Math Skills Student Kits – Grade 2 Activities

These activities were selected for use with the Didax® Math Skills Student Kit for Grade 2 (item #211995). You can use the Bookmarks in this PDF file to navigate to the activities.

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STUDENT NAME .....

ADDITION

NUMBER AND OPERATIONS

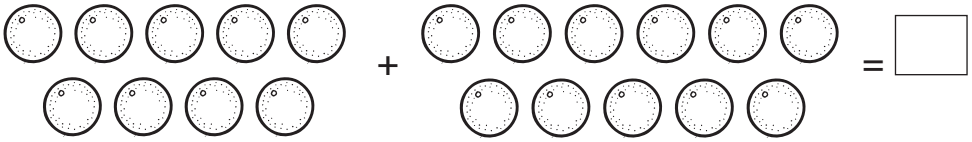
1. Solve the addition problem.

 = ☐

Write three more addition sentences that have the same sum.

(a) ____ + ____ = ____ (b) ____ + ____ = ____ (c) ____ + ____ = ____

2. Solve the addition problem.

 = ☐

Write three more addition sentences that have the same sum.

(a) ____ + ____ = ____ (b) ____ + ____ = ____

(c) ____ + ____ = ____

3. Write the missing numbers.

(a) 5 + 7 = ____; ____ + 5 = 12 (b) ____ + 9 = 13; ____ + 4 = 13

(c) 6 + ____ = 10; 4 + ____ = 10 (d) 10 + ____ = 15; ____ + 10 = ____

4. (a) 20 + 5 = ____ (b) 90 + 8 = ____ (c) 30 + 9 = ____

(d) 70 + 6 = ____ (e) 40 + 9 = ____ (f) 90 + 10 = ____

5. Write the missing number.

(a) 9 + ☐ = 15 (b) 12 + ☐ = 22 (c) ☐ + 8 = 18

(d) ☐ + 4 = 12 (e) ☐ + 15 = 30 (f) 6 + ☐ = 26

6. (a) 22 + 13 = ____ (b) 34 + 25 = ____ (c) 41 + 38 = ____ (d) 79 + 20 = ____ (e) 82 + 16 = ____

7. (a) 123 + 112 = ____ (b) 220 + 235 = ____ (c) 612 + 184 = ____ (d) 403 + 295 = ____ (e) 135 + 640 = ____

ADDITION PROBLEMS

NUMBER AND OPERATIONS

STUDENT NAME .....

1. (a) 17 + 14 = ____ (b) 26 + 15 = ____ (c) 45 + 25 = ____ (d) 39 + 37 = ____ (e) 34 + 47 = ____

2. Write the number sentence and solve the addition problem.

(a) Kate had nine toys and Eve had seven. How many toys altogether?

☐ + ☐ = ☐ toys

(b) There were seven students in one group and 11 in another. How many students were there altogether?

☐ + ☐ = ☐ students

(c) There were 12 flowers on one plant and nine flowers on another. How many flowers were there altogether?

☐ + ☐ = ☐ flowers

3. Set the stories out as vertical addition problems and solve them.

(a) There are 24 students in one class and 25 in another. How many students are there altogether?

☐ ☐ students

(b) One team scored 28 goals and the other scored 26 goals. How many goals were scored altogether?

☐ ☐ goals

(c) Forty-five students ordered ham sandwiches and 39 students ordered chicken sandwiches. How many sandwiches were ordered altogether?

☐ ☐ sandwiches

(d) Jane scored 56 runs and Nadeem scored 27 runs. What was the total amount of runs scored?

☐ ☐ runs

SUBTRACTION

NUMBER AND OPERATIONS

STUDENT NAME .....

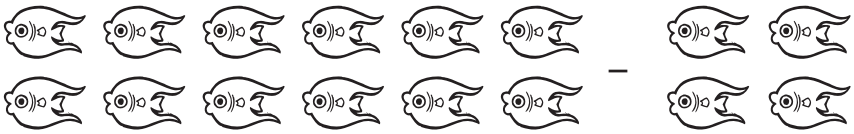
1. Solve the subtraction problem.

 = ☐

Write three more subtraction sentences with the same difference.

(a) ____ – ____ = ____ (b) ____ – ____ = ____ (c) ____ – ____ = ____

2. Solve the subtraction problem.

 = ☐

Write three more subtraction sentences with the same difference.

(a) ____ – ____ = ____ (b) ____ – ____ = ____ (c) ____ – ____ = ____

3. Write the missing numbers.

(a) 8 – 3 = ☐; ☐ – 5 = 3 (b) 9 – ☐ = 5; 9 – 4 = ☐

(c) 12 – ☐ = 4; 12 – ☐ = 8 (d) 13 – ☐ = 4; ☐ – 4 = ☐

4. (a) 20 – 10 = ____ (b) 50 – 20 = ____ (c) 40 – 10 = ____

(d) 60 – 60 = ____ (e) 70 – 40 = ____ (f) 80 – 20 = ____

5. Write the missing numbers.

(a) 10 – ____ = 3 (b) 15 – ____ = 9 (c) 20 – ____ = 16

(d) ____ – 18 = 2 (e) ____ – 10 = 12 (f) 39 – ____ = 9

6.

(a)	(b)	(c)	(d)	(e)
50	90	42	94	87
– 20	– 50	– 22	– 73	– 65
____	____	____	____	____

7.

(a)	(b)	(c)	(d)	(e)
76	242	340	455	364
– 75	– 121	– 120	– 105	– 123
____	____	____	____	____

SUBTRACTION PROBLEMS

NUMBER AND OPERATIONS

STUDENT NAME .....

1. (a) 35 − 16 = ____ (b) 44 − 28 = ____ (c) 62 − 35 = ____ (d) 75 − 38 = ____ (e) 56 − 29 = ____

2. Write the number sentences and solve the subtraction problems.

(a) Janet is 15 years old and Sam is nine years old.

How much older is Janet? ____ − ____ = ____ years

(b) There were 20 students and 11 were girls.

How many were boys? ____ − ____ = ____ boys

3. Set the stories out as vertical subtraction problems and solve them.

(a) There were 65 third-grade students altogether. If there were 33 in one class, how many were in the other class?

(b) Oliver had 48 pencils but lost 17 by the end of the year. How many did he have left?

(c) Lily and Amy made 26 cards. If Lily made 16, how many did Amy make?

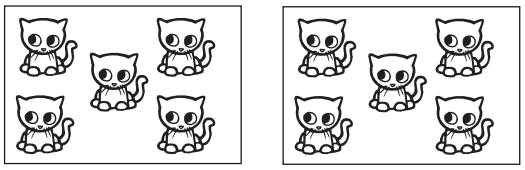
(d) Keisha had 51 emails. If she deleted 25, how many were left?

(e) Cooper's book is 50 pages long. If he has already read 24 pages, how many does he have left to read?

STUDENT NAME .....

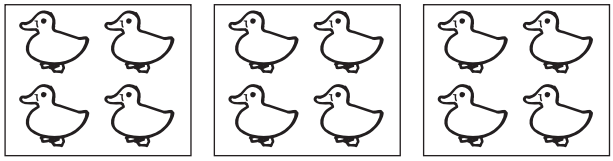
MULTIPLICATION

NUMBER AND OPERATIONS

1. (a) 

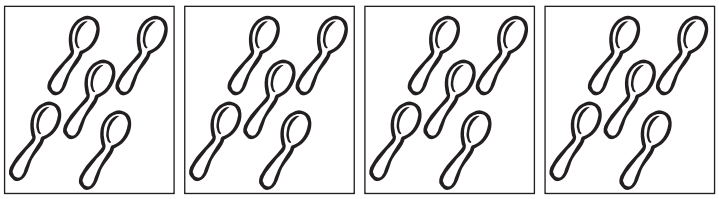
2 groups of 5 = ☐

2 x 5 = ☐

(b) 

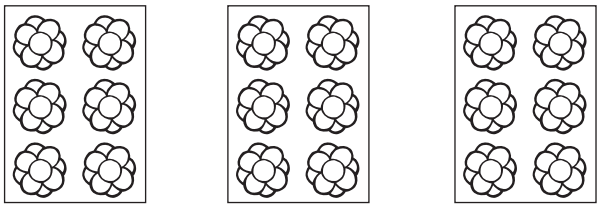
3 groups of 4 = ☐

3 x 4 = ☐

(c) 

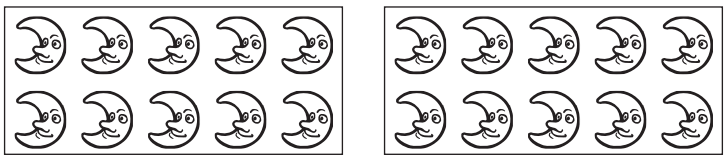
☐ groups of ☐ = ☐

☐ x ☐ = ☐

(d) 

☐ groups of ☐ = ☐

☐ x ☐ = ☐

(e) 

☐ groups of ☐ = ☐

☐ x ☐ = ☐

2. Write the missing number.

(a) 2 x ____ = 4 (b) ____ x 4 = 16 (c) ____ x 9 = 9

(d) 4 x ____ = 20 (e) ____ x 2 = 18 (f) 6 x 4 = ____

(g) 7 x ____ = 0 (h) ____ x 3 = 30 (i) 5 x ____ = 25

3. Write the number sentences and solve the multiplication problems.

(a) One car has four wheels.
How many wheels are on seven cars? ____ x ____ = ____ wheels

(b) One pizza has eight slices.
How many slices are in five pizzas? ____ x ____ = ____ slices

(c) Ten goldfish are in one tank.
How many goldfish are in four tanks? ____ x ____ = ____ goldfish

(d) How many wheels are on 8 bicycles? ____ x ____ = ____ wheels

2. Adding Tens to Tens and Ones to Ones

Base ten counting is a perfectly good strategy for adding, say, 32 to 21. But it doesn't emphasize the idea of adding tens to tens and ones to ones. We want children to treat 32 as 30 + 2 and 21 as 20 + 1 and separately add the tens and the ones.

Number of Students: Entire class

Materials

- Small collection of base ten blocks

What to Do

1. Pose an addition problem for the class—for example, display the equation 32 + 21 = ?
2. Call on a child to come to the front and hold up 3 tens to represent 30. Call on a second child to stand on the first child's left and hold up 2 ones.
3. Call on a third child to hold up 2 tens and a fourth child to hold up 1 one.
4. Call on a child to
   - rearrange the four children so the tens are side by side and the ones are side by side,[2]
   - add the tens (by any method) to get 50 and, separately,
   - add the ones (by any method) to get 3.

It should be easy for children to answer the question, "How much is 50 and 3?" But it may not be obvious that 53 is also the sum of 32 and 21. Have your students discuss this.

At some point introduce problems with more than 9 ones.

It should be clear how to generalize this activity to three- and even four-digit numbers.

2. The Math Standards would have you teach second-graders that it is "legal" to rearrange these numbers as a consequence of the commutative and associative properties of addition. I would save a discussion of these properties for the later grades.

Subtraction Activities

1. The First Step — Base Ten Counting

Sometimes subtraction is easier than addition!

Think about the problem 53 – 21 = ? Or, think about this story problem.

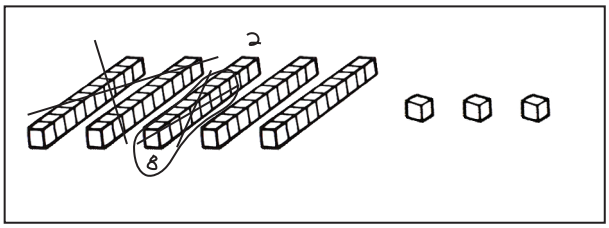
> Maxwell had 53 crayons. He gave 21 of his crayons to Jojo. How many crayons did Maxwell have left?

