



NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

National Qualifications Framework Levels 1-3, 2003

Biology

National Moderator's Report

National Moderator's Report

General Guidance for Assessors of Achievement and Unit Standards

The purpose of external moderation is to provide reassurance that assessor judgements are at the national standard and are made on the basis of assessment activities that are fair and valid.

All assessment materials are expected to:

- give the learner the opportunity to meet the requirements of the standard
- have an assessment schedule that gives evidence of appropriate learner responses and clear judgements at all levels.

The Ministry of Education contracted subject experts to write assessment resources for achievement standards. These are not pre-moderated. The intention is that they are modified to suit teaching programmes and learner needs. They do not provide 'rules' but suggest different ways of assessing to the nationally registered standard.

General Overall Comment

The majority of schools modified and used the activities from the TKI website.

Moderation has shown that the Biology Level 1 internally assessed achievement standards and the Level 1, 2 and 3 unit standards continue to be used consistently and that assessor judgements are at the national standard.

Assessors are expected to develop examples of evidence in the assessment schedule and to contextualise these statements. They also assist the moderator to pinpoint areas where a misinterpretation or misunderstanding is occurring.

Level Two

90457 Carry out a practical biological investigation with supervision

Achievement, Merit, Excellence

The required standard for the aim/purpose/prediction/hypothesis is the same over all three grades, therefore the judgement statements relating to this must be the same.

Merit, Excellence

The dependent and independent variables do not have to be identified as such. In a fair test investigation the range of the independent variable should be over at least five measurements. As five data points can provide a check on the reliability of individual data points, repeats are not always needed.

Investigation aim

The verification of learners' work shows that the aim of the investigation is very important to the learner's success or otherwise in completing a valid investigation. The aim must be clear, measurable and linked to a biological idea or concept so that the learner is able to collect valid data, present the data systematically and appropriately, and then write a conclusion and discussion related to the aim.

Investigation evaluation

The method used by a learner to gain Achievement with Excellence will provide them with valid and reliable data*, therefore a *critical evaluation* must discuss the key features of their method and why these made the results gained valid and reliable.

*Valid data is the measure of what is meant to be measured, ie it relates to the aim. Reliable data is where the same or similar data would be gained if investigation were done again.

In Level 2 biology, the learners are not expected to make up solutions but are expected to select an appropriate range of solutions from the wide range given.

90458 Research an applied biology technique

For Achievement with Excellence, the learners must show that they understand the biology (ie the biological concepts and processes) of the technique. They must link a number of ideas together to provide an elaboration of the biology relating to how the technique works.

90460 Investigate an interrelationship or pattern in a population or community

Collect and record field data

At Level 2, learners are expected to know how to carry out a range of appropriate sampling and fieldwork techniques, and know when it is appropriate to use each technique.

The activity does not have specific instructions as learners are expected to use all three of the following to decide upon the most appropriate sampling technique to use during the assessment the:

- aim of the field work,
- size/type/location/habits/density of the organism (as appropriate to the organism)
- list of equipment available.

Poor quality recording of field data was a common problem that resulted in learners not achieving the standard. The data recorded in the field must be 'retrievable'. This means that it must contain all the information needed so that it can be interpreted later. For example, measurements with units – the location of the sample may be needed (eg 200 m above sea level, 5 m from the low tide mark) and species names.

The field data can be recorded in the form of rough pencil notes. Often the field data was not sent in for moderation, which meant that the moderators were unable to verify the assessor's judgement.

Discuss with reference to environmental factors, an interrelationship or pattern shown in the data

For Achievement with Excellence, the learner's discussion must cover at least two environmental factors, one of which must be discussed in-depth. The learners must also be able to elaborate, by linking several ideas together, to discuss how the biology of the organism and the environment work together to determine the interrelationship or pattern shown in their data. Information on environmental factors that is used to back up points raised in the discussion could be from measurements or from research.

Learners are expected to *describe an interrelationship or pattern shown by their data*. This means that they must use biological terms to describe the interrelation of pattern.

The term 'distribution' has different meanings to different assessors. For example, some use it only to mean the distribution of a species across the environment, eg clumped, regular, random, and others use the term to say where the organisms is found in an area, ie the population density or the population

boundaries over the habitat. It must be made clear to learners which definition of distribution is being used.

90483 *Describe the impact of human activities on an ecosystem*

This achievement standard is about learners showing their understanding of how human activities impact on ecosystems. Learners are required to describe, explain and discuss the impact in terms of *ecological concepts and processes*. For example, the impact of the use of a waterway for recreation could relate to disturbance of life histories of the organisms, disruption of feeding relationships, increased competition due to introduction of weeds, etc. Many learners simply described the ecosystem rather than the impact on the ecosystem.