



NEW ZEALAND QUALIFICATIONS AUTHORITY
MANA TOHU MĀTAURANGA O AOTEAROA

National Qualifications Framework Levels 1–3, 2007

Physics

National Moderator's Report

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NATIONAL MODERATOR’S REPORT

General Guidance for Assessors of Achievement and Unit Standards

The purpose of external moderation is to provide reassurance that assessor judgments are at the national standard and are made on the basis of assessment materials 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 judgments 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

Many assessors of L2 and L3 achievement standards are using the tasks developed for the New Zealand Institute of Physics. The tasks available on this site have been comprehensively reviewed during the year and provide assessors with a quality product. All NZIP tasks are available on a secure website. However, the assessment schedules provided with these tasks are generic – designed to suit all assessors that use them. It is not appropriate for assessors to use them in this form. They must be customised before they are used to grade students’ work.

The comment relating to the NZIP assessment schedules applies equally to the generic schedules provided on the TKI website.

Assessors who use commercial materials must be aware that they have not been pre-moderated. Commercial tasks, especially those available for unit standards, should be carefully checked to ensure they validly assess the standard.

In the standards that involve writing an experimental report, a student’s required understanding of the *experimental process* may be well above a particular grade boundary, but the student may not have shown evidence of a basic requirement of the standard - and so cannot be awarded the grade. If the assessor believes this is an aberration rather than a true lack of understanding it is valid for the assessor to seek further evidence of understanding. It is recommended that assessors take further evidence from the reports produced by the student in the course of the school’s experimental programme. If the student has repeatedly (eg, in at least four reports) shown evidence that there is understanding of the aspect in question, the grade can be awarded. Some assessors are seeking this further evidence by asking the student to write corrections to their report. As students will have had the opportunity to discuss their

work, and any mistakes that they have made, with other students / tutors, etc. it is impossible for the assessor to be confident that the correction that has been made is evidence of understanding.

Assessors who use commercial materials, or old resource materials, for assessing unit standards must be aware that many of the ones that are currently available do not meet the requirements of the standard. Assessors must check such materials and make any necessary amendments before they are used.

AS 90774: Carry out a practical physics investigation with guidance, that leads to a mathematical relationship

For achievement, the most common issue continues to be the grade awarded to students who have not been able to identify the mathematical relationship. If the quality of the rest of the report is well above the achievement grade assessors are understandably uncomfortable about awarding not achieved. In this situation, if the student has provided alternative evidence (see general comments) of the ability to construct a mathematical relationship it is valid to award achievement. If they have not, because this is a fundamental requirement of the standard, they **must** be given not achieved.

Although there has been a clear improvement in the judgements relating to an excellence discussion, this remains the most contentious issue in this standard. Assessors must understand that descriptions are not enough. Students must go on to evaluate the effect that the issue they have described would have had on the conclusions they have come to. Assessors need to develop for themselves some examples of statements that show critical thinking. This is not an easy task but, once done, there is a much greater understanding of what is required.

One of the essential differences between 90518 and 90774 is the requirement that the student discusses physics theory. There are still some assessors who have not yet incorporated this opportunity in the task they set. The easiest way to do this is to give the theoretical formula in the resource material so that students can compare the theoretical value of a constant (whose value must be given) with their experimental value.

Additional notes

The assessment conditions for this standard must be over a continuous period of time for the assessor to be sure the work is the student's own. It is not acceptable for students to present a report that is not entirely the product of their own understanding.

AS 90252: Take measurements of physical quantities and analyse data graphically to determine a relationship

The interpretations of the standard are more consistent this year. However, the most common issue is still the excellence judgement relating to justification of technique to improve accuracy. Some assessors are still accepting justifications that are not specific to the

particular measurement, others are accepting a full **description** of what was done for this particular measurement but with no adequate justification given.

Some schools are disadvantaging their students by grading each measurement activity individually rather than looking for the required quantity of evidence over the whole range of tasks. The mark sheet used by assessors should reflect this holistic requirement.

AS 90258: Demonstrate understanding of physics in an integrated context

The only issue with this standard is the tendency of assessors to use a “multiple grade” approach (eg, awarding an E, M and an A within a particular question). Many assessors using NZIP tasks are finding it difficult to judge sufficiency as the schedule has been written for single grading. It is recommended that assessors using the multiple grading system change to a single grading system. Single grading is used in all external marking.