



Ethics in Schools

Enhancing student employability through the creation & delivery of ethics-based outreach activities and open educational resources

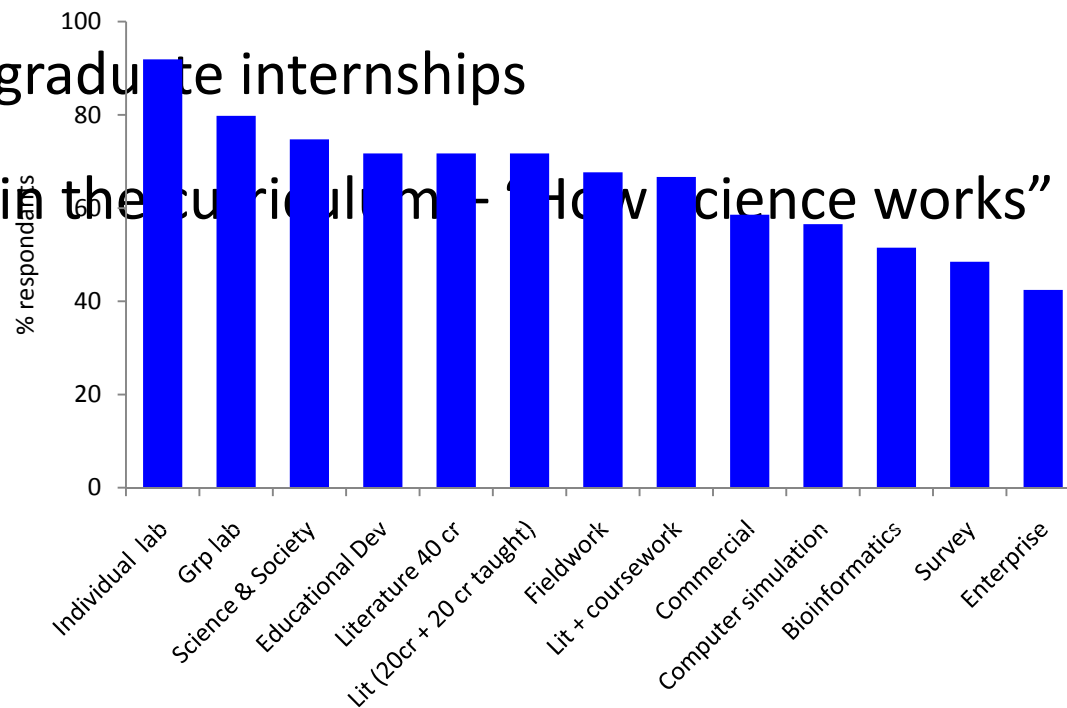
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- Bioscience graduates and bioscience research
- Employers and employability skills
- Alternative projects
- Undergraduate internships
- Ethics in the curriculum - “How science works”



“Science & Society” projects



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- Interactive teaching session
- Carousel and/or National Science Week
- Curriculum enhancing
- Primary or secondary
- Evaluation
- Assessment



- Animal Experiments: Cruel and Unnecessary?
- Playing God
 - Human genetic information
 - Reproductive technologies
- The ethical sportsman or woman



Ethical Sportsman or woman

What is Sports Ethics?



- What topics are included in the idea of ethics sports?
 - Performance enhancing drugs
 - Equality in sport
 - Sportsmanship
 - Fair play
 - Aggression/competitiveness

What is 'Fair Play'?

- Respect for the game
- Respect for the team mates, coaches and opp
- Respect for oneself
- Balanced Competition



• Is winning all that matters??



Olympic Values

• Olympism is the philosophy of the Olympic Movement. It is an approach to learning a set of principles through the practice of sport.

- Excellence
- Friendship
- Respect



• Are these values important in today's modern world?

