bridges in mathematics

Routines in Bridges in Mathematics
Kindergarten

Choral Counting

Choral counting provides opportunities for students to practice skip-counting and identify patterns and structures in our number system. Students count together as a class while the teacher records the count on the board in a predetermined arrangement. The teacher pauses periodically to ask students what they notice or to predict the next number in the sequence. When the count is complete, the teacher invites students to share observations, focusing on patterns and relationships among the numbers.

Unit	Lesson	Activity	Standard	SMP
3	Module 1, Session 3	Choral Counting	K.CC.1	K.MP.6, K.MP.7
	Module 3, Session 2	Choral Counting	K.CC.2	K.MP.6, K.MP.7
	Module 4, Session 5	Choral Counting	K.CC.2	K.MP.6, K.MP.7
4	Module 1, Session 2	Choral Counting	K.CC.1, K.CC.2	K.MP.6, K.MP.7
	Module 2, Session 4	Choral Counting	K.CC.1	K.MP.6, K.MP.7
	Module 3, Session 2	Choral Counting	K.CC.1, K.CC.2	K.MP.6, K.MP.7
5	Module 1, Session 3	Choral Counting	K.CC.1	K.MP.6, K.MP.7
	Module 2, Session 4	Choral Counting	K.CC.1	K.MP.6, K.MP.7
	Module 3, Session 1	Choral Counting	K.CC.1, K.CC.2	K.MP.6, K.MP.7
	Module 4, Session 3	Choral Counting	K.CC.2	K.MP.6, K.MP.7
6	Module 1, Session 5	Choral Counting	K.CC.1, K.CC.2	K.MP.6, K.MP.7
	Module 2, Session 2	Choral Counting	K.CC.1, K.CC.2	K.MP.6, K.MP.7
	Module 3, Session 3	Choral Counting	K.CC.1, K.CC.2	K.MP.6, K.MP.7
	Module 4, Session 1	Choral Counting	K.CC.1, K.CC.2	K.MP.6, K.MP.7
	Module 4, Session 2	Choral Counting	K.CC.1, K.CC.2	K.MP.6, K.MP.7
7	Module 1, Session 3	Choral Counting	K.CC.1, K.CC.2	K.MP.6, K.MP.7
	Module 2, Session 2	Choral Counting	K.CC.1, K.CC.2	K.MP.6, K.MP.7
	Module 3, Session 4	Choral Counting	K.CC.2	K.MP.6, K.MP.7
8	Module 1, Session 3	Choral Counting	K.CC.1, K.CC.2	K.MP.6, K.MP.7
	Module 3, Session 4	Choral Counting	K.CC.2, K.NBT.1	K.MP.6, K.MP.7

Count Around the Circle

This routine involves each student saying a number as the count moves around the circle. The teacher chooses a counting sequence, such as counting by 10s, and has a student start the sequence from a starting number. Each subsequent student says the next number in the sequence: *10, 20, 30….* The counting may be accompanied by movements, sound effects, or other engaging activities.

Unit	Lesson	Activity	Standard	SMP
4	Module 1, Session 4	Count Around the Circle	K.CC.2	K.MP.6
	Module 3, Session 5	Count Around the Circle	K.CC.1, K.CC.2	K.MP.7, K.MP.8
5	Module 4, Session 2	Count Around the Circle	K.CC.1	K.MP.7, K.MP.8
6	Module 2, Session 4	Count Around the Circle	K.CC.1	K.MP.7, K.MP.8
7	Module 4, Session 5	Count Around the Circle	K.CC.1	K.MP.6
8	Module 1, Session 4	Count Around the Circle	K.CC.2	K.MP.7, K.MP.8

Dot Talk

A dot talk opens with an image showing an arrangement of dots. Students determine how many dots there are. The teacher elicits and records zsolutions without indicating whether any are correct. Students are then invited to share and explain their strategies. The teacher records students' ideas by looping and labeling the dots.

Unit	Lesson	Activity	Standard	SMP
3	Module 1, Session 4	Dot Talk	Supports K.CC, K.CC.4b	K.MP.3, K.MP.7
	Module 3, Session 1	Dot Talk	Supports K.CC, K.CC.4b	K.MP.3, K.MP.7
5	Module 2, Session 2	Dot Talk	Supports K.CC, K.CC.4b, K.OA.1	K.MP.7
6	Module 3, Session 2	Dot Talk	K.NBT.1	K.MP.3, K.MP.6
7	Module 1, Session 5	Dot Talk	K.NBT.1	K.MP.3, K.MP.4
8	Module 4, Session 1	Dot Talk	Supports K.CC, K.OA.3, K.OA.4	K.MP.4, K.MP.7
	Module 4, Session 2	Dot Talk	Supports K.CC, K.OA.3	K.MP.4, K.MP.7

Gallery Walk

Individual or group work is displayed around the room or at tables. The teacher defines the purpose for the walk by providing students a note-taking form to collect information or by providing questions to consider while viewing their peers' work. Students find similarities and differences across the work. The teacher then invites them to ask questions and make conjectures about those similarities and differences.

Unit	Lesson	Activity	Standard	SMP
5	Module 1, Session 2	Optional Assessment: Pattern Block Sort & Count	K.MD.3	K.MP.3

I Have, You Need

The teacher specifies a total and gives one addend. Students supply the number required to reach the total. Using a call-and-response format, the teacher says, "I have _____," and students respond, "You need _____."

Unit	Lesson	Activity	Standard	SMP
3	Module 3, Session 5	You Have … You Need	K.OA.4	K.MP.7

Notice & Wonder

Students make observations and generate questions about an image, data display, strategy, or a situation independently, then share their thoughts with a partner. The teacher then elicits noticings and wonderings from students and records them on a chart or the whiteboard.

Unit	Lesson	Activity	Standard	SMP
3	Module 1, Session 1	Fall Friends		K.MP.3
	Module 2, Session 1	Introducing Work Place 3B Butterfly Race	K.OA.1	K.MP.1
	Module 2, Session 2	Introducing Work Place 3C Five & More	K.OA.1	K.MP.1
	Module 2, Session 3	Bugs: Growing & Shrinking by 1s	K.OA.1	K.MP.3
4	Module 2, Session 5	Forest Problem Situations	K.OA.1	K.MP.1
	Module 3, Session 3	Follow The Path	K.MD.2	K.MP.1
	Module 4, Session 3	Money March	Supports K.MD	K.MP.1
	Module 4, Session 5	Estimation Jar	Supports K.MD	K.MP.3
5	Module 2, Session 2	Circles, Squares, Triangles & Rectangles	K.G.4	K.MP.3
6	Module 1, Session 4	Finish the Pattern	K.G.4, supports K.OA	K.MP.3, K.MP.7
	Module 4, Session 1	Buckets of Snow	Supports K.CC	K.MP.1
7	Module 1, Session 1	Springtime Adventures		K.MP.1
	Module 4, Session 4	Estimation Jar	K.CC.1	K.MP.3
8	Module 2, Session 1	Estimation Jar	K.CC.1	K.MP.3

Open Strategy Sharing

Students share strategies arising from problems that can be solved in different ways. The teacher does not select, sequence, or anticipate which strategies will be shared. Instead, students are invited and encouraged to share their reasoning while others ask questions and look for connections among strategies.

Unit	Lesson	Activity	Standard	SMP
7	Module 3, Session 3	Problem Situations, Part 3	K.OA.1, K.OA.2	K.MP.1, K.MP.5

Problem Posing

Students engage in problem posing when they ask mathematical questions about an image or a particular problem situation, some of which they might choose to solve. Often, problem posing serves as a formative assessment, as students ask and choose questions that are comfortable for them. Problem posing can occur at various points in a problem-solving process. It can occur when asking questions about a situation or an image, then during problem solving as students ask simpler or more challenging questions, and finally after problem solving when they ask new questions of interest based on the work they've already done.

Unit	Lesson	Activity	Standard	SMP
4	Module 2, Session 5	Forest Problem Situations	K.OA.1, K.OA.2	K.MP.5, K.MP.6
7	Module 3, Session 3	Problem Situations, Part 3	K.OA.1, K.OA.2	K.MP.2, K.MP.4

Quick Image

Introduced early in kindergarten, the quick image routine encourages students to compose and decompose quantities by attending to structures and patterns. Students are shown an image for about 3 seconds and then asked to identify or describe what they see. The visual is flashed again, giving students the opportunity to confirm or revise their thinking. On the third showing, the teacher leaves the visual on display while students share different ways of determining the quantity shown.

