The New Context: Transition from Schools into Higher Education

Royal Society of Biology Curriculum Committee and the School of Biosciences, University of Birmingham

July 8th – University of Birmingham

Organised by:
Sarah Cox (Royal Society of Biology), Libby John (University of Lincoln & RSB Curriculum Committee), Jeremy Pritchard (University of Birmingham & RSB Curriculum Committee).
Contents

The New Context: Transition from Schools into Higher Education........................................3
Introduction ................................................................................................................................4
Royal Society of Biology Curriculum Committee ........................................................................5
Agenda .......................................................................................................................................6
Session 1  Skills development between school and university....................................................6
Session 2  Innovative teaching and collaborations between universities and schools ....................6
Session 3  Development of the post 16 biology curriculum............................................................7
Speaker Information ......................................................................................................................8
Delegate list .................................................................................................................................11
Recognising Excellent Teachers ..................................................................................................14
The New Context: Transition from Schools into Higher Education

Friday July 8th 2016
10:00-16:15

Lecture Theatre WG04
Biosciences Building
University of Birmingham
Edgbaston Campus
Birmingham
B152TT

The Biosciences building is R27 on the map below:
Introduction

Welcome

Thank you for joining us today at “The New Context: Transition from Schools into Higher Education”, the first event led by the Royal Society of Biology Curriculum Committee.

The day will cover:

- Changes at A level and the practical endorsement
- Maths skills
- Skills for transitioning to university
- Innovative teaching in schools and universities
- Research collaborations between schools and universities
- Discussions of post 16 biology

There will be a mixture of talks, question panels and a workshop where the committee present a draft document for discussion on post 16 biology education.

Registration

Registration will take place from 10:00 – 10:25 near lecture theatre WG04 within the Biosciences Building on the University of Birmingham Edgbaston Campus. The event will begin at 10:25.

WiFi access

If you wish to use the internet there is the public WiFiGuest network available.

1) To connect select WiFiGuest on your device.
2) Open a browser and attempt to navigate to any page
3) You will be redirected to the sign in page, follow the steps for guest registration and sign in.
4) You should now be connected to the WiFiGuest network.

If you are visiting from another university you will be able to access the internet through eduroam.

Twitter

We will be tweeting throughout the event, if you wish to join in please use:

#RSBCC
@RoyalSocBio
@UoBbiosciences

Pre-reading

Part of the purpose of this event is to open a dialogue around the post 16 biology curriculum. The final session of the day will be focused on discussing a document that has been developed by the curriculum committee and then inform its future evolution and development. Please read the document prior to session 3.
Royal Society of Biology Curriculum Committee

The Royal Society of Biology Curriculum Committee was formed in the summer of 2014. Our purpose is to ensure the biology curriculum at all educational stages is as relevant as possible and prepares students for their next steps in life – whether they go on to study biology at university, use biology in a related career or use their biology knowledge as non-scientist citizens of the 21st century.

The Curriculum Committee's terms of reference are to:

- develop the Society's content criteria for biology qualifications
- consider and provide guidance and information on appropriate assessment models for biology qualifications
- advise on the Society's responses to external consultations on curriculum, qualification and assessment matters
- advise on the biology content of related science qualifications
- advise the Society’s Education Training and Policy Committee on any matters associated with the biology curriculum

Membership of the Curriculum Committee

Chair
Dr Libby John FRSB

Members
Dr Mike Cassidy CBIol FRSB
Dr Nick Dixon
Professor Stuart Ferguson
Ann Fullick CBIol FRSB
Dr Dawn Hawkins
Professor Jamie Hobbs
Dr Neil Ingram
Dr Mark Kerrigan FRSB
Alistair Moore MRSB
Gayle Pook
Dr Jeremy Pritchard CSciTeach FRSB
Dr Mariann Rand-Weaver FRSB
Professor David Read FRSC
Rev Professor Michael Reiss CBIol FRSB
Elena Segalini-Bower MRSB
Dr Jane Saffell
Louise Stubberfield
Dr Mike Whelan FRSB

