

# Hard Science

*Ontario students are several years behind Alberta students in science.*

In May 2000, the Council of Ministers of Education released its second report on science assessment administered to samples of 13- and 16-year-old Canadian students in the spring of 1999.

Just like the first assessment administered in 1996, the second assessment consisted of two parts: a written and a practical part. Because only a few provinces provided sufficiently large samples for the practical part of the assessment, this analysis has been confined to the written portion.

The same test was administered to the 13-year-olds and to the 16-year-olds. The expectation was that the 16-year-olds would score considerably higher than the 13-year-olds, thus ascertaining how much learning takes place over three years.

In the assessment, students were graded from level 1 to level 5, with 1 the lowest achievement and 5 the highest. The value zero was assigned to those students who did not reach level 1. Here are the average scores for each age group ranked according to province.

## SAIP Science 1999 13-year-old Average Score Written Test

Alberta	2.555
British Columbia	2.369
Saskatchewan	2.276
Prince Edward Island	2.251
Quebec (French)	2.245
<b>Canada Average</b>	<b>2.242</b>
Manitoba (English)	2.220
Yukon	2.206
Nova Scotia (English)	2.191
Ontario (English)	2.167
Quebec (English)	2.150
New Brunswick (English)	2.143
Newfoundland	2.045
Manitoba (French)	1.845
New Brunswick (French)	1.812
Nova Scotia (French)	1.809
Ontario (French)	1.705
Northwest Territories	1.704
Nunavut	0.613

## SAIP Science 1999 16-year-old Average Score

### Written Test

Alberta	3.376
Prince Edward Island	3.117
Manitoba (English)	3.073
Quebec (French)	3.054
Yukon	2.968
Quebec (English)	2.951
<b>Canada average</b>	<b>2.942</b>
Saskatchewan	2.932
British Columbia	2.901
Nova Scotia (French)	2.879
Nova Scotia (English)	2.873
Manitoba (French)	2.825
Ontario (English)	2.824
Newfoundland	2.801
New Brunswick (English)	2.789
Northwest Territory	2.694
New Brunswick (French)	2.616
Ontario (French)	2.434
Nunavut	1.177

Because the 13-year-olds and the 16-year-olds wrote the same test, it is possible to estimate the average amount of progress per year. The national average score of 16-year-olds is 2.942, while the corresponding score of 13-year-olds is 2.242. The difference (0.700) is the measure of three years' study. One-third of this (=0.233) is the approximate equivalent of one year's progress.

This information allows one to assess the importance of the difference in inter-jurisdictional scores. Thus, for example, 16-year-old Albertans are almost one full year ahead of the Canadian average, while 16-year-old Ontarians (English) are almost two and a half years behind the Albertans and 16-year-old Ontarians (French) are four years behind them.

Ontario is one of the richest provinces. Its population is one of the most educated in Canada. Why, then, do its students always rank below the national average in every subject tested?

(OQE has all the inter-provincial and international rankings at [www.oqe.org](http://www.oqe.org). Click on "Background Papers.")

### Third International Math and Science Study Science Grade 8 – 1996

Country	% Correct
Singapore	70
Korea	66
Japan	65
Alberta	65
Czech Republic	64
Netherlands**	62
British Columbia	62
Bulgaria**	62
Slovenia**	62
Austria*	61
England*	61
Hungary	61
Belgium (Fl)*	60
Australia**	60
Slovak Republic	59
Sweden	59
Canada	59
Newfoundland	59
Ireland	58
United States*	58
Russian Federation	58
Germany**	58
New Zealand	58
Norway	58
Hong Kong	58
Thailand**	57
New Brunswick (ESS)	57
Israel**	57
Switzerland*	56
Ontario	56
Spain	56
Scotland**	55
France	54
Iceland	52
Greece**	52
Denmark**	51
Belgium (Fr)**	50
Latvia (LSS)*	50
Portugal	50
Romania**	50
Lithuania*	49
Iran	47
Cyprus	47
Kuwait**	43
Colombia**	39
South Africa**	27

\*Replacement schools used, or less than the whole population sampled

\*\*Did not meet all sampling requirements