

Build Products with Area

Grade 4 | NC.4.NBT.5



Place value • representations • reasoning

Seven teaching sections, detailed models, 30 multiple-choice and 30 open/performance tasks, generous workspaces, worked keys and evidence records.

Use selected tasks across short lessons. The bank is not a single test. Current NC standard alignment for 2026-27 and 2027-28; not the future 2028-29 standards.

Free sample | Contents

NC.4.NBT.5 | Fourth Grade mathematics

This sample contains 14 complete selected pages from the 88-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 teaching route

Pages 3-7: standard, targets, materials, worked instruction and reusable organizer.

Page 8: assessment guidance and individual evidence record.

Seven sections follow: each has a scripted lesson, selected student choice pages and open-performance pages.

Worked keys follow all student sections; the last page lists official sources and use notes.

Suggested sequence: Session 1 warm-up and I Do (20 minutes); Session 2 We Do and collaboration (28 minutes); Session 3 independent practice and exit (22 minutes). Use small-group reteach (10 minutes) as a separate responsive session.

Select M01/O01, M05/O05, M09/O09, M14/O14, M19/O19, M24/O24 and M28/O28 as a starting route. Choose fewer tasks if students need more explanation time. Remaining items are optional practice or later evidence.

Print only needed pages. Teacher models and keys are separate from student tasks; do not display answers during independent work.

TEACHER GUIDE

Standard and learning targets

Multiply a whole number of up to three digits by a one-digit whole number, and multiply up to two two-digit numbers with place value understanding using area models, partial products, and the properties of operations. Use models to make connections and develop the algorithm.

I can multiply up to three digits by one digit using place value and partial products.

I can multiply two two-digit numbers with area models and the distributive property.

I can connect model regions and partial products to rows and regrouping in a written algorithm.

Essential question: How does the value of each place explain the written steps?

Collect actual calculations, models and explanations. A correct choice alone does not demonstrate the full standard. The open tasks connect computation, representation and reasoning.

TEACHER GUIDE

Materials, access and readiness

Materials: pencil, eraser, supplied organizers, optional large base-ten blocks or paper place-value disks. Adults prepare any cutouts; do not require small objects. All models can be drawn directly.

Prerequisites: read whole numbers by place, exchange ten units for one next-place unit, and use basic facts. For division, recognize equal groups and related multiplication. Diagnose gaps before assigning larger numbers.

Vocabulary: place value, exchange, regroup, digit, sum, difference, product, quotient, remainder, partial product, partial quotient, distribute. Use gestures and labelled diagrams, then connect language to symbols.

Access: neutral read-aloud, enlarged printing, AAC, oral/signed explanation, scribing dictated mathematical steps and pointing are acceptable when they preserve the target. Do not calculate, tell a regrouping step or name the answer. Record answer-supplying prompts separately.

Reteach: reduce the numbers while preserving the troublesome exchange or model structure. Have the learner build, draw, explain and then record the same action. Return to an original-sized example after success.

Extension: choose two legitimate representations, compare their efficiency and explain why both preserve quantity. Do not introduce four-digit multiplication or division dividends beyond 999 as requirements here.

TEACHER GUIDE

Worked model: say and show

Teacher example: $34 \times 26 = 884$

Say: “First name the value of each digit. Every written move must represent an action on quantities. I will explain what changes and what stays equal.”

Partition side lengths as $30 + 4$ and $20 + 6$. Area regions: $30 \times 20 = 600$; $30 \times 6 = 180$; $4 \times 20 = 80$; $4 \times 6 = 24$. Add all regions: $600 + 180 + 80 + 24 = 884$. This is the distributive property. Written partial-product rows: $680 + 204 = 884$. A tens multiplier makes tens, so its row is shifted one place; regroup ten units as one unit of the next place. If there is one multiplier digit, combine its products by place. Each region is counted once.



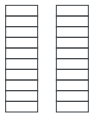
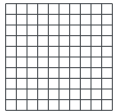
Schematic area model; side labels give values. Not drawn to scale.

TEACHER GUIDE

From blocks to written steps

Use the exact base-ten pieces below for 124. A hundred is a 10×10 square; a ten is a 10-unit rod; a one is a unit square. Count units within a piece, then name its place value.

$$124 = 100 + 20 + 4$$



Make 3 equal groups of 124 with blocks or drawings. Products: $3 \times 100 = 300$, $3 \times 20 = 60$, $3 \times 4 = 12$; total 372.