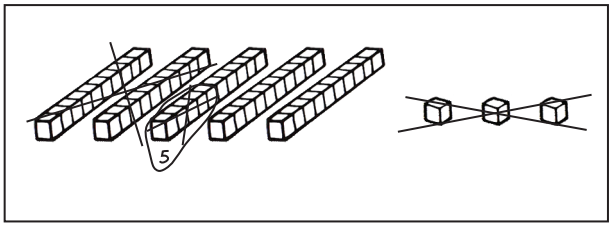
If children

- can represent 53 with 5 tens and 3 ones, and
- understand that in this situation they have to physically remove 2 of the tens and 1 of the ones, and
- can base ten count what remains, "ten, twenty, thirty, thirty-one, thirty-two,"

then those children already have a very useful strategy for solving many subtraction problems. The only real difficulty with this strategy is when "there aren't enough ones," as in 53 – 28.[3] In this case it will be easy for children to take 2 tens from 5 tens, but many will be stumped by the problem of taking away 8 ones when they only have 3.

Children who use base ten blocks, and who have not been taught any specific strategies, solve problems like 53 – 28 in one of two ways. They start by taking 2 tens from 5 tens. Some then take all 8 ones from one of the remaining tens, while others take away the 3 ones and then take an additional 5 ones from one of the remaining tens. Very rarely do children trade 1 ten for 10 ones on their own, so you may want to suggest that possibility also.





3. I am putting aside the problems that children have with more difficult story problems. For example, "Maxwell has 53 crayons and Jojo has 21. Maxwell has how many more crayons than Jojo?"

   It is usually not obvious to children that they can solve this problem by taking 2 tens and 1 one from 5 tens and 3 ones. This difficulty is unrelated to understanding base ten.

As with addition, the most basic activity is to pose subtraction problems and call on children to use base ten blocks to solve those problems using their own strategies.

Number of Students: 2 to 4

What to Do

1. Pose subtraction problems and call on children to use base ten blocks to solve those problems.
2. For children who need help when "there aren't enough ones," suggest one of the strategies described above.

Of course, these same strategies can be applied to larger numbers.

Materials

- Small collection of base ten blocks

2. Two-Digit Subtraction

This game will give children practice subtracting one- and two-digit numbers.

Number of Students: 2

What to Do

1. The players take turns rolling the die.
2. After each player rolls, he or she selects a single square and gives the bank some blocks from that square—some tens, some ones, or some of each. The total number of blocks given to the bank must exactly equal the number of pips showing on the die. Notice that this means, for example, that if a player rolls a 5 then the player can remove 5, or 14, or 23, or 32, or 41, or 50 from a square of their choice.
3. If a player is able to exactly remove all of the tens and all of the ones from his selected square, then he can claim the square and place one of his markers on it. The child who is able to claim three squares in a row, or columns, or on a diagonal wins the game.
4. A player who is unable to move loses his or her turn.

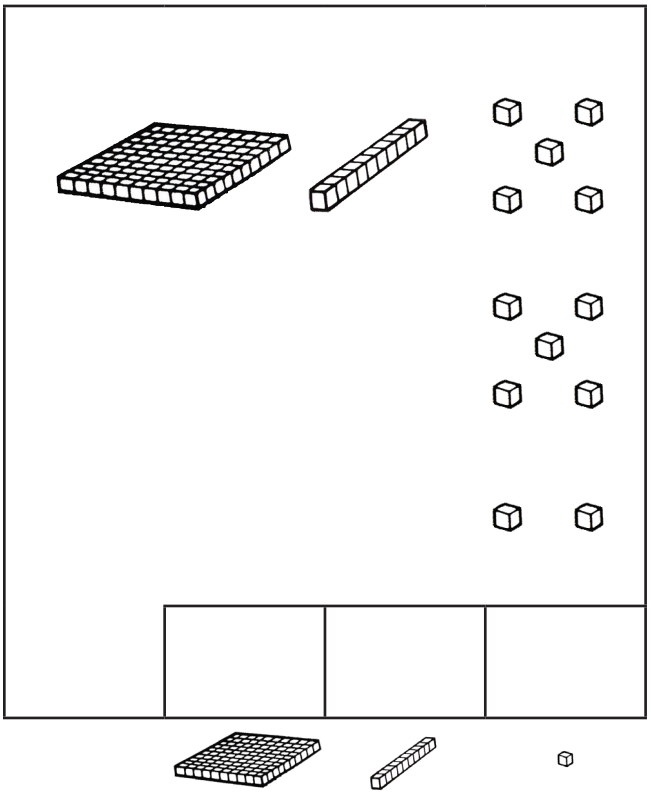
Have the children discuss their strategies. Not just their tic-tac-toe strategy, but also their strategies for choosing combinations of tens and ones to remove.

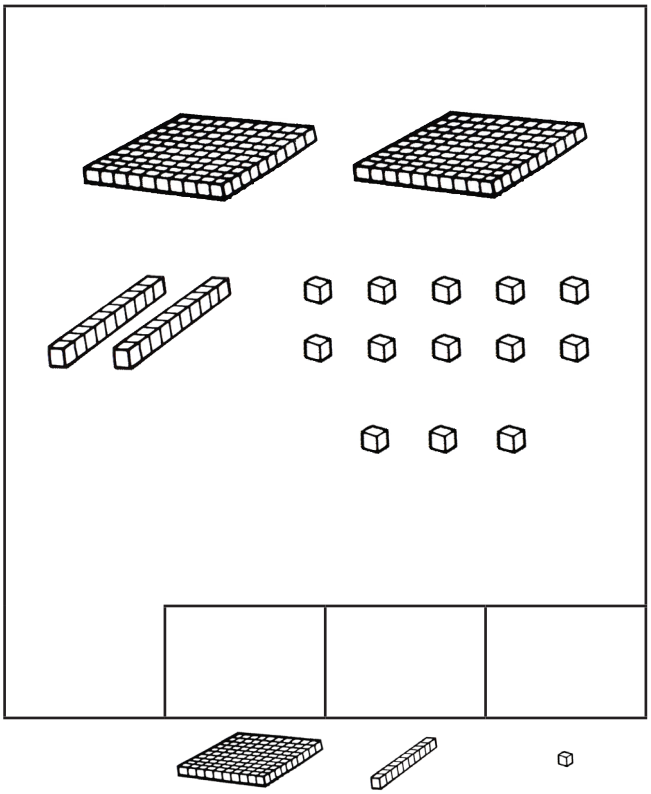
Materials

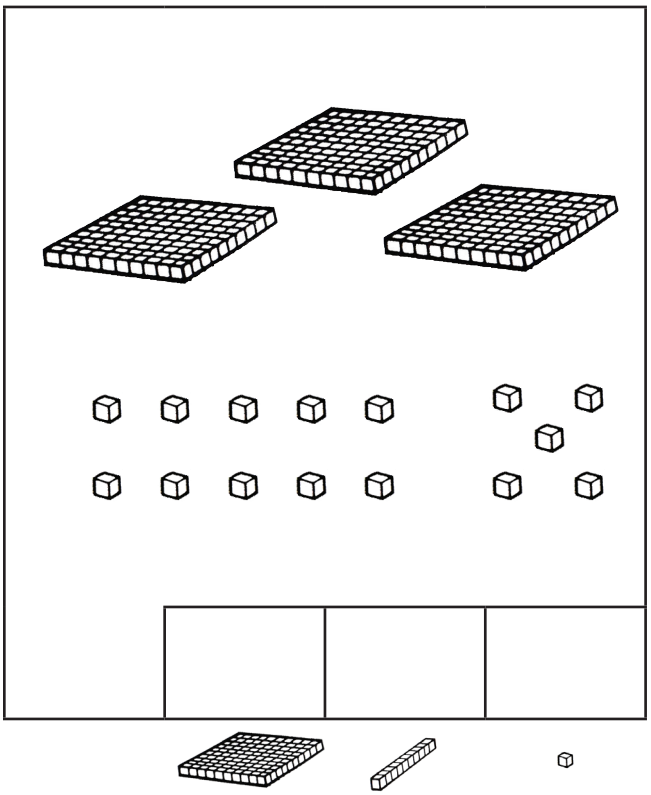
- Large tic-tac-toe board with 9 tens and 9 ones on each square
- Ordinary 6-sided die
- 2 sets of distinguishable markers, one set for each child

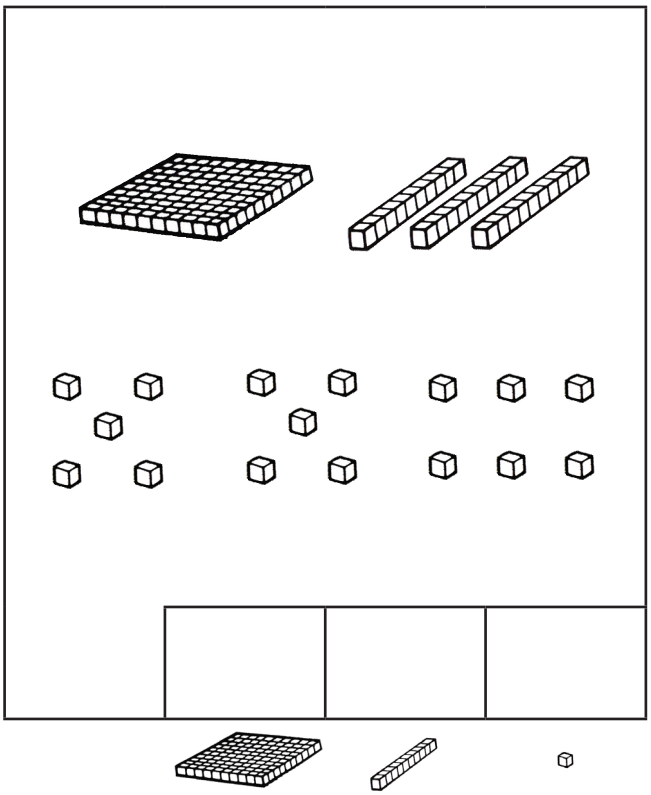
Name _____ Date _____

Write the numeral.



