

The New York State Testing Program Standard Performance Index (SPI) for Grade 4 Mathematics, 2004

The New York State Testing Program Standard Performance Index (SPI) represents the number of items a student, based on his/her performance on the test, would be expected to answer correctly if there were 100 items measuring each of the New York State Mathematics Learning Key Ideas. The SPI may be used as a diagnostic tool that provides a profile of a student's relative strengths and weaknesses in relation to each of the seven Key Ideas for Mathematics' Standard 3. It is important to remember that the calculation of the SPIs depends on student responses to the items measuring a standard and how difficult those items are. This item difficulty information is obtained through the analysis of field test scores.

A student may have a seemingly high SPI on Key Idea 7 (for example, 89 out of a possible 100) and a seemingly low SPI on Key Idea 1 (for example, 79 out of a possible 100). However, because the student has what appears to be a high SPI on Key Idea 7 and what appears to be a low SPI on Key Idea 1 does not necessarily mean that he or she is strong on the former and weak on the latter. It could mean that the items on Key Idea 7 are relatively easy and the items on Key Idea 1 are more difficult. Since the difficulty of the items within each Key Idea may vary, a point of reference (expected SPIs) for each Key Idea is needed for teachers and students to better understand SPI scores.

For comparisons, a table of *expected SPIs*, that identify the value differentiating performance levels for each of the seven Mathematics Key Ideas, is presented below. The expected SPIs at the decision points separating performance level 1 from performance level 2, performance level 2 from performance level 3, and performance level 3 from performance level 4, can be used as reference points against which each student's scores may be compared. For example, think of a grade 4 student whose SPI on Key Idea 3 is 52. The expected SPI for the decision point separating performance level 2 from performance level 3 is 49. That is to say, a student *just at* the level 3 cut score is expected to get an SPI of 49 on Key Idea 3. Although the student who obtained the SPI of 52 seems to be scoring low against the possible 100 points, he or she is still higher than what is expected for a student just at performance level 3 for Key Idea 3.

Expected SPIs change from year to year depending on the difficulty of each year's test items. Therefore, it is not possible to compare SPIs from year to year without reference to a particular year's expected SPIs. Expected SPIs are published on the Office of State Assessment website (<http://www.emsc.nysed.gov/osa>), both in the annual technical report in the Publications Section as well as in the Mathematics section.

Expected SPIs at the Cut Points for each Grade 4 Mathematics Learning Key Ideas and Performance Level for the 2004 Grade 4 Mathematics Test

	Grade 4 Mathematics		
	Level 2	Level 3	Level 4
Key Idea 1	24	48	79
Key Idea 2	38	59	82
Key Idea 3	23	49	82
Key Idea 4	40	62	83
Key Idea 5	36	63	87
Key Idea 6	24	52	86
Key Idea 7	36	58	87