Chapter 2
National Science Literacy
School Assessment materials

Overview

The assessment of scientific literacy comprises two tasks:

- an objective assessment, with multiple-choice and short-answer type questions; and
- a practical task requiring students to conduct an experiment in groups of three and then respond individually to a set of questions about the experiment.

Some assessment items in the National Science Literacy School Assessment materials have been released from the 2003 National Assessment to enable teachers to administer the tasks under similar conditions and gauge their own students’ proficiency in relation to the national standards.

The remaining 2003 assessment items have been secured for the purpose of equating the next National Assessment (which is to be undertaken in 2006), with the 2003 assessment, so that longitudinal data on student performance can be obtained.
Resource materials

The print materials required to conduct the National Science Literacy School Assessment, analyse the performance of students and gauge their proficiency against the national science literacy standards, are all provided in this document and may be reproduced freely.

The print assessment materials include:
- Two assessment tasks - Part A (objective assessment) and Part B (practical task)
- Assessment administration guidelines
- Class record sheet
- Item analysis sheet
- Class analysis sheet

Using the results from the National Science Literacy School Assessment

Although the major scientific concepts tested - Earth and Beyond, Energy and Change, Life and Living and Natural and Processed Materials-were common to all jurisdictions, the manner in which they were taught varied according to the teaching strategies used in individual classrooms, teachers' own science backgrounds and enthusiasm for science, and the student outcomes established by the curriculum frameworks in use in particular States and Territories.

Also due to differences between jurisdictions in the way in which primary schooling is structured, there were variations in the average age of students and the length of prior schooling at the time of testing.

However, although the ways in which these test materials will be used will inevitably vary, they can provide very valuable information at the classroom, school and system levels.

It is important to remember that these are standardised tests, developed through a rigorous consultative process that included input from educational experts and reference groups, subjected to intensive development and trialled and administered under strict conditions to ensure the soundness of the National Sample Assessment.

Users can therefore be confident that these tests meet the highest possible professional and ethical criteria.

The tests are standards-based. They allow inferences to be made about students' levels of achievement in the concepts, the mean level performance of a class and/or cohort and the range of levels that a class or cohort achieves.

Some teachers may use the tests to obtain information about students' existing skills or understandings: for example, a Year 7 teacher might use the Year 6 materials for diagnostic purposes. This information could then assist the teacher's planning for the year. However, before doing so, the teacher should determine whether students have previously sat the National Assessment. If they have, their results could be inflated and therefore not an accurate estimation of performance—or they might not engage with the test for a second time and the results could be disappointing.
At the classroom level, the test materials can be used to:

- diagnose individual students’ strengths and weaknesses in terms of their demonstrated skills and understandings in science;
- ascertain the strengths and weaknesses in science of the class as a whole;
- help teachers to analyse the effectiveness of their own science teaching and learning strategies;
- provide models of sound assessment tasks; and
- moderate individual teachers’ judgements with those of the National Assessment.

At the whole-school level, they can be used to:

- infer levels of student science achievement in the particular State or Territory’s curriculum framework;
- make comparisons between science performance in the school and the State or Territory mean;
- make comparisons between the range in science performance in the school and the State or Territory range;
- report to the school community on students’ achievements in science;
- report to school authorities on students’ achievements in science.
- set priorities for school development planning; and
- provide continuity for students moving from other schools.

In using the test materials, it should be borne in mind that:

- The National Sample Assessment assesses much but not all-important science knowledge and skills.
- Test results are one source of information about students' progress and information from other sources is necessary for accurate assessments to be made.
- The materials cannot be used to compare teachers and schools.

The assessment administration guidelines must be followed carefully.