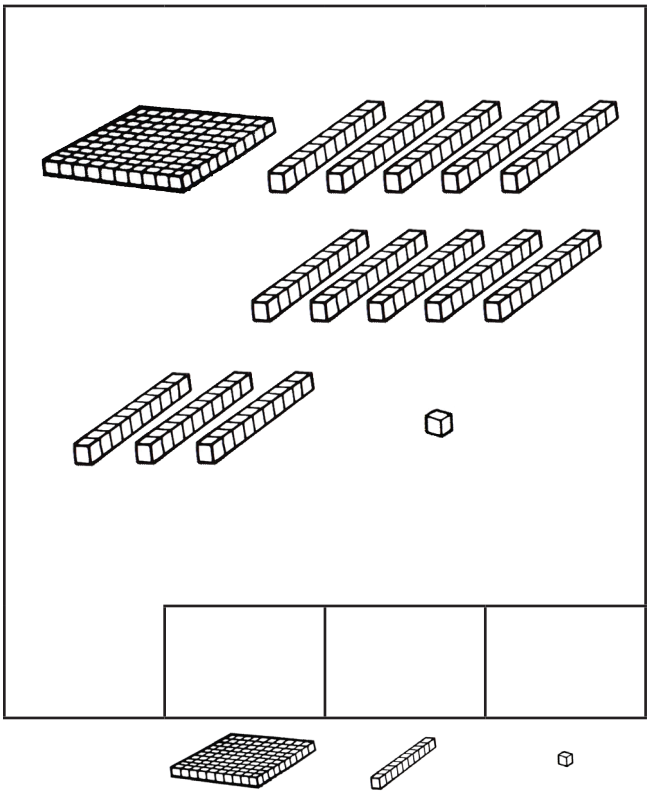


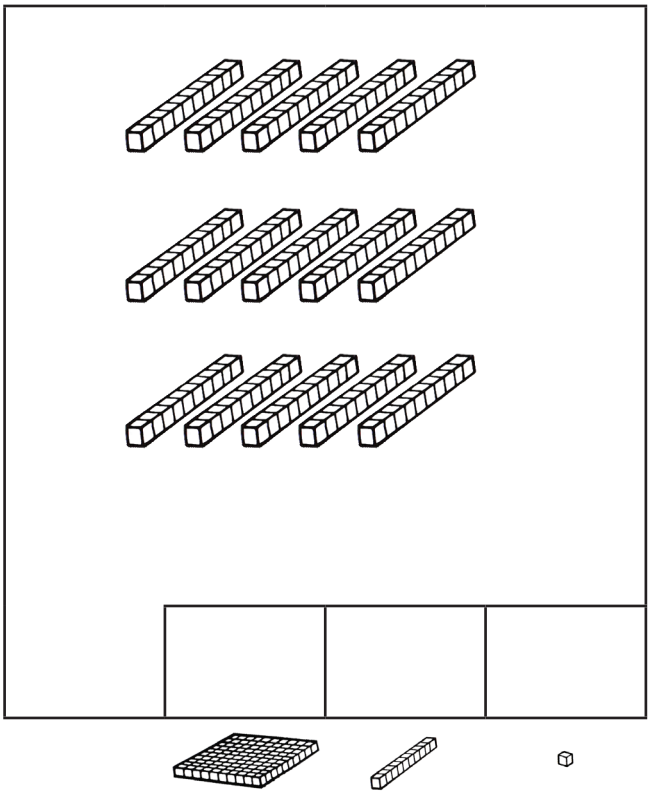


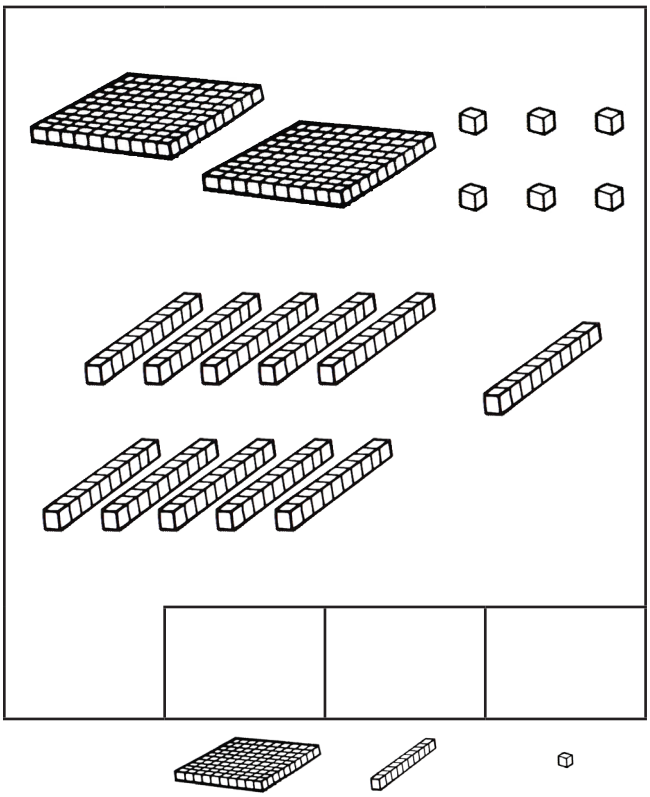


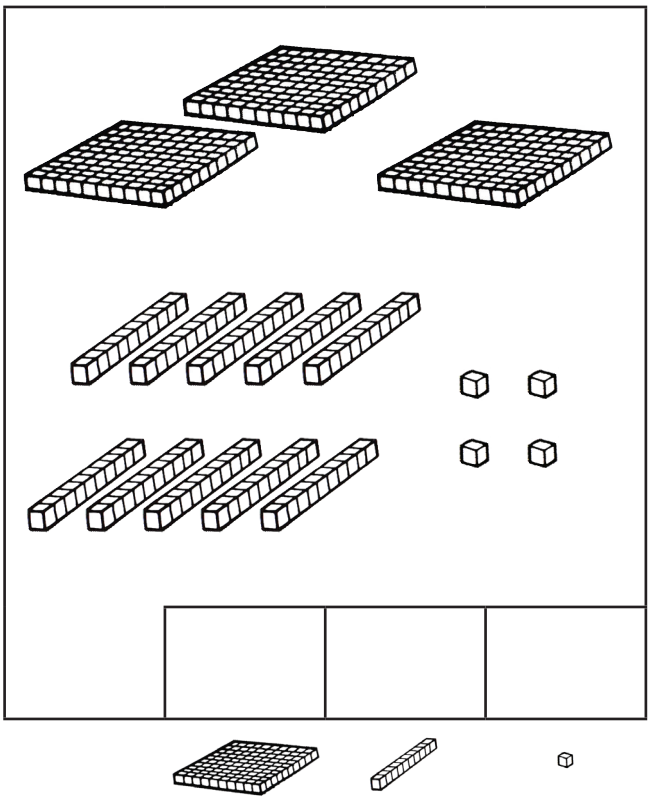
Name _____ Date _____

Write the numeral.









GAME 2–9

Three in Any Row – Addition

Learning Objectives

Add one-digit plus two-digit numbers and two-digit plus two-digit numbers in a game that requires attention to place value.

Content Standard

Fluently add . . . within 100, using strategies based on place value . . . (CCSSM: 2.NBT.5)

Prerequisite Skills

Students should have experience using an open number line and mental strategies for adding one- and two-digit numbers within 100 (Games 2-4 and 2-6).

Math Vocabulary

diagonal
difference
horizontal
subtract
vertical

General Vocabulary

English	Spanish
capture	*capturar*

Materials

For each pair of students:	Warm-Up	"Three in Any Row (+)" Game
• Deck of Number Cards 1–9 (page 70)	✓	✓
• Hundred Chart (game board) (page 73)		✓
• "Three in Any Row" Recording Sheet (page 74) – optional		✓
• "Compose and Decompose – Addition" Recording Sheet (page 68) – as needed		✓
• 2 colored markers		✓

GAME
2–9

Warm-Up: Get Past 100

Number of Players: 2

Materials:

For each pair of students:

- Deck of Number Cards 1–9 (page 70)

Object: Be the player whose sum would be more than 100.

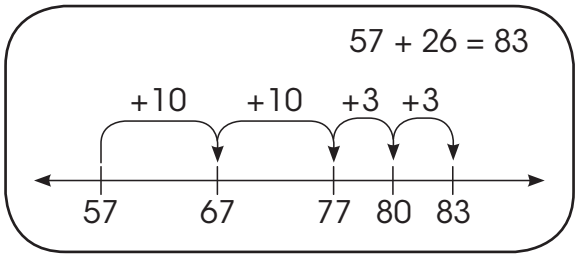
Directions:

1. Player 1 draws two Number Cards to make a two-digit "start number" (for example, 57).
2. Player 1 records that number.
3. Player 2 draws two Number Cards and uses those cards to make a two-digit number (for example, 26).
4. Player 2 adds that number to the first number and records the sum.
5. Players take turns drawing cards and adding the new two-digit number to the last sum. Play continues until a player has a sum that is more than 100.

Example A: Using a Number Line

Player 1 marked the start number, 57.

Player 2 showed jumps of 10 + 10 + 3 + 3 to add 26 to the start number.



Example B: Using Decomposing and Composing

Player 1 writes: 57 = 50 + 7

Player 2 writes: 26 = 20 + 6

So, adding the tens and then the ones:

50 + 20 = 70; 7 + 6 = 13

70 + 13 = 83

GAME
2–9

Explaining the Game: Three in Any Row – Addition

Number of Players: 2

Materials:

For each pair of students:

- Hundred Chart (game board) (page 73)
- Deck (4 sets) of Number Cards 1–9 (page 70)
- "Three in Any Row" Recording Sheet (page 74) – optional
- "Compose and Decompose" Recording Sheet (page 68) – as needed for differentiation
- 2 colored markers

Object: Capture three numbers in any row (horizontal, vertical, or diagonal) on the shared Hundred Chart (game board) by adding two 2-digit numbers. Numbers do not need to be adjacent to each other.

How to Play:

1. Taking turns, players:
   - Draw four cards.
   - Create two 2-digit numbers.
   - Add the two numbers and mark the sum on the game board.
2. If the numbers cannot be arranged so that the sum is between 1 and 100, player draws another card and discards one card. Repeats, if necessary.
3. To have a record of play, players write the equations on the Recording Sheet.
4. Play continues until one player captures three numbers in any row.

Advanced version:
Capture three or more adjacent numbers in a row (horizontal, vertical, or diagonal). Game may be played competitively or cooperatively.

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Differentiation

"Three in Any Row – Addition" Game

More Support

- Continue playing Warm-Up Exercise A, as needed, before playing the game.
- Use the "Compose and Decompose – Addition" Recording Sheet.

More Challenge

Play "The Target Number" Game

Number of Players: 2

Materials: Hundred Chart (game board)

Object: Create up to three different 2-digit plus 2-digit equations that equal the target number.

Rules

1. Toss a coin onto the Hundred Chart. Wherever it lands is the target number.
2. Each player writes three addition equations with two 2-digit numbers that equal the target number. For example, for the target number 57, three equations are:

   19 + 38 = 57

   42 + 15 = 57

   27 + 30 = 57

3. Score one point for each unique digit used. For the example above, the score is 9 points for using nine digits: 0, 1, 2, 3, 4, 5, 7, 8, 9.
4. Toss a coin again for a new round.

GAME
2–9

Deepening the Understanding

Ask the class:	Mathematical Practices (CCSSM)
Explain how you could use composing and decomposing numbers to add these numbers in your head. 38 + 27 = 56 + 19 =	MP2 Reason abstractly and quantitatively.
Jan drew four cards: 3, 6, 1, and 8. She combined them in different ways to make two-digit numbers. • What are four different sums that Jenny could make? • For each of those sums, find one or more ways that you could create that sum by rearranging the cards. (If students do not generate all of these, you could add to their list.) 13 + 68 = 81 13 + 86 = 99 16 + 38 = 54 16 + 83 = 99 18 + 36 = 54 18 + 63 = 81 31 + 68 = 99 31 + 86 = 117 36 + 81 = 117	MP1 Make sense of problems and persevere in solving them. MP2 Reason abstractly and quantitatively.
After a student shares an idea, ask the class if they agree or disagree and why.	MP3 Construct viable arguments and critique the reasoning of others.

Number Cards 0–10

0	1	2	3
4	5	6	7
8	9	10	

Used in Games 2-1 through 2-12.

Printing half of the decks on a different-color card stock will make cleanup easier.

Hundred Chart

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

"Three in Any Row" Recording Sheet

(Games 2-9 and 2-10)

Player 1: _____ Player 2: _____

Round	Equations	Equations
1		
2		
3		
4		
5		
6		
7		
8		

ROAD RACE

Concept or Skills

One-to-one correspondence between set and numeral, counting, beginning addition and subtraction

NCTM Curriculum Focal Point

Number and Operations: Place-value concepts

Number and Operations and Algebra: Multidigit addition and subtraction

Number of Students

2–4

Materials

For each student:

- 20, 30, or 40 Unifix Cubes of the same color
- Several index cards (optional)

For each group:

- Road Race Track to 20, 30, or 40
- 1 regular six-sided die

Getting Ready

Make copies of the Road Race Track page. Cut apart the sections and tape or glue them together.

Depending on the level of addition and subtraction activities currently being done in class, use two or three sections of the Road Race Tracks for each student.

Distribute 20–40 Unifix Cubes of one color and several index cards (or sheets of paper) to each student.

Each group gets a regular six-sided die.

Digging In

Taking turns, players toss the die, pick up the corresponding number of Unifix Cubes of one color, and place them on the Road Race Track.