Unit	Lesson	Activity	Standard	SMP
1	Module 2, Session 2	Fabulous 5s	K.CC.4a, K.CC.4b, K.CC.5, K.OA.3	K.MP.6, K.MP.7
	Module 2, Session 3	Fives with Fingers	K.CC.4a, K.CC.4b, K.CC.5, K.OA.3	K.MP.6, K.MP.7
	Module 2, Session 5	Quick Image	K.CC.4b, K.CC.5	K.MP.6, K.MP.7
2	Module 1, Session 1	Combinations of 5	K.CC.4b, K.OA.1. K.OA.3	K.MP.6, K.MP.7
	Module 1, Session 2	5-Frame Flash & Build	K.CC.4b, K.OA.1. K.OA.3	K.MP.3, K.MP.7
	Module 1, Session 3	Building 10	K.CC.4a, K.CC.4b, K.CC.5, K.OA.3	K.MP.6, K.MP.7
	Module 2, Session 3	Flash & Build on the Number Rack	K.CC.4a, K.CC.4b, K.CC.5, K.OA.3	K.MP.3, K.MP.7
	Module 3, Session 2	Quick Image	K.CC.1, Supports K.CC, K.CC.5	K.MP.6, K.MP.7
3	Module 1, Session 2	Exploring Doubles	K.OA.1, K.OA.3	K.MP.6, K.MP.7
	Module 3, Session 1	Writing Equations	K.OA.1	K.MP.6, K.MP.7
6	Module 2, Session 5	Quick Image	Supports K.CC, K.OA.5	K.MP.6, K.MP.7
	Module 4, Session 4	Quick Image	Supports K.CC, K.OA.1	K.MP.4, K.MP.7
7	Module 2, Session 1	Build It on the Number Rack	K.NBT.1, K.CC.5	K.MP.4, K.MP.7
	Module 4, Session 1	Quick Image	K.NBT.1	K.MP.4, K.MP.7
	Module 4, Session 3	Counting & Adding 10-Frames	Supports K.CC, K.CC.5	K.MP.6, K.MP.7
8	Module 3, Session 2	Quick Image	K.CC.4c, K.OA.1	K.MP.5, K.MP.7
	Module 3, Session 3	Quick Image	K.CC.4c, K.OA.1	K.MP.5, K.MP.7

Same & Different

Students compare and contrast two images with observable mathematical similarities and differences, calling attention to how the images are the same and how they are different.

Unit	Lesson	Activity	Standard	SMP
1	Module 3, Session 5	Same & Different	K.CC.5, K.CC.6	K.MP.6, K.MP.7
2	Module 1, Session 1	Same & Different	K.CC.4b	K.MP.6, K.MP.7
	Module 1, Session 3	Same & Different	K.CC.4b, K.CC.5	K.MP.6, K.MP.7
	Module 2, Session 2	Same & Different	Supports K.CC, K.CC.5	K.MP.5, K.MP.7
	Module 2, Session 4	Same & Different	Supports K.CC, K.CC.5	K.MP.6, K.MP.7
	Module 3, Session 2	Same & Different	Supports K.CC, K.CC.5	K.MP.6, K.MP.7
	Module 3, Session 5	Same & Different	Supports K.CC, K.CC.4b	K.MP.3, K.MP.7
	Module 3, Session 6	Same & Different	K.CC.5, K.CC.6	K.MP.3, K.MP.7
	Module 4, Session 3	Shape Observations	K.G.2	K.MP.3, K.MP.6

Same & Different continued

Unit	Lesson	Activity	Standard	SMP
3	Module 1, Session 5	Same & Different	Supports K.CC, K.CC.4b	K.MP.6, K.MP.7
	Module 4, Session 1	Same & Different	Supports K.CC, K.CC.5	K.MP.6, K.MP.7
	Module 4, Session 3	Same & Different	K.OA.1	K.MP.6, K.MP.7
4	Module 2, Session 1	Two Dice	Supports K.CC	K.MP.3, K.MP.6
	Module 2, Session 5	Same & Different		K.MP.6, K.MP.7
5	Module 1, Session 4	Same & Different	K.G.4	K.MP.7
	Module 2, Session 2	Same & Different	K.MD.2, K.MD.3, K.G.4	K.MP.7
	Module 3, Session 4	Same & Different	K.G.2	K.MP.7
6	Module 1, Session 1	Same & Different	K.G.3, K.G.4	K.MP.7
7	Module 2, Session 3	Same & Different	K.CC.6, K.NBT.1	K.MP.3, K.MP.7
	Module 3, Session 1	Same & Different	Supports K.CC, K.CC.6, K.OA.2	K.MP.4, K.MP.7
	Module 4, Session 2	Same & Different	K.CC.5, K.NBT.1	K.MP.3, K.MP.7
8	Module 1, Session 3	Same & Different	K.OA.2, K.OA.5	K.MP.3, K.MP.7

What Comes Next?

Students analyze a sequence and determine the next item or value. They are asked to think quietly to themselves, then share their thinking with a partner, and finally share their reasoning with the group.

Unit	Lesson	Activity	Standard	SMP
6	Module 4, Session 3	What Comes Next?	Supports K.OA, K.OA.3, K.OA.5	K.MP.7, K.MP.8

Which One Doesn't Belong?

This activity begins with students looking at a set of four images. They determine which one doesn't belong based on common characteristics. There are no incorrect responses, since there are mathematically justifiable reasons for eliminating any of the four images from the set.

Unit	Lesson	Activity	Standard	SMP
5	Module 4, Session 1	Which One Doesn't Belong?	K.G.4, K.G.6, K.MP.1, K.MP.7	K.MP.3, K.MP.7
6	Module 2, Session 3	Which One Doesn't Belong?	K.G.3, K.G.4	K.MP.3, K.MP.7
7	Module 3, Session 5	Which One Doesn't Belong?	K.OA.1, K.NBT.1	K.MP.3, K.MP.7

Would You Rather?

Would You Rather questions present students with two mathematical situations and invite them to choose which situation they prefer. Students need to clearly communicate their reasoning and justify their choice.

Unit	Lesson	Activity	Standard	SMP
4	Module 4, Session 2	Would You Rather?	Supports K.MD	K.MP.3
5	Module 3, Session 2	Would You Rather?	K.G.2	K.MP.3

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Routines in Bridges in Mathematics
Grade 1

Choral Counting

Choral counting provides opportunities for students to practice skip-counting and identify patterns and structures in our number system. Students count together as a class while the teacher records the count on the board in a predetermined arrangement. The teacher pauses periodically to ask students what they notice or to predict the next number in the sequence. When the count is complete, the teacher invites students to share observations, focusing on patterns and relationships among the numbers.

Unit	Lesson	Activity	Standard	SMP
3	Module 4, Session 4	Choral Counting Off-Decade	1.OA.5, supports 1.NBT	1.MP.6, 1.MP.7
4	Module 1, Session 4	Adding 10s Off-Decade, Part 2	Supports 1.NBT	1.MP.7
	Module 2, Session 2	Choral Counting by 5s	Supports 1.OA	1.MP.7, 1.MP.8
	Module 3, Session 3	Counting Off-Decade by 10s on the 0–100 Floor Number Line	1.NBT.5	1.MP.7, 1.MP.8
7	Module 4, Session 3	More Pennies in a Jar, Part 2	Supports 1.NBT	1.MP.7, 1.MP.8

Count Around the Circle

This routine involves each student saying a number as the count moves around the circle. The teacher chooses a counting sequence, such as counting by 10s, and has a student start the sequence from a starting number. Each subsequent student says the next number in the sequence: 1*0, 20, 30…*

Unit	Lesson	Activity	Standard	SMP
3	Module 4, Session 3	Counting Around the Circle	Supports 1.NBT	1.MP.7, 1.MP.8

Dot Talk

A dot talk opens with an image showing an arrangement of dots. Students determine how many dots there are. The teacher elicits and records zsolutions without indicating whether any are correct. Students are then invited to share and explain their strategies. The teacher records students' ideas by looping and labeling the dots.

Unit	Lesson	Activity	Standard	SMP
1	Module 3, Session 4	Dot Talk	1.OA.5, 1.OA.6	1.MP.7
2	Module 1, Session 4	Domino Addition Dot Talk	1.OA.3, 1.OA.6	1.MP.6, 1.MP.7

Gallery Walk

Individual or group work is displayed around the room or at tables. The teacher defines the purpose for the walk by providing students a note-taking form to collect information or by providing questions to consider while viewing their peers' work. Students find similarities and differences across the work. The teacher then invites them to ask questions and make conjectures about those similarities and differences.

