LESSON MAKER PRO

Place Value Power

Multiply and divide in your head

GRADE 4 · 4.N.1.3

4.N.1.3 "Applying knowledge of place value, use mental strategies (no written computations) to multiply or divide a number by 10, 100 and 1,000."

NAME _____ **DATE** _____

Calculate mentally first. Record only the final answer; then explain your mental strategy aloud. Do not write calculations.

THE BIG IDEA

Compute in your head; write only final answers. Explain your strategy aloud afterward. When you multiply by 10, 100, or 1,000, each digit moves one, two, or three places to the left. When you divide by those numbers, each digit moves the same number of places to the right. Use zeros to hold empty places.

MENTAL STRATEGY EXAMPLE

46 × 100 = ____

1. Multiplying by 100 moves each digit two places to the left.
2. The 4 moves from tens to thousands, and the 6 moves from ones to hundreds.
3. Put zeros in the empty tens and ones places.

Answer: 4,600

PRACTICE 6 problems

1 72 × 10 = ___

Final answer only _____

2 305 × 100 = ___

Final answer only _____

3 408 × 1,000 = ___

Final answer only _____

4 830 / 10 = ___

Final answer only _____

5 54,000 / 100 = ___

Final answer only _____

6 900,000 / 1,000 = ___

Final answer only _____

APPLY IT Solve mentally; record the answer

1 An online game awards 120 points for each completed level. A school club completes 100 levels in all. How many points does the club earn?

Final answer only _____

2 A school packs 12,000 trading cards equally into 100 packs for a game day. How many cards are in each pack?

Final answer only _____

CHALLENGE One step up

A game club has 45 boxes with 1,000 tokens in each box. The club shares all the tokens equally among 100 players. How many tokens does each player get? Compute mentally and write only the final answer. Then explain your place-value strategy aloud.

Final answer only _____

ANSWER KEY

Place Value Power

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Ask students to calculate mentally before recording final answers. Hear their strategy explanations aloud; the worked reasoning below is for teacher reference, not a requirement to write calculations.

PART 1 · PRACTICE

#	PROBLEM	ANSWER
1	72 × 10 = ___	**720**
2	305 × 100 = ___	**30,500**
3	408 × 1,000 = ___	**408,000**
4	830 / 10 = ___	**83**
5	54,000 / 100 = ___	**540**
6	900,000 / 1,000 = ___	**900**

PART 2 · APPLY IT

1. **12,000 points** Multiply 120 by 100. Each digit moves two places to the left, giving 12,000 points.
2. **120 cards** Divide 12,000 by 100. Each digit moves two places to the right, giving 120 cards per pack.

CHALLENGE

The club has 45,000 tokens because multiplying 45 by 1,000 moves its digits three places to the left. Dividing 45,000 by 100 moves its digits two places to the right, so each player gets 450 tokens.

Have students compute mentally first and record only final answers. Ask for oral explanations; shown steps model mental reasoning, not written procedures to reproduce. For the challenge, also accept an explanation that multiplying by 1,000 and then dividing by 100 has the same effect as multiplying by 10.