

TEACHER + STUDENT RESOURCE

Grade 4 mathematics

Compare fraction sizes



NC.4.NF.2 | Fractions

Current North Carolina Standard Course of Study.

Aligned for 2026-27 and 2027-28; 2026-adopted standards begin in 2028-29.

Teacher scripts, original area and length models, 30 choice items, 30 performance tasks, reusable organizers, worked solutions, and individual evidence records.

Select tasks across several sessions. The resource bank is not a single 60-item assignment.

Free sample | Contents

NC.4.NF.2 | Fourth Grade mathematics

This sample contains 19 complete selected pages from the 106-page resource, plus this sample contents page. Original printed page numbers are retained. Gaps are intentional.

Included original pages: 1-14, 29-30, 59, 74-75

Representative activities

M01: sample PDF page(s) 15; original page(s) 14

M02: sample PDF page(s) 15; original page(s) 14

O01: sample PDF page(s) 16; original page(s) 29

O02: sample PDF page(s) 17; original page(s) 30

Selected teacher prompts and keys: original page(s) 59, 74-75

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

Contents and use

Pages 3-4: standard, targets, access. Page 5: worked model. Pages 6-12: seven instructional sections. Page 13: student organizer. Pages 14-28: choice tasks. Pages 29-58: performance tasks. Pages 59-73: choice keys and diagnostics. Pages 74-103: performance keys. Pages 104-105: scoring and evidence. Page 106: sources.

Plan four short sessions: warm-up and I Do (20 minutes); We Do and partners (25 minutes); independent work and reteach (25 minutes); exit conferences and transfer (15 minutes). Times are flexible instructional estimates, never speed cutoffs.

Start with one M and one O from each selected section. The alternative items revisit skills for later practice and conferences. Every learner produces their own evidence, including during partner work.

Print student pages apart from teacher keys. All required drawing spaces are supplied. Materials: pencil, crayons, plain paper and strips; adults handle cutting. Enlarged copies and manipulatives are optional. No physical inch scale is claimed.

Visual supports: equal-area strips, hundred grids where needed, and equally scaled number lines. Number lines may be drawn at different overall lengths only when their 0-to-1 units still match within each comparison.

MP2: connect symbols and quantities. MP3: explain and critique. MP4: model contexts. MP6: define the whole and equal units. Collect these practices through the work itself.

TEACHER GUIDE

Standard and learning targets

Compare two fractions with different numerators and different denominators, using the denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$, and justify the conclusions by:

- Reasoning about their size and using area and length models.
- Using benchmark fractions 0, $\frac{1}{2}$, and a whole.
- Comparing common numerator or common denominators.

A | I can compare fractions with area and length models of the same whole.

B | I can use benchmarks 0, $\frac{1}{2}$, and 1 to justify comparisons.

C | I can use common numerators or denominators and record $>$, $=$, or $<$.

D | I can explain when different wholes prevent a size comparison.

Evidence: individually drawn area and length models, matching notation, and an explanation of the unit and reasoning. Choice recognition alone does not demonstrate the standard.

TEACHER GUIDE

Access and instruction

Prerequisites: identify one whole; make equal-area and equal-length partitions; name unit fractions; count parts. Review equivalence before comparisons or mixed-number operations. Starting denominators in comparison and decomposition work: 2, 3, 4, 5, 6, 8, 10, 12, 100. Common-denominator reasoning may use a finer intermediate partition.

Allow neutral direction read-aloud, enlarged print, signing, AAC, oral explanation, drawn models, or exact adult transcription of student-directed construction. Do not supply the partition, comparison, or regrouping being assessed. Record access separately from hints that supply mathematical answers.

If wholes differ, identify them before comparing amounts. If pieces are unequal, test equality by overlaying, folding, or measuring. If numerators and denominators are both added, reconstruct copies of the same unit fraction. If mixed subtraction stalls, trade one whole for denominator-many equal parts.

For reteach, use fewer and larger pieces, then return to a fresh independent item. For extension, compare two valid strategies and explain their agreement. Do not introduce unnecessary new starting denominators.

A benchmark can decide when quantities straddle it. If both lie strictly between $\frac{1}{2}$ and 1, “both above half” alone does not say which is greater. Use finer reasoning.

