



eTIMSS 2019 is designed to keep pace with an increasing reliance on computer-based assessments while:

Improving measurement

- *eTIMSS assesses complex areas of the TIMSS Assessment Frameworks that have been difficult to measure using paper and pencil*
- *eTIMSS can stimulate student motivation through its interactive and animated tasks*

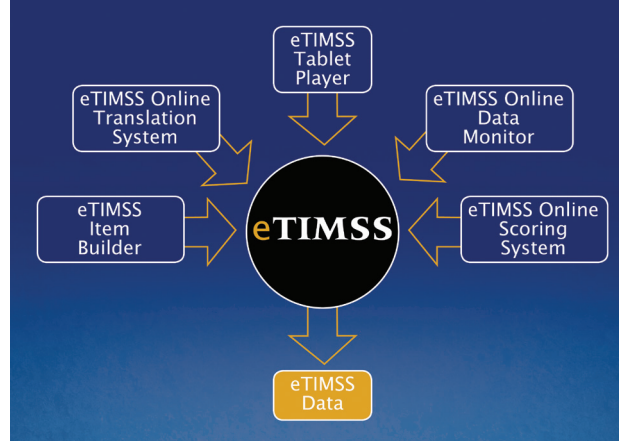
Increasing operational efficiency

- *eTIMSS will improve item development, translation and translation verification, and data entry and scoring, while reducing printing and shipping costs*

TIMSS, *TIMSS Numeracy*, and *eTIMSS* are projects of *IEA* (International Association for the Evaluation of Educational Achievement). Headquartered in Amsterdam, *IEA* has conducted international comparative studies of educational achievement since 1959.

The *TIMSS* projects are directed by the *TIMSS & PIRLS International Study Center at Boston College*. *TIMSS* together with *PIRLS*, which assesses reading, comprise *IEA's* core cycle of studies about achievement in three fundamental subjects—mathematics, science, and reading.

eTIMSS is jointly developed by the *TIMSS & PIRLS International Study Center* and the *IEA Data Processing and Research Center* in Hamburg.



THE ANATOMY OF eTIMSS

eTIMSS consists of a series of interconnected software modules hosted on the IEA DPC servers. With eTIMSS, National Research Coordinators can:

- *Use the Item Builder to develop achievement items and Problem Solving and Inquiry tasks for the eTIMSS tablet and stylus environment*
- *Use the Online Translation System for translating the eTIMSS items into the language of instruction and having them verified by IEA*
- *Use the Tablet Player to administer the eTIMSS assessment—present the items in tablet and stylus format, record students' responses, and upload the data to the eTIMSS server*
- *Use the Online Data Monitor to observe the progress of the data collection*
- *Use the Online Scoring System to review students' written responses and score them according to the eTIMSS scoring guides*

Once data collection is complete, the data are sent to the TIMSS & PIRLS International Study Center for review and analysis.

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International Association
for the Evaluation of
Educational Achievement



BOSTON
COLLEGE



eTIMSS

2019

TIMSS on a Tablet



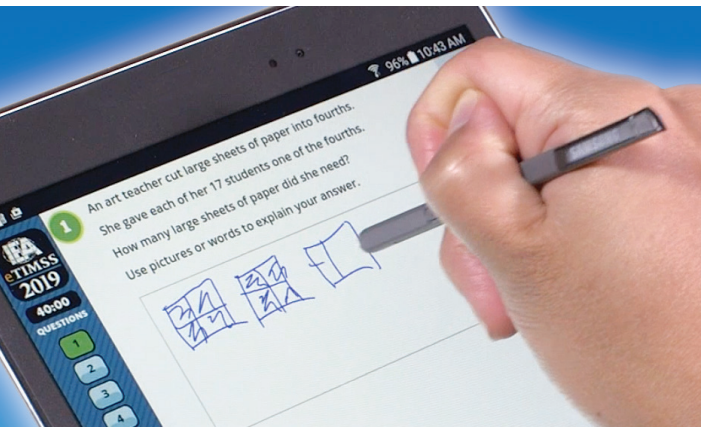
TIMSS & PIRLS
International Study Center
Lynch School of Education, Boston College



eASSESSMENT— THE FUTURE OF TIMSS

Conducted every four years, TIMSS (Trends in International

Mathematics and Science Study) offers comparative international assessments in mathematics and science at the fourth and eighth grades. Marking 24 years of trend data since 1995, the seventh TIMSS assessment will be in 2019 and include more than 60 countries. To keep up to date and relevant, TIMSS evolves with each assessment cycle. For 2019, TIMSS is focusing on converting to a digital format.



eTIMSS: TIMSS ON A TABLET

eTIMSS continues all the benefits of TIMSS, enabling countries to measure how effective they are in teaching mathematics and science. eTIMSS will use a tablet and stylus format that replicates as much as possible the current TIMSS paper and pencil response experience. Students can use the stylus to draw, erase, and write out computations and other answers. This approach maintains continuity with TIMSS to preserve trend measurement, while keeping costs to a minimum.

