Exhibit 13.4: Percentages of Students Taught the TIMSS Science Topics

Students' Results based on Teachers' Reports

About the Scale

Exhibit 13.5 reports the percentage of students whose teachers responded "mostly taught before this year" or "mostly taught this year," averaged across topics.

Choose the response that best describes when students in this class have been taught each topic.

	Mostly taught before this year	Mostly taught this year	Not yet taught or just introduced
A. Life Science			
1) Physical and behavioral characteristics of living things and major groups of living things (e.g., mammals, birds, insects, flowering plants)	○	○	○
2) Major body structures and their functions in humans, other animals, and plants	○	○	○
3) Life cycles of common plants and animals (e.g., flowering plants, butterflies, frogs)	○	○	○
4) Characteristics of plants and animals that are inherited	○	○	○
5) Interactions between organisms and their environments (e.g., physical features and behaviors that help living things survive in their environments)	○	○	○
6) Relationships in ecosystems (e.g., simple food chains, predator-prey relationships, competition)	○	○	○
7) Human health (transmission and prevention of diseases, everyday behaviors that promote good health)	○	○	○
B. Physical Science			
1) States of matter (solid, liquid, gas) and their properties (volume, shape)	○	○	○
2) Classifying materials based on physical properties (e.g., weight/mass, volume, state of matter, conductivity of heat or electricity)	○	○	○
3) Mixtures, including methods for separating a mixture into its components (e.g., sifting, filtering, evaporation, using a magnet)	○	○	○
4) Properties of magnets (e.g., like poles repel and opposite poles attract, magnets can attract some objects)	○	○	○
5) Physical changes in everyday life (e.g., changes of state, dissolving)	○	○	○
6) Chemical changes in everyday life (e.g., decaying, burning, rusting, cooking)	○	○	○
7) Common sources of energy (e.g., the Sun, wind, oil) and uses of energy (heating and cooling homes, providing light)	○	○	○
8) Light and sound in everyday life (e.g., shadows and reflections, vibrating objects make sound)	○	○	○
9) Heat transfer (e.g., energy flows from a hot object to a colder object)	○	○	○
10) Electricity and simple electrical circuits (e.g., a circuit must be complete to work correctly)	○	○	○
11) Forces that cause objects to move (e.g., gravity, pushing/pulling) or change their motion (e.g., friction)	○	○	○
12) Simple machines (e.g., levers, pulleys, wheels, ramps) that help make motion easier	○	○	○
C. Earth Science			
1) Physical makeup of Earth's surface (e.g., land and water in unequal proportions, sources of fresh and salt water)	○	○	○
2) Earth's resources used in everyday life (e.g., water, wind, soil, forests, oil, natural gas, minerals)	○	○	○
3) Changes in Earth's surface over time (e.g., mountain building, weathering, erosion)	○	○	○
4) Fossils and what they can tell us about past conditions on Earth	○	○	○
5) Weather and climate (e.g., daily, seasonal, and locational variations versus long term trends)	○	○	○
6) Objects in the Solar System (the Sun, the Earth, the Moon, and other planets) and their movements	○	○	○
7) Earth's motion and related patterns observed on Earth (e.g., day and night, seasons)	○	○	○

Exhibit 13.5: Percentages of Students Taught the TIMSS Science Topics

Students' Results based on Teachers' Reports

The exhibit reports the percentage of students whose teachers responded "mostly taught before this year" or "mostly taught this year," averaged across topics.

