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Class Celebration Planner

Teacher Guide · Solutions · Rubric

Grade 3 · All levels

Overview

Students plan a class celebration. They buy supplies in packs, find unknown numbers, multiply by multiples of 10, write equations with a letter for two-step problems and check that the plan is reasonable.

Time: 2 class periods · **Product:** Celebration Plan
Standards: 3.OA.A.4, 3.OA.D.8, 3.NBT.A.3, 3.OA.D.9
Prerequisite skills: Multiplication and division facts (Units 1–3); Adding and subtracting within 1,000 (Unit 4)

Learning targets

- I can find an unknown number in a multiplication or division equation.
- I can multiply a one-digit number by a multiple of 10.
- I can write and solve an equation with a letter for a two-step problem and check that the answer is reasonable.

Timing and materials

- Day 1 (45 min): supply packs and unknowns (Parts 1–2).
- Day 2 (45 min): budget two-step problems and the celebration plan (Parts 3–4).

Materials: Pencils; Planning sheet (printable support page); Play money (optional). No accounts, paid products or student personal information are needed.



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The three versions

- Remedial: hints for a first step, partly filled tables, sentence frames and fewer open choices; the same learning targets.
- Standard: the full task set at grade level; students choose their strategies and models.
- Advanced: open design constraints, missing information, error analysis and a written justification; no hints.

All versions use the same context and learning targets, so groups can share and compare work.

Implementation notes

- Have students underline the question and name what the letter stands for before writing an equation.
- Require an estimate for every money answer.
- Advanced students meet a budget with choices and justify their plan.
- Before Part 1, read the challenge aloud and ask students to restate the goal.
- Close with a gallery walk: each group explains one strategy.

Rubric

Learning target	4 Exceeds	3 Meets	2 Approaching	1 Beginning
I can find an unknown number in a multiplication or division equation.	Correct and complete; explains how	Mostly correct	Partly correct	Not yet
I can multiply a one-digit number by a multiple of 10.	Correct and complete; explains how	Mostly correct	Partly correct	Not yet
I can write and solve an equation with a letter for a two-step problem and check that the answer is reasonable.	Correct and complete; explains how	Mostly correct	Partly correct	Not yet
I can explain my thinking with pictures, numbers and words.	Clear for every part	Clear for most parts	Some explanation	Little explanation
My celebration plan is complete and matches my math.	Complete, neat, accurate	Complete	Partly complete	Not complete



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Solutions · Remedial KEY

Part 1: Supply Packs

There are 20 students. Cups come in packs of 10.

1. How many packs are needed so every student gets a cup? (Write ? × 10 ≥ 20.)
2 packs

2. How many cups will be left over?
0 cups

Part 2: Mystery Numbers

Find each unknown.

3. 6 × n = 48
n = 8

4. n ÷ 4 = 7
n = 28

5. 40 = 2 × n
n = 20

Part 3: Tens Shopping

Balloons come in bags of 20, 30 or 40.

6. What is 4 × 30?
120

7. What is 6 × 40?
240

8. How many balloons are in 3 bags of 20 and 2 bags of 30?
120 balloons



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Teacher Guide · Solutions · Rubric

Grade 3 · All levels

Part 4: Budget

The class has 50 dollars. Pizza costs 20 dollars each and cup packs cost 3 dollars each.

9. Write an equation for the money left after 2 pizzas and 2 cup packs. Use m for the money left.

m = 50 − (2 × 20) − (2 × 3)

10. Solve for m.

m = 4 dollars

11. Is your answer reasonable? Explain with an estimate.

Answers vary, e.g. 50 − 40 − about 10 ≈ 0.

Extension

Products in the 5s column end in 0 or 5. Explain why using 5 × n = 10 × n − 5 × n or half of 10 × n.

5 × n is half of 10 × n; 10 × n ends in 0, and half of it ends in 0 or 5.



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Class Celebration Planner

Teacher Guide · Solutions · Rubric

Grade 3 · All levels

Solutions · Standard KEY

Part 1: Supply Packs

There are 24 students. Cups come in packs of 8.

1. How many packs are needed so every student gets a cup? (Write ? × 8 ≥ 24.)
3 packs

2. How many cups will be left over?
0 cups

Part 2: Mystery Numbers

Find each unknown.

3. 6 × n = 48
n = 8

4. n ÷ 4 = 7
n = 28

5. 48 = 2 × n
n = 24

Part 3: Tens Shopping

Balloons come in bags of 20, 30 or 40.

6. What is 4 × 30?
120

7. What is 6 × 40?
240

8. How many balloons are in 3 bags of 20 and 2 bags of 30?
120 balloons



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Teacher Guide · Solutions · Rubric

Grade 3 · All levels

Part 4: Budget

The class has 90 dollars. Pizza costs 30 dollars each and cup packs cost 4 dollars each.

9. Write an equation for the money left after 2 pizzas and 3 cup packs. Use m for the money left.

m = 90 − (2 × 30) − (3 × 4)

10. Solve for m.

m = 18 dollars

11. Is your answer reasonable? Explain with an estimate.

Answers vary, e.g. 90 − 60 − about 10 ≈ 20.

Extension

Products in the 5s column end in 0 or 5. Explain why using 5 × n = 10 × n − 5 × n or half of 10 × n.

5 × n is half of 10 × n; 10 × n ends in 0, and half of it ends in 0 or 5.



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Class Celebration Planner

Teacher Guide · Solutions · Rubric

Grade 3 · All levels

Solutions · Advanced KEY

Part 1: Supply Packs

There are 27 students. Cups come in packs of 6.

1. How many packs are needed so every student gets a cup? (Write ? × 6 ≥ 27.)
5 packs

2. How many cups will be left over?
3 cups

Part 2: Mystery Numbers

Find each unknown.

3. 6 × n = 48
n = 8

4. n ÷ 4 = 7
n = 28

5. 54 = 2 × n
n = 27

Part 3: Tens Shopping

Balloons come in bags of 20, 30 or 40.

6. What is 4 × 30?
120

7. What is 6 × 40?
240

8. How many balloons are in 3 bags of 20 and 2 bags of 30?
120 balloons



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Class Celebration Planner

Teacher Guide · Solutions · Rubric

Grade 3 · All levels

Part 4: Budget

The class has 150 dollars. Pizza costs 40 dollars each and cup packs cost 6 dollars each.

9. Write an equation for the money left after 2 pizzas and 5 cup packs. Use m for the money left.

m = 150 − (2 × 40) − (5 × 6)

10. Solve for m.

m = 40 dollars

11. Is your answer reasonable? Explain with an estimate.

Answers vary, e.g. 150 − 80 − about 30 ≈ 40.

Part 5: Design Challenge

Spend the leftover 40 dollars on games that cost 7 dollars and prizes that cost 4 dollars.

12. Find a combination that spends as much as possible without going over. Show the equation.

Answers vary; e.g. 4 games and 3 prizes: 7 × 4 + 4 × 3 = 40 dollars

13. Explain why your plan is the best one.

Answers vary; must compare at least two plans.

Extension

Products in the 5s column end in 0 or 5. Explain why using 5 × n = 10 × n − 5 × n or half of 10 × n.

5 × n is half of 10 × n; 10 × n ends in 0, and half of it ends in 0 or 5.