

Integer Moves and Zero Pairs



Grade 6 | NC.6.NS.9

Teacher scripts and worked models

30 multiple-choice + 30 open/performance tasks

Original number lines, coordinate grids and workspaces

Worked keys, scoring guidance and evidence record

Current North Carolina standards for 2026-27 and 2027-28. Select tasks across several sessions; this bank is not one test.

Free sample | Contents

NC.6.NS.9 | Sixth Grade mathematics

This sample contains 19 complete selected pages from the 92-page resource, plus this sample contents page. Original printed page numbers are retained. Gaps are intentional.

Included original pages: 1-15, 30-31, 60, 75

Representative activities

M01: sample PDF page(s) 16; original page(s) 15

M02: sample PDF page(s) 16; original page(s) 15

O01: sample PDF page(s) 17; original page(s) 30

O02: sample PDF page(s) 18; original page(s) 31

Selected teacher prompts and keys: original page(s) 60, 75

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

Exact standard

Understand additive inverses when adding and subtracting integers.

Describe situations in which opposite quantities combine to make 0.

Understand $p + q$ as the number located a distance q from p , in the positive or negative direction depending on the sign of q . Show that a number and its additive inverse create a zero pair.

Understand subtraction of integers as adding the additive inverse, $p - q = p + (-q)$. Show that the distance between two integers on the number line is the absolute value of their difference.

Use models to add and subtract integers from -20 to 20 and describe real-world contexts using sums and differences.

Alignment note: All clauses above are taught and assessed in this packet. Current NC numbering is used; future 2028-29 standards are not substituted.

TEACHER GUIDE

Targets and coverage

T1: I can model opposite integer quantities that combine to zero.

Evidence: M02, M04, M12, M14, M25, O03, O05, O08, O09, O12

T2: I can model $p + q$ with direction and distance from p .

Evidence: M03, M05, M11, M13, M20, O04, O11, O16, O23, O28

T3: I can rewrite subtraction as addition of the additive inverse.

Evidence: M06, M07, M24, M26, M27, O02, O10, O14, O18, O26

T4: I can use absolute differences to measure integer distance.

Evidence: M10, M15, M16, M17, M23, O13, O20, O27, O29, O30

T5: I can use models and contexts to add and subtract integers from -20 to 20.

Evidence: M01, M08, M09, M18, M19, M21, M22, M28, M29, M30, O01, O06, O07, O15, O17, O19, O21, O22, O24, O25

Essential question: How do location, direction and distance help us justify a signed-number statement? MP2 connects contexts and symbols; MP3 critiques reasoning; MP4 models; MP5 chooses tools; MP6 attends to signs and scales.

TEACHER GUIDE

Plan and navigation

Use four sessions of about 25-35 minutes: 1, warm-up and I Do; 2, We Do and collaborative practice; 3, independent work; 4, reteach and exit. Select one choice and one open task per section initially. Keep the other items for spaced practice, conferences and new evidence.

Navigation: exact standard -> targets -> materials -> worked model -> organizer -> seven scripts -> choice bank -> open bank -> worked keys -> evidence and sources. Print selected student pages, not the whole teacher packet.

Warm-up: M01-M04 and O01-O04

I Do: M05-M08 and O05-O08

We Do: M09-M13 and O09-O13

Collaborative practice: M14-M18 and O14-O18

Independent practice: M19-M23 and O19-O23

Small-group reteach: M24-M27 and O24-O27

Exit ticket: M28-M30 and O28-O30

Every item has its own target and worked key. Choice recognition is not a substitute for the plotting, modeling, contextual explanation or justified comparison required in open tasks.

TEACHER GUIDE

Materials and access

Prerequisites: read signed decimals and fractions, identify zero, recognize equal intervals, and describe horizontal/vertical directions. For coordinate tasks, review ordered pairs without teaching the answers to assessment items.

Materials: pencil, ruler, supplied number lines/grids and blank organizers. For integer models, use paper circles with + and - marks or safe classroom counters; the printed model shows how. Adults handle any cutting. No specialized purchased tool is required.

Access: neutral read-aloud, enlargement, high-contrast copy, AAC/signing and dictated explanations are allowed. Preserve the construct: a student must direct placement of each point or model step. A scribe may carry out exact student directions and record them.

Answer-supplying cues include naming the quadrant, reversing the sign for the learner, pointing at the correct location or announcing an operation. Record the first response before a cue and score later supported evidence separately.