Unit	Lesson	Activity	Standard	SMP
6	Module 3, Session 5	Composite Circle Pictures	1.G.2, 1.G.3	1.MP.7
	Module 4, Session 4	Comparing Shape Headbands	1.MD.4, supports 1.G	1.MP.7
7	Module 2, Session 4	Kindness Rocks Counting Collections	Supports 1.NBT, 1.NBT.1	1.MP.7

I Have, You Need (and variations)

The teacher specifies a total and gives one addend. Students supply the number required to reach the total. Using a call-and-response format, the teacher says, "I have _____," and students respond, "You need _____."

Unit	Lesson	Activity	Standard	SMP
2	Module 4, Session 1	I Have, You Need	1.OA.8	1.MP.7
	Module 4, Session 2	I See, You See	1.OA.8	1.MP.7, 1.MP.8
	Module 4, Session 3	I See, You See	1.OA.8	1.MP.7, 1.MP.8
	Module 4, Session 5	I See, You See	1.OA.8	1.MP.7, 1.MP.8
3	Module 1, Session 2	How Many More to Score?	1.OA.4	1.MP.7
	Module 2, Session 1	I Have, You Need	1.OA.4, 1.OA.6	1.MP.7
4	Module 4, Session 2	I Have, You Need	1.OA.8, supports 1.NBT, 1.NBT.2c	1.MP.7
	Module 4, Session 3	I Have, You Need	1.OA.8, supports 1.NBT, 1.NBT.2c	1.MP.6, 1.MP.7
	Module 4, Session 4	I Have, You Need	1.OA.8	1.MP.6, 1.MP.7
	Module 4, Session 5	I Have, You Need	1.OA.8	1.MP.6, 1.MP.7

Notice & Wonder

Students make observations and generate questions about an image, data display, strategy, or a situation independently, then share their thoughts with a partner. The teacher then elicits noticings and wonderings from students and records them on a chart or the whiteboard.

Unit	Lesson	Activity	Standard	SMP
1	Module 1, Session 1	Helping Hands	K.CC.5	1.MP.1, 1.MP.7
	Module 1, Session 3	Helping Hands Quilt, Part 2	K.CC.6	1.MP.1
2	Module 1, Session 5	Domino Square Observations	1.OA.3	1.MP.7
3	Module 1, Session 1	Cherokee Butter Bean Game	1.OA.3, 1.OA.6	1.MP.1

Number Talk

Students solve a problem mentally, then use a hand signal to show that they have a solution. The teacher elicits and records their solutions without indicating whether any are correct. Students are then invited to share and explain their strategies. The teacher records these strategies on the board, using expressions, equations, and labeled sketches to represent student thinking as accurately as possible.

Unit	Lesson	Activity	Standard	SMP
6	Module 2, Session 4	Number Talk 5 + 8 (25 + 8)	1.NBT.4	1.MP.2
	Module 4, Session 2	Number Talk 8 + 9 (8 + 19)	1.NBT.4	1.MP.2
	Module 4, Session 4	Number Talk 57 + 8	1.NBT.4	1.MP.2

Open Strategy Sharing

Students share strategies arising from problems that can be solved in different ways. The teacher does not select, sequence, or anticipate which strategies will be shared. Instead, students are invited and encouraged to share their reasoning while others ask questions and look for connections among strategies.

Unit	Lesson	Activity	Standard	SMP
3	Module 1, Session 5	Open Strategy Sharing	1.OA.1, 1.OA.2	1.MP.1, 1.MP.4
	Module 2, Session 5	Open Strategy Sharing	1.OA.1	1,MP.1, 1.MP.4
	Module 4, Session 4	Open Strategy Sharing	1.NBT.2, 1.NBT.4	1.MP.1
5	Module 1, Session 4	Part-Part-Whole, Whole Unknown	1.OA.1, 1.OA.2, 1.OA.6	1.MP.2
	Module 2, Session 4	Tobogganing Penguins	1.OA.1, 1.OA.6	1.MP.2, 1.MP.7
7	Module 3, Session 4	Playing the Path Game with the Teacher	1.NBT.4, 1.NBT.5	1.MP.1, 1.MP.2
8	Module 1, Session 4	An Hour or Bust!	1.NBT.4, 1.NBT.5	1.MP.1, 1.MP.2
	Module 4, Session 3	How They Have Grown	1.MD.1	1.MP.1, 1.MP.2
	Module 4, Session 5	Comparing Our Heights to Baby Ayla's Current Length	1.MD.2	1.MP.1, 1.MP.2

Problem Posing

Students engage in problem posing when they ask mathematical questions about an image or a particular problem situation, some of which they might choose to solve. Often, problem posing serves as a formative assessment, as students ask and choose questions that are comfortable for them. Problem posing can occur at various points in a problem-solving process. It can occur when asking questions about a situation or an image, then during problem solving as students ask simpler or more challenging questions, and finally after problem solving when they ask new questions of interest based on the work they've already done.

Unit	Lesson	Activity	Standard	SMP
3	Module 1, Session 1	Cherokee Butter Bean Game	1.OA.3, 1.OA.6	1.MP.2,1.MP.4
	Module 2, Session 5	Posing & Solving Playground Problems	1.OA.1	1,MP.1
	Module 2, Session 6	More Playground Problems	1.OA.1	1,MP.1

Quick Image

The quick image routine encourages students to compose and decompose quantities by attending to structures and patterns. Students are shown an image for about 3 seconds and then asked to identify or describe what they see. The visual is flashed again, giving students the opportunity to confirm or revise their thinking. On the third showing, the teacher leaves the visual on display while students share different ways of determining the quantity shown.

Unit	Lesson	Activity	Standard	SMP
1	Module 2, Session 3	10-Frame Flash	supports K.CC	1.MP.6, 1.MP.7
	Module 3, Session 2	Quick Image	1.OA.6, 1.OA.8	1.MP.6, 1.MP.7
	Module 3, Session 4	Quick! Look!	1.OA.5, 1.OA.6	1.MP.7
2	Module 3, Session 1	Quick Image Dominoes	supports K.CC, 1.OA.5	1.MP.7
3	Module 2, Session 5	Quick Image with the Number Rack	1.OA.3, 1.OA.6	1.MP.7
	Module 3, Session 1	Quick Image: Ten & More	1.NBT.2a, 1.NBT.2b	1.MP.7

Same & Different

Students compare and contrast two images with observable mathematical similarities and differences, calling attention to how the images are the same and how they are different.

Unit	Lesson	Activity	Standard	SMP
2	Module 3, Session 2	Same & Different	1.OA.5	1.MP.7
4	Module 2, Session 3	Same & Different	Supports 1.NBT.1	1.MP.7
6	Module 2, Session 1	How Are They the Same? How Are They Different?	1.G.1	1.MP.7
	Module 2, Session 4	Comparing Cubes & Rectangular Prisms	Supports 1.G	1.MP.7
	Module 3, Session 4	Sharing Flatbreads	1.G.3	1.MP.7
	Module 4, Session 3	Is It a Triangle?	1.G.1	1.MP.3, 1.MP.8
8	Module 1, Session 2	Telling Time to the Hour	1.MD.3	1.MP.7

Which One Doesn't Belong?

This activity begins with students looking at a set of four images. They determine which one doesn't belong based on common characteristics. There are no incorrect responses, since there are mathematically justifiable reasons for eliminating any of the four images from the set.

Unit	Lesson	Activity	Standard	SMP
1	Module 1, Session 5	Which One Doesn't Belong?	supports K.CC, 1.OA.5	1.MP.3, 1.MP.7

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Routines in Bridges in Mathematics
Grade 2

Choral Counting

Choral counting provides opportunities for students to practice skip-counting and identify patterns and structures in our number system. Students count together as a class while the teacher records the count on the board in a predetermined arrangement. The teacher pauses periodically to ask students what they notice or to predict the next number in the sequence. When the count is complete, the teacher invites students to share observations, focusing on patterns and relationships among the numbers.

