National Assessment Program -
Civics and Citizenship Year 6 and Year 10
Technical Report
2004

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June 2006

Australian Council *for* Educational Research

ACER

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CHAPTER 1: INTRODUCTION

Project overview

In April 1999, the State, Territory and Commonwealth Ministers of Education, meeting as the tenth Ministerial Council on Education, Employment, Training and Youth Affairs (MCEETYA), agreed to the new *National Goals for Schooling in the Twenty-first Century.* The document became known as the 'Adelaide Declaration'. The National Goals provide the framework for reporting on student achievement and for public accountability by schools and school systems through the MCEETYA publication, the *Annual National Report on Schooling in Australia.*

In 1999, the Education Ministers established the National Education Performance Monitoring Taskforce (NEPMT) to develop key performance measures to monitor and report on progress toward the achievement of the Goals on a nationally-comparable basis. They noted the need to develop indicators of performance for civics and citizenship.

As a first step, the NEPMT commissioned a project in 2001 to investigate and develop key performance measures in civics and citizenship education. The outcome of this process was a report to the NEPMT titled Key Performance Measures in Civics and Citizenship Education (Print & Hughes, 2001).

Twelve recommendations were proposed in the report. After consultation, these were revised by a NEPMT sub-group, and the following six recommendations were endorsed by the Performance Measurement and Reporting Taskforce (PMRT), a newly established taskforce that replaced the NEPMT:

- That there be two Key Performance Measures (KPMs) for civics and citizenship, the first to focus on civics knowledge and understanding and the second on citizenship participation skills and civic values.

- That the KPMs be applied to both primary and secondary schooling and be set at Year 6 and Year 10 respectively.

- That national student assessments be designed for Year 6 and Year 10 derived from the KPMs.

- That a trial assessment be conducted in 2003 as a preliminary to a national sample survey assessment.

- That the assessment survey consist of three parts: (1), an assessment of civics knowledge and understanding (KPM1); (2), an assessment of skills and values for active citizenship participation (KPM2); and (3), an indication of opportunities for and examples of citizenship participation by students, together with relevant contextual information.

- That the national sample assessment of student knowledge, understanding, values and citizenship participation skills occur first in 2004. Subsequent testing will occur in 2007 and thereafter every three years.

In October 2002, the PMRT commissioned a project to develop and trial assessment instruments for nationally-comparable measurement and reporting in the government, independent and Catholic sectors.

A further tender was let in February 2003 for the conduct of the assessment in October 2004.

The Australian Council for Educational Research (ACER) was the successful tenderer in both cases.

The PMRT set the policy objectives, commissioned the Benchmarking and Educational Measurement Unit (BEMU) to manage the assessment and established a Review Committee (consisting of members nominated by the jurisdictions, school sectors and interest groups) to facilitate discussion among the jurisdictions and school sectors.

National Civics and Citizenship Sample Assessment

The civics and citizenship assessment domain was developed for the assessment in consultation with curriculum experts from each jurisdiction and representatives of the Catholic and independent sectors. The assessment domain comprised the domain descriptors for the two Key Performance Measures (KPMs) and a professional elaboration.

Two Key Performance Measures were assessed:

KPM 1: Civics: Knowledge & Understanding of Civic Institutions & Processes
Knowledge of key concepts and understandings relating to civic institutions and processes in Australian democracy, government, law, national identity, diversity, cohesion and social justice.

KPM 2: Citizenship: Dispositions & Skills for Participation
Understandings related to the attitudes, values, dispositions, beliefs, and actions that underpin active democratic citizenship.

The assessment items were developed to map the entire assessment domain, using the domain descriptors. Both multiple choice and open-ended items were used in the assessment. A detailed score guide was produced for the open-ended items which allowed for coding responses of different levels of complexity.

A student background survey was also given as part of the assessment. It included questions to provide an indication of the opportunities students had experienced in citizenship participation as well as relevant individual and family background information.

Participants in the assessment

Approximately 4 per cent of the national Year 6 and Year 10 student populations were sampled randomly and assessed. Schools from all States and Territories, and from the government, Catholic and independent sectors, participated. Data were gathered from 10,712 Year 6 students from 318 schools and 9,536 Year 10 students from 249 schools.

Table 1.1 shows the number of schools and students, by State and Territory, in the final sample from which performance comparisons were reported.

The assessment format

The students' regular classroom teachers administered the assessment between 18 October and 29 October 2004. The assessment comprised a pencil-and-paper assessment with multiple-choice and open-ended items and a background survey. The assessment papers were allocated so that one student in each class completed one of four different test booklets.

Students were allowed 60 minutes at Year 6 and 90 minutes at Year 10 to complete the pencil-and-paper assessments and 10-15 minutes for the student background survey.

Table 1.1   Designed sample and final participation rates by State and Territory

State / Territory	Year 6			Year 10		
	Designed school sample	Number and %[1] of Schools in Final Sample	Number and %[2] of Students in Final Sample	Designed school sample	Number and %[1] of Schools in Final Sample	Number and %[2] of Students in Final Sample
NSW	45	44 (100%)	1650 (91%)	40	39 (97%)	1576 (84%)
VIC	45	45 (100%)	1494 (89%)	38	37 (97%)	1367 (83%)
QLD	41	41 (100%)	1641 (92%)	35	35 (100%)	1438 (83%)
SA	46	45 (100%)	1280 (90%)	35	35 (100%)	1271 (79%)
WA	45	42 (98%)	1495 (91%)	35	35 (100%)	1487 (87%)
TAS	45	44 (95%)	1208 (91%)	30	28 (97%)	1010 (81%)
NT	28	27 (96%)	761 (88%)	21	17 (81%)	486 (76%)
ACT	30	30 (100%)	1183 (90%)	26	23 (88%)	901 (80%)
AUST.	**325**	**318 (99%)**	**10712 (90%)**	**260**	**249 (96%)**	**9536 (82%)**

[1] Percentage of eligible (non-excluded) schools in the final sample. Participating replacement schools are included.
[2] Percentage of participating eligible (non-excluded) students in the final sample.

Reporting of the assessment results

The results of the assessment were reported in the *National Assessment Program - Civics and Citizenship Years 6 and 10 Report 2004*. Mean scores and distributions of scores are shown at the national level and by State and Territory. The results are also described in terms of the understandings and skills that students demonstrated in the assessment, which are mapped against the civics and citizenship assessment domain.

Structure of the Technical Report

This report describes the technical aspects of the National Civics and Citizenship Sample Assessment and summarises the main activities involved in the data collection, the data collection instruments and the analysis and reporting of the data.

Chapter 2 summarises the development of the assessment domain and describes the process of item development and construction of the instruments.

Chapter 3 reviews the sample design and describes the sampling process. Chapter 3 also describes the process of weighting to derive population estimates.

Chapter 4 summarises the field administration and data management procedures, including quality control and the cleaning and coding of the data.

Chapter 5 describes the scaling procedures, including equating, item calibration, the creation of plausible values and the standardisation of student scores.

Chapter 6 examines the process of standards-setting and creation of Proficiency Levels used to describe student achievement.

Chapter 7 discusses the reporting of student results, including the procedures used to estimate sampling and measurement variance.

CHAPTER 2: ASSESSMENT DOMAIN AND INSTRUMENT DEVELOPMENT

Developing the assessment domain

The assessment domain was developed by ACER in 2002 from the Key Performance Measures recommended by Print and Hughes (2001). The content of the assessment domain was validated against existing curriculum documents, including those from the *Discovering Democracy Program.*

The CCAP Review Committee was presented with a draft assessment domain at its inaugural meeting early in 2003. It was subsequently revised by the Review Committee and ACER, undergoing numerous iterations over the next 18 months. Different iterations of the draft were submitted to jurisdictions and to the PMRT for comment on several occasions. Further refinements to the assessment domain were made after the trial stage. Final adjustments were made after the penultimate version was submitted late in 2003 to several nominated area experts following the request by the Review Committee for external 'expert advice' on the assessment domain. The final version of the assessment domain was refined in February 2004.

The assessment domain

The assessment domain comprised the domain descriptors for the two Key Performance Measures (KPMs) and a professional elaboration.

The definitions of the two Civics and Citizenship Key Performance Measures (KPMs), are the substance of the Civics and Citizenship Literacy Scale. The two Key Performance Measures are:

> *KPM 1: Civics: Knowledge & Understanding of Civic Institutions & Processes*
> Knowledge of key concepts and understandings relating to civic institutions and processes in Australian democracy, government, law, national identity, diversity, cohesion and social justice.

> *KPM 2: Citizenship: Dispositions & Skills for Participation*
> Understandings related to the attitudes, values, dispositions, beliefs, and actions that underpin active democratic citizenship.

The domain descriptors flesh out the KPM definitions. The professional elaboration is a further expansion of the domain descriptors which identifies key concepts and skills students are expected be able to have attained by Year 6 or 10. Chapter 3 of the *National Assessment Program - Civics and Citizenship Years 6 and 10 Report 2004* provides more information.

Item development

The items were developed by a team of ACER's expert test developers. The test development team first sourced and developed relevant, engaging and focussed civic and citizenship stimulus materials that addressed the assessment domain (due to the on-going revision of the assessment domain the development of the assessment items overlapped with the development of the assessment domain). As much of the substantively relevant externally available material with potential for use as stimulus material did not satisfy other necessary criteria to make it suitable for use (reading load or additional extraneous content), much of the stimulus material was developed by ACER test developers, with content ideas sourced externally.

Items were developed that address the civic and citizenship content contained in the stimulus materials. The items were constructed in units. A unit consists of one or more assessment items directly relating to a single theme or stimulus. In its simplest form a unit is a single self-contained item, in its most complex form a unit is a piece of stimulus material with a set of assessment items directly related to it.

Developed items were then subjected to panelling. The panelling process consisted of a small group (between three and six) of expert test developers jointly reviewing material that one or more

of them had developed, and then accepting, modifying or rejecting that material for further development.

Items were also piloted to examine of the viability of their use by administering the units to a small, convenient sample of students in schools. Piloting took place before panelling to collect information about how Year 6 students could use their own life-experiences (within and out of school) to answer questions based largely on civic knowledge and how students could express reasoning on civic and citizenship issues using short extended response formats.

Items were developed to map to the assessment domain with coverage of the domain by the item set closely monitored through the iterative process. Each assessment item was referenced to a single Key Domain listed in the assessment domain. As a consequence of this, units comprising more than one assessment item could (and frequently did) reference more than one key domain within and across Key Performance Measures (KPM1 and KPM2).

Item response types include: dual choice (True/False), multiple choice, closed and constructed. The number of score points allocated to items varies: dual and multiple choice items have a maximum score of one point. Closed and constructed response items are each allocated a maximum of between one and three score points.

Consultation with outside experts and stakeholders occurred throughout the item development, with draft and revised versions of the items shared with the Review Committee and PMRT, before and after trialling.

The field trial

A Field Trial was conducted in 142 schools in September 2003. The sample of schools was a representative random sample, drawn from all sectors from the four states of Victoria, South Australia, New South Wales and Queensland. The response rate was in excess of 90 per cent.

The trial data were analysed in a systematic way to determine the degree to which the items measured the Assessment Domain. The Review Committee then reviewed the data from the trial testing. A draft performance scale was prepared, and draft performance standards developed and examined closely in a day-long meeting of experts and some Review Committee members, managed by BEMU.

Teachers involved in the trial were asked to complete a feedback form. This gave them the opportunity to comment on the assessment items and the administration procedures. Overall the feedback was highly positive and many teachers reported that the assessment and background survey stimulated interest and discussion at a school and classroom level. This feedback, summarised in a short report to the Review Committee, provided useful information for the construction of the final assessment instruments.

The final assessment instruments

The main assessment was conducted using four test forms at both Year 6 and Year 10. Each unit was allocated to two test forms. The order of presentation of units differed across test forms. However, the order of the assessment items within any given unit necessarily remained invariant. In constructing the test booklets, the allocation of units to test forms was managed in order to maximise compliance with the following six necessary criteria.

1. Equivalence of reading demands across forms within each year level

The reading demands of each test form within each year level were balanced to ensure that they are broadly equivalent. The two main features considered in this balance were the amount of reading and the language complexity in each form.

2. Equivalence of total number of assessment items and distribution of item types across forms within each year level

Each test form within each year level had approximately the same number of assessment items and a similar proportion of items with different response types. Each test form also was allocated a similar number of possible score points. This resulted in each of the Year 6 forms having between 16 and 18 units, exactly 40 items and between 48 and 51 score points. In the Year 10 forms there were between 17 and 23 units, 45 and 47 items and 67 and 70 score points.

Tables 2.1 and 2.2 show the unit, item and score point allocations to each test form and the distribution of multiple choice and open-ended items across the test forms. They show that the spread of units, items and score points, as well as the response types, are spread fairly evenly across the forms.

Table 2.1   Unit, item and score point allocations and response type distribution for Year 6 test forms

	Total Units	Total Items	Total Score Points	Multiple Choice Items	% of Total	Open-ended Items	% of Total
Year 6 Form 1	17	40	50	16	40%	24	60%
Year 6 Form 2	18	40	51	20	50%	20	50%
Year 6 Form 3	17	40	48	18	45%	22	55%
Year 6 Form 4	16	40	48	16	40%	24	60%

Table 2.2   Unit, item and score point allocations and response type distribution for Year 10 test forms

	Total Units	Total Items	Total Score Points	Multiple Choice Items	% of Total	Open-ended Items	% of Total
Year 6 Form 1	17	45	70	16	36%	29	64%
Year 6 Form 2	19	45	71	17	38%	28	62%
Year 6 Form 3	23	47	69	17	36%	30	64%
Year 6 Form 4	19	45	67	16	36%	29	64%

3. Comprehensive representation of the assessment domain within each test form

Each of the eight test forms (four Year 6 and four Year 10 forms) contained at least one item referencing each key domain in each of KPM 1 and 2. Table 2.3 shows the allocation of items from KPM 1 and KPM 2 across the test forms. At Year 6 between 25 and 32.5 per cent of items are from KPM 2. At Year 10, between 28 and 40 per cent are from KPM 2.

Table 2.3   Allocation of items from KPM 1 and KPM 2 for Year 6 and 10 test forms

	Year 6 Form 1	Year 6 Form 2	Year 6 Form 3	Year 6 Form 4
KPM 1	29 (72.5%)	27 (67.5%)	28 (70%)	30 (75%)
KPM 2	11 (27.5%)	13 (32.5%)	12 (30%)	10 (25%)
	Year 10 Form 1	**Year 10 Form 2**	**Year 10 Form 3**	**Year 10 Form 4**
KPM 1	31 (69%)	27 (60%)	24 (72%)	30 (67%)
KPM 2	14 (31%)	18 (40%)	13 (28%)	15 (33%)

4. Horizontal linking of forms within year levels

It is essential to link the test forms horizontally within each year level to enable both the common scaling of the assessment items and the common scaling of student achievement *independent of which students complete which test forms*. Each unit was allocated to two forms to enable this linking. Each test form at each year level was horizontally linked to two other forms.

When using four test forms at a level, the ACER minimum sufficient standard is that each test form contains a minimum of 50% of units linked to one of two other forms and that these links are relatively evenly divided within each form (i.e. each test form should share 25% of common material with one form and 25% of common material with a second form).

Figure 2.1 below is a diagrammatic representation of the minimum sufficient level of horizontal linking of forms at each year level.

