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 (p5).

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 six tasks where differences in team performance among 120 teams were being examined.

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

Zone

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

For year 8 students, there were no statistically significant differences among the three subgroups on any of the 17 tasks. There was a statistically significant difference among the three subgroups on one question of the *Technology survey* (p39). In response to question 4, Auckland students reported the highest level of use of computers when not at school and students from elsewhere in the North Island reported the lowest use.

For year 4 students, there was a statistically significant difference among the three subgroups on only one of the 15 tasks. Students from Auckland score highest and students from elsewhere in the North Island score lowest on *Gift soap* (p21). There were no statistically significant differences among the three subgroups on questions of the *Technology survey*.

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 8 students, there were no statistically significant differences among the three subgroups on any of the 17 tasks, but there was a difference on one question in the *Technology survey* (p39). Students from main centres reported the highest level of computer use outside of school (question 4), while students from rural areas reported the lowest level of use.

For year 4 students, there were no statistically significant differences among the three subgroups on any of the assessment tasks, or on questions of the *Technology survey* .

School Size

Results were compared from students in larger, medium sized, and small schools (exact definitions were given in Chapter 1, p8).

For year 8 students, there was a statistically significant difference among the three subgroups on only one of the 17 tasks. Students from small schools scored lowest on *Planning a Class Event* (p24).There was also one statistically significant differences among the three subgroups on a question of the *Technology survey* (p39). Students from small schools reported less use of computers outside of school (question 4).

For year 4 students, there were no statistically significant differences among the three subgroups on the assessment tasks, or on questions of the *Technology 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 was found on only one of the 17 technology tasks. Students from intermediate schools scored lower than students from full primary schools on *Link task 6* (p31).There was also a statistically significant difference on question 4 of the *Technology survey.* Students from intermediate schools reported greater use of computers outside of school.

Gender

Results achieved by male and female students were compared.

For year 8 students, there were statistically significant differences between boys and girls on three tasks. Girls scored higher than boys on two design tasks: *Sports Bag* (p23) and *Link task 5* (p25). However, girls scored lower than boys on a task involving electrical circuits: *Link task 2* (p19). On the *Technology survey* (p39), there were statistically significant differences between boys and girls on three of the four questions, with boys higher in each case. Boys expressed greater liking for doing technology at school (question 1), judged themselves to be performing better in technology (question 2), and reported a greater level of computer usage outside of school (question 4).

For year 4 students, there were statistically significant differences between boys and girls on three tasks. Girls scored higher than boys on one design task (*Gift soap*, p21), but lower than boys on another design and making task (*Flag*, p22). Girls also scored lower than boys on a task involving understanding how a technological device works (*Stapler*, p18). There were also statistically significant differences on two questions of the *Technology survey* (p38). Compared to girls, boys reported greater usage of computers both at school (question 3) and outside of school (question 4).

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 used 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 8 students, there were statistically significant differences among the three subgroups on seven of the 17 tasks. 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 some cases these differences were small. Because of the number of tasks, the specific tasks will not be listed here, but it should be noted that they included tasks in three of the four strands assessed (Chapters 3 to 5). On the *Technology survey* (p39), there was a statistically significant difference on one question: students from low SES schools reported lower levels of use of computers outside of school (question 4).

For year 4 students, there were statistically significant differences among the three subgroups on five of the 13 tasks: *Useful Machines* (p15), *Stapler* (p18), *Link task 1* (p19), *Link task 3* (p25), and *Space game* (p27). In each case, performance was lowest for students in the low SES group and highest for students in the high SES group. There were no statistically significant differences among the three subgroups on questions of the *Technology survey*.

Student Ethnicity

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

For year 8 students, there were statistically significant differences of performance between Māori and non-Māori students on three tasks. In each case, non-Māori students scored higher than Māori students. These three tasks were *Link task 1* (p19), *Gift soap* (p21), and *Link task 6* (p31). There were no statistically significant differences between Māori and non-Māori students on questions of the *Technology survey*.

For year 4 students, there were statistically significant differences in performance on two tasks. Māori students scored lower than non-Māori students on both tasks: *Link task 1* (p19) and *Link task 3* (p25). There were no statistically significant differences between Māori and non-Māori students on questions of the *Technology 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 8 students, statistically significant differences in performance among the three subgroups were found on seven of the 17 tasks. On each of these tasks, students attending schools with less than 10 percent Māori students scored highest. Because of the number of tasks involved, they will not be listed here, but it is worth noting that all seven tasks involved individual students rather than teams of students. On the *Technology survey* (p39), there was a statistically significant differences between the three subgroups on one question. Students from schools with less than 10 percent of Māori students reported higher levels of use of computers outside of school (question 4).

For year 4 students, statistically significant differences in performance between the three subgroups were found on four of the 15 tasks, all involving individual performance. In each case, students attending schools with more than 30 percent Māori students scored lowest, with generally smaller differences between the other two subgroups. The four tasks were: *Tool time* (p14), *Stapler* (p18), *Link task 1* (p19), and *Link task 3* (p25). There were no statistically significant differences on questions of the *Technology 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 8 students, statistically significant differences in performance among the two subgroups were found on five of the 20 tasks: *Tool time* (p14), *Gift soap* (p21), *Link task 3* (p25), *Link task 5* (p25), and *Green sheep* (p29), . For each of these tasks, average performance levels were lower in the schools with more than 5 percent Pacific Island students. There were no statistically significant differences on questions of the *Technology survey*.

For year 4 students, statistically significant differences in performance among the two subgroups were found on two individual tasks (*Stapler*, p18, and *Link task 1*, p19)and two team tasks (*Coloured sheep*, p28, and *Link task 7*, p31. For each of these tasks, average performance levels were lower in the schools with more than 5 percent Pacific Island students.There were no statistically significant differences on questions of the *Technology survey*.