

One-Step Multiplication and Division



GRADE 3 | NC.3.OA.3

Teacher scripts, purposeful block models, student workspaces, and performance evidence.

Includes 30 selected-response and 30 open/performance tasks across seven teaching sections. Select short sets across several sessions; this is not a 60-item test.

Current NC standards. The adopted 2026 revision begins in 2028-29.

Free sample | Contents

NC.3.OA.3 | Third Grade mathematics

This sample contains 21 complete selected pages from the 85-page resource, plus this sample contents page. Original printed page numbers are retained. Gaps are intentional.

Included original pages: 1-17, 32-33, 62, 72

Representative activities

M01: sample PDF page(s) 18; original page(s) 17

M02: sample PDF page(s) 18; original page(s) 17

O01: sample PDF page(s) 19; original page(s) 32

O02: sample PDF page(s) 20; original page(s) 33

Selected teacher prompts and keys: original page(s) 62, 72

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

Use this packet

Start with the alignment and teaching models. Copy only the selected student task pages. All answers and teaching examples are teacher-only; keep them separate from independent student checks.

Navigation: alignment and planning pp. 3-4; worked models pp. 5-7; seven section scripts pp. 8-14; student anchor and organizer pp. 15-16; choice bank pp. 17-31; performance bank pp. 32-61; keys begin p. 62; scoring, records, and sources follow the keys.

Suggested sequence: session 1 warm-up and I Do; session 2 We Do and collaborative practice; session 3 independent practice and exit. Add brief reteaching conferences after checking evidence. Allow roughly 20-30 minutes per session, with flexibility for models and discussion.

The 60-item bank is reusable. Choose one M and one O task per section initially, then select by learning target. Demonstration items in I Do may be modeled; they are not independent evidence. Keep each learner's individual explanation even in partner work.

TEACHER GUIDE

Exact standard and targets

Represent, interpret, and solve one-step problems involving multiplication and division.

Solve multiplication word problems with factors up to and including 10. Represent the problem using arrays, pictures, and/or equations with a symbol for the unknown number to represent the problem.

Solve division word problems with a divisor and quotient up to and including 10. Represent the problem using arrays, pictures, repeated subtraction and/or equations with a symbol for the unknown number to represent the problem.

Learning targets:

1. I can represent and solve multiplication stories.
2. I can represent and solve equal-sharing stories.
3. I can represent and solve equal-grouping stories.

Evidence: collect labelled models, equations, strategy explanations, and checks.

Mathematical Practices 1, 2, 3, 4, 6, and 7 appear in interpreting contexts, modelling quantities, critiquing claims, and explaining structure.

TEACHER GUIDE

Prepare and provide access

Multiplication factors up to 10; division divisor 1-10 and quotient 0-10. All division here has a whole-number result. One-step stories only.

Prerequisites: count objects accurately; make equal groups; connect repeated equal addends to a total; recognize $\times$, $/$, $=$, and $?$. Check these through a brief build-and-tell before interpreting an incorrect choice.

Materials: pencil, paper, this packet, and optional large classroom linking cubes. Drawn blocks can replace objects. Adults handle any cutting; avoid small loose pieces where unsafe. No scale-dependent measuring is required.

Access: read the story and directions neutrally; allow oral, signed, AAC, dictated, drawn, or built responses. Enlarge print or use tactile group boundaries. Do not supply grouping, the operation, a count, or the missing factor during an independent check. Record any answer-supplying cue separately.

Language: total means all objects; equal groups have the same size. A factor describes a group count or size; product is the total. Divisor and quotient have roles that depend on the context. Rehearse units with a new example before assessment.

Differentiate: reduce group size while preserving the same structure, then return to a fresh in-range item. Extend by asking for a second strategy and explaining why both preserve the total; do not simply assign larger numbers.

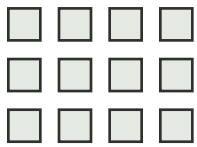
TEACHER GUIDE

Multiplication story

Say: Three trays hold 4 blocks each. The total is unknown. Draw 3 equal rows of 4. Write $3 \times 4 = ?$. Add $4 + 4 + 4 = 12$. Answer 12 blocks. Check that each tray in the picture has 4.

