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. Seven 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). For team tasks, the critical level was raised to p = .05, because of the smaller sample size (120 teams, rather than about 450 students).

For the first five of the seven demographic variables discussed, statistically significant differences among the subgroups were found for less than twenty percent of the tasks at both year 4 and year 8. For the remaining two variables, statistically significant differences were found on a substantial proportion of tasks at one or both levels. In the report below, all "differences" mentioned are statistically significant differences (to save space, the words "statistically significant" are omitted).

The performance patterns found were different for the movement skills tasks (Chapter 4) and the other tasks (Chapters 3, 5 and 6). In this chapter, the former are referred to as PE (physical education) tasks, the latter as health tasks.

### School size

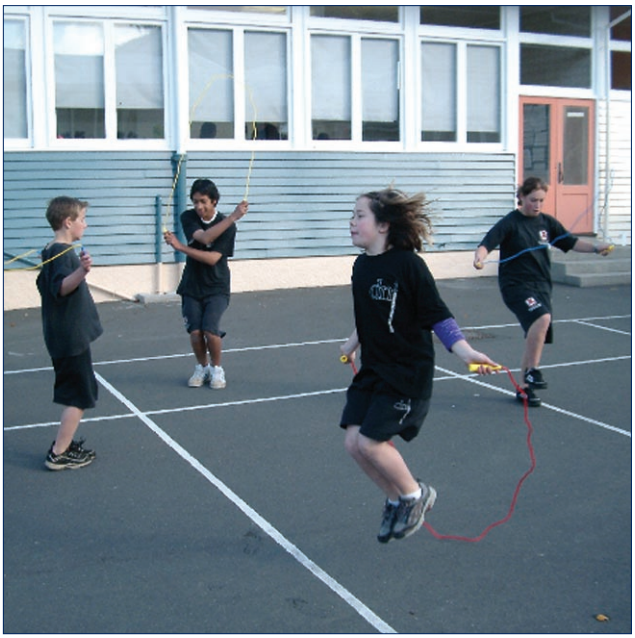
Results were compared from students in larger, medium sized, and small schools (exact definitions were given in Chapter 1).

For year 4 students, there were no differences on any of the 31 health tasks or 22 PE tasks, nor on any questions of the two surveys.

For year 8 students, there were no differences on any of the 39 health tasks or 24 PE tasks, nor on any questions of the two surveys.

### School type

Results were compared for year 8 students attending full primary and intermediate schools. There were no differences between these two subgroups on any of the 24 PE tasks, nor on any questions of the two surveys. There were, however, differences on 3 of the 39 health tasks, with students from full primary schools scoring higher on all three: *Body Parts* (p23), *Link Task 1* (p29), and *Link Task 27* (p57).



### 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 towns), and communities containing less than 10,000 people (rural areas).

For year 4 students, there were differences among the three subgroups on two of the 31 health tasks and two of the 22 PE tasks. Students from main centres scored lowest on *Smoke Alarm* (p25), students from provincial towns scored highest on *Link Task 6* (p29), and students from main centres scored highest (with students from rural areas lowest) on both *Tī Rākau* (p34), and *Link Task 18* (p44). There were no differences on questions of the two surveys (p63, 65).

For year 8 students, there were differences among the three subgroups on two of the 39 health tasks: students from main centres scored lowest on *Link Task 6* (p29) but highest (with students from rural areas lowest) on *Whose Friend?* (p52). There was also a difference on one question of the *PE Survey* (p65), with students from rural areas lowest on the reported amount of vigorous physical activity in the last 24 hours (question 9). There were no differences on the 24 PE tasks, nor on questions of the *Health Survey* (p63).

### Zone

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

For year 4 students, there were differences among the three subgroups on five of the 31 health tasks. Students from Auckland scored lowest on four tasks: *Camp Out* (p14), *Smoke Alarm* (p25), *Link Task 1* (p29), and *Link Task 6* (p29), with students from the South Island highest on the first and third of these. Students from regions of the North Island other than Auckland scored highest on *Link Task 5* (p29). There was also a difference on one of the 22 PE tasks, with students from Auckland scoring highest on *Link Task 18* (p44). There were no differences on questions of the two surveys (p63,65).

For year 8 students, there were differences among the three subgroups on two of the 39 health tasks. Students from Auckland scored lowest on both *Link Task 6* (p29), and *To Smoke or Not to Smoke* (p56), with South Island students highest on the latter. There were also differences on three of the 24 PE tasks, with students from Auckland highest on *Link Task 12* (p44), but lowest on *Circuit Ball* (p31) and *Link Task 18* (p44). There were no differences on questions of the two surveys (p63,65).

### Student ethnicity

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

For year 4 students, there were differences on 5 of the 28 health tasks, with Māori students scoring lower than non-Māori students on *The Body* (p20), *Andrew's School* (p48), *Whose Friend?* (p52), *Marching Boy* (p55), and *Link Task 25* (p57). There were differences in the opposite direction on two of the 22 PE tasks: Māori students scored higher than non-Māori students on *Tap 'n' Hit* (p36) and *Target Throw* (p37). On the *Health Survey* (p63), Māori students were more positive than non-Māori students about doing health education at school (question 1) and about learning or doing more health education as they got older (question 3). On the *PE Survey* (p63), Māori students were more positive than non-Māori students about doing PE at school (question 1).