Genetic disorders

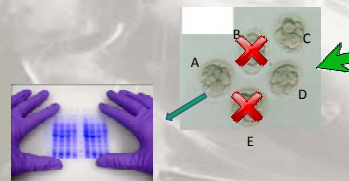


Preimplantation genetic diagnosis



- Screen embryos for genetic disorders
- Implant healthy embryo

Preimplantation genetic diagnosis (PGD)



- Who thinks that this method is good?
- Would you choose to prevent a disability in your child?
- Would you choose to abort your child if it was disabled?

Choosing a deaf embryo



- A deaf couple want a baby
- Embryos made using IVF
- Want a deaf child



- 1) If you were that child how would you feel?
- 2) As a parent, is there anything wrong with choosing to have a disabled child?
- 3) Are doctors wrong in helping them produce a deaf child?
- 4) Does everyone have the right to have their own child?

- Science
- Ethics case studies

- Topical case studies, different ways of engaging

For or against

Case studies- For and Against



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Freeze mothers eggs for daughters use




Wife uses dead husbands sperm

Different perspectives

Homosexual couples




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- Zachary Furnish-John was born Christmas day, 2010.
- Egg donated, fertilised with sperm and implanted.
- A surrogate- rents her womb.

Should gay couples be allowed to use surrogacy?




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Homosexual couple

- Rights?
- Better parents than others




Child

- Gay?
- Bullied?



Religious person

- Homosexuality
- Mary was a surrogate?



Society

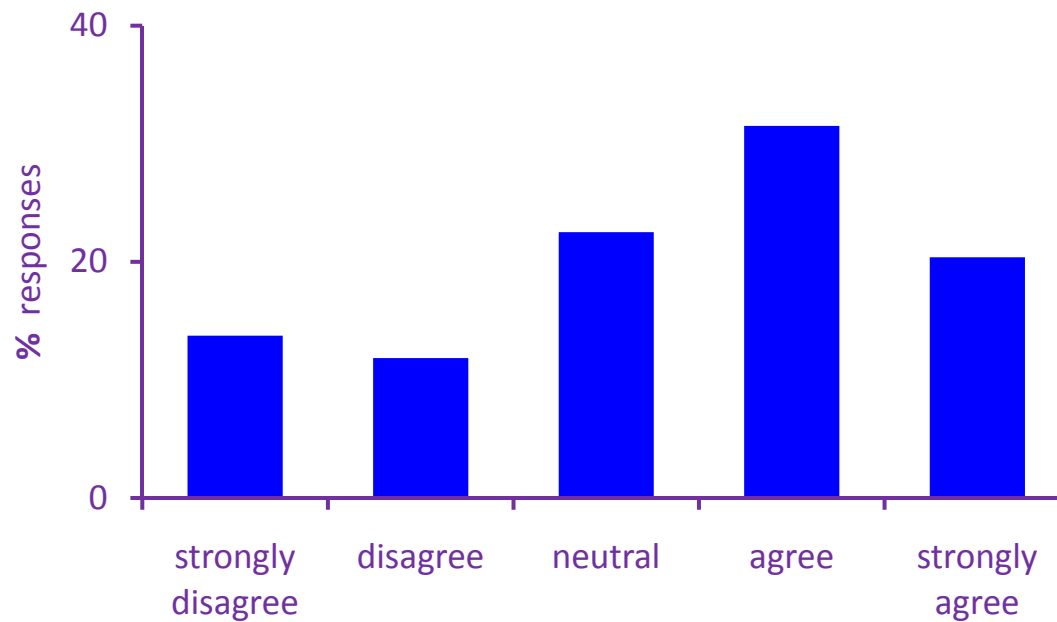
- Exploiting women?
- Adoption?



- Benefits
- Alternatives
- Principals of humane experimentation- 3Rs
- Genetically Modified Animals
- The Future



Do you think that laboratory animals are kept in small cramped cages?



