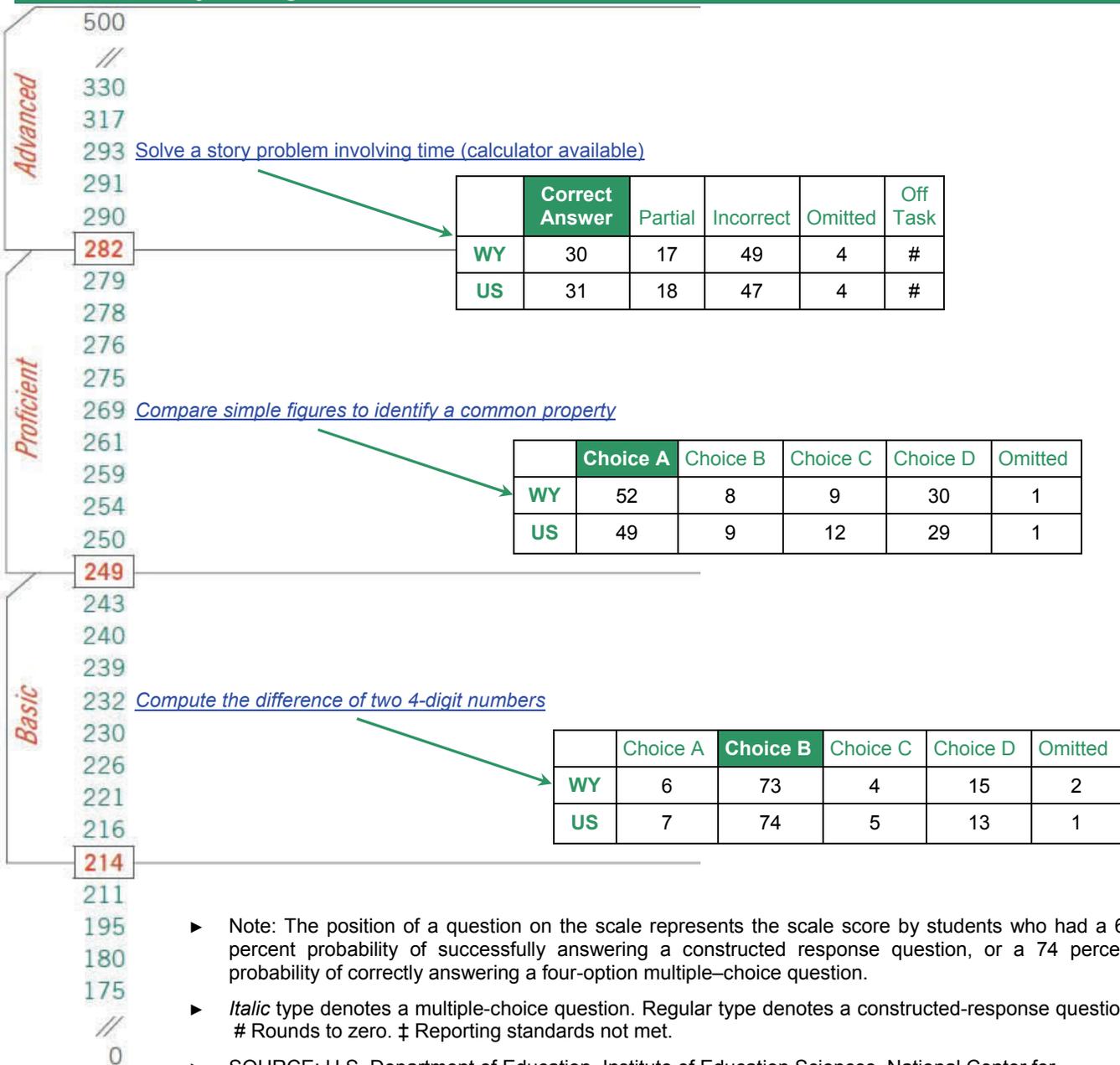


Grade 4 Report

Item Map and Performance Snapshot

The National Assessment of Educational Progress (NAEP) uses both multiple choice and constructed-response test items to assess fourth graders' mathematical skills in five categories: number properties & operations, measurement, geometry, data analysis & probability, and algebra. Scale scores range from 0 to 500, wherein a 214 score denotes NAEP's *Basic* achievement benchmark (i.e., approximately a "grade level" performance); 249 reflects *Proficient* results or competency on challenging material, and 282 is considered to be *Advanced*.