Figure 2.1 Unit links across test form within each year level
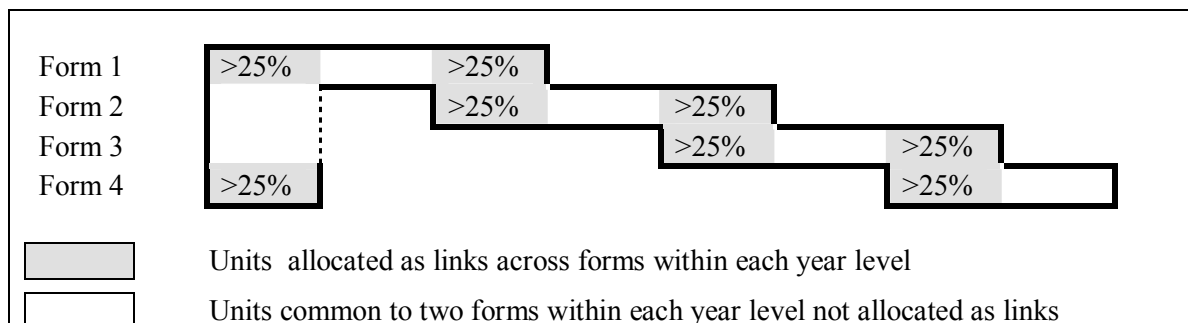
Tables 2.4 and 2.5 following display the number of units, items and score points allocated to each test form in Years 6 and 10, and the number and percentage of link units items and score points across forms within each year level.

Table 2.4   Unit, item and score point allocations and horizontal links for Year 6 test forms

Year 6 Form 1					
Link Category	Total	Linked to Form 2	% of Total	Linked to Form 4	% of Total
Units	17	9	53%	7	41%
Items	40	16	40%	23	58%
Score Points	50	21	42%	28	56%
Year 6 Form 2					
Link Category	Total	Linked to Form 1	% of Total	Linked to Form 3	% of Total
Units	18	9	50%	8	44%
Items	40	16	40%	23	58%
Score Points	51	21	41%	28	55%
Year 6 Form 3					
Link Category	Total	Linked to Form 2	% of Total	Linked to Form 4	% of Total
Units	17	8	47%	8	47%
Items	40	23	58%	16	40%
Score Points	48	28	58%	19	40%
Year 6 Form 4					
Link Category	Total	Linked to Form 3	% of Total	Linked to Form 1	% of Total
Units	16	8	50%	7	44%
Items	40	16	40%	23	58%
Score Points	48	19	40%	28	58%

Tables 2.4 and 2.5 show that the minimum proportion of score point horizontal links within all of the Year 6 and 10 forms was 40%. This greatly exceeds the ACER minimum sufficient standard of 25% and consequently enabled the selection and utilisation of only those allocated links with

the strongest psychometric properties after the final sample assessment data had been collected and analysed.

Table 2.5   Unit, item and score point allocations and horizontal links for Year 10 test forms

Year 10 Form 1					
Link Category	Total	Linked to Form 2	% of Total	Linked to Form 4	% of Total
Units	17	9	53%	7	41%
Items	45	21	47%	23	51%
Score Points	70	32	46%	37	53%
Year 10 Form 2					
Link Category	Total	Linked to Form 1	% of Total	Linked to Form 3	% of Total
Units	19	9	47%	10	53%
Items	45	21	47%	24	53%
Score Points	71	33	46%	38	54%
Year 10 Form 3					
Link Category	Total	Linked to Form 2	% of Total	Linked to Form 4	% of Total
Units	23	10	43%	12	52%
Items	47	24	51%	22	47%
Score Points	69	38	55%	30	43%
Year 10 Form 4					
Link Category	Total	Linked to Form 3	% of Total	Linked to Form 1	% of Total
Units	19	12	63%	7	37%
Items	45	22	49%	23	51%
Score Points	67	30	45%	37	55%

5. Placement of units within test forms

Each unit was placed in a different position in each of the two test forms in which it is presented. For example, a given unit appearing towards the end of one test form was placed towards the beginning of the second test form in which it is presented. This is intended to minimise any order effects on the data generated by each unit.

6. Vertical linking of units between Years 6 and 10

It is essential to link the test forms between year levels to enable both the common scaling of the assessment items and the common scaling of student achievement between Years 6 and 10. A sizeable proportion of the assessment units were predetermined as potential links between Years 6 and 10. As all units appeared in two forms within each year level, the allocated potential vertical link units appeared in a total of four test forms (two at Year 6 and two at Year 10).

The previously described horizontal linking of test forms enabled students' achievement at each level to be calibrated on the same scale regardless of which test forms they complete. The satisfaction of this requirement removes the necessity for the vertical link units to be linked between specific test booklets. The main parameter for the placement of the vertically linked units was that they were distributed relatively evenly across each of the four test forms at each year level. This was achieved.

The allocation of units to the Year 6 forms began with the placement of the potential vertical link units in a relatively even distribution across the Year 6 forms. The allocation of the discrete Year

6 units across test forms was then completed with reference to the five previously articulated unit allocation criteria.

The allocation of the potential vertical link units to the Year 10 forms commenced with a replication of their distribution in the Year 6 forms. The subsequent allocation of the discrete Year 10 units across test forms necessitated the redistribution of a small number of potential vertical link items to ensure satisfaction of the five previously articulated unit allocation criteria. The resultant minor nominal differences in the location of the potential vertical link items between Year 6 and 10 forms do not reduce the strength and viability of the vertical linking between Years 6 and 10.

Tables 2.6 and 2.7 on the following page display the number of allocated vertical units, items and score points for each test form in Years 6 and 10, and the number and percentage of link units items and score points across forms within each year level.

Table 2.6   Unit item and score point allocations and vertical links for CCAP Year 6

	Year 6 Form 1			Year 6 Form 2		
Link Category	Total	Vertical Links	% of Total	Total	Vertical Links	% of Total
Units	17	8	47%	18	9	50%
Items	40	19	48%	40	18	45%
Score Points	50	28	56%	51	29	57%
	Year 6 Form 3			Year 6 Form 4		
Link Category	Total	Vertical Links	% of Total	Total	Vertical Links	% of Total
Units	17	14	82%	16	11	69%
Items	40	26	65%	40	25	63%
Score Points	48	36	75%	48	34	71%

Table 2.7   Unit item and score point allocations and vertical links for CCAP Year 10

	Year 10 Form 1			Year 10 Form 2		
Link Category	Total	Vertical Links	% of Total	Total	Vertical Links	% of Total
Units	17	9	53%	19	10	53%
Items	45	22	49%	45	21	47%
Score Points	70	34	49%	71	35	49%
	Year 10 Form 3			Year 10 Form 4		
Link Category	Total	Vertical Links	% of Total	Total	Vertical Links	% of Total
Units	23	13	57%	19	10	53%
Items	47	23	49%	45	22	49%
Score Points	69	30	43%	67	28	42%

It is evident from Tables 2.6 and 2.7 that there was a relatively even distribution of vertical linking across the forms at each year level. The differences in proportions of links between Year 6 Forms 1 and 2 and Year 6 Forms 3 and 4 are inconsequential relative to the overall sufficiency of vertical links. As was the case for the horizontal linking, the numbers and proportions of vertical links sufficiently exceeded the necessary minimum to enable the selection and utilisation of only those allocated links with the strongest psychometric properties after the final sample assessment data were collected and analysed.

The score guide

Draft scoring guides for the items were developed in parallel with the items. They were then further developed during the Field Trial and the subsequent review of the items, which included

consultation with the experts and stakeholders on the Review Committee and discussion with BEMU.

The scoring guide for each item includes a unique year level reference to the focus domain descriptor in the assessment domain for that item.

The dual and multiple choice items and some of the closed constructed and short extended response items have a score value of 0 (incorrect) or 1 (correct).

Short extended response items can elicit responses with differing levels of complexity. The scoring guides for such items are developed to define and describe these meaningfully different levels. Empirical data from the Field Trial were used to confirm whether these semantic distinctions are indicative of actual differences in student achievement. In the cases where hierarchical differences described by the scoring guides were not evident in the Field Trial data these differences were removed from the scoring guide. Typically this would involve providing the same credit for responses that previously had been allocated different levels of credit (this is referred to as *collapsing categories).*

Each score point allocation in the scoring guide is accompanied by a text which describes and characterises the kind of response which would attract each score. These score points are then illustrated with actual student responses.   The response characterising text combined with the response illustrations for each score point for each item constitute the Score Guide.

Following is an item from the main survey (that is also included as *Figure 4.3 (4iii): Question 4: 'Citizenship Pledge' unit* in the *National Assessment Program - Civics and Citizenship Years 6 and 10 Report 2004)* and the full scoring guide for this item. Key features of the scoring guide are:

- The reference to the relevant domain descriptor;

- The summary description of the key substantive property of the responses of each level;

- The detailed description of the properties of the responses of each level; and

- Sample student responses that illustrate the properties of the responses at each level.

Figure 2.2 Example item and scoring guide

Scoring Guide

Domain descriptor: 6.7   10.7

Full Credit

RECOGNISES APPARENT CONTRADICTION

Code 3:   Answers YES and identifies that the common good (or social stability) is more important than an individual's rights in this case.
- YES. You can still believe what you want, but you can't change the political system.
- If they do not believe, there will be more chaos due to belief conflicts.

Partial Credit

Code 2:   Answers YES OR NO and identifies that the pledge is symbolic rather than binding.
- YES: You say the pledge to commit to Australia, you don't have to believe all the words.
- NO: Even though it is only symbolic and you don't have to believe it, it is still stupid to make people say something that they don't believe.

FAILS TO RECOGNISE APPARENT CONTRADICTION

Code 1:   Answers YES and identifies that people must accept the Australian way of life if they are going to be citizens.
- YES: Because Australia is Democratic, so people must understand and agree with it.
- Yes they need to respect what we believe.

OR

Code 1:   Answers NO: Suggests that people should not be compelled to share democratic beliefs.
- NO: In a democracy people should be allowed to think what they want.

No Credit
- YES: Who cares what they want?
- NO: Because they don't have to if they don't want to.

Background questionnaire

A student background survey was included in order to provide context for the results of the cognitive assessment. The survey included questions to provide an indication of the opportunities students had experienced in citizenship participation as well as relevant individual and family background information.

The background variables included in the student background survey were sex, age, Indigenous status, language background (country of birth and main language other than English spoken at home), socioeconomic background (parental education and parental occupation) and geographic location. The structure of these variables had been agreed upon by the PMRT as part of the National Assessment Program (which includes the National Civics and Citizenship Sample Assessment) established to monitor progress towards the achievement of the National Goals of Schooling.

The questions about parental education and geographic location were not asked of Year 6 students as it was decided that the Year 6 students would be unlikely to know this information and/or would find it difficult to answer these questions. Instead, the geographic location of the school, identified from the *MCEETYA Schools Geographic Location Classification*, was used. No substitute for parental education was used.

Three sets of indicators of opportunities and examples of citizenship participation were created: participation in citizenship activities outside school; opportunities for participation in citizenship activities at school; and learning about governance at school. These questions were developed by the committee, and reviewed by PMRT Review Committee, and trialled. Following trialling the questions were revised and finalised.

A copy of the student background survey can be found in Appendix A.

CHAPTER 3: SAMPLING AND WEIGHTING

Sampling

The target populations for the study were Year 6 and Year 10 students enrolled in educational institutions across Australia.

The sample design of the National Civics and Citizenship Sample Assessment 2004 was a two-stage stratified cluster sample design, similar to that used by international assessments such as the Trends in International Mathematics and Science Study (TIMSS) and the OECD Programme for International Students Assessment (PISA). The first stage consists of a sample of schools, stratified according to state and sector; the second stage consists of a sample of two classrooms (where available) from the target year level in sampled schools. Samples were drawn separately for each year level.

The sampling frame

The national school sampling frame is a comprehensive list of all schools in Australia, developed by the Australian Council of Educational Research (ACER) by coordinating information from multiple sources, including the Australian Bureau of Statistics and State and Territory education department databases.

School exclusions

For the specific purposes of this study, only schools containing Year 6 or Year 10 students were used. In addition, some schools were excluded from the possibility of being sampled. Schools excluded from the target population included non-mainstream schools (such as schools for students with intellectual disabilities or hospital schools), schools with fewer than five students in the target year levels and very remote schools. These exclusions account for 1.8 per cent of the Year 6 population and 0.8 per cent of the Year 10 population.

The designed sample

For both the year 6 and year 10 samples, sample sizes were determined that would provide accurate estimates of achievement outcomes for all states and territories (with 95 per cent confidence limits of +/- 0.15s to +/-0.2s for estimated means). This required an *effective sample size* size (i.e., the sample size of a simple random sample that would produce the same precision as the complex sample design) in the larger states of around 140 students. A smaller sample size was needed in the smaller states and territories because of the *finite population correction factor*, i.e. as the proportion of the total population surveyed becomes larger the precision of the sample increases for a given sample size.

The actual sample sizes required for each state and territory can be estimated by multiplying the desired effective sample size by the estimated *design effect* that reflects the effects of the complex sample design (Kish 1965, p. 162). In a complex, multi-stage sample such as the one selected for this study, the clustering of the sample results in a design effect can be relatively large because students within a class within a school will tend to be more like each other on most characteristics than students in general.

Any within-school homogeneity reduces the effective sample size. This homogeneity can be measured with the intra-class correlation, ρ, which reflects the proportion of the total variance in a characteristic in the population that is accounted for by clusters (classes within schools). Knowing the size of ρ and the size of each cluster's sample size b, the design effect for an estimate of a mean or percentage for a given characteristic $\bar{y}$ can be computed from:

$$D^2(\bar{y}) = 1 + (b-1)\rho$$

As the proposed sampling design was the same as that used for the TIMSS 95 study, the intra class correlations observed from this study[1] were used as the basis for estimating the design effects for Civics. The intraclass correlations for TIMSS Population 1 were reported as 0.228 for mathematics and 0.196 for science, and for TIMSS Population 2 the intraclass correlations were reported as 0.261 for mathematics and 0.196 for science. Using these as a basis, intraclass correlations of 0.21 and 0.23 were used to estimate the design effect for the civics study at years 6 and 10 respectively. The average cluster sample size was estimated as 50 (i.e. 2 classes of 25 respondents), leading to design effects of approximately 12 for both year levels. The desired sample sizes were calculated as approximately 1680 students for the larger states, i.e. the desired effective sample size multiplied by the estimated design effect.

Table 3.1 shows the population of schools and students (net of schools excluded from the target population) and the planned sample.

Table 3.1 Year 6 and 10 target population and planned samples by State and Territory

	Year 6				Year 10			
	Population		Planned Sample		Population		Planned Sample	
	Schools	Students	Schools	Students	Schools	Students	Schools	Students
NSW	1971	79407	45	1789	594	58476	35	1695
VIC	1537	57257	45	1712	383	39676	35	1698
QLD	1041	46302	41	1687	315	34310	35	1698
SA	516	16945	46	1592	160	14509	35	1668
WA	657	23819	45	1691	184	19650	35	1690
TAS	194	5797	45	1443	69	4771	30	1392
NT	55	1784	28	966	21	1897	21	848
ACT	90	4004	30	1259	33	4678	26	1276
Australia	*6061*	*235315*	*325*	*12139*	*1759*	*177967*	*252*	*11965*

Structural differences in State and Territory education systems

The sample, while designed to be representative of the student population, incorporates some structural differences that must be kept in mind when interpreting the results of the National Civics and Citizenship Sample Assessment. One important feature of the sample is that it is year-based in order to be consistent with the reporting of literacy and numeracy performance in the National Report on Schooling in Australia. However, due to differences in school starting age, the length of time students have spent in formal schooling varies between the States and territories. Table 3.2 shows the effect that the structural difference in Australian state and territory education systems have on the ages of students in the target populations.

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[1] Obtained from the TIMSS 2003 School Sampling Manual (Foy and Joncas, 2001) Table 7.1 p. 7-9

Table 3.2   Average age at assessment and average time at school, by State and Territory

	Year 6		Year 10	
	Average age at assessment	Average time at school	Average age at assessment	Average time at school
NSW	12 yrs 0mths	5yrs 11mths	16 yrs 0mths	9yrs 11mths
VIC	12yrs 1mths	6yrs 9mths	16yrs 1mths	10yrs 9mths
QLD	11yrs 6mths	5yrs 10mths	15yrs 6mths	9yrs 10mths
SA	11yrs 11mths	6yrs 8mths	15yrs 10mths	10yrs 7mths
WA	11yrs 5mths	5yrs 10mths	15yrs 5mths	9yrs 10mths
TAS	12yrs 2mths	6yrs 9mths	16yrs 2mths	10yrs 9mths
NT	11yrs 10mths	6yrs 5mths	15yrs 9mths	10yrs 4mths
ACT	12 yrs 0mths	6 yrs 8mths	16 yrs 0mths	10 yrs 8mths

Table 3.2 shows that there is 10 month difference in average age at testing between students in Western Australia (the 'youngest' state) and students in Tasmania (the 'oldest' state). Students in Western Australia and Queensland had also experienced almost one year of formal schooling less than students in Victoria and Tasmania.