Unit	Lesson	Activity	Standard	SMP
1	Module 2, Session 3	Choral Counting by 5s	2.NBT.2	2.MP.7
	Module 4, Session 3	Choral Counting by 10s Off-Decade	2.NBT.2	2.MP.7
2	Module 3, Session 2	Choral Counting by 10s Off-Decade	2.NBT.2, 2.MD.7	2.MP.7
3	Module 2, Session 2	Choral Counting Backward by 10s	2.NBT.2	2.MP.7, 2.MP.8
4	Module 2, Session 1	Choral Counting by 3s	Supports 2.OA	2.MP.7
5	Module 1, Session 2	Choral Counting with 1s, 10s & 100s	2.NBT.2	2.MP.7
	Module 3, Session 3	Choral Counting by 10s to 500	2.NBT.2	2.MP.8
	Module 4, Session 1	Choral Counting by 2s with Odd Numbers	Supports 2.OA	2.MP.8
7	Module 4, Session 2	Choral Counting by Halves	2.G.3	2.MP.7
	Module 4, Session 3	Choral Counting by Fourths	2.G.3	2.MP.8

Compare & Connect

Compare and connect discussions can occur when most students have solved a given problem. The teacher selects several students to share their solution strategies. As each strategy is shared, students listen carefully, ask clarifying questions, and watch for ways in which the strategies are similar or different. After two or more strategies have been shared, students describe some ways in which the strategies are similar and others in which they're different.

Unit	Lesson	Activity	Standard	SMP
2	Module 2, Session 3	How Many to the Next Ten	2.NBT.5	2.MP.7

Dot Talk

A dot talk opens with an image showing an arrangement of dots. Students determine how many dots there are. The teacher elicits and records zsolutions without indicating whether any are correct. Students are then invited to share and explain their strategies. The teacher records students' ideas by looping and labeling the dots.

Unit	Lesson	Activity	Standard	SMP
2	Module 4, Session 1	Dot Talk	2.OA.2, 2.OA.4	2.MP.4, 2.MP.7
	Module 4, Session 2	Dot Talk	2.OA.2, 2.OA.4	2.MP.4, 2.MP.7
	Module 4, Session 3	Dot Talk	2.OA.2, 2.OA.4	2.MP.4, 2.MP.7
4	Module 3, Session 4	Dot Talk	2.OA.2, 2.OA.4	2.MP.8
	Module 4, Session 2	Dot Talk	2.OA.2, 2.OA.4	2.MP.7
	Module 4, Session 3	Dot Talk	2.OA.2, 2.OA.4	2.MP.7
	Module 4, Session 4	Dot Talk	2.OA.2, 2.OA.4	2.MP.7

Gallery Walk

Individual or group work is displayed around the room or at tables. The teacher defines the purpose for the walk by providing students a note-taking form to collect information or by providing questions to consider while viewing their peers' work. Students find similarities and differences across the work. The teacher then invites them to ask questions and make conjectures about those similarities and differences.

Unit	Lesson	Activity	Standard	SMP
3	Module 3, Session 1	How Do You Show 35	2.NBT.9	2.MP.3
5	Module 1, Session 3	Close to 1,000? Part 2	2.NBT.1	2.MP.2
	Module 4, Session 4	Student-Made Sequences	Supports 2.OA, 2.OA.3	2.MP.8

Notice & Wonder

Students make observations and generate questions about an image, data display, strategy, or a situation independently, then share their thoughts with a partner. The teacher then elicits noticings and wonderings from students and records them on a chart or the whiteboard.

Unit	Lesson	Activity	Standard	SMP
2	Module 1, Session 1	Jessie and the Beanstalk	2.NBT.2, 2.MD.7	
4	Module 2, Session 1	Comparing a Ruler & a Yardstick	2.MD.2	2.MP.1
	Module 3, Session 3	How Many Inches Tall Is the Giant?	2.MD.3	2.MP.1
5	Module 3, Session 1	How Many Pennies?	2.NBT.3	2.MP.1

Number String

Number strings engage students in solving a short "string" of 4–6 related problems. These problems are carefully selected and sequenced to elicit a particular strategy or illustrate a particular mathematical concept. Students work mentally, using information from the previous problem(s) to help solve each new problem in the string. The teacher uses labeled sketches, expressions, and equations to represent student thinking. Often, at the end of the string, the teacher works with students to summarize the strategy in their own words.

Unit	Lesson	Activity	Standard	SMP
1	Module 3, Session 4	Number String — Making 10	2.OA.2	2.MP.7
	Module 3, Session 5	Number String — Up Over 10	2.OA.2	2.MP.7
2	Module 3, Session 3	Number String — Get to a Friendly Number with Addition	2.NBT.5	2.MP.8
	Module 3, Session 6	Number String — Get to a Friendly Number with Subtraction	2.NBT.5, 2.MD.7	2.MP.7
3	Module 2, Session 4	Number String — Get to a Friendly Number with Subtraction	2.NBT.5, 2.NBT.9	2.MP.7, 2.MP.8

Number Talk

Students solve a problem mentally, then use a hand signal to show that they have a solution. The teacher elicits and records their solutions without indicating whether any are correct. Students are then invited to share and explain their strategies. The teacher records these strategies on the board, using expressions, equations, and labeled sketches to represent student thinking as accurately as possible.

Unit	Lesson	Activity	Standard	SMP
2	Module 1, Session 2	Number Talk: 11 − 8	2.OA.2	2.MP.3
	Module 3, Session 5	Number Talk: 65 + 9	2.NBT.5	2.MP.4
3	Module 2, Session 5	Number Talk: 56 − 9	2.NBT.5, 2.NBT.9	2.MP.7, 2.MP.8
	Module 3, Session 2	Number Talk: 16 + 19	2.NBT.5, 2.NBT.9	2.MP.7
	Module 3, Session 6	Number Talk: 35 − 19	2.NBT.5, 2.NBT.9	2.MP.6, 2.MP.7
7	Module 2, Session 2	Number Talk: 260 − 19	2.NBT.7, 2.NBT.9	2.MP.7
	Module 3, Session 2	Number Talk: 102 + 209	2.NBT.7, 2.NBT.9	2.MP.7
	Module 3, Session 4	Number Talk: 32 + 20 + 18	2.NBT.6	2.MP.7
	Module 3, Session 5	Number Talk: 10 + 25 + 75	2.NBT.6	2.MP.7
	Module 4, Session 5	Number Talk: 510 + 29	2.NBT.7, 2.NBT.9	2.MP.7

Open Strategy Sharing

Students share strategies arising from problems that can be solved in different ways. The teacher does not select, sequence, or anticipate which strategies will be shared. Instead, students are invited and encouraged to share their reasoning while others ask questions and look for connections among strategies.

Unit	Lesson	Activity	Standard	SMP
1	Module 4, Session 4	Solving a Sample Problem Situation	2.OA.2	2.MP.1
3	Module 1, Session 4	Combining Sets of Sticks & Bundles	2.NBT.9	2.MP.3
	Module 3, Session 1	Sharing Our Strategies	2.OA.1, 2.NBT.5, 2.NBT.9	2.MP.3
4	Module 3, Session 4	Sharing Solution Strategies	2.NBT.5	2.MP.3
7	Module 3, Session 2	Sharing Our Strategies	2.NBT.7	2.MP.3
	Module 3, Session 3	Sharing Our Strategies	2.NBT.7	2.MP.3
	Module 3, Session 4	Two-Step Package Problems	2.OA.1	2.MP.1
8	Module 1, Session 3	Solving Problem Situations	2.NBT.7, 2.NBT.9	2.MP.3

Problem Posing

Students engage in problem posing when they ask mathematical questions about an image or a particular problem situation, some of which they might choose to solve. Often, problem posing serves as a formative assessment, as students ask and choose questions that are comfortable for them. Problem posing can occur at various points in a problem-solving process. It can occur when asking questions about a situation or an image, then during problem solving as students ask simpler or more challenging questions, and finally after problem solving when they ask new questions of interest based on the work they've already done.

Unit	Lesson	Activity	Standard	SMP
3	Module 3, Session 1	Problem Posing & Solving	2.OA.1	2.MP.1
	Module 3, Session 3	Revisiting the Seed-Finding Contest	2.OA.1	2.MP.1
7	Module 3, Session 5	Posing & Solving Package Problems	2.NBT.7	2.MP.1

Quick Image

The quick image routine encourages students to compose and decompose quantities by attending to structures and patterns. Students are shown an image for about 3 seconds and then asked to identify or describe what they see. The visual is flashed again, giving students the opportunity to confirm or revise their thinking. On the third showing, the teacher leaves the visual on display while students share different ways of determining the quantity shown.