Vocabulary: rational number, opposite, additive inverse, zero, absolute value, magnitude, inequality, ordered pair, axis, quadrant, reflection, coordinate, distance, zero pair. Teach only the terms needed for the selected standard.

N/O means unobserved, inaccessible or insufficient evidence. Zero means an observed interpretable incorrect response. Do not score handwriting, reading fluency or accent; do not impose invented speed or mastery cutoffs.

Diagrams use mathematical scales, not physical ruler lengths. Each grid has half-unit small squares. Integer lines show 2-unit major ticks with room for student midpoint ticks. Contexts and data are invented for instruction.

WORKED TEACHER MODEL

Subtracting a negative

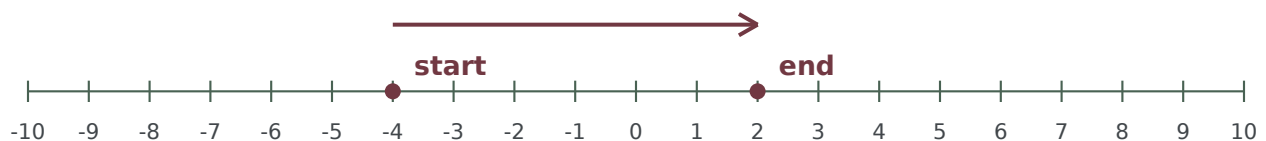
Say: "Model $-4 - (-6)$. Start with four negative counters. To remove six negative counters, add two zero pairs: now there are six negatives and two positives. Remove the six negatives; two positives remain. On a line, $-4 + 6$ moves six units right to 2. Thus $-4 - (-6) = -4 + 6 = 2$. The distance between -4 and -6 is $|-4 - (-6)| = 2$ units; distance and signed subtraction are different questions even when their values happen to match."

After adding two zero pairs: slashes mark the six counters removed.

Remove these negative counters: -6



Keep these positive counters: 2



STUDENT TOOL

Reusable reasoning organizer

Name: _____ Date: _____

Situation / given values: _____

**Context and zero reference / direction or zero pairs****Equation or comparison / interpretation / check**

TEACHER GUIDE

Warm-up script

Core: M01 and O01. Optional bank through M04/O04. Use a fresh item for later independent evidence.

1-3 minutes | Launch

Pair one positive and one negative counter. Ask why the pair changes the representation but not its total value.

4-8 minutes | Demonstrate or elicit

Say: "Show where you start. What does the sign tell you? What in your representation proves the result?" In I Do, demonstrate the worked model; in We Do, pause for students to supply each step. In independent/exit work, give neutral directions only.

3-6 minutes | Examine

Look for: Use models and contexts to add and subtract integers from -20 to 20. Ask: "Can you explain the scale, units and meaning of zero?" Check the model before accepting a correct numerical answer.

2-4 minutes | Respond

Document the exact response first. If subtracting a negative moves left, rebuild with counters and explicitly rewrite $p - q$ as $p + (-q)$. Have the learner retry a different item after instruction; do not erase the distinction between initial and supported evidence.

1-3 minutes | Close

Record the item, representation, reasoning, access supports and any cue. Early finishers create a counterexample to a tempting shortcut and verify it with a model. Each partner provides individual evidence before discussion.

TEACHER GUIDE

I Do script

Core: M05 and O05. Optional bank through M08/O08. Use a fresh item for later independent evidence.

1-3 minutes | Launch

Model $-4 - (-6)$ with zero pairs and a number line. Explain every representation change.

4-8 minutes | Demonstrate or elicit

Say: "Show where you start. What does the sign tell you? What in your representation proves the result?" In I Do, demonstrate the worked model; in We Do, pause for students to supply each step. In independent/exit work, give neutral directions only.

3-6 minutes | Examine

Look for: Model opposite integer quantities that combine to zero. Ask: "Can you explain the scale, units and meaning of zero?" Check the model before accepting a correct numerical answer.

2-4 minutes | Respond

Document the exact response first. If subtracting a negative moves left, rebuild with counters and explicitly rewrite $p - q$ as $p + (-q)$. Have the learner retry a different item after instruction; do not erase the distinction between initial and supported evidence.

1-3 minutes | Close

Record the item, representation, reasoning, access supports and any cue. Early finishers create a counterexample to a tempting shortcut and verify it with a model. Each partner provides individual evidence before discussion.

TEACHER GUIDE

We Do script

Core: M09 and O09. Optional bank through M13/O13. Use a fresh item for later independent evidence.

