

# Add, Subtract and Explain

## Grade 4 | NC.4.NBT.4



### 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.4 | Fourth 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 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

Add and subtract multi-digit whole numbers up to and including 100,000 using the standard algorithm with place value understanding.

I can align whole numbers by place and use the standard addition algorithm.

I can use the standard subtraction algorithm, explaining exchanges across zero.

I can connect each written step to place value and check with an inverse operation.

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: 40,302 - 17,856 = 22446

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.”

Exchange from place 100 through place 1; this column now has 12 units of 1. Place 1: 12 - 6 = 6. Place 10: 9 - 5 = 4. Exchange from place 10,000 through place 100; this column now has 12 units of 100. Place 100: 12 - 8 = 4. Place 1,000: 9 - 7 = 2. Place 10,000: 3 - 1 = 2. Result: 22,446. Check: 22,446 + 17,856 = 40,302. Exchanges preserve value because ten of one unit equal one of the next larger unit.

Top numeric row: exchanged values. Then original, subtractand, result.

| 100,000 | 10,000 | 1,000 | 100 | 10 | 1  |
|---------|--------|-------|-----|----|----|
| 0       | 3      | 9     | 12  | 9  | 12 |
| 0       | 4      | 0     | 3   | 0  | 2  |
| 0       | 1      | 7     | 8   | 5  | 6  |
| 0       | 2      | 2     | 4   | 4  | 6  |

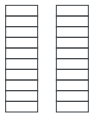
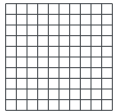
The exchanged row is still worth 40,302. Subtract each digit of 17,856 from that row to get 22,446. Compare every exchange with the script above.

## TEACHER GUIDE

# From blocks to written steps

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

$$124 = 100 + 20 + 4$$



Combine or remove like units, then exchange ten for one next-place unit or one for ten smaller units.

An algorithm records the same exchanges more compactly. A crossed-out digit changes value only as part of a matching exchange.

STUDENT RESOURCE

# Reusable student organizer

Name: \_\_\_\_\_ Date: \_\_\_\_\_ Problem: \_\_\_\_\_

| 100,000 | 10,000 | 1,000 | 100 | 10 | 1 |
|---------|--------|-------|-----|----|---|
|         |        |       |     |    |   |
|         |        |       |     |    |   |
|         |        |       |     |    |   |
|         |        |       |     |    |   |
|         |        |       |     |    |   |

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: Align whole numbers by place and use the standard addition algorithm.

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 divisor  $\times$  quotient + 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  $11,676 + 51,857$ .

A. 63,533

B. 63,633

C. 63,523

D. 64,533

**Optional scratch work**

M02 A learner uses place-value columns to solve  $76,135 - 37,281$ . Which result should the work show?

A. 38,754

B. 38,853

C. 38,844

D. 38,854

**Optional scratch work**

STUDENT PERFORMANCE

# Warm-up: show your thinking

001 Solve  $68,220 + 3,901$  with the standard algorithm. Label place values and show every exchange. Explain how one column keeps the same value when regrouped. Check with the inverse operation. Tell how your check would reveal an answer that was one unit too high.

| 100,000 | 10,000 | 1,000 | 100 | 10 | 1 |
|---------|--------|-------|-----|----|---|
|         |        |       |     |    |   |
|         |        |       |     |    |   |
|         |        |       |     |    |   |

Written method / connections to your model

Explain and check

STUDENT PERFORMANCE

# Warm-up: show your thinking

002 Solve  $6,861 - 955$  with the standard algorithm. Label place values and show every exchange. Explain how one column keeps the same value when regrouped. Check with the inverse operation.

| 100,000 | 10,000 | 1,000 | 100 | 10 | 1 |
|---------|--------|-------|-----|----|---|
|         |        |       |     |    |   |
|         |        |       |     |    |   |
|         |        |       |     |    |   |