Unit	Lesson	Activity	Standard	SMP
3	Module 1, Session 5	Bundles & Sticks	2.NBT.5	2.MP.2

Same & Different

Students compare and contrast two images with observable mathematical similarities and differences, calling attention to how the images are the same and how they are different.

Unit	Lesson	Activity	Standard	SMP
1	Module 1, Session 5	Data Displays	1.MD.4	2.MP.4
4	Module 3, Session 6	Same & Different — Comparing Problems	2.OA.1	2.MP.1, 2.MP.3
5	Module 2, Session 3	Same & Different — Comparing Coins	2.MD.8	2.MP.3
	Module 2, Session 5	Same & Different — Money Symbols	2.MD.8	2.MP.3
	Module 3, Session 4	Same & Different — Number Path & Number Line	2.NBT.2	2.MP.3
6	Module 1, Session 3	Same & Different — Quadrilaterals	2.G.1	2.MP.3
	Module 2, Session 1	Same & Different — Thinking About Shapes	2.G.1	2.MP.3
	Module 2, Session 5	Same & Different — Arrays of Color	2.OA.4	2.MP.2
	Module 3, Session 2	Same & Different — Turtles	2.G.1	2.MP.3
	Module 3, Session 4	Same & Different — Quilt Blocks	2.G.1	2.MP.3
	Module 4, Session 5	Same & Different — Thinking About Thirds	2.G.3	2.MP.3
7	Module 1, Session 2	Same & Different — Rulers	2.MD.2	2.MP.3
	Module 1, Session 3	Same & Different — Measuring	2.MD.1	2.MP.6
	Module 3, Session 1	Same & Different — Three-Digit Numbers	2.NBT.1, 2.NBT.3	2.MP.2
	Module 4, Session 4	Same & Different — Pizzas	2.G.3	2.MP.3

What Comes Next?

Students analyze a sequence and determine the next item or value. They are asked to think quietly to themselves, then share their thinking with a partner, and finally share their reasoning with the group.

Unit	Lesson	Activity	Standard	SMP
5	Module 1, Session 4	What Comes Next?	2.NBT.1	2.MP.2, 2.MP.8
	Module 3, Session 2	Base Ten Number Pieces to 1,000	2.NBT.1, 2.NBT.3	
6	Module 2, Session 2	What Comes Next?	2.G.1	2.MP.3. 2.MP.7

Which One Doesn't Belong?

This activity begins with students looking at a set of four images. They determine which one doesn't belong based on common characteristics. There are no incorrect responses, since there are mathematically justifiable reasons for eliminating any of the four images from the set.

Unit	Lesson	Activity	Standard	SMP
2	Module 3, Session 7	Which One Doesn't Belong?	2.NBT.1	2.MP.1
4	Module 1, Session 1	Which One Doesn't Belong?	2.MD.1	2.MP.3
6	Module 1, Session 2	Which Shape Doesn't Belong?	2.G.1	2.MP.3
	Module 3, Session 1	Which One Doesn't Belong?	2.G.1	2.MP.3
	Module 4, Session 1	Which Shape Doesn't Belong?	2.G.3	2.MP.3
	Module 4, Session 2	Which One Doesn't Belong?	2.G.3	2.MP.3

Would You Rather?

Would You Rather questions present students with two mathematical situations and invite them to choose which situation they prefer. Students need to clearly communicate their reasoning and justify their choice.

Unit	Lesson	Activity	Standard	SMP
3	Module 1, Session 1	Would You Rather?	2.NBT.5	2.MP.2
	Module 3, Session 7	Would You Rather?	2.OA.1	2.MP.3
4	Module 1, Session 6	Would You Rather?	2.MD.5	2.MP.3
	Module 2, Session 2	Would You Rather?	2.MD.1	2.MP.3
	Module 3, Session 2	Would You Rather?	2.MD.5	2.MP.3
6	Module 4, Session 3	Would You Rather?	2.G.3	2.MP.3

bridges in mathematics

Routines in Bridges in Mathematics
Grade 3

Choral Counting

Choral counting provides opportunities for students to practice skip-counting and identify patterns and structures in our number system. Students count together as a class while the teacher records the count on the board in a predetermined arrangement. The teacher pauses periodically to ask students what they notice or to predict the next number in the sequence. When the count is complete, the teacher invites students to share observations, focusing on patterns and relationships among the numbers.

Unit	Lesson	Activity	Standard	SMP
1	Module 3, Session 2	Choral Counting	3.NBT.2	3.MP.7
	Module 3, Session 3	Choral Counting	3.NBT.2	3.MP.7
5	Module 1, Session 2	Choral Counting	3.OA.1	3.MP.8
7	Module 1, Session 3	Choral Counting	3.OA.7	3.MP.7
	Module 1, Session 4	Choral Counting	3.OA.7	3.MP.7

Gallery Walk

Individual or group work is displayed around the room or at tables. The teacher defines the purpose for the walk by providing students a note-taking form to collect information or by providing questions to consider while viewing their peers' work. Students find similarities and differences across the work. The teacher then invites them to ask questions and make conjectures about those similarities and differences.

Unit	Lesson	Activity	Standard	SMP
1	Module 1, Session 4	Foundational Fact Posters	3.OA.9	3.MP.3
5	Module 2, Session 4	True or False?	3.OA.7	3.MP.3
6	Module 1, Session 4	Sharing Shape Posters	3.G.1	3.MP.6
	Module 2, Session 3	Building & Sketching Quadrilaterals	3.G.1	3.MP.6
7	Module 2, Session 5	Sharing Multiplication Posters	3.OA.5, 3.OA.7, 3.MD.7a	3.MP.2
8	Module 1, Session 3	Researching & Building Beam Bridges		3.MP.7

Guess My Rule

Students examine a set of numbers or objects, some grouped inside a circle and others placed outside of it. By looking for traits common to all the items grouped within but possessed by none of the items outside the circle, students determine the rule that is used to decide what is included in or excluded from the group.

Unit	Lesson	Activity	Standard	SMP
6	Module 1, Session 2	Guess My Rule	3.G.1	3.MP.3

Math Forums

Math forums are a structured time for students to share and discuss their work. Prior to conducting a forum, the teacher reviews students' work. Then they carefully select and sequence the students who will share to help the rest of the class develop a deeper understanding of concepts and strategies. The other students listen to the strategies, compare their classmates' work to their own, and ask questions to better understand one another's ideas.

Unit	Lesson	Activity	Standard	SMP
1	Module 3, Session 3	Adding Lengths	2.MD.5, supports 3.OA, 3.NBT.2	3.MP.3, 3.MP.4
	Module 4, Session 2	Two-Digit Addition Problem Situations	3.NBT.2	3.MP.6
2	Module 1, Session 4	Hamster Multiplication Forum	Supports 3.OA, 3.OA.1, 3.OA.3	3.MP.3
3	Module 1, Session 6	Collections Problem Situations	3.OA.8, 3.NBT.2	3,MP.3, 3.MP.4
	Module 2, Session 2	Reading Books	Supports 3.OA, 3.NBT.2	3.MP.3, 3,MP.7
	Module 2, Session 4	Estimate & Compare	Supports 3.NBT, 3.NBT.2	3.MP.3, 3,MP.6
4	Module 2, Session 2	Measurement Problems	3.NBT.2, 3.MD.2	3.MP.3
	Module 2, Session 3	Multistep Measurement Problem Situations	3.MD.2	3.MP.2
5	Module 2, Session 2	Card Collections	3.OA.2, 3.OA.3	3.MP.3
	Module 3, Session 2	Bennie's Bakery	3.OA.7	3.MP.3, 3,MP.4

Notice & Wonder

Students make observations and generate questions about an image, data display, strategy, or a situation independently, then share their thoughts with a partner. The teacher then elicits noticings and wonderings from students and records them on a chart or the whiteboard.

