
A guide for teachers to the Institute of Animal Technology's booklet

Caring for laboratory animals and finding new medicines for people and animals

These notes were produced with the assistance of **working teachers** and are designed to provide ideas for teaching the issue of the use of laboratory animals for medical research to Key Stage 2 and Key Stage 3 pupils.

We hope the suggestions are useful and delivered in a form that makes it easy for teachers to incorporate them into their lesson planning processes. We would welcome feedback and comment to **schoolinfo@medicalmouse.org.uk**



Notes for KS2 a KS3 teachers

Suggestions for lesson content with curriculum and topic web links:

KS2: Science, PSHE, Literacy, Citizenship, History, RE, Art, Geography

KS3: Citizenship, Science, Literacy, ICT

Resources inside include an example topic web for Key Stage 2 teachers and suggestions for cross-curricular linked teaching for Key Stage 3 teachers.

Contact: Email **schoolinfo@medicalmouse.org.uk** or telephone **0870 787 2352** for more copies of any IAT teaching resource or for help with questions about the work of animal technicians or the care and welfare of laboratory animals.

See www.medicalmouse.org.uk for more information and links.

The booklet 'Caring for laboratory animals' was produced and distributed by The Institute of Animal Technology **www.iat.org.uk** Support was also given by The Department of Trade and Industry and GlaxoSmithKline plc.





Introduction

The last five years have seen significant changes in the **school curriculum**. These have included the successful introduction of the new **AS level Science for Public Understanding** and the establishment of **Citizenship Education** for 9 to 16 year olds. These changes have resulted in a higher profile in schools for the issue of the use of laboratory animals in medical research.

New and perhaps more significant changes are on the horizon as the **QCA** has revised the KS4 programme of study for science and based it on the 21st Century Science GCSEs (developed by **York University** and the **Nuffield Curriculum Centre**). A topic on the use of animals in biomedical research is expected to be included in the new curriculum.

In addition, at both **primary** and **secondary** level teachers are including this issue in **PSHE**, **Citizenship** and **Science** lessons. At primary schools it is increasingly being included in **Literacy** lessons where it provides a basis for work on listening, narrative styles, report writing, debate, headline writing, characters' emotional and personal viewpoints and factual analysis (among others).

This subject of the use of laboratory animals is an emotive and powerful subject which engages children and teachers alike. The issue offers many opportunities for **cross-curricular** teaching and a KS2 example **topic web** is included on **pages 3 and 4**. Suggestions for inclusion in both single subject and KS3 integrated curriculum teaching are included on **pages 5 and 6**.

Pig Heart Boy



The book '**Pig Heart Boy**' by Malorie Blackman (a Corgi book, published by Random House Children's Books) is highly recommended as a useful resource for classroom use when teaching the issue of the use of animals in medical research. The IAT has free copies of this book for teachers – to obtain your copy please e-mail schoolinfo@medicalmouse.org.uk or telephone the IAT Schools Information Office on **0870 787 2352**.

The IAT booklet '**Caring for laboratory animals and finding new medicines for people and animals**' features a number of questions and prompts to assist pupils to explore the issue further. Suggestions for answers to the questions, along with further information to extend the content of the booklet, are both available at www.medicalmouse.org.uk, a dedicated website for pupils aged 9 upwards.

If you would like printed copies of these resources please let us know – contact details as above.

Information for KS2 teachers follows here including a topic web on pages 3 and 4. Information for KS3 teachers can be found on pages 5 and 6.

National Curriculum links and suggested activities for years 5 and 6

Many of the suggestions for the curriculum links given below are related to the book **“Pig Heart Boy”** by Malorie Blackman (published by Random House Children’s Books). You may have been sent a free copy of this book with your teachers’ information pack. If you have not received a copy of the book, or if you would like further copies, please contact schoolinfo@medicalmouse.org.uk or telephone the IAT Schools Information Office on **0870 787 2352**.

This intelligent, gripping read confronts the controversial and highly emotive issue of the use of animals in medical research. We follow the plight of a 14 year old boy, who is offered the chance of life through a ground breaking and highly experimental operation. The book plunges the reader straight onto an emotional roller coaster that examines the fiercely contentious issue of xenotransplantation (animal organ transplants). All sides of the debate are highlighted through the merging of narrative styles: first person narration, dialogue, letters, newspaper cuttings as well as a video diary, made for an unborn sibling, that succinctly captures the inner emotions and spirit of Cameron Kelsey – the pig heart boy.