Observers
Sarah Cox CSciTeach MRSB
Rachel Lambert- Forsyth CSci CBIol MRSB
Agenda

10:00 – 10:25  Registration and Coffee

Session 1  Skills development between school and university
10:25 – 10:30  Opening Remarks
10:30 – 11:10  Overview of the changes to A level Biology in England and impact of reforming biology qualifications
  • Dr Katherine Hands-Taylor  Subject Specialist at OCR
  • Ann Fullick  Education Consultant
  • Dr Nick Dixon  Head of Department at Magdalen College School

11:10 – 11:30  Mathematical Skills
  • Dr Jenny Koenig  Lecturer, Researcher and Secondary Science Teacher

11:30-11:50  Transitioning from School to University
  • Dr Leanne Williams  Senior Lecturer School of Life Sciences University of Warwick

11:50 – 12:30  Skills Discussion Panel

12:30 – 13:25  Networking Lunch

Session 2  Innovative teaching and collaborations between universities and schools
13:25- 13:30  Introduction to session 2
13:30 – 14:00  Innovative Teaching Practice in Schools and Universities
  • Dr Paul Weeks  Head of Biology at Oxford High School, School Biology Teacher of the Year 2015
  • Professor Mark Clements  Director of Education / Chair in Science Education University of Lincoln, Higher Education Bioscience Teacher of the Year 2015
14:00-14:30  Schools and University Collaborations - Authentic Biology Project

  • Dr David Colthurst Simon Langton Boys School, Authentic Biology Programme

14:30-15:00  Discussion Panel

15:00-15:15  Coffee Break

Session 3  Development of the post 16 biology curriculum
15:15-16:00  What do we want to see in the post 16 biology curriculum? Workshop sharing the progress of the RSB Curriculum Committee.

16:00 -16:10  Closing remarks
Speaker Information

Chair

Dr Libby John  Head of the School of Life Sciences, University of Lincoln, Chair of the Curriculum Committee

Libby has many years of experience in biological education. She is currently head of the school of life sciences at the University of Lincoln, where they have recently developed new degrees in biology, biochemistry and zoology. Libby has also held a number of undergraduate external examiner positions, giving her an excellent understanding of the diversity and range of biological education in UK universities. She chaired the Education, Training and Careers Committee of the British Ecological Society for three years for which work she was awarded the 2013 BES award. Libby's personal research and teaching expertise lies in plant ecology and her PhD from the University of Alberta was on lichens growing in the Rocky Mountains of Canada. She has been lucky enough to do field work in ecosystems from the boreal forest of the Yukon to the cloud forests of the Andes and she is passionate about getting students out on field courses to experience the wider world. During her career Libby has taught, organised, reviewed and redesigned biological curricula. She believes that universities should offer a research-led education, and that students need to be prepared for this by a school curriculum that is challenging, inspiring and rigorous.

Dr Katherine Hands-Taylor  Subject Specialist at OCR

Katherine Hands-Taylor studied Biochemistry at the University of Portsmouth from 2002 – 2005, before undertaking her PhD at Kings College London, investigating the structure and function of a protein-RNA complex found in humans and linked to the genetic disorder Cartilage-Hair Hypoplasia (CHH). In 2010, she left academic research and joined the science team at the examination board OCR, initially working on the GCSE science qualifications before taking on the A Level Biology qualifications from 2013 to present. Katherine was involved in the process of A Level science reform from start to finish, working with schools and universities to ensure the new qualifications give the next generation of biologists the knowledge, skills and scientific understanding they need.