The first player to exactly cover his or her track is the winner of the round.

Play five rounds to determine the winner of a race.

Players lose a turn if they go over 20 (30 or 40).

After each turn, have the player say aloud the total number of Unifix Cubes on the track and how many more Unifix Cubes are needed to win.

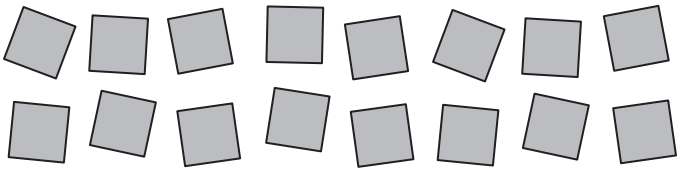
Have each player write on an index card corresponding number sentence after each turn (for example, 12 + 4 = 16).

Going Further

Reverse the procedures for Road Race. Players first fill the track with Unifix Cubes. Taking turns, players then toss the die and remove the corresponding number of Unifix Cubes from the track. The first player to exactly uncover his or her track is the winner of the round. Have each player write the corresponding subtraction number sentence on a card (for example, 18 – 6 = 12, 5 – 2 = 3).

ROAD RACE TRACKS

1	2	3	4	5	6	7	8	9	10	
1	2	3	4	5	6	7	8	9	10	



ROAD RACE TRACKS

1		1
2		2
3		3
4		4
5		5
6		6
7		7
8		8
9		9
10		10

11		11
12		12
13		13
14		14
15		15
16		16
17		17
18		18
19		19
20		20

ROAD RACE TRACKS

30		30
29		29
28		28
27		27
26		26
25		25
24		24
23		23
22		22
21		21

40		40
39		39
38		38
37		37
36		36
35		35
34		34
33		33
32		32
31		31

1.2 Explore & Discover: **Star Time**

Focal Point

Problem Solving/Geometry – Use physical objects to model the problem. Identify and name polygons. Recognize that each colored pattern block has a geometric name. Recognize the proportional relationships among the different pattern blocks.

Materials

- Pattern blocks:
  - triangles
  - trapezoids
  - blue rhombuses
  - hexagons

Instructions

Have the students do the following:

1. Cover the stars with the indicated number of pattern blocks.
2. See if Star A and Star C can be covered in more than one way.
3. Make a new star (D) using any number of hexagons, trapezoids, blue rhombuses, and/or triangles.
4. Record how many of each block they used in the spaces provided on the worksheet.

Guided Learning

1. Which star used the fewest number of triangles? The most?
2. Why does the number of triangles used vary?
3. What is the relationship between the triangle and the blue rhombus?
4. What is the relationship between the triangle and the trapezoid?
5. What is the relationship between the triangle and the hexagon?
6. What is the geometric name of the blue pattern block? The red pattern block? The yellow pattern block?

Explore More!

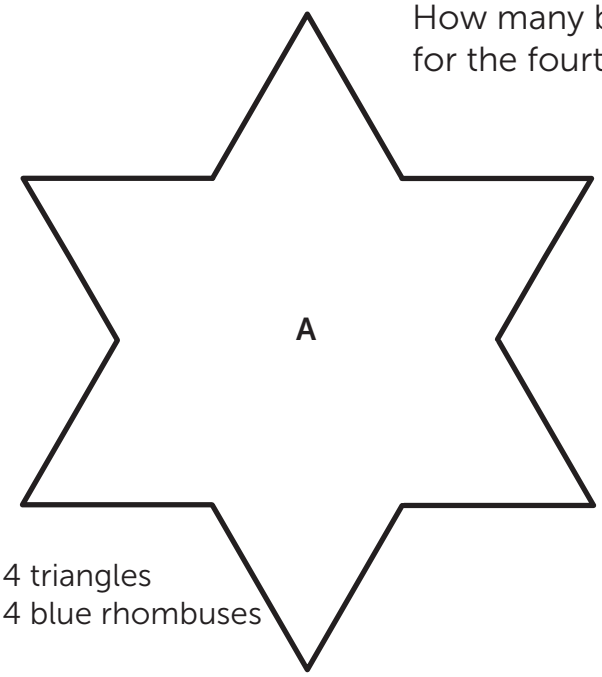
Can you make a star with only one color (other than "B")? Can you make a star without using any triangles?

Star Time

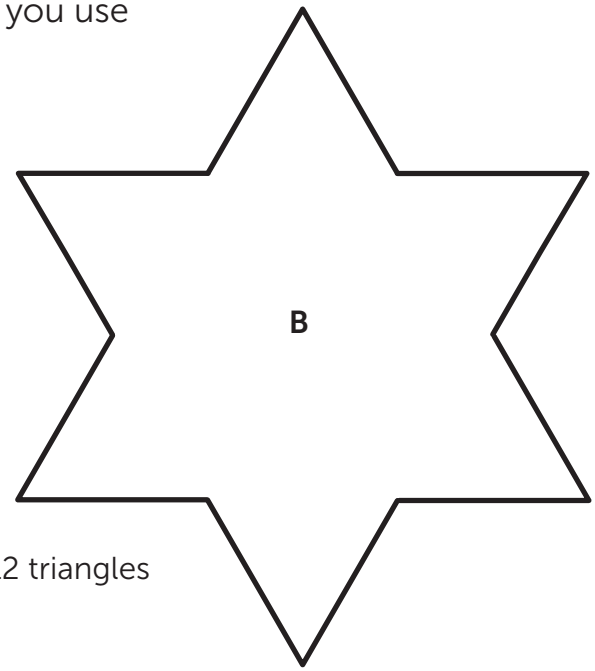
Name: _____

The stars on this page are equal in size. Cover three of the stars with the pattern blocks indicated. Cover the fourth star in any way you want.

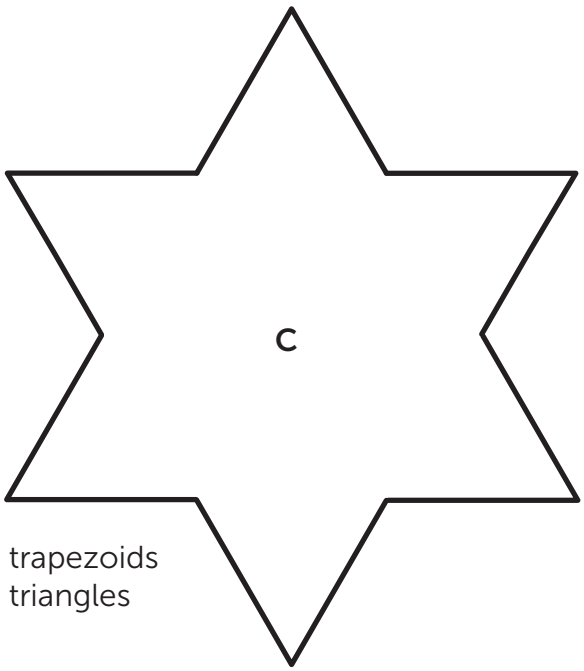
How many blocks did you use for the fourth star?



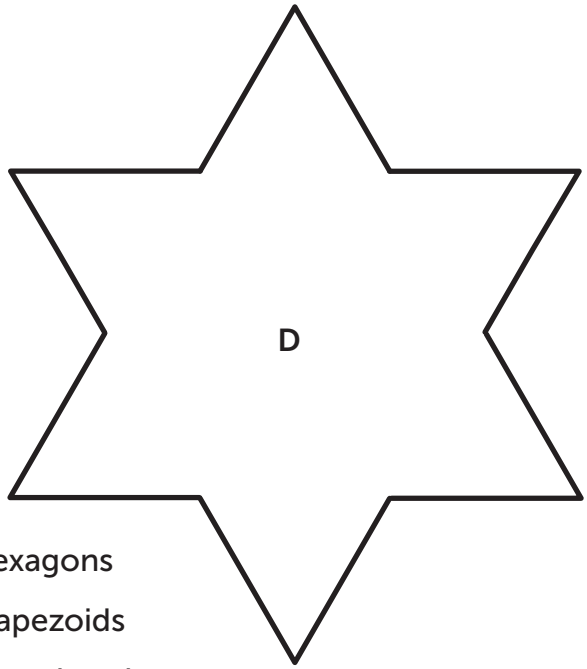
4 triangles
4 blue rhombuses



12 triangles



3 trapezoids
3 triangles



_____ hexagons

_____ trapezoids

_____ blue rhombuses

_____ triangles

2.3 Number & Operations: **Only One Color**

Focal Point

Number/Problem Solving – Investigate relationships among pattern blocks. Practice estimation.

Materials

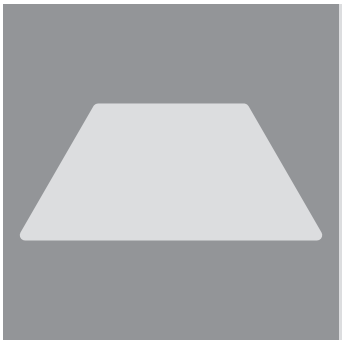
- Pattern blocks:
  - triangles
  - blue rhombuses
  - trapezoids

Instructions

Students cover designs with specific pattern blocks to begin to understand the relationships among the sizes of the blocks. They also use fractions to name the blocks in relation to each other.

Guided Learning

1. Explain how you estimated the number of blocks needed before covering the design.
2. What is the relationship of the blue rhombus to the green triangle? What is the relationship of the blue rhombus to the trapezoid? Explain your answers.



Explore More!

Ask the students: How many triangles do you need to cover the kite? Can you figure out the answer to the question without covering the design or estimating? Have them explain their method.

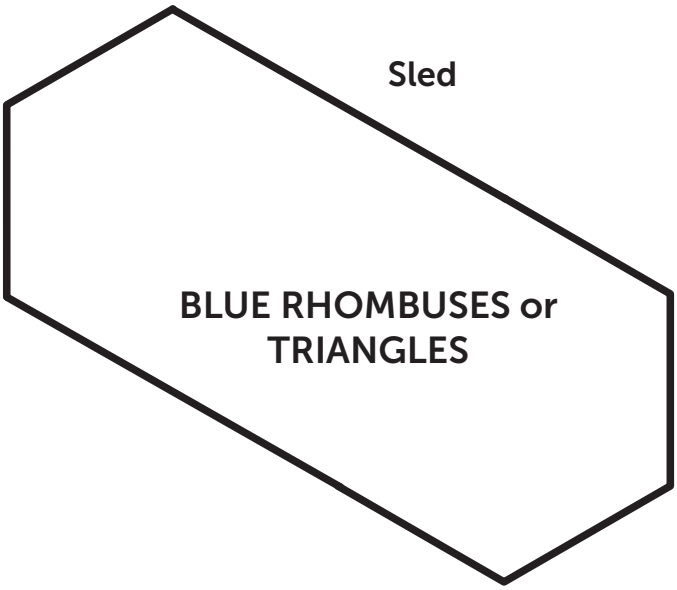
Only One Color

Name: _____

Make each design (sled, cup, kite) using one of the pattern blocks indicated inside its outline.