Written method / connections to your model

Explain and check

## TEACHER KEY

# Worked keys and evidence

## M01 | Warm-up

Answer: A 63533

Place 1:  $6 + 7 + \text{carried } 0 = 13$ ; write 3, carry 1 to the next place. Place 10:  $7 + 5 + \text{carried } 1 = 13$ ; write 3, carry 1 to the next place. Place 100:  $6 + 8 + \text{carried } 1 = 15$ ; write 5, carry 1 to the next place. Place 1,000:  $1 + 1 + \text{carried } 1 = 3$ ; write 3, carry 0 to the next place. Place 10,000:  $1 + 5 + \text{carried } 0 = 6$ ; write 6, carry 0 to the next place. Result: 63,533. Check:  $63,533 - 51,857 = 11,676$ . Exchanges preserve value because ten of one unit equal one of the next larger unit.

Distractor 63633: This is 100 too large. Check the 100-unit contribution or exchange in the work.

Distractor 63523: This is 10 too small. Check the 10-unit contribution or exchange in the work.

Distractor 64533: This is 1,000 too large. Check the 1,000-unit contribution or exchange in the work.

## M02 | Warm-up

Answer: D 38854

Place 1:  $5 - 1 = 4$ . Exchange from place 100 through place 10; this column now has 13 units of 10. Place 10:  $13 - 8 = 5$ . Exchange from place 1,000 through place 100; this column now has 10 units of 100. Place 100:  $10 - 2 = 8$ . Exchange from place 10,000 through place 1,000; this column now has 15 units of 1,000. Place 1,000:  $15 - 7 = 8$ . Place 10,000:  $6 - 3 = 3$ . Result: 38,854. Check:  $38,854 + 37,281 = 76,135$ . Exchanges preserve value because ten of one unit equal one of the next larger unit.

Distractor 38754: This is 100 too small. Check the 100-unit contribution or exchange in the work.

Distractor 38853: This is 1 too small. Check the 1-unit contribution or exchange in the work.

Distractor 38844: This is 10 too small. Check the 10-unit contribution or exchange in the work.

## TEACHER KEY

# Worked keys and evidence

## 001 | Warm-up

Answer: 72121

Place 1:  $0 + 1 + \text{carried } 0 = 1$ ; write 1, carry 0 to the next place. Place 10:  $2 + 0 + \text{carried } 0 = 2$ ; write 2, carry 0 to the next place. Place 100:  $2 + 9 + \text{carried } 0 = 11$ ; write 1, carry 1 to the next place. Place 1,000:  $8 + 3 + \text{carried } 1 = 12$ ; write 2, carry 1 to the next place. Place 10,000:  $6 + 0 + \text{carried } 1 = 7$ ; write 7, carry 0 to the next place. Result: 72,121. Check:  $72,121 - 3,901 = 68,220$ . Exchanges preserve value because ten of one unit equal one of the next larger unit. A result one too high changes the inverse check by 1, so it does not recover the starting number.

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: 5906

Exchange from place 10 through place 1; this column now has 11 units of 1. Place 1:  $11 - 5 = 6$ . Place 10:  $5 - 5 = 0$ . Exchange from place 1,000 through place 100; this column now has 18 units of 100. Place 100:  $18 - 9 = 9$ . Place 1,000:  $5 - 0 = 5$ . Result: 5,906. Check:  $5,906 + 955 = 6,861$ . Exchanges preserve value because ten of one unit equal one of the next larger unit.

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: 87238

Place 1:  $4 + 4 + \text{carried } 0 = 8$ ; write 8, carry 0 to the next place. Place 10:  $0 + 3 + \text{carried } 0 = 3$ ; write 3, carry 0 to the next place. Place 100:  $5 + 7 + \text{carried } 0 = 12$ ; write 2, carry 1 to the next place. Place 1,000:  $6 + 0 + \text{carried } 1 = 7$ ; write 7, carry 0 to the next place. Place 10,000:  $8 + 0 + \text{carried } 0 = 8$ ; write 8, carry 0 to the next place. Result: 87,238. Check:  $87,238 - 734 = 86,504$ . Exchanges preserve value because ten of one unit equal one of the next larger unit. A result one too high changes the inverse check by 1, so it does not recover the starting number.

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