Ask: What does each number count? Where is it in the model? Why does this equation match? Wait for a student to point, label, and explain before introducing a second representation.

Teacher-only worked block model



Watch for counting rows as the total or changing group size. Rebuild one group, label its size, then rebuild the same number of groups. Record the learner's exact explanation.

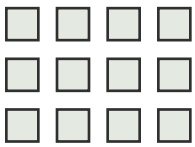
TEACHER GUIDE

Two division stories

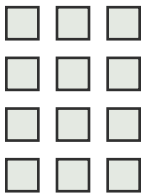
Say: Twelve blocks shared among 3 trays gives 4 blocks per tray. Twelve blocks packed 3 per bag gives 4 bags. Both use $12 \div 3 = ?$, but the quotient has different units. Point to the groups and name what the unknown counts.

Ask: What does each number count? Where is it in the model? Why does this equation match? Wait for a student to point, label, and explain before introducing a second representation.

Sharing: 3 trays, 4 blocks per tray



Grouping: 4 bags, 3 blocks per bag



Watch for counting rows as the total or changing group size. Rebuild one group, label its size, then rebuild the same number of groups. Record the learner's exact explanation.

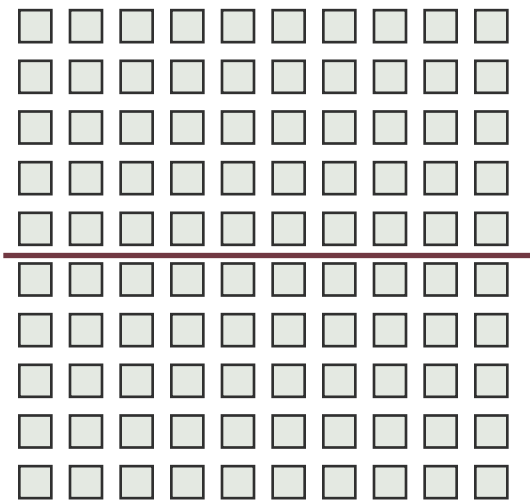
TEACHER GUIDE

A boundary with ten

Say: Ten boxes hold 10 cards each. $10 \times 10 = ?$ gives 100 cards. If 100 cards are shared among 10 boxes, $100 \div 10 = ?$ gives 10 cards per box. This problem belongs to OA.3; OA.2 limits its divisor and quotient to one digit.

Ask: What does each number count? Where is it in the model? Why does this equation match? Wait for a student to point, label, and explain before introducing a second representation.

Teacher-only worked block model



Watch for counting rows as the total or changing group size. Rebuild one group, label its size, then rebuild the same number of groups. Record the learner's exact explanation.

TEACHER GUIDE

Warm-up | teaching script

Bank: M01-M04 and O01-O04. Suggested core: M01 and O01; do not assign the whole bank at once.

0-2 min: invite a quick equal-group sketch. 2-5 min: use the selected choice task. 5-8 min: hear an individual explanation without correcting during the first attempt.

Say: Read or listen. What is known? What is unknown? Show how your model matches each number. Explain why your answer fits, then check it.

Selected core worked response: $12 / 3 = ?$. Make 3 equal groups with 4 tiles in each. Answer: 4 tiles per container. Check: $3 \times 4 = 12$.

Listen/look for: Represent and solve equal-sharing stories. Check equal-sized groups, all objects accounted for once, correct unknown placement, and named units.

If the learner adds the two given numbers automatically, return to one complete group and ask how many equal copies the context needs. For a division-role reversal, ask whether the story gives the number of groups or the size of each. Use this prompt only in teaching, not as unmarked independent evidence.

Early finisher: create a different model or a matching story, then explain what changes and what stays the same. Record item/date, actual words or actions, access supports, answer-supplying cues, and a specific next step.

