APPENDIX B

Multiple Comparisons
of Average Achievement
in Mathematics
Content Areas





Exhibit B.1

Multiple Comparisons of Average Achievement in Fractions and **Number Sense**



Instructions: Read across the row for a country to compare performance with the countries listed along the top of the chart. The symbols indicate whether the average achievement of the country in the row is significantly lower than that of the comparison country, significantly higher than that of the comparison country, or if there is no statistically significant difference between the average achievement of the two countries.

	Singapore Hong Kong, SAR Chinese Taipei Korea, Rep. of Japan Belgium (Flemish)	Netherlands Canada Malaysia Finland Slovenia Hungary Slovak Republic Australia Russian Federation	United States Czech Republic Bulgaria England Latvia (USS) New Zealand Cyprus Lithuania Israel Thailand Italy Moldova Romania Tunisia Irnn, Islamic Rep. Macedonia, Rep. of Jurkey	Indonesia Chile Philippines Morocco South Africa
Singapore Hong Kong, SAR Chinese Taipei Korea, Rep. of Japan	* * * * * * * * * * * * * * * * * * *			
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Italy Moldova Romania Tunisia	V V V V V V V V V V V V V V V V V V V	X		
Iran, Islamic Rep. Macedonia, Rep. of Jordan Turkey Indonesia	V V V V V V V V V V V V V V V V V V V	· · · · · · · · · · · · · · · · · · ·		
Chile Philippines Morocco South Africa	V V V V V V V V V V V V V V V V V V V	* * * * * * * * * * * * * * * * * * *		

SOURCE: IEA Third International Mathematics and Science Study (TIMSS), 1998-1999.

- Average achievement significantly higher than comparison country
- No statistically significant difference from comparison country
- Average achievement significantly lower than comparison country

Significance tests adjusted for multiple comparisons

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Multiple Comparisons of Average Achievement in Measurement



Instructions: Read across the row for a country to compare performance with the countries listed along the top of the chart. The symbols indicate whether the average achievement of the country in the row is significantly lower than that of the comparison country, significantly higher than that of the comparison country, or if there is no statistically significant difference between the average achievement of the two countries.

Korea, Rep. of Hong Kong, SAR No.		Korea, Rep. of Hong Kong, SAR Chinese Taipei Japan Belgium (Flemish) Hungary Netherlands Slovak Republic Czech Republic Czech Republic Carada Russian Federation Slovenia Canada Finland Malaysia England Latvia (LSS) Italy Bulgaria New Zealand Romania United States Moldova Cyprus Lithuania Thailand Israel Macedonia, Rep. of Tunisia	Jordan Turkey Chile Iran, Islamic Rep. Indonesia Philippines Morocco South Africa
Hong Kong, SAR Chinese Taipei Japan Belgium (Flemish) Hungary Netherlands Slovak Republic Czech	Singapore		
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Bulgaria New Zealand Romania United States United States Moldova Cyprus Cyprus VVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVVV			
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SOURCE: IEA Third International Mathematics and Science Study (TIMSS), 1998-1999.

- Average achievement significantly higher than comparison country
- No statistically significant difference from comparison country
- Average achievement significantly lower than comparison country

Exhibit B.3

Multiple Comparisons of Average Achievement in Data Representation, Analysis, and Probability



Instructions: Read across the row for a country to compare performance with the countries listed along the top of the chart. The symbols indicate whether the average achievement of the country in the row is significantly lower than that of the comparison country, significantly higher than that of the comparison country, or if there is no statistically significant difference between the average achievement of the two countries.

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- Average achievement significantly higher than comparison country
- No statistically significant difference from comparison country
- Average achievement significantly lower than comparison country



Multiple Comparisons of Average Achievement in Geometry



Instructions: Read across the row for a country to compare performance with the countries listed along the top of the chart. The symbols indicate whether the average achievement of the country in the row is significantly lower than that of the comparison country, significantly higher than that of the comparison country, or if there is no statistically significant difference between the average achievement of the two countries.

	Japan Korea, Rep. of Singapore Chinese Taipei Hong Kong, SAR Belgium (Flemish) Slovak Republic Bulgaria Latvia (LSS) Russian Federation Netherlands Canada Australia Malaysia Lithuania Finland Hungary Romania Thailand Cyprus Tunisia Italy Moldova New Zealand United States England Israel Macedonia, Rep. of Jordan Iran, Islamic Rep.	Turkey Chile Morocco Philippines South Africa
Japan		A A A A
Korea, Rep. of		A A A A
Singapore Chinese Taipei		
Hong Kong, SAR		
Belgium (Flemish)	* * * * * * * * * * * * * * * * * * * 	A A A A
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Latvia (LSS) Russian Federation		
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- Average achievement significantly higher than comparison country
- No statistically significant difference from comparison country
- Average achievement significantly lower than comparison country

Exhibit B.5

Multiple Comparisons of Average Achievement in Algebra



Instructions: Read across the row for a country to compare performance with the countries listed along the top of the chart. The symbols indicate whether the average achievement of the country in the row is significantly lower than that of the comparison country, significantly higher than that of the comparison country, or if there is no statistically significant difference between the average achievement of the two countries.

	Chinese Taipei	Korea, Rep. of	Singapore Japan	Hong Kong, SAR	Belgium (Flemish)	Hungary	Russian Federation	Slovenia	Canada	Netherlands	Australia	Czech Republic	Bulgaria	United States	Malaysia	Latvia (LSS)	England	Finland	New Zealand	Lithuania	Italy	Romania Israel	Cyprus	Moldova	Macedonia, Rep. of	Thailand	Tunisia	Jordan	Iran, Islamic Rep.	Turkey	Indonesia	Margro	IVIOIUCCU	Pnilippines South Africa	Juliu Ailica
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SOURCE: IEA Third International Mathematics and Science Study (TIMSS), 1998-1999

- Average achievement significantly higher than comparison country
- No statistically significant difference from comparison country
- Average achievement significantly lower than comparison country