# Biomaths Education Network: a virtual community to bring biology and maths together

Dr Jenny Koenig and Dr Dawn Hawkins

# June 2012, Maths Challenges Meeting


**Programme:**

The changing nature of bioscience research: mathematical and computational challenges. Prof Ottoline Leyser

School-University Transitions

Teaching modelling using software tools

How to build confidence

Issues surrounding e-learning, creating and re-using e-resources.

Diagnostic testing

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Connecting, inspiring and empowering: maths and stats in the biosciences





## Teaching Modelling Using Agent-based Software

Posted on August 2, 2013 | Leave a comment

At the Biomaths Education Network meeting in June 2012 we discussed ways in which mathematical modelling could be taught with freely available software. Toby Carter described the use of StarLogo. Toby's work built upon that of Anne Smith at the University of St Andrew's which is described in V A Smith and I Duncan, Biology Students Building Computer Simulations Using StarLogo TNG. Bioscience Education, Volume 18: December 2011,

**Building on this we now have two updates describing two different approaches.**

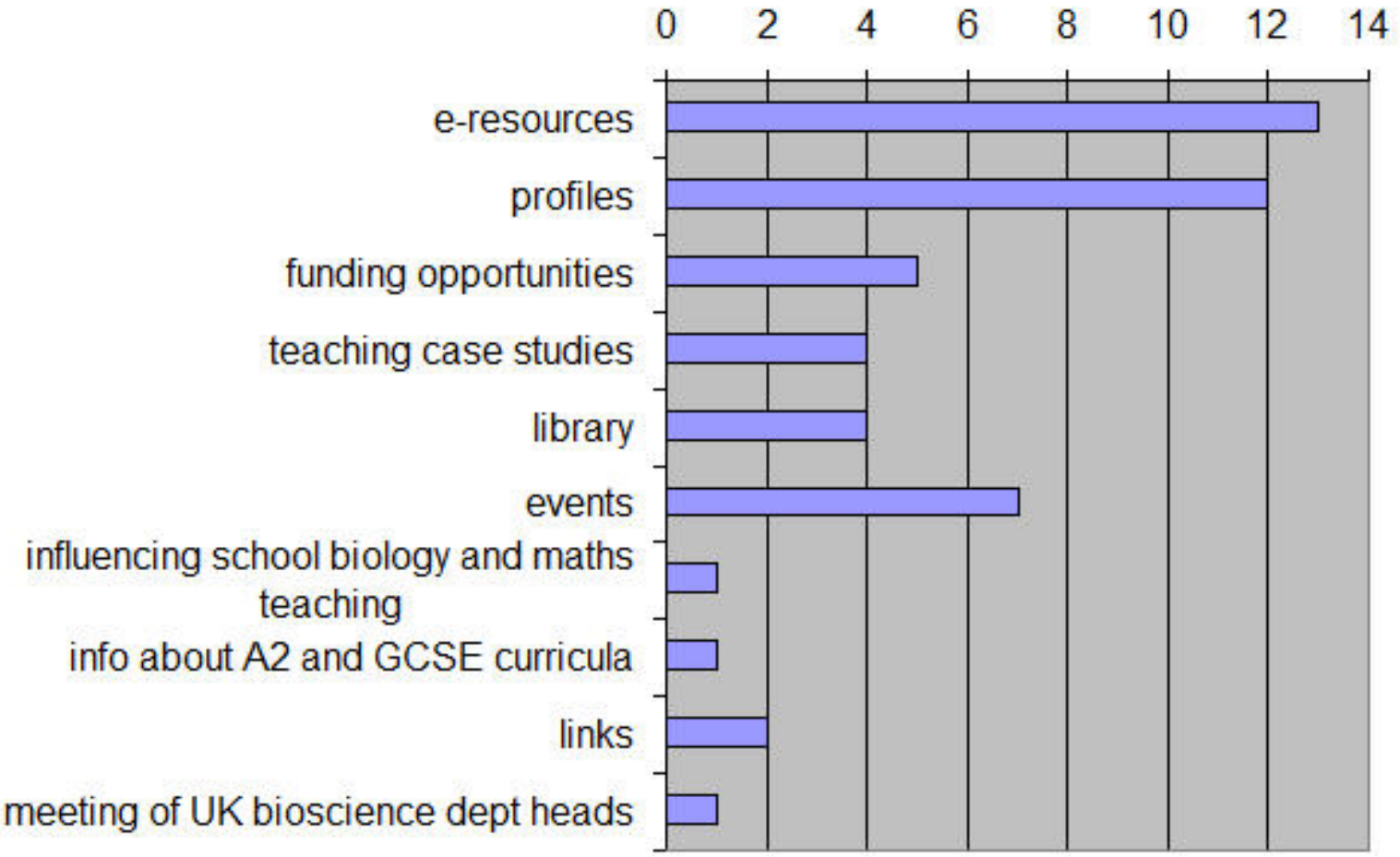
A related article in Bioscience Education comes from Sean Rands of the University of Bristol on the use of NetLogo to model flocking of birds.

The article describes very clearly how the practical class was set up and how the use of modelling was integrated within the class. The model of flocking behaviour will run within a browser however it uses Java and I

# Blog topics:

- Teaching Modelling Using Agent-based Software
- Review of the Sutton Trust report: “The Employment Equation: why our young people need more maths for today’s jobs”
- Statistical inference in ecology: how much maths can you include and still make it readable and understandable?
- Statistics Resources: StatTutor
- Statistics resources: crossover between school and university?
- Infographics – using gapminder in teaching
- Accessibility for Visually-Impaired Students in Learning Maths
- Post-16 maths – but not as we know it

**What are the 3 main aspects of the website that you would value most?**



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## E-Resources

### DIRECTORIES, REPOSITORIES AND COLLECTIONS OF ELECTRONIC RESOURCES FOR BIOMATHS EDUCATION.

We are collecting here links to the main collections of electronic learning resources for maths in biosciences. If you have recently produced a resource please feel encouraged to write a blog post about it.

*Oerbital*

*A project of the UK Centre for Bioscience, 2011. This project seeks to discover key Open Educational Resources in a number of disciplines and identify steps to promote them into sustainable re-use, boosted by contributions from members of the relevant community.*

*SUMS Finder*

*The SUMS project (**S**tudents **U**pgrading **M**aths **S**kills) is designed to address numeracy issues amongst students in further- and higher-education. Alongside the research elements of the project, we are building this online portal that will allow both students and tutors to find suitable online resources to address numeracy issues. The main 'Finder' page provides access to a database of several hundred links to online resources that range from general study skills to academic sites. If you are looking for a resource, you should be able to find what you are looking for!*

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## Mr Nieky van Veggel

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**Twitter:** @niekyvanveggel

**Biological background:** My background is in companion animal health and welfare. My research interest are meat science and bioactive packaging, and novel applications of essential oil components.

**Biomaths experience:** I teach Biochemistry, to first year animal science students, in which I support their maths. I have also recently completed a research project into the effect of small group maths tutorials on first year animal science students (manuscript to be submitted this summer) and have an ongoing interest into numeracy in HE students.

# Issues from the literature:

- emotional response
  - positive – enthusiasm from lecturer
  - negative – anxiety from student
- mindset
- mismatch between school and university curricula
- relevance
  - including relevant scenarios is motivating
  - previous experience of “irrelevant” maths
- tangibility – using the “rule of 5” by representing maths in symbols, words, diagrams, graphs, numbers

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3. How can we best develop resources collaboratively?

4. If we had a magic wand, how might we change school maths/science teaching?