

question measures the *formulating situations mathematically* process and *change and relationships* in the content category.

Figure I.3.2. Triangular Pattern unit, released item #2

PISA 2022

Triangular Pattern
Question 2 / 3

Refer to "Triangular Pattern" on the right. Click on a choice to answer the question.

If Alex were to extend the pattern to a fifth row, what would be the percentage of blue triangles in all five rows of the pattern?

40.0%
 50.0%
 60.0%
 66.7%

TRIANGULAR PATTERN

Alex drew the following pattern of red and blue triangles.

The first four rows of the pattern are shown below.

1st row
2nd row
3rd row
4th row

Note: For the full set of publicly released mathematics items, see Annex C.

An example of an item at proficiency Level 3 is the first item in the SOLAR SYSTEM unit. It illustrates students' capacity to use data provided in a table to respond to explicit instructions. For this task, students need to determine which three planets have the average distances in Astronomical Units (au) between them that are shown in the model. To do this, students need to use the table in the stimulus that gives each planet's average distance from the Sun in au. This question measures the *interpreting, applying, and evaluating mathematical outcomes* process, and *quantity* in the content category.

Question 1 in the DVD SALES unit is a task at proficiency Level 4 (this item was not administered in the main study but only in the field trial). It illustrates students' capacity to evaluate whether a statement is supported by information shown in a graph. The item shows a scatterplot with the number of years after 2008 in the x-axis and the number of DVDs sold in millions in the y-axis. Students also see a table containing three statements about DVD sales in the United Kingdom for the years 2008 through 2014. To verify these statements and obtain full credit, students need to compute percentages, ratios, and differences, and interpret the slope of the graph in the linear model as a constant rate of change. This question measures the *formulating situations mathematically* process, and *uncertainty and data* in the content category.

The FORESTED AREAS unit provides examples of tasks at proficiency Levels 5 and 6. The unit has an introduction screen that provides information about the context of the unit and lets students know that they will be using a