**This conference comes at a time of important changes for both primary and secondary teachers and we are pleased that such a good programme has been developed to support you.**

In addition to meeting particular needs at times of change this conference provides an excellent opportunity to keep up to date with recent developments and move science forward in your school or college. We aim to bring you new ideas and resources to help you continue to make science exciting, interesting and engaging for your pupils.

**What really matters in science education? Keynote by Prof Sir John Holman**

*"Good science teaching isn't just about GCSE and A level grades. It's about teaching and practical work that inspires young people to want to know more. But our accountability measures don't do enough to encourage that. In this talk I'll ask what kind of things schools, Ofsted and the performance tables should be measuring if we really want to encourage inspiring science."*

Prof Sir John Holman is Emeritus Professor of Chemistry at the University of York, Senior Education Adviser to the Wellcome Trust and Gatsby Foundation, and Royal Society of Chemistry Lord Lewis Prize winner for 2014. He was previously Director at the National Science Learning Centre and National STEM Director. He is a member of the Vision for Science and Mathematics Education 5-19 project committee of the Royal Society, and a Trustee and Member of Council of the Royal Society of Chemistry.

**Some of the changes we need to put in place for our pupils:**

- **New programme of study**
- **Assessing without levels**
- **Progress & attainment measures**
- **Working scientifically or scientific enquiry**
- **GCSE Criteria**
- **Assessing practical work**


Prof Sir John Holman

the Association for Science Education
Yorkshire & the Humber Region

Science
LEARNING CENTRES

# Building Expertise in the New Curriculum

**An ASE/SLC Regional Conference for Teachers of Science in Primary and Secondary Schools and Science Technicians**

**To book a place please visit the event details page at the SLC web portal, complete and send our printed booking form, or call us on 0114 225 4891.**

**Book online at:** ***www.slcs.ac.uk/go/net/RP817***

**An excellent CPD opportunity with national and regional speakers to explain the latest changes in curriculum and assessment and to support and develop the best science teaching and learning in a changing environment.**

The conference has **four sessions** (options detailed inside) covering topics for primary & secondary teachers, as well as technicians, from a range of speakers each selected for the contribution they can make to developing science education.

Throughout the conference there will also be an **exhibition** of the latest materials designed to support your science teaching, from publishers, apparatus suppliers and other educational bodies.

Do take advantage of the registration and break times to explore the exhibition!

## Programme

| | |
|---|---|
| 9.00 | Registration |
| 9.45 | Session 1 |
| 10.45 | Refreshments |
| 11.15 | Keynote |
| 12.00 | changeover time |
| 12.10 | Session 2 |
| 13.10 | Lunch |
| 14.10 | Session 3 |
| 15.10 | Refreshments |
| 15.30 | Session 4 |
| 16.30 | Finish |

## Keynote address by Prof Sir John Holman

**Saturday 22 November 2014, 9.30 to 16.30 at the University of Huddersfield.**

**Event fee is £60, includes lunch & refreshments.**

*See booklet reverse for event details and inside pages for session options.*

*A partnership conference from the ASE Yorkshire & the Humber Region, and the Science Learning Centre Consortium Derbyshire, Yorkshire and the Humber, and the North East. Supported by the University of Huddersfield.*

*The University of Huddersfield has easy access by road and rail from North, South, East & West. There is free parking and a free Town Bus from the Railway Station to the University.*

*All rooms used are wheelchair accessible from the University's Firth Street entrance.*

*Use this code to access the event page and book online at the SLC web portal.*

*Follow ASE on Twitter* **@ASEYorkshire**
*Follow SLC on Twitter* **@SLCDYN**

University of HUDDERSFIELD
Inspiring tomorrow's professionals

THE AWARDS
AWARD WINNER
UNIVERSITY OF THE YEAR

## Session 1 Options

### 1A What's going on for Science Technicians?
*Simon Quinnell, National Technicians Lead, National SLC*
**For all Technicians**

In this interactive talk participants will discover what ASE is doing for technicians including the RsciTech award and a preview of the ASE/NSLC National Technicians Conference. We will also have updates from SCORE and Gatsby on practical work and the latest in technician's development opportunities.

