

KAIKORAI VALLEY COLLEGE



Use of Living Organisms Procedure

1. The science department follows the guidelines laid down under the Animal Welfare Act 1999 and in the earlier Education Review Office Handbook for schools (1994) Section A12. In addition, the department is cognizant of the "Caring for Animals" booklet available at <http://scienceonline.tki.org.nz/Teaching-science/Ethics/Caring-for-Animals>
2. The Science Department expressly forbids the use of any living invertebrates or vertebrates in such a manner that would cause stress and/or suffering to the animal.
3. Senior Biology courses may involve the use of slaters and mice for animal behavioural studies. These animals will not be subject to unnecessary stress or suffering and will be disposed of appropriately at the end of the study.
4. Any work involving living organisms, except plants, MUST be checked with the Head of Department prior to the work commencing.
5. To determine whether or not Animal Ethics Approval is required, you must complete the form titled "Do I Need Ethics Committee Approval for my Investigation". This form is in line with that used for regional school science fair investigations. It is located in Appendix for both students and teachers and available through the NZASE website: <https://nzase.org.nz/animal-ethics/apply-for-animal-ethics-approval/>
6. If approval is required, you need to complete either:
 - (a) "Application for Ethical Review of School Project Involving Humans" or
 - (b) "Application for Ethical Review of School project Involving Animals" located in Appendix II.

Once an application has been approved for a Science investigation, students/teachers will be sent approval stickers. These are so that students and teachers are able to demonstrate they have animal ethics' approval and can enter into a science fair or for a science award.

Any science project that involves animals needs to have an animal ethics approval sticker on display.

7. Applications need to be submitted to the Animal Ethics Committee PRIOR to the work commencing. The Head of Department, Science will advise whether local or regional ethics approval is required.

INVOLVING STUDENTS AS EXPERIMENTAL SUBJECTS

As obtained from "Safety in Science – A Guidance Manual for New Zealand Schools Revised Edition 2000".

8. When undertaking any practical activity where students are subjects, the teacher must consider the risks of both physical and psychological harm and be aware of the potential effect of drawing attention to individual differences.
9. Activities that can be safely carried out include the following:
 - The safe measurement of blood pressure, using computer-linked data-capture devices. There are dangers in using sphygmomanometers. A person with appropriate training, such as a nurse, may be of assistance.
 - The use of disclosing tablets to show the presence of plaque on teeth. If toothbrushes are used, they must not be shared between students.
 - The use of simulated blood-typing kits that are commercially available.
10. Stethoscope earpieces must be sterilised or disinfected, and spirometers must have disposable mouthpieces, or the mouthpiece must be sterilised or disinfected.
11. Any equipment used where students are ingesting substances orally must be hygienically prepared, and students must not share such equipment.

12. **Cheek-cell Scrapes**
Student cheek cells are NOT to be used. Students should not exchange saliva. Applying cellotape to the inside wrist is a suitable alternative to using cheek cells.
13. **Saliva**
Is NOT to be used
14. **Urine Testing**
Is NOT to be done
15. Any other activity with students as subjects of an experiment must have Human Ethics' Committee approval. Individual permission AND that of parents/caregivers is required for any activity involving collection or disclosure of information from individuals.

DISSECTIONS

16. Under NO circumstances should dissection of a living organism be undertaken at the College.
17. On occasion dead animals and/or animal parts (eyes, hearts, lungs etc.) are made available through the agency of the local butcher and/or local farmers. All specimens must be obtained from reputable sources to ensure that unnecessary stress and/or suffering has been prevented.
18. NONE of these animals, or body parts of animals, are to be obtained by the school in such a way in that that animal is killed for the express purpose of a request by the school.
19. All carcasses will be disposed of appropriately by the school caretaker.
20. The following procedures obtained from "Safety in Science – A Guidance Manual for New Zealand Schools – Revised Edition 2000" for dissections will be followed.