The tablet format provides interactive assignments that are colorful, animated, and dynamic, delivering an engaging and visually attractive assessment experience that can motivate students.

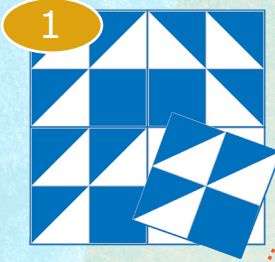
Innovative Problem Solving and Inquiry Tasks

Newly created assessment items comprise a substantial portion (40 percent) of each TIMSS cycle. The items newly developed for eTIMSS 2019 will assess areas of the TIMSS Frameworks that have been difficult to measure using the traditional paper and pencil approach.

The tasks call for applying and integrating content knowledge and cognitive capabilities in problem situations that simulate real world contexts and laboratory experiments. In particular, the Problem Solving and Inquiry tasks require students to solve a problem or follow a scientific line of inquiry.

For example, fourth grade students can 1) interact with geometric shapes and patterns to demonstrate their mastery of fractions and symmetry, or 2) arrange square flower boxes to explore the relationship between perimeter and area. At the eighth grade, students can 3) help to design a storage building by calculating its dimensions, or 4) plan a plant growth experiment and see the results.

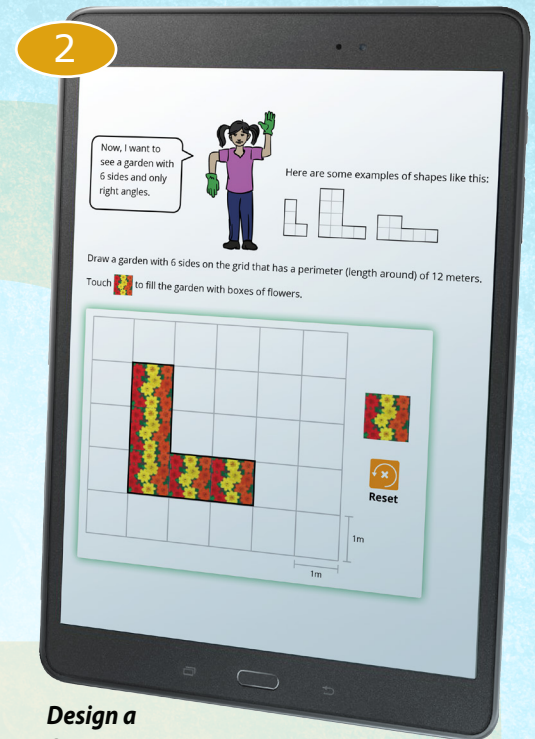
Other tasks will assess students' knowledge in areas covered by the TIMSS Frameworks, including algebra, data and chance, physics, and chemistry.



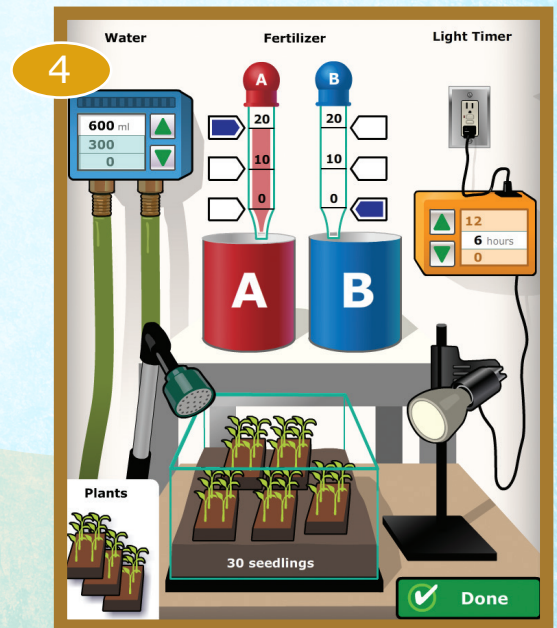
1 *Make a new pattern*



3 *Help design this building—a video will show you what you need to do.*



2 *Design a flower garden with Lily in this mathematics exercise.*



4 *Set the growing conditions for plant seedlings.*