15:30)
Room: 5
CfE Es and Os: many at E and 1st Level



Challenging Stereotypes: Improving Gender Balance

An overview of gender stereotypes/unconscious bias; how they can have an impact of young people's emerging self-identity and hence on engagement with different curricular areas.

CfE Level: All
Session: 4 (14:30-15:30)
Room: 7



Build and Test Renewable Technology

Build and take away a model wind turbine that can be used to demonstrate how wind farms and hydroelectric schemes generate electricity. Use the model with your class to test and improve the design with different blade shapes and measure with free multimeter.

CfE Level: 2nd
Session: 4 (14:30-15:30)
Room: 1
CfE Es and Os: SCN 1& 2-04a, THC 1-02a, THC 2-02b, THC 2-12b



Dr. Alex Reis

Recycling as a Second Journey

Learn about a whole school approach to learning about science and sustainability; practical activities.

CfE Level: 1st-2nd
Session: 4 (14:30-15:30)
Room: 10
CfE Es and Os: SCN 1& 2-20b, SCN 1& 2-15a



Additional Support Needs STEM

Discuss and explore how best to support children with ASN to access STEM learning and differentiate materials and lessons for learners with ASN.

CfE Level: 1st-2nd
 Session: 3 (12:35-13:35)
 Room: 3

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K'NEXT Generation

Using K'NEX in Early and First Level CfE

Presentations and practical sessions guide delegates through building models using instruction cards, how to use Kid K'NEX in structured play and the use of Kid K'NEX in cross-curricular activities.

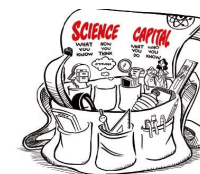
CfE Level: Early– 1st
 Session: 4 (14:30-15:30)
 Room: 8
 CfE Es and Os: TCH 0 &1-09a, TCH 0 &1-11a, MNU 0-01a, MNU 0-02a, MNU 0-03a, MTH 1-13a, MTH 1-16b

SCIENCE CAPITAL FOR PRIMARY SCHOOLS

Keynote by Paul Tyler



Paul Tyler is a primary school teacher, and science coordinator, at Mearns Primary School in East Renfrewshire. He is a Primary Science Teaching Trust Fellow and has just led his school through their PSQM Outreach award. Paul is an active member of the Association of Science Education and regularly writes and speaks about his passion for primary science. Paul has been working to adapt the work of Professor Louise Archer and the Aspires team, for primary schools and has come to Dingwall to share the importance of Science Capital in the primary science journey. Approach him with caution as he can talk about primary school science almost indefinitely!



Science Capital is the latest buzz phrase in science education but what is it and how is it relevant in a primary school setting? Paul Tyler will outline what Science Capital is and how he has adapted and developed the concept to use in a primary school setting. He will talk about the practical things that really make a difference and present research to demonstrate the importance of introducing key aspects of Science Capital as early as possible.



Jean-Christophe Denis

Harry Potter's Universe as a Context for Science

Ideas and activities for linking hands-on science with the Harry Potter universe.

CfE Level: 2nd
 Session: 4 (14:30-15:30)
 Room: 2
 CfE Es and Os: SCN 2 -15a, SCN 2 -16a, SCN 2 -19a, SCN 2 -20a, SCN 2 -11b, TCH 2 - 10a



Pat Kieran

Marine Energy Project

Explore Renewable Technologies and the impact of humans on the landscape. Use a fictional island to debate the best site for different types of renewable energy generation.

CfE Level: 1st - 2nd
 Session: 4 (14:30-15:30)
 Room: 3
 CfE Es and Os: SCN 1-04a, SCN 2-04a, SOC 2-08a, SOC 1-13a