TEACHER GUIDE

I Do | teaching script

Bank: M05-M08 and O05-O08. Suggested core: M05 and O05; do not assign the whole bank at once.

0-3 min: read the context and mark what is known. 3-8 min: build the selected task slowly, connecting each quantity to the equation. 8-12 min: ask the learner to retell the strategy on a fresh task.

Say: Read or listen. What is known? What is unknown? Show how your model matches each number. Explain why your answer fits, then check it.

Selected core worked response: $6 / 3 = ?$. Make 2 groups of 3. Answer: 2 bags. Repeated subtraction: $6 \rightarrow 3 \rightarrow 0$; 2 subtractions. Check: $2 \times 3 = 6$.

Listen/look for: Represent and solve equal-grouping stories. Check equal-sized groups, all objects accounted for once, correct unknown placement, and named units.

If the learner adds the two given numbers automatically, return to one complete group and ask how many equal copies the context needs. For a division-role reversal, ask whether the story gives the number of groups or the size of each. Use this prompt only in teaching, not as unmarked independent evidence.

Early finisher: create a different model or a matching story, then explain what changes and what stays the same. Record item/date, actual words or actions, access supports, answer-supplying cues, and a specific next step.

TEACHER GUIDE

We Do | teaching script

Bank: M09-M13 and O09-O13. Suggested core: M09 and O09; do not assign the whole bank at once.

0-3 min: each learner predicts a model. 3-10 min: jointly build and label it. 10-15 min: remove the shared model and have each learner explain a fresh example.

Say: Read or listen. What is known? What is unknown? Show how your model matches each number. Explain why your answer fits, then check it.

Selected core worked response: $8 \times 8 = ?$. 8 equal groups of 8 give 64 cards.

Listen/look for: Represent and solve multiplication stories. Check equal-sized groups, all objects accounted for once, correct unknown placement, and named units.

If the learner adds the two given numbers automatically, return to one complete group and ask how many equal copies the context needs. For a division-role reversal, ask whether the story gives the number of groups or the size of each. Use this prompt only in teaching, not as unmarked independent evidence.

Early finisher: create a different model or a matching story, then explain what changes and what stays the same. Record item/date, actual words or actions, access supports, answer-supplying cues, and a specific next step.

TEACHER GUIDE

Collaborative practice | teaching script

Bank: M14-M18 and O14-O18. Suggested core: M14 and O14; do not assign the whole bank at once.

0-3 min: assign builder and checker roles. 3-9 min: partner A models while B checks equality and units. 9-13 min: switch roles, then each records an individual equation and explanation.

Say: Read or listen. What is known? What is unknown? Show how your model matches each number. Explain why your answer fits, then check it.

Selected core worked response: $32 \div 4 = ?$. Make 8 groups of 4. Answer: 8 bags. Repeated subtraction: $32 \rightarrow 28 \rightarrow 24 \rightarrow 20 \rightarrow 16 \rightarrow 12 \rightarrow 8 \rightarrow 4 \rightarrow 0$; 8 subtractions. Check: $8 \times 4 = 32$.

Listen/look for: Represent and solve equal-grouping stories. Check equal-sized groups, all objects accounted for once, correct unknown placement, and named units.

If the learner adds the two given numbers automatically, return to one complete group and ask how many equal copies the context needs. For a division-role reversal, ask whether the story gives the number of groups or the size of each. Use this prompt only in teaching, not as unmarked independent evidence.

Early finisher: create a different model or a matching story, then explain what changes and what stays the same. Record item/date, actual words or actions, access supports, answer-supplying cues, and a specific next step.

TEACHER GUIDE

Independent practice | teaching script

Bank: M19-M23 and O19-O23. Suggested core: M19 and O19; do not assign the whole bank at once.

0-2 min: give neutral directions and access tools. 2-13 min: learners select a model and solve without strategy cues. 13-17 min: ask each to explain one relationship and check it.

Say: Read or listen. What is known? What is unknown? Show how your model matches each number. Explain why your answer fits, then check it.