When evidence is absent or inaccessible, record N/O. Do not score handwriting, spelling, accent, or drawing neatness unless the mathematics cannot be interpreted. No official mastery cutoff is claimed.

TEACHER MODEL

Model, connect, explain

Compare with a reason

Say: “For the same whole, $\frac{2}{3}$ is greater than $\frac{3}{5}$. Both exceed $\frac{1}{2}$, so that benchmark alone does not settle it. Rename both using fifteenths: $\frac{10}{15} > \frac{9}{15}$. Fifteenths are an intermediate common partition for reasoning, not an expansion of the stated starting-denominator set. Area models show a slightly larger region for $\frac{2}{3}$; a shared-scale line puts $\frac{2}{3}$ farther right.”

 $\frac{2}{3}$

One whole

 **$\frac{3}{5}$**

One whole



Anchor: identify the whole → preserve equal units → draw the amount → connect symbols → explain and check.

LESSON SCRIPT | Warm-up

Notice the whole

Optional bank: M01-M04, O01-O04. Core: M01 and O01. Later transfer: O04.

0-2 minutes: establish the whole and read the task. Ask: “What is one whole? How can we check equal parts?” Invite a sketch and one sentence before calculation.

2-7 minutes: construct or interpret the model. Ask: “What does each equal part represent? What changes, and what stays unchanged?” Allow neutral access supports and wait time.

7-12 minutes: connect the representation to symbols. Invite a justification and a check. Discuss one tempting wrong answer after collecting independent evidence.

Selected O solution: $\frac{2}{3} < \frac{3}{4}$. Using equal-size wholes, rename as $\frac{8}{12}$ and $\frac{9}{12}$; compare the counts of equal pieces.

Selected M check: $\frac{2}{3} < \frac{3}{4}$. $\frac{2}{3} < \frac{3}{4}$. Using equal-size wholes, rename as $\frac{8}{12}$ and $\frac{9}{12}$; compare the counts of equal pieces.

Look for: equal-sized wholes where needed, equal partitions, accurate counts, and a reason linking the model to the equation or comparison.

If stuck: isolate one unit, model a simpler case, then return. Early finisher: make a second representation and explain the connection.

Record item, target, student explanation, representation accuracy, symbolic accuracy, access support, answer-supplying hints, and next step. Do not treat modeled responses as unaided evidence.

LESSON SCRIPT | I Do

Think aloud

Optional bank: M05-M08, O05-O08. Core: M05 and O05. Later transfer: O08.

0-2 minutes: establish the whole and read the task. Use page 5. Point to each counted part and explain the corresponding symbol. Pause so a learner can restate why the whole stays unchanged.

2-7 minutes: construct or interpret the model. Ask: “What does each equal part represent? What changes, and what stays unchanged?” Allow neutral access supports and wait time.

7-12 minutes: connect the representation to symbols. Invite a justification and a check. Discuss one tempting wrong answer after collecting independent evidence.

Selected O solution: $0/8 < 1/100$. Using equal-size wholes, rename as $0/200$ and $2/200$; compare the counts of equal pieces. The first is at 0; the second is between 0 and $1/2$. An endpoint benchmark settles this order: the other quantity lies strictly above or below that endpoint, as stated.

Selected M check: $0/8 < 1/100$. $0/8 < 1/100$. Using equal-size wholes, rename as $0/200$ and $2/200$; compare the counts of equal pieces. The first is at 0; the second is between 0 and $1/2$. An endpoint benchmark settles this order: the other quantity lies strictly above or below that endpoint, as stated.

Look for: equal-sized wholes where needed, equal partitions, accurate counts, and a reason linking the model to the equation or comparison.

If stuck: isolate one unit, model a simpler case, then return. Early finisher: make a second representation and explain the connection.

Record item, target, student explanation, representation accuracy, symbolic accuracy, access support, answer-supplying hints, and next step. Do not treat modeled responses as unaided evidence.

LESSON SCRIPT | We Do

Co-construct a model

Optional bank: M09-M13, O09-O13. Core: M09 and O09. Later transfer: O13.

0-2 minutes: establish the whole and read the task. Begin the selected O task. Ask: “Which partitions are needed? Where should the endpoint go?” Compare two suggestions and complete the reasoning together.

