

Multiply with Fluency

Grade 5 | NC.5.NBT.5



Place value • models • meaningful computation

Seven teaching sections | 30 multiple-choice questions
30 open/performance tasks | Worked keys
Teacher scripts, visual organizers and evidence records

Current NC standards for 2026-27 and 2027-28. The 2026-adopted revisions begin in 2028-29 and are not substituted here. Use selected tasks across several lessons; this is not a 60-item test.

Free sample | Contents

NC.5.NBT.5 | Fifth Grade mathematics

This sample contains 14 complete selected pages from the 89-page resource, plus this sample contents page. Original printed page numbers are retained. Gaps are intentional.

Included original pages: 1-10, 12-13, 63, 78

Representative activities

M01: sample PDF page(s) 11; original page(s) 10

M02: sample PDF page(s) 11; original page(s) 10

O01: sample PDF page(s) 12; original page(s) 12

O02: sample PDF page(s) 13; original page(s) 13

Selected teacher prompts and keys: original page(s) 63, 78

Using this sample

Read the preparation and access guidance before using a selected activity.

Keep teacher keys and private preparation pages separate from student copies.

Use the original resource contents to see the scope of the complete packet.

Complete paid download

The complete resource includes the full PDF task bank and teaching materials.

TEACHER GUIDE

Contents and selected route

Start with the exact standard and learning targets, then readiness/access guidance, worked teacher models and the reusable student organizer.

Each of seven sections contains one scripted mini-lesson, choice pages and individual open-performance pages. Worked keys follow all sections; sources and classroom-use notes are last.

Session 1: warm-up and I Do, about 20 minutes. Session 2: We Do and collaborative practice, about 25-30 minutes. Session 3: independent practice and exit, about 20-25 minutes. Small-group reteach is a separate responsive 10-minute lesson.

Suggested core: M01/O01, M05/O05, M09/O09, M14/O14, M19/O19, M24/O24 and M28/O28. Select fewer when explanations need more time. The rest are a reusable bank for later practice and evidence.

Allocation per response type: warm-up 4, I Do 4, We Do 5, collaborative 5, independent 5, reteach 4, exit 3. Each item has a specific learning target in its worked key.

Print only selected student pages. Keep teacher models and worked keys separate from independent work. Use blank organizers as optional access supports; record any added mathematical hint.

TEACHER GUIDE

Exact standard and targets

Demonstrate fluency with the multiplication of two whole numbers up to a three-digit number by a two-digit number using the standard algorithm.

T1 | I can use the standard algorithm to multiply whole numbers through three digits by two digits accurately and efficiently.

T2 | I can explain the values in partial-product rows and regrouping; check the result.

Essential question: How do the units in a model explain each written step?

TEACHER GUIDE

Readiness, materials and access

Prerequisites: identify whole-number and decimal place values; exchange ten equal units for one next-place unit; recall basic multiplication/division facts; interpret equal groups. Check these orally and with drawings before increasing numerical complexity.

Materials: pencils, erasers and the supplied blank organizers. Optional large base-ten blocks or teacher-drawn place-value disks may support instruction. All tasks can be completed with drawings; no cutouts or small objects are required.

Vocabulary: factor, product, quotient, remainder, regroup, exchange, partial product, partial quotient, dividend, divisor, thousandth and reasonable. Point to a unit or region while naming it; ask learners to explain in their own language.

Access: neutral reading of directions, enlarged pages, AAC, oral/signed explanations and a scribe recording dictated steps can preserve the construct. Do not supply a calculation, regrouping decision, model partition or answer. Record such cues separately from access support.

Fluency evidence includes accurate, efficient and consistent standard-algorithm use across fresh tasks over time. Do not invent a speed cutoff or infer fluency from correct choices alone.

Reduce number complexity to isolate an error, then return to the original range. Extensions compare valid methods and justify efficiency within the standard limits; they do not require more advanced numbers.

WORKED TEACHER MODEL

Model the standard algorithm

Teacher example: $236 \times 24 = 5,664$

Say: “The 4 means four ones; the 2 means two tens. I multiply by each place value and add the two complete products.”

Row for 4: $6 \times 4 + 0 = 24$: record 4, carry 2; $3 \times 4 + 2 = 14$: record 4, carry 1; $2 \times 4 + 1 = 9$: record 9, carry 0. Row value = 944; begin in ones. Row for 20: $6 \times 2 + 0 = 12$: record 2, carry 1; $3 \times 2 + 1 = 7$: record 7, carry 0; $2 \times 2 + 0 = 4$: record 4, carry 0. Row value = 4720; shift one place because the multiplier is tens. Add rows: $944 + 4720 = 5664$. Check by distribution: $236 \times (20 + 4) = 4720 + 944$.