Wyoming and the Nation — Performance on Test Items



- ▶ Note: The position of a question on the scale represents the scale score by students who had a 65 percent probability of successfully answering a constructed response question, or a 74 percent probability of correctly answering a four-option multiple-choice question.
- ▶ *Italic* type denotes a multiple-choice question. Regular type denotes a constructed-response question. # Rounds to zero. ‡ Reporting standards not met.
- ▶ SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2011 Mathematics

Released Test Item Snapshot

The National Assessment of Educational Progress (NAEP) uses both multiple choice and constructed-response test items to assess fourth graders' mathematical skills in five categories: number properties & operations, measurement, geometry, data analysis & probability, and algebra. Scale scores range from 0 to 500, wherein a 214 score denotes NAEP's *Basic* achievement benchmark (i.e., approximately a "grade level" performance); 249 reflects *Proficient* results or competency on challenging material, and 282 is considered to be *Advanced*.

Solve a story problem involving time (calculator available)

This short answer test item measures fourth-graders' ability to perform computations using units of time

- ▶ The first step requires students to determine the length of the movie from the starting and ending times of the early show.
- ▶ The second step requires that they add the length of time to the starting time of the late show. Students were permitted to use a calculator to solve this question.

MOVIE TIMES

Early Show	3:15
Late Show	7:30

Student responses to this question were rated using three scoring levels—Correct, Partial, and Incorrect

- ▶ Scoring criteria for Correct and Partial are shown below:

The early show and the late show for a movie last the same amount of time. The early show begins at 3:15 P.M. and ends at 4:27 P.M. The late show begins at 7:30 P.M. At what time does the late show end?

Show your work.

Solve a story problem involving time:
Scoring guide

Correct answer	<p>Gave an answer of 8:42 for the ending time of the late show and provided supporting work, which included either,</p> <ul style="list-style-type: none"> ▶ Showing a computation for determining the length of the movie from the times of the early show ($4:27 - 3:15 = 1:12$, "1 hour and 12 minutes"), or ▶ Showing the addition of 1:12 to 7:30.
Partial	<p>Did one of the following:</p> <ul style="list-style-type: none"> ▶ Gave an answer of 8:42 with no work or incorrect work, ▶ Determined the length of the movie (1 hour and 12 minutes) but did not answer 8:42, or ▶ Incorrectly determined the length of the movie but correctly used that time to determine the ending of the late show.

CORRECT

$$\begin{array}{r} 4:27 \\ - 3:15 \\ \hline 1:12 \end{array}$$

$$\begin{array}{r} 7:30 \\ + 1:12 \\ \hline 8:42 \end{array}$$

PARTIAL

$$3:15 \text{ to } 4:27 = 1:32$$

$$\begin{array}{r} 7:30 \\ + 1:32 \\ \hline 9:02 \end{array}$$

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2011 Mathematics Assessment.

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Compare simple figures to identify a common property

This test item measures fourth-graders' performance in the geometry content area. The question asks students to compare two geometric figures—a right triangle and a rectangle—and identify a property common to both figures. Students were not permitted to use a calculator on this question.

How are the right triangle and the rectangle alike?

- A Each figure has at least one right angle.
- B Each figure has parallel sides.
- C Each figure has at least one line of symmetry.
- D Each figure has at least two sides that are the same length.

A common incorrect answer (Choice D), which was selected by almost one-in-three or 30 percent of grade 4 students in Wyoming, may have been the result of misinterpreting the length of the hypotenuse as being equal in length to the longer leg of the right triangle.

	Choice A	Choice B	Choice C	Choice D	Omitted
WY	52	8	9	30	1
US	49	9	12	29	1

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2011 Mathematics Assessment.

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Compute the difference of two 4-digit numbers

This test item measures fourth-graders' performance in the number properties and operations content area. The question asks students to answer a subtraction problem involving two 4-digit numbers. The problem requires students to regroup twice to obtain the correct answer of 1,247 (Choice B). Students were not permitted to use a calculator to answer this question.

Subtract:

$$\begin{array}{r} 6,090 \\ - 4,843 \\ \hline \end{array}$$

- (A) 1,147
- (B) 1,247
- (C) 2,257
- (D) 2,853

A common incorrect answer (Choice D), which was selected by almost one-in-six or 15 percent of grade 4 students in Wyoming, resulted from not doing any regrouping and just subtracting the smaller number from the corresponding larger number at each place value. Choices A and C, while selected less frequently, represent different regrouping errors.

	Choice A	Choice B	Choice C	Choice D	Omitted
WY	6	73	4	15	2
US	7	74	5	13	1

SOURCE: U.S. Department of Education, Institute of Education Sciences, National Center for Education Statistics, National Assessment of Educational Progress (NAEP), 2011 Mathematics Assessment.