

School Kit ANIMAL DISSECTION



How to say No!

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What is dissection?

Dissection is the study of the internal organs of a dead animal, to basically “see how it works”. It is supposed to show students the internal structure of the animal, how the tissues look and feel, and how they are interrelated. Its supporters say that it also helps students to develop practical surgical skills.

Why dissect something anyway?

When dissection was introduced as a teaching method it was thought to be a good tool for learning anatomy, physiology and the theory of evolution. Now, far more sophisticated methods have been developed from the information gained from years and years of dissection, which means that students no longer need to practice it for themselves. This advance in biology also fits in with the change in scientific attitudes, which now put the focus on studying animals within the natural environment, looking at their behaviour and ecology as a whole.

Dissection, by comparison, where animals are dismembered and mutilated in the name of science and in the cause of education, seems pretty barbaric! It involves killing hundreds of thousands of animals such as mice, rats and frogs each year for dissection practicals. Sometimes these animals are bred in laboratory “factories” or by schools themselves, solely for this purpose. These animals aren’t necessarily killed humanely, as the people who do the job aren’t always experts at their task.

What is wrong with dissection?

Apart from what’s already been mentioned, there is evidence to show that dissecting actually distracts from learning. Many students are so put off by the actual task of cutting up an animal, or so disturbed by what they see before them, that they don’t take in the details they are supposed to.

Also, some of the best potential scientists, students who have a deep respect for life and who could go on to develop more ethical means of research in the future, may end up dropping out of biology courses because they refuse to take part in senseless killing.

There is also the danger of being desensitised, which means that animals come to be seen as just other tools to use, as “throwaway” items. This certainly contradicts the point of studying biology to develop a respect for life!

Do animals used for dissection suffer?

Animals bred or captured for dissection can suffer from the trauma of confinement, inadequate food and care, (not everyone who handles animals is actually trained to do so), crude transport and inhumane killing methods. Using an animal that was captured, raised, or killed for dissection still contributes to the cruelty involved.

Cruelty inflicted upon defenceless, innocent animals cannot be considered a worthwhile activity.

What about animal parts?

Dissection requirements may include mammals, fish, and invertebrates, and involve whole animals, or organs such as hearts or kidneys. Many people feel that it's okay to dissect some organs because the animal didn't die specifically for dissection. It is a common argument that these animals are killed humanely, and therefore don't suffer. The truth is that there is no guarantee that these animals were treated well. Factory farming and transport to the slaughterhouse distresses the animals and causes injuries, and pre-slaughter stunning isn't always effective. Dissection of these organs certainly isn't going to be acceptable to vegetarians and vegans. From an animal rights viewpoint, which opposes killing under any circumstances, cutting up organs raises the same arguments as whole animal dissection.

Some people believe that it is necessary to use animals for food or clothing while at the same time believe it is not necessary to kill them for dissection. Others who eat meat believe it is wrong to eat dogs and cats, or to hunt. Everyone draws the line somewhere. Students have the right to draw the line where their conscience dictates and have their beliefs respected.

Similarly, a student shouldn't have to sit by and watch someone do something they believe is wrong. Being told that you don't have to cut, you can just watch, is still being forced to take part in a dissection.

Isn't hands-on experience important?

This is one of the most important justifications for animal work. However, as people begin to look at the practice of dissection more closely, there are studies that prove otherwise. Many people learn more from a clear, detailed diagrams or computer simulations than from animal specimens. Dissection is supposed to support the link between structure and function, but dead animals don't reveal much about normal mechanic or metabolic function! Once tissues and organs are separated, their relationships are lost. Some alternatives are better examples of functioning organs than those leftover from cutting up dead animals. Information can come from using a computer simulation, watching a video or studying a model, and this experience can be repeated as many times as necessary at no extra cost.

Sometimes dissection specimens used by schools are animals or animal parts preserved in chemicals. Any talk of feeling the "texture" of organs or seeing the "colour" of different tissues is nonsense when thinking about what dissection means in these cases. Preserving organs changes their consistency and appearance. The alternative, to use fresh material and therefore more animals, has higher ethical and other costs. Real alternatives do not use animals.



Every student has the right to say NO!

Just because dead animals have been used for hundreds of years to teach anatomy and physiology does not make it right or even the best way to go about it. The whole essence of education is to learn and teach and then modify the teaching as more is learnt. This is particularly so in the life sciences where the textbooks are constantly being rewritten and even the most long accepted dogmas have failed under the scrutiny of scientists and non-specialists alike.