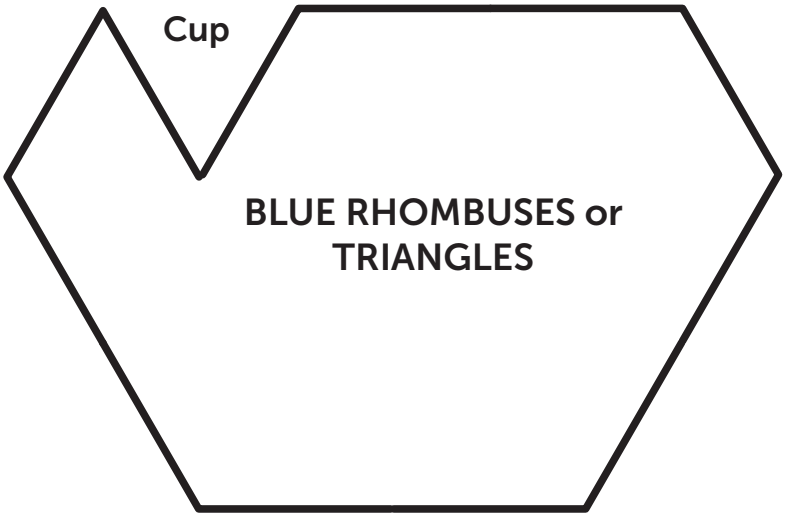
1. On the table below, guess and record the number of blocks you will need to cover each design without overlapping.
2. Use blocks to find the actual number. Record the actual number in the table.
3. Do the same for the other pattern block indicated inside the outline.
4. Look at the tables and compare your findings. What is the fraction name for each pattern block?

Sled



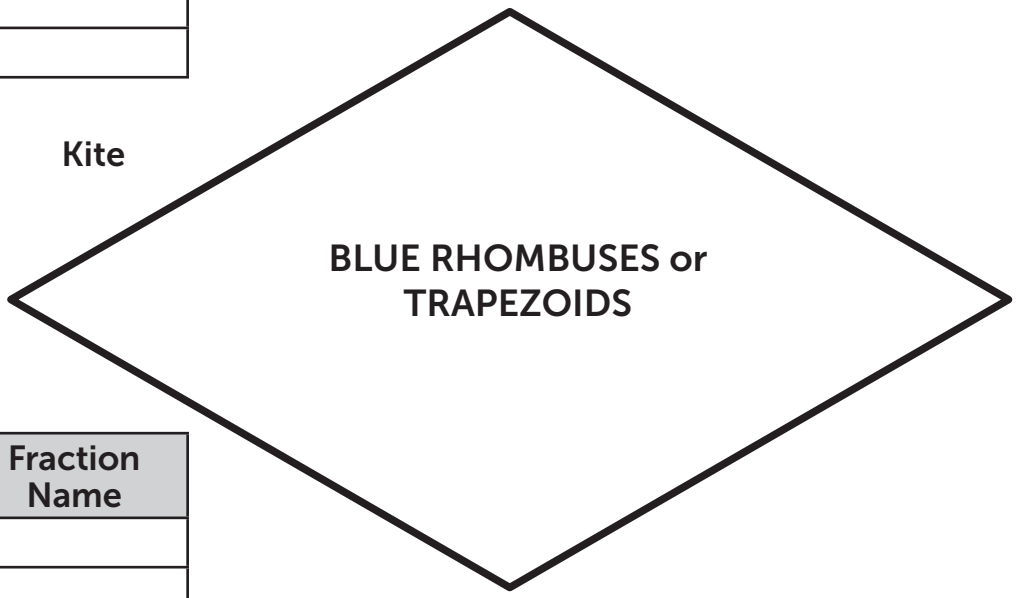
Block	Guess	Count	Fraction Name

Cup



Block	Guess	Count	Fraction Name

Kite



Block	Guess	Count	Fraction Name

33 Teacher's Corner

Can You Place Me?

Place Value

Activity Focus:

Forming numbers with given tens and ones values using digits 1–9

Individual Activity

Materials:

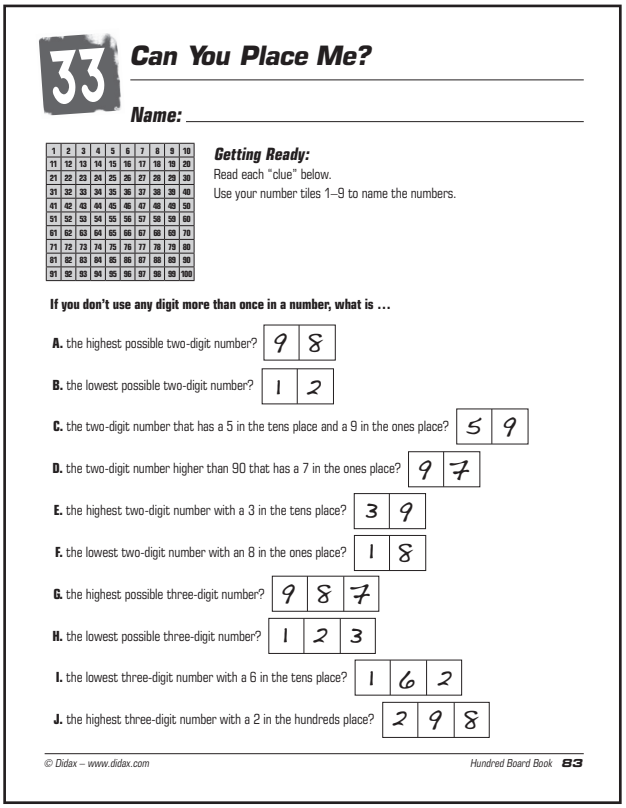
- Number tiles 1–9
- "Can You Place Me?" activity sheet

Completing the Activity:

1. Have students use their number tiles as digits to name each number on the activity sheet.

2. Remind students, for each example, that they can use any digit **only once** in a number.

3. Have students record their answers in the spaces provided on the activity sheet.



33 Can You Place Me?

Name: _____

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Getting Ready:
Read each "clue" below.
Use your number tiles 1–9 to name the numbers.

If you don't use any digit more than once in a number, what is …

A. the highest possible two-digit number? 9 8

B. the lowest possible two-digit number? 1 2

C. the two-digit number that has a 5 in the tens place and a 9 in the ones place? 5 9

D. the two-digit number higher than 90 that has a 7 in the ones place? 9 7

E. the highest two-digit number with a 3 in the tens place? 3 9

F. the lowest two-digit number with an 8 in the ones place? 1 8

G. the highest possible three-digit number? 9 8 7

H. the lowest possible three-digit number? 1 2 3

I. the lowest three-digit number with a 6 in the tens place? 1 6 2

J. the highest three-digit number with a 2 in the hundreds place? 2 9 8

33 Can You Place Me?

Name: _____

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Getting Ready:

Read each "clue" below.

Use your number tiles 1–9 to name the numbers.

If you don't use any digit more than once in a number, what is …

A. the highest possible two-digit number? ☐☐

B. the lowest possible two-digit number? ☐☐

C. the two-digit number that has a 5 in the tens place and a 9 in the ones place? ☐☐

D. the two-digit number higher than 90 that has a 7 in the ones place? ☐☐

E. the highest two-digit number with a 3 in the tens place? ☐☐

F. the lowest two-digit number with an 8 in the ones place? ☐☐

G. the highest possible three-digit number? ☐☐☐

H. the lowest possible three-digit number? ☐☐☐

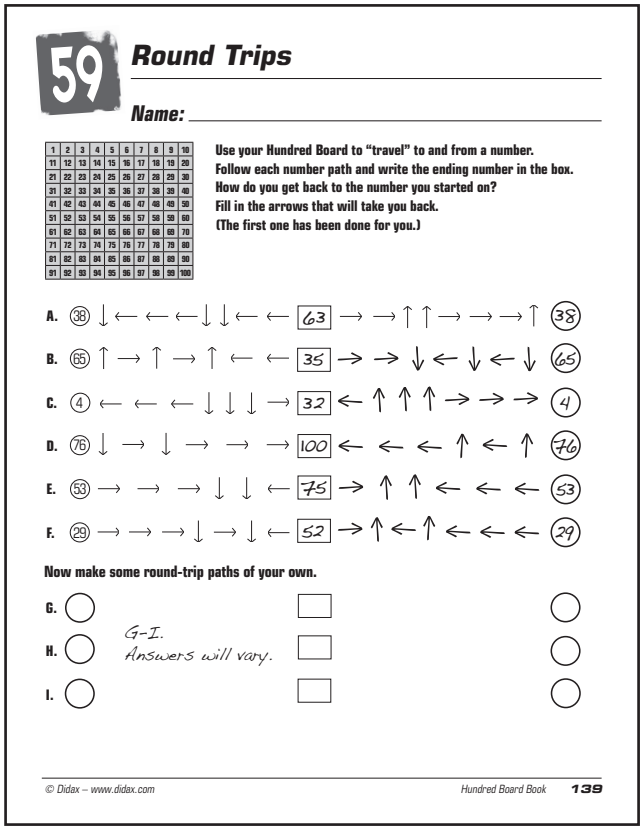
I. the lowest three-digit number with a 6 in the tens place? ☐☐☐

J. the highest three-digit number with a 2 in the hundreds place? ☐☐☐

59 Teacher's Corner

Round Trips

Operations: Addition and Subtraction



59 **Round Trips**

Name: _____

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Use your Hundred Board to "travel" to and from a number.
Follow each number path and write the ending number in the box.
How do you get back to the number you started on?
Fill in the arrows that will take you back.
(The first one has been done for you.)

A. (38) ↓ ← ← ← ↓ ↓ ← ← [63] → → ↑ ↑ → → → ↑ (38)

B. (65) ↑ → ↑ → ↑ ← ← [35] → → ↓ ← ↓ ← ↓ (65)

C. (4) ← ← ← ↓ ↓ ↓ → [32] ← ↑ ↑ ↑ → → → (4)

D. (76) ↓ → ↓ → → → [100] ← ← ← ↑ ← ↑ (76)

E. (53) → → → ↓ ↓ ← [75] → ↑ ↑ ← ← ← (53)

F. (29) → → → ↓ → ↓ ← [52] → ↑ ← ↑ ← ← ← (29)

Now make some round-trip paths of your own.

G. ◯ ☐ ◯

H. ◯ ☐ ◯

I. ◯ ☐ ◯

G–I. Answers will vary.

Activity Focus:

Following number patterns
(addition and subtraction: + or – 1, + or – 10)

Individual Activity

Materials:

- Hundred Board
- Markers or blank tiles (optional)
- "Round Trips" activity sheet

Completing the Activity:

In this activity, students use their Hundred Boards to travel to and from a number. They use arrow notation to show direction and record their paths.

1. For exercises A–F, have students follow each number path on their Hundred Boards and write the ending number in the box on the activity sheet.

2. Then, have students fill in the arrows that will take them back to the starting number over the same path. (Exercise A has been done for them.)

3. For exercises G–I, students create their own round-trip number paths.

Extension:

Give students a beginning number and an ending number and let them make their own arrow trails.

59 Round Trips

Name: _____

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Use your Hundred Board to "travel" to and from a number.
Follow each number path and write the ending number in the box.
How do you get back to the number you started on?
Fill in the arrows that will take you back.
(The first one has been done for you.)

A. (38) ↓ ← ← ← ↓ ↓ ← ← [63] → → ↑ ↑ → → → ↑ (38)

B. (65) ↑ → ↑ → ↑ ← ← [ ] ( )

C. (4) ← ← ← ↓ ↓ ↓ → [ ] ( )

D. (76) ↓ → ↓ → → → [ ] ( )

E. (53) → → → ↓ ↓ ← [ ] ( )

F. (29) → → → ↓ → ↓ ← [ ] ( )

Now make some round-trip paths of your own.