Ann Fullick  Education Consultant

After studying Natural Sciences at Cambridge, Ann was a biology teacher and Head of Science for many years. She is a successful, internationally published author of more than 90 titles including many UK A Level and GCSE biology textbooks, and books for countries from Ethiopia to the Caribbean. She also produces online biology resources and learning apps. She has examining experience, has been closely involved in UK curriculum development, and is a Fellow of the Royal Society of Biology, where she is involved with the Education Training and Policy Committee, the Biology Education Research Group and the Curriculum Committee. She also represents biologists on the Curriculum Committee of the Institute of Physics.
Dr Nick Dixon  Head of Department at Magdalen College School

After finishing an Applied Biology degree at De Montfort University, Nick moved to the University of Birmingham to complete his PhD in epidemiology (the virus infection of a filamentous seaweed to be specific). After seven years in academia he wanted to try something different so spent a year travelling through central and southern America. Along the way he taught English as a foreign language (so didn't escape entirely!). Nick returned from travelling to begin his PGCE at Oxford University. As a part of this year he was placed in the school he still teaches in. Magdalen College School is a mixed, semi-rural comprehensive (now academy) in Northamptonshire. Nick has been Head of Science for seven years. As well as teaching, Nick has written a number of teacher guides for the BBC including versions for Bang Goes the Theory and the Christmas Lectures. Nick has also written revision guides for Lonsdale, and most recently the AQA biology textbook for the new GCSE for Hodder. Nick currently sits on the Curriculum Committee of the Royal Society of Biology.

Dr Jenny Koenig  Lecturer, Researcher and Secondary Science Teacher

Jenny's research background is in pharmacology particularly the effects of chronic drug treatment on cell responsiveness and the use of mathematical modelling in teasing out the impact of the different pathways. More recently Jenny has focussed on science education, particularly the areas where science and maths meet. Jenny taught both maths and pharmacology at the University of Cambridge and developed an entirely online course called “Essential Maths for Medics and Vets”. Her education work has also involved an analysis of the biology curricula in the UK and a comparison with the US and an involvement with the design of the post-16 Core Maths curriculum. Jenny has recently taken a radical departure to train as a secondary school science teacher, completing her PGCE in Secondary Chemistry this June.

Dr Leanne Williams  Senior Lecturer School of Life Sciences University of Warwick

Leanne is a Senior Teaching Fellow in the School of Life Sciences at the University of Warwick. Leanne completed a PhD in reproductive physiology before she came to Warwick and prior to that she taught Biology in FE for many years. As a result Leanne has developed a keen interest in identifying the transitional barriers students face when moving from school/college to University. During her time at Warwick she has developed a number of strategies to help students identify and refine the skills they need for effective transition to academic and social life at University.
**Professor Mark Clements** Director of Education / Chair in Science Education University of Lincoln, Higher Education Bioscience Teacher of the Year 2015

Mark is the Director of Education/Chair in Science Education within the College of Science at the University of Lincoln. His scientific research background is within the fields of microbiology and stem cell biology. Mark’s educational practice is focused on the development of innovative approaches to learning and teaching and has contributed to a number of institutional wide initiatives on assessment and feedback, mobile learning and interdisciplinary art/science collaboration. In 2015 Mark was the recipient of the Royal Society of Biology ‘Higher Education Bioscience Teacher of the Year’ in recognition of his contribution to bioscience education.

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**Dr Paul Weeks** Head of Biology at Oxford High School, School Biology Teacher of the Year 2015

Paul has been teaching for 17 years and has been the Head of Biology at Oxford High School for the past 10 years. In 2015 he received the Royal Society of Biology School Biology Teacher of the Year Award in recognition of his excellent and innovative teaching. The judges for the award said “His inquiry-based approach to biology teaching allows him to motivate children’s curiosity and enthusiasm and has inspired his pupils to build scientific knowledge through engaging in the scientific process”.