For year 8 students, there were differences on two of the 36 health tasks, with Māori students scoring lower than non-Māori students on *Stressed Out* (p24) and *Choice Food* (p26). There were differences in the opposite direction on two of the 22 Physical Education tasks: Māori students scored higher than non-Māori students on *Tī Rākau* (p34) and *Link Task 20* (p44). There were no differences on questions of the two surveys (p63,65).

### 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 differences among the three subgroups on 10 of the 31 health tasks, six in Chapter 3 and four in Chapter 5. Because of the number of tasks involved, they are not listed here. In almost every case, students in the low SES schools scored lowest, with students in medium SES schools substantially higher and students in high SES schools generally slightly higher still. The pattern was very different for PE tasks: there was a difference on just one of the 22 tasks, with students in high SES schools scoring highest on *Vertical Jump* (p42). There were no differences on questions of the *PE Survey* (p65), but there were differences on two questions of the *Health Survey* (p63), with students from low SES schools more positive than students from higher SES schools about doing health education at school (question 1) and about learning or doing more health education as they got older (question 3).

For year 8 students, there were differences among the three subgroups on 17 of the 39 health tasks, twelve in Chapter 3, four in Chapter 5 and one in Chapter 6. Because of the number of tasks involved, they are not listed here. In almost every case, students in the low SES schools scored lowest, with students in medium SES schools substantially higher. In about half of the cases, students in high SES schools scored higher still. The pattern was very

different for PE tasks: there were differences on just two of the 24 tasks: *Many Moves* (p41) and *Vertical Jump* (p42), with students in low SES schools scoring lowest on both, and students in high SES schools doing a little better than students in medium SES schools. There were no differences on questions of the two surveys.

### Gender

Results achieved by male and female students were compared.

For year 4 students, there were differences between boys and girls on just three of the 28 health tasks, all from Chapter 5. Girls scored higher than boys on *Andrew's School* (p48), *Marching Boy* (p55), and *Link Task 25* (p57). The picture was very different for the PE tasks: there were differences on 16 of the 22 PE tasks. Boys scored higher on half (11) of the tasks, all involving running speed, jumping, or the use of balls or similar objects (throwing, catching, hitting, dribbling). Girls scored higher on 5 tasks involving precision movement and body control: *Ladder Activities* (p32), *Forward Roll* (p38), *Many Moves* (p41), *Link Task 19* (p44), and *Link Task 20* (p44). There were no differences on questions of the *Health Survey* (p63), but there was a difference on one questions of the *PE Survey* (p65): girls thought their families were more positive about their capabilities in PE (question 4).

For year 8 students, there were differences between boys and girls on 12 of the 26 health tasks, five in Chapter 3 and seven in Chapter 5. Girls scored higher than boys on all 12 tasks. There were also differences on 16 of the 23 PE tasks. Boys performed better on 10 tasks, three of which involved running fast or jumping, and seven of which involved the use of balls or similar objects (throwing, catching, hitting, dribbling). Girls performed better than boys on six tasks: *Ladder Activities* (p32), *Forward Roll* (p38), *Tī Rākau* (p34), *Many Moves* (p41), *Link Task 19* (p44), and *Link Task 20* (p44). There was a difference on one question of the *Health Survey* (p63), with girls more positive about learning or doing more health education as they got older (question 3). Finally, there were differences on four questions of the *PE Survey* (p65), with boys more positive about doing PE at school (question 1), how good they thought they were at PE (question 2), liking to do more PE at school (question 7), and continuing to learn PE as they got older (question 8).

### Summary

School size, school type (full primary or intermediate), community size, geographic zone and student ethnicity (Māori/non-Māori) did not seem to be important factors predicting achievement in health and physical education, or attitudes towards them.

Students attending low SES schools scored lower than other students on 32 percent of the health tasks at year 4 level and 44 percent at year 8 level. With PE tasks, however, there were differences involving SES for less than 10 percent of the tasks at both levels.

Girls performed better than boys on 11 percent of the year 4 health tasks and 33 percent of the year 8 health tasks. The picture was very different with PE tasks. At both year levels, boys performed better than girls on 44 to 50 percent of the tasks (most of the tasks that involved running fast, jumping, throwing, catching, hitting or dribbling balls), while girls performed better than boys on 23 to 26 percent of the tasks (involving precision movement and body control).

For physical education tasks, the only notable change between 1998 and 2002 was that in 1998, year 4 students from low SES schools performed better than their counterparts from higher SES schools on 17 percent of tasks. That positive disparity was no longer evident in 2002, with students from low SES schools performing worse on 4 percent of tasks and better on none.

Comparing the subgroup performance patterns on health tasks in 2002 with those in 1998, the only notable change has been a reduction in the disparity of performance between Māori and non-Māori year 8 students. Non-Māori students performed better than Māori students on 27 percent of year 8 tasks in 1998, but only on 6 percent in 2002.