First sampling stage

The school sample was selected from all non-excluded schools in Australia which had students in Year 6 or Year 10. Stratification by state was explicit, resulting in separate samples being drawn for each state. Stratification by sector and school size was implicit, resulting in the schools within each state being ordered by size (according to the number of students of the target year level) within a grouping by sector. The selection of schools was carried out using a systematic probability-proportional to size (PPS) method.

The number of students at the target year (the measure of size, or MOS) was accumulated from school to school and the running total was listed next to each school. The total cumulative MOS was a measure of the size of the population of sampling elements. Dividing this figure by the number of schools to be sampled gives the sampling interval.

The first school was sampled by choosing a random number between 1 and the sampling interval. The school, whose cumulative MOS contained the random number was the first sampled school. By adding the sampling interval to the random number, a second school was identified. This process of consistently adding the sampling interval to the previous selection number resulted in a PPS sample of the required size.

Replacement schools

As each school was selected, the next school in the sampling frame was designated as a replacement school for use should the sampled school not participate. The school previous to the sampled school was the second replacement. It was used if neither the sampled school nor the first replacement participated. In some cases (such as secondary schools in the Northern Territory) there were not enough schools available for the replacement samples to be drawn. Because of the sorting of each explicit stratum by sector and size, the replacement schools were generally similar (with respect to size, state and sector) as the school for which they were a replacement.

After the school sample was drawn, a number of sampled schools were identified as meeting the criteria for exclusion. When this occurred, the sampled school and its replacements were removed from the sample and removed from the calculation of participation rates. Five schools were

removed from the Year 6 sample and one school from the Year 10 sample. These exclusions account for less than 0.05 per cent of the student populations and so do not alter the exclusion rates quoted above.

Second sampling stage

The second stage of sampling involved selecting classrooms within sampled schools using a random sampling technique. In most cases, two intact classes were sampled from each sampled school. Where only one or two classes were available at the target level, those classes were automatically selected. Where more than two classes existed, classes were sampled with equal probability of selection.

In some schools, smaller classes were combined to make a pseudo-class group prior to sampling. For example, two multilevel classes with 13 and 15 Year 6 students respectively might be combined into a single pseudo class of 28 students. This was to maximise the number of students selected per school (the sample design was based on 50 students per school). Pseudo-classes were treated like other classes and had equal probability of selection during sampling.

Student exclusions

Within the sampled classrooms, individual students were eligible to be exempted from the assessment on the basis of:

- **Functional Disability**: Student has a moderate to severe permanent physical disability such that he/she cannot perform in an assessment situation.

- **Intellectual Disability**: Student has a mental or emotional disability and is cognitively delayed such that he/she cannot perform in the assessment situation.

- **Limited Assessment Language Proficiency**: The student is unable to read or speak the language of the assessment and would be unable to overcome the language barrier in the assessment situation. Typically a student who has received less than one year of instruction in the language of the assessment would be excluded.

Tables 3.3 and 3.4 detail the number of students excluded from the National Civics and Citizenship Sample Assessment, according to the reason given for their exclusion.

Table 3.3 Year 6 breakdown of exclusions according to reason by State and Territory

	Functional Disability	Intellectual Disability	Limited English Proficiency	Multiple Reasons	*Total*	*%*
NSW	0	5	11	1	*17*	*0.9*
VIC	1	13	6	0	*20*	*1.2*
QLD	4	15	4	0	*23*	*1.3*
SA	1	19	21	0	*41*	*2.8*
WA	1	4	2	1	*8*	*0.5*
TAS	2	14	7	1	*24*	*1.8*
NT	0	4	10	0	*14*	*1.6*
ACT	0	7	5	0	*12*	*0.9*
Australia	**9**	**81**	**66**	**3**	*159*	*1.3*

Table 3.4   Year 10 breakdown of exclusions according to reason by State and Territory

	Functional Disability	Intellectual Disability	Limited English Proficiency	Multiple Reasons	*Total*	*%*
NSW	1	6	5	0	*12*	*0.6*
VIC	1	3	4	0	*8*	*0.5*
QLD	1	3	10	0	*14*	*0.8*
SA	0	5	2	0	*7*	*0.4*
WA	2	1	0	0	*3*	*0.2*
TAS	1	1	7	0	*9*	*0.7*
NT	1	2	4	0	*7*	*1.1*
ACT	0	0	5	0	*5*	*0.4*
Australia	**7**	**21**	**37**	**0**	*65*	*0.6*

The number of student-level exclusions was 159 at Year 6 and 65 at Year 10. This brought the final exclusion rate (combining school and student exclusions) to 3.1 per cent at Year 6 and 1.4 per cent at Year 10.

Participation rates

The Year 6 Australian school participation rate was 99% including replacement schools. Excluding replacement schools, the school participation rate was 91%. At Year 10, the Australian school participation rate was 96% including replacement schools. Excluding replacement schools, the school participation rate was 93%. Tables 3.5 and 3.6 detail Year 6 and 10 school exclusions, refusals and participation information, including the final participation rate for the states and territories.

Table 3.5   Year 6 numbers and percentages of participating schools by State and Territory

	Sample	Excluded Schools	Eligible Schools	Participating Schools - Sampled Schools	Participating Schools - Replacement Schools	Non - Participating Schools (Refusals)	Total Number of Participating Schools	School Participation Rate[1]
NSW	45	*1*	44	*43*	*1*	*0*	44	100%
VIC	45	*0*	45	*36*	*9*	*0*	45	100%
QLD	41	*0*	41	*32*	*9*	*0*	41	100%
SA	46	*1*	45	*45*	*0*	*0*	45	100%
WA	45	*2*	43	*41*	*1*	*1*	42	98%
TAS	45	*1*	44	*42*	*2*	*0*	44	95%
NT	28	*0*	28	*24*	*3*	*1*	27	100%
ACT	30	*0*	30	*29*	*1*	*0*	30	96%
Aust	**325**	*5*	**320**	*292*	*26*	*2*	**318**	**99%**

[1] Percentage of eligible (non-excluded) schools in the final sample. Participating replacement schools are included.

Table 3.6 Year 10 numbers and percentages of participating schools by State and Territory

	Sample	Excluded Schools	Eligible Schools	Participating Schools - Sampled Schools	Participating Schools - Replacement Schools	Non - Participating Schools (Refusals)	Total Number of Participating Schools	School Participation Rate[1]
NSW	40	0	40	39	0	1	39	97%
VIC	38	0	38	34	3	1	37	97%
QLD	35	0	35	32	3	0	35	100%
SA	35	0	35	35	0	0	35	100%
WA	35	0	35	33	2	0	35	100%
TAS	30	1	29	28	0	1	28	97%
NT	21	0	21	17	0	4	17	88%
ACT	26	0	26	23	0	3	23	81%
Aust	**260**	**1**	**259**	**241**	**8**	**10**	**249**	**96%**

[1] Percentage of eligible (non-excluded) schools in the final sample. Participating replacement schools are included.

Approximately 4 per cent of the Year 6 and Year 10 student population were sampled and eligible for assessment. Of the eligible sampled students, 90 per cent of Year 6 students and 82 per cent of Year 10 students completed the assessment. Combining the school and student participation rates, the National Civics and Citizenship Sample Assessment achieved a participation rate of 89 per cent at Year 6 and 79 per cent at Year 10. Tables 3.7 and 3.8 detail the Year 6 and 10 student exclusions, absentee and participation information, including the final student, and combined school and student, participation rates for the states and territories.

Table 3.7 Year 6 numbers and percentages of participating students by State and Territory

	Number of sampled students in participating schools	Number of Exclusions	Number of Eligible students	Number of Absentees (including parental refusal[2])	Number of Participating students	Student Participation Rate[1]	Combined School and Student Participation Rate
NSW	1829	17	1812	162	1650	91%	91%
VIC	1700	20	1680	186	1494	89%	89%
QLD	1804	23	1781	140	1641	92%	92%
SA	1470	41	1429	149	1280	90%	90%
WA	1654	8	1646	151	1495	91%	79%
TAS	1356	24	1332	124	1208	91%	86%
NT	883	14	869	108	761	90%	90%
ACT	1325	12	1313	130	1183	88%	84%
Australia	**12021**	**159**	**11862**	**1150**	**10712**	**90%**	**89%**

[1] Percentage of participating eligible (non-excluded) students in the final sample.
[2] Parental refusals make up 29% of absentees overall. State and territory rates range from 15%-40%.

Table 3.8   Year 10 numbers and percentages of participating students by State and Territory

	Number of sampled students in participating schools	Number of Exclusions	Number of Eligible students	Number of Absentees (including parental refusal[2])	Number of Participating students	Student Participation Rate[1]	Combined School and Student Participation Rate
NSW	1886	*12*	1874	*298*	1576	84%	82%
VIC	1649	*8*	1641	*274*	1367	83%	81%
QLD	1749	*14*	1735	*297*	1438	83%	83%
SA	1626	*7*	1619	*348*	1271	79%	79%
WA	1719	*3*	1716	*229*	1487	87%	87%
TAS	1260	*9*	1251	*241*	1010	81%	79%
NT	644	*7*	637	*151*	486	80%	70%
ACT	1135	*5*	1130	*229*	901	76%	64%
Australia	**11668**	*65*	**11603**	*2067*	**9536**	**82%**	**79%**

[1] Percentage of participating eligible (non-excluded) students in the final sample.
[2] Parental refusals make up 19% of absentees overall. State and territory rates range from 5%-27%.

Weighting

While the multi-stage stratified cluster design provides a very economical and effective data collection process in a school environment, it results in differential probabilities of selection for the ultimate sampling elements, the students. Consequently, one student in the assessment does not necessarily represent the same proportion of students in the population as another, as would be the case with a simple random sampling approach. To account for differential probabilities of selection, due to the design and to ensure proper survey estimates, a sampling weight was computed for each participating student. The ability to provide proper sampling weights was an essential characteristic of an acceptable sample design, since appropriate sampling weights were essential for the computation of accurate population estimates.

The overall sampling weight is the product of weights calculated at the three stages of sampling:

- the selection of the school at the first stage
- the selection of the classes from the sampled schools at the second stage
- the selection of students within the sampled classes at the third stage.

The First Stage Weight

The first stage weight is the inverse of the probability of selection of the school, adjusted to account for school non-response.

The probability of selection of the school is equal to its Measure of Size (MOS) divided by the Sampling Interval (SINT) or 1 whichever is the lower. (A school with a MOS greater than SINT is a 'certain selection', and therefore has a probability of selection of 1. Some very large schools were certain selections into the sample.)

The sampling interval is calculated at the time of sampling, and for each explicit stratum is equal to the cumulative measure of size of all schools in the stratum, divided by the number of schools to be sampled from that stratum. The Measure of Size for each school is the number of students recorded on the sampling frame at the relevant year level (year 6 or year 10).

This factor of the first stage weight is the inverse of this probability, i.e. SINT/MOS.

Following data collection, counts of the following categories of schools are made for each explicit stratum:

1. The number of schools that participated in the sample (Np)

2. The number of schools that were sampled but should have been excluded (Nx)

3. The number of non-responding schools (Nn)

Note that Np+Nx+Nn equals the total number of sampled schools from the stratum.

Examples of the second class (Nx) are:

- a sampled school that no longer existed

- a school that following sampling was discovered to have fitted one of the criteria for school level exclusion (eg very remote, very small), but which had not been removed from the frame prior to sampling.

In the case of a non-responding school (Nn), neither the originally sampled school nor its replacements participated.

Within each explicit stratum, an adjustment is made to account for school non-response. This non-response adjustment for a stratum is equal to:

(Np + Nn) / Np.

The first stage weight is the product of SINT/MOS and (Np + Nn) / Np.

W1 = SINT/MOS * [(Np + Nn) / Np].

The Second Stage Weight

The second stage weight is the inverse of the probability of selection of the classes from the sampled school.

In some schools, smaller classes were combined to form a pseudo-class group prior to sampling. For example, two multilevel classes with 13 and 15 year 6 students respectively might be combined into a single pseudo class of 28 students. This was to maximise the potential yield, and also to reduce the variation in the weights allocated to students from different classes of the same school.

Classes (or pseudo classes) were then sampled with equal probability of selection. In most cases, two intact classes were sampled from each sampled school.

The second stage weight was calculated as: Ct/Cs, where Ct is the total number of classes (or pseudoclasses) at the school, and Cs is the number of sampled classes. For most schools (other than schools with small enrolments and a single class), Cs was equal to 2.

W2 = Ct/Cs

The Third Stage Weight

The first factor in the third stage weight is the inverse of the probability of selection of the student from the sampled class. As all students in the sampled class were automatically sampled, this factor is equal to 1.0 for all students.

Following data collection, counts of the following categories of students were made for each sampled class:

- The number of students from the sampled classroom that participated in the sample (Sp)

- The number of students from the sampled classroom that were exclusions (Sx)

- The number of students from the sampled classroom that did not participate (Sn)

Note that Sp+Sx+Sn equals the total number of students from the sampled classroom.

The student level non response adjustment was calculated as (Sp+Sn)/Sp.

W3 = 1.0 * (Sp+Sn)/Sp

Note that as there were usually two classes sampled per school, the student level non response adjustment was calculated separately for each sampled class.

Overall Sampling Weight

The overall sampling weight is simply the product of the weights calculated at each of the three sampling stages:

FW = W1 * W2 * W3

CHAPTER 4: FIELD ADMINISTRATION AND DATA MANAGEMENT

The administration of the assessment, from the first point of contacting schools after sampling through to the preparation of the data for analysis, contains a number of steps that have to be undertaken by the contractor or the school. These are listed in order in Table 4.1 and further described in this chapter.

Table 4.1 Procedures for field administration

Contractor Activity	School Activity
Contact sampled schools.	
	Complete the *Facsimile Response Form* including the Year 6/10 Class List.
Sample two classes from the Class List.	
Notify schools of the selected classes and provide them with the *School Contact's Manual* and blank copies of the *Student Register* and *Date Selection Form*.	
	Complete the *Student Register* for the sampled classes.
	Complete the *Date Selection Form*.
Create *Student Participation Forms* based on the *Student Register*.	
Send the *Student Participation Forms* and a copy of the *Assessment Administrator's Manual* to schools.	
	Make arrangements for the assessment: ▪ Appoint Assessment Administrators ▪ Organise an assessment room ▪ Notify students and parents
Send the assessment materials to schools.	
Send National Sample Assessment Monitors to 5% of schools to observe the conduct of the assessment.	**Conduct the assessment** according to the *Assessment Administrator's Manual*.
	Record participation status on the *Student Participation Forms*; complete the *Assessment Administration Form*.
	Return the assessment materials to the contractor.
Marking	
Data Entry	
Data Cleaning	
Create and send *School Reports* to the schools.	

Field administration

Contact with schools

The field administration of the National Civics and Citizenship Sample Assessment required several approaches to the sampled schools to request or provide information:

- The initial approach to the principals of the sampled schools to inform them of their selection. This included a request to name a School Contact, who would coordinate the assessment in the school, and to list of all of the Year 6 or Year 10 classes in the school along with the number of students in each class (using the *Facsimile Response Form*).

    - If the sampled school declined to take part (even with encouragement from an education authority Liaison Officer), the replacement school had to be contacted.

- School Contacts were sent the *School Contact's Manual* as well as notification of the two randomly selected classes for that school. They were requested to send a list of all of the students in those classes (the *Student Register*) and the school's preferred dates for testing (on the *Date Selection Form*).