2-7 minutes: construct or interpret the model. Ask: “What does each equal part represent? What changes, and what stays unchanged?” Allow neutral access supports and wait time.

7-12 minutes: connect the representation to symbols. Invite a justification and a check. Discuss one tempting wrong answer after collecting independent evidence.

Selected O solution: $\frac{9}{10} > \frac{8}{10}$. Using equal-size wholes, rename as $\frac{9}{10}$ and $\frac{8}{10}$; compare the counts of equal pieces.

Selected M check: $\frac{9}{10} > \frac{8}{10}$. $\frac{9}{10} > \frac{8}{10}$. Using equal-size wholes, rename as $\frac{9}{10}$ and $\frac{8}{10}$; compare the counts of equal pieces.

Look for: equal-sized wholes where needed, equal partitions, accurate counts, and a reason linking the model to the equation or comparison.

If stuck: isolate one unit, model a simpler case, then return. Early finisher: make a second representation and explain the connection.

Record item, target, student explanation, representation accuracy, symbolic accuracy, access support, answer-supplying hints, and next step. Do not treat modeled responses as unaided evidence.

LESSON SCRIPT | Collaborative practice

Check a partner's reasoning

Optional bank: M14-M18, O14-O18. Core: M14 and O14. Later transfer: O18.

0-2 minutes: establish the whole and read the task. Partner A draws while B checks units and asks for a reason. Switch roles on a second item; each student records an individual solution.

2-7 minutes: construct or interpret the model. Ask: "What does each equal part represent? What changes, and what stays unchanged?" Allow neutral access supports and wait time.

7-12 minutes: connect the representation to symbols. Invite a justification and a check. Discuss one tempting wrong answer after collecting independent evidence.

Selected O solution: $\frac{5}{8} > \frac{7}{12}$. Using equal-size wholes, rename as $\frac{15}{24}$ and $\frac{14}{24}$; compare the counts of equal pieces. The first is between $\frac{1}{2}$ and 1; the second is between $\frac{1}{2}$ and 1. Both lie strictly inside the same interval between consecutive benchmarks. Those locations alone do not settle their order; compare the equal parts as above.

Selected M check: $\frac{5}{8} > \frac{7}{12}$. $\frac{5}{8} > \frac{7}{12}$. Using equal-size wholes, rename as $\frac{15}{24}$ and $\frac{14}{24}$; compare the counts of equal pieces. The first is between $\frac{1}{2}$ and 1; the second is between $\frac{1}{2}$ and 1. Both lie strictly inside the same interval between consecutive benchmarks. Those locations alone do not settle their order; compare the equal parts as above.

Look for: equal-sized wholes where needed, equal partitions, accurate counts, and a reason linking the model to the equation or comparison.

If stuck: isolate one unit, model a simpler case, then return. Early finisher: make a second representation and explain the connection.

Record item, target, student explanation, representation accuracy, symbolic accuracy, access support, answer-supplying hints, and next step. Do not treat modeled responses as unaided evidence.

LESSON SCRIPT | Independent practice

Collect independent evidence

Optional bank: M19-M23, O19-O23. Core: M19 and O19. Later transfer: O23.

0-2 minutes: establish the whole and read the task. Read directions neutrally. Say: “Use the models and labels to explain your answer.” Do not point to the correct part or comparison.

2-7 minutes: construct or interpret the model. Ask: “What does each equal part represent? What changes, and what stays unchanged?” Allow neutral access supports and wait time.

7-12 minutes: connect the representation to symbols. Invite a justification and a check. Discuss one tempting wrong answer after collecting independent evidence.

Selected O solution: $\frac{1}{6} < \frac{1}{3}$. Using equal-size wholes, rename as $\frac{1}{6}$ and $\frac{2}{6}$; compare the counts of equal pieces. With the same numerator 1, compare part sizes: a larger denominator gives smaller equal parts of the same whole.

Selected M check: $\frac{1}{6} < \frac{1}{3}$. $\frac{1}{6} < \frac{1}{3}$. Using equal-size wholes, rename as $\frac{1}{6}$ and $\frac{2}{6}$; compare the counts of equal pieces. With the same numerator 1, compare part sizes: a larger denominator gives smaller equal parts of the same whole.