Unit	Lesson	Activity	Standard	SMP
2	Module 1, Session 1	Observing the Whole Display	3.OA.1	3.MP.2
	Module 3, Session 3	Cat Food Catastrophe, Part 1	Supports 3.OA, 3.OA.1, 3.OA.9	3.MP.7
4	Module 1, Session 2	Grams & Kilograms	Supports 3.MD	3.MP.1
	Module 3, Session 3	Exploring with Pattern Blocks	3.NF.1, 3.G.2	3.MP.8
	Module 4, Session 2	Gathering & Recording Sunflower Data		3.MP.7
5	Module 1, Session 4	Revisiting the Pet Store	3.OA.3	3.MP.1
	Module 2, Session 3	Examining the Array	3.OA.4	3.MP.7
8	Module 1, Session 1	Know, Wonder and Learn		3.MP.1

Number String

Number strings engage students in solving a short "string" of 4–6 related problems. These problems are carefully selected and sequenced to elicit a particular strategy or illustrate a particular mathematical concept. Students work mentally, using information from the previous problem(s) to help solve each new problem in the string. The teacher uses labeled sketches, expressions, and equations to represent student thinking. Often, at the end of the string, the teacher works with students to summarize the strategy in their own words.

Unit	Lesson	Activity	Standard	SMP
1	Module 3, Session 4	Add a Friendly Number	2.NBT.5	3.MP.7
	Module 3, Session 5	Get to a Friendly Number	2.NBT.5	3.MP.7
2	Module 1, Session 2	More Dog Bones	3.OA.1, 3.OA.3	3.MP.1, 3.MP.2
	Module 2, Session 3	Washing Windows	Supports 3.OA, 3.OA.1, 3.OA.7	3,MP.7
	Module 2, Session 4	More Windows for Wally	Supports 3.OA, 3.OA.1, 3.OA.7	3,MP.4 3.MP.8
	Module 2, Session 5	Sorting Mail	Supports 3.OA, 3.OA.1, 3.OA.7	3,MP.2, 3.MP.3
	Module 3, Session 1	Doubling	Supports 3.OA	3.MP.8
	Module 3, Session 2	Cats & Legs	Supports 3.OA, 3.OA.1	3,MP.7, 3.MP.8
	Module 3, Session 3	Doubles & More	Supports 3.OA, 3.OA.1, 3.OA.7, 3.OA.9	3,MP.7, 3.MP.8
3	Module 1, Session 3	Give & Take	3.NBT.2	3.MP.8
	Module 2, Session 2	Constant Difference	3.NBT.2	3,MP.7
7	Module 2, Session 1	Partial Products	3.OA.5, 3.NBT.3, 4.NBT.5	3.MP.7
	Module 2, Session 3	More Partial Products	3.OA.5, 3.NBT.3, 4.NBT.5	3.MP.8

Number Talk

Students solve a problem mentally, then use a hand signal to show that they have a solution. The teacher elicits and records their solutions without indicating whether any are correct. Students are then invited to share and explain their strategies. The teacher records these strategies on the board, using expressions, equations, and labeled sketches to represent student thinking as accurately as possible.

Unit	Lesson	Activity	Standard	SMP
1	Module 1, Session 3	Number Talk	2.NBT.5, 3.OA.9	3.MP.3
	Module 1, Session 5	Number Talk	2.NBT.5, 3.OA.9	3.MP.3
	Module 2, Session 2	Number Talk	2.NBT.5, 3.OA.9	3.MP.3
	Module 3, Session 1	Number Talk	2.NBT.5	3.MP.3
3	Module 1, Session 1	Number Talk	3.NBT.2	3.MP.2
	Module 2, Session 1	Number Talk	Supports 3.OA, 3.NBT.2	3.MP.2
	Module 2, Session 3	Number Talk	3.NBT.2	3.MP.6

Open Strategy Sharing

Students share strategies arising from problems that can be solved in different ways. The teacher does not select, sequence, or anticipate which strategies will be shared. Instead, students are invited and encouraged to share their reasoning while others ask questions and look for connections among strategies.

Unit	Lesson	Activity	Standard	SMP
2	Module 1, Session 1	Open Strategy Sharing	3.OA.1, 3.OA.3	3.MP.1, 3.MP.3
	Module 3, Session 1	Sharing Pet Store Solution Strategies	Supports 3.OA, 3.OA.3	3,MP.2, 3.MP.8
3	Module 4, Session 1	Sharing Strategies	3.OA.8, 3.NBT.2	3,MP.7, 3.MP.8
	Module 4, Session 3	Open Strategy Share	3.OA.8, 3.NBT.2	3.MP.3, 3,MP.5
5	Module 1, Session 5	Sharing Strategies	3.OA.6	3.MP.3
	Module 2, Session 1	Students Solve & Share Strategies	3.OA.3, 3.OA.4, 3.OA.6	3.MP.3
	Module 4, Session 5	Open Strategy Sharing	3.MD.7a, 3.MD.7b	3.MP.2
6	Module 3, Session 3	Open Strategy Share	3.MD.7b, 3.MD.8	3.MP.3
7	Module 2, Session 4	Modeling One-Digit by Two-Digit Multiplication	3.OA.5, 3.NBT.3, 3.MD.7b	3.MP.3

Problem Posing

Students engage in problem posing when they ask mathematical questions about an image or a particular problem situation, some of which they might choose to solve. Often, problem posing serves as a formative assessment, as students ask and choose questions that are comfortable for them. Problem posing can occur at various points in a problem-solving process. It can occur when asking questions about a situation or an image, then during problem solving as students ask simpler or more challenging questions, and finally after problem solving when they ask new questions of interest based on the work they've already done.

Unit	Lesson	Activity	Standard	SMP
2	Module 1, Session 1	Students Solve in Pairs	3.OA.3	3.MP.2
	Module 1, Session 5	Problem Posing	3.OA.3	3.MP.2
4	Module 4, Session 2	Gathering & Recording Sunflower Data		3.MP.7
5	Module 1, Session 4	Revisiting the Pet Store	3.OA.3	3.MP.1

Quick Image

The quick image routine encourages students to compose and decompose quantities by attending to structures and patterns. Students are shown an image for about 3 seconds and then asked to identify or describe what they see. The visual is flashed again, giving students the opportunity to confirm or revise their thinking. On the third showing, the teacher leaves the visual on display while students share different ways of determining the quantity shown.

Unit	Lesson	Activity	Standard	SMP
5	Module 4, Session 1	Array Quick Images	3.OA.7	3.MP.7

Same & Different

Students compare and contrast two images with observable mathematical similarities and differences, calling attention to how the images are the same and how they are different.

Unit	Lesson	Activity	Standard	SMP
1	Module 3, Session 5	Same & Different	2.NBT.5	3.MP.7
2	Module 1, Session 5	Same & Different	3.OA.1	3.MP.3
3	Module 4, Session 2	Same & Different	3.NBT.2	3,MP.7
5	Module 2, Session 1	Same & Different	3.OA.3, 3.OA.4, 3.OA.6	3.MP.7
	Module 4, Session 5	Same & Different	3.MD.7a, 3.MD.7b, 3.MD.7c	3.MP.8
6	Module 2, Session 3	Same & Different	3.G.1	3.MP.7
	Module 3, Session 1	Same & Different	3.MD.7b, 3.MD.8	3.MP.1
	Module 3, Session 5	Same & Different	3.MD.7a, 3.MD.8	3.MP.3
7	Module 1, Session 2	Same & Different	3.OA.7	3.MP.3
	Module 2, Session 2	Same & Different	3.OA.5, 3.OA.7, 3.MD.7a	3.MP.7
	Module 3, Session 1	Same & Different	3.NF.1, 3.NF.2a, 3.NF.2b	3.MP.3
	Module 4, Session 3	Same & Different	3.MD.3	3.MP.7

What Comes Next?

Students analyze a sequence and determine the next item or value. They are asked to think quietly to themselves, then share their thinking with a partner, and finally share their reasoning with the group.

Unit	Lesson	Activity	Standard	SMP
3	Module 3, Session 2	What Comes Next?	Supports 3.NBT, 3.NBT.2	3.MP.2, 3,MP.7
5	Module 1, Session 3	What Comes Next?	3.OA.1	3.MP.7
	Module 4, Session 4	What Comes Next?	3.MD.6	3.MP.8
7	Module 1, Session 1	What Comes Next?	3.NBT.3	3.MP.8
	Module 1, Session 5	What Comes Next?	3.NBT.3	3.MP.8
	Module 4, Session 1	What Comes Next?	3.NF.1, 3.NF.2a	3.MP.8

Which One Doesn't Belong?

Students look at a set of four images and decide which one doesn't belong based on common characteristics. There are no incorrect responses, as there are mathematically justifiable reasons for eliminating any of the four images from the set.

