

### Attitudes and Motivation

The national monitoring assessment programme recognises the impact of attitudinal and motivational factors on student achievement in individual assessment tasks. Students' attitudes, interests and liking for a subject have a strong bearing on progress and learning outcomes. Students are influenced and shaped by the quality and style of curriculum delivery, the choice of content and the suitability of resources. Other important factors influencing students' achievements are the expectations and support of significant people in their lives, the opportunities and experiences they have in and out of school, and the extent to which they have feelings of personal success and capability.

### Science Survey

The national monitoring science survey sought information from students about their curriculum preferences and their perceptions of their achievement and potential in science. Students were also asked about their involvement in science related activities within school and beyond. There are numerous research questions that could be asked when investigating student attitudes and engagement. In national monitoring it has been necessary to focus on a few key questions that give an overall impression of how students regard science in relation to themselves.

Each survey was administered in a session which included team and independent tasks, with a teacher reading the survey to year 4 students, and available to help with writing. The surveys included 16 questions that could be responded to by ticking or circling a chosen response. Responses to these 16 questions are summarised in the large tables on the next two pages. Two questions required written responses, which are summarised below.

Students were asked to indicate their first three preferences from a list of six class science activities. The percentages choosing each activity as first preference and as one of the top three preferences are tabulated below.

Science Activity	1 <sup>ST</sup> CHOICE		TOP 3	
	% responses		% responses	
	y4	y8	y4	y8
being told about science	10	3	29	19
being shown about science	13	12	66	71
reading about science	4	2	34	15
talking about science	5	3	32	28
going on field trips	36	27	75	81
doing things like experiments	32	53	64	86

Two activities ("going on field trips" and "doing things like experiments") were strong first preferences at both year levels, with year 4 slightly favouring field trips and year 8 strongly favouring experiments. When the top three preferences were considered, it became clear that "being shown about science" was also a valued activity, with the other three activities well behind.

One open-ended question was asked. Responses to the question "What do you like doing most in science in your own time" were coded into nine categories. Easily the most popular category was "doing experiments" (36% of year 4 students and 42% of year 8 students).

Drawing about five percent support at both year levels were reading/researching science books, doing electrical/electronic things (with wires, batteries, etc.), and making things.

## YEAR 4 SCIENCE SURVEY

1999 (1995)

1. How much do you like doing science at school?



67 (60)



24 (32)



7 (5)



2 (3)

2. How much do you think you learn about science at school?

*heaps*  
28 (34)*quite a lot*  
41 (43)*some*  
23 (18)*very little*  
8 (5)

3. Would you like to do more or less science at school?

*more*  
58 (66)*about same*  
34 (26)*less*  
8 (8)*heaps**quite a lot**sometimes**never*

4. How often does your class do really good things in science?

16

27

52

5

5. How often do you do these things in science at school?

a Field trips/work outside

19

20

52

9

b Visit science activities

10

12

54

24

c Research/projects

24

31

36

9

d Group work

39

36

24

1

e Experiments with everyday things

17

16

51

16

f Experiments with science equipment

15

20

44

21

g Science competitions

8

7

31

54

6. How good do you think you are at science?



37 (25)



48 (64)



9 (8)



6 (3)

*heaps**quite a lot**sometimes**never*

7. How much do you like doing science things in your own time, when you're not at school?

24

19

38

19

8. Do you do some really good things in science in your own time — when you're not at school?

15

21

45

19

*yes**maybe**no*

9. Do you want to keep learning about science when you grow up?

43 (53)

47 (43)

10 (4)

10. Do you think you would make a good scientist when you grow up?

28 (22)

52 (59)

20 (19)

Year 4 students were generally very positive about doing science at school. A majority chose the highest rating for the first question (about liking to do science at school) and would like to do more science at school. Almost half wanted to keep learning about science when they grew up, and about a quarter thought they would make good scientists when they grew up. The year 4 students were less confident that they learned a lot of science at school, with about one third saying that they learned “heaps” and only 16 percent saying that their class did really good things in science “heaps”. The proportions liking to do science things in their own time or saying that they did really good science things in their own time were quite disappointing: less than half used the descriptors “heaps” or “quite a lot”, and 19 percent said “never”. The responses to question 5 suggests that much science in school is book work, with practical work and field trips less common. Trends from 1995 to 1999 were variable, with both gains and losses.

## YEAR 8 SCIENCE SURVEY

1999 (1995)

1. How much do you like doing science at school?



37 (33)



48 (59)



12 (8)



3 (0)

2. How much do you think you learn about science at school?

*heaps*  
15 (11)*quite a lot*  
44 (53)*some*  
35 (30)*very little*  
6 (6)

3. Would you like to do more or less science at school?

*more*  
39 (47)*about same*  
51 (49)*less*  
10 (4)*heaps**quite a lot**sometimes**never*

4. How often does your class do really good things in science?

7 (5)

22 (27)

63 (63)

8 (5)

5. How often do you do these things in science at school?

a Field trips/work outside

4

13

50

33

b Visit science activities

3

9

53

35

c Research/projects

21

40

36

3

d Group work

31

40

27

2

e Experiments with everyday things

14

47

28

11

f Experiments with science equipment

14

25

43

18

g Science competitions

4

10

56

30

6. How good do you think you are at science?



16 (10)



61 (71)



19 (17)



4 (2)

*heaps**quite a lot**sometimes**never*

7. How much do you like doing science things in your own time, when you're not at school?

15

31

39

15

8. Do you do some really good things in science in your own time — when you're not at school?

5

15

52

28

*yes**maybe**no*

9. Do you want to keep learning about science when you grow up?

33

59

8

10. Do you think you would make a good scientist when you grow up?

9

46

45

Compared to year 4 students, year 8 students were less inclined to use the most positive categories. This pattern has been common in national monitoring surveys. Older students can be expected to be more discerning and critical, as well as more realistic about their own abilities. It is a concern that less than 30 percent of the year 8 students indicated that their class did really good things in science “heaps” or “quite a lot”.

Responses to question 6 were more polarised in 1999 than in 1995, for both year 4 and year 8 students. Percentages of students awarding themselves the most favourable and least favourable responses both increased. Perhaps by 1999 students were receiving more teacher judgements on their performance in science than they were four years earlier, leading to sharper perceptions of themselves as science learners.