

SECONDARY STUDENTS' ATTITUDES TOWARDS MATHEMATICS AND SCIENCE

Key Findings: Canada, England, Italy, Japan, United States

In 1999, just over one third (35 percent) of U.S. eighth-grade students had a high score on the index of positive attitudes towards mathematics. The proportion of students in the United States with a high positive index score was below the proportion in England (41 percent) and above the proportion in Japan (9 percent). No difference was detected between the proportion of students with a high positive index score in the United States, Canada, and Italy (figure 15a).

About one third (32 percent) of U.S. eighth-grade students had a high score on the index of positive attitudes towards general/integrated science. The proportion of students in the United States with a high positive index score was below the proportion in England (39 percent), and above the proportion in Japan (10 percent). No difference was detected between the proportion of students with a high positive index score in the United States, Canada, and Italy (figure 15b).

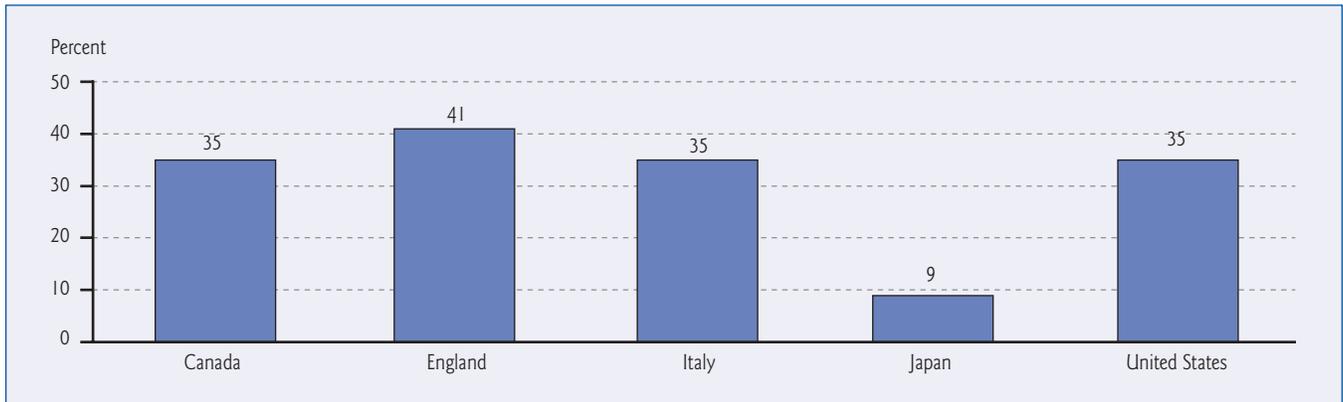
Definition and Methodology

The mathematics index is based on students' responses to five statements about mathematics: 1) I like mathematics; 2) I enjoy learning mathematics; 3) mathematics is boring (reversed scale); 4) mathematics is important to everyone's life; 5) I would like a job that involved using mathematics. Average is computed across the five items based on a four-point scale: 1 = strongly negative; 2 = negative; 3 = positive; 4 = strongly positive. High level indicates average is greater than 3. Medium level indicates average is greater than 2 and less than or equal to 3. Low level indicates average is less than or equal to 2.

The science index is based on students' responses to five statements about science: 1) I like science; 2) I enjoy learning science;

3) science is boring (reversed scale); 4) science is important to everyone's life; 5) I would like a job that involved using science. Average is computed across the five items based on a 4-point scale: 1 = strongly negative; 2 = negative; 3 = positive; 4 = strongly positive. In countries where science is taught as separate subjects, students were asked about each subject area separately. High level indicates average is greater than 3. Medium level indicates average is greater than 2 and less than or equal to 3. Low level indicates average is less than or equal to 2.

