Name: _____ Date: _____

# Payroll Area and Data Bars

GRADE 5 | MATHEMATICS | B2.6 | D1.3

Model classroom payroll with multiplication, then decide how to graph the data clearly.

## PART A: AREA MODEL PRODUCTS

**1.** 24 students each earn $15. Compute 24 x 15 = _____.

**2.** 18 rewards at $12 each costs $_____.

**3.** 27 weeks of $14 weekly pay totals $_____.

**4.** 32 students each earn $11 bonus points. Total is $_____.

## PART B: WHICH GRAPH FITS?

**5.** You want to show earned and spent amounts for each week in one display. Best graph type?

(A) Stacked-bar graph (B) Line graph (C) Circle graph

**6.** You want to show only total earnings by job title. Best graph type?

(A) Bar graph (B) Stacked-bar graph (C) Pictograph

**7.** A graph has no title and no scale labels. What is missing?

(A) Only colour (B) Required graph conventions (C) Nothing

## PART C: PAYROLL AND PRESENTATION

**8.** Compute 26 x 17 using either area model or standard algorithm. Then state one way to connect the two methods.

SHOW YOUR WORK

**Answer:** _____

**9.** Weekly data: Week 1 earned $120, spent $80; Week 2 earned $140, spent $90; Week 3 earned $110, spent $70. Which graph would you choose and why?

SHOW YOUR WORK

**Answer:** _____

**10.** The class plans a payroll of 22 students at $16 each. A student claims the total is $412. Is this correct? Explain.

SHOW YOUR WORK

**Answer:** _____

## PART D: BUILD AND DEFEND

**11.** Create your own 2-digit by 2-digit classroom economy multiplication problem. Solve it using area model and algorithm, then write which graph you would use to display related earn/spend data and why.

SHOW YOUR WORK

# Payroll Area and Data Bars

ANSWER KEY

1. 360
2. 216
3. 378
4. 352
5. A — Stacked-bar graph
6. A — Bar graph
7. B — Required graph conventions
8. 442. Connection example: area model partial products (20x10, 20x7, 6x10, 6x7) combine to match algorithm steps.
9. Stacked-bar graph, because each week has two parts (earned and spent) and totals can be compared at the same time.
10. No. Correct total is $352 (22 x 16 = 352).
11. Answers vary. Check that both multiplication methods match, and graph choice includes a clear justification (title, labels, scale, data fit).

## TEACHER NOTES

After solving, have students graph one week of real class transaction totals and defend graph choices to peers using source, title, labels, and scale language.