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**Dr Dave Colthurst** Simon Langton School, Authentic Biology Programme

Dave started his research career as a science technician at the University of Kent. Having completed a masters and a PhD in biochemistry, he had a brief spell in the pharmaceutical industry before re-training as a teacher. His teaching career spanned the full range of schools in Kent, but for the past 15 years he has been based at the Simon Langton Grammar School for Boys in Canterbury. Following his wife’s diagnosis with MS, he established MBP² – the Myelin Basic Protein Project. This project is funded by the Wellcome Trust through their public engagement programme and has grown into a National schools research programme called Authentic Biology.
# Delegate list

<table>
<thead>
<tr>
<th>Name</th>
<th>Affiliation Title</th>
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<th>RSB Membership</th>
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<tbody>
<tr>
<td>Ms Lauren Acton</td>
<td>Lecturer</td>
<td>Coventry University</td>
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<tr>
<td>Dr Naheed Alizadeh</td>
<td>Science Teacher</td>
<td>St Bonaventure's School.</td>
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<td>Dr Clare Bownes</td>
<td>Science Teacher</td>
<td>University of Birmingham School</td>
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<tr>
<td>Mr Nicholas Brewer</td>
<td>Senior Lecturer/Programme Lead for Level 1+2 Core Curriculum</td>
<td>University of Dundee</td>
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<td>Professor Mark Clements</td>
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<td>Dr Dave Colthurst</td>
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<td>Ms Sarah Cox</td>
<td>Schools and Education Policy Manager</td>
<td>Royal Society of Biology</td>
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<td>Dr Donna Dawkins</td>
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<td>Ms Karen Devine</td>
<td>External Affairs Manager</td>
<td>British Ecological Society</td>
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<td>Dr Nick Dixon</td>
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<td>Dr Juliet Dukes</td>
<td>Senior Scientific Officer</td>
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<td>Dr Gethin Hywel Evans</td>
<td>Principal Lecturer in Healthcare Science</td>
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<td>Ms Ann Fullick</td>
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<td>Professor Jonathan Green</td>
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<td>Ms Janice Griffiths</td>
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<td>Ms Holly Gupta</td>
<td>Engagement and Communications</td>
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<td>Dr Katherine Hands-Taylor</td>
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<td>Ms Melanie Healy</td>
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<td>Mr Joe Kirkwood</td>
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<td>Dr Julia Lodge</td>
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<td>Mr Fiesal Mahroof</td>
<td>Lead Teacher of Science</td>
<td>WMG Academy for Young Engineers</td>
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<td>Dr David Martin</td>
<td>Senior Lecturer in Bioinformatics</td>
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<td>Ms Nicola McCabe</td>
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<td>The Kings School Wolverhampton</td>
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<td>Mr Neil Millar</td>
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<td>Dr Clare Michelle Miller</td>
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<td>Mr Marc Neesam</td>
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<td>Ms Helen Rai</td>
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<td>Dr Rachel Stubbington</td>
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<td>Ms Annalee Thomas</td>
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<td>Mr Waqar Yousaf</td>
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Visit [www.rsb.org.uk/membership](http://www.rsb.org.uk/membership) to find out about the benefits of membership and how you can support the biosciences sector and biology education.

Thank you to those already supporting the Royal Society of Biology through your continued membership.
Recognising Excellent Teachers

Higher Education Bioscience Teacher of the Year Award
This award provides national recognition for outstanding bioscience teaching in higher education.
Find out more at www.rsb.org.uk/HEBTOY

School Biology Teacher of the Year Award
This award provides national recognition for outstanding biology teaching in schools.
Find out more at www.rsb.org.uk/get-involved/awards-and-competitions/school-teacher-of-the-year

Chartered Science Teacher Register
Chartered Science Teacher (CSciTeach) status is a hallmark of excellence in the UK and recognises the unique combination of skills, knowledge, understanding and expertise that is required by individuals involved in science teaching and learning. Under license from the Science Council, The Royal Society of Biology can award CSciTeach status to Members and Fellows of the Society who teach science within the school or higher education sector.

If you hold Senior Fellowship of the Higher Education Academy (SFHEA) you can fast track your application for CSciTeach status by submitting copies of your SFHEA application and awarding certificate.

Find out more at www.rsb.org.uk/registers