

Common Core Operations and Algebraic Thinking in Bridges, Grades K–2

Kindergarten	Grade One	Grade Two
Instructional Focus: <ul style="list-style-type: none"> Describe, copy, extend, and create repeating and growing patterns Represent and solve addition and subtraction story problems to 10 Add and subtract within 10 Develop fluency with addition and subtraction facts to 5 	Instructional Focus: <ul style="list-style-type: none"> Describe, copy, extend, and create repeating and growing patterns Add & subtract story problems to 20 with unknowns in all positions Understand the meaning of the equal sign, and work with equations Add and subtract within 20, using strategies and properties of operations Develop fluency with addition and subtraction facts to 10 	Instructional Focus: <ul style="list-style-type: none"> Describe, copy, extend, and create number & shape patterns Add & subtract story problems to 100 with unknowns in all positions Develop fluency with addition and subtraction facts to 20 Odd and even numbers Work with equal groups of objects to gain foundations for multiplication

Resources in Bridges: Bridges: Units-Nov., Feb., Mar., Apr., May, June Number Corner: Dec.-May Supplement Sets: A4	Resources in Bridges: Bridges: Unit 1, Unit 2, Unit 3, Unit 4 Number Corner: September – May/June Supplement Sets: A3, A4, A9, B1	Resources in Bridges: Bridges: Unit 1, Unit 2, Unit 3, Unit 5 Number Corner: September – May/June Supplement Sets: A1, A2, A7, A9
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Kindergartners

- Discover and describe patterns, and use them to make predictions on the calendar each month during Number Corner.

This Month's Pattern Is

• Copy, extend, and create patterns.

- Use objects, drawings and numbers to solve story problems and develop understandings of addition & subtraction.

Frogs Picture Problem 3

6 frogs were sitting on the log. Some jumped into the water. How many frogs are in the water?

- Play games to add and subtract to 10 and develop fluency with addition and subtraction facts to 5.

Name: JASON

Fives Up Record Sheet

I won 8 cards. My partner won 12 cards.

I won more cards than my partner. YES NO

I won less cards than my partner. YES NO

I won the same number of cards as my partner. YES NO

Here are three different ways to make 5:

0 0 4 + 1 2 2 1

Common Core Standards Addressed:
 CCSS K.OA.1 – K.OA.5

First Graders

- Discover and describe patterns, and use them to make predictions on the calendar each month during Number Corner.

• Write and solve equations with unknowns.

$$\begin{array}{l} 6 + \square = 10 \\ 4 + \square = 10 \\ 10 = 6 + \square \\ 10 - 4 = \square \\ 10 - \square = 4 \end{array}$$

- Develop fact strategies and play games to develop fluency with addition & subtraction facts to 10.

Download 4.2 Attach spinner prizes to each of the spinner decks.

10	17	10	●
11	●	20	12
12	15	19	13
13	14	●	14

11	20	●	13
●	19	14	13
18	14	●	16
12	17	11	10

Common Core Standards Addressed:
 CCSS 1.OA.1 – 1.OA.8

Second Graders

- Discover and describe patterns, and use them to make predictions on the calendar each month during Number Corner.

• Use sketches, words, and equations to model and solve one-and two-step story problems.

- Use addition and multiplication to describe growing number patterns

It was Christmas and Santa brought 32 presents for 2 kids. Each kid got the same amount. How many presents did each kid get? by John

16 32 ÷ 2 = 16

John, I knew that 15 + 15 = 30

30 + 2 = 32 ÷ 2 = 16 Alec B.

