

Cambridge Primary Mathematics 0096 · Stage 1**CM1-U4**

Longer, heavier, fuller: comparing

Geometry and Measure — comparing length, mass and capacity · 4 source-bound 30-minute lessons.

Unit overview

This unit teaches geometry and measure — comparing length, mass and capacity through 4 source-bound read-along lessons. Each lesson moves from concrete objects to a pictorial record and then an abstract record. Learners use the same maths question and evidence requirement across all three reading routes. The final task compares the representations learners made across the unit.

Guiding question

How can stories help us reason about longer, heavier, fuller: comparing?

Success criteria

- I can build the maths from each story with objects.
- I can draw or diagram the same maths.
- I can record a result and explain the story evidence.
- I can demonstrate TWM.07 while I work.

Learning objectives

1Gg.02 Use everyday words to compare length and height (longer, shortest, taller...).

1Gg.04 Use everyday words to compare mass (heavy, light, more, less).

1Gg.05 Use everyday words to compare capacity (full, empty, more, less).

TWM.07 Critiquing: compare ideas, pictures or methods and weigh up their strengths.

1

Bigger and biggest

Albert's BIGGER Than Big Idea · 1Gg.02

Shared maths question

How does Albert's BIGGER Than Big Idea help us explore bigger and biggest?

Evidence required

A concrete model, a pictorial record and a matching abstract record, all checked against the read-along.

Governed source lesson: Small, Smaller, Smallest · Concept · Ordering three objects by size and naming the smallest

1

Find the maths in the story

4 min

1Gg.02

Read-along: Listen with highlighting and pause at the passage used by "Small, Smaller, Smallest".

Teacher: Take the three bags out of the pile and put them down in a line, the roomiest one on the left and the tightest one on the right. Slide each bag inside the one you say is bigger to prove it goes there. Say the line out loud, pointing bag by bag: small, smaller, smallest.

Learners: Notice the story evidence and say the maths question in their own words.

2

Model it with objects

5 min

1Gg.02

Read-along: Replay the source passage while building the quantities, shapes or measures it supplies.

Teacher: Lay the three paper sashes across the bags, one word to one bag. Then a partner shuts their eyes while you shuffle the bags, and opens them and puts the sashes back. Say why the smallest sash went where it went, using the bag next to it.

Learners: Build a concrete model and check that each part matches the read-along.

3

Try the concrete task

6 min

1Gg.02

Read-along: Keep the relevant story page visible as the class tests the model.

Teacher: Albert asks why he gets the smallest bag. Line up three children by height, shortest on the right, and hand each one the bag that matches their place in the line. Say who gets the smallest bag and say the word that tells you so.

Learners: Change or compare the objects, then explain what stayed the same and what changed.

4

Draw the maths

5 min

1Gg.02

Read-along: Return to the same story evidence before learners make a pictorial record.

Teacher: Model a clear drawing, diagram or mark for the concrete work without adding a quantity the story does not supply.

Learners: Draw the model and label the important parts with maths language.

5

Record and solve

6 min

1Gg.02

Read-along: Use the read-along once more as the evidence check for the abstract record.

Teacher: Pick the line up and lay it down the other way, tightest bag on the left. Point along the new line and say it: smallest, smaller, small. Say whether any bag changed size when you turned the line around.

Learners: Record the result with suitable numbers, words or symbols and link it back to the picture.

6

Reflect and convince

4 min

TWM.07

Read-along: Show the source passage and invite a final evidence-based check.

Teacher: Name the Thinking and Working Mathematically focus: Critiquing: compare ideas, pictures or methods and weigh up their strengths.

Learners: Use the concrete model, drawing and record together to justify the answer.

Solo

Read independently and mark the evidence used by the shared model.

Supported

Read with the audio, pause at the named source passage and use the response frame.

Listening

Listen with highlighting, build the same model and explain it orally.

Assessment check: The learner shows the objective with concrete, pictorial and abstract evidence and explains how the read-along supports the model.

2

Longer and taller outside

Sizing Up Winter (Math in Nature) · 1Gg.02

Shared maths question

How does Sizing Up Winter (Math in Nature) help us explore longer and taller outside?

Evidence required

A concrete model, a pictorial record and a matching abstract record, all checked against the read-along.