- Copies of the *Assessment Administrator's Manual,* along with preliminary copies of the *Student Participation Forms* (for checking) were sent to the School Contact, shortly before the assessment materials were shipped.

- The assessment materials were couriered to schools a week before the scheduled assessment date. The School Contact was responsible for these while they were in the school and was also responsible for making sure ALL materials (whether completed or not) were returned through the prepaid courier service provided.

- The final contact with schools was to send them the results for the participating students and to thank them for their participation.

At each of the steps that required information to be sent *from* the schools, a definite timeframe was provided for the provision of this information. If the school did not respond in the designated timeframe, follow-up contact was made via fax, email and telephone.

In order to ensure the participation of sampled schools, Liaison Officers were appointed for each jurisdiction. The Liaison Officers were expected to facilitate communication between ACER and the schools selected in the sample from their respective jurisdiction. The Liaison Officers helped to achieve a high take-up rate for the assessment, which ensured valid and reliable data.

Information management

In order to track schools and students, databases were constructed. The *sample database* identified the sampled schools and their matching replacement schools and also identified the participation status of each school. The *schools database* contained a record for each participating school and contained contact information as well as details about the School Contact and participating classes. The *student database* contained student identification and participation information. The *achievement database* contained the final achievement and student background survey data.

In order to track information in these databases, a system of IDs was used. The *School ID* comprised information about state and sector, as well as whether the school was a sampled or a replacement school, and a school number (unique within each state). The *Class ID* included the School ID as well as a class number (unique within each school). The *Student ID* included the School and Class IDs and also a student number (unique within each class).

Within-school procedures

The School Contact

Participating schools were asked to appoint a School Contact to coordinate the assessment within the school. The School Contact's responsibilities were to:

- Liaise with ACER on any issues relating to the assessment;

- Provide ACER with student names for the selected classes;

- Schedule the assessment and arrange a space for the session(s);

- Check the *Student Participation Form* from ACER for errors;

- Notify teachers, students, and parents about the assessment according to the school's policies;

- Select the Assessment Administrator(s);

- Receive and securely store the assessment materials;

- Assist the Assessment Administrator(s) as necessary;

- Check the completed assessment materials and forms;

- Arrange a follow-up session if needed; and

- Return the assessment materials.

Each School Contact was provided with a manual (the *School Contact's Manual*) that described in detail what was required as well as providing a checklist of tasks and blank versions of all of the required forms. Detailed instructions were also provided regarding the participation and exclusion of students with disabilities and students from non-English speaking backgrounds.

The Assessment Administrator

Each school was required to appoint an Assessment Administrator(s). In most cases this was the regular class teacher. This was done to minimise the disruption to the normal class environment.

The primary responsibility of the Assessment Administrator was to administer the National Civics and Citizenship Sample Assessment to the sampled class(es), according to the standardised administration procedures provided in the *Assessment Administrator's Manual*. The Assessment Administrator had also to complete the *Student Participation Form* (to record which students participated and which did not) and the *Assessment Administration Form* (to record the timing of the assessment and any problems or disturbances which occurred). The teachers were able to review the *Assessment Administrator's Manual* before the assessment date and raise any questions they had about the procedures with ACER or the State and Territory Coordinators responsible for the program. As a result, it was expected that standardised administration of the assessments would be achieved.

The Assessment Administrator was required to administer the National Civics and Citizenship Sample Assessment to the sampled class(es) according to the standardised administration procedures provided in the Assessment Administrator's Manual, including a script which had to be followed.

The Assessment Administrator was expected to move around the room while the students were working to see that students were following directions and answering questions in the appropriate part of the Assessment Booklet. They were allowed to read questions to students but could not help the students with the interpretation of any of the questions or answer questions about the content of the assessment items.

Test administration

The timing of the assessment session was standardised. Year 6 students were expected to be given exactly 60 minutes to complete the assessment items while Year 10 student were given 90 minutes. The timing of the student background survey and breaks and administration were more flexible. To ensure that these rules were followed, the Assessment Administrator was required to write the timing of the sessions on the *Assessment Administration Form* (See Appendix 2). Table 4.2 shows the suggested timing of the assessment session.

Table 4.2   The suggested timing of the assessment session.

Session	Year 6	Year 10
Initial administration: reading the instructions, distributing the materials and completing the Student Participation Form	(approx) 5 minutes	(approx) 5 minutes
Part A: Student Background Survey	(approx) 15 minutes	(approx) 10 minutes
Break (students should not leave the assessment room)	(up to) 5 minutes	(up to) 5 minutes
Part B: Practice Questions	(approx) 10 minutes	(approx)10 minutes
Part B: Assessment Items	*Exactly 60 minutes*	*Exactly 90 minutes*
Final administration: collecting the materials, completing the Assessment Administration Form (Sections 1, 2 and 3) and ending the session.	(approx) 3-5 minutes	(approx) 3-5 minutes

Quality control

Quality control was important to the National Civics and Citizenship Sample Assessment to minimise systematic error and bias. Strict procedures were set to do with test development (see Chapter 2) sampling (see Chapter 3), test administration, marking, data entry and cleaning and analysis (see Chapters 5 and 7). In addition to the procedures mentioned in other chapters, certain checks and controls were instituted to ensure that the administration within schools was standardised. These included:

- random sampling of classes undertaken by ACER rather than letting schools choose their own classes;

- providing detailed manuals;

- asking the Assessment Administrator to record student participation on the *Student Participation Form* (a check against the presence or absence of data);

- asking the Assessment Administrator to complete an *Assessment Administration Form* which recorded the timing of the assessment and any problems or disturbances which occurred; and

- asking the School Contact to verify the information on the *Student Participation Form* and the *Assessment Administration Form.*

A quality-monitoring program was also implemented, to gauge the extent to which class teachers followed the administration procedures. This involved trained monitors observing the administration of the assessments in a random sample of 5 per cent of schools across the nation. Thirty of the 567 schools were observed. The Quality Monitors were required to fill in a report for each school they visited (see Appendix 3). There reports testify to a high degree of conformity by schools with the administration procedures.

Marker training and marking procedures

The assessment tasks were marked centrally. Approximately two-thirds of the items were open-ended and, of these, most required a single answer or phrase that could be marked objectively. This necessitated the use of trained markers.

Marking guides were prepared by the contractor and refined during the trial process. A team of experienced markers was employed and trained by the contractor.

Intense training was provided by the project manager and senior test developer for the first week of marking, referencing actual student written responses in the test booklets. The training introduced markers to the assessment domain, to some basic tenets of marking open-ended items, and worked through key aspects/components of the Score Guide. Training began with Year 6 items, then moved to vertical link items, firstly with Year 6 responses and then with Year 10 responses to the same link items. Finally markers were trained in and began to mark responses to the Year 10 items. Team discussion to clarify issues, especially of recognition of ways to consistently apply the score guide to student responses, was conducted and modelled as the necessary process for accuracy.

Throughout the marking process markers continued to compare their application of the score codes to individual student responses and sought consistency in their marking through consultation and by moderation within the marking team. The two lead markers undertook check marking and were thus constantly monitoring the reliability of the individual markers and the team as a whole. Approximately 10 per cent of all student test booklets were check marked by lead markers. Throughout the whole marking process advice to individual markers and the whole team about clarification and alteration of marking approaches was provided, by the project manager and senior test developer and by the marking leaders. This advisory process was exercised with a view to improve reliability where it was required.

Markers, once confident, were instructed to mark scripts in alternate bundles of all test forms. They rotated between all Year 6 and Year 10 responses to all questions, thus constantly marking the full range of student responses to all questions, using the Score Guide in its entirety. In this way the comparative measure of the relative achievement of students maintained. Thus was the achievement of Year 6 students measured by the same equivalently applied score codes as the achievement of students in Year 10.

Markers were asked to write a report on the test items from the perspective of marking issues. Their observations were combined and expanded upon by the lead marker in his report to project manager. This report was a useful complement to the data analysis information collected in the post-test period and during the preparation of the public report.

In parallel with the marking process, jurisdictional representatives were involved in a program of training and marking. A three day Professional Development program was conducted for them by the project manager and senior test developer. The representatives were engaged in the marking and then discrepancy marking with each other of actual student booklets.

Data management

Data-entry procedures

There were three parts to the data-entry: the cognitive assessment data; the student background survey; and the student participation data (from the *Student Participation Forms*). The data entry took place in two stages, with the cognitive assessment data and the student participation information entered first and the student background survey data entered subsequently. This was to facilitate the production of reports to schools before the end of the school year.

In order to reduce the need for extensive data-cleaning the database was constructed with forced validation of codes according to the codebook. That is, only codes applicable to the item would be allowed to be entered into the database.

Following data entry, further data cleaning was undertaken to resolve any inconsistencies, such as:

- Inconsistencies between the student participation data and the achievement and background data. These include:

  - Achievement data being available for a student but the student is absent according to the student participation data.

  - A student completed a booklet according to the student participation data but no achievement data was available in the test.

  - Achievement data available with Student IDs that don't exist.

- Inconsistencies between the marking key and expected response patterns.

- Inconsistencies within the background data, such as:

  - A student indicated that they, their father or mother had not been born in a country other than Australia but a verbatim response was given to 'please specify country'.

  - A student indicated that they, their father or mother did not speak a language other than English at home but a verbatim response was given to 'please specify language'.

  - Age data outside the expected range (10-13 for Year 6 and 14-17 for Year 10).

Coding of the student background survey

The student background survey collected both demographic information and information about opportunities and examples of citizenship participation by students (see Table 4.3). The demographic information was collected to allow for reporting of the achievement of groups of interest to policy makers and had been collected in a standardised form that conformed to guidelines produced by the PMRT[2]. These guidelines also determined the way in which this data was prepared for analysis and reporting purposes.

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[2] *Data implementation manual for enrolments for the 2005 and 2006 school years*. Available at: http://www.mceetya.edu.au/public/dm.htm

Table 4.3 Student background data collected

Question	Format
Permanent home address - Suburb (*Year 10 only*)	Free response
Permanent home address - State (*Year 10 only*)	Free response, 3 letters
Permanent home address - Postcode (*Year 10 only*)	Free response, 4 digits
Gender	Boy (1) Girl (2)
Age (Years)	Free response, 2 digits
Age (Months)	Free response, 2 digits
Indigenous status	No (1) Aboriginal (2) Torres Strait Islander (3) Both Aboriginal AND Torres Strait Islander (4)
Country born (3 questions = Student/Mother/Father)	Australia (1) Other (2) - if Other specify
Language other than English at home (3 questions = Student/Mother/Father)	No, English only (1) Yes (2) - if Yes specify.
Parent's Main Job (2 questions = Mother/Father)	Free response
What Parent does in their Main Job (2 questions = Mother/Father)	Free response
Parent's highest level of schooling (2 questions = Mother/Father) (*Year 10 only*)	Year 12 or equivalent (1) Year 11 or equivalent (2) Year 10 or equivalent (3) Year 9 or equivalent or below (4)
Parent's highest level of schooling (2 questions = Mother/Father) (*Year 10 only*)	Bachelor degree or above (1) Advanced diploma/diploma (2) Certificate I to IV (inc. trade cert.) (3) No non-school qualification (4)
Outside of school, how often do you…. • read about current events in the newspaper? • watch the news on television? • listen to news on the radio? • talk about political or social issues? • with your family ? • join in sport or music activities with others? • participate in community or volunteer work? • participate in environmental activities?	Never or hardly ever (1) At least once a month (2) At least once a week (3) More than three times a week (4)
At my school… • students vote for class representatives • students are represented on Student Councils or Student Representative Councils (SRCs) • student representatives contribute to decision making • students can help prepare a school paper or magazine • students can participate in peer support, 'buddy' or mentoring programs • students can participate in activities in the community • students can participate in activities outside of class (such as drama, sports, music and debating)	No (1) Yes (2)
At school I have learned… • about the importance of voting in elections • how to represent other students • to understand people who have different ideas to me • to work co-operatively with other students • to be interested in how my school "works" • that I can contribute to solving "problems" at my school	Strongly disagree (1) Disagree (2) Agree (3) Strongly agree (4)

Missing codes were:

- Not Administered (7)
- Multiple / invalid response (8, 88)
- Missing - Blank (9, 99)

Following data entry, the permanent home address of the Year 10 students was coded to the MCEETYA *Geographical Location Classification* using the *MCEETYA Geographical Location Index* (Jones, 2004) and the parental occupation data were coded (manually) to the *Australian Standard Classification of Occupations* (ABS, 1997) creating a single variable for mother's occupation and a single variable for father's occupation.

For the purposes of conditioning, the parental occupation variables were transformed (from the ASCO codes) to ANU4 scores in order to obtain ranks of occupational status. The highest score was taken to give a single indicator of parental occupational status. Further information about conditioning variables is given in Chapter 5.

Variables were also derived for the purposes of reporting achievement outcomes. In most cases, these variables are variables required by MCEETYA and the transformations undertaken followed the guidelines in the Data Implementation Manual. Table 4.4 shows the derived variables and the transformation rules used to derive them.

School reports

Following data entry and cleaning, reports of student performance were sent to each participating school. As each Year 6 and Year 10 student completed one of the four different year-level test forms, four reports were prepared for each school - one for each form. The student reports provide information about each student's achievement on the particular test form that they completed. These reports contained the following information:

- a description of the properties of a high quality response to each item,
- the maximum possible score for each item,
- the percentage of students in the school who achieved the maximum score for each item,
- the percentage of students in the National Civics and Citizenship Sample Assessment who achieved the maximum score on each item, and
- the achievement of each student on each item on the form.

An example of a Year 6 and a Year 10 report (for Form 1 only), and the accompanying explanatory material can be found in Appendix D.

Table 4.4 The transformation rules used to derive variables used in the public report

Variable	Transformation rule
Geolocation - Student	Derived from MCEETYA Geographical Location Classification: Use the Zones rather than the subcategories.
Gender	Classified by response; missing data treated as missing unless the student was present at a single-sex school.
Age – Years	Verbatim response.
Indigenous	Coded as Indigenous if response was 'yes' to Aboriginal, OR Torres Strait Islander OR Both.
Country of Birth	Only the student information was used. Classified as 'Australia' or 'Other' according to response.
LBOTE	Coded as LBOTE if response was 'yes' to any of the Student, Mother or Father speaking a language at home. If any of the data was missing then the data from the other questions was used. If all of the data was missing then LBOTE was coded missing.
Parental Occupation	The ASCO codes were transformed to the MCEETYA Occupation groups using the following categorisation: MCEETYA GRP=1 if ASCO 2 digit codes = 21,23,24 MCEETYA GRP=2 if ASCO 2 digit codes = 10-12,20,22,25,30,31,32,34,39 MCEETYA GRP=3 if ASCO 2 digit codes = 13,33,40,41,43,44,50,59 MCEETYA GRP=4 if ASCO 2 digit codes = 42,46,49,51,60-99 Students, those doing home duties or volunteer work, the unemployed and the retired were all classified as 'Not in paid work'. 'Deceased' was classified as 'Not applicable', and treated as 'Missing' Parental Occupation equalled the highest occupation group (of either parent). Where one parent had missing data or was classified as 'Not in paid work', the occupation group of the other parent was used. Where one parent had missing data and the other was classified as 'Not in paid work', Parental Occupation equalled 'Not in paid work'. Only if parental occupation data for both parents was missing, would Parental Occupation be coded as 'Missing'.