Look for: equal-sized wholes where needed, equal partitions, accurate counts, and a reason linking the model to the equation or comparison.

If stuck: isolate one unit, model a simpler case, then return. Early finisher: make a second representation and explain the connection.

Record item, target, student explanation, representation accuracy, symbolic accuracy, access support, answer-supplying hints, and next step. Do not treat modeled responses as unaided evidence.

LESSON SCRIPT | Small-group reteach

Rebuild equal units

Optional bank: M24-M27, O24-O27. Core: M24 and O24. Later transfer: O27.

0-2 minutes: establish the whole and read the task. Return to one whole and larger pieces. Invite the learner to repair one error, explain the repair, and then try a fresh task without the hint.

2-7 minutes: construct or interpret the model. Ask: “What does each equal part represent? What changes, and what stays unchanged?” Allow neutral access supports and wait time.

7-12 minutes: connect the representation to symbols. Invite a justification and a check. Discuss one tempting wrong answer after collecting independent evidence.

Selected O solution: Example A: give the first cake area 6 square units and the second area 4 square units. Eaten areas are 4 and 2, so the first is larger. Example B: first cake area 3 and second area 8; eaten areas are 2 and 4, so the second is larger. Many valid sizes work. Do not compare unlike whole sizes by the fraction symbols alone.

Selected M check: The sizes of both whole cakes. Fractions compare shares of a whole. Different whole sizes can change the actual amounts, so the whole cake sizes are necessary.

Look for: equal-sized wholes where needed, equal partitions, accurate counts, and a reason linking the model to the equation or comparison.

If stuck: isolate one unit, model a simpler case, then return. Early finisher: make a second representation and explain the connection.

Record item, target, student explanation, representation accuracy, symbolic accuracy, access support, answer-supplying hints, and next step. Do not treat modeled responses as unaided evidence.

LESSON SCRIPT | Exit ticket

Explain a final example

Optional bank: M28-M30, O28-O30. Core: M28 and O28. Later transfer: O30.

0-2 minutes: establish the whole and read the task. Have the learner complete one selected M and O item. Ask for a reason; compare with earlier evidence before choosing the next teaching step.

2-7 minutes: construct or interpret the model. Ask: “What does each equal part represent? What changes, and what stays unchanged?” Allow neutral access supports and wait time.

7-12 minutes: connect the representation to symbols. Invite a justification and a check. Discuss one tempting wrong answer after collecting independent evidence.

Selected O solution: $\frac{3}{5} < \frac{4}{6}$. Using equal-size wholes, rename as $\frac{18}{30}$ and $\frac{20}{30}$; compare the counts of equal pieces.

Selected M check: $\frac{3}{5} < \frac{4}{6}$. $\frac{3}{5} < \frac{4}{6}$. Using equal-size wholes, rename as $\frac{18}{30}$ and $\frac{20}{30}$; compare the counts of equal pieces.

Look for: equal-sized wholes where needed, equal partitions, accurate counts, and a reason linking the model to the equation or comparison.

If stuck: isolate one unit, model a simpler case, then return. Early finisher: make a second representation and explain the connection.