This topical novel is an excellent springboard for a term’s work in an upper Key Stage 2 classroom, offering endless opportunities for Literacy study as well as providing an important vehicle for PSHE discussion and follow on work. The novel fits well with the Science topic ‘Humans and Health’ but will take the children beyond the factual into the debate surrounding the use of animal testing to ensure the safety of human medications and operation techniques.

There is a plethora of bad publicity surrounding the work of scientists in the field of animal research, doing much to damage this sphere of scientific research. Haunting images of caged animals and tales of vivisection terror grip the emotions and blur a balanced debate.

The use of medicines to treat illness and disability are within every child’s experience. The unique aspect of this book is that it presents the issues through the eyes of an ordinary boy and this makes for an empathetic and moving read for the sensitive child.

Below are some suggestions for key questions and a topic web to support cross-curricular work focused around the story of the **‘Pig Heart Boy’**. The IAT can also provide speakers for schools – please contact us for more details.

Science – Humans and Health

Links and key questions:

What makes you an organism?

Characteristics of living things

What else is important about being alive?

Being able to do the same as peers? Consider disability. In Chapter 1 Cameron is alive but is he really living? “I was always a spectator, never a participant. I didn’t call that living. I was alive – but that was all”. [Pig Heart Boy, p17-18]

What contributes to bad health?

What happens when you become unhealthy?

How do we know medicines will help us?

Eating for healthy heart [p109 Cameron’s video diary]

What is a controlled substance/ uncontrolled substance? What makes a controlled substance safer?

PSHE

Links and key questions:

Caring for ourselves and for our pets.

How do animals help us?

Why are they important in our lives?

Visit www.medicalmouse.org.uk to extend the children’s vision to include the importance of laboratory animals and the special work of animal technicians.

KS 2 Topic Web

Suggestions for cross-curricular teaching

(many suggestions below link with both the IAT booklet 'Caring for laboratory animals' and the book 'Pig heart Boy' – see page 1 for details about how to obtain copies).

LITERACY IDEAS

Story structure – circular.

Listening to other view points.

Going back in time to reach the same point.

Different narrative styles.

Writing as a pessimist/optimist about the same situation.

Characterisation – the writer's techniques for introducing and embellishing Cameron, the central character, and the other characters in the story.

[Ch 2] Suppressed anger through words and action.

Daydreaming provides escapism from real life.

It is only Cameron's physical ability that is fettered – he has the normal aspirations of a young boy (empathy).

Mum and Dad [Ch 3] "Mum's voice was lemon-bitter" [p21]

What else can be 'lemon-bitter'? – individual poetry.

Split opinion of Cameron's parents – presenting two sides of an argument/debate.

Imagery – ticking life counting down. Water – pool/unborn child.

[p27] "Piggy-in-the-middle" – Pig phrases i.e. 'pig-headed'.

The image of the pig. Consider Anthony Browne's 'The Piggy Book' – humans take on the characteristics of pigs. Is this a fair representation of the pig?

Research and profile the pig.

Use of italics to represent Cameron's inner voice and accentuate the character's viewpoint. Write a piece of dialogue using this writing technique to reveal your true feelings.

Read different headlines – how do they affect your emotions?

Write Cameron's news story from two viewpoints. Record a TV or radio report about Cameron's homecoming.

Idioms: 'Pandora's box', 'in the same boat' and 'fools rush in'.

[p83] Cameron's poem – looking at rhyme scheme. Write own poem about confidence. Write about someone who is special to you.

SCIENCE IDEAS

Humans and health. Functions of the heart/circulation. Why is Cameron out of breath?

Evolution/DNA.

A controlled environment. [p45]

Inherited and non-inherited diseases.

Specialist vocabulary: transplant, implant, valves.

Eating for a healthy heart [p109] design a poster.

ART IDEAS

Feelings volcano. [p40]

Metaphorical heart – representing love, care and selflessness.

Heart of gold image collage.

Surrealist art human/pig – linked to 'The Piggy Book' by Anthony Browne and Marlon's reaction in Chapter 5.