Parental Education	If neither parent had a *qualification* (either by indicating they did not have a qualification or as a result of missing data) then Parental Education equalled the highest response (of either parent) given to the *schooling* question.
	 If it is indicated that either parent had a *qualification*, then Parental Education equalled the highest response (of either parent) given to the *qualification* question.
	 This resulted in an eight value variable:
	   1 Year 9 or equivalent or below
	   2 Year 10 or equivalent
	   3 Year 11 or equivalent
	   4 Year 12 or equivalent
	   5 Certificate 1 to 4 (inc trade cert)
	   6 Advanced Diploma/Diploma
	   7 Bachelor degree or above
	   0 Not stated or unknown
	 For the purposes of reporting, categories 1-3 were further collapsed to result in the following five value variable:
	   1 Year 11 or equivalent or below
	   2 Year 12 or equivalent
	   3 Certificate 1 to 4 (inc trade cert)
	   4 Advanced Diploma/Diploma
	   5 Bachelor degree or above
	   0 Not stated or unknown
	 Only if parental education data for both parents was missing, would Parental Education be coded as 'Missing'.

CHAPTER 5: SCALING PROCEDURES

The scaling model

Test items were scaled using IRT (Item Response Theory) scaling methodology. With the One-Parameter (Rasch) model (Rasch, 1960) for dichotomous items, the probability of selecting category 1 instead of 0 is modelled as

$$P_i(\theta) = \frac{\exp(\theta_n - \delta_i)}{1 + \exp(\theta_n - \delta_i)}$$

where $P_i(\theta)$ is the probability of person n to score 1 on item i, θ_n is the estimated ability of person n and δ_i the estimated location of item i on this dimension. For each item, item responses are modelled as a function of the latent trait θ_n.

In the case of items with more than two (k) categories (as for example with Likert-type items) this model can be generalised to the *Partial Credit Model* (Masters and Wright, 1997)[3], which takes the form of

$$P_{x_i}(\theta) = \frac{\exp(\sum_{j=0}^{x} \theta_n - \delta_i + \tau_{ij})}{1 + \exp(\sum_{j=1}^{k} \theta_n - \delta_i + \tau_{ij})} \quad , x = 0, 1, 2, ..., m_i$$

where $P_{xi}(\theta)$ denotes the probability of person n to score x on item i, θ_n denotes the person's ability, the item parameter δ_i gives the location of the item on the latent continuum and τ_{ij} denotes an additional step parameter.

Assessment of item fit

Item fit was assessed using a range of item statistics. The weighted mean-square statistic (infit), which is a residual based fit statistic was used as a global indicator of item fit. Weighted infit statistics were reviewed both for item and step parameters. The ACER Conquest software (Wu, Adams and Wilson, 1997) was used for the estimation of item parameters and the analysis of item fit. In addition to this, Item Characteristic Curves (ICC) were generated for every item using Conquest. These provide a graphical representation of item fit across the range of student abilities for each item (including dichotomous and partial credit items). The functioning of the partial-credit scoring guides was further interrogated through investigation of the proportion of responses allocated to each response category and the differences in mean abilities of students by response category. This multi-faceted approach to assessing item fit is necessary, as the different individual fit indicators are all sensitive to (and conversely insensitive to) the characteristics of individual item data (such as the total number of students attempting an item or the proportion of students achieving different levels of response in an item).

Equating

The tests for Year 6 and Year 10 students included a common set of 38 items. Table 5.1 shows the number of common and unique items for each of the tests.

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[3] An alternative is the Rating Scale Model (RSM) which has the same step parameters for all items in a scale (see Andersen, 1997).

Table 5.1   Numbers of common and unique test items

	Number of items
Unique in Year 6	32
Unique in Year 10	52
Common Items	38
Combined Civic Scale	122

In order to place ability estimates for Civic Knowledge on the same scale, the items for both year levels were scaled together. In order to justify the equating based on common items, it is necessary to review the relative difficulty of common items in each year separately. Figure 5.1 shows the plot between the item parameter estimates based on separate calibrations (the sub-sets of items were standardised to sum for each year level sample to 0) for the 38 common items.

Figure 5.1 Item parameter estimates for link items
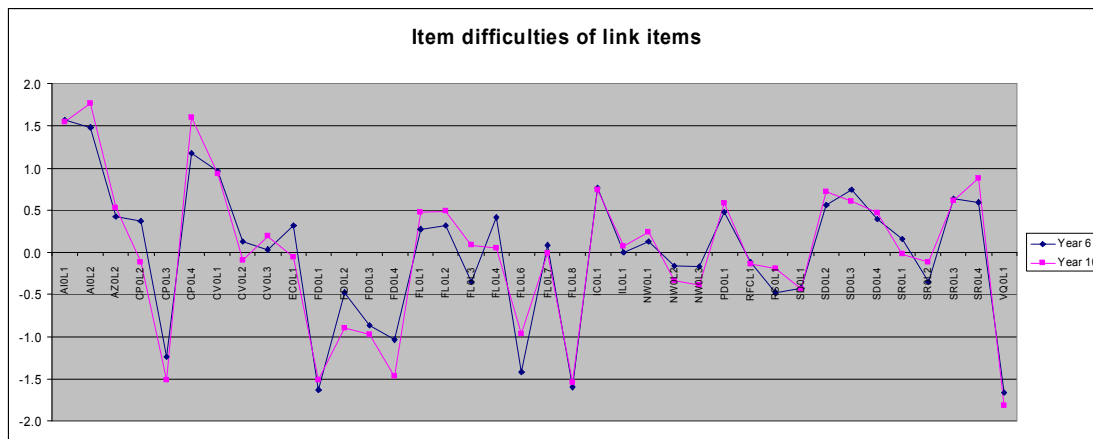
Forty-six items were included as common items across the Year 6 and 10 test forms. The 38 items as illustrated in Figure 5.1 are those for which the relative difficulties by year level are effectively equal. It is possible to calculate a Chi-squared test of significance of the differences between the relative difficulties by year level. However, the Chi-square statistic is highly sensitive to the sample size and, for large samples such as this, any difference is likely to be statistically significant. As such, an on-balance judgement informed by the substantive meaning of the scale with reference to the magnitude of the observed differences, was used to select the final set of 38 common items for equating.

The common items not used for equating were included in the scaling with re-estimated item parameters, that is, they were treated as if they were unique items, except for one item which was deleted for both year levels (Head of State, HS0L1).

Item calibration

Item parameters were obtained from calibration samples consisting of randomly selected sub-samples. For the calibration of student item parameters, sub-samples of 200 students per year level were randomly selected from each state/territory sub-sample. This ensured that each state or territory was equally represented in the sample. The random selection was based on the student weights. The final calibration sample included data from 1,600 students.

Missing students responses that were likely to be due to problems with test length ("not reached items") were omitted from the calibration of item parameters but were treated as incorrect for the scaling of student responses. "Not reached items" were defined as all consecutive missing values

starting from the end of the test except the first missing value of the missing series, which was coded as 'missing'.

Table 5.2 shows the item parameters and their respective percentage correct for each year sample.

Table 5.2   Item parameters and percentage correct for each year level.

		LINK ITEMS			YEAR 6 ITEMS			YEAR 10 ITEMS		
	Item	Difficulty	% Yr 6	% Yr 10	Item	Difficulty	% Yr 6	Item	Difficulty	% Yr 10
1	AI0L1	1.462	16.25	23.17	AN061	-0.322	44.34	AN0X1	-1.155	75.69
2	AI0L2	1.602	11.86	21.30	AZ061	0.860	18.66	AZ0X1	0.215	46.47
3	AZ0L2	0.399	31.36	43.45	BA061	0.048	33.96	CP0X1	-2.195	87.57
4	CP0L2	-0.013	31.68	52.61	BA062	0.329	24.66	FD0X1	-0.480	59.02
5	CP0L3	-1.447	66.69	80.74	BA063	1.328	14.08	FD0X2	0.216	47.46
6	CP0L4	1.394	16.83	24.19	BH061	-0.079	38.77	FD0X3	2.025	15.42
7	CV0L1	0.904	25.73	41.21	BH062	-0.621	47.81	FD0X4	1.353	25.71
8	CV0L2	-0.100	34.05	57.44	CC061	-0.752	52.05	FL0X5	0.647	40.89
9	CV0L3	0.040	37.72	48.35	CC062	-0.471	42.93	FO0X1	0.884	35.28
10	EC0L1	0.030	31.18	50.55	CG061	-1.935	74.48	GG0X1	1.464	23.07
11	FD0L1	-1.690	68.53	80.96	CP061	-1.507	69.13	HU0X1	-0.796	64.91
12	FD0L2	-0.775	47.05	69.66	FL065	-0.122	38.40	HU0X2	-0.590	63.78
13	FD0L3	-1.024	55.45	71.79	FN061	-0.803	51.90	HU0X3	-0.733	61.81
14	FD0L4	-1.325	60.42	78.74	GG061	2.058	6.52	HU0X4	0.332	43.34
15	FL0L1	0.320	27.75	47.22	HB061	-0.096	31.59	HU0X5	0.120	49.44
16	FL0L2	0.315	30.69	44.80	HB062	2.078	3.89	IF0X1	0.653	36.28
17	FL0L3	-0.224	47.88	56.45	LT061	0.807	12.36	IF0X2	0.302	45.55
18	FL0L4	0.128	32.03	52.13	LT062	-2.063	76.19	IF0X3	1.108	23.98
19	FL0L6	-1.316	64.19	71.11	LT063	-1.173	59.93	IF0X4	0.851	30.58
20	FL0L7	-0.053	38.68	54.77	LT064	-0.860	55.98	IF0X5	0.704	34.37
21	FL0L8	-1.681	73.10	83.10	LW065	0.801	20.57	IM0X1	0.555	42.10
22	IC0L1	0.644	26.54	38.55	LW066	-0.976	55.32	IM0X2	-0.201	53.66
23	IL0L1	-0.056	36.47	51.32	MP061	-1.151	62.59	IM0X3	0.294	45.18
24	NW0L1	0.112	37.60	47.79	NE061	-1.497	69.93	IQ0X1	0.160	46.13
25	NW0L2	-0.346	44.00	58.50	RE066	-0.596	50.33	IQ0X2	-0.353	58.04
26	NW0L3	-0.350	44.46	56.60	RE067	-0.637	52.28	IQ0X3	1.142	28.18
27	PD0L1	0.459	27.09	42.38	RI067	-0.613	50.19	IT0X1	0.058	47.82
28	RFCL1	-0.229	36.09	59.80	RI068	-1.684	69.84	IT0X2	1.109	33.91
29	RS0L1	-0.442	48.36	59.53	SE061	-1.195	61.57	IT0X3	1.313	20.12
30	SD0L1	-0.531	47.31	64.22	SE062	-0.326	45.32	MB0X1	-0.003	52.03
31	SD0L2	0.548	25.34	36.92	SF061	0.639	23.31	MO0X1	0.241	44.70
32	SD0L3	0.574	23.94	39.97	UP061	0.090	32.69	PL0X1	0.849	32.76
33	SD0L4	0.330	27.19	43.29				PL0X2	0.320	47.69
34	SR0L1	-0.022	30.85	53.23				RD0X1	0.607	37.77
35	SR0L2	-0.351	41.36	56.65				RFAX1	-0.084	58.00
36	SR0L3	0.535	28.42	42.40				SF0X1	0.814	32.73
37	SR0L4	0.685	20.92	34.41				SV0X1	0.558	39.80
38	VQ0L1	-1.833	72.86	84.63				SV0X2	1.307	17.90
39								TR0X1	-1.075	72.02
40								UN0X1	1.063	36.39
41								UN0X2	0.324	46.05
42								UN0X3	-1.268	75.12
43								UP0X1	0.705	35.74
44								WE0X1	-0.036	51.02
45								WE0X2	-1.743	82.12
46								WE0X3	0.062	50.23
47								WP0X1	0.315	44.35
48								WP0X2	0.303	46.94
49								WP0X3	0.600	33.50
50								WW0X1	-0.243	57.93
51								WW0X2	0.727	31.42
52								WW0X3	0.423	43.80

Plausible values

Plausible values methodology was used to generate estimates of students' combined civic knowledge and the sub-scales KPM1 and KPM2. Using item parameters anchored at their estimated values from the calibration sample, plausible values are random draws from the marginal posterior of the latent distribution (see Mislevy, 1991). Estimations are based on the conditional item response model and the population model, which includes the regression on background variables used for conditioning (see a detailed description in Adams, 2002). The ACER CONQUEST software was used for drawing plausible values.

Forty-seven student background variables were used for conditioning of Year 10 student scores and 43 were used for Year 6 student scores. Twenty-four background variables were used as direct conditioning variables, while 23 were transformed into 23 principle components to avoid multicollinearity problems. The 24 direct and the original 23 variables are listed in Table 5.3.

Table 5.3   Student background variables used for conditioning

Variable	Label	Coding	Used in Year Level	Direct/Indirect conditioning variable
SEX	Sex	0 = Girl (or missing) 1 = Boy	6/10	Direct
SEXM	Sex - missing	0 = Not missing 1 = Missing	6/10	Direct
AGE	Age	Age in months (missing replaced with mean of year level)	6/10	Direct
AGEM	Age - missing	0 = Not missing 1 = Missing	6/10	Direct
ATSI	Aboriginal or Torres Strait Islander	0 = No (or missing) 1 = Yes	6/10	Direct
ATSIM	Aboriginal or Torres Strait Islander - missing	0 = Not missing 1 = Missing	6/10	Direct
COB_NN	Country of birth - Non-native	0 = No (or missing) 1 = Yes	6/10	Direct
COB_FG	Country of birth - First generation	0 = No (or missing) 1 = Yes	6/10	Direct
COB_MISS	Country of birth - Missing	0 = Not missing 1 = Missing	6/10	Direct
SLOTE	Student's Language other than English	0 = No (or missing) 1 = Yes	6/10	Direct
SLOTEM	Student's Language other than English - Missing	0 = Not missing 1 = Missing	6/10	Direct
MLOTE	Mother's Language other than English	0 = No (or missing) 1 = Yes	6/10	Direct
MLOTEM	Mother's Language other than English - Missing	0 = Not missing 1 = Missing	6/10	Direct
FLOTE	Father's Language other than English	0 = No (or missing) 1 = Yes	6/10	Direct
FLOTEM	Father's Language other than English - Yes	0 = Not missing 1 = Missing	6/10	Direct
ANU4DAD	Occupation Father	ANU 4 coding (missing replaced	6/10	Direct

Variable	Label	Coding	Used in Year Level	Direct/Indirect conditioning variable
		with mean of year level)		
ANU4DADM	Occupation Father - missing	0 = Not missing 1 = Missing	6/10	Direct
ANU4MUM	Occupation Mother	ANU 4 coding (missing replaced with mean of year level)	6/10	Direct
ANU4MUMM	Occupation Mother - missing	0 = Not missing 1 = Missing	6/10	Direct
SCH_MN	School mean performance	School mean performance adjusted for student's own score	6/10	Direct
PAREDM	Mother's Education	Years of completed education (missing replaced by mean)	10	Direct
PAREDMM	Mother's Education - missing	0 = Not missing 1 = Missing	10	Direct
PAREDF	Mother's Education	Years of completed education (missing replaced by mean)	10	Direct
PAREDFM	Mother's Education - missing	0 = Not missing 1 = Missing	10	Direct
ST15R01	Newspaper	0 = Never or hardly ever (or missing) 1 = At least once a month 2 = At least once a week 3 = More than three times a week	6/10	Indirect
ST15R02	Television news	0 = Never or hardly ever (or missing) 1 = At least once a month 2 = At least once a week 3 = More than three times a week	6/10	Indirect
ST15R03	Radio news	0 = Never or hardly ever (or missing) 1 = At least once a month 2 = At least once a week 3 = More than three times a week	6/10	Indirect
ST15R04	Talk family	0 = Never or hardly ever (or missing) 1 = At least once a month 2 = At least once a week 3 = More than three times a week	6/10	Indirect
ST15R05	Sport/music activities	0 = Never or hardly ever (or missing) 1 = At least once a month 2 = At least once a week 3 = More than three times a week	6/10	Indirect
ST15R06	Community/volunteer work	0 = Never or hardly ever (or missing) 1 = At least once a month 2 = At least once a week 3 = More than three times a week	6/10	Indirect
ST15R07	Environmental activities	0 = Never or hardly ever (or missing) 1 = At least once a month 2 = At least once a week 3 = More than three times a week	6/10	Indirect
ST15M	ST15 - missing	Number of missing responses in ST15	6/10	Indirect
ST16R01	Students vote class representative	0 = No (or missing) 1 = Yes	6/10	Indirect