Exchange 12 ones for 1 ten and 2 ones. The written result has 3 hundreds, 7 tens and 2 ones.

STUDENT RESOURCE

Reusable student organizer

Name: _____ Date: _____ Problem: _____

Draw and label your model

Written method and place-value explanation

Check and interpret the result

TEACHER GUIDE

Evidence and responsive scoring

Score computation, representation and explanation separately. 3: accurate, independent evidence with a clear connection; 2: mostly accurate with a minor error or an incomplete connection; 1: partial relevant work with substantial gaps; 0: an interpretable observed incorrect response. N/O: unobserved, inaccessible or insufficient evidence.

Do not turn lack of speech, slow work or an unavailable response route into zero. Record access supports separately from hints that supply mathematical steps. These are instructional descriptors, not official cut scores or proof of mastery.

For each learner, save an individual open response even during partner work. Ask: What does this digit or region count? Where is the exchange or leftover? How does your check match the original quantity?

Date / item / learner	Evidence / scores	Support / next step

TEACHER GUIDE

Warm-up: teaching moves

Selected core: M01 and O01. Additional bank: M01-M04, O01-O04. Target: Multiply up to three digits by one digit using place value and partial products.

0-2 minutes | Invite: “What quantities are given? Name their places before calculating.” Ask each learner to predict a reasonable magnitude without supplying the exact answer.

2-5 minutes | Display the selected problem. Ask learners to point to the model part matching each quantity. Keep the answer covered while they work.

5-8 minutes | Say: “Show the calculation and explain what each step counts.” During collaboration, one partner represents and the other checks; then switch and record individual work. During independent or exit work, collect unaided evidence before discussion.

Close | Ask: “How can you check without simply repeating the same steps?” Listen for a value-preserving exchange, a sum of all partial products, or $\text{divisor} \times \text{quotient} + \text{remainder}$ as appropriate.

If stuck: return to the 124 block example with simpler quantities. Ask a neutral question about units rather than naming the missing step. If a hint supplies a step, mark the work as supported and collect a fresh response later.

Record the item, exact strategy, errors, access supports and next move. Early finishers compare a second representation and explain whether it is more efficient. Exit items may take longer than five minutes; use one task rather than rushing.

STUDENT TASKS

Warm-up: choose and check

M01 Find 836×2 .

A. 1,682

B. 1,672

C. 1,772

D. 2,672

Optional scratch work

M02 A learner uses an area model to solve 999×9 . Which result should the work show?

A. 8,991

B. 8,891

C. 9,091

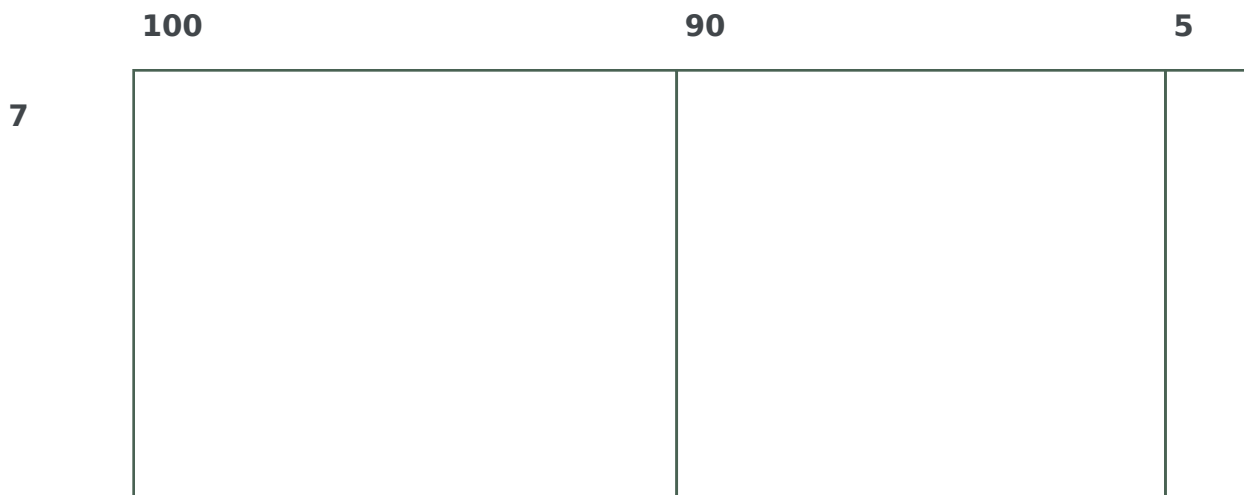
D. 8,990

Optional scratch work

STUDENT PERFORMANCE

Warm-up: show your thinking

001 Solve 195×7 . Draw and label an area model; write all partial products. Connect the regions to a written multiplication algorithm. Explain how the distributive property keeps the product unchanged.