	100,000	10,000	1,000	100	10	1
				2	3	6
×					2	4
				9	4	4
+			4	7	2	0
			5	6	6	4

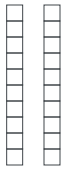
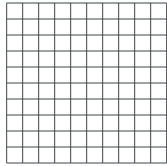
Rows 944 and 4,720 are added. The zero in 4,720 records no ones in a product by 20.

WORKED TEACHER MODEL

Blocks explain regrouping

Represent 124 using one hundred flat, two ten rods and four units. Each flat has 100 unit cells; each rod has 10.

$$124 = 100 + 20 + 4$$



Say: “Three groups make 3 hundreds, 6 tens and 12 ones. Trade 10 ones for 1 ten. Now there are 3 hundreds, 7 tens and 2 ones: 372.”

Connect this to the ones partial-product row of 124×23 . The tens row is $124 \times 20 = 2,480$. The total is $372 + 2,480 = 2,852$. A block explanation supports understanding; the learner must also execute the standard algorithm.

Ask: “Why can’t the second row be 248?” Listen for two tens versus two ones. Ask: “Which exchange is recorded by the carried 1?” Listen for 10 ones becoming one ten.

STUDENT RESOURCE

Reusable student organizer

Name: _____ Date: _____ Problem: _____

Estimate / name the units

100,000	10,000	1,000	100	10	1

Draw a model / explain a step

Check and interpret

TEACHER GUIDE

Evidence and responsive scoring

Collect individual work during partner tasks, then a fresh unaided performance later. A choice response is recognition evidence; it cannot establish algorithm fluency or model construction.

Score computation, method/model, explanation and reasonableness separately where requested. 3: accurate, independent and connected evidence; 2: mostly accurate with a minor error or incomplete connection; 1: relevant partial evidence with major gaps; 0: interpretable observed incorrect work. N/O: unobserved, inaccessible or insufficient evidence.

Record date/item, learner’s exact strategy, independence, consistency, access supports, answer-supplying cues and next step. Do not score handwriting or reading difficulty as mathematics. These instructional descriptors are not official mastery cutoffs.

For fluency, note whether the learner executes the standard algorithm accurately and efficiently on several fresh tasks over time without unnecessary restarts. No fixed speed threshold is used.

Learner / date / item	Evidence / dimension scores	Support / next step

TEACHER GUIDE

Warm-up: teaching moves

Selected core: M01 and O01. Bank: M01-M04 and O01-O04. Target: Use the standard algorithm to multiply whole numbers through three digits by two digits accurately and efficiently.

0-2 minutes | Say: “What does each number measure or count? What size answer would make sense?” Listen before suggesting a procedure.

2-5 minutes | Retrieve facts and place values before computing. Ask learners to explain the value of one digit and predict a reasonable magnitude.

5-8 minutes | Say: “Show why each written step preserves the quantity. Point to the matching unit, group or region.” Listen for a tens row worth ten times the unshifted row and justified carrying.

Close | Ask: “How does your check rule out a misplaced digit or an extra group?” Record the computation and explanation separately.

Misconception response: If a learner writes an unshifted tens row, return to 124×23 and contrast 3 ones with 2 tens.

Early finisher: compare a second valid strategy and explain which is more efficient for these numbers. Record any mathematical hint separately and reassess with a fresh item.

STUDENT TASKS

Warm-up: choose a result

M01 A student is checking the standard algorithm for 384×82 . What should the final product be?

A. 31388

B. 31487

C. 31498

D. 31488

Scratch work

M02 A school orders 24 cartons with 846 pencils in each. How many pencils arrive?

A. 20204

B. 20303

C. 20304

D. 19304

Scratch work

STUDENT PERFORMANCE

Warm-up: show your method

001 Compute 984×80 . Use the standard algorithm. Show both partial-product rows and regrouping. Explain the tens row, then check with distribution.

100,000	10,000	1,000	100	10	1

Written work / explanation

Check / estimate / interpretation

STUDENT PERFORMANCE

Warm-up: show your method

002 Compute 358×72 . Use the standard algorithm. Show both partial-product rows and regrouping. Explain the tens row, then check with distribution.

100,000	10,000	1,000	100	10	1

Written work / explanation

Check / estimate / interpretation

TEACHER KEY

Worked keys and learning targets

M01 | Warm-up | Answer: D 31488

Use the standard algorithm to multiply whole numbers through three digits by two digits accurately and efficiently.

Row for 2: $4 \times 2 + 0 = 8$: record 8, carry 0; $8 \times 2 + 0 = 16$: record 6, carry 1; $3 \times 2 + 1 = 7$: record 7, carry 0. Row value = 768; begin in ones. Row for 80: $4 \times 8 + 0 = 32$: record 2, carry 3; $8 \times 8 + 3 = 67$: record 7, carry 6; $3 \times 8 + 6 = 30$: record 0, carry 3; record final carry 3. Row value = 30720; shift one place because the multiplier is tens. Add rows: $768 + 30720 = 31488$. Check by distribution: $384 \times (80 + 2) = 30720 + 768$.

