

ASPECT

Assessing Students' Progress on the Energy Concept

Newton's Cradle Task: AP13-5

Summary of Student Performance

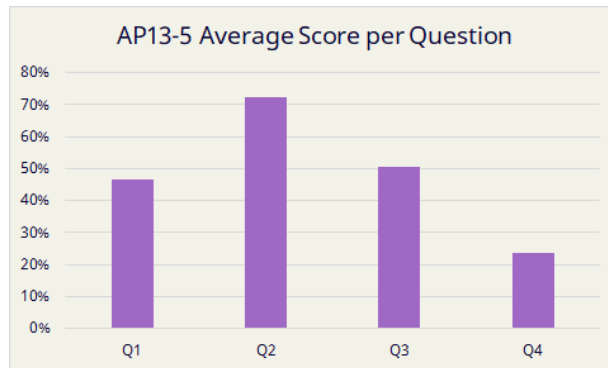
FIELD TEST

This task was administered to students during field tests conducted in the spring of 2021 and 2022. In 2021, over 2,300 students in grades 4 through 12 in the classrooms of 50 teachers from 27 states across the U.S. participated in the field testing. In 2022, over 1,500 students in grades 4 through 12 in the classrooms of 44 teachers from 16 states and Puerto Rico participated.

The data presented here are from the 237 students who responded to the task. Approximately 21% of the students were in elementary school, 41% were in middle school, and 38% were in high school. The graphs below present the mean percent correct for students in different categories. The percent correct was determined by summing the points earned on each question and dividing by the total possible points for the question. Students self-identified their gender and whether English was their primary language.

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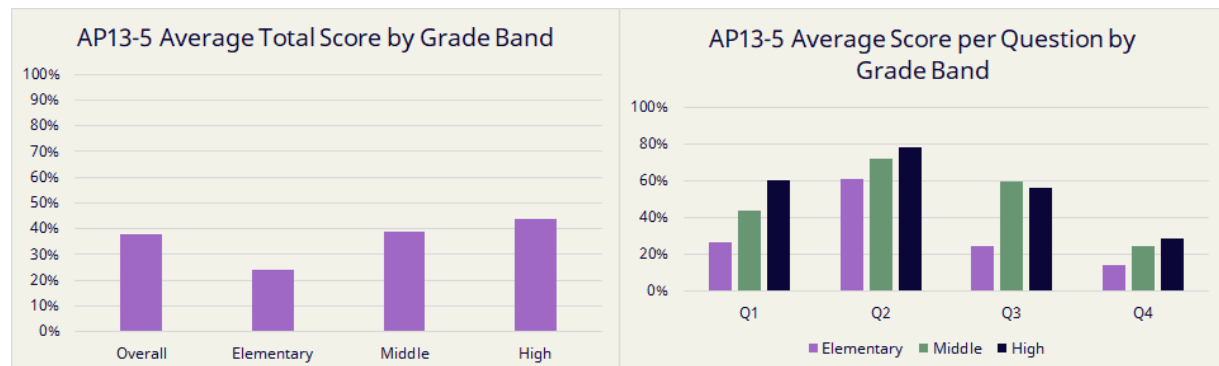
OVERALL PERFORMANCE



Performance	# of students	Q1	Q2	Q3	Q4	Total*
Overall	237	46%	72%	51%	24%	38%

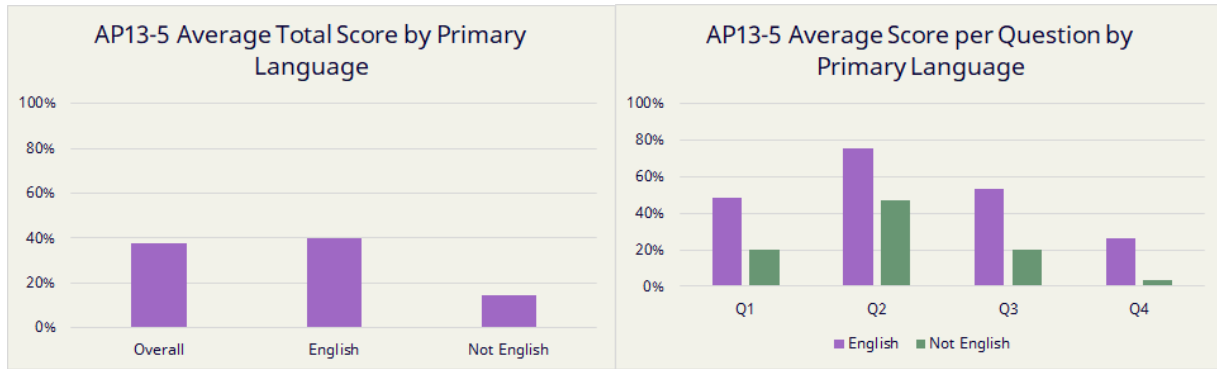
*Total percentage was calculated by adding the number of points earned across the questions divided by the total number of points available. (Note that some questions had more points than others.)

PERFORMANCE BY GRADE BAND



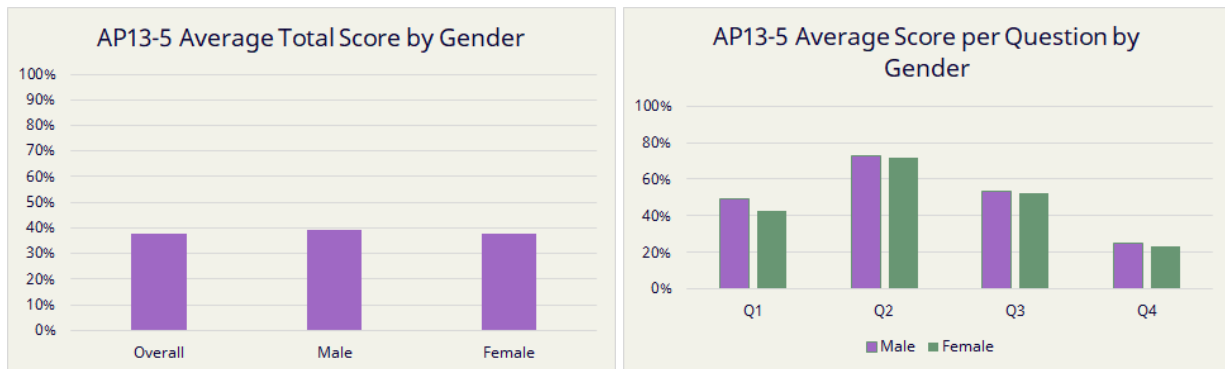
Grade Band	# of students	Q1	Q2	Q3	Q4	Total
Elementary	49	27%	61%	24%	14%	24%
Middle	96	44%	72%	59%	24%	39%
High	91	30%	78%	56%	28%	44%

PERFORMANCE BY PRIMARY LANGUAGE



Primary Language	# of students	Q1	Q2	Q3	Q4	Total
English	204	46%	72%	51%	24%	40%
Not English	15	49%	75%	53%	26%	14%

PERFORMANCE BY GENDER



Gender	# of students	Q1	Q2	Q3	Q4	Total
Male	111	50%	73%	53%	25%	39%
Female	93	43%	72%	53%	24%	37%