Unit	Lesson	Activity	Standard	SMP
2	Module 3, Session 4	Which One Doesn't Belong?	Supports 3.OA, 3.OA.1	3,MP.7
3	Module 4, Session 1	Which One Doesn't Belong?	3.NBT.2	3,MP.7
4	Module 2, Session 4	Which One Doesn't Belong?	3.MD.1	3,MP.6, 3.MP.8
5	Module 1, Session 1	Which One Doesn't Belong?	3.OA.1	3.MP.7
	Module 4, Session 3	Which One Doesn't Belong?	3.MD.5b, 3.MD.6	3.MP.7
6	Module 1, Session 1	Which One Doesn't Belong?	3.G.1	3.MP.6
	Module 2, Session 1	Which One Doesn't Belong?	3.G.1	3.MP.6
	Module 4, Session 1	Which One Doesn't Belong?	3.MD.5a, 3.G.2	3.MP.3
7	Module 4, Session 2	Which One Doesn't Belong?	3.G.2	3.MP.3

bridges® in mathematics

Routines in Bridges in Mathematics
Grade 4

Choral Counting

Choral counting provides opportunities for students to practice skip-counting and identify patterns and structures in our number system. Students count together as a class while the teacher records the count on the board in a predetermined arrangement. The teacher pauses periodically to ask students what they notice or to predict the next number in the sequence. When the count is complete, the teacher invites students to share observations, focusing on patterns and relationships among the numbers.

Unit	Lesson	Activity	Standard	SMP
3	Module 1, Session 6	Choral Counting	4.OA. 5	4.MP.7
	Module 2, Session 5	Counting Halves	4.NF.3a, 4.NF.3c	4.MP.7
4	Module 3, Session 3	Counting Time	4.MD.1, 4.OA.5	4.MP.7

Compare & Connect

Compare and connect discussions can occur when most students have solved a given problem. The teacher selects several students to share their solution strategies. As each strategy is shared, students listen carefully, ask clarifying questions, and watch for ways in which the strategies are similar or different. After two or more strategies have been shared, students describe some ways in which the strategies are similar and others in which they're different.

Unit	Lesson	Activity	Standard	SMP
2	Module 2, Session 1	Compare & Connect	4.NBT.5, 4.NBT.6	4.MP.1
	Module 3, Session 5	Compare & Connect	4.NBT.5, 4.MD.2	4.MP.3
7	Module 1, Session 3	Ordering Fractions	4.NF.2	4.MP.1

Gallery Walk

Individual or group work is displayed around the room or at tables. The teacher defines the purpose for the walk by providing students a note-taking form to collect information or by providing questions to consider while viewing their peers' work. Students find similarities and differences across the work. The teacher then invites them to ask questions and make conjectures about those similarities and differences.

Unit	Lesson	Activity	Standard	SMP
1	Module 2, Session 2	Exploring Prime & Composite Numbers	4.OA.4	4.MP.3
2	Module 2, Session 5	Gallery Walk	4.OA.5	4.MP.3
5	Module 4, Session 1	Gallery Walk	4.MD.5	4.MP.3
6	Module 2, Session 5	Gallery Walk	4.MD.3	4.MP.1, 4.MP.3
8	Module 3, Session 1	Planning Our New Playground	4.MD.3	4.MP.3
	Module 3, Session 3	Drawing Our Playground to Scale	4.MD.3	4.MP.3

I Have, You Need

The teacher specifies a total and gives one addend. Students supply the number required to reach the total. Using a call-and-response format, the teacher says, "I have _____," and students respond, "You need _____."

Unit	Lesson	Activity	Standard	SMP
4	Module 1, Session 4	I Have, You Need	4.NBT.4	4.MP.7
	Module 4, Session 1	I Have, You Need	4.NBT.4	4.MP.7
	Module 4, Session 2	I Have, You Need More Bounces	4.NBT.4	4.MP.7

Math Forums

Math forums are a structured time for students to share and discuss their work. Prior to conducting a forum, the teacher reviews students' work. Then they carefully select and sequence the students who will share to help the rest of the class develop a deeper understanding of concepts and strategies. The other students listen to the strategies, compare their classmates' work to their own, and ask questions to better understand one another's ideas.

Unit	Lesson	Activity	Standard	SMP
1	Module 1, Session 6	Division Situations	3.OA.3, 4.NBT.6,	4.MP.3
2	Module 3, Session 2	Multiplication Models & Strategies	4.NBT.5	4.MP.3
	Module 4, Session 3	Division Problem Situations	4.NBT.6	4.MP.3
3	Module 2, Session 6	Project Clay	4.NF.3a, 4.NF.3c, 4.NF.4a	4.MP.1, 4.MP.3
4	Module 2, Session 4	Subtraction Strategies	4.NBT.1, 4.NBT.4	4.MP.3, 4.MP.5
5	Module 4, Session 3	Angle Measurement	4.MD.7	4.MP.1, 4.MP.3
6	Module 2, Session 2	Area Challenges	4.NBT.5, 4.NBT.6	4.MP.3

Number String

Number strings engage students in solving a short "string" of 4–6 related problems. These problems are carefully selected and sequenced to elicit a particular strategy or illustrate a particular mathematical concept. Students work mentally, using information from the previous problem(s) to help solve each new problem in the string. The teacher uses labeled sketches, expressions, and equations to represent student thinking. Often, at the end of the string, the teacher works with students to summarize the strategy in their own words.

Unit	Lesson	Activity	Standard	SMP
1	Module 1, Session 2	Number Lines	4.OA.2	4.MP.2
	Module 1, Session 3	Ratio Table	4.OA.2, 4.NBT.5	4.MP.1, 4.MP.2
	Module 2, Session 4	One More or One Less	3.OA.5	4.MP.7
4	Module 1, Session 4	Give & Take	4.NBT.4	4.MP.8
	Module 2, Session 1	Take Away or Find the Difference?	4.NBT.4	4.MP.3, 4.MP.5
6	Module 1, Session 2	Doubling & Halving	4.NBT.5	4.MP.8
	Module 1, Session 3	An Over Strategy	4.NBT.5	4.MP.8

Open Strategy Sharing

Students share strategies arising from problems that can be solved in different ways. The teacher does not select, sequence, or anticipate which strategies will be shared. Instead, students are invited and encouraged to share their reasoning while others ask questions and look for connections among strategies.

Unit	Lesson	Activity	Standard	SMP
4	Module 2, Session 3	Monumental Subtraction	4.NBT.4	4.MP.2, 4.MP.3
5	Module 3, Session 3	Mrs. Cho's Deck	4.MD.3	4.MP.3
6	Module 1, Session 1	Introducing Work Place 6A Give Me More Multiplication	4.NBT.5	4.MP.3
	Module 2, Session 3	Perimeter Challenges	4.NBT.4, 4.MD.3	4.MP.3

Same & Different

Students compare and contrast two images with observable mathematical similarities and differences, calling attention to how the images are the same and how they are different.

Unit	Lesson	Activity	Standard	SMP
5	Module 1, Session 3	Interior & Exterior Angles	4.MD.5	4.MP.2
	Module 1, Session 4	Angle Puzzles	4.MD.7	4.MP.2
6	Module 1, Session 6	Same & Different	4.NBT.5, 4.NBT.6	4.MP.2
	Module 4, Session 3	Money Pieces	4.NF.1	4.MP.3
7	Module 3, Session 2	Same & Different	4.NBT.5	4.MP.3
	Module 4, Session 2	Multiplication Strategies	4.NBT.5	4.MP.3

What Comes Next?

Students analyze a sequence and determine the next item or value. They are asked to think quietly to themselves, then share their thinking with a partner, and finally share their reasoning with the group.

Unit	Lesson	Activity	Standard	SMP
7	Module 1, Session 5	Fraction Bar Patterns	4.NF.1, 4.NF.2	4.MP.8

What's Best & Why?

In this discussion structure, students are asked to consider two strategies or models for solving the same problem. They decide which one is best for the situation and justify their choice.

Unit	Lesson	Activity	Standard	SMP
4	Module 1, Session 6	Think Before You Add	4.OA.3, 4.NBT.4	4.MP.3
	Module 2, Session 5	Comparing Subtraction Strategies	4.NBT.4	4.MP.3
7	Module 4, Session 3	Think Before You Multiply	4.NBT.5	4.MP.3

Which One Doesn't Belong?

This activity begins with students looking at a set of four images. They determine which one doesn't belong based on common characteristics. There are no incorrect responses, since there are mathematically justifiable reasons for eliminating any of the four images from the set.