### 1B Outstanding science: Innovative resources and local contexts
*Joy Parvin, Director, Chemical Industry Education Centre, Uni of York*
**For KS1/KS2 Teachers**

Discover ways in which you can ensure children's active participation in their learning by using CIEC's innovative resources and contexts. We will introduce you to strategies which will develop science skills, knowledge and understanding by emphasising the role of children as scientists fully engaged in practical work and problem-solving. You'll access resources to support children's understanding of the relevance and impact of science on society and where it can lead them in the future.

### 1C Biology KS1: Fulfilling the new curriculum requirements
*Kathy Schofield, College Director, Primary Science Teaching Trust*
**For KS1 Teachers**

This workshop will provide practical ideas for use both inside and outside the classroom. You will be provided with resources to support the delivery of seasonal change throughout the school year and links to stories related to the environment. There will be the opportunity to discover the successful PSTT Science Trails and how they can be used in your own setting.

### 1D The New Curriculum: Creative approaches to implementation
*Rosemary Feasey, Primary Science Consultant*
**For KS1/KS2 Teachers**

In this session you will be offered suggestions for creative approaches to managing the primary curriculum to suit the needs of pupils and using the school grounds and locality to meet and go beyond the statutory requirements. As well as offering an overview of the new curriculum it will outline the latest in terms of its assessment.

### 1E Mathematics in the new science curriculum,
*Richard Needham, Science Consultant & SCORE Committee ASE Rep*
**For KS3/KS4 Teachers**

ASE has supported the move to include more mathematics in the secondary science curriculum and recognises that what our students learn in their maths lessons does not easily transfer into science lessons. In this session we will explore some of the reasons for this, consider different areas that students find difficult, and try out some activities to do in science lessons to help students.

### 1F Implications of Ofsted's report 'Maintaining Curiosity'
*Pete Robinson, Immediate Past Chair of the Association*
**For KS1/KS2/KS3/KS4 Teachers**

'Maintaining Curiosity' is now a year old. This session explores the key messages and implications for science leaders and teachers given by the report. We will consider what impact it has already had on schools and how it can be used to inform better assessment and pedagogy.

### 1G A careers and science workshop
*Pat Morton, Centre for Science Education, Sheffield Hallam Uni*
**For KS3/KS4/Post16 Teachers**

The workshop will provide you with resources and strategies to build information about careers into science lessons. You will be enabled to take back ideas to build the science (and STEM) careers strategy for your school and college and lead to wider engagement and progression for all students.

### 1H Joined up: Build a coherent 11-16 science curriculum
*Tony Sherborne, Curriculum Director, CSE, Sheffield Hallam Uni*
**For KS3/KS4 Teachers**

Is it really possible to prepare students for life, exams, and maintain their curiosity for science? Come along and find out how to align your Teaching and Curriculum with all these goals, and even keep Assessment Levels.

## Session 2 Options

### 2A Technicians Supporting Practical Work in the Laboratory
*Margaret Deacon & Joanne Beevers, Senior Science Technicians*
**For all Technicians**

We are leading the session as science technicians from two Kirklees secondary schools to share our experience of preparing and assisting in the delivery of science practicals. We will enable delegates to try out some practicals during the session, to share ideas and promote better practical lessons.

### 2B Researching young children's interest in science
*Zoe Crompton, Lecturer in Primary Science Education, Uni of Leeds*
**For Foundation/KS1 Teachers**

This workshop will explore current research about 4 to 6 years old children's developing interest in science and the effect of the social context on this. Participants will be encouraged to reflect on how they first became interested in science and to share strategies to engage their learners in science activities.

### 2C Learning Outside the Classroom - How & Why
*Rosemary Feasey, Primary Science Consultant*
**For KS1/KS2 Teachers**

We will explore the benefits, barriers and misconceptions related to Outdoor Learning and discuss ways of using outdoor learning in your school and local environment. Hands on activities and a range of free resources will be showcased. Bring suitable outdoor clothing & footwear as part of the session will be outside.