Room	Workshop 1 10:00-11:00	Workshop 2 11:30-12:30	Workshop 3 12:35-13:35	Workshop 4 14:30-15:30
10	Mission Starlight UV 2 nd Level CFE	Supporting IDL with STEM, arts and movement E-2 nd Level CFE	Dinosaurs Early-1 st Level CFE	Recycling a 2nd Journey 1 st & 2 nd Level CFE
9	Squishy Circuits: 2 nd Level CFE	Chemistry in the local community: 2 nd Level CFE	Using K'NEX in 2 nd Level CFE	Using K'NEX Early-1 st CFE
8	Neuroscience for teachers 1-2nd Level CFE	3D modelling with Tinker CAD: 2 nd Level CFE	Early to First Level Computing Science Playground	Challenging Stereotypes: Improving the Gender Balance in STEM
7	pH of Scotland: 2 nd Level CFE	Science and the John Muir Award: 2 nd Level CFE	Island Explorers 1st-2nd Level CFE	Science as a Context for Literacy and Numeracy 2 nd Level CFE
6	Earth What Lies Beneath: 1 st & 2 nd Level CFE	Top Technology : 2 nd Level CFE	Numeracy and the John Muir Award: 2 nd Level CFE	Marine Energy Project 1 st & 2 nd Level CFE
5	Building Confidence in Early Years STEM	STEM in a Context: Theme Parks E-2 nd Level CFE	Additional Support Needs STEM	Build and Test Renewable Technology 2 nd Level CFE
4	STEM a Story- E & 1 st Level CFE	STEM on a Shoestring: E- 2 nd Level CFE	Planet Pioneers: 1 st & 2 nd Level CFE	Harry Potter Science Activities- 2 nd Level CFE
3	Earth What Lies Beneath: 1 st & 2 nd Level CFE	Planet Pioneers: 1 st & 2 nd Level CFE	Planet Pioneers: 1 st & 2 nd Level CFE	Harry Potter Science Activities- 2 nd Level CFE
2	Earth What Lies Beneath: 1 st & 2 nd Level CFE	Planet Pioneers: 1 st & 2 nd Level CFE	Planet Pioneers: 1 st & 2 nd Level CFE	Harry Potter Science Activities- 2 nd Level CFE
1	Earth What Lies Beneath: 1 st & 2 nd Level CFE	Planet Pioneers: 1 st & 2 nd Level CFE	Planet Pioneers: 1 st & 2 nd Level CFE	Harry Potter Science Activities- 2 nd Level CFE
Closing Remarks and Evaluations in the Hall				
Lunch Break				
Tea and coffee Served in the Canteen				
Keynote in the Hall 9:15-9:55				



Dr. Sam Clark

Dinosaurs

The world of Dinosaurs is always an inspiring context for learning with young children, learn how to build science and maths skills into a dinosaur topic.

CfE Level: Early-1st Level
Session: 3 (12:35– 13:35)
Room: 10
CfE Es and Os: SCN 1-02a, SCN 1-14a



Susan Sey

Early to First Level Computing Science Playground

Explore Code-a-Pillar, Bee-Bots, Blu-Bots, Mini Spheros and Dash n Dot across the curriculum. Engage in hands on activities, how to access a wealth of free computing science resources, and national guidance to help you plan for learning and assessment within the Technologies.

CfE Level: Early– 1st
Session: 3 (12:35– 13:35)
Room: 7



K'NEXT Generation

Using K'NEX in 2nd Level CfE

Dust off the school box of K'NEX! This workshop is designed to introduce first-time users to the huge potential of K'NEX , mastering the basic techniques of model design and construction.

CfE Level: 2nd
Session: 3 (12:35– 13:35)
Room: 8
CfE Es and Os: SCN 1-07a, SCN 2-07a



SCDI/YECS

Island Explorers

Island Explorers is a fully funded STEM opportunity for your primary school thanks to a partnership with Falck Renewables . The project uses the context of island life to explore sustainability and the challenges they may face . This workshop is invitation only to selected schools.

CfE Level: 1st-2nd
Session: 3 (12:35– 13:35)
Room: 6
CfE Es and Os: SCN 1-15a, SCN 1-20a, TCH 1-02a, TCH 1-12a, 1-14a, TCH 1-15a, TCH 1-14b

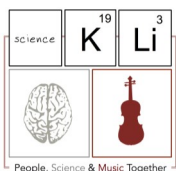
Chemistry in the Local Community

Develop an understanding of the environment and your pupils place in it through scientific enquiry. Build an understanding of future careers and the impact of science in our daily lives.



Dr. Frances Docherty

CfE Level: 2nd
Session: 2 (11:30-12:30)
Room: 9
CfE Es and Os: SCN 2-16a,b, SCN 2-18, SCN 2-19, SCN 2-20a,b



Lewis Hou

Supporting IDL with STEM, Arts and , Movement

This workshop will share practical strategies and resources of how to embed expressive arts and active learning into STEM (and vice versa). STEM and/or arts non-specialists very welcome!

CfE Level: E-2nd
Session: 2 (11:30-12:30)
Room: Gym Hall

University of
**Strathclyde
Glasgow**

Dr. Kirsty Ross



STEM on a Shoestring

Learn how to use everyday and household items to incorporate STEM challenges and learning into your school and classroom.

CfE Level: 1st-2nd
Session: 2 (11:30-12:30)
Room: 2
CfE Es and Os: Various Science and Technology

**JOHN
MUIR
TRUST**

Alan Smith

Numeracy and the John Muir Award

The John Muir Award can support teacher to deliver learning outcomes through practical, creative and engaging approaches. Learn how to deliver maths learning in a practical context while working toward a John Muir Award with your class.

CfE Level: 2nd
Session: 3 (12:35-13:35)
Room: 5
CfE Es and Os: MNU 2-10c, MTH 2-17c, MTH 2-17d, MTH 2-18a, MNU 2-20b, MTH 2-21a

STEM a Story

Use picture books, stories, and nursery rhymes as a context for Science, Technology, Engineering, and Math in your class room or ELC.