Dissections

Teachers should be aware of the following:

- All material for dissections must be obtained from a reputable source, for example, abattoir, tertiary institution, and butcher's shop.
- During any dissection, the material must be treated with respect.
- Before anyone proceeds with a dissection, all their cuts and grazes must be covered.
- Surgical-type gloves should be worn but do not need to be sterile.
- Clean, sharp dissection equipment should be used.
- After the dissection, the dissection equipment must be washed and either sterilised or disinfected. Any readily available disinfectant is acceptable. Scalpels and razor blades should be placed in a clearly labelled, puncture-proof container before disposal. The animal remains and gloves must be disposed of safely; preferably incinerated, buried, or through a commercial waste-disposal company (see the HSNO Disposal Regulations).
- All bench surfaces must be washed and disinfected.
- All people involved must wash their hands afterwards with soap and hot water.
- Teachers could consider using alternatives to dissection: (models, suitable images and video alternatives)
- ANY student can withdraw from ANY dissection before it begins or any time after. Students are to be made aware by the teacher that this option is available to them; and the teacher MUST encourage the student to speak with them in such a way as to not draw attention to their withdrawal. IN such cases, a teacher will provide alternative work for the student and/or an alternative place to stay outside of the classroom where the dissection is taking place.

MICRO-ORGANISMS

The following procedures obtained from “Safety in Science – A Guidance Manual for NZ Schools – Revised Edition 2000” will be followed.

21. The major groups of micro-organisms are algae, protozoans, fungi, bacteria, and viruses. Many micro-organisms release spores into the air and must be carefully used in schools. Hands should be washed after handling micro-organisms. Micro-organisms can be destroyed by heat, bleach, and disinfectants.

22. **Culturing Micro-organisms**

Teachers should be aware of the following:

- Human or animal sources of micro-organisms, other than skin, must not be used (for example, blood, saliva, pus, urine, and faecal material).
- Skin surfaces may be used only if cultures remain sealed.
- Samples must not be taken from toilets and toilet areas, including sinks and door handles.
- Known pathogens, other than genetically crippled strains of *Escherichia coli*, must not be used.
- Samples must not be taken from rubbish bins and drinking taps.
- Sterile swab sticks should be used to inoculate plates.
- All cultures should be labelled with students’ names and the date.
- Petri dishes should be covered and sealed to prevent contamination and the spreading of spores. Adhesive tape can be used to securely seal the dishes.
- Petri dishes should be incubated upside down.
- Sub-culturing should be carried out only on known non-pathogenic organisms that can be obtained commercially.
- Lids of petri dishes must be held open, at an angle to the base, for the minimum time that allows a transfer of material.
- All microbiological transfers must be conducted close to a Bunsen Burner flame. Safety glasses must be worn.
- Incubating at 35 to 40 degrees Celsius must be avoided because this tends to select organisms adapted to the human body. Temperatures of 25 degrees Celsius or below should be used.
- Glassware used for fermentation experiments must either be lightly plugged with cotton wool or be covered with aluminium foil and not sealed.
- All cultures must be destroyed before disposal by being heated in a pressure cooker for at least twenty minutes, and plastic dishes must be disposed of. As an alternative, dishes could be soaked in a 10 percent hypochlorite (bleach) solution for three days.
- Spillages of cultures should be dealt with by a teacher or technician wearing disposable gloves. The broken container and/or spilled culture should be covered with a cloth soaked in a disinfectant of 10 percent hypochlorite (household bleach). After ten minutes, the disinfectant will have had time to work, and the spillage must be cleared away using paper towels and a dustpan.

The contaminated material should be placed in a disposal bag, along with the gloves, and be disposed of. The dustpan should also be disinfected.

23. Micro-organisms suitable for use in schools include:

- soil micro-organisms (for example, *Azotobacter* spp.);
- vinegar-producing micro-organisms (for example, *Acetobacter* spp.);
- baker’s yeast
- mildew and rust from plants;
- yoghurt bacteria;
- cheese bacteria and fungi;
- some fungal diseases on plants and rotting fruits;
- potato blight;
- black spot on roses;
- yeasts from grapes;

- fungi from jams and jellies

Note: Some micro-organisms that are part of the normal flora of humans or animals may be pathogenic for immuno-compromised persons. It is essential that a teacher in charge of any activity ascertains FIRST whether any staff or students who would be part of a group are immune-compromised.

