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RAiSE
Raising Aspirations in Science Education

The Highland Council
Comhairle na Gàidhealtachd

HIGHLAND STEM CONFERENCE

SUPPORTING PRACTIONERS TO RAISE ASPIRATIONS IN SCIENCE EDUCATION

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

The Highland Council
Comhairle na Gàidhealtachd

RAiSE
Raising Aspirations in Science Education

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

Recycling as a Second Journey

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

Dr. Alex Reis

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

University of Strathclyde Glasgow

Dr. Jane Essex

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

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

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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

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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

Table of Contents

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.

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.

Dr. Sam Clark

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

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.

Susan Sey

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

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.

K'NEXT Generation

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

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.

SCDI/YECS

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

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

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

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!

Lewis Hou

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

STEM on a Shoestring

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

Dr. Kirsty Ross

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

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.

Alan Smith

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

Page 5

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

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Building Confidence in Early Years STEM

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

Dr. Kirsty Ross

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

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.

Isla Mackay

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

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.

SCDI/YECS

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

Squish Circuits

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

Cath Milne

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

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Mission Starlight UV Protection

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

Nick Speakman

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

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.

Lewis Hou

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

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.

Alan Smith

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

STEM in a context: Theme parks

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

Alex McLaughlin
Hannah Christie

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-

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Top Technology

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

Les Golder

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

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.

Pat Kieran

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

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.

Ashley Healy

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-