Will a pig heart change Cameron?

HISTORY IDEAS

The experience of sections of society.

Slavery. Holocaust.

History of medicine – a gory guide to operations and medical treatment through the ages.

RE IDEAS

What makes you you?

What is your soul?

Marlon's reaction. [p40–41]

Will Cameron's personality change?

GEOGRAPHY IDEAS

Design a coded map to a secret location with grid references, link to the journey Cameron and his parents take to the research centre. [Ch 6]

PSHE IDEAS

Family relationships – disagreements.

Resolving arguments – making the right choices.

Difficulties of being “piggy in the middle”. [p27]

Hiding the truth. [p34–35]

Protesting – what types of protest are there?

Plan a protest campaign. Consider the techniques of protesters described by Dr. Bryce. [p29–31]. What is their motivation?

What makes a good friend? Consider the relationship between Cameron and Marlon.

How is their friendship tested? Has a friendship of yours ever been tested? How did you manage the situation? Role play conflict situations and resolutions.

Guilt – Cameron comes face to face with Trudy. [p62–64]

[p83] Cameron's poem – dealing with feelings of inadequacy.

Extreme response [Ch 21]. Why did Cameron cough over Julie? Why did the woman in the grey suit throw the blood over Cameron?

Do these two responses have anything in common?

CITIZENSHIP IDEAS

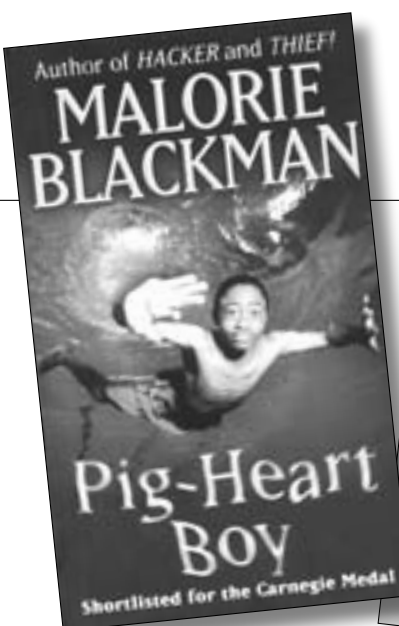
The individual and his/her place in society. Belonging. Right to privacy.

Multicultural aspects of society. [p63]

The role of the media. The press intrusion experienced by the Kelsey family. [Ch 13]

Debate the use of animals in medical research. Use mum and dad's disagreement [p30] as a starting point.

Visit www.medicalmouse.org.uk and animal rights sites to research both arguments.



National Curriculum links and suggested activities for years 7, 8 and 9

The issue of the use of animals in animal research is suitable for schools running an Integrated Curriculum at Key Stage 3, or for those teaching subjects discretely.

Some of the suggestions below incorporate the use of the IAT booklet 'Caring for laboratory animals' and the book 'Pig Heart Boy' – see page 1 for details about how to obtain free copies of the book and other IAT resources or to arrange a visit to your school by an IAT speaker. Also see page 2 for an introduction to 'Pig Heart Boy'*.

Citizenship

What's in the public interest?

Section 1 What is the issue we are addressing?

Use a newspaper extract or extract from the IAT booklet to start a discussion on the topic of animal testing.

Give pupils a sorting exercise with six statements that sum up the major positions of the debate. Ask them to sort into two categories: 'I agree with' and 'I disagree with'. (Sections from 'Pig Heart Boy' by Malorie Blackwell may be useful here – see Literacy.)

Key words: fact, opinion, controversial, subjective, objective. (Relevant science words – see Science links.)

Section 2 What points of view are there about the issue, and why?

Ask the class to list the parties affected by the animal testing issue, e.g. doctors, researchers, the sick, vets, animal lovers, animal technicians, the general public, pharmaceutical companies, the government, extremists etc.

Explore websites in groups, using the list in the IAT booklet. Examples of tasks: viewpoint of each of the affected parties; political/social/economic dimensions of issue; portrayal of issue on T.V. and in the press; ethics – individual and community point of view; identify rights and responsibilities. How could differing viewpoints be reconciled? Use role play or invite a relevant visitor to inform pupils further.

Section 3 What is the relevant science?

