

# Genes, geeks and green fluorescent mice:

## Today's biology for absolute beginners



Would your school or community group be interested in an illustrated talk about contemporary biological research? You've seen the headlines, but here's a chance to learn what's going on, and what difference it might make to your life. Genetics will offer everyone new diagnostic tests and ultimately new drugs and therapies. But it also raises difficult questions.

Thanks to funding from the Wellcome Trust, the PEALS team at the University of Newcastle have retained the services of Dr Ann Lackie to deliver **FREE** talks and workshops to audiences in Cumbria aged from 7 to 70+. No previous knowledge is required - you provide the room and the people, and we'll provide the expertise and facilitate your debate.

Ann is a scientist (and is also the novelist, Ann Lingard) who lives near Cockermouth. A popular and enthusiastic speaker, she will bring science alive and help you debate the social and ethical dimensions... for an hour, or an afternoon, or an evening, depending on your needs.

Two talks are particularly suitable for schools audiences

### 1. **'Garry, the green fluorescent mouse'**

Black mice or white, long - or short-haired guinea-pigs, greyhounds or Chihuahuas: for years, different strains of mice and cats and dogs have been produced by selective breeding, otherwise known as genetic selection. Now, scientists can also create entirely new sorts of mice by experimental genetic manipulation.

Why would they want to do this? How do they go about manipulating species? Is it wrong? Would *you* like to have a green mouse?

This talk can prompt discussion about pets and using animals in biomedical research, providing teachers with follow-up opportunities for drawing and painting, acting and writing.

### 2. **'Was Frankenstein an anorak?'**

What do you think of when you hear the word 'scientist'?

Dr Frankenstein? Dr Strangelove? Albert Einstein? Marie Curie?

Are all scientists geeks, nerds or crazy old men with beards? Do you want to be a scientist?

What are real scientists like, what do they work on and where?

Do they think about the implications of their work? Who controls them, and how?

This talk will answer these questions and explode some dominant myths about science. Particularly for young people considering a career in science, hearing from an experienced woman scientist may raise interest and enthusiasm. Equally, English and PHSE classes will find this session raises relevant questions.

These talks are particularly suitable for adult audiences:

## 1. **Selection Pressures**

The Herdwick Society and 'flying clubs', the Lowther Horse Show and Crufts, rust-resistant wheat and short-stalked oilseed rape - it's all to do with breeding. From genetic selection to genetic modification- and pigs with human-compatible organs, cows that produce insulin, bacteria that produce blood-clotting factors, and 'pharmed' maize.

How are genes modified?

Is this different from selection by breeding?

Does it matter? What will be the benefits?

Are scientists 'going too far' and what controls do governments impose?

## 2. **Human Genome Project**

Newspapers are full of hyperbole about the \$3 billion Human Genome Project. So what actually *is* it? Whose genes were analysed - and how? How and when will this research benefit human health?

This session will include a simple guide to genes and jargon, and explain how diagnosis and gene therapy may be used in medicine. It also puts this research into social and ethical context, and will enable participants to think more critically about the opportunities and threats provided by genetic research.

## 3. **'Making eyes'**

The talk these days is all about genes: but what about the cells that genes control? Cells specialise in various ways and interact with their neighbours (move, stick to other cells, commit suicide or keep dividing) to make tissues and organs (like eyes). When cell division gets out of control, cancers may result. So what is a 'stem cell'? Where do they come from and how can we use them? Can we build a new eye or a new pancreas? What are the limitations and where are the ethical concerns?

## **Alternative sessions**

If none of the above suggested themes meet your interests or requirements, or you would like a school's talk presented for an adult audience (or vice-versa), Ann is willing to prepare a tailor-made session. Please contact her directly to discuss this.

## **How to book a session**

If you would like to book Ann for a talk or workshop, or to discuss a tailor-made session, please contact her via tel/fax: 016973 22815 or email [ann@lackie.nildram.co.uk](mailto:ann@lackie.nildram.co.uk) and see also [www.annlingard.com](http://www.annlingard.com).

## **About PEALS**

The Research Institute PEALS is a collaboration between the Universities of Newcastle and Durham and the Life Science Centre in Newcastle. It aims to promote research and debate into the ethics of genetics and other life sciences.

Website: [www.peals.ac.uk](http://www.peals.ac.uk); email: [peals@newcastle.ac.uk](mailto:peals@newcastle.ac.uk).