G. ( ) [ ] ( )

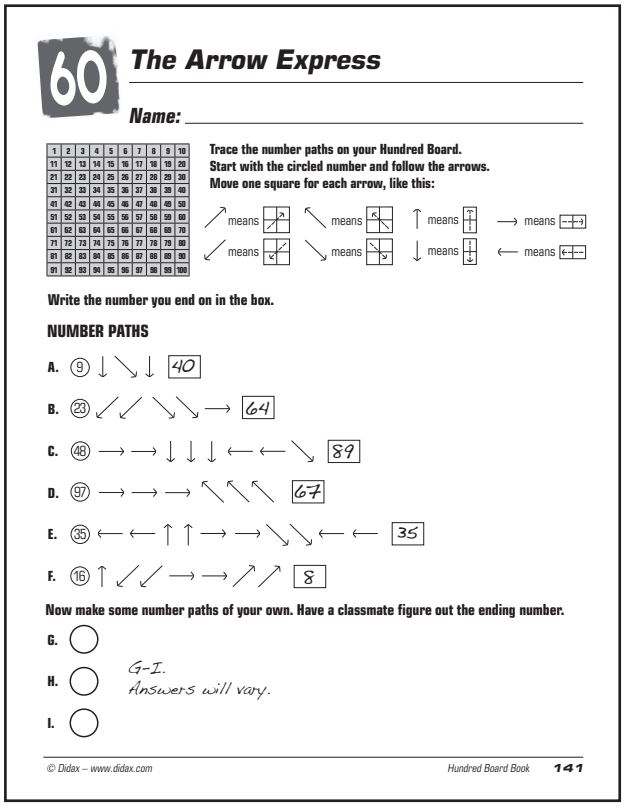
H. ( ) [ ] ( )

I. ( ) [ ] ( )

60 Teacher's Corner

The Arrow Express

Operations: Addition and Subtraction



60 **The Arrow Express**

Name: _____

Trace the number paths on your Hundred Board.
Start with the circled number and follow the arrows.
Move one square for each arrow, like this:

↗ means ↑ → ; ↖ means ↑ ← ; ↑ means ↑ ↑ ; → means → →
↙ means ↓ ← ; ↘ means ↓ → ; ↓ means ↓ ↓ ; ← means ← ←

Write the number you end on in the box.

NUMBER PATHS

A. ⑨ ↓ ↘ ↓ 40

B. ㉓ ↙ ↙ ↘ ↘ → 64

C. ㊽ → → ↓ ↓ ↓ ← ← ↘ 89

D. ㊼ → → → ↖ ↖ ↖ 67

E. ㉟ ← ← ↑ ↑ → → ↘ ↘ ← ← 35

F. ⑯ ↑ ↙ ↙ → → ↗ ↗ 8

Now make some number paths of your own. Have a classmate figure out the ending number.

G. ◯

H. ◯ G-I. Answers will vary.

I. ◯

Activity Focus:

Following number patterns
(addition and subtraction: ±1, ±9, ±10, ±11)

Individual Activity

Materials:

- Hundred Board
- Markers or blank tiles (optional)
- "The Arrow Express" activity sheet

Completing the Activity:

1. Review the results of each arrow move: → means +1; ← means –1; ↓ means +10; ↑ means –10).

2. Call students' attention to the top of the activity sheet. Ask: What do the new arrows mean? ↗ means –9; ↖ means –11; ↙ means +9; ↘ means +11.

3. For exercises A–F, have students make the indicated moves on their Hundred Boards and write the ending number in the box on the activity sheet.

4. Have students check their numbers using arithmetic, if appropriate to their skill level.

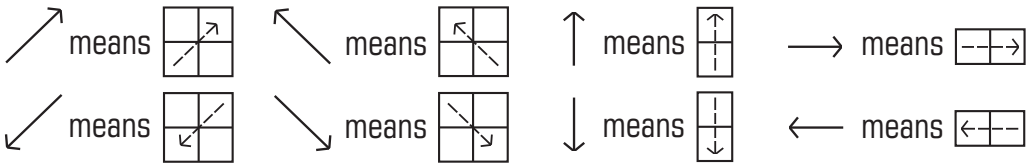
5. For exercises G–I, have students create their own number paths using up, down, forward, backward, and diagonal arrows.

60 The Arrow Express

Name: _____

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

Trace the number paths on your Hundred Board.
Start with the circled number and follow the arrows.
Move one square for each arrow, like this:



Write the number you end on in the box.

NUMBER PATHS

A. (9) ↓ ↘ ↓ ☐

B. (23) ↙ ↙ ↘ ↘ → ☐

C. (48) → → ↓ ↓ ↓ ← ← ↘ ☐

D. (97) → → → ↖ ↖ ↖ ☐

E. (35) ← ← ↑ ↑ → → ↘ ↘ ← ← ☐

F. (16) ↑ ↙ ↙ → → ↗ ↗ ☐

Now make some number paths of your own. Have a classmate figure out the ending number.

G. ◯

H. ◯

I. ◯

HUNDRED BOARD

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

120 BOARD

1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100
101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120

Slide and Sum

Topic: Mental addition

Object: Add to a specified target sum.

Groups: Pair players or 2 players

Materials for each group

- *Slide and Sum* Gameboard, p. 108
- One marker

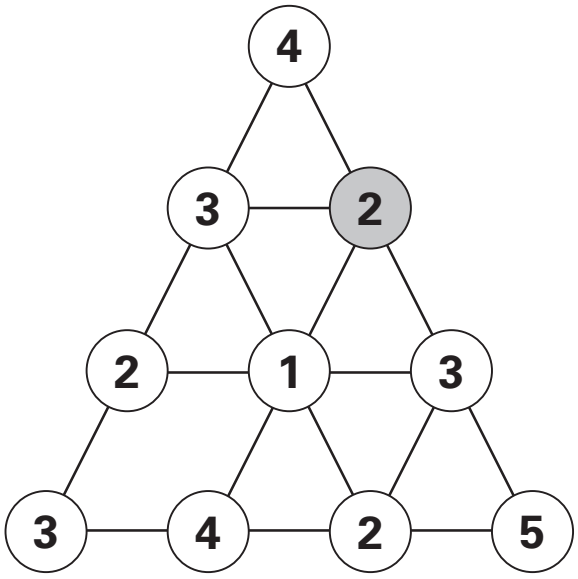
Directions

1. Players pick a target sum between 20 and 30.
2. The first pair places the marker on any number and announces that number.
3. The second pair slides the same marker along a line in any direction to identify the next number. The pair adds this number to the previous number and states the total.
4. The pairs alternate turns by sliding the marker to another number, adding that amount to the previous total, and announcing the new total. Pairs must move the marker and give a new total on each turn. Pairs may return to previously used numbers.
5. The pair who states the target sum as their new total wins that round.
6. If both pairs are forced to exceed the target sum, the game ends without a winner.

KEY STANDARD

Fluently add and subtract within 100 using strategies based on place value, properties of operations, and/or the relationship between addition and subtraction. (**2.NBT.B.5**)

Tip *Encourage strategic thinking by having players keep the same target sum for multiple rounds.*



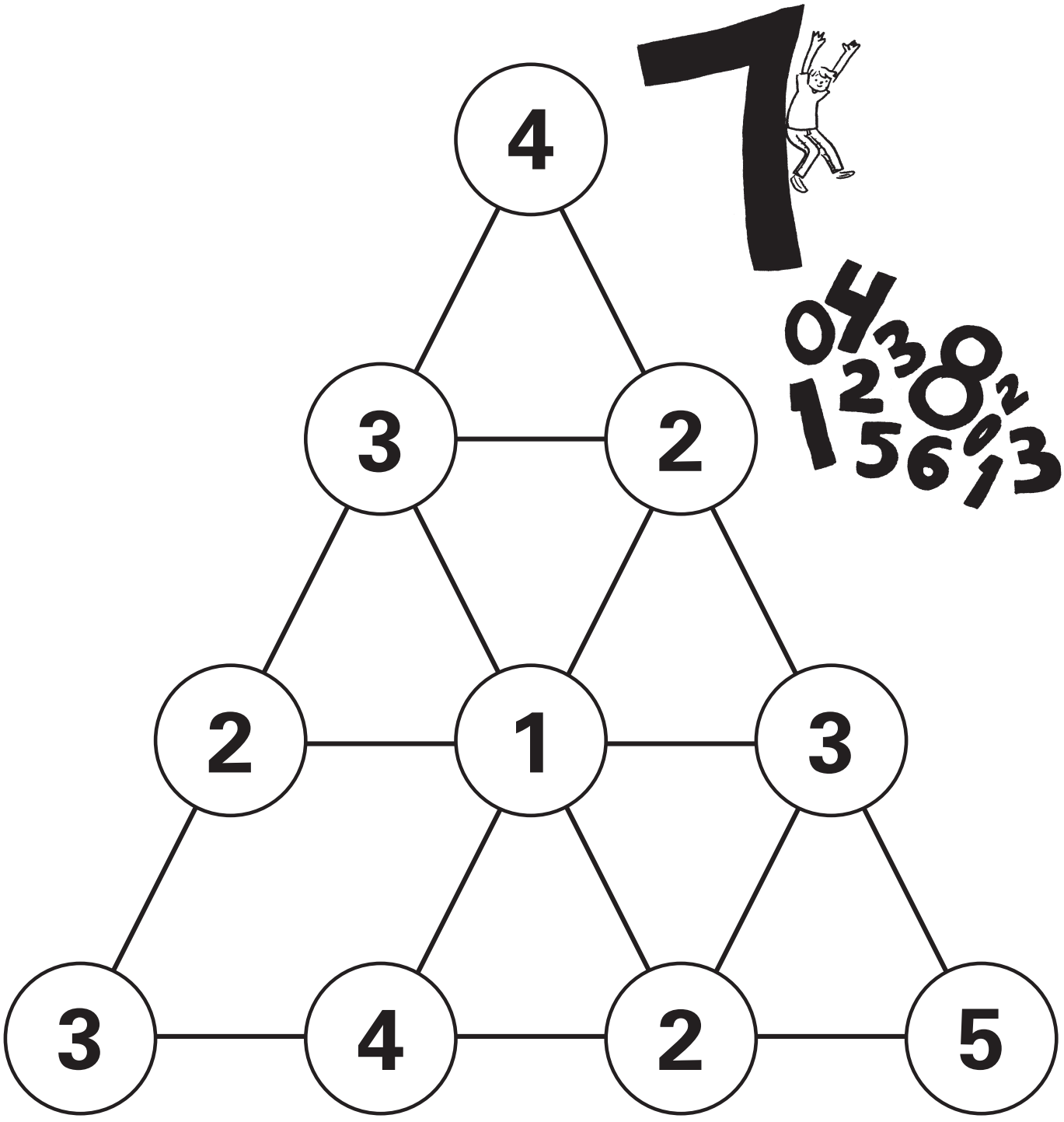
Making Connections

Promote reflection and make mathematical connections by asking:

- Where is a good starting place?
- What strategy helped you reach the target sum?
- If zero were added to the gameboard, where should it be placed?

Slide and Sum

Gameboard



Loop Addition A

Date _____ **Name** _____

Draw loops around two groups of numbers to match the sum. See the example.

Example: **10** 2 2 2 3 3 5 + 5 = 10	**13** 2 2 2 3 3 3	**11** 2 2 2 3 3 3
12 2 2 2 4 4 4	**14** 2 2 2 4 4 4	**16** 2 2 2 4 4 4
14 3 3 3 4 4 4	**17** 3 3 3 4 4 4	**18** 3 3 3 4 4 4

Draw a loop around one group of numbers to match the sum. The first one has been done for you.

Sum = 11	Sum = 12	Sum = 13	Sum = 10	Sum = 14	Sum = 13	Sum = 15
6	3	7	2	2	3	4
2	6	1	5	7	4	3
3	4	5	0	3	5	8
4	2	4	2	4	4	5
		2	3	4	1	3

Loop Addition B

Date _____ **Name** _____

Draw loops around two groups of numbers to match the sum. See the example.

Example: **15** 3 3 3 4 4 4 7 + 8 = 15	**18** 4 4 4 5 5 5	**20** 4 4 4 6 6 6
20 3 3 3 7 7 7	**23** 3 3 3 7 7 7	**24** 3 3 3 7 7 7
22 5 5 5 7 7 7	**24** 5 5 5 7 7 7	**29** 5 5 5 7 7 7

Draw a loop around one group of numbers to match the sum. The first one has been done for you.