Animal experiments: animal welfare




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Animal welfare: Keeping animals in "ideal" conditions

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Dog



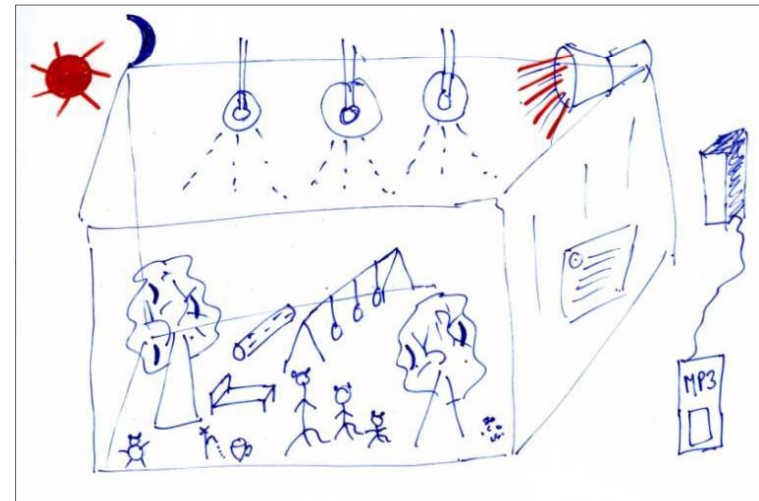
Monkey



Rat



Design a laboratory cage for your chosen species



<http://www.understandinganimalresearch.org.uk/>



Animal experiments: *The future*

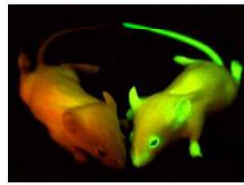
The future: Frankenstein science?



50% of animals used have been "made in the lab"- genetically modified.



Growing organs for transplants



"Glow in the dark" mice



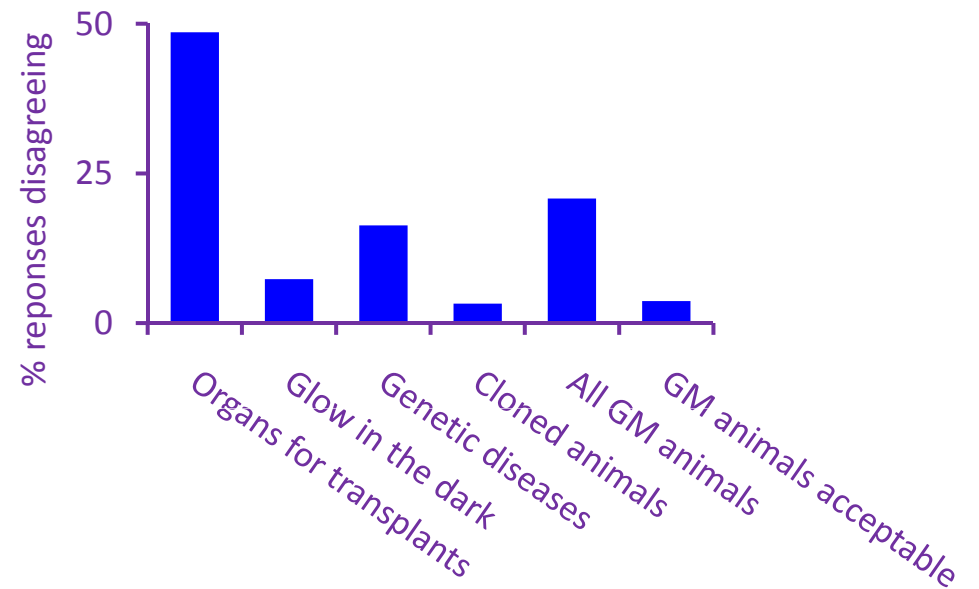
Giving them genetic diseases- CF mice



Cloning animals "Snup"

Should we be creating and using these animals?

- Small group discussions
- Future advances





Are “Science and Society” projects an academically equivalent alternative to traditional wet, laboratory based final year research projects?

1 = strongly disagree

2 = disagree

3 = neutral

4 = agree

5 = strongly agree





Students

“enjoyable and rewarding”.

