

## SECTION THREE

### THE SAMPLING PLAN

#### 3.1 The target population

It is projected that about 9000 students will be required to produce a 1000 equivalent random sample across all States/Territories. Whole classes within schools will constitute the sampling units. If the average number of students per class is 25 students, 360 Year 6 classes will be required in the sample. If we sampled proportionately across States/Territories with the class as the unit, then the initial sampling plan would be as shown in table 3.1 below.

The population of students in their sixth year of schooling across all States/Territories is estimated as in table 3.1 below.

**Table 3.1** Estimated population of Year 6 students across all States/Territories

Population (based on ABS report)			
State	Students	Classes	% of pop.
ACT	3074	123	1.64%
NSW	61646	2466	32.81%
NT	2168	87	1.15%
Qld	37592	1504	20.01%
SA	15047	602	8.01%
Tas.	5243	210	2.79%
Vic.	42300	1692	22.51%
WA	20811	832	11.08%
<b>Total</b>	<b>187881</b>	<b>7515</b>	

##### *3.1.1 The number of students to be selected*

The number of students in the State/Territory samples are computed proportionally to the size of the State/Territory populations. Exceptions have been made in the cases of ACT, NT and Tas. Higher numbers of students have

been included in the sampling plan to achieve the required number of students for the 5% standard error level. The current decision is to have samples of 500 for ACT, NT and Tas. Thus, proportionate sampling is not used in the final sample selection because of the small populations in each State/Territory. There is a practical limitation in sampling large numbers in States/Territories with small populations.

The number of students in the sample is reported in table 3.2 below. The students to be sampled for each State/Territory are reported in the bottom row. The other rows report the number of students included in each test. The total number of students taking a specific test is reported in the second column from the right and the percentage of the overall sample of 9054 in the extreme right-hand column.

**Table 3.2** Number of students in sample

Test	ACT	NSW	NT	Qld	SA	Tas.	Vic.	WA	Total	%
BST	500	2625			641				3266	38.18
LAP			500			500	1801		2801	32.75
NET				1601			1801		3402	39.77
MSE				1601				886	2487	29.07
DART	500				641	500		886	2027	23.70
MAP		2625	500						3125	36.53
Number of students from State/Territory	500	2625	500	1601	641	500	1801	886	8554	

### 3.1.2 Number of classes in the sample

The estimated number of classes in each State/Territory and in each test is reported in table 3.3 below. The average class size is assumed to include 25 students. Class sizes do vary across States/Territories. The number of classes in table 3.3 serves to provide an indication of the number of schools that would be involved. Whole classes should be used as sampling units. It has also been decided that only one class from a school should be included in the sample unless there are special circumstances. This is to increase the number of schools sampled to achieve a widest possible scope for the State/Territory samples. In the actual sampling procedure, the number of students selected would be most important. Depending on the particular situation in the States/Territories the number of classes may vary, particularly in cases where class size in a school may not reach the projected number of 25. Table 3.3 has been compiled to provide a general estimate of the number of classes/schools likely to be involved.

**Table 3.3** Number of classes in sample

	ACT	NSW	NT	Qld	SA	TAS	Vic.	WA	Total
BST	20	105			26				151
LAP			20			20	72		112
NET				64			72		136
MSE				64				35	99
DART	20				26	20		35	101
MAP		105	20						125
Number of Classes from State/Territory	20	105	20	64	26	20	72	35	217

### 3.2 Estimates of standard errors

The standard errors were estimated on the basis of a dichotomous item (that is, an item with two possible scores: right or wrong). They serve as estimates of the standard errors of the tests. The standard error estimates of a dichotomous item are reported in table 3.4.

**Table 3.4** Number of students equivalent to simple random sampling

Test	SE (1/0)
BST	0.04
LAP	0.05
NET	0.04
MSE	0.05
DART	0.05
MAP	0.04
<b>Overall</b>	0.03

### 3.3 The sampling exercise

The most critical aspect of the actual sampling procedure is the number of students to be selected. The sampling described above serves as a guideline. It is, however, expected that in the actual sampling exercise deviations from the general plan above will occur.

Initial discussions with the Northern Territory have indicated that there may be problems in sampling the number of students (500) as specified in the plan, as that would mean nearly a quarter of their Year 6 population. The situation will need close monitoring during the actual sampling process.

As indicated in the general discussion on year level, both the Northern Territory and Western Australia need an additional small sample - Year 5 for the Northern

Territory and Year 7 for Western Australia - to provide links between the different grade levels for State/Territory testing. It is projected that 200 students will be sufficient for linking purposes.

To successfully select simple random samples with the required number of students, intimate knowledge of the State/Territory school systems and the best strategy to over-sample to achieve the desired results is required. A certain degree of rapport as well as administrative direction and systemic support may also be needed. There are also sampling strategies specific to the States/Territories in the selection of simple random samples. For these reasons, the Consortium proposes that the Department of Education in each State/Territory selects the required sample for Phase Two following the guidelines below:

- The sampling unit will be a whole class, except in cases where there is more than one grade level in a single class
- Only one class per school can be selected for the sample
- The sample selected should include large as well as small schools.

The States/Territories can use other State/Territory specific strategies to select the required sample. In such cases, prior consultation with the Phase Two project team would be necessary and documentation of the procedure needs to be provided.