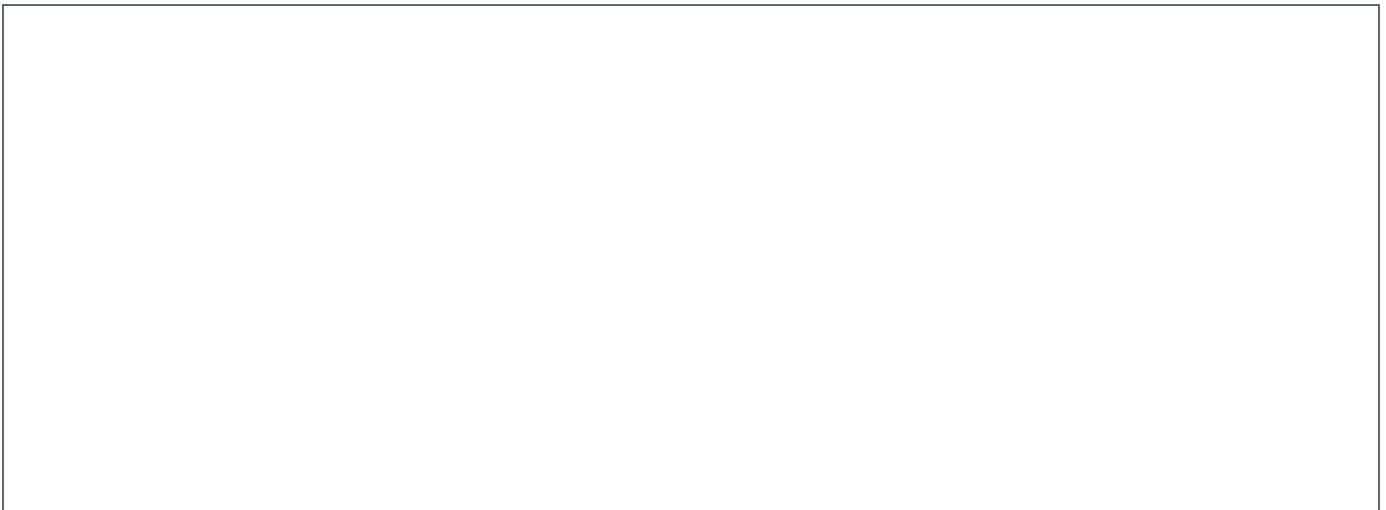
Record item, target, student explanation, representation accuracy, symbolic accuracy, access support, answer-supplying hints, and next step. Do not treat modeled responses as unaided evidence.

REUSABLE STUDENT ORGANIZER

Two models, one idea

Name: _____ Date: _____

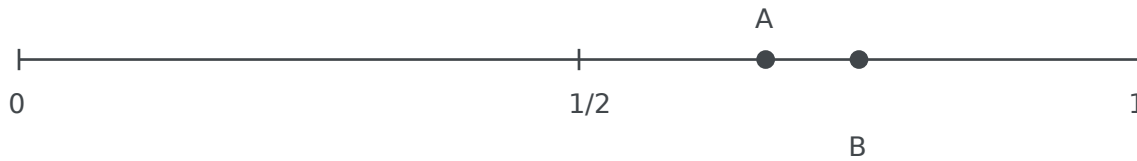
Name the whole. Show area in A and length in B. Label each fraction, write an equation or comparison, and explain.

A: area model(s)**B: length model(s), symbols, and reason**

STUDENT CHOICE BANK

M01 and M02

M01 | Both fractions refer to the same whole. Which comparison is true?



- A. Cannot compare even with the same whole
- B. $2/3 > 3/4$
- C. $2/3 = 3/4$
- D. $2/3 < 3/4$

M02 | Both fractions refer to the same whole. Which comparison is true?

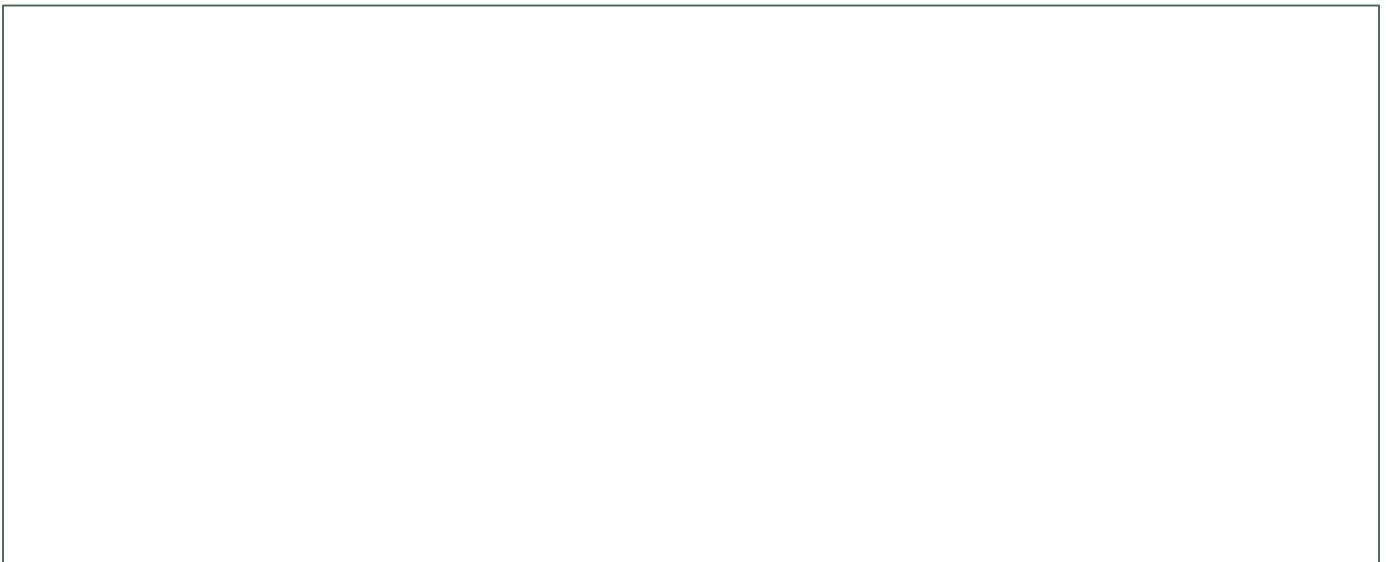
- A. Cannot compare even with the same whole
- B. $5/5 > 9/10$
- C. $5/5 < 9/10$
- D. $5/5 = 9/10$