Country	All Science (26 Topics)	Life Science (7 Topics)	Physical Science (12 Topics)	Earth Science (7 Topics)
Albania	66 (1.7)	81 (1.7)	68 (1.9)	46 (3.2)
Armenia	r 60 (2.1)	r 67 (2.7)	r 46 (2.5)	77 (1.9)
Australia	65 (1.6)	70 (1.9)	63 (2.0)	r 65 (2.1)
Austria	58 (1.3)	70 (1.5)	47 (1.5)	65 (1.9)
Azerbaijan	58 (2.3)	65 (2.6)	r 42 (3.0)	77 (2.0)
Bahrain	77 (1.1)	75 (1.3)	76 (1.4)	80 (1.3)
Belgium (Flemish)	44 (1.4)	54 (2.2)	36 (1.9)	49 (1.9)
Bosnia and Herzegovina	40 (1.3)	53 (2.0)	34 (1.4)	39 (1.5)
Bulgaria	73 (1.1)	89 (0.9)	67 (1.6)	69 (1.4)
Canada	r 56 (1.2)	r 68 (1.6)	r 50 (1.3)	r 53 (1.7)
Chile	r 69 (1.6)	r 81 (2.1)	r 63 (2.4)	r 67 (2.7)
Chinese Taipei	50 (1.5)	64 (2.1)	51 (1.6)	35 (1.8)
Croatia	48 (1.3)	53 (2.2)	39 (1.3)	58 (1.9)
Cyprus	62 (1.4)	85 (1.5)	55 (2.1)	51 (2.3)
Czech Republic	50 (1.2)	71 (1.4)	30 (1.3)	66 (1.9)
Denmark	r 57 (1.7)	r 67 (2.1)	r 45 (2.0)	r 67 (2.0)
Finland	54 (1.3)	70 (1.3)	46 (1.8)	54 (1.5)
France	54 (1.0)	70 (1.3)	44 (1.2)	55 (1.7)
Georgia	63 (1.8)	70 (2.1)	60 (2.2)	60 (2.2)
Germany	57 (1.3)	63 (1.8)	53 (1.5)	59 (2.1)
Hong Kong SAR	54 (1.5)	67 (2.6)	51 (1.6)	46 (2.2)
Hungary	57 (1.1)	75 (1.3)	44 (1.5)	61 (1.7)
Iran, Islamic Rep. of	72 (1.1)	72 (1.5)	79 (1.1)	61 (1.8)
Ireland	71 (1.3)	76 (1.6)	68 (1.6)	72 (1.5)
Italy	53 (1.1)	66 (1.5)	41 (1.5)	60 (2.2)
Japan	39 (1.3)	41 (1.6)	45 (1.6)	26 (1.5)
Kazakhstan	73 (1.6)	89 (1.2)	58 (2.5)	83 (1.8)
Korea, Rep. of	48 (1.4)	55 (1.9)	46 (1.5)	46 (2.2)
Kosovo	71 (1.6)	73 (2.1)	71 (1.9)	70 (1.9)
Kuwait	86 (1.0)	93 (0.8)	84 (1.4)	83 (1.4)
Latvia	74 (1.4)	75 (2.0)	74 (1.7)	74 (1.5)
Lithuania	76 (1.6)	90 (1.2)	69 (2.1)	72 (1.8)
Malta	63 (0.2)	73 (0.2)	60 (0.2)	60 (0.3)
Montenegro	51 (0.9)	76 (1.3)	42 (1.0)	42 (0.9)
Morocco	45 (1.0)	65 (1.5)	52 (1.1)	13 (1.3)
Netherlands	r 45 (2.0)	r 53 (2.0)	r 37 (2.7)	r 51 (2.3)
New Zealand	60 (1.6)	70 (1.8)	53 (1.8)	59 (2.2)
North Macedonia	76 (2.2)	74 (2.7)	85 (1.8)	60 (3.3)
Northern Ireland	62 (2.0)	75 (2.3)	55 (2.7)	60 (2.4)
Norway (5)	s 48 (1.9)	s 57 (2.4)	s 34 (2.0)	s 61 (3.1)
Oman	65 (1.5)	77 (1.6)	70 (1.4)	44 (2.7)
Pakistan	r 77 (2.6)	r 87 (3.2)	r 80 (3.2)	r 62 (5.7)
Philippines	87 (1.2)	95 (1.0)	90 (1.2)	73 (2.4)
Poland	35 (1.2)	61 (1.5)	21 (1.4)	35 (1.9)
Portugal	85 (0.9)	97 (0.5)	77 (1.6)	88 (1.0)
Qatar	59 (1.3)	73 (2.0)	59 (1.5)	45 (1.9)
Russian Federation	66 (1.1)	89 (0.9)	40 (2.0)	87 (1.2)
Saudi Arabia	86 (1.2)	84 (1.4)	88 (1.1)	84 (1.9)
Serbia	78 (1.4)	76 (2.1)	91 (1.2)	57 (2.3)
Singapore	39 (0.4)	51 (0.8)	54 (0.5)	2 (0.4)
Slovak Republic	77 (1.3)	84 (1.2)	80 (1.4)	67 (2.0)
South Africa (5)	80 (1.4)	88 (1.1)	76 (2.0)	78 (1.6)
Spain	67 (1.0)	86 (1.2)	48 (1.6)	79 (1.3)
Sweden	r 49 (1.4)	r 60 (2.0)	39 (1.7)	r 56 (2.4)
Turkey (5)	62 (1.5)	66 (1.7)	62 (1.4)	58 (2.2)
United Arab Emirates	r 78 (0.8)	r 86 (0.7)	r 78 (0.9)	r 70 (1.3)
United States	70 (1.2)	74 (1.4)	66 (1.5)	74 (1.5)
England	y - -	y - -	y - -	y - -
International Average	**62 (0.2)**	**73 (0.2)**	**58 (0.2)**	**60 (0.3)**
Benchmarking Participants				
Ontario, Canada	r 57 (2.0)	r 70 (2.6)	r 52 (2.4)	r 52 (2.8)
Quebec, Canada	r 55 (1.8)	r 68 (2.6)	r 45 (2.0)	r 60 (2.6)
Moscow City, Russian Fed.	65 (1.3)	88 (1.0)	40 (2.0)	83 (1.4)
Madrid, Spain	66 (1.6)	82 (1.7)	48 (2.3)	81 (1.9)
Abu Dhabi, UAE	r 76 (0.9)	r 86 (0.8)	r 77 (1.1)	r 63 (1.7)
Dubai, UAE	r 83 (0.6)	r 86 (0.8)	r 84 (0.6)	r 80 (1.2)

( ) Standard errors appear in parentheses. Because of rounding some results may appear inconsistent.
A dash (-) indicates comparable data not available.
An "r" indicates data are available for at least 70% but less than 85% of the students. An "s" indicates data are available for at least 50% but less than 70% of the students.
A "y" indicates data are available for less than 40% of the students.

SOURCE: IEA's Trends in International Mathematics and Science Study - TIMSS 2019

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