Variable	Label	Coding	Used in Year Level	Direct/Indirect conditioning variable
ST16R02	Student councils	0 = No (or missing) 1 = Yes	6/10	Indirect
ST16R03	Decision making	0 = No (or missing) 1 = Yes	6/10	Indirect
ST16R04	School paper	0 = No (or missing) 1 = Yes	6/10	Indirect
ST16R05	Peer support	0 = No (or missing) 1 = Yes	6/10	Indirect
ST16R06	Activities in community	0 = No (or missing) 1 = Yes	6/10	Indirect
ST16R07	Activities outside of class	0 = No (or missing) 1 = Yes	6/10	Indirect
ST16M	ST16 - missing	Number of missing responses in ST16	6/10	Indirect
ST17R01	Importance of voting	0 = Strongly disagree (or missing) 1 = Disagree 2 = Agree 3 = Strongly agree	6/10	Indirect
ST17R02	Represent other students	0 = Strongly disagree (or missing) 1 = Disagree 2 = Agree 3 = Strongly agree	6/10	Indirect
ST17R03	Understand people with different ideas	0 = Strongly disagree (or missing) 1 = Disagree 2 = Agree 3 = Strongly agree	6/10	Indirect
ST17R04	Work co-operatively	0 = Strongly disagree (or missing) 1 = Disagree 2 = Agree 3 = Strongly agree	6/10	Indirect
ST17R05	Interested in how school works	0 = Strongly disagree (or missing) 1 = Disagree 2 = Agree 3 = Strongly agree	6/10	Indirect
ST17R06	Contribute to solving problems	0 = Strongly disagree (or missing) 1 = Disagree 2 = Agree 3 = Strongly agree	6/10	Indirect
ST17M	ST17 - missing	Number of missing responses in ST17	6/10	Indirect

Standardisation of student scores

The national item parameters obtained from the calibration samples were used to compute plausible values for each year sample. The person parameters were transformed to the national metric with a mean of 400 and a standard deviation of 100 in the weighted Year 6 sample. The transformation was achieved by applying the formula:

$$\theta'_n = 400 + 100\,((\theta_n - \overline{\theta})/\sigma_\theta),$$

where θ'_n are the student scores in the national metric, θ_n the original logit scores, $\overline{\theta}$ the national weighted Year 6 mean of student logit scores and σ_θ its corresponding national standard deviation.

CHAPTER 6: STANDARDS-SETTING

The process for setting standards in areas such as primary science, information and communications technologies, civics and citizenship and secondary (15-year-old) reading, mathematics and science was endorsed by the PMRT at its 6 March 2003 meeting and is described in the PMRT paper, *Setting National Standards*.

This process, referred to as the 'empirical judgemental technique', requires stakeholders to examine the test items and the results from the national assessments and agree on a proficient standard for the two year levels.

PMRT members were invited to nominate up to two representatives ('expert judges') to participate in a standard-setting workshop on 1 & 2 March 2005.

Standards-setting process

The standards setting workshop was conducted over two days. The first day was devoted to identifying a Proficient Standard for Year 6 and the second day a Proficient Standard for Year 10. The majority of experts nominated by jurisdictions attended both days. The first few hours of each day were devoted to training to assist participants to identify a standard from the assessment materials. Two methods were utilised to identify a standard and triangulate the results. They were a Modified Angoff and the Bookmark standard setting procedures.

The standard setting process first required expert judges to identify and discuss factors, in addition to civics and citizenship skills and understandings, that influenced the difficulty of the items by examining test items from other standardised assessments (for example, Western Australia's MSE). The factors included the literacy and numeracy demands of the items, the number of steps and the number of pieces of relevant information in the question, and the format and complexity of the information provided in the question.

The expert judges were required to decide independently whether a marginally-proficient Year 6 or Year 10 student would be expected to answer each of the questions from the national assessment correctly. The term 'marginally' was added to 'proficient' to focus judges' attention on the lower end of the 'proficient' range, rather than on exemplary performances. Conceptually, this matched with the lower end of the proficiency levels in the report.

The results from the rating session, which showed the percentage of judges who expected marginally-proficient students to answer each question correctly, were summarised and returned to the judges. The results were rearranged in order of test item difficulty (as calculated from the national assessment) so that judges could see the trends in the data. Judges were also given an information sheet showing the percentage of students that had answered each question correctly in the 2004 testing. This information and the rating information were initially discussed by the whole group.

Judges were then requested to work in groups to identify a question or small group of questions that best represented the most difficult items that a marginally-proficient student could be expected to answer correctly. In coming to a decision, judges were expected to use the national test data, their initial ratings and the summary ratings for the group. The information from judges would locate the base of the 'proficient' level in the draft assessment; that is, the cut-point for the standard.

Each group reported their decision to the rest of the workshop. This was followed by clarification and discussion of the rationale behind each group's decision.   From the feedback and discussion it was evident that many of the judges had high expectations of students in Years 6 and 10.

It appeared that there were several areas of civics and citizenship that were almost universally seen as essential knowledge and understandings. These tended to be the iconic aspects of Australian lives such as Anzac Day, Australia Day, and the Australian flag. Judges initial ratings showed that they expected all Year 6 and Year 10 students to answer questions related to these and similar

topics correctly, irrespective of the complexity of the questions. However, these views changed during discussions as they became aware of factors that influenced the difficulty of items and of the significant gap between students' performances in the first round of testing and the judges initial ratings.

To conclude the standards-setting process, judges were required to identify and record independently the most difficult items that a marginally-proficient student would be expected to answer correctly, and give reasons for their decisions. These results were collated by BEMU and helped inform the standards adopted for the project.

Locating the standard

The cut-points for the standards were selected by BEMU and ACER after extensive examination and consideration of the data from the standard setting workshop, the students' results from the first National Civics and Citizenship Sample Assessment, and close scrutiny of the items from the 2004 assessment. Triangulation of the location of the proposed cut-points was also undertaken. BEMU examined public release items and student performances from the IEA study of Civics, the NAEP Civics Assessment and New South Wales' Year 10 tests in related subject areas.

As both Year 6 and Year 10 students were scaled together and are presented against the same proficiency levels, the location of the Year 6 standard was set first and the Year 10 standard fell at the cut-point of the proficiency level that fell closest to the cut-point identified through the process above.

The cut-point of the Year 6 Proficient Standard was located -0.66 logits. This defined the lower edge of Proficiency Level 2 in Table 6.1 below. The Year 10 Proficient Standard is located at the lower edge of Proficiency Level 3.

The Proficient Standards for Year 6 and Year 10 civics and citizenship literacy were endorsed by the Key Performance Measures sub-group of the PMRT.

Proficiency levels

One of the key objectives of the MCEETYA National Assessment Program is to monitor trends in civics and citizenship performance over time. One convenient and informative way of describing student performance over time is to reference the results to proficiency levels.

Students whose results are located within a particular level of proficiency are typically able to demonstrate the understandings and skills associated with that level, and also typically possess the understandings and skills defined as applying at lower proficiency levels.

Five proficiency levels were identified for reporting student performances from the assessment. Table 6.1 identifies these levels by cut-point (in logits and scale score) and gives the percentage of students by year level.

Table 6.1 Proficiency level cut-points and percentage of Year 6 and Year 10 students in each level

Proficiency Level	Cut-points		Approximate Percentage of Students in each Proficiency Level	
	Logits	Scale Scores	Year 6	Year 10
Level 5	2.34	795	0	0.1
Level 4	1.34	665	0.1	4.7
Level 3	0.34	535	8.0	34.5
Level 2	-0.66	405	41.9	41.1
Level 1	-1.66	275	39.2	15.3
Below Level 1			10.8	4.3

Describing proficiency levels

To describe the proficiency levels, a combination of experts' knowledge of the skills required to answer each civics and citizenship item and information from the analysis of students' responses was utilised.

Appendix E, *Civics and Citizenship Proficiency Levels* provides the descriptions of the knowledge and skills required of students at each proficiency level. The descriptions reflect the skills assessed by the full range of civics and citizenship items, including both KPM 1 and KPM 2.

Distribution of students across proficiency levels

Tables 6.2 and 6.3 show the percentage of students in each of the jurisdictions at or above each proficiency level. They also show in brackets the 95 per cent confidence interval about the mean estimates for each proficiency level. This has been calculated using the formula:

95% confidence interval = 1.96 x standard error.

Table 6.2 Percentages of Year 6 students at or above each proficiency level on the Civics and Citizenship Scale by State and Territory.

State / Territory	Proficiency Level			
	Level 1 or above	Level 2 or above	Level 3 or above	Level 4 or above
NSW	91.7 (+/- 3.3)	56.6 (+/- 6.6)	12.1 (+/- 4.0)	0.1 (+/- 0.2)
VIC	93.0 (+/- 2.8)	57.7 (+/- 5.3)	9.2 (+/- 2.4)	0.1 (+/- 0.2)
QLD	85.1 (+/- 3.4)	37.3 (+/- 6.4)	2.9 (+/- 1.7)	0.1 (+/- 0.1)
SA	85.2 (+/- 5.2)	43.0 (+/- 6.7)	4.7 (+/- 2.1)	-
WA	83.3 (+/- 4.0)	38.5 (+/- 5.7)	4.7 (+/- 1.9)	0.1 (+/- 0.0)
TAS	87.3 (+/- 4.5)	48.1 (+/- 6.6)	7.3 (+/- 2.5)	0.1 (+/- 0.2)
NT	80.8 (+/- 5.2)	40.6 (+/- 7.1)	4.8 (+/- 2.5)	0.1 (+/- 0.2)
ACT	92.0 (+/- 2.3)	60.5 (+/- 4.7)	11.8 (+/- 3.5)	0.2 (+/- 0.3)
AUST	*89.2 (+/- 1.6)*	*50.0 (+/- 3.0)*	*8.1 (+/- 1.5)*	*0.1 (+/- 0.1)*

Table 6.3 Percentages of Year 10 students at or above each proficiency level on the Civics and Citizenship Scale by State and Territory.

State / Territory	Proficiency Level				
	Level 1 or above	Level 2 or above	Level 3 or above	Level 4 or above	Level 5 or above
NSW	97.9 (+/- 1.2)	86.6 (+/- 2.3)	47.5 (+/- 4.9)	7.0 (+/- 2.4)	0.3 (+/- 0.3)
VIC	95.5 (+/- 2.0)	79.3 (+/- 5.3)	39.6 (+/- 7.4)	5.1 (+/- 2.4)	0.1 (+/- 0.0)
QLD	94.0 (+/- 2.7)	73.9 (+/- 5.8)	29.7 (+/- 5.5)	2.3 (+/- 1.2)	-
SA	92.7 (+/- 3.6)	74.1 (+/- 5.5)	29.2 (+/- 4.8)	1.4 (+/- 1.0)	0.0 (+/- 0.1)
WA	94.7 (+/- 2.7)	78.7 (+/- 4.6)	36.3 (+/- 6.1)	3.8 (+/- 2.1)	0.1 (+/- 0.1)
TAS	95.0 (+/- 2.8)	78.9 (+/- 5.6)	37.1 (+/- 4.7)	4.0 (+/- 2.1)	0.1 (+/- 0.0)
NT	95.7 (+/- 3.9)	78.8 (+/- 9.0)	35.9 (+/- 14.6)	5.0 (+/- 4.4)	0.2 (+/- 0.1)
ACT	96.5 (+/- 2.5)	84.8 (+/- 5.4)	48.0 (+/- 7.6)	8.0 (+/- 3.4)	0.3 (+/- 0.5)
AUST	*95.7 (+/- 0.9)*	*80.4 (+/- 1.9)*	*39.3 (+/- 2.8)*	*4.8 (+/- 1.1)*	*0.1 (+/- 0.1)*

The Proficient Standard for Year 6 agreed to by PMRT was established as equivalent to Level 2. The Year 10 Proficient Standard was established as equivalent to Level 3. Approximately 50 per cent of Year 6 and 39 per cent of Year 10 students achieved the relevant year level Proficient Standards. Some differences between the proportions of students achieving the proficiency standards can be observed across the Australian States and Territories.

Tables 6.4 and 6.5 show the percentage of groups (such as males and females, Indigenous students etc) achieving at or above each proficiency level. For a discussion of these results and possible statistically significant differences between groups, refer to the *National Assessment Program - Civics and Citizenship Years 6 and 10 Report 2004*.

Table 6.4 Percentages of Year 6 students at or above each proficiency level on the Civics and Citizenship Scale, by group.

Year 6	Proficiency Level				
	Level 1 or above	Level 2 or above	Level 3 or above	Level 4 or above	Level 5 or above
Male	87.2 (+/- 1.8)	46.5 (+/- 3.5)	6.7 (+/- 1.6)	0.1 (+/- 0.1)	-
Female	91.2 (+/- 2.2)	53.4 (+/- 3.3)	9.5 (+/- 2.0)	0.1 (+/- 0.1)	-
Non-Indigenous	90.2 (+/- 1.5)	51.4 (+/- 3.0)	8.4 (+/- 1.5)	0.1 (+/- 0.1)	-
Indigenous	72.7 (+/- 6.6)	23.8 (+/- 6.7)	1.7 (+/- 2.0)	-	-
English only spoken at home	89.5 (+/- 1.7)	50.8 (+/- 3.4)	8.6 (+/- 3.4)	0.1 (+/- 3.4)	-
Language other than English spoken at home	88.3 (+/- 2.5)	47.1 (+/- 5.0)	6.0 (+/- 5.0)	0.1 (+/- 5.0)	-
Metropolitan	90.5 (+/- 1.8)	53.5 (+/- 1.9)	9.4 (+/- 1.0)	0.1 (+/- 0.1)	-
Provincial	86.6 (+/- 3.3)	42.3 (+/- 2.4)	5.2 (+/- 0.8)	0.1 (+/- 0.1)	-
Remote	85.2 (+/- 10.9)	42.2 (+/- 10.9)	5.4 (+/- 2.7)	0.1 (+/- 0.1)	-

Table 6.5 Percentages of Year 10 students at or above each proficiency level on the Civics and Citizenship Scale, by group.

Year 10	Proficiency Level				
	Level 1 or above	Level 2 or above	Level 3 or above	Level 4 or above	Level 5 or above
Male	94.2 (+/- 1.5)	75.7 (+/- 2.9)	34.7 (+/- 3.2)	3.7 (+/- 1.1)	0.1 (+/- 0.1)
Female	97.3 (+/- 0.7)	84.8 (+/- 2.2)	43.7 (+/- 3.9)	5.9 (+/- 1.9)	0.1 (+/- 0.2)
Non-Indigenous	96.1 (+/- 0.9)	81.1 (+/- 1.9)	39.9 (+/- 2.8)	4.9 (+/- 1.1)	0.1 (+/- 0.1)
Indigenous	86.5 (+/- 6.0)	57.8 (+/- 8.9)	22.4 (+/- 8.2)	1.8 (+/- 2.8)	0.2 (+/- 0.4)
English only spoken at home	96.1 (+/- 1.0)	81.4 (+/- 1.9)	40.4 (+/- 1.9)	5.0 (+/- 1.9)	0.1 (+/- 0.1)
Language other than English spoken at home	94.8 (+/- 1.6)	77.2 (+/- 3.2)	36.1 (+/- 3.2)	4.3 (+/- 3.2)	0.1 (+/- 0.3)
Metropolitan	95.6 (+/- 1.1)	80.4 (+/- 1.3)	40.2 (+/- 1.9)	5.1 (+/- 0.7)	0.1 (+/- 0.1)
Provincial	96.3 (+/- 1.6)	80.9 (+/- 1.9)	37.4 (+/- 2.8)	4.0 (+/- 0.8)	0.1 (+/- 0.1)
Remote	93.7 (+/- 10.6)	69.6 (+/- 15.5)	25.6 (+/- 10.9)	2.0 (+/- 1.6)	0.1 (+/- 0.1)

Proficiency levels: related technical information

To facilitate the reporting of results, several of the technical standards from PISA have been adopted. PISA developed a method that ensured that the notion of 'being at a level' could interpreted consistently, given that the achievement scale is a continuum. This method ensured that there was some common understanding about what 'being at a level' meant and that the meaning of 'being at a level' was consistent across levels. This method is expressed as follows:

- *the expected success of a student at a particular level on a test containing items at that level (proposed to be set at a minimum that is near 50 per cent for the student at the bottom of the level, and higher for other students in the level);*

- *the width of the levels in that scale (determined largely by substantive considerations of the cognitive demands of items at the level and observations of student performance on the items); and*

- *the probability that a student in the middle of a level would correctly answer an item of average difficulty for that level (in fact, the probability that a student at any particular level would get an item at the same level correct), sometimes referred to as the 'RP-value' for the scale (where 'RP' indicates 'response probability').*(OECD, 2005, p.255)

To achieve this for the National Civics and Citizenship Sample Assessment, the following two of the key mathematically-linked standards were adopted by the PMRT:

- setting the response probability for the analysis of data at $p = 0.62$; and
- setting the width of the proficiency levels at 1.00 logits.