### 2D Evolution and Inheritance in the new National Curriculum
*Stuart Naylor, Director at Millgate House Education*
**For KS1/KS2 Teachers**

Many primary teachers are concerned about teaching the section on evolution in the new primary national curriculum. This session will outline the background that you need to teach this area, to make it accessible and easy to understand, and to give ideas for what you can do in the classroom. You will leave this session confidently looking forward to putting this into practice!

### 2E Are we world class in science?
*Oliver Stacey, National Foundation for Educational Research*
**For KS1/KS2/KS3/KS4 Teachers**

International surveys of student achievement such as PISA have attracted considerable attention in recent years and concern in the media. This session will consider the achievement of the UK in the most recent international assessments and how we compare to the top performing countries in science internationally. We will discuss areas of strength, areas for improvement and lessons we can learn.

### 2F Ensuring key stage progression in the National Curriculum
*Sue Atkinson, Science Consultant, York Local Authority*
**For KS1/KS2/KS3 Teachers**

This session will explore how to develop a science curriculum that ensures progression in the key ideas in science across KS1 to KS3. Participants will receive a mapping document which sets out the development of the key ideas and skills of working scientifically. We will explore ways to develop schemes of learning to support teachers in delivering effective lessons that engage and challenge pupils.

### 2G STEM collaboration in North Tyneside
*Kehri Ellis, Chief Executive, North Tyneside Learning Trust*
**For all Teachers**

North Tyneside Learning Trust is a partnership of schools, colleges, universities and employers; working together to improve education and life chances for all children and young people. STEM is a major priority for the Trust and this session will detail the ways in which Trust schools have come together to deliver STEM projects to raise awareness, aspirations and attainment of children and young people to pursue STEM careers.

### 2H Designing KS4 qualifications for pupils of differing needs
*Jim Ryder, Professor of Science Education, University of Leeds*
**For KS3/KS4/Post16 Teachers**

Should all students follow the same KS4 science qualification? If not, what different qualifications should be made available to students? The session will explore these questions drawing upon research into students' experiences. We will also consider how attainment, gender and socio-economic status impacts on participation across different science qualifications at KS4.

## Session 3 Options

### 3A What's Appening? Using Technology in science
*Phil Wilson, Senior Technician, Broadgreen International School*
**For KS3/KS4 Teachers &Technicians**

We will be exploring how Tablets and Smartphones can be used and implemented in the science department. Can using a tablet make it easier to navigate practical sheets? Can apps be used in the classroom? Using useful websites to make your technical service better. To make the best use of this session please bring your Tablet or Smartphone with you.

### 3B Professional development for new teachers: a case study
*Vicki Minister, Vicky Shehi & Hannah Griffiths, Hull University*
**For KS1/KS2 Teachers**

This session will describe how we, as primary teaching trainees, used the ideas we gained by attending a local ASE meeting as in transforming our science teaching and how we used the learning from misconceptions to enhance pupils' learning.

### 3C What to teach when
*Tanya Shields, Independent Consultant*
**For KS1/KS2 Teachers**

This practical workshop will explore some of the new additions to the primary science curriculum. Participants will be able to engage with hands-on practical activities from KS1 and KS2. This session aims to give teachers ideas for teaching science and an improved understanding of how the new primary science programmes of study are structured.

### 3D Developing formative assessment in practice – a workshop
*Mary Whitehouse, Science Education Group, University of York*
**For KS1/KS2/KS3 Teachers**

Good formative assessment needs good assessment items that will show evidence of learning. The York Science Project has been developing such items. In this workshop we will share some of these and show how you can use the examples and strategies from the project to develop further similar items of your own.

***This is a double session and participants must also choose option 4D.***

### 3E Global learning & scientific inquiry
*Stuart Bevins and Marilyn Brodie, CSE, Sheffield Hallam University*
**For KS2/KS3/KS4 Teachers**

This will introduce participants to the free teaching resources and CPD programme of the Make the Link project. The teaching resources are designed to integrate global education into the science curriculum and engage students in scientific investigations, solving real problems, as well as developing core science knowledge and understanding. Participants will gain hands on experience of the resources and will be able to take away examples of the blended media resources.