Schematic area model; side labels give values. Not drawn to scale.

Written method / connections to your model

Explain and check

STUDENT PERFORMANCE

Warm-up: show your thinking

002 Solve 99×71 . Draw and label an area model; write all partial products. Connect the regions to a written multiplication algorithm. Explain how the distributive property keeps the product unchanged.



Schematic area model; side labels give values. Not drawn to scale.

Written method / connections to your model

Explain and check

TEACHER KEY

Worked keys and evidence

M01 | Warm-up

Answer: B 1672

Partition side lengths as $800 + 30 + 6$ and 2. Area regions: $800 \times 2 = 1600$; $30 \times 2 = 60$; $6 \times 2 = 12$. Add all regions: $1600 + 60 + 12 = 1,672$. This is the distributive property. Written partial-product rows: $1672 = 1,672$. A tens multiplier makes tens, so its row is shifted one place; regroup ten units as one unit of the next place. If there is one multiplier digit, combine its products by place. Each region is counted once.

Distractor 1682: This is 10 too large. Check the 10-unit contribution or exchange in the work.

Distractor 1772: This is 100 too large. Check the 100-unit contribution or exchange in the work.

Distractor 2672: This is 1,000 too large. Check the 1,000-unit contribution or exchange in the work.

M02 | Warm-up

Answer: A 8991

Partition side lengths as $900 + 90 + 9$ and 9. Area regions: $900 \times 9 = 8100$; $90 \times 9 = 810$; $9 \times 9 = 81$. Add all regions: $8100 + 810 + 81 = 8,991$. This is the distributive property. Written partial-product rows: $8991 = 8,991$. A tens multiplier makes tens, so its row is shifted one place; regroup ten units as one unit of the next place. If there is one multiplier digit, combine its products by place. Each region is counted once.

Distractor 8891: This is 100 too small. Check the 100-unit contribution or exchange in the work.

Distractor 9091: This is 100 too large. Check the 100-unit contribution or exchange in the work.

Distractor 8990: This is 1 too small. Check the 1-unit contribution or exchange in the work.

TEACHER KEY

Worked keys and evidence

001 | Warm-up

Answer: 1365

Partition side lengths as $100 + 90 + 5$ and 7 . Area regions: $100 \times 7 = 700$; $90 \times 7 = 630$; $5 \times 7 = 35$. Add all regions: $700 + 630 + 35 = 1,365$. This is the distributive property. Written partial-product rows: $1365 = 1,365$. A tens multiplier makes tens, so its row is shifted one place; regroup ten units as one unit of the next place. If there is one multiplier digit, combine its products by place. Each region is counted once.

Evidence: require the requested method, labelled model and meaningful explanation. Equivalent correct approaches and language are valid. Score computation, representation and explanation separately.

002 | Warm-up

Answer: 7029

Partition side lengths as $90 + 9$ and $70 + 1$. Area regions: $90 \times 70 = 6300$; $90 \times 1 = 90$; $9 \times 70 = 630$; $9 \times 1 = 9$. Add all regions: $6300 + 90 + 630 + 9 = 7,029$. This is the distributive property. Written partial-product rows: $6930 + 99 = 7,029$. A tens multiplier makes tens, so its row is shifted one place; regroup ten units as one unit of the next place. If there is one multiplier digit, combine its products by place. Each region is counted once.

Evidence: require the requested method, labelled model and meaningful explanation. Equivalent correct approaches and language are valid. Score computation, representation and explanation separately.

003 | Warm-up

Answer: 3010

Partition side lengths as $80 + 6$ and $30 + 5$. Area regions: $80 \times 30 = 2400$; $80 \times 5 = 400$; $6 \times 30 = 180$; $6 \times 5 = 30$. Add all regions: $2400 + 400 + 180 + 30 = 3,010$. This is the distributive property. Written partial-product rows: $2580 + 430 = 3,010$. A tens multiplier makes tens, so its row is shifted one place; regroup ten units as one unit of the next place. If there is one multiplier digit, combine its products by place. Each region is counted once.

Evidence: require the requested method, labelled model and meaningful explanation. Equivalent correct approaches and language are valid. Score computation, representation and explanation separately.