**Alex McLaughlin
Hannah Christie**

CfE Level: Early- 1st
Session: 1 (10:00-11:00am)
Room: 1
CfE Es and Os: SCN 0-12a, SCN 1-12b, SCN 0-07a/1-07a/2-07a, SCN 0-15a/1-15a, SCN 2-11b, TCH 1-04a, TCH 1-13/1-14a



Dr. Kirsty Ross

Building Confidence in Early Years STEM

Ideas for starting your STEM journey in your school or Early Learning Centre.

CfE Level: Early- 1st
Session: 1 (10:00-11:00am)
Room: 2
CfE Es and Os: many at E and 1st Level



Isla Mackay

Earth: What Lies Beneath

Using hands-on techniques to teach the children the principles of earth science; the structure of the earth, the landscape we see today, and human impacts.

CfE Level: 1st-2nd
Session: 1 (10:00-11:00am)
Room: 3
CfE Es and Os: SCN 1-07a, SCN 2-07a

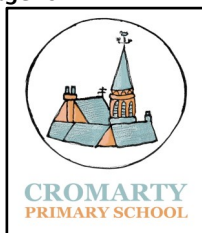


SCDI/YECS

pH of Scotland- Introduction to YESC and our 2018/19 Annual STEM Challenge

During the session, we will look at the free water testing kit, alongside the pH of Scotland website, where schools will log their results. We will then try our hand at designing a water screening system that will sort and separate LEGO bricks, which represent the "unflushable" items.

CfE Level: 1st-2nd
Session: 1 (10:00-11:00am)
Room: 6
CfE Es and Os: SCN 2-09a, SCN 2-16a, SCN 2-18a, THC 2-09a, THC 2-10a, MTH 2-15a



Cath Milne

Squish Circuits

Working with Electricity and Circuits, and the properties of materials. Building circuits with playdough.

CfE Level: Early- 2nd
 Session: 1 (10:00-11:00am)
 Room: 9
 CfE Es and Os: SCN1-09a, SCN2-09a, TCH1-09a,
 TCH 1-10a, TCH 2-09a, TCH 2-10a

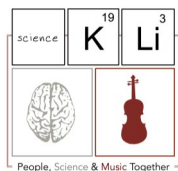


Nick Speakman

Mission Starlight UV Protection

Design and test protective layers for astronaut clothing and visors, supported by Tim Peak and RSC.

CfE Level: 2nd
 Session: 1 (10:00-11:00am)
 Room: 10
 CfE Es and Os: SCN 2-12a , SCN 2-20a/b



Lewis Hou

Neuroscience for teachers

Explore the basics of brain anatomy, the neuroscience of creativity, health and wellbeing and learning, with opportunity to discuss your questions and how to bring this into the classroom.

CfE Level: E- 2nd
 Session: 2 (11:30-12:30)
 Room: 7



Alan Smith

Science and the John Muir Award

The John Muir Award can support teacher to deliver learning outcomes through practical, creative and engaging approaches. Learn how to deliver science learning while working toward a John Muir Award with your class.

CfE Level: 2nd
 Session: 2 (11:30-12:30)
 Room: 5
 CfE Es and Os: SCN 2-01a, SCN 2-02a, SCN 2-02b,
 SCN 2-05a

Alex McLaughlin
Hannah Christie

STEM in a context: Theme parks

Using the context of theme parks explore activities to learn about forces, maths, and design technology.

CfE Level: 1st-2nd
 Session: 2 (11:30-12:30)
 Room: 1
 CfE Es and Os: SCN 1-08a, SCN 1-09a/2-09a, SCN
 2-10a, SCN 2-11b, TCH 1-10a/2-10a, TCH 1-12a/2-



Les Golder

Top Technology

Using tools and equipment to design and construct models and help practitioners to deliver the Craft and Design elements of CfE.

CfE Level: 1st-2nd
 Session: 2 (11:30-12:30)
 Room: 4
 CfE Es and Os: 1&2-09a through to 1& 2-12a



Pat Kieran

Planet Pioneers

In this STEAM project pupils investigate the Science, Technology and human aspects of living on other planets using a range of media to illustrate their findings including; drawings, drama, and dance.

CfE Level: 1st-2nd
 Session: 2 (11:30-12:30)
 Room: 3
 CfE Es and Os: SCN 1-06a and SCN 2-06a



Ashley Healy

3D Modeling with Tinker CAD

Learn how to use this on-line tool for design technology and digital literacy. Designs from Tinker CAD can be used for output to 3D printer.

CfE Level: 2nd
 Session: 2 (11:30-12:30)
 Room: 7
 CfE Es and Os: THC2-09a, THC3-09a, THC2-11a,
 THC3-11a, THC2-12a, THC3-12a, EXA2-02a, EXA3-