“heart warming when students complimented the session and thanked me personally at end.”
“gained a number of skills such as being confident, leadership, being able to speak clearly and explain rather difficult concepts in simple terms”

Schools

“love to host students again next year, because of the great impression this year's cohort made”
“all very good and the preparation the students put in was impressive”
“personally observed one student teach; her pace, pitch and resources were all superb”

Colleagues

“seriously doubt that an educational development or science and society could provide the same intellectual stresses and challenges as a lab based project”
“should treat these alternative project topics with a great deal of caution, irrespective of whether the students "want" this sort of thing”
“having marked Education/Science and Society projects in the last 2 years they do have the same potential for intellectual input/analysis as lab based projects”
“a truly exceptional project”



- Academically equivalent alternative to wet projects
- Clear student demand
- Enhance employability
- Fulfil need within curriculum
- Low cost
- Valuable tool in promotion of;
 - public understanding of science
 - your department / University
 - Building relationships with local schools
- **Recruiting Supervisors an issue**

“Science and Society” projects



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I am going consider offering or suggesting to my Department that we offer “Science and Society” projects to our Final Year students

1 = definitely not

2 = probably not

3 = unsure

4 = probably yes

5 = definitely yes





- Employability skills- curricula & extra curricula
- Internships- GTP & HEFCE
 - 1st year laboratory
 - Curriculum Development
 - Outreach
 - Ethics OER





- Teachers survey
- Topics
 - Animal experimentation
 - Genetic screening /tests
 - Human genome
 - Regenerative medicine / stem cells
 - Reproductive medicine
 - Synthetic Biology



Ethics in Schools

Dave Lewis (Sign out) Go to my LabSpace ?

LabSpace ▶ All Units ▶ IndieSpace ▶ PUB_442_1.0

Turn editing on ? Search units

My preferences [-]

- Turn editing on
- Settings
- Questions
- Unenrol me from PUB_442_1.0

Ethics in Schools is a wiki which provides links to videos, case studies and other resources to current "hot ethical issues" in science. It is designed to provide resources to teach ethical issues within the GCSE and Advanced Level curricula.

- (Deleted) Ethics in Schools (Not visible.)
- Ethics in Schools

Related educational resources [-]

OpenLearners also studied:
Short-Term Fellowship
Residential Course



Ethics in Schools

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? Search units

Wiki index Wiki changes Search wiki

Edit Settings Revisions **View** Edit History

Start page [Edit page](#) [Comment on page](#)
Latest edits: 11 April, 14:50 (Dave Lewis); [full history](#)

Ethics resources are grouped under the following themes:

- Stem Cells
- Synthetic Biology



Synthetic Biology [Edit page](#) [Comment on page](#)

Latest edits: 11 April, 16:09 ([Dave Lewis](#)); 11 April, 15:57 ([Dave Lewis](#)); 11 April, 15:13 ([Dave Lewis](#)); [full history](#)

Explaining the Future [Edit section](#) [Comment on section](#)

Explaining the Future is a 5 minute video which provide a clear, concise explanation of what synthetic biology is, how it has emerged as a new technology and how it may be utilised in the future to address current needs in science. These include futurer use in developing biomedicines, biochemicals, biofuels and bioelectronics. It also provides a [link](#) to an unrefereed website which discusses the ethical issues arising from synthetic biology.

This video is downloadable from YouTube so its provinance and any copyright restrictions are not available.

It is suitable for use as an introduction to synthetic biology for Year 8 students and upwards

Synthetic Biology: Social and Ethical Challenges [Edit section](#) [Comment on section](#)

Synthetic Biology: Social and Ethical Challenges is a 36 page review produced for the Biotechnology and Biological Sciences Research Council (BBSRC). It is a comprehensive review of the uderlying science, future potential of this technology and the underlying ethical issues.

Whilst it is not suitable for direct use in teaching, it is ideal for teachers who wish to acquire a more in-depth knowledge of both the science and ethical issues.



I am going consider offering non lab based internships to my students

1 = definitely not

2 = probably not

3 = unsure

4 = probably yes

5 = definitely yes





Any questions?

Further details. Email D.i.lewis@leeds.ac.uk and/or case study on Centre for Biosciences resources web page