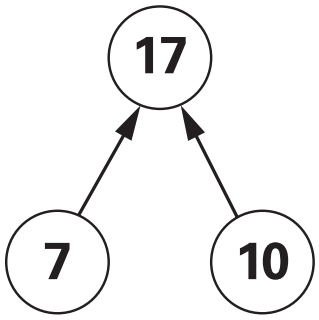
Sum = 19	Sum = 21	Sum = 20	Sum = 23	Sum = 22	Sum = 26	Sum = 25
4	4	4	7	1	7	9
5	7	7	8	7	6	8
5	6	5	5	8	6	7
5	8	1	8	7	7	5
3	5	4	2	5	5	5
		3	6	1	4	6

Addition Trees A

Date _____ **Name** _____

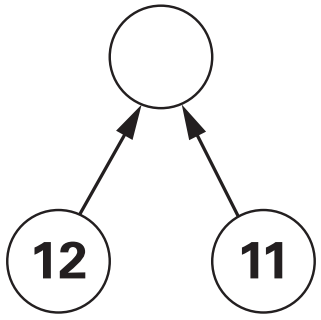
Write the missing numbers. The first one is done for you.

1.



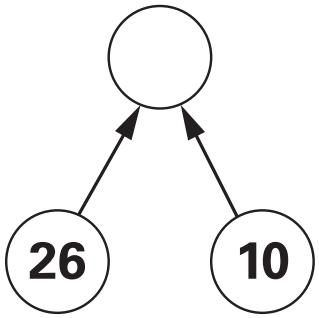
$$\begin{array}{r} 7 \\ +\ 10 \\ \hline 17 \end{array}$$

2.



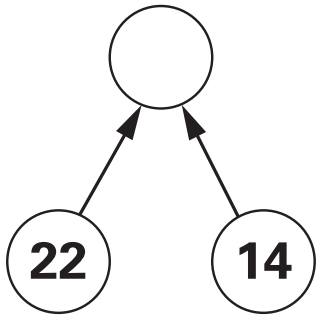
$$\begin{array}{r} \_\_\_\_ \\ +\ \_\_\_\_ \\ \hline \_\_\_\_ \end{array}$$

3.



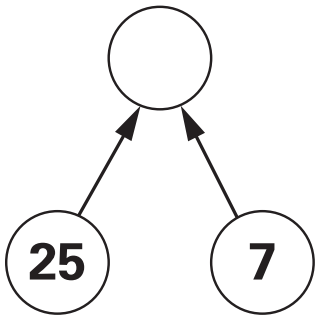
$$\begin{array}{r} \_\_\_\_ \\ +\ \_\_\_\_ \\ \hline \_\_\_\_ \end{array}$$

4.



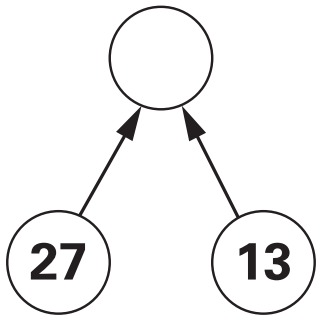
$$\begin{array}{r} \_\_\_\_ \\ +\ \_\_\_\_ \\ \hline \_\_\_\_ \end{array}$$

5.



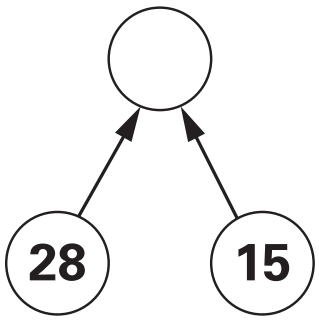
$$\begin{array}{r} \_\_\_\_ \\ +\ \_\_\_\_ \\ \hline \_\_\_\_ \end{array}$$

6.



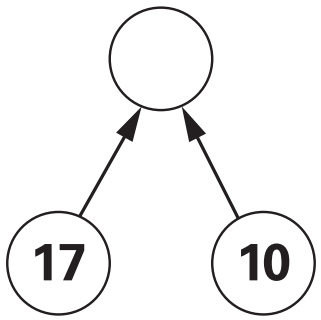
$$\begin{array}{r} \_\_\_\_ \\ +\ \_\_\_\_ \\ \hline \_\_\_\_ \end{array}$$

7.



$$\begin{array}{r} \_\_\_\_ \\ +\ \_\_\_\_ \\ \hline \_\_\_\_ \end{array}$$

8.



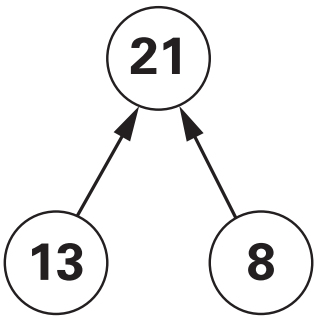
$$\begin{array}{r} \_\_\_\_ \\ +\ \_\_\_\_ \\ \hline \_\_\_\_ \end{array}$$

Addition Trees B

Date _____ **Name** _____

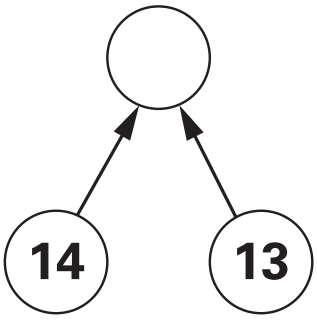
Write the missing numbers. The first one is done for you.

1.



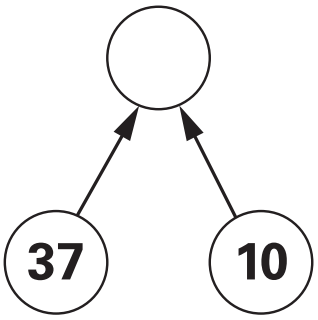
$$\begin{array}{r} 8 \\ +\ 13 \\ \hline 21 \end{array}$$

2.



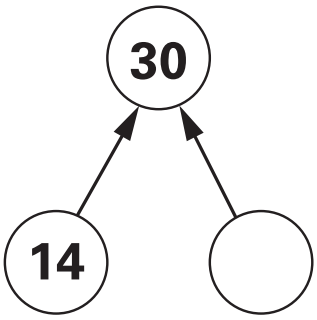
$$\begin{array}{r} \_\_\_\_ \\ +\ \_\_\_\_ \\ \hline \_\_\_\_ \end{array}$$

3.



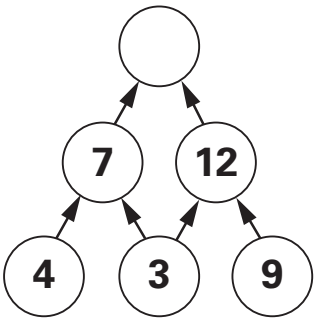
$$\begin{array}{r} \_\_\_\_ \\ +\ \_\_\_\_ \\ \hline \_\_\_\_ \end{array}$$

4.

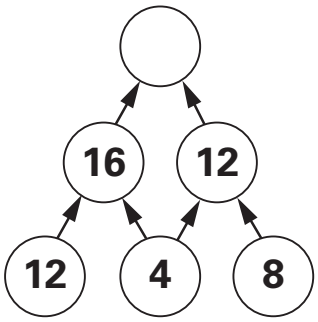


$$\begin{array}{r} \_\_\_\_ \\ +\ \_\_\_\_ \\ \hline \_\_\_\_ \end{array}$$

5.



6.



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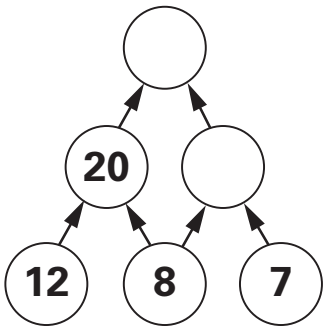
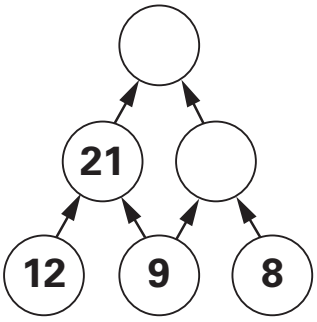
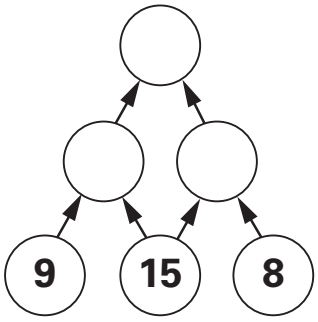


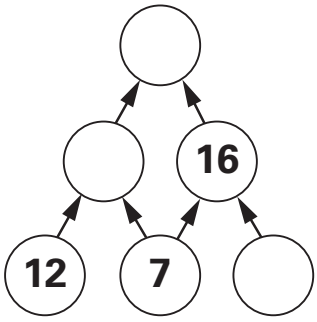
8.



9.



10.



Making Sums A

Date _____ **Name** _____

Use the numbers in the box. Create an addition problem for each sum.

1.

20	40
10	16

_____ + _____ = 36 _____ + _____ = 60

_____ + _____ = 50 _____ + _____ = 56

2.

35	10
15	30

_____ + _____ = 45 _____ + _____ = 40

_____ + _____ = 50 _____ + _____ = 65

3.

25	10
30	8

_____ + _____ = 40 _____ + _____ = 33

_____ + _____ = 55 _____ + _____ = 38

4.

40	20
15	9

_____ + _____ = 35 _____ + _____ = 24

_____ + _____ = 49 _____ + _____ = 60

5. Make a *new sum* using two of the numbers in the box above.

_____ + _____ = _____

Subtraction Squares D

Date _____ **Name** _____

Subtract each row and column to fill in the missing numbers.

The first one is done for you.

1.

60	40	20
30	20	10
30	20	10

2.

70	30	
40	10	

3.

90	30	
40	10	

4.

80	40	
40	20	

5.

50	40	
30	20	

6.

80	20	
30	10	

7.

75	35	
25	15	

8.

65	25	
35	15	

9.

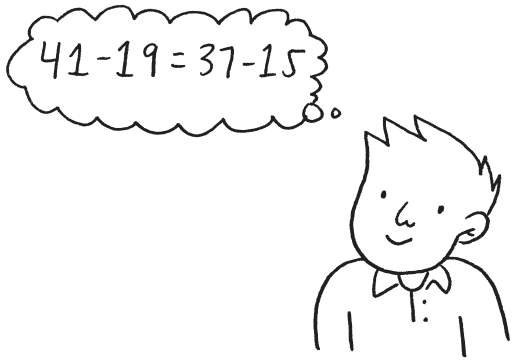
85	55	
45	25	

Subtraction Squares E

Date _____ **Name** _____

Subtract each row and column to fill in the missing numbers.

The first one has some answers.



1.

45	20	25
20	15	
25		20

2.

75	25	
45	10	

3.

80	50	
40	25	

4.

58	30	
38	20	

5.

96	40	
56	10	

6.

59	40	
29	20	

7.

68	36	
48	26	

8.

84	61	
34	21	

9.

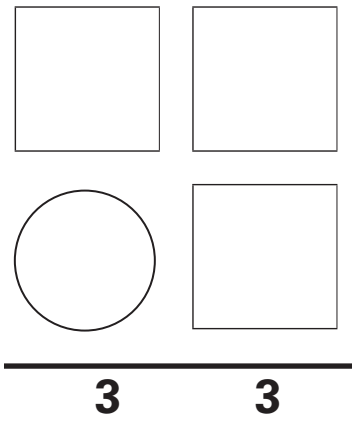
77	44	
47	24	

Rearrange and Find E

Date _____ **Name** _____

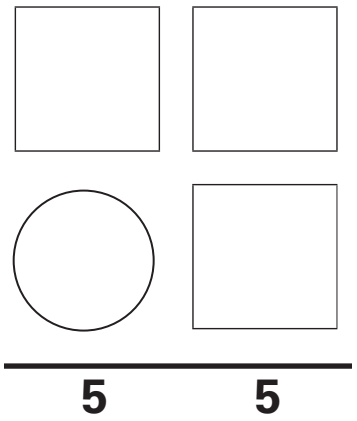
Write 3, 5, and 8 in the correct squares to make each difference or sum. Write + or – in the circles.