Snow People 3's Chart

1		3 circles	1 × 3 = 3
2		3 + 3 = 6 circles	2 × 3 = 6
3			3 × 3 = 9
4		3 + 3 + 3 = 12 circles	4 × 3 = 12
5		3 + 3 + 3 + 3 = 15 circles	5 × 3 = 15
6		3 + 3 + 3 + 3 + 3 = 18 circles	6 × 3 = 18

Common Core Standards Addressed:
 CCSS 2.OA.1 – 2.OA.4

Common Core Operations and Algebraic Thinking in Bridges, Grades 3–5

Grade Three

Instructional Focus:

- Identify and explain arithmetic patterns
- Solve two-step story problems involving the four operations
- Represent and solve story problems involving multiplication & division
- Understand properties of multiplication, relationship between mult. & div.
- Multiply and divide within 100

Resources in Bridges:

Bridges: Unit 1, Unit 2, Unit 4, Unit 5, Unit 7
 Number Corner: September – May/June
 Supplement Sets: A1, A2, A3, A6, A7

Grade Four

Instructional Focus:

- Generate and analyze number and shape patterns
- Use the four operations with whole numbers to solve problems
- Use equations with a letter standing for the unknown quantity
- Gain familiarity with factors and multiples

Resources in Bridges:

Bridges: Unit 1, Unit 2, Unit 3, Unit 7
 Number Corner: September – May/June
 Supplement Sets: A4, A5, A6, B1, B2

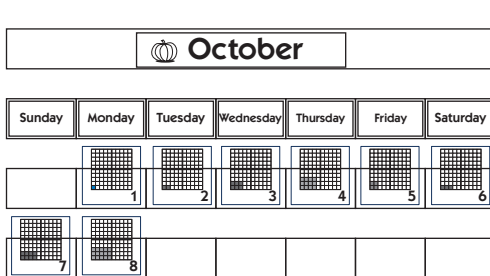
Grade Five

Instructional Focus:

- Analyze patterns and relationships
- Graph ordered pairs on a coordinate grid
- Write and interpret numerical expressions
- Gain familiarity with order of operations

Resources in Bridges:

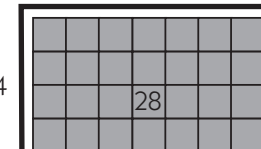
Bridges: Unit 1, Unit 2, Unit 7
 Number Corner: September – May/June
 Supplement Sets: A10, B1



Marker	Height	Length	Area	Square?	Color
1	1	1	1	yes	blue
2	1	2	2		green
3	2	3	6		green
4	3	4	12		purple
5	2	2	4	yes	blue
6	1	3	3		green
7	2	4	8		green
8	3	5	15		purple

• Discover and describe patterns, and use them to make predictions on the calendar each month during Number Corner.

• Use tile arrays to explore the relationship between multiplication and division.




$4 \times 7 = 28$


$28 \div 4 = 7$ $4 \overline{)28}$

• Use sketches, words, and equations to model and solve two-step story problems involving all 4 operations.

The Snowboard and Ski computer games will be available this Friday. 3 friends want the Snowboard Game and 4 friends want the Ski Game. The Snowboard Game costs \$11.00 and the Ski Game costs \$15.00. How much money will your friends spend in all?



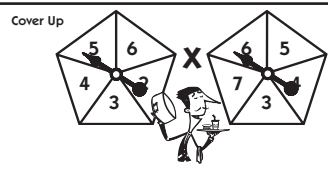
$11 + 11 + 11 = 33$



four 5's is 20
four 10's is 40
 $20 + 40 = 60$

$\$60 + \$33 = \$93$

• Develop fact strategies and play games to develop fluency with multiplication facts to 100.



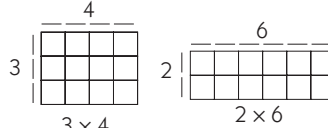
Teacher	35
Students	28

Teacher	15
Students	24

Fourth Graders

• Discover and describe patterns, and use them to make predictions on the calendar each month during Number Corner.

• Build and analyze tile arrays to investigate factors and prime & composite numbers.

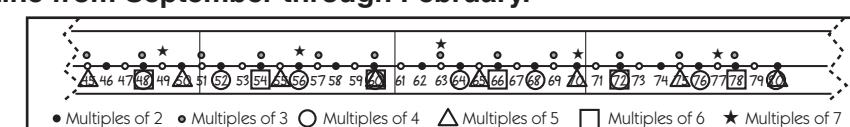


3×4 2×6

1×12

"12 is composite. Its factors are 1, 2, 3, 4, 6, and 12."

• Mark and discuss multiples of 2–10 on the Days of School Number Line from September through February.