For teachers to say that there is no better way than dissection to learn about the principles of structure and function is irresponsible and highly subjective. Alternatives like models, videos and computer simulations are not only humane (they would save millions of animals every year), but they allow for repetition and correction of mistakes, ensuring greater depth of understanding. Sophisticated modern medical techniques such as body scanners and microphotography (which can film inside the body) makes dissection seem archaic.

How can students be taught to appreciate the elegance of flight in birds or the sophisticated eco-system in nocturnal animals when all they see before them is a mutilated pile of tissue and bones?

The functioning animal must be appreciated for what it is – a finely tuned, incredibly complicated integration of systems which cannot be fully understood in isolation or when lifeless.

In Australian secondary schools dissection is not legally required and one would hope that any science teacher or principal would be broad-minded enough to accept a student's right to object to dissection without being penalised, when they are prepared to do the same amount of work using different methods.

A great deal may be achieved by a student by simply having the courage to make a stand and refuse – and probably find many of their fellow students will do likewise.

Students have the right to refuse to dissect, or to participate in live animal experiments.



Students Speak Out

Beki's Story:

My name is Beki Polzella. When I was a Year 11 student at a secondary school, I was told we had to participate in dissecting a rat in Human Health Science.

We were told that we could go out of the room if it was going to make us feel sick, but we had to at least watch. When I explained that I didn't feel sick exactly but disagreed with the experiment I was excused for the class but was told to join in next time.

As I wasn't happy about the experiment and the way my concern was ignored, I told my mother who wrote a note complaining about dissection being part of the curriculum.

My mother and I had two meetings with teachers about the issue after the principal was informed. The meetings resulted in virtually nothing. I was told I could drop the course or continue with it including the dissection of animals. As I was enjoying the class apart from the dissection I wasn't prepared to abandon half a term's work and let the dissection continue.

I decided to continue Health Science and fortunately I haven't come across any need to look at dead animal tissue or participate in any activity such as dissection. After I made teachers aware and some of my friends aware of my view, some students in a Biology class protested about dissection on rats which were part of their course as well. That resulted in only one male and one female rat being used which was a good sign that the teachers listened, but none of the students felt strongly enough to pursue their protests to stop dissection altogether.

I feel that there must be a lot more students who feel the same way as I do and I encourage these students to let people know how you feel. I had good support from my mother who did most of the fighting for me, luckily.

Although I'm not doing any dissection at the moment I'm sure there will be more in Health Science classes, so I intend to keep fighting.

Beki

Kristy's Story:

Kristy Whitefield went to high school in Victoria and was told she had to dissect in order to pass her biology class. She refused, and here shares her personal experience of taking a stand against dissection.

I first began this anti-dissection campaign as part of my English communication project. Initially I was confronted with pressure from my peers and teachers, including taunts accusing me of being weak-stomached and fanatical. The dissection of rats was considered essential in order to pass biology and I was kicked out of class and told that if I did not complete this class practical I would fail. As my refusal to be involved in such a desensitised (and to me useless) waste of life continued, I was then summoned by the science/biology board to give them reasons why I should not have to be involved in a "compulsory" requirement. From here I had two weeks to build my reasons into a sensible and practical argument.

I began with the basic reasons, such as the fact that students learn nothing but desensitisation to another living creature by cutting into pieces.

I produced a high standard practical which more than met the requirements; (in fact I received an A for this in-depth information). I stressed the fact that this information was obtained from a textbook.

I questioned science teachers on how they felt the class performed under the conditions surrounding dissection. The majority admitted, (after persistent questioning and the refusal to change the subject until I was answered), that dissection practicals were the most difficult when it came to holding the concentration of students. This was due to continuing jokes and remarks and the flicking of various body parts around the lab. Of course all of this resulted in poor practical reports, with most classes averaging a pass only or having frequent request to repeat inadequate results, information or understanding.

I then tactfully pointed that students, BY LAW, do not have to participate in such an obviously upsetting and controversial requirement. I informed staff that I could provide documentation from the Department of Education in order to support my stand.

I then offered alternatives to animals dissection such as Operation Frog, (at this time the computer program was not available in Victoria, but I had details and catalogues of alternatives which were proven to be more effective). Despite initial costs this would also save the school money for obtaining “specimens”. The school I went to prided itself on its use of technology, and I argued that it would be one of the first secondary schools to introduce this teaching program and could pride itself on that fact.

Luckily for me there was a teacher who disagreed with dissection and its effectiveness in this day and age, and this individual was a great help and support to me. (Try to approach sympathetic teachers if there are any.)

