Science Survey 7

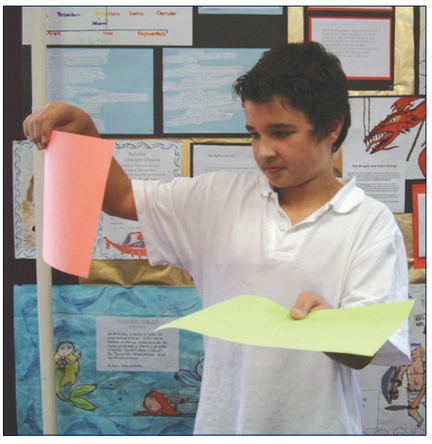
Attitudes and Motivation

The national monitoring 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 Surveys

The national monitoring science surveys 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.

Two activities ("doing things like experiments" and "going on field trips") were strong first preferences at both year levels, with year 4 regarding both similarly 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 three categories. Easily the most popular category was "doing experiments" (41% of year 4 students and 53% of year 8 students).

Drawing about 17 percent support at year 4 but only seven percent at year 8 levels were reading/viewing/listening/writing activities related to science. The third category involved applied science or technology – such things as making a radio, building creations, or cooking). This category involved 15 percent of year 4 students and 18 percent of year 8 students.

SCIENCE ACTIVITY:	1st CHOICE		TOP 3	
	% responses		% responses	
	y4	y8	y4	y8
being told about science	8	5	26	18
being shown about science	13	10	58	68
reading about science	7	3	34	14
talking about science	5	1	26	20
going on field trips	28	30	68	71
doing things like experiments	32	44	62	81

YEAR 4 SCIENCE SURVEY RESPONSES 2003 (1999)

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

62 (67)	29 (24)	5 (7)	4 (2)

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

heaps	*quite a lot*	*some*	*very little*
25 (28)	37 (41)	27 (23)	11 (8)

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

more	*about same*	*less*
56 (58)	34 (34)	10 (8)

	heaps	*quite a lot*	*sometimes*	*never*
4. How often does your class do really good things in science?	12 (16)	27 (27)	55 (52)	6 (5)
5. How often do you do these things in science at school?				
a. Field trips/work outside	13 (19)	21 (20)	58 (52)	8 (9)
b. Visit science activities	8 (10)	12 (12)	52 (54)	28 (24)
c. Research/projects	23 (24)	37 (31)	32 (36)	8 (9)
d. Group work	38 (39)	36 (36)	23 (24)	3 (1)
e. Experiments with everyday things	14 (17)	19 (16)	48 (51)	19 (16)
f. Experiments with science equipment	16 (15)	16 (20)	44 (44)	24 (21)
g. Science competitions	8 (8)	6 (7)	29 (31)	57 (54)

6. How good do you think you are at science? (excluding 15% who said "Don't Know")

32 (37)	50 (48)	14 (9)	4 (6)

	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?	42 (24)	29 (19)	19 (38)	10 (19)
8. Do you do some really good things in science in your own time — when you're not at school?	17 (15)	22 (21)	43 (45)	18 (19)

	yes	*maybe*	*no*
9. Do you want to keep learning about science when you grow up?	46 (43)	47 (47)	7 (10)
10. Do you think you would make a good scientist when you grow up?	24 (28)	58 (52)	18 (20)

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 quarter saying that they learned "heaps" and only 12 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 18 percent said "never". The responses to question 5 suggest that much science in school is book work, with practical work, field trips, visits and experiments less common. There was a small but perceptible downward trend between 1999 and 2003 on most items involving science at school, suggesting that both the quantity and attractiveness of science activities may have declined a little over that period. On the other hand, there was a big increase in the attractiveness of doing science things in their own time (perhaps in compensation).

YEAR 8 SCIENCE SURVEY RESPONSES 2003 (1999)

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

32 (37)	51 (48)	13 (12)	4 (3)

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

heaps	*quite a lot*	*some*	*very little*
13 (15)	44 (44)	37 (35)	6 (6)

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

more	*about same*	*less*
32 (39)	54 (51)	14 (10)

	heaps	*quite a lot*	*sometimes*	*never*
4. How often does your class do really good things in science?	3 (7)	23 (22)	64 (63)	10 (8)
5. How often do you do these things in science at school?				
a. Field trips/work outside	2 (4)	12 (13)	57 (50)	29 (33)
b. Visit science activities	2 (3)	9 (9)	55 (53)	34 (35)
c. Research/projects	18 (21)	43 (40)	35 (36)	4 (3)
d. Group work	30 (31)	41 (40)	25 (27)	4 (2)
e. Experiments with everyday things	8 (14)	29 (47)	50 (28)	13 (11)
f. Experiments with science equipment	9 (14)	25 (25)	50 (43)	16 (18)
g. Science competitions	4 (4)	12 (10)	50 (56)	34 (30)

6. How good do you think you are at science? (excluding 14% who said "Don't Know")

17 (16)	60 (61)	19 (19)	4 (4)

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?			
14 (15)	30 (31)	40 (39)	16 (15)
8. Do you do some really good things in science in your own time — when you're not at school?			
3 (5)	11 (15)	58 (52)	28 (28)

	yes	*maybe*	*no*
9. Do you want to keep learning about science when you grow up?	31 (33)	58 (59)	11 (8)
10. Do you think you would make a good scientist when you grow up?	9 (9)	48 (46)	43 (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 only 26 percent of the year 8 students indicated that their class did really good things in science "heaps" or "quite a lot". Only about one third of the year 8 students reported the use of experiments in science at school more than "sometimes", with group work and projects dominating their experience of science. Changes between 1999 and 2003 were generally small, but there was a noticeable decline in the proportions of highly positive responses for questions 1, 3 and most categories of question 5 (especially the more exciting ones, such as experiments).