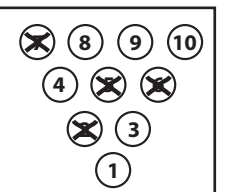


• Multiples of 2 • Multiples of 3 ○ Multiples of 4 △ Multiples of 5 □ Multiples of 6 ★ Multiples of 7

• Solve and create equations with a letter or box standing for the unknown quantity in the context of games and puzzles.

Jon M.
Roll: 4, 3, and 5

$4 \times 3 - 5 = 7$
 $(3 + 5) \div 4 = 2$
 $5 \times (4 - 3) = 5$
 $5 + 4 - 3 = 6$

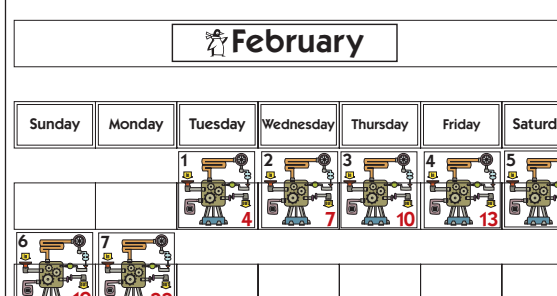


Mystery Roll by Jon M.

$4 \times \square - 5 = 7$
 $(\square + 5) \div 4 = 2$
 $5 \times (4 - \square) = 5$

What was my third roll?

February



Input Number	Output Number	Observations & Predictions
1	4	Maybe it'll add 3 each time.
2	7	Now it added 5, not 3.
3	10	It added 7 this time.
4	13	Every new number on the Out side is 3 more than the one before.
5	16	Tomorrow it will be 10, and the day after, it will be 22. It's always 3 more.
6	19	It goes up by 1 on the In number and by 3 on the Out number.
7	22	The Out number is way more than double the In number. It's more like 3 times the In number.

February Calendar Record Sheet

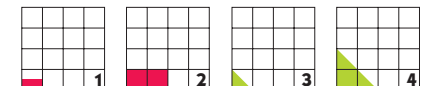
Fifth Graders

• Discover and describe patterns, and use them to make predictions on the calendar each month during Number Corner.


October Calendar Grid Record Sheet

Date	Shape Name	Area in square units	Other Observations
1	rectangle	$\frac{1}{2}$ sq. unit	It's really little, and just takes up half a square unit.
2	rectangle	2 sq. units	This shape looks the same as the first one. It's similar but bigger.
3	right triangle	$\frac{1}{2}$ sq. unit	It's easy to see that this shape is half a square unit.
4	right triangle	2 sq. units	This triangle takes up one whole square and 2 halves.

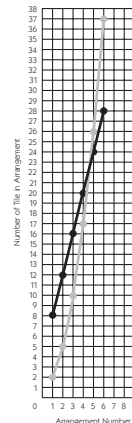
Tile Sequence 1 page 1 of 2



Tile Sequence 2 page 1 of 2



Make n columns of n and add 1 extra tile. Make a square that's $n \times n$ and then add 1 extra tile. $n \times n + 1$ will give you the number of tile in any arrangement.



Number of Tiles in Arrangement

Arrangement Number

• Analyze patterns and relationships in the context of tile sequences. Write numerical & algebraic expressions to represent the arrangements and graph them.

Red Team

1	$A + 15 = 45$
	$A \div B = 5$
	$(A + B) - C = 20$
A = 30	B = 6 C = 16
3	$A \div 7 = 2$
	$A - B = 8$
	$(A + B) \div C = 5$
A = 14	B = 6 C = 4

Red Team Total Score _____

Blue Team

2	$A \times 4 = 12$
	$A + B = 20$
	$(B - A) \div C = 2$
A = 3	B = 17 C = 7
4	$100 - A = 25$
	$A \div B = 3$
	$(A - B) \div C = 5$
A = 75	B = 25 C = 10

Blue Team Total Score _____

Common Core Standards Addressed:
 CCSS 3.OA.1 – 3.OA.9

Common Core Standards Addressed:
 CCSS 4.OA.1 – 4.OA.5

Common Core Standards Addressed:
 CCSS 5.OA.1 – 5.OA.3