Governed source lesson: Line Them Up and Say Which · Reasoning · Ordering objects by one attribute against a shared baseline

1 Find the maths in the story

4 min

1Gg.02

Read-along: Listen with highlighting and pause at the passage used by “Line Them Up and Say Which”.

Teacher: Listen to the four contest questions read straight through and say what each one asks you to look at, how tall, how wide, how long. Say which of them you could settle by standing two creatures side by side, and which one you could not settle without seeing the picture.

Learners: Notice the story evidence and say the maths question in their own words.

2 Model it with objects

5 min

1Gg.02

Read-along: Replay the source passage while building the quantities, shapes or measures it supplies.

Teacher: Take the four paper fish and stand them on the card with every nose touching the heavy line. Do not let one fish start out ahead of another. Slide them along the line until they sit in order, the shortest at one end and the longest at the other.

Learners: Build a concrete model and check that each part matches the read-along.

3

Try the concrete task

6 min

1Gg.02

Read-along: Keep the relevant story page visible as the class tests the model.

Teacher: Answer two of the book's questions about your fish instead of about its own: which is longest, and which is biggest. Point at the line while you answer and say how the line lets you tell. If the two questions pick out different fish, say what each question was looking at.

Learners: Change or compare the objects, then explain what stayed the same and what changed.

4

Draw the maths

5 min

1Gg.02

Read-along: Return to the same story evidence before learners make a pictorial record.

Teacher: Model a clear drawing, diagram or mark for the concrete work without adding a quantity the story does not supply.

Learners: Draw the model and label the important parts with maths language.

5

Record and solve

6 min

1Gg.02

Read-along: Use the read-along once more as the evidence check for the abstract record.

Teacher: Slide the second-longest fish forward until its nose sits ahead of the line and its tail sticks out furthest of all. Ask your partner which fish is longest now. Say why the answer has not changed, and say what has to be put right before anybody is allowed to answer.

Learners: Record the result with suitable numbers, words or symbols and link it back to the picture.

6

Reflect and convince

4 min

TWM.07

Read-along: Show the source passage and invite a final evidence-based check.

Teacher: Name the Thinking and Working Mathematically focus: Critiquing: compare ideas, pictures or methods and weigh up their strengths.

Learners: Use the concrete model, drawing and record together to justify the answer.

Solo

Read independently and mark the evidence used by the shared model.

Supported

Read with the audio, pause at the named source passage and use the response frame.

Listening

Listen with highlighting, build the same model and explain it orally.

Assessment check: The learner shows the objective with concrete, pictorial and abstract evidence and explains how the read-along supports the model.

3

Heavier and lighter

Mighty Maddie · 1Gg.04

Shared maths question

How does Mighty Maddie help us explore heavier and lighter?

Evidence required

A concrete model, a pictorial record and a matching abstract record, all checked against the read-along.

Governed source lesson: Heavy, heavier: the ending that compares · Concept · Hearing the ending that turns a describing word into a comparing word

1

Find the maths in the story

4 min

1Gg.04

Read-along: Listen with highlighting and pause at the passage used by “Heavy, heavier: the ending that compares”.

Teacher: Listen while the passage below is read twice, then say its last two sentences aloud with the class. Say heavy and then heavier, clapping once on the part that got added. Do the same for light and lighter.

Learners: Notice the story evidence and say the maths question in their own words.

2

Model it with objects

5 min

1Gg.04

Read-along: Replay the source passage while building the quantities, shapes or measures it supplies.

Teacher: Read the passage below with a partner. Put a counter down on each word that ends the way heavier ends. Say each of those words aloud, then say the shorter word it was built from.

Learners: Build a concrete model and check that each part matches the read-along.

3

Try the concrete task

6 min

1Gg.04

Read-along: Keep the relevant story page visible as the class tests the model.

Teacher: Read the two passages below. In one, Dad and Maddie use short describing words. In the other, Maddie has added the ending. Say two words from the first passage and two from the second, and say which of each pair has the extra ending on it.

Learners: Change or compare the objects, then explain what stayed the same and what changed.

4

Draw the maths

5 min

1Gg.04

Read-along: Return to the same story evidence before learners make a pictorial record.