As a consequence of adopting these standards for the report, the following inferences can be made about students' proficiency in relation to the proficiency levels:

- A student whose result places him/her at the lowest possible point of the proficiency level is likely to get 50 per cent correct on a test made up of items spread uniformly across the level, from the easiest to the most difficult.

- A student whose result places him/her at the lowest possible point of the proficiency level is likely to get 62 per cent correct on a test made up of items similar to the easiest items in the level.

- A student at the top of the proficiency level is likely to get 82 per cent correct on a test made up of items similar to the easiest items in the level.

- A student whose result places him or her at the same point on the Civics and Citizenship Scale as the cut-point for the Proficient Standard is likely to get 62 per cent correct on a test made up of items similar to the items at the cut-point for the standard.

Clearly it is possible to change the two mathematically interrelated technical standards in order to vary the inferences about the likely percentage correct on tests. The position taken by PISA, and adopted by PMRT, attempts to balance the notions of mastery and 'pass' in a way that is likely to be understood by the community.

CHAPTER 7: REPORTING OF RESULTS

Estimation of sampling and measurement variance

Student samples were obtained through two-stage cluster sampling procedures: On the first stage schools were sampled from a sampling frame with a probability proportional to their size, on the second stage intact classrooms were randomly sampled within schools (see Chapter 3 on Sampling and Weighting). Cluster sampling techniques permit an efficient and economic data collection. However, these samples are not simple random samples and the usual formulae to obtain standard errors for population estimates are not appropriate.

Replication techniques provide tools to estimate the correct sampling variance on population estimates (Wolter, 1985; Gonzalez and Foy, 2000). For the National Civics and Citizenship Sample Assessment the jackknife repeated replication technique (JRR) was used to compute standard errors for population means, percentages and regression coefficients.

Generally, the JRR method for stratified samples requires the pairing of Primary Sampling Units (PSUs) - here: schools - into pseudo-strata. Assignment of schools to these so-called 'Sampling Zones' needs to be consistent with the sampling frame from which they were sampled. Sampling zones were constructed within explicit strata. In the case of an odd number of schools within an explicit stratum or the sampling frame, the remaining school was randomly divided into two halves and added to the schools in the final sampling zone to form pseudo-schools. 157 sampling zones were used for the Year 6 and 121 for the Year 10 data.

Within each of these strata, one school was randomly assigned a value of 2 whereas the other school received a value of 0. For each of the sampling zones so-called replicate weights were computed so that one of the paired schools had a contribution of zero and the other a double contribution whereas all other schools remained the same. This is achieved by simply multiplying student weights with the jackknife indicators once for each sampling zone. As a result, for each so-called jackknife replicate a weight is added to the data file where within one sampling zone at a time one PSU receives a double weight and the other a zero weight.

For each year level sample 157 replicate weights were computed regardless of the number of sampling zones, allowing for 314 schools (or pseudo-schools) per year level. In Year 10, which has less sampling zones, the remaining replicate weights were equal to the original sampling weight.

In order to compute the sampling variance for a statistic t, it is estimated once for the original sample S and then for each of the jackknife replicates. The JRR variance is computed using the formula

$$Var_{jrr}(t) = \sum_{h=1}^{H} \left[t(J_h) - t(S) \right]^2 ,$$

where H is the number of sampling zones, t(S) the statistic t estimated for the population using the original sampling weights, $t(J_h)$ the same statistic estimated using the weights for the hth jackknife replicate. The standard error for t is

$$\sigma(t) = \sqrt{Var_{jrr}(t)}$$

The computation of JRR variance can be obtained for any statistic. Standard statistical software does generally not include any procedures for replication techniques. For the National Civics and Citizenship Sample Assessment, SPSS macros were used to estimate JRR variance for means and percentages.

Population statistics on 'civics and citizenship literacy' from the National Civics and Citizenship Sample Assessment data were always estimated using all five plausible values. If θ is 'civics and citizenship literacy' and θ_i is the statistic of interest computed on one plausible value, then:

$$\theta = \frac{1}{M}\sum_{i=1}^{M}\theta_i \text{ , with } M \text{ being the number of plausible values.}$$

The sampling variance U is calculated as the average of the sampling variance for each plausible value U_i:

$$U = \frac{1}{M}\sum_{i=1}^{M}U_i$$

Using these five plausible values for data analysis allows also the estimation of the amount of error associated with the measurement of 'civics and citizenship literacy' due to the lack of precision of the test. The measurement variance or imputation variance B_M was computed as:

$$B_M = \frac{1}{M-1}\sum_{i=1}^{M}\left(\theta_i - \theta\right)^2$$

Sampling variance and imputation variance were computed as:

$$V = U + \left(1 + \frac{1}{M}\right)B_m \text{ , with } U \text{ being the sampling variance.}$$

The final standard error is computed as

$$SE = \sqrt{V} \text{ .}$$

Reporting of mean differences across States and Territories

The *National Assessment Program - Civics and Citizenship Years 6 and 10 Report 200*4 included comparisons of assessment results across states and territories, that is, means of scales and percentages were compared in graphs and tables. Each population estimate was accompanied by its standard error. In addition, tests of significance for the difference between estimates were provided, in order to describe the probability that differences were just a result of sampling and measurement error.

The following types of significance tests were reported:

- For differences in population estimates between states and territories.
- For differences in population estimates between subgroups.

Multiple comparison charts allow the comparison of population estimates between one state or territory and other states or territories. The significance tests include an adjustment for multiple comparison using a Bonferroni adjustment. This was necessary as the probability of erroneously stating significant differences (the so-called Type I error) increases with the number of simultaneous comparisons.

If one wants to test the significance between two means at the .95 level, a critical value of 1.96 is used for the test statistics. Any value higher than the critical value indicates that there is a .95 probability that this difference is not the result of sampling error. Conversely, there is a .05 chance that a difference was found that does not exist. When several means are compared with each other at the same time, the probability of making a Type I error is the product of the probabilities for

each comparison. Thus, the chance to make such an error increases with the number of comparisons.

For multiple comparisons in the CCAP study a so-called Dunn-Bonferroni adjustment was used that consisted of increasing the critical value for significance tests when multiple comparisons were made. For the multiple comparison charts, the critical value used was 3.12.

Differences between state or territory means were considered as significant when the test statistic t was greater than the critical value. t is calculated by dividing the difference by its standard error that is given by the formula:

$$SE_{dif\_ij} = \sqrt{SE_i^2 + SE_j^2}$$

where SE_{dif_ij} is the standard error of the difference and SE_i and SE_j are the sampling standard errors of the compared states/territories i and j.

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APPENDICES

APPENDIX A: STUDENT BACKGROUND SURVEY & ASSESSMENT OF CIVICS AND CITIZENSHIP OPPORTUNITIES

In this section you will find questions about you and your family; what you do outside school; and your experience of school.

Please read each question carefully and answer as accurately as you can.

You may ask for help if you do not understand something or are not sure how to answer a question.

If you make a mistake when answering a question, cross out your error and make the correction, either by ticking the correct box or writing the correct answer on the line.

In this section, there are no 'right' or 'wrong' answers. Your answers should be the ones that you decide are best for you.

Question 1 was asked of Year 10 only

Q1   Where do you live? Please write in below the place name, State/Territory (eg NT) and postcode of your *permanent home address* (ie the last line of your home address).

*(If you are boarding away from home, please think of your **permanent home address**.)*

*(If you have a PO Box, please think of your **home** rather than the PO Box address.)*

_____

(Place name)   (State/Territory)   (Postcode)

Q 2   Are you a boy or a girl?   Boy   Girl

$\square_1$ $\square_2$

Q 3   How old are you?   _____ *Years* _____ *Months*

Q 4   Are you of Aboriginal or Torres Strait Islander origin?
*(Please tick **only one box**)*

No .... $\square_1$

Yes, Aboriginal .... $\square_2$

Yes, Torres Strait Islander .... $\square_3$

Yes, both Aboriginal and Torres Strait Islander .... $\square_4$

Q 5   In which country were you born?

Q 6   **In which country was your mother/female guardian born?**

Australia   Other,   please specify country:_____

☐₁   ☐₂

Q 7   **In which country was your father/male guardian born?**

Australia   Other,   please specify country:_____

☐₁   ☐₂

Q 8   **Do you or your parents/guardians speak a language other than English *at home*?**   *(Please tick **only one box** for each person)*

	a) You	b) Your mother/ female guardian	c) Your father/ male guardian
No, English only	☐₁	☐₁	☐₁
Yes, please specify language	☐₂ _____	☐₂ _____	☐₂ _____

Q 9   **What is your mother's/female guardian's main job? (e.g., school teacher, cleaner, sales assistant)**   *If she is not working now, please tell us her last main job.*

*Please write in the job title.*_____

Q 10   **What does your mother/female guardian do in her main job? (e.g., Teaches school students, cleans offices, sells things)**

If she is not working now, please tell us what she did in her last main job.
Please use a sentence to describe the kind of work she does or did in that job.

_____

Q 11   **What is your father's/male guardian's main job? (e.g., school teacher, cleaner, sales assistant)**   *If he is not working now, please tell us his last main job.*

*Please write in the job title.*_____

Q 12   **What does your father male guardian do in his main job? (e.g., Teaches school students, cleans offices, sells things)**

If he is not working now, please tell us what he did in his last main job.
Please use a sentence to describe the kind of work he does or did in that job.

Q 13   What is the highest year of primary or secondary schooling your parents/guardians have completed?
*(Please tick **only one box** for each person)*

a) Your mother/female guardian   b) Your father/male guardian

☐$_1$ Year 12 or equivalent   ☐$_1$ Year 12 or equivalent

☐$_2$ Year 11 or equivalent   ☐$_2$ Year 11 or equivalent

☐$_3$ Year 10 or equivalent   ☐$_3$ Year 10 or equivalent

☐$_1$ Year 9 or equivalent or below   ☐$_4$ Year 9 or equivalent or below

Q14   What is the level of the *highest* qualification your parents/guardians have completed?
*(Please tick **only one box** for each person)*

a) Your mother/female guardian   b) Your father/male guardian

☐$_1$ Bachelor degree or above   ☐$_1$ Bachelor degree or above

☐$_2$ Advanced diploma/diploma   ☐$_2$ Advanced diploma/diploma

☐$_3$ Certificate I to IV (inc. trade cert.) ☐$_3$ Certificate I to IV (inc. trade cert.)

☐$_4$ No non-school qualification   ☐$_4$ No non-school qualification

Q 15   Outside of school, how often do you….
*(Please tick **only one box** for each activity)*

	Never or hardly ever	At least once a month	At least once a week	More than three times a week
a) read about current events in the newspaper?.	☐$_1$	☐$_2$	☐$_3$	☐$_4$
b) watch the news on television?	☐$_1$	☐$_2$	☐$_3$	☐$_4$
c) listen to news on the radio?	☐$_1$	☐$_2$	☐$_3$	☐$_4$
d) talk about political or social issues with your family ?	☐$_1$	☐$_2$	☐$_3$	☐$_4$
e) join in sport or music activities with others?.	☐$_1$	☐$_2$	☐$_3$	☐$_4$
f) participate in community or volunteer work?	☐$_1$	☐$_2$	☐$_3$	☐$_4$
Please tell us what you do in this work: _____				
g) participate in environmental activities?	☐$_1$	☐$_2$	☐$_3$	☐$_4$

Q 16   At my school…

	Yes	No
a) students vote for class representatives	$\Box_1$	$\Box_2$
b) students are represented on Student Councils or Student Representative Councils (SRCs)	$\Box_1$	$\Box_2$
c) student representatives contribute to decision making	$\Box_1$	$\Box_2$
d) students can help prepare a school paper or magazine	$\Box_1$	$\Box_2$
e) students can participate in peer support, 'buddy' or mentoring programs	$\Box_1$	$\Box_2$
f) students can participate in activities in the community	$\Box_1$	$\Box_2$
g) students can participate in activities outside of class (such as drama, sports, music and debating)	$\Box_1$	$\Box_2$

Q 17   At school I have learned…

*(Please tick **only one box** for each statement)*

	Strongly disagree	Disagree	Agree	Strongly agree
a) about the importance of voting in elections	$\Box_1$	$\Box_2$	$\Box_3$	$\Box_4$
b) how to represent other students	$\Box_1$	$\Box_2$	$\Box_3$	$\Box_4$
c) to understand people who have different ideas to me	$\Box_1$	$\Box_2$	$\Box_3$	$\Box_4$
d) to work co-operatively with other students	$\Box_1$	$\Box_2$	$\Box_3$	$\Box_4$
e) to be interested in how my school "works"	$\Box_1$	$\Box_2$	$\Box_3$	$\Box_4$
f) that I can contribute to solving "problems" at my school	$\Box_1$	$\Box_2$	$\Box_3$	$\Box_4$

This is the end of Part A.

Please do NOT turn the page until told to do so.

APPENDIX B: ASSESSMENT ADMINISTRATION FORM

<u>*Section 1*</u>

School:_____

School Contact:_____

Class:_____

Test Administrator:_____

Type of assessment session (please tick):   ☐ **Main Session**
                                                ☐ **Follow-up Session**

Date:_____ October 2004

Scheduled start time: _____

<u>*Section 2*</u>

Actual schedule of the testing sessions:

	Start	**Finish**
Instructions		
Part A		
Break		
Practice Questions		
Part B		

<u>*Section 3*</u>

Did a National Sample Assessment Observer attend the session?

<div align="center">YES / NO (please circle)</div>

Disruptions: Did any of the following affect the test session?
- Announcements over the loudspeaker/Alarms   **YES / NO (please circle)**
- Class Changeover in the school   **YES / NO (please circle)**
- Other students not participating in the test session   **YES / NO (please circle)**
- Students or teachers visiting the testing room   **YES / NO (please circle)**

<div style="border: 1px solid black; padding: 10px;">

Section 4

Assessment Booklet Format and Content

Were there any problems with the Assessment Booklets (e.g. errors or omissions, unclear directions, confusing format, too long, too hard, boring, tiring etc.)?

No / Yes   Specify…

_____
_____
_____
_____
_____
_____

Were there any problems with specific test items?

No / Yes   Specify… (include booklet number and item number):

BOOK#   ITEM# PROBLEM

_____ _____ _____
_____ _____ _____
_____ _____ _____
_____ _____ _____
_____ _____ _____
_____ _____ _____

Please note other comments that you think would help improve the assessment:

_____
_____
_____
_____
_____
_____

THANKYOU VERY MUCH

Please sign to acknowledge that you have checked the Assessment Booklets, Student Participation Form and Assessment Administration Form and all is complete and in order.

Assessment Administrator: School Contact:

Name: _____   _____

Signature: _____   _____

This form is to be returned to ACER.

