Although national monitoring has been designed primarily to present an overall national picture of student achievement, there is some provision for reporting on performance differences among subgroups of the sample. Nine demographic variables are available for creating subgroups, with students divided into two or three subgroups on each variable, as detailed in Chapter 1 (p9).

The analyses of the relative performance of subgroups used an overall score for each task, created by adding scores for the most important components of the task.

Where only two subgroups were compared, differences in task performance between the two subgroups were checked for statistical significance using t-tests. Where three subgroups were compared, one way analysis of variance was used to check for statistically significant differences among the three subgroups.

Because the number of students included in each analysis was quite large (approximately 450), the statistical tests were quite sensitive to small differences. To reduce the likelihood of attention being drawn to unimportant differences, the critical level for statistical significance was set at p = .01 (so that differences this large or larger among the subgroups would not be expected by chance in more than one percent of cases). The critical level was adjusted to p = .05 for the two tasks where differences in team performance among 120 teams were being examined.

For the first three of the nine demographic variables, few statistically significant differences among the subgroups were found. For the remaining six variables, statistically significant differences were found on substantial numbers of tasks. Details are presented below.

Community Size

Results were compared for students living in communities containing over 100,000 people (main centres), communities containing 10,000 to 100,000 people (provincial cities), and communities containing less than 10,000 people (rural areas).

For year 4 students, there were no statistically significant differences among the three subgroups on the twenty-one tasks, or on questions of the *Information Skills Survey*.

For year 8 students, there were statistically significant differences among the three subgroups on three of the twenty-seven tasks. Students from main centres scored highest on *Fire Safety Quiz* (p15) and *Project Questions* (p17), but lowest on *Phone Book Search* (p32). Students from provincial cities scored lowest on *Fire Safety Quiz*, while students from rural areas scored lowest on *Project Questions*. There were no statistically significant differences on questions of the *Information Skills Survey*.

School Size

Results were compared from students in larger, medium sized, and small schools (exact definitions were given in Chapter 1, p9).

For year 4 students, there were statistically significant differences among the three subgroups on two of the twenty-one tasks. Students from the smallest schools scored higher than students from medium sized and larger schools on *Link Task 3* (p27) and *Chocolate Factory* (p35). There were no statistically significant differences on questions of the *Information Skills Survey*.

For year 8 students, there was a statistically significant difference among the three subgroups on one of the twenty-seven tasks. Students from the medium sized schools scored higher than students from small and larger schools on *Mary Borg* (p14). There were no statistically significant differences on questions of the *Information Skills Survey*.

School Type

Results were compared for year 8 students attending full primary schools and year 8 students attending intermediate schools. A statistically significant difference among the three subgroups was found on just one of the twenty-seven tasks. Students from full primary schools scored higher than students from intermediate schools on *Auckland Visit* (p31).

Zone

Results achieved by students from Auckland, the rest of the North Island, and the South Island were compared.

For year 4 students, there was a statistically significant difference among the three subgroups on only one of the twenty-one tasks. Students from the South Island scored highest and students from Auckland scored lowest on *Link Task 5* (p27). There were no statistically significant differences on questions of the *Information Skills Survey*.

For year 8 students, there were statistically significant differences among the three subgroups on eight of the twenty-seven tasks. Students from the South Island scored highest on all of these tasks: *Mary Borg* (p14), *Mr Dewey's Numbers* (p20), *Library Catalogue* (p24), *Link Task 5* (p27), *Famous People* (p30), *Phone Book Search* (p32), *Garden Patch* (p36), and *What Happened When?* (p39). There were no statistically significant difference on questions of the *Information Skills Survey*.

Gender

Results achieved by male and female students were compared.

For year 4 students, there were statistically significant differences between boys and girls on six of the twenty tasks. Girls scored higher than boys in all cases. The tasks involved were: *Fire Safety Quiz* (p15), *Link Task 2* (p18), *Card Catalogue* (p23), *Water* (p26), *Children's Book of Knowledge* (p29), and *Garden Patch* (p36). Boys and girls also differed statistically significantly in their ratings for three questions of the *Information Skills Survey* (p46). Boys reported more frequent need to find information for a project or topic (question 1), while girls expressed greater enjoyment of hunting for information (question 4) and writing down what they found out (question 5).

For year 8 students, there were statistically significant differences between boys and girls on seven of the twenty-six tasks. Girls scored higher than boys in all cases. The tasks involved were: *Card Catalogue* (p23), *Library Catalogue* (p24), *Famous People* (p30), *Phone Book Search* (p32), *Link Task 6* (p33), *Link Task 8* (p33), and *Garden Patch* (p36). Girls also scored higher on one question of the *Information Skills Survey* (p46), reporting more frequent need to find information for a project or topic (question 1).

