

Name: _____

Date: _____

Payroll Arrays Step by Step

GRADE 5

MATHEMATICS

B2.6

D1.3

The area model splits a multiplication into four smaller ones. For 12×14 , split each number into tens and ones: $10 \times 10 = 100$, $10 \times 4 = 40$, $2 \times 10 = 20$, $2 \times 4 = 8$. Add the four parts: $100 + 40 + 20 + 8 = 168$. Each part is easy on its own.

PART A: FINISH THE FOUR PARTS

1. 13×12 . Three parts are $10 \times 10 = 100$, $10 \times 2 = 20$, $3 \times 10 = 30$. The last part is $3 \times 2 =$ _____.
2. 13×12 altogether: $100 + 20 + 30 + 6 =$ _____.

PART B: CLASS PAYROLL

3. 14 students each earn \$12 this payday. Use the area model to find the total pay.

SHOW YOUR WORK

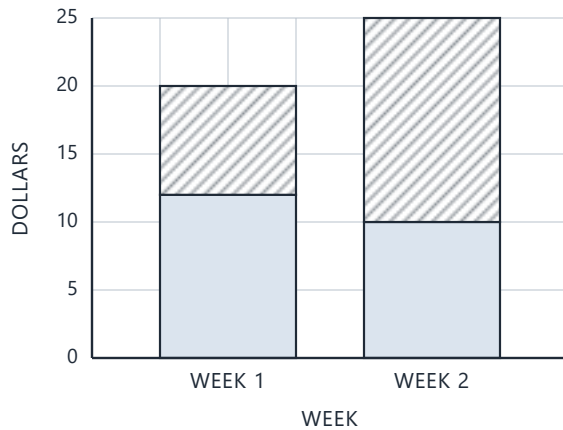
Answer: _____

4. 11 students each earn \$16 on the same payday. What is their total pay?

SHOW YOUR WORK

Answer: _____

Where Two Weeks of Earnings Went



LEGEND  Spent  Saved

Source: our class payroll records

PART C: READ THE STACKED BAR

5. In the graph above, the bottom part of each bar is what was spent and the top part is what was saved. How much was saved in Week 1?
- (A) \$8 (B) \$20 (C) \$12
6. What does the height of Week 2's whole bar stand for?
- (A) What was earned, \$25 (B) What was saved, \$15 (C) What was spent, \$10

PART D: DRAW ONE YOURSELF

7. Draw the area model for 12×13 . Label all four parts, then write the total underneath.

SHOW YOUR WORK

PART E: DRAW THE STACKED BAR

8. In the frame, draw a stacked bar for each week in the table, like the graph in Part C: the spent part on the bottom and the saved part on top. Count the side up in tens, label both axes, give the graph a title, fill in the legend, and write where the numbers came from.

Two More Weeks

Week	Earned	Spent
Week 3	\$30	\$18
Week 4	\$40	\$22

Source: our class payroll records

TITLE

AXIS LABEL

LEGEND

AXIS LABEL

WHERE THE NUMBERS CAME FROM

Payroll Arrays Step by Step

ANSWER KEY

1. 6
2. 156
3. \$168
4. \$176
5. A) \$8
6. A) What was earned, \$25
7. The four parts are $10 \times 10 = 100$, $10 \times 3 = 30$, $2 \times 10 = 20$ and $2 \times 3 = 6$. The total is 156.
8. Two bars reaching \$30 and \$40. Week 3 is split into \$18 spent and \$12 saved, and Week 4 into \$22 spent and \$18 saved. The weeks under their bars, "Week" along the bottom and "Dollars" up the side, the side counting up in tens to at least \$40, a title such as "Where Weeks 3 and 4 Went", a legend naming spent and saved, and a source line naming the class payroll records.

TEACHER NOTES

Reduced expectations: three of the four partial products are given, and the numbers stay in the low teens so every part is a known fact. The D1.3 work reads a stacked bar drawn on the sheet in Part C before Part E asks for one, with the step of the scale given. The Standard and Challenge sheets in this unit ask students to choose the graph and the scale.