1-3 minutes | Launch

Ask for the start, the sign of the move and its nonnegative length before computing the endpoint.

4-8 minutes | Demonstrate or elicit

Say: "Show where you start. What does the sign tell you? What in your representation proves the result?" In I Do, demonstrate the worked model; in We Do, pause for students to supply each step. In independent/exit work, give neutral directions only.

3-6 minutes | Examine

Look for: Model opposite integer quantities that combine to zero. Ask: "Can you explain the scale, units and meaning of zero?" Check the model before accepting a correct numerical answer.

2-4 minutes | Respond

Document the exact response first. If subtracting a negative moves left, rebuild with counters and explicitly rewrite $p - q$ as $p + (-q)$. Have the learner retry a different item after instruction; do not erase the distinction between initial and supported evidence.

1-3 minutes | Close

Record the item, representation, reasoning, access supports and any cue. Early finishers create a counterexample to a tempting shortcut and verify it with a model. Each partner provides individual evidence before discussion.

TEACHER GUIDE

Collaborative practice script

Core: M14 and O14. Optional bank through M18/O18. Use a fresh item for later independent evidence.

1-3 minutes | Launch

Partners create contexts for integer sums and differences; each draws a model before comparing solutions.

4-8 minutes | Demonstrate or elicit

Say: "Show where you start. What does the sign tell you? What in your representation proves the result?" In I Do, demonstrate the worked model; in We Do, pause for students to supply each step. In independent/exit work, give neutral directions only.

3-6 minutes | Examine

Look for: Rewrite subtraction as addition of the additive inverse. Ask: "Can you explain the scale, units and meaning of zero?" Check the model before accepting a correct numerical answer.

2-4 minutes | Respond

Document the exact response first. If subtracting a negative moves left, rebuild with counters and explicitly rewrite $p - q$ as $p + (-q)$. Have the learner retry a different item after instruction; do not erase the distinction between initial and supported evidence.

1-3 minutes | Close

Record the item, representation, reasoning, access supports and any cue. Early finishers create a counterexample to a tempting shortcut and verify it with a model. Each partner provides individual evidence before discussion.

TEACHER GUIDE

Independent practice script

Core: M19 and O19. Optional bank through M23/O23. Use a fresh item for later independent evidence.

1-3 minutes | Launch

Collect independent number-line or counter models. Record direction and inverse reasoning separately from arithmetic.

4-8 minutes | Demonstrate or elicit

Say: "Show where you start. What does the sign tell you? What in your representation proves the result?" In I Do, demonstrate the worked model; in We Do, pause for students to supply each step. In independent/exit work, give neutral directions only.

3-6 minutes | Examine

Look for: Use models and contexts to add and subtract integers from -20 to 20. Ask: "Can you explain the scale, units and meaning of zero?" Check the model before accepting a correct numerical answer.

2-4 minutes | Respond

Document the exact response first. If subtracting a negative moves left, rebuild with counters and explicitly rewrite $p - q$ as $p + (-q)$. Have the learner retry a different item after instruction; do not erase the distinction between initial and supported evidence.

1-3 minutes | Close

Record the item, representation, reasoning, access supports and any cue. Early finishers create a counterexample to a tempting shortcut and verify it with a model. Each partner provides individual evidence before discussion.

TEACHER GUIDE

Small-group reteach script

Core: M24 and O24. Optional bank through M27/O27. Use a fresh item for later independent evidence.

1-3 minutes | Launch

If subtracting a negative moves left, rebuild with counters and explicitly rewrite $p - q$ as $p + (-q)$.

4-8 minutes | Demonstrate or elicit

Say: "Show where you start. What does the sign tell you? What in your representation proves the result?" In I Do, demonstrate the worked model; in We Do, pause for students to supply each step. In independent/exit work, give neutral directions only.

3-6 minutes | Examine

Look for: Use models and contexts to add and subtract integers from -20 to 20. Ask: "Can you explain the scale, units and meaning of zero?" Check the model before accepting a correct numerical answer.

2-4 minutes | Respond

Document the exact response first. If subtracting a negative moves left, rebuild with counters and explicitly rewrite $p - q$ as $p + (-q)$. Have the learner retry a different item after instruction; do not erase the distinction between initial and supported evidence.

1-3 minutes | Close

Record the item, representation, reasoning, access supports and any cue. Early finishers create a counterexample to a tempting shortcut and verify it with a model. Each partner provides individual evidence before discussion.