Socio-Economic Index

Schools are categorised by the Ministry of Education based on census data for the census mesh blocks where children attending the schools live. The SES index takes into account household income levels, categories of employment, and the ethnic mix in the census mesh blocks. The SES index uses ten subdivisions, each containing ten percent of schools (deciles 1 to 10). For our purposes, the bottom three deciles (1-3) formed the low SES group, the middle four deciles (4-7) formed the medium SES group, and the top three deciles (8-10) formed the high SES group. Results were compared for students attending schools in each of these three SES groups.

For year 4 students, there were statistically significant differences among the three subgroups on seventeen of the twenty-one tasks. Because of the number of tasks involved, the specific tasks will not be listed here. In each

case, performance was lowest for students in the low SES group. Students in the high SES group generally performed better than students in the medium SES group, but in most cases these differences were small. There was also a statistically significant difference on one question of the *Information Skills Survey* (p46), with students from low SES schools reporting greater enjoyment of hunting for information (question 4).

For year 8 students, there were statistically significant differences among the three subgroups on fifteen of the twenty-seven tasks. Because of the number of tasks involved, the specific tasks will not be listed here. In each case, performance was lowest for students in the low SES group. In most cases, students in the high SES group also performed better than students in the medium SES group. On the *Information Skills Survey* (p46), there were statistically significant differences on three questions. Students from medium SES schools reported lower involvement in looking for information voluntarily (question 3), lower enjoyment of hunting for information (question 4) and lower enjoyment of writing down information gathered (question 5).

Student Ethnicity

Results achieved by Māori and non-Māori students were compared.

For year 4 students, there were statistically significant differences in performance on eleven of the twenty tasks. In each case, non-Māori students scored higher than Māori students. Because of the number of tasks involved, the specific tasks will not be listed here. There were also a statistically significant difference between Māori and non-Māori students on one question of the *Information Skills Survey* (p46), with Māori students reporting greater involvement in looking for information voluntarily (question 3).

For year 8 students, there were statistically significant differences of performance between Māori and non-Māori students on fifteen of the twenty-six tasks. In each case, non-Māori students scored higher than Māori students. Because of the number of tasks involved, the specific tasks will not be listed here. There were no statistically significant differences between Māori and non-Māori students on questions of the *Information Skills Survey*.

Proportion of Māori Students in Schools

Schools were categorised into three subgroups: schools with less than 10 percent Māori students, schools with 10 to 30 percent Māori students, and schools with more than 30 percent Māori students. Results were compared for students attending schools in these three categories.

For year 4 students, statistically significant differences in performance between the three subgroups were found on fourteen of the twenty-one tasks. In each case, students attending schools with less than ten percent Māori students scored highest and students attending schools with more than thirty percent of Māori students scored lowest. Because of the number of tasks involved, the specific tasks will not be listed here. There were no statistically significant differences on questions of the *Information Skills Survey*.

For year 8 students, statistically significant differences in performance between the three subgroups were found on thirteen of the twenty-seven tasks. In each case, students attending schools with less than ten percent Māori students scored highest, and students attending schools with more than thirty percent of Māori students scored lowest. Because of the number of tasks involved, the specific tasks will not be listed here. There were no statistically significant differences on questions of the *Information Skills Survey*.

Proportion of Pacific Island Students in Schools

Because most of the Pacific Island students are concentrated into relatively few schools, it was difficult to create sensible subgroups for schools with higher or lower percentages of Pacific Island students. Two subgroups were formed: students attending schools with up to 5 percent Pacific Island students, and students attending schools with more than 5 percent Pacific Island students. Results were compared for students in these two subgroups.

For year 4 students, statistically significant differences in performance between the three subgroups were found on fourteen of the twenty-one tasks. In each case, students attending schools with more than five percent of Pacific Island students scored lower. Because of the number of tasks involved, the specific tasks will not be listed here. There was also a statistically significant difference on one question of the *Information Skills Survey* (p46), with students from schools with more than five percent of Pacific Island students reporting greater enjoyment of writing down information gathered (question 5).

For year 8 students, statistically significant differences in performance between the two subgroups were found on six of the twenty-seven tasks. In each case, students attending schools with more than five percent of Pacific Island students scored lower. Because of the number of tasks involved, the specific tasks will not be listed here. There were no statistically significant differences on questions of the *Information Skills Survey*.

Summary

Very few statistically significant differences were found for subgroups based on community size, school size or school type. At year 4 level there was only one statistically significant difference among the subgroups based on geographic zone, but at year 8 level South Island students performed better on eight of the twenty-seven tasks. At both year levels, girls performed better than boys on about one third of the tasks, and non-Maori students performed better than Maori students on slightly more than half of the tasks. The three variables relating to school ethnic composition and school socio-economic index are linked to each other, and present a similar picture. There were statistically significant differences between the three SES (socio-economic index) subgroups for 80 percent of tasks at year 4 level and 55 percent of tasks at year 8 level.