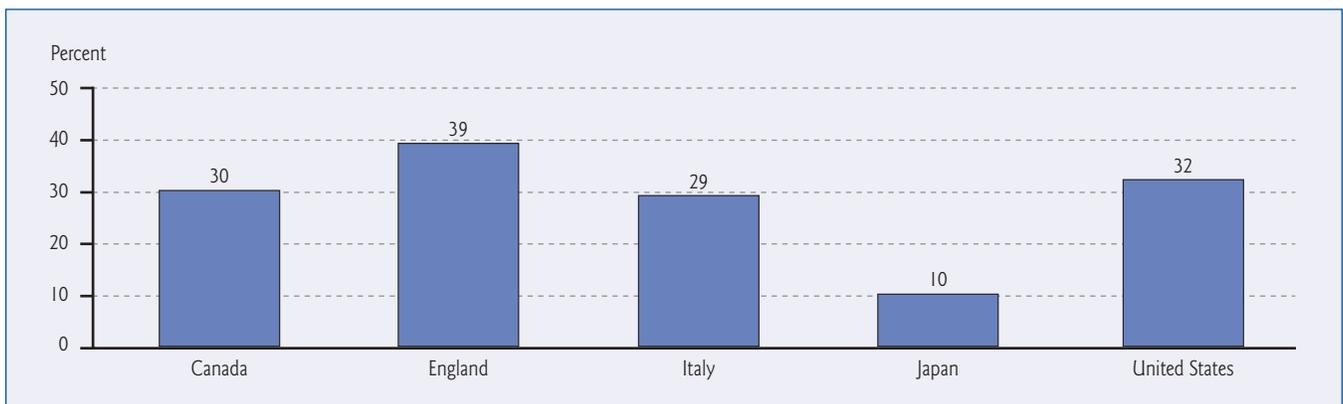
Figure 15a. Percentage of eighth-grade students with “high” scores on the index of positive attitudes towards mathematics, by country: 1999



NOTE: Index based on students' responses to five statements about mathematics: 1) I like mathematics; 2) I enjoy learning mathematics; 3) mathematics is boring (reversed scale); 4) mathematics is important to everyone's life; 5) I would like a job that involved using mathematics. Average is computed across the five items based on a four-point scale: 1 = strongly negative; 2 = negative; 3 = positive; 4 = strongly positive. High level indicates average is greater than 3. Medium level indicates average is greater than 2 and less than or equal to 3. Low level indicates average is less than or equal to 2.

SOURCE: International Association for the Evaluation of Educational Achievement, *TIMSS 1999 International Mathematics Report: Findings from IEA's Repeat of the Third International Mathematics and Science Study at the Eighth Grade*, 2000, Exhibit 4.10.

Figure 15b. Percentage of eight-grade students with “high” scores on the index of positive attitudes towards science, by country: 1999



NOTE: Index based on students' responses to five statements about science: 1) I like science; 2) I enjoy learning science; 3) science is boring (reversed scale); 4) science is important to everyone's life; 5) I would like a job that involved using science. Average is computed across the five items based on a 4-point scale: 1 = strongly negative; 2 = negative; 3 = positive; 4 = strongly positive. In countries where science is taught as separate subjects, students were asked about each subject area separately. High level indicates average is greater than 3. Medium level indicates average is greater than 2 and less than or equal to 3. Low level indicates average is less than or equal to 2.

SOURCE: International Association for the Evaluation of Educational Achievement, *TIMSS 1999 International Science Report: Findings from IEA's Repeat of the Third International Mathematics and Science Study at the Eighth Grade*, 2000, Exhibit 4.10.

Secondary Students' Attitudes Towards Mathematics and Science – Data Tables

Table A-15. Percentage of eighth-grade students with “high” scores on the index of positive attitudes towards mathematics and science, by country: 1999

Country	Mathematics	Science
Canada	35 (0.9)	30 (0.8)
England	41 (1.3)	39 (1.1)
Italy	35 (1.2)	29 (1.2)
Japan	9 (0.5)	10 (0.5)
United States	35 (1.1)	32 (0.9)

NOTE: Standard errors are in parentheses. Index based on students' responses to five statements about mathematics: 1) I like mathematics; 2) I enjoy learning mathematics; 3) mathematics is boring (reversed scale); 4) mathematics is important to everyone's life; 5) I would like a job that involved using mathematics. Average is computed across the five items based on a four-point scale: 1 = strongly negative; 2 = negative; 3 = positive; 4 = strongly positive. High level indicates average is greater than 3. Medium level indicates average is greater than 2 and less than or equal to 3. Low level indicates average is less than or equal to 2.

Index based on students' responses to five statements about science: 1) I like science; 2) I enjoy learning science; 3) science is boring (reversed scale); 4) science is important to everyone's life; 5) I would like a job that involved using science. Average is computed across the five items based on a 4-point scale: 1 = strongly negative; 2 = negative; 3 = positive; 4 = strongly positive. In countries where science is taught as separate subjects, students were asked about each subject area separately. High level indicates average is greater than 3. Medium level indicates average is greater than 2 and less than or equal to 3. Low level indicates average is less than or equal to 2.

SOURCE: International Association for the Evaluation of Educational Achievement, *TIMSS 1999 International Mathematics Report: Findings from IEA's Repeat of the Third International Mathematics and Science Study at the Eighth Grade*, 2000, Exhibit 4.10; International Association for the Evaluation of Educational Achievement, *TIMSS 1999 International Science Report: Findings from IEA's Repeat of the Third International Mathematics and Science Study at the Eighth Grade*, 2000, Exhibit 4.10.