Use the IAT booklet to recall scientific ideas.

Introduce a case study – use relevant material from the media or newspaper articles. Which parts of the information that pupils have considered is fact and which is opinion?

Section 4 What should be done? How can we take responsible action and have a say?

Ask for specific reports from different groups after discussion. (Use discussion questions). Pupils should now appreciate that public policy should represent the interests of a majority of people, but this does not mean that everyone gets what they want.

Pupils may: write their own leaflet promoting, for example, animal technician as a career; design a campaign poster; make a collage from magazine pictures and newspaper headlines that represent their own view; write an imaginary newspaper article about some of the material discussed.

The significance of the media in society

Section 1 What makes a news story?

Find an article on animal testing and read about it in a number of different newspapers or magazines.

Pupils consider how the articles are presented and why.

Section 2 How is the media used to promote causes and campaigns?

Pupils consider how the media can affect opinion. Discuss the use of famous people as the 'public face' of a campaign.

Use the IAT booklet as an example. Do you think it presents a balanced argument? Why?

Other aspects of the citizenship programme of study can be covered using the material in this booklet, e.g. what is a democratic community – pupils can discuss rights and responsibilities and the different ways of presenting a point of view.

* A Corgi book, published by Random House Children's Books

Science

KS 3

Humans as organisms

Section 1 Characteristics of all living things – what makes a person healthy?

What happens when we are ill? (Link Literacy and 'Pig Heart Boy'.) Discuss use of medicines – see first page of IAT booklet that introduces the idea of animal testing. For free copies of 'Pig Heart Boy' and the IAT booklet 'Caring for laboratory animals' email schoolinfo@medicalmouse.org.uk or telephone 0870 787 2352.

Draw a picture of a healthy child and an unhealthy child. Annotate.

Section 2 Health

What medicines have you taken? How do you know they are safe?
Discuss the need for animal testing – use booklet.

Section 3 How do you think laboratory animals need to be kept?

Lead onto work on microbes, spread of disease. (Link Literacy and how the pigs were kept and what visitors to the animal testing lab had to do in 'Pig Heart Boy'.) [Ch 6]

Key words: micro organisms, bacteria, viruses, fungi, spread, protection, infectious diseases, antibiotics, immunisation.

Make a list of DOs and DON'Ts for visiting an animal testing lab. Turn it into a poster or a list of instructions for visitors. Link this to hygiene in the home. Ask questions, such as, when do you wash your hands and why? Why should food be covered when stored?

Section 4 Vaccinations are tested on animals

Link to work on disease prevention/ immunisation. What was life like before vaccinations? Link to Historical Science – Jenner.

Scientific enquiry

Section 5 How many tests would need to run before a medicine would be safe?

Link to work on fair testing/controls/repeating experiments etc.

Literacy

Section 1 Speaking and listening

There's much in the IAT booklet to discuss and debate. Different viewpoints – link Citizenship.

Section 2 Writing

Reflect on the nature and significance of the booklet. Pupils form and report their own view on animal testing, taking into account range of evidence and opinions. Write to persuade someone of their own viewpoint. Use 'Pig Heart Boy'.

ICT

Section 1 Finding things out

Access the IAT website and answer preset questions about the work of animal technicians using the interactive schools' booklet.

Access the IAT website and set questions for a partner to research and answer.

Prepare an oral groups' presentation on caring for a pet based on the IAT website.

Section 2 Developing ideas

Use a desktop publishing program to prepare a leaflet on the care of pets.

Combine text and pictures to design a poster promoting a career as an animal technician.

Section 3 Exchanging and sharing information

E-mail animal technicians at the IAT expressing personal views and to request information.

Please contact us, the IAT School
Information Service by email at
schoolinfo@medicalmouse.org.uk



You can also get more information from:

RDS Understanding Animal Research in Medicine
Website: www.rds-online.org.uk

Coalition for Medical Progress
Website: www.medicalprogress.org

BRET (Biomedical Research Education Trust)
Website: www.bret.org.uk

AMRIC (Animals in Medicines Research Information Centre)
Website: www.abpi.org.uk/amric

SIMR (Seriously Ill for Medical Research)
Website: www.simr.org.uk

ABPI (Association of the British Pharmaceutical Industry)
Website: www.abpischools.org.uk