Selected core worked response: $8 / 4 = ?$. Make 4 equal groups with 2 cards in each. Answer: 2 cards per container. Check: $4 \times 2 = 8$.

Listen/look for: Represent and solve equal-sharing stories. Check equal-sized groups, all objects accounted for once, correct unknown placement, and named units.

If the learner adds the two given numbers automatically, return to one complete group and ask how many equal copies the context needs. For a division-role reversal, ask whether the story gives the number of groups or the size of each. Use this prompt only in teaching, not as unmarked independent evidence.

Early finisher: create a different model or a matching story, then explain what changes and what stays the same. Record item/date, actual words or actions, access supports, answer-supplying cues, and a specific next step.

TEACHER GUIDE

Small-group reteach | teaching script

Bank: M24-M27 and O24-O27. Suggested core: M24 and O24; do not assign the whole bank at once.

0-2 min: identify the exact error from evidence. 2-7 min: rebuild with smaller equal groups; connect to symbols. 7-10 min: return to a fresh bank item and remove the prompt.

Say: Read or listen. What is known? What is unknown? Show how your model matches each number. Explain why your answer fits, then check it.

Selected core worked response: $6 \times 10 = ?$. 6 equal groups of 10 give 60 cards.

Listen/look for: Represent and solve multiplication stories. Check equal-sized groups, all objects accounted for once, correct unknown placement, and named units.

If the learner adds the two given numbers automatically, return to one complete group and ask how many equal copies the context needs. For a division-role reversal, ask whether the story gives the number of groups or the size of each. Use this prompt only in teaching, not as unmarked independent evidence.

Early finisher: create a different model or a matching story, then explain what changes and what stays the same. Record item/date, actual words or actions, access supports, answer-supplying cues, and a specific next step.

TEACHER GUIDE

Exit ticket | teaching script

Bank: M28-M30 and O28-O30. Suggested core: M28 and O28; do not assign the whole bank at once.

0-1 min: state the task neutrally. 1-4 min: each learner produces a model or explanation independently. 4-5 min: collect evidence and ask what the unknown counts.

Say: Read or listen. What is known? What is unknown? Show how your model matches each number. Explain why your answer fits, then check it.

Selected core worked response: $0 / 4 = ?$. Make 4 equal groups with 0 tiles in each.

Answer: 0 tiles per container. Check: $4 \times 0 = 0$. Zero objects make zero groups of size 4, or zero objects in each of 4 groups. The divisor is still nonzero.

Listen/look for: Represent and solve equal-sharing stories. Check equal-sized groups, all objects accounted for once, correct unknown placement, and named units.

If the learner adds the two given numbers automatically, return to one complete group and ask how many equal copies the context needs. For a division-role reversal, ask whether the story gives the number of groups or the size of each. Use this prompt only in teaching, not as unmarked independent evidence.

Early finisher: create a different model or a matching story, then explain what changes and what stays the same. Record item/date, actual words or actions, access supports, answer-supplying cues, and a specific next step.

STUDENT REFERENCE | SUPPORTED PRACTICE

Anchor: connect groups and equations

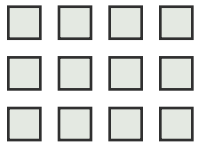
Equal groups: number of groups $\times$ objects in each group = total. For 3 groups of 4: $3 \times 4 = 12$. Repeated addition: $4 + 4 + 4 = 12$.

Division with groups known: $12 / 3 = 4$ means 12 shared among 3 groups gives 4 per group. Division with size known: $12 / 3 = 4$ means 4 groups of 3.

A related fact checks division: $3 \times 4 = 12$. A model must match the question, not just the numbers. Label the groups, each group's size, the total, and the unknown.

Turn an array: $3 \times 4 = 4 \times 3$. Split rows: $6 \times 4 = (2 \times 4) + (4 \times 4)$. Regroup: $(2 \times 3) \times 4 = 2 \times (3 \times 4)$. Explain why no objects are gained or lost.