1.



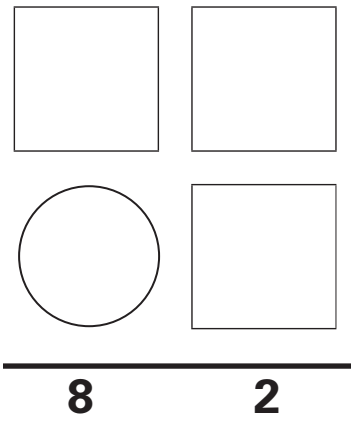
3 3

2.



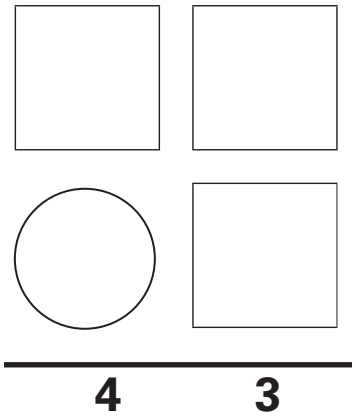
5 5

3.



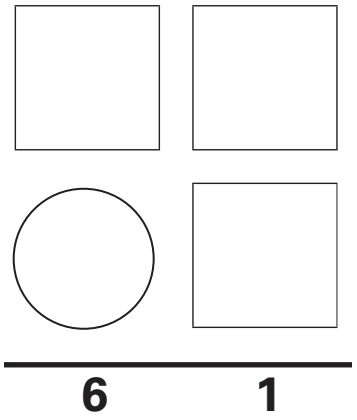
8 2

4.



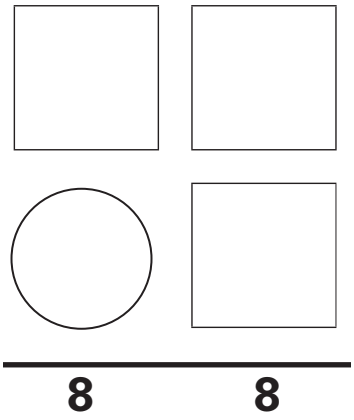
4 3

5.



6 1

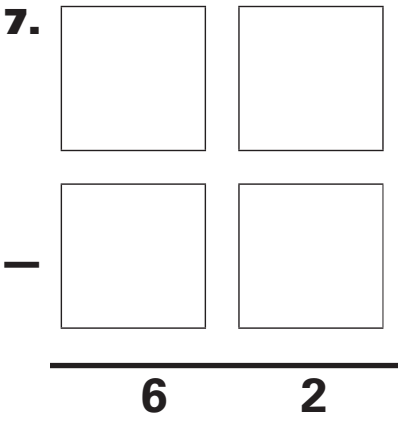
6.



8 8

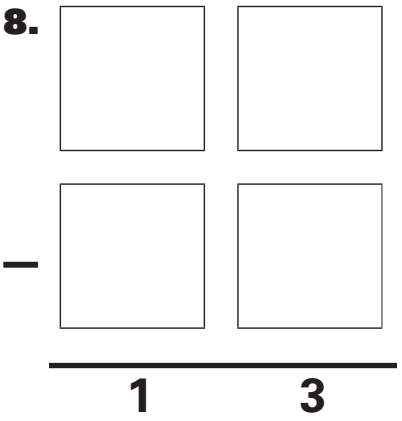
Write 2, 3, 5, and 8 in the correct squares to make each difference.

7.



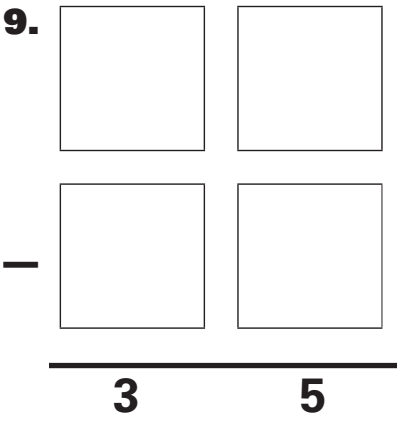
6 2

8.



1 3

9.



3 5

33 Write Numbers in Expanded Form

Math Standard Read and write numbers to 1000 using base-ten numerals, number names, and expanded form.

Grouping(s)

Whole group or small guided math group

Materials

For the group:

- Several 100-bead number lines (3 to 5) side by side

For the student:

- Recording Sheet (page 116)

Overview

Students use the BNL to represent values in expanded form.

Presenting the Activity

1. Teacher writes a three-digit number on the board.
2. Students use the BNLs to model the value in expanded form.
3. Students record the solution on the recording sheet.

Tip!

This activity works best when students work in groups of 4 and have plenty of floor space to lay out several BNLs. The number of BNLs needed depends on the numbers the teacher selects as examples. For example, numbers in the 300s would require four BNLs.

Guided Learning

Ask:

- How many hundreds? How many tens? How many ones?
- How many ones does this digit represent? (Example: In the number 327, the digit 3 represents 3 hundreds or 3 groups of 100.)
- Where is this amount seen on the BNL?

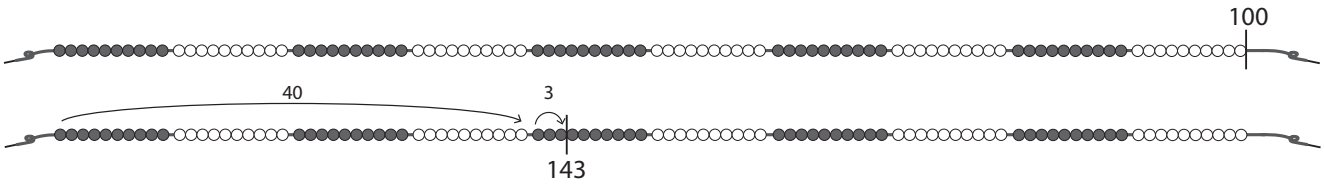
Assessing Student Responses

- Did student accurately represent the value on the BNL?

  Y / N / Emerging
- Was student successful in writing the numbers in expanded form?

  Y / N / Emerging
- Were digits recorded in the correct order?

  Y / N / Emerging



Name _____ Date _____

Activity 33: "Write Numbers in Expanded Form" Recording Sheet

Number	Expanded Form
253	200 + 50 + 3

35 Solve Addition Problems Within 100

Math Standard Use addition and subtraction within 100 to solve one- and two-step word problems.

Grouping(s)

Small guided math group or workstation

Materials

For the student:

- 100-bead number line (BNL)
- "Solve Addition Problems Within 100" Cards (page 119)
- Recording Sheet (page 120)

Overview

Students explore solving addition word problems within 100.

Presenting the Activity

1. Students draw an addition word problem card.
2. Students model the problem on the BNL.
3. Students record the equation (with sum or difference) on the recording sheet.
4. Students continue to draw cards and solve problems until their recording sheet is complete.

Guided Learning

Ask:

- How did you figure out the solution?
- Were any problems easy? Why?
- Were any problems tricky? Why?

Assessing Student Responses

- Was student able to solve the problems with ease?

  Y / N / Emerging

- Was student able to explain his/her reasoning?

  Y / N / Emerging

- Did student demonstrate understanding of the operation?

  Y / N / Emerging

- Was a particular problem type challenging?

  Y / N / Which? _____

11. At the carnival, Ben went on 17 rides the first day and 19 rides the second day. How many rides did Ben go on in all?

Activity 35: "Solve Addition Problems Within 100" Cards

1. James had 14 pieces of candy after trick-or-treating. He got 21 more pieces from his brother. How many pieces of candy did he have in all?	**2.** Dio collects baseball cards. He started with 14 cards and then got 36 more. Yesterday he got another 15. How many baseball cards in his collection now?	**3.** For field day, the school needed 60 volunteers. 34 moms and 45 dads volunteered. How many volunteers in all?
4. The second-grade class collected 48 boxes of pasta, 29 jars of sauce, and 6 boxes of cereal for the food drive. How many items were collected in all?	**5.** At his birthday party, Noah received 16 gift bags, 5 small wrapped gifts, and 12 large wrapped gifts. How many gifts did he receive altogether?	**6.** There are 19 buses at one school, 22 at another, and 17 at the last one. How many buses in all?
7. Jack played video games for 20 minutes on Monday, 25 minutes on Tuesday, and 10 minutes on Wednesday. If he is allowed to play for 60 minutes a week, how long can he play on Thursday?	**8.** Yesterday Mrs. Lee counted 86 marbles in the marble jar. If she adds 12 more today, will the class reach the goal of collecting 100 marbles?	**9.** In the storage closet at school there are 16 packs of paper, 21 boxes of pencils, and 35 packs of markers. How many packages of supplies are in the storage closet?
10. An animal shelter has 27 puppies and 38 kittens available to adopt. How many animals does the pet shelter have in all?	**11.** At the carnival, Ben went on 17 rides the first day and 19 rides the second day. How many rides did Ben go on in all?	**12.** For the bake sale, Li's mom baked 41 cookies and Paul's aunt baked 59 cookies. How many cookies did they bake altogether?

Name _____ Date _____

Activities 35 and 36: "Solve Word Problems Within 100" Recording Sheet

Problem Number	Equation

36 Solve Subtraction Problems Within 100

Math Standard Use addition and subtraction within 100 to solve one- and two-step word problems.

Grouping(s)

Small guided math group or workstation

Materials

For the student:

- 100-bead number line (BNL)
- "Solve Subtraction Problems Within 100" Cards (page 121)
- Recording Sheet (page 120)

Overview

Students explore solving subtraction word problems within 100.

Presenting the Activity

1. Students draw a subtraction word problem card.
2. Students model the problem on the BNL.
3. Students record the equation and difference on the recording sheet.
4. Students continue to draw cards and solve problems until their recording sheet is complete.

Guided Learning

Ask:

- How did you figure out the solution?
- Were any problems easy? Why?
- Were any problems tricky? Why?

Assessing Student Responses

- Was student able to solve the problems with ease?

  Y / N / Emerging

- Was student able to explain his/her reasoning?

  Y / N / Emerging

- Did student demonstrate understanding of the operation?

  Y / N / Emerging

- Was a particular problem type challenging?

  Y / N / Which? _____

1. There were 37 boys and 52 girls in the school play. How many more girls were in the play than boys?

Activity 36: "Solve Subtraction Problems Within 100" Cards

1. There were 37 boys and 52 girls in the school play. How many more girls were in the play than boys?	**2.** Jonah had 74 toy cars. He gave away 18 of them to his brother. How many cars does he have now?	**3.** Tony filled 56 water balloons for field day. Ethan filled 75. How many more did Ethan fill?
4. Last week, Mrs. Yang collected 78 soup labels. That was 19 more than she collected the week before. How many did she collect the week before?	**5.** On Monday the post office received 87 packages. On Tuesday it received 59 packages. How many more packages were received on Monday than Tuesday?	**6.** 100 students were going on the field trip. If 56 students got on the first bus, how many students were left to ride on the second bus?
7. Bella collected 67 shells while walking on the beach. On the way to the car, she dropped 8 of them. How many shells did she bring home?	**8.** On field day, parents donated 89 juice boxes. If students drank 73 juice boxes, how many were left over?	**9.** Coach bought popsicles for the baseball team after the game. The total was $47 and he paid with a $50 bill. How much money did he get back?
10. An animal shelter has 52 puppies and 28 kittens. How many more puppies than kittens does the shelter have?	**11.** Bo has 85 baseball caps. If 28 are Red Sox caps, how many are caps for other teams?	**12.** Yesterday the lunch ladies made 74 sandwiches. Today they made 48 sandwiches. How many more did they make yesterday than today?