PLANTS

24. These are excellent for observing as living organisms. Many are perfectly safe to use, but some flowers, berries and seeds are poisonous, and some produce allergies. References can be found in a library.
25. Fungi include toadstools, mushrooms, moulds, puffballs, and so on and may be very poisonous. Care should be taken when collecting or handling fungi. Plastic gloves or a plastic bag over the hands should be worn while doing so and hands should be washed after removing the gloves. Fungi should never be placed near the mouth or nose.
26. Seeds purchased from retailers may have been treated with insecticidal or fungicidal substances. Students should wash their hands thoroughly after handling them.
27. **Native Plants**
It is not illegal to keep native plants. Where plants growing in New Zealand bush are concerned, it is the area or ground that is protected, so native plants cannot be taken from a reserve or national park.

ANIMALS

28. Animals should always be treated with respect. For information on how to look after the animals in class projects we follow the guidelines and requirements specified in the booklet "Caring for Animals" <http://scienceonline.tki.org.nz/Teaching-science/Ethics/Caring-for-Animals>
29. Teaching involving animals **MUST** be done by a suitably qualified or experienced person who is responsible in dealing with animals. This may be an outside expert. The College endorses and follows the SPCA resource <https://www.sPCA.nz/what-we-do/educate-and-engage> as a foundation entry to the study of animals. The learning unit involved is called '4 Walls and 5 Freedoms'.
30. If animals are kept in schools, they should be healthy and be obtained from reliable sources, such as biological supply firms, universities, or approved breeders. Schools must not keep such animals as cockroaches, possums, hedgehogs, and rodents caught in the wild because they may be carrying disease. Animals can transmit infections, parasites and diseases to humans.
31. Some pest animals (rats, mice, possums, rabbits, mustelids) maybe trapped on school grounds from time to time as required. This will usually be carried out by the ground-staff; or for other reasons such as predator control - in line with the national (and local and regional government supported) *Predator Free NZ* program. It is essential that any trapping follows point 28 above, is humane and any pest animals' bodies are disposed of as under the section on dissections, above.
32. Any animals kept on the Urban Farm, except for chickens and bees, will be present on a temporary basis and return to their home farm provider after being on school grounds.
33. Students must wash their hands before and after handling any animals, and existing cuts or abrasions must be covered to prevent infection. Bites from laboratory animals should be treated immediately. In the case of puncture wounds, a doctor should be consulted. Teachers need to remember that some people may have allergic reactions, such as skin rashes, asthma, or sneezing, when exposed to the hair, dried urine and excreta of particular species.
34. Care for animals must include:
 - keeping the animal in a secure cage or container, with space for it to move around freely and display normal patterns of behaviour;
 - providing adequate food, water and shelter;

- preventing discomfort to the animal caused by exposure to noise, draughts, direct sunlight and improper handling
- attending to hygiene by providing adequate clean bedding, changing it regularly and keeping the cage or container clean;
- removing unhealthy animals and seeking veterinary attention for them;
- animals ARE NOT to go home with students;
- providing appropriate weekend and holiday care.

35. **Native Animals**

Under the Wildlife Act 1953, it is illegal to keep native animals without a permit from the Department of Conservation.

36. **Bones and Feathers**

Items such as birds' nests and feathers, which can carry microbes and other creatures such as mites, can be placed in a plastic bag to prevent spread. Bones should be sterilised or disinfected. Bones can be placed in a 10 percent hypochlorite (household bleach) solution, following the instructions on the container. Feathers should be disinfected in a common household disinfectant by following the instructions on the container.

37. **Eggs**

Eggs should be washed before use, and students must wash their hands before and after handling them.

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