After THREE meetings and discussions the science department decided to stop dissection and obtained the frog computer dissection kit.

Remember.... You cannot legally be forced to participate in dissection, which includes by-products such as hearts and lungs. When discussing/contesting your reasons for refusing to dissect be well informed and sensible about your approach. Try not to be forceful or aggressive, but remain assertive as it can be a contest of egos! Offer alternatives to the current methods used at your school.

- Do not be moved or pressured by the taunts of your peers – YOU ARE RIGHT!!
- Create posters of educational information; make them graphical but factual.
- Try not to be aggressive or emotional as this can be seen as a weakness or an angle to taunt or generate “fun” in class.
- Debate the facts – don’t lose your cool.
- Talk to students, especially younger ones in years 7 and 8, to show them that there are options.
- Attempt to educate teachers by using facts and not being emotional.

By the way in 1997 my old school continues to use Operation Frog and no longer uses animals for dissection! **Good luck and don’t give up!!**

Kristy

A Message from a Science Teacher

Using animals as educational tools is unethical. Dissections may be performed by the teacher as a demonstration or may be done by students in small groups. Although restricted primarily to Senior Biology classes, it is not unusual for dissections to be part of a junior science class or even performed in primary schools.

Students in Victoria schools, at least, should be aware that it is within their rights to abstain from dissection and not be penalised in any way. Plenty of alternatives to dissections are available – videos, anatomical models and charts, computer simulations and books.

By taking part in dissection, both the student and teacher are actively helping an industry that breeds small mammals and frogs specifically for use in schools – an industry that deals in suffering and death. Also, dissection teaches students that animals are expendable and may be used for whatever reason humans deem necessary.

Here are some suggestions on how to eliminate animal experimentation in our schools.

Teachers

- Stress equal consideration for all animals, human and non-human. Animals should not be subjected to pain or stress at the hands of humans.
- Check carefully all texts and posters. Many contain outdated speciesist statements, activities, pictures and diagrams.
- Eliminate the use of animals in teaching. Use photographic material instead, such as books, pictures and posters.
- Talk to Biology teachers especially about their use of animals.
- Seek changes to existing syllabi.
- Do not allow live animals to be displayed in “zoo-like” conditions.
- Arrange for a speaker from an animal welfare group to speak to your class or school assembly.
- If your library does not already subscribe to animal rights magazines, ask the librarian to do so.
- Familiarise yourself with guidelines on the use of animals in schools.

Students

- Question your science teacher’s use of animals.
- With a consenting letter from your parents you need not take part in dissection.
- Suggest alternative projects instead of dissection or the use of live animals.
- Organise like-minded students in your school into an effective group to spearhead changes.
- Join an animal rights group and find out more about why it is not ethical to experiment on animals.

Alan Withers is a physics teacher at a Melbourne secondary college.

Dissection is dying

Dissection (thankfully) is becoming a practice of the past. It is being phased out in some countries, and the number of animals used in teaching is being decreased.

- In 1988 Argentina banned the use of dissection in schools under the aegis of the Ministry of Education and Justice.
- In 1992 the University of London School Examinations Board has removed from the course work of A-Level Biology the requirement to dissect a small mammal.
- Liverpool City council is the first local education authority in the UK to ban dissection totally.
- In 1999, the Israeli Minister of Education prohibited all animal experiments, including dissection in all Israeli schools.
- Several states in the United States have officially recognised the right of students to refuse to dissect, and nearly all US medical schools allow students to choose not to participate in animal laboratories.

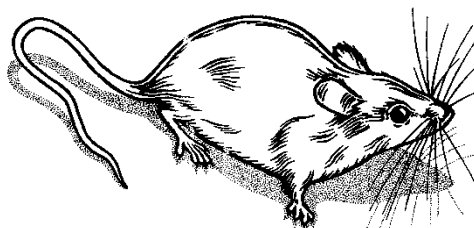
Vivisection Statistics for Western Australia

The following figures represent the number of experiments on animals conducted in Western Australia:

Year	Total	Teaching	Research
1997	18,129	1,245	16,884
1998	17,220	580	16,640
1999	12,766	1,231	11,535
2000	11,730	1,144	10,586
2001	50,877	1,348	49,529*
2002	N/Avail	N/Avail	N/Avail

*Figure includes 27,616 Fish, 34 Native Animals, 54 Cattle, 47 Turtles and 13,312 mice.

Source: Department of Health Annual Statistical Vivisection & Experiments Return for the Calendar Years 1997, 1998, 1999, 2000 and 2001.