Example: 3 rows, 4 blocks per row



STUDENT TOOL

Reusable model organizer

Name: _____ Date: _____

Task/item: _____ Known quantities: _____

What is unknown? _____

Model A: groups, array, or repeated subtraction**Model B: another strategy or check****Equation with ? / answer with units / explanation**

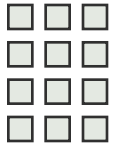
STUDENT SELECTED RESPONSE

Choose and explain | 1-2

M01 | Warm-up

A class packs 12 tiles with 3 in each bag. How many bags are needed?

Countable block model



A. 9 B. 7 C. 5 D. 4

Explain or sketch: _____

M02 | Warm-up

A class packs 50 pencils with 10 in each bag. How many bags are needed?

A. 10 B. 5 C. 2 D. 3

Explain or sketch: _____

STUDENT PERFORMANCE | WARM-UP

001 | Build, solve, explain

Name: _____ Date: _____

A class shares 12 tiles equally among 3 trays. How many tiles go in each? Draw an array or picture (or use repeated subtraction for division). Write an equation with ? for the unknown, solve, and label the answer.

Model / strategy**Equation, answer, and explanation**

Check: _____

STUDENT PERFORMANCE | WARM-UP

002 | Build, solve, explain

Name: _____ Date: _____

A class shares 35 blocks equally among 7 trays. How many blocks go in each? Draw an array or picture (or use repeated subtraction for division). Write an equation with ? for the unknown, solve, and label the answer.

Model / strategy**Equation, answer, and explanation**

Check: _____

TEACHER-ONLY WORKED KEYS

Choice keys | 1-3

M01 | Represent and solve equal-grouping stories

D: 4. $12 / 3 = ?$. Make 4 groups of 3. Answer: 4 bags. Repeated subtraction: $12 \rightarrow 9 \rightarrow 6 \rightarrow 3 \rightarrow 0$; 4 subtractions. Check: $4 \times 3 = 12$.

Diagnostic options: 5: counts one too many; 7: adds the factors instead of using equal groups; 9: subtracts the divisor only once. Ask the learner to explain before attributing an error.

M02 | Represent and solve equal-grouping stories

B: 5. $50 / 10 = ?$. Make 5 groups of 10. Answer: 5 bags. Repeated subtraction: $50 \rightarrow 40 \rightarrow 30 \rightarrow 20 \rightarrow 10 \rightarrow 0$; 5 subtractions. Check: $5 \times 10 = 50$.

Diagnostic options: 3: counts two too few; 2: counts only about half the groups; 10: copies the known factor or divisor. Ask the learner to explain before attributing an error.

M03 | Represent and solve multiplication stories

A: 27. $3 \times 9 = ?$. 3 equal groups of 9 give 27 tiles.

Diagnostic options: 12: adds the factors; 18: leaves out one group; 36: adds an extra group. Ask the learner to explain before attributing an error.

TEACHER-ONLY WORKED KEYS

Performance keys | 1-3

001 | Represent and solve equal-sharing stories

Sample: 4. $12 / 3 = ?$. Make 3 equal groups with 4 tiles in each. Answer: 4 tiles per container. Check: $3 \times 4 = 12$.

Accept an equivalent accurate model and explanation. Required evidence: quantities match the context/equation; equal groups or a valid strategy are visible; unknown and check are explained. Do not require the sample wording.

002 | Represent and solve equal-sharing stories

Sample: 5. $35 / 7 = ?$. Make 7 equal groups with 5 blocks in each. Answer: 5 blocks per container. Check: $7 \times 5 = 35$.

Accept an equivalent accurate model and explanation. Required evidence: quantities match the context/equation; equal groups or a valid strategy are visible; unknown and check are explained. Do not require the sample wording.

003 | Represent and solve equal-sharing stories

Sample: 7. $70 / 10 = ?$. Make 10 equal groups with 7 tiles in each. Answer: 7 tiles per container. Check: $10 \times 7 = 70$.

Accept an equivalent accurate model and explanation. Required evidence: quantities match the context/equation; equal groups or a valid strategy are visible; unknown and check are explained. Do not require the sample wording.