Teacher: Model a clear drawing, diagram or mark for the concrete work without adding a quantity the story does not supply.

Learners: Draw the model and label the important parts with maths language.

5

Record and solve

6 min

1Gg.04

Read-along: Use the read-along once more as the evidence check for the abstract record.

Teacher: Read the passage below and say the two words in it that end with the added ending. Then pick a describing word of your own, say it, and say it again with the same ending on the end.

Learners: Record the result with suitable numbers, words or symbols and link it back to the picture.

6

Reflect and convince

4 min

TWM.07

Read-along: Show the source passage and invite a final evidence-based check.

Teacher: Name the Thinking and Working Mathematically focus: Critiquing: compare ideas, pictures or methods and weigh up their strengths.

Learners: Use the concrete model, drawing and record together to justify the answer.

Solo

Read independently and mark the evidence used by the shared model.

Supported

Read with the audio, pause at the named source passage and use the response frame.

Listening

Listen with highlighting, build the same model and explain it orally.

Assessment check: The learner shows the objective with concrete, pictorial and abstract evidence and explains how the read-along supports the model.

4

Full and empty

A Beach for Albert · 1Gg.05

Shared maths question

How does A Beach for Albert help us explore full and empty?

Evidence required

A concrete model, a pictorial record and a matching abstract record, all checked against the read-along.

Governed source lesson: Taller, Wider, or Just the Same · Concept · Comparing how much two containers hold by pouring

1

Find the maths in the story

4 min

1Gg.05

Read-along: Listen with highlighting and pause at the passage used by “Taller, Wider, or Just the Same”.

Teacher: Sit with a partner behind three pairs of jars, one jar in each pair taller and thinner, the other shorter and wider. Point at the jar in each pair you think holds more water and say taller or wider as your reason. Write nothing and touch no water yet; the guesses go on the table as a pointing finger and a spoken word.

Learners: Notice the story evidence and say the maths question in their own words.

2

Model it with objects

5 min

1Gg.05

Read-along: Replay the source passage while building the quantities, shapes or measures it supplies.

Teacher: Fill the taller jar of your first pair to the line marked on it, then pour the whole of it into the empty wider jar and watch where the water stops. Say out loud what happened: it came up short of the line, it ran over the top, or it landed right at the line. Do the same for your second and third pairs, one pour each.

Learners: Build a concrete model and check that each part matches the read-along.

3

Try the concrete task

6 min

1Gg.05

Read-along: Keep the relevant story page visible as the class tests the model.

Teacher: Look at your three results and find the pair where the water landed at the line, so a taller jar and a wider jar hold the same amount. Hold both of those jars up and say the sentence about them: this one is taller, this one is wider, they hold the same amount. Then say which of your three first guesses the pouring proved wrong.

Learners: Change or compare the objects, then explain what stayed the same and what changed.

4

Draw the maths

5 min

1Gg.05

Read-along: Return to the same story evidence before learners make a pictorial record.

Teacher: Model a clear drawing, diagram or mark for the concrete work without adding a quantity the story does not supply.

Learners: Draw the model and label the important parts with maths language.

5

Record and solve

6 min

1Gg.05

Read-along: Use the read-along once more as the evidence check for the abstract record.

Teacher: Stand your three pairs in a row with the tied pair in the middle. Each child says one sentence naming the thing that decided which jar holds more, using the word pouring in it. A partner listens and says whether looking at the jars would have given the same answer.

Learners: Record the result with suitable numbers, words or symbols and link it back to the picture.

6

Reflect and convince

4 min

TWM.07

Read-along: Show the source passage and invite a final evidence-based check.

Teacher: Name the Thinking and Working Mathematically focus: Critiquing: compare ideas, pictures or methods and weigh up their strengths.

Learners: Use the concrete model, drawing and record together to justify the answer.

Solo

Read independently and mark the evidence used by the shared model.

Supported

Read with the audio, pause at the named source passage and use the response frame.

Listening

Listen with highlighting, build the same model and explain it orally.

Assessment check: The learner shows the objective with concrete, pictorial and abstract evidence and explains how the read-along supports the model.

End-of-unit task

Choose one model from each read-along. Put the models in a useful order, compare them, and explain how the concrete, pictorial and abstract records show the unit's maths.