STUDENT PERFORMANCE | Warm-up

001 | Show your reasoning

Name: _____ Date: _____

Compare $\frac{2}{3}$ and $\frac{3}{4}$. Draw same-size area wholes in A and equally scaled number lines in B. Write $>$, $=$, or $<$. Use your models to explain which amount is larger, or why they are equal.

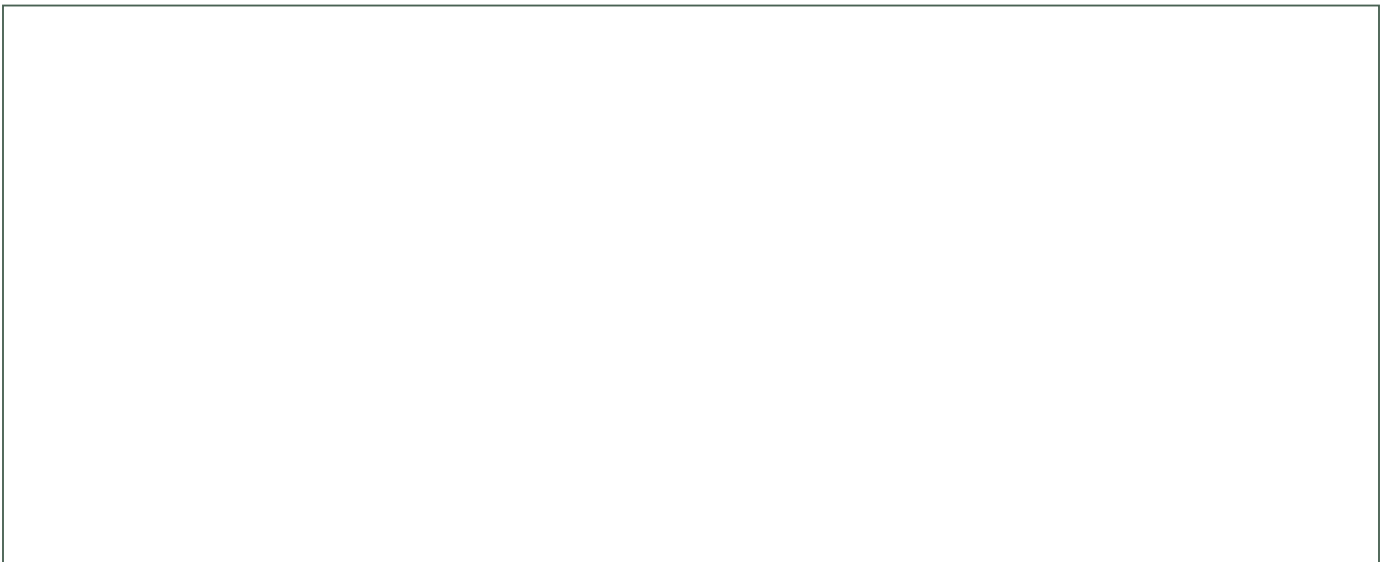
A: area models for both fractions**B: length models, comparison, and reason**

STUDENT PERFORMANCE | Warm-up

002 | Show your reasoning

Name: _____ Date: _____

Compare $\frac{5}{5}$ and $\frac{9}{10}$. Draw same-size area wholes in A and equally scaled number lines in B. Write $>$, $=$, or $<$. Use benchmarks 0, $\frac{1}{2}$, and 1. If those do not settle the comparison, refine your reasoning.

