MINISTRY OF EDUCATION
TE TĀHUHU O TE MĀTAURANGA

Safety and Science/Pūtaiao:

33.7 How can I involve students as experimental subjects?

When undertaking any practical activity in which students are subjects, the teacher must consider the risks of both physical and emotional harm and be aware of the potential effect of drawing attention to individual differences.

Examples of activities that can be safely carried out include:

- 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.

Activities with students as subjects of an experiment may require Human Ethics Committee approval. Check the Health Research Council Ethics Guidelines for details.

https://www.hrc.govt.nz/resources/hrc-research-ethics-guidelines - see Human Ethics document

33.8 What should I be aware of during some common laboratory/taiwhanga procedures?

33.8.1 Body fluids

Body fluids or excretions are prohibited in school learning experiences. This includes saliva, semen, blood, mucus, urine, and faeces.

Some safe alternatives are:

- amylase, which can be purchased and used in place of saliva
- bull semen from an artificial insemination cattle breeder – it comes frozen in a short straw.

33.8.2 Cheek-cell scrapes

Students should wash their hands before and after carrying out this procedure. Applying sticky tape to the inside of the wrist is a suitable alternative to using cheek cells.

33.8.3 Eggs

Check for egg allergies before using in class.

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

33.8.4 Ingredients to make food and drink in the lab

Common science learning experiences of food include making bread, ginger beer, cheese, yoghurt and other fermented food stuffs.

It is permitted to make food and drink in the laboratory **that will not be consumed.**

33.8.7 Biological stains and dyes

Stains are often powders dissolved in a solvent such as alcohol, oil, or water. All biological stains are designed to highlight a part of the cell to make it easier to view under the microscope; this means the stain will also affect your cells including specifically targeting DNA structures. Use stains sparingly. Toluidine blue should not be used, because it is a carcinogen. Aceto-orcein stain is corrosive, can burn the skin, and can irritate the respiratory system. Methylene blue can be harmful if swallowed, and the fumes can irritate the eyes and skin.

33.8.8 Stethoscopes

Earpieces should be sterilised or disinfected, and spirometers should have disposable mouthpieces, or the mouthpiece should be sterilised or disinfected.

33.8.5 Plucks (animal lungs)

Use a vacuum cleaner or pump to inflate the lungs rather than blowing through a straw.

33.8.6 Soil and potting mix

Care should be taken when opening bags of potting mix and using home-made or commercially made potting mix. Potting mix commonly contains Legionella bacteria that can cause Legionnaires' disease, which is a type of pneumonia. It is recommended that people using potting mix wear dust masks to avoid inhaling the dust.