Unit	Lesson	Activity	Standard	SMP
5	Module 2, Session 3	Line Symmetry	4.G.3	4.MP.3
6	Module 1, Session 1	Which One Doesn't Belong?	4.NBT.5	4.MP.3

Would You Rather?

Would You Rather questions present students with two mathematical situations and invite them to choose which situation they prefer. Students need to clearly communicate their reasoning and justify their choice.

Unit	Lesson	Activity	Standard	SMP
1	Module 1, Session 1	Would You Rather?	4.NF.2	4.MP.3
6	Module 1, Session 4	Would You Rather?	4.NBT.6	4.MP.3

bridges in mathematics

Routines in Bridges in Mathematics
Grade 5

Compare & Connect

Compare and connect discussions can occur when most students have solved a given problem. The teacher selects several students to share their solution strategies. As each strategy is shared, students listen carefully, ask clarifying questions, and watch for ways in which the strategies are similar or different. After two or more strategies have been shared, students describe some ways in which the strategies are similar and others in which they're different.

Unit	Lesson	Activity	Standards	SMP
4	Module 3, Session 6	Multiplication Strategy Review	5.NBT.5, 5.NF.4a	5.MP.1
5	Module 3, Session 1	Solving Fraction Problem Situations	5.NF.4a	5.MP.2
7	Module 2, Session 2	Division Problem Situations Compare & Connect	5.NBT.6, 5.NBT.7a, 5.NBT.7b, 5.NBT.7c	5.MP.2, 5.MP.3

Gallery Walk

Individual or group work is displayed around the room or at tables. The teacher defines the purpose for the walk by providing students a note-taking form to collect information or by providing questions to consider while viewing their peers' work. Students find similarities and differences across the work. The teacher then invites them to ask questions and make conjectures about those similarities and differences.

Unit	Lesson	Activity	Standards	SMP
1	Module 1, Session 4	Meet BRADco	5.MD.3a	5.MP.3
2	Module 3, Session 4	Fraction Models Poster	5.NF.1	5.MP.3
8	Module 1, Session 6	Building a Solar Collector	5.NF.5a, 5.NF.5b	5.MP.3
	Module 4, Session 3	Reviewing Our Work with Solar Houses		5.MP.3

I Have, You Need

The teacher specifies a total and gives one addend. Students supply the number required to reach the total. Using a call-and-response format, the teacher says, "I have _____," and students respond, "You need _____."

Unit	Lesson	Activity	Standards	SMP
3	Module 1, Session 3	Multiplying & Dividing by 10		5.MP.7
	Module 1, Session 5	Decimal Values	5.NBT.7	5.MP.7
	Module 2, Session 4	I Have, You Need Decimals	5.NBT.7	5.MP.7

Math Forums

Math forums are a structured time for students to share and discuss their work. Prior to conducting a forum, the teacher reviews students' work. Then they carefully select and sequence the students who will share to help the rest of the class develop a deeper understanding of concepts and strategies. The other students listen to the strategies, compare their classmates' work to their own, and ask questions to better understand one another's ideas.

Unit	Lesson	Activity	Standards	SMP
1	Module 2, Session 2	BRADco Math Forum	5.MD.3a, 5.MD.5c	5.MP.3, 5.MP.7
3	Module 3, Session 4	Decimal Subtraction	5.NBT.7, 5.MD.1	5.MP.2
4	Module 1, Session 4	Sahra's Sambusas	5.NBT.7, 5.NF.4a	5.MP.2
5	Module 3, Session 2	Multiplying Fractions	5.NF.4a, 5.NF.4b	5.MP.2
7	Module 1, Session 3	Fruit Pizza	5.NBT.6, 5.NF.3, 5.NBT.7b, 5.NBT.7c	5.MP.2, 5.MP.3

Number String

Number strings engage students in solving a short "string" of 4–6 related problems. These problems are carefully selected and sequenced to elicit a particular strategy or illustrate a particular mathematical concept. Students work mentally, using information from the previous problem(s) to help solve each new problem in the string. The teacher uses labeled sketches, expressions, and equations to represent student thinking. Often, at the end of the string, the teacher works with students to summarize the strategy in their own words.

Unit	Lesson	Activity	Standards	SMP
1	Module 2, Session 1	Doubling & Halving	4.NBT.5, 5.NF.5a	5.MP.8
	Module 3, Session 1	The Over/Under Strategy	4.NBT.5, 5.OA.1	5.MP.1, 5.MP.6
	Module 3, Session 3	Half 10/Half 100	4.NBT.5, 5.OA.1	5.MP.8
2	Module 2, Session 1	Multiplying Whole Numbers by Fractions	5.NF.4a	5.MP.2
3	Module 1, Session 1	Give & Take Number String	5.NBT.7	5.MP.6, 5.MP.7
	Module 1, Session 2	Another Give & Take Number String	5.NBT.7	5.MP.7
	Module 2, Session 2	Decimal Subtraction	5.NBT.7	5.MP.1
	Module 2, Session 6	Constant Difference	5.NBT.7	5.MP.8
	Module 2, Session 7	More Constant Difference	5.NBT.7	5.MP.8
4	Module 1, Session 1	Multiplying to Divide	5.NBT.5	5.MP.1
	Module 1, Session 2	Using the Half 10 Strategy	5.NBT.5	5.MP.1
	Module 1, Session 3	Doubling & Halving, Part 1	5.NBT.5	5.MP.8
	Module 1, Session 4	Doubling & Halving, Part 2	5.NBT.5	5.MP.8
	Module 2, Session 1	Multiplying Fractions, Decimals & Whole Numbers	5.NBT.7	5.MP.3
	Module 2, Session 2	Multiplication Relationships	5.NBT.7	5.MP.1
5	Module 1, Session 2	Fractions & the Commutative & Associative Properties	5.NF.4a	5.MP.2
6	Module 4, Session 1	Doubling & Halving with Banners	5.NF.4a, 5.NF.4b	5.MP.8

Number String continued

Unit	Lesson	Activity	Standards	SMP
7	Module 1, Session 1	Equivalent Ratios, Part 1	5.NBT.6	5.MP.1, 5.MP.2
	Module 1, Session 3	Interpreting Fractions as Division	5.NF.3	5.MP.2
	Module 1, Session 4	Partional Quotients	5.NBT.2, 5.NBT.6	5.MP.1, 5.MP.2
	Module 1, Session 5	Multiplying to Divide & Partial Quotients	5.NBT.6	5.MP.1
	Module 1, Session 6	Equivalent Ratios, Part 2	5.NF.4a	5.MP.2
	Module 2, Session 1	Fraction Division with Money	5.NBT.7a, 5.NBT.7b, 5.NBT.7c	5.MP.1, 5.MP.8
	Module 2, Session 3	Fraction Division on a Clock	5.NBT.7a, 5.NBT.7b, 5.NBT.7c	5.MP.5, 5.MP.8
	Module 3, Session 1	Exponents & Powers of 10	5.NBT.2	5.MP.7, 5.MP.8

Open Strategy Sharing

Students share strategies arising from problems that can be solved in different ways. The teacher does not select, sequence, or anticipate which strategies will be shared. Instead, students are invited and encouraged to share their reasoning while others ask questions and look for connections among strategies.

Unit	Lesson	Activity	Standards	SMP
4	Module 2, Session 3	Flexibly Using Ratio Tables	5.NBT.7	5.MP.1
5	Module 1, Session 4	Strategy Poster	5.NF.4a	5.MP.3
7	Module 2, Session 4	Open Strategy Sharing	5.NBT.6	5.MP.3,

Same & Different

Students compare and contrast two images with observable mathematical similarities and differences, calling attention to how the images are the same and how they are different.

Unit	Lesson	Activity	Standards	SMP
2	Module 1, Session 3	Same & Different - Fraction Operations	5.NF.1	5.MP.2
7	Module 2, Session 5	Same & Different — Problem Situations	5.NBT.6, 5.NF.3	5.MP.1, 5.MP.2

What's Best & Why?

In this discussion structure, students are asked to consider two strategies or models for solving the same problem. They decide which one is best for the situation and justify their choice.

Unit	Lesson	Activity	Standards	SMP
2	Module 1, Session 5	What's Best and Why	5.NF.1	5.MP.3
3	Module 2, Session 1	What's Best and Why	5.NBT.7	5.MP.3
6	Module 3, Session 5	What's Best & Why? Volume Formulas	5.NF.5a, 5.NF.5b	5.MP.3