</div>

APPENDIX C: QUALITY MONITOR'S REPORT

School Name	
School ID	
Assessment Administrator	
CCAP School Contact	
Date of Testing	

(1) Student Behaviour

	No Students	Some Students	Most Students
a) How many students talked to other students before the end of the test session?	☐1.	☐2.	☐3.
b) How many students made noise or moved around, causing disruption to other students?	☐1.	☐2.	☐3.
c) How many students read books after they had finished the assessment, before the end of the session?	☐1.	☐2.	☐3.
d) How many students became restless towards the end of the session?	☐1.	☐2.	☐3.

(2) Disruptions

Did any of the following affect the test session?	No	Yes
a) Announcements over the loud speaker	☐1.	☐2.
b) Alarms	☐1.	☐2.
c) Class changeover in the school	☐1.	☐2.
d) Other students not participating in the test session	☐1.	☐2.
e) Students or teachers visiting the testing room	☐1.	☐2.

(3) Assessment Booklet Format and Content

(a) Were there any problems with the Assessment Booklets (e.g., errors or omissions, unclear directions, confusing format, too long, too hard, boring, tiring etc.)?

☐ No   ☐ Yes   Specify (include booklet number and whether Part A or B)

_____

_____

_____

_____

_____

(b) Were there any problems with specific questions in Part B of any Assessment Booklet?

☐ No   ☐ Yes   Specify (include booklet and question number)

Booklet Number	Question Number	Problem

(4) Administration: Part A and B

(a) Was the script followed according to the manual?   ☐ No   ☐ Yes

                                                                                 Go 4b   *Go to Part 5*

(b) If changes were made, were they…   Minor   Major
                                                                     ☐   ☐

(c) If the instructions regarding timing of the assessment   Minor   Major
     session were **not** followed, were they….   ☐   ☐

                                                                                 Use 6 for details

(d) Did the variation to the script or the timing instructions affect the performance of students?

☐ No   ☐ Yes   If Yes, please comment

_____

_____

_____

_____

(5) Location for the Assessment

*(a) Did the location of the Assessment Session meet the requirements set out in the School
     Contact's Manual (Section 3.4)?*

☐ No   ☐ Yes   If Yes, please comment

_____

_____

_____

(6) Other Comments

Please make any other comments that you think we should know about:

_____

_____

_____

_____

_____

APPENDIX D: EXAMPLE SCHOOL REPORTS AND EXPLANATORY MATERIAL

Explanatory Material

Ministerial Council on Education, Employment, Training and Youth Affairs

ACER

Civics and Citizenship National Sample Assessment

Interpreting the Student Reports

Each Year 6 and Year 10 student completed one of the four different year-level test forms. The student reports provide information about each student's achievement on the particular test form that they completed.

Each test form report includes the following information:
1. The school name.
2. The Year level and number of the test form described by the report.
3. The question number as it appeared on the test form.
4. A unique item code used to reference each question.
5. A description of the properties of a high quality response to the item.
6. The maximum possible score for each item.
7. The percentage of students in the school who achieved the maximum score for each item.
8. The percentage of students in the National Assessment who achieved the maximum score on each item.
9. The name of each student who completed that test form and whose result is being reported.
10. A key for the different student response types.
11. The achievement of each student on each item on the form.

Below is part of a sample report form with some key information explained.

71% of students at the school achieved the maximum score on this item on this Form.

89% of students in the National Assessment achieved the maximum score on this item on this Form.

This student achieved the maximum score for this item.

School Name

Year # Form #

☐ - Max Score Achieved |1| - Other Score Achieved   ▦ - 0 Score Achieved
|n| - Not Answered |a| - Absent

Q. No	Item Code	Item Descriptor	Item Max Score	% maximum score (your school)	% maximum score (National Assessment)	Boyle M	Boulatrakos J	Bone B	Bewer T	Barnes A
1	GGOL1	Recognises a responsibility of the Governor General.	1	88	89	a				
2	UPOL1	Explains why a democratic government may act against the wishes of the electorate.	1	65	84	a				
3	ECOL1	Identifies a complaint of the Australian free settlers about their governance.	1	83	90	a				
4	CPOL1	Identifies freedom of religion as manifested in the Australian citizenship pledge.	1	71	84	a		n		
5	CPOL2	Identifies that some shared values exist within Australian society.	2	89	89	a				
6	CPOL3	Recognises that Australian citizens have both freedoms and responsibilities.	1	84	80	a				
7	CPOL4	Explains the principle of the precedence of the common good over individual rights in Australia's democracy.	3	90	89	a			1	2
8	WWOX1	Recognises the symbolism of a specific political protest.	1	84	88	a				
9	WWOX2	Explains how protestors may feel justified in a democracy in willingly breaking the law as a protest.	2	89	74	a				1

This student did not attempt this item.

This student attempted and achieved a score of 0 for this item.

This student achieved a score of 1 out of the maximum 3 for this item.

This student achieved a score of 2 out of the maximum 3 for this item.

Example Year 6 Report

Capital Primary School

Year 6   Form 1

☐ - Max Score Achieved   1 - Other Score Achieved   ▨ - 0 Score Achieved

n - Not Answered   a - Absent

Q. No	Item Code	Item Descriptor	Item Max Score	% maximum score (your school)	% maximum score (National Assessment)	Student 1	Student 5	Student 9	Student 13	Student 17
1	ECOL1	Identifies a complaint of the Australian free settlers about their governance.	1	50	31	a				
2	PDOL1	Explains a benefit of differences of opinion within a democracy.	2	25	11	a	n		1	
3	HBO61	Infers cultural inclusivity represented by a government's actions.	2	25	25	a	n		1	
4	HBO62	Recognises the difficulty of balancing inclusivity and unmanageable precedent.	2	0	1	a	n	1		
5-9	REO61-5	Identifies some legal responsibilities of Australian citizens.	2	50	79	a	1			1
10	FNO61	Recognises the division of governmental responsibilities in a federation.	1	50	50	a				
11	FLO1	States the meaning of the Union Jack as a symbol on the Australian national flag.	3	25	8	a			2	1
11	FLO2	States the meaning of the Southern Cross as a symbol on the Australian national flag.	1	50	28	a				
11	FLO3	States the meaning of the Federation Star as a symbol on the Australian national flag.	1	50	44	a				
12	FLO4	Infers a reason for the government inviting citizens to design a national flag.	1	25	31	a	n			
13	FLO5	States the meaning of the black colour as a symbol on the Australian Aboriginal flag.	1	50	38	a				
13	FLO6	States the meaning of the red colour as a symbol on the Australian Aboriginal flag.	1	75	63	a				
14	FLO7	Generalises about the symbolism of burning a national flag in protest.	2	0	16	a	n	1	1	
15	FLO8	Recognises a reason why people may object to flag burning in protest.	1	50	72	a				
16	SEO61	Explains a difference between rules and laws in a familiar school context.	2	25	45	a	n		1	1
17	SEO62	Recognises the social value of rules in a familiar school context.	1	50	44	a	n			
18	UPOL1	Explains why a democratic government may act against the wishes of the electorate.	1	25	32	a	n			
19	CPOL1	Identifies freedom of religion as manifested in the Australian citizenship pledge.	1	75	67	a				
20	CPOL2	Identifies that some shared values exist within Australian society.	2	0	9	a		1	1	
21	CPOL3	Recognises that Australian citizens have both freedoms and responsibilities.	1	50	66	a				
22	CPOL4	Explains the principle of the precedence of the common good over individual rights in Australia's democracy.	3	0	1	a	n	2	1	1
23	BAO61	Infers the motivation behind a public protest.	1	50	33	a				
24	BAO62	States two feasible ways of supporting a change in the law.	2	0	15	a		1	1	
25	BAO63	Explains, in a simple context, how community standards may affect the law.	1	25	13	a	n			n
26	CCO61	Identifies two democratic features of an electoral process.	2	25	34	a			1	1
27	CCO62	Identifies two undemocratic features of an electoral process.	2	25	24	a			1	1
28	GGOL1	Recognises a responsibility of the Governor General.	1	25	6	a			n	
29-32	LWO61-4	Identifies some features of Australian laws.	2	25	83	a			n	1
33	AIOL1	Identifies the historical event remembered on Australia day.	1	25	15	a	n		n	
34	AIOL2	Explains the significance for some that the British colonisation of Australia was without treaty.	2	0	3	a	n	1	n	
35	MPO61	Recognises the process required for election to Australian parliament.	1	75	62	a			n	
36	NEO61	Recognises the minimum frequency of Australian Federal elections.	1	50	68	a			n	
37	ICOL1	Explains how understanding civic process can support civic participation.	2	0	7	a	n	1	n	

Example Year 10 Report

Capital Secondary School

Year 10 Form 1

☐ - Max Score Achieved   1 - Other Score Achieved   ▨ - 0 Score Achieved

n - Not Answered   a - Absent

Q. No	Item Code	Item Descriptor	Item Max Score	% maximum score (your school)	% maximum score (National)	Student 1	Student 5	Student 9	Student 13	Student 17
1	GGOL1	Recognises a responsibility of the Governor General.	1	25	23			a		
2	UPOL1	Explains why a democratic government may act against the wishes of the electorate.	1	50	36			a		
3	ECOL1	Identifies a complaint of the Australian free settlers about their governance.	1	50	51			a		
4	CPOL1	Identifies freedom of religion as manifested in the Australian citizenship pledge.	1	100	87			a		
5	CPOL2	Identifies that some shared values exist within Australian society.	2	50	31	1		a		1
6	CPOL3	Recognises that Australian citizens have both freedoms and responsibilities.	1	100	79			a		
7	CPOL4	Explains the principle of the precedence of the common good over individual rights in Australia's democracy.	3	0	2		2	a	1	1
8	WWOX1	Recognises the symbolism of a specific political protest.	1	75	58			a		
9	WWOX2	Explains how protestors may feel justified in a democracy in willingly breaking the as a protest.	2	25	26	n		a	1	1
10	WWOX3	Explains why deliberately breaking the law as part of a protest might be considered unacceptable in a democracy.	2	25	21			a	1	1
11	CVOL1	Identifies and explains a principle that supports compulsory voting in Australia.	2	0	7	1	1	a	1	1
12	CVOL2	Identifies and explains a principle for opposing compulsory voting.	2	50	43	1		a		1
13	CVOL3	Explains the importance of the secret ballot to the electoral process.	2	25	27			a	1	1
14	FDOX1	Recognises a point of dispute between State and Federal governments.	1	50	60			a		
15	FDOX2	Identifies a constitutional issue requiring resolution by the High Court.	1	50	47			a		
16	FDOX3	Analyses the reasons why a High Court decision may be close.	2	0	3		1	a		
17	FDOX4	Analyses how voters prioritise issues differently at State and Federal elections.	1	25	24	n		a		
18	ICOL1	Explains how understanding civic process can support civic participation.	2	25	18			a	1	1
19	UNOX1	Analyses reasons refugees may have for seeking safe refuge in another country.	2	25	7			a	1	1
20	UNOX2	Recognises that the UNHCR advocates due process for refugees' claims.	1	50	46			a		
21	UNOX3	Recognises a method of persuasion available to the UNHCR.	1	75	75			a		
22	PDOL1	Explains a benefit of differences of opinion within a democracy.	2	25	23			a	1	1
23	IQOX1	Recognises the potential for difference between justice and law.	1	50	46			a		
24	IQOX2	Recognises the value of collective social responsibility.	1	75	59			a		
25	IQOX3	Analyses the tension between critical citizenship and law abidance.	3	0	4		2	a	1	1
26	IFOX1	Infers a government attitude to Indigenous Australians from information about franchise.	3	25	12	1		a	2	1
27	IFOX2	Analyses how a change in government policy may reflect a change in attitude to Indigenous Australians.	2	50	31			a		1
28	IFOX3	Explains how governments may change laws to ensure State and Federal consistency.	3	0	8		2	a	1	1
29	IFOX4	Analyses governments' reasons for changing franchise.	2	25	17			a	1	1
20	IFOX5	Uses complex reasons with evidence to support a contention.	2	25	21			a	1	1
31	FLOL1	States the meaning of the Union Jack as a symbol on the Australian national flag.	3	25	21	1		a	2	1
31	FLOL2	States the meaning of the Southern Cross as a symbol on the Australian national flag.	1	50	43			a		
31	FLOL3	States the meaning of the Federation Star as a symbol on the Australian national flag.	1	50	55			a		
32	FLOL4	Infers a reason for the government inviting citizens to design a national flag.	1	50	52			a		
33	FLOL5	States the meaning of the black colour as a symbol on the Australian Aboriginal flag.	1	50	40			a		
33	FLOL6	States the meaning of the red colour as a symbol on the Australian Aboriginal flag.	1	75	71			a		
34	FLOL7	Generalises about the symbolism of burning a national flag in protest.	2	50	32			a		1
35	FLOL8	Recognises a reason why people may object to flag burning in protest.	1	75	82			a		
36	WEOX1	Recognises the responsibility of protestors to respect the rights of others.	1	50	51			a		
30	WEOX2	Recognises that respecting others is a commonly stated Australian value.	1	75	82			a		
38	WEOX3	Recognises one way in which participation in protest can enhance the common good.	1	50	50			a		
39	MBOX1	Recognises the importance of fair reporting by the media.	1	50	52			a		
40	RFAX1	Recognises that the Australian constitution can only be changed through referendum.	1	50	53			a		
41	AIOL1	Identifies the historical event remembered on Australia day.	1	50	22	n		a		
42	AIOL2	Explains the significance for some that the British colonisation of Australia was without treaty.	2	25	7	n		a	1	1

APPENDIX E: CIVICS AND CITIZENSHIP PROFICIENCY LEVELS

Proficiency Level	Selected Item Response Descriptors
Level 5 Demonstrates precise and detailed interpretative responses to very complex civics and citizenship concepts, underlying principles or issues, in field-specific terminology.	• explain one of the principles that underlie compulsory voting • recognise the importance of precedent and its community impact • understand why refugees need to find a safety in another country • understand the contribution of freedom of information laws in a democracy • analyse the tension between critical citizenship and abiding by the law
Level 4 Demonstrates precise and detailed interpretative responses to complex civics and citizenship concepts or issue. Appropriately uses conceptually-specific language.	• comment accurately on the meaning of Anzac Day • explain how understanding civic process supports civic participation • explain why disagreement between citizens can be good for society • explain how governments may change laws to ensure consistency between state and federal legislation • understand a democratic electoral mandate gives an elected government the power to implement its policies • provide an accurate definition of the term/concept of 'discrimination' • analyse the impact on public opinion of both positive or negative media reporting of an event.
Level 3 Demonstrate comparatively precise and detailed factual responses to complex civics and citizenship concepts or issues, and some interpretation of information.	• clearly understand the mechanisms and importance of secret ballot • recognise governments advertise the laws so they are known to citizens • can explain the symbolism of the Southern Cross in the Australian flag • identify the historical event remembered on Anzac Day • know two actions which might bring about change in legislation • analyse and interprets evidence of attitudinal causes of government policy changes • identify the responsibility of government in the area of health • understand the general effect of sanction in international agreements
Level 2 Demonstrate accurate responses to relatively-simple civics and citizenship concepts or issues, with limited interpretation or reasoning.	• identify more than one basic feature of democracy or democratic process • know what a referendum is • identify a reason why Europeans in the nineteenth century may not have recognised indigenous laws • offer minimal analysis of reasons for or against compulsory voting • have basic understandings of citizens' tax and /or civic responsibilities • assert rather than analyse views on media influence • recognise tensions between democratic rights and private actions
Level 1 Demonstrate a literal or generalised understanding of simple civics and citizenship concepts, using vague terminology without interpretation..	• identify a basic feature of democracy or a democratic process • recognise that democratic governments are elected by the people • recognise some private actions open to citizens in a democracy • can identify appeals to legality or behaviour-change in anti-littering posters • recognise that the right to free speech does not imply agreeing with others' views • can provide one motivation for joining a community organisation • can identify one possible reason for taking protest action • identify one example of the impact of 'neutral media coverage'.