TEACHER GUIDE

Exit ticket script

Core: M28 and O28. Optional bank through M30/O30. Use a fresh item for later independent evidence.

1-3 minutes | Launch

Use a fresh integer expression and a context. Ask for a model, computation and interpretation.

4-8 minutes | Demonstrate or elicit

Say: "Show where you start. What does the sign tell you? What in your representation proves the result?" In I Do, demonstrate the worked model; in We Do, pause for students to supply each step. In independent/exit work, give neutral directions only.

3-6 minutes | Examine

Look for: Model $p + q$ with direction and distance from p . Ask: "Can you explain the scale, units and meaning of zero?" Check the model before accepting a correct numerical answer.

2-4 minutes | Respond

Document the exact response first. If subtracting a negative moves left, rebuild with counters and explicitly rewrite $p - q$ as $p + (-q)$. Have the learner retry a different item after instruction; do not erase the distinction between initial and supported evidence.

1-3 minutes | Close

Record the item, representation, reasoning, access supports and any cue. Early finishers create a counterexample to a tempting shortcut and verify it with a model. Each partner provides individual evidence before discussion.

STUDENT CHOICE

Choice practice 1-2

M01 The temperature is -3 degrees Celsius now and was 8 degrees Celsius earlier. What is the signed change, now minus earlier?

- A. -13
- B. 11
- C. -11
- D. 5

M02 A game awards 9 points, then removes the same number. What is the net score change?

- A. -18
- B. 18
- C. 0
- D. 9

STUDENT PERFORMANCE

001 | Warm-up

A learner writes $10 - (3) = 11$. Is the result valid? Draw a number-line model with start, arrow direction, move length and endpoint. Also show signed counters or zero pairs when helpful. Explain the operation in context.



Major ticks = 2 units. Add midpoint ticks for odd integers.

Model details / equations / zero pairs or context

Answer / explanation / check

STUDENT PERFORMANCE

002 | Warm-up

Find $-9 - (-2)$ by adding the additive inverse. Draw a number-line model with start, arrow direction, move length and endpoint. Also show signed counters or zero pairs when helpful. Explain the operation in context.



Major ticks = 2 units. Add midpoint ticks for odd integers.

Model details / equations / zero pairs or context

Answer / explanation / check

TEACHER ONLY

M worked keys 1-2

M01: C. -11

Target: Use models and contexts to add and subtract integers from -20 to 20.

Change = $-3 - (8) = -3 + (-8) = -11$ degrees. The temperature fell.

Distractor checks: -13: Check -3 and (8) with the stated operation. Keep subtraction distinct from addition and signed change distinct from nonnegative distance. 11: Check -3 and (8) with the stated operation. Keep subtraction distinct from addition and signed change distinct from nonnegative distance. 5: Check -3 and (8) with the stated operation. Keep subtraction distinct from addition and signed change distinct from nonnegative distance.

M02: C. 0

Target: Model opposite integer quantities that combine to zero.

$+9 + (-9) = 0$. Each positive point pairs with one negative point, making 9 zero pairs. The net change is zero, not necessarily a total score of zero.

Distractor checks: -18: Check 9 and (-9) with the stated operation. Keep subtraction distinct from addition and signed change distinct from nonnegative distance. 18: Check 9 and (-9) with the stated operation. Keep subtraction distinct from addition and signed change distinct from nonnegative distance. 9: Check 9 and (-9) with the stated operation. Keep subtraction distinct from addition and signed change distinct from nonnegative distance.

TEACHER ONLY

O worked keys 1-2

O01: Needs correction

Target: Use models and contexts to add and subtract integers from -20 to 20.

$10 - (3) = 7$, so the result needs correction. For subtraction, add the inverse -3; move 3 units left. Example context: compare a present score of 10 with an earlier score of 3; the signed change is 7 points.

Look for the actual labeled model and an independently given explanation. Accept equivalent correct representations and contexts. A correct answer without the requested performance is incomplete evidence.

O02: -7

Target: Rewrite subtraction as addition of the additive inverse.

The additive inverse of -2 is 2. Rewrite $-9 - (-2) = -9 + (2) = -7$. Start at -9; move 2 units right. Example context: compare a present score of -9 with an earlier score of -2; the signed change is -7 points.

Look for the actual labeled model and an independently given explanation. Accept equivalent correct representations and contexts. A correct answer without the requested performance is incomplete evidence.