### 3F Assistive technology to support learners with Dyslexia
*Jon Hickman, Science Teacher, Kelvin Hall School, Hull*
**For KS1/KS2/KS3/KS4 Teachers**

This session will explore the use of assistive technology to support students with dyslexia and weak literacy skills. Through demonstrations you will be shown how to support and differentiate for learners with specific learning difficulties. This ticks the Ofsted boxes for use of IT and is easy to show clear progress in the lab or classroom.

### 3G Jelly baby waves at egg parachute - Ideas for STEM clubs
*Sarah Hill, STEMNET*
**For KS3/KS4/Post16 Teachers**

This session will show practical activities successfully delivered in STEM Clubs and allow you to talk to people who know how to set up a STEM Club or develop one further. You will be able to speak to some STEM Ambassadors who can help enrich STEM within your school. If you want to deliver fun and rewarding ways to boost enjoyment and learning across STEM outside of the classroom then this is the workshop for you!

### 3H Implications to curriculum & assessment at KS4 & A level
*Stella Paes, Assistant Director and Lead for Sciences, AQA*
**For KS4/Post16 Teachers**

This session aims to give an overview of key reform changes at A level and GCSE and the implications of this for assessment and teaching and learning. There will be a particular emphasis on the positive implications for practical work.

## Session 4 Options

### 4A Practical ideas; Gadgets & Gizmos
*Simon Quinnell, National Technicians Lead, National SLC*
**For all Technicians**

This session will explore a range of simple, inspiring and inexpensive practical ideas and equipment for Biology, Chemistry and Physics. Through demos, hands on and visual activities, delegates will be able to identify where to source, and how to use and in what contexts, a range of practical ideas.

### 4B Ready, Steady, Assess - Developing teacher assessment in the new curriculum for science
*Nicola Beverley, Independent Primary Science Consultant / Curriculum Lead, Central SLC*
**For KS1/KS2 Teachers**

This session will explore known and likely changes to science assessment at national and local levels, and consider implications for participants and their schools. It will include practical strategies and top tips based on current classroom practice and help subject leaders to decide where next, as they create a more effective and rigorous approach to teacher assessment of science.

### 4C Science for All
*Andy Bullough, Centre for Science Education, Sheffield Hallam Uni*
**For KS1/KS2/KS3/KS4 Teachers**

Science for All has brought together teachers and teaching assistants, with expertise in special educational needs, with curriculum developers from CSE. This dynamic collaboration has resulted in the development of a range of resources to help support SEN pupils with communications issues affecting their engagement and enjoyment of science. We will be showcasing some of our resources and thinking about their use.

### 4D Developing formative assessment in practice – a workshop
*Mary Whitehouse, Science Education Group, University of York*
**For KS1/KS2/KS3 Teachers**

***Continuation of option 3D - participants must also choose that.***

### 4E Science teaching: what works?
*Stuart Naylor, Director at Millgate House Education*
**For KS1/KS2/KS3/KS4 Teachers**

Teaching isn't an evidence-based profession in the same way as medicine is. However that doesn't mean that we should ignore whatever evidence is available. This thought-provoking session lifts the lid on what really works in the classroom and how we know. It draws on extensive research evidence of successful classroom practice, but focuses on the practicalities of science teaching and learning.

### 4F If it doesn't work it's physics
*Geoff Auty, Editor of School Science Review*
**For KS3/KS4/Post 16 Teachers & Technicians**

Practical work in physics is often regarded as difficult, but should we avoid demonstrations or class practical work for fear of failure? This session will show more than a dozen effective practical items from various areas of physics, many of which have been explained in the ASE journal School Science Review.

### 4G Working Scientifically at KS3
*Linda Needham , Independent Consultant*
**For KS3 Teachers**

Are you now working scientifically with Y7, 8 & 9? What should you expect students to be able to do at transition? How can you build on this to ensure progression? This interactive workshop will help you to answers these (and possibly other) questions about the National Curriculum that rolled out from September 2014.

### 4H Tour of the Science & Engineering facilities of the University
*Bob Cywinski*
**For KS3/KS4/Post16 Teachers**

The tour will include the accelerator, X-ray and science laboratories, the Engineering laboratories and the 3M Buckley Innovation Centre.