A: area models for both fractions**B: length models, comparison, and reason**

TEACHER KEY

Choice reasoning 1-2

M01 | D: $\frac{2}{3} < \frac{3}{4}$ | Target A

$\frac{2}{3} < \frac{3}{4}$. Using equal-size wholes, rename as $\frac{8}{12}$ and $\frac{9}{12}$; compare the counts of equal pieces.

Distractor Cannot compare even with the same whole: This statement does not match the same-whole comparison or the required whole-size information; compare the model endpoints or actual whole sizes.

Distractor $\frac{2}{3} > \frac{3}{4}$: This statement does not match the same-whole comparison or the required whole-size information; compare the model endpoints or actual whole sizes.

Distractor $\frac{2}{3} = \frac{3}{4}$: This statement does not match the same-whole comparison or the required whole-size information; compare the model endpoints or actual whole sizes.

M02 | B: $\frac{5}{5} > \frac{9}{10}$ | Target B

$\frac{5}{5} > \frac{9}{10}$. Using equal-size wholes, rename as $\frac{10}{10}$ and $\frac{9}{10}$; compare the counts of equal pieces. The first is at 1; the second is between $\frac{1}{2}$ and 1. An endpoint benchmark settles this order: the other quantity lies strictly above or below that endpoint, as stated.

Distractor Cannot compare even with the same whole: This statement does not match the same-whole comparison or the required whole-size information; compare the model endpoints or actual whole sizes.

Distractor $\frac{5}{5} < \frac{9}{10}$: This statement does not match the same-whole comparison or the required whole-size information; compare the model endpoints or actual whole sizes.

Distractor $\frac{5}{5} = \frac{9}{10}$: This statement does not match the same-whole comparison or the required whole-size information; compare the model endpoints or actual whole sizes.

TEACHER KEY

001 | Worked evidence

Target A | Compare fractions with area and length models of the same whole.

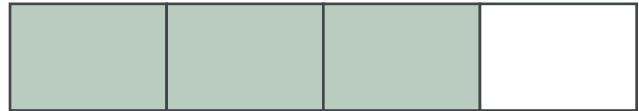
$\frac{2}{3} < \frac{3}{4}$. Using equal-size wholes, rename as $\frac{8}{12}$ and $\frac{9}{12}$; compare the counts of equal pieces.

 $\frac{2}{3}$

One whole

 **$\frac{3}{4}$**

One whole



Model-check directions: label the same unit whole. Check equal units, selected areas, and endpoints. For decompositions, mark the grouping boundaries described in the equations. Accept any accurate alternative that fulfills every requested representation.

Collect the requested explanation, not just a matching answer. If two models are requested, both are needed as evidence. Record hints separately and seek a fresh independent example.

TEACHER KEY

002 | Worked evidence

Target B | Use benchmarks 0, $\frac{1}{2}$, and 1 to justify comparisons.

$\frac{5}{5} > \frac{9}{10}$. Using equal-size wholes, rename as $\frac{10}{10}$ and $\frac{9}{10}$; compare the counts of equal pieces. The first is at 1; the second is between $\frac{1}{2}$ and 1. An endpoint benchmark settles this order: the other quantity lies strictly above or below that endpoint, as stated.

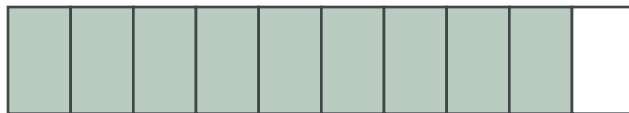
5/5

One whole



9/10

One whole



Model-check directions: label the same unit whole. Check equal units, selected areas, and endpoints. For decompositions, mark the grouping boundaries described in the equations. Accept any accurate alternative that fulfills every requested representation.

Collect the requested explanation, not just a matching answer. If two models are requested, both are needed as evidence. Record hints separately and seek a fresh independent example.