Distractor 31388: This differs from the correct value by 100. Compare the place-value units and each operation in the worked solution; the choice alone does not identify the learner's error.

Distractor 31487: This differs from the correct value by 1. Compare the place-value units and each operation in the worked solution; the choice alone does not identify the learner's error.

Distractor 31498: This differs from the correct value by 10. Compare the place-value units and each operation in the worked solution; the choice alone does not identify the learner's error.

M02 | Warm-up | Answer: C 20304

Use the standard algorithm to multiply whole numbers through three digits by two digits accurately and efficiently.

Row for 4: $6 \times 4 + 0 = 24$: record 4, carry 2; $4 \times 4 + 2 = 18$: record 8, carry 1; $8 \times 4 + 1 = 33$: record 3, carry 3; record final carry 3. Row value = 3384; begin in ones. Row for 20: $6 \times 2 + 0 = 12$: record 2, carry 1; $4 \times 2 + 1 = 9$: record 9, carry 0; $8 \times 2 + 0 = 16$: record 6, carry 1; record final carry 1. Row value = 16920; shift one place because the multiplier is tens. Add rows: $3384 + 16920 = 20304$. Check by distribution: $846 \times (20 + 4) = 16920 + 3384$. Context answer: 20304 pencils arrive.

Distractor 19304: This differs from the correct value by 1000. Compare the place-value units and each operation in the worked solution; the choice alone does not identify the learner's error.

Distractor 20204: This differs from the correct value by 100. Compare the place-value units and each operation in the worked solution; the choice alone does not identify the learner's error.

Distractor 20303: This differs from the correct value by 1. Compare the place-value units and each operation in the worked solution; the choice alone does not identify the learner's error.

TEACHER KEY

Worked keys and learning targets

001 | Warm-up | Answer: 78720

Use the standard algorithm to multiply whole numbers through three digits by two digits accurately and efficiently.

Row for 0: $4 \times 0 + 0 = 0$: record 0, carry 0; $8 \times 0 + 0 = 0$: record 0, carry 0; $9 \times 0 + 0 = 0$: record 0, carry 0. Row value = 0; begin in ones. Row for 80: $4 \times 8 + 0 = 32$: record 2, carry 3; $8 \times 8 + 3 = 67$: record 7, carry 6; $9 \times 8 + 6 = 78$: record 8, carry 7; record final carry 7. Row value = 78720; shift one place because the multiplier is tens. Add rows: $0 + 78720 = 78720$. Check by distribution: $984 \times (80 + 0) = 78720 + 0$.

Evidence: require the actual standard algorithm, visible regrouping and correctly valued partial-product rows. Evaluate computation and explanation separately.

002 | Warm-up | Answer: 25776

Use the standard algorithm to multiply whole numbers through three digits by two digits accurately and efficiently.

Row for 2: $8 \times 2 + 0 = 16$: record 6, carry 1; $5 \times 2 + 1 = 11$: record 1, carry 1; $3 \times 2 + 1 = 7$: record 7, carry 0. Row value = 716; begin in ones. Row for 70: $8 \times 7 + 0 = 56$: record 6, carry 5; $5 \times 7 + 5 = 40$: record 0, carry 4; $3 \times 7 + 4 = 25$: record 5, carry 2; record final carry 2. Row value = 25060; shift one place because the multiplier is tens. Add rows: $716 + 25060 = 25776$. Check by distribution: $358 \times (70 + 2) = 25060 + 716$.

Evidence: require the actual standard algorithm, visible regrouping and correctly valued partial-product rows. Evaluate computation and explanation separately.

003 | Warm-up | Answer: 14420

Use the standard algorithm to multiply whole numbers through three digits by two digits accurately and efficiently.

Row for 5: $2 \times 5 + 0 = 10$: record 0, carry 1; $1 \times 5 + 1 = 6$: record 6, carry 0; $4 \times 5 + 0 = 20$: record 0, carry 2; record final carry 2. Row value = 2060; begin in ones. Row for 30: $2 \times 3 + 0 = 6$: record 6, carry 0; $1 \times 3 + 0 = 3$: record 3, carry 0; $4 \times 3 + 0 = 12$: record 2, carry 1; record final carry 1. Row value = 12360; shift one place because the multiplier is tens. Add rows: $2060 + 12360 = 14420$. Check by distribution: $412 \times (30 + 5) = 12360 + 2060$.

Evidence: require the actual standard algorithm, visible regrouping and correctly valued partial-product rows. Evaluate computation and explanation separately.