Practical Alternatives to Dissection

All of the following exercises are designed to encourage accurate observation, reporting and manual dexterity. The objective is to gain insight into why animals are built the way they are, and how these structures and functions assist them to survive in the environments in which they live. Be prepared to be examined on what you have learned just as any other student who has performed a dissection.

1. Anatomical overlays

Using projection transparencies, create and study anatomical overlays that depict, in three-dimensional form, the anatomy of the frog's (or other animal's) body. Textbooks should be consulted for pictorial and written descriptions of external and internal anatomy. Using your anatomy atlas or manual, draw or trace the following views onto the transparencies and shade organs appropriately. A variety of labelling techniques can be employed.

External view

Create a dorsal view of the frog that demonstrates the frog's various anatomical characteristics. Some structures that should be included are the limbs, webs, digits, adhesive pad (male), brow spot, tympanum, chromatophores, eye and ancillary structures and nares.

Anterior View

This should represent an open-mouth view of the frog with the following structures properly identified - the tongue, various teeth, Eustachian tube glottis, nares' jaws, oesophagus opening, and the vocal sac opening.

Internal View

The first drawing should be an outline of the frog's body from the ventral perspective with all four limbs extended. The second transparency should diagram the arterial system of a frog, the lungs and the kidneys. Emphasis should be placed on the major arteries only. The third transparency should create an overlay that depicts the primary veins of the venous system. Fourth is the digestive-excretory system. Due to the number of organs in these systems, you may wish to display each of these transparency as part of the collection. The fifth transparency in the internal series is of a female reproductive system. You may wish to demonstrate one ovary with a mature egg while contralateral side depicts an undeveloped ovarian structure.

The Heart

You should generate one transparency that details the uniqueness of the frog's three-chambered heart. This drawing should focus on identifying the three chambers and the flow of blood in and out of each chamber.

2. Anatomy Quiz show

Design questions to test each other's knowledge of anatomical and physiological principles, using the format of popular quiz shows. Questions can be used to evaluate a variety of levels of understanding, including physical structure, function and comparisons between and among species. (Use last years' exam questions if you cannot think of your own.)

3. Computer Dissection

Students complete a computer-simulated dissection using one of the software packages available. The MAC Series of biological and medical simulations (for IBM PCs and compatibles), such as MacMan – cardiovascular system, MacPuf – respiratory system, MacPee – renal physiology and MacDope – the effect of drugs on metabolism. Enquiries about the computer packages to Oxford University Press, GPO Box 2784Y, Melbourne 3001.

Operation Frog, is a computer simulated dissection and reconstruction of a frog. When the “dissection” is complete the frog hops away. It is available on Macintosh and Ms DOS programs. Enquiries about the computer program to Ashton Scholastic, PO Box 579, Gosford, NSW 2250.

4. Build A Creature

Select a particular kind of habitat and select a class of animal such as bird, fish or mammal. Using written description, drawing or material such as clay, wood, plastics, plaster or papier-mache design a creature that would physically and behaviourally be suited to a selected environment. For example, a possible assignment might be to design a bird to live in a high desert environment. How long is it's wingspan? What does it eat? What is the shape of its beak? What kind of nest does it build? How does it protect itself from predators? Consider all the environmental factors that might have a bearing on the physical and behavioural makeup of their creatures. Such factors include climate, availability and type of food, geography and terrain, availability of water, predators and so on. The objective is to relate anatomical features to environmental factors.

5. Structure and Function

Once the principle of surface area to volume ratio is understood apply it to the following exercise:

Using cubes of modelling clay or plasticine (around 5 x 5 x 5 cm each), experiment with ways to increase the surface area (such as rolling it out flat) and then decrease the volume (such as folding). If you get stuck, think about the lungs and small intestine of a human. Both these organs have special features that increase the surface area to volume ration so that more gas exchange can occur in the lings, and more absorption of nutrients can occur in the intestine. What are they? Now model an insect respiratory system and explain how it provides a large surface area for the exchange of gasses. Which of the blood vessels have the largest surface area to volume ratio and why?

6. Veterinary Field Trip

Many teachers have found veterinary field trips to be beneficial, especially if students can observe a veterinarian performing an operation and record their observations. Of course, this would not involve an unnecessary operation for the benefit of the students. Tissue removed during the operation could be examined later in the classroom.

7. General Practitioners Field Trip

If it can be organised, a small group visits a GP can be very worthwhile. Ask the doctor to explain the simple reflex arc, a basic pathway in the nervous system and demonstrate this by tapping the patella tendon.

