Book and Box of Facts

Addition and Subtraction

ORIGO
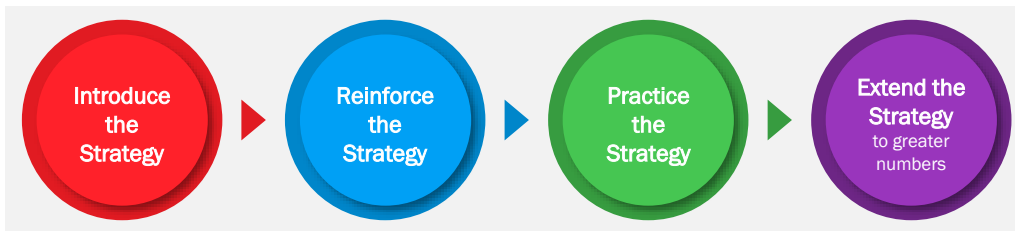EDUCATION

Number Fact Strategies

ADDITION

- Count on 1, 2 and 0

- Doubles and Near Doubles

- Bridge to Ten

SUBTRACTION
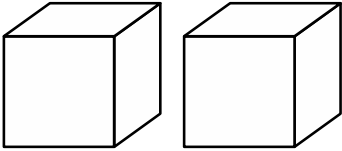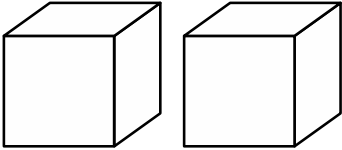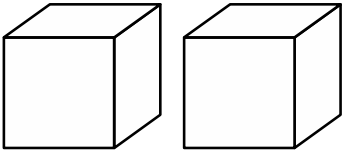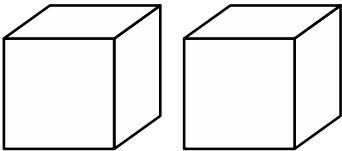
- Think Addition

The Teaching Sequence

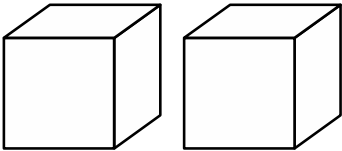Introduce the Strategy ▶ Reinforce the Strategy ▶ Practice the Strategy ▶ Extend the Strategy to greater numbers
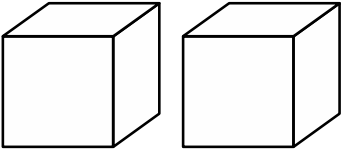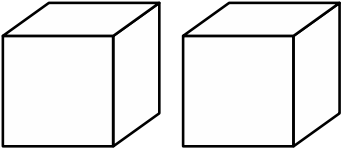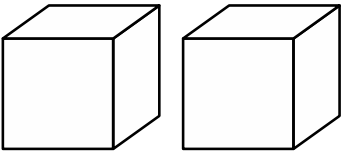
REINFORCE: Count on 1 and 2

- Roll your number cubes and count on 1 or 2.
- Find your answer below.
- Write your numbers on the number cubes. Write the number fact.

___ + ___ = 11

___ + ___ = 6

___ + ___ = 5

___ + ___ = 8

___ + ___ = 9

___ + ___ = 7

___ + ___ = 8

___ + ___ = 6

___ + ___ = 7

___ + ___ = 10
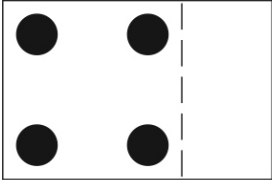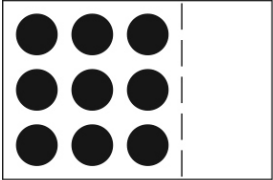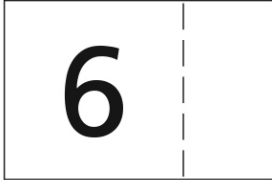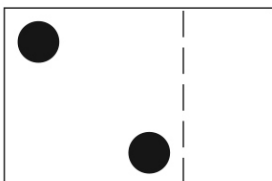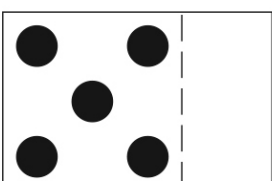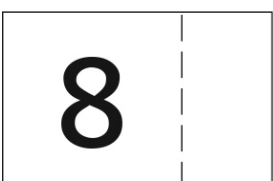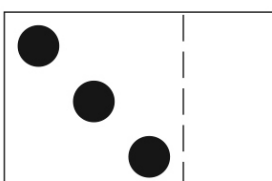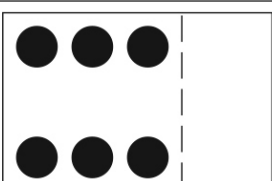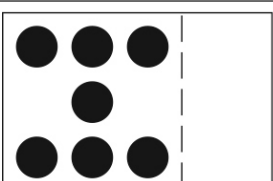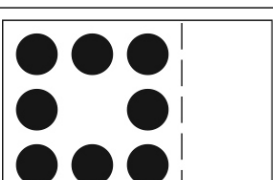
Cube A: 4, 5, 6, 7, 8, 9

Cube B: ⚀, ⚀, ⚀, ⚁, ⚁, ⚁

Count-on Challenge
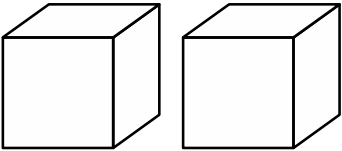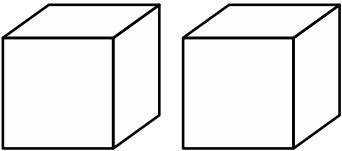
Name: _____

Draw the dots. Count on. Write the new numbers.

a.	b.	c.
		6
___	___	___

d.	e.	f.
2	5	
___	___	___

g.	h.	i.
	8	
___	___	___

j.	k.	l.
		3
___	___	___

m.	n.	o.
9		7
___	___	___

Total Bingo

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

Count-on Bingo

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

19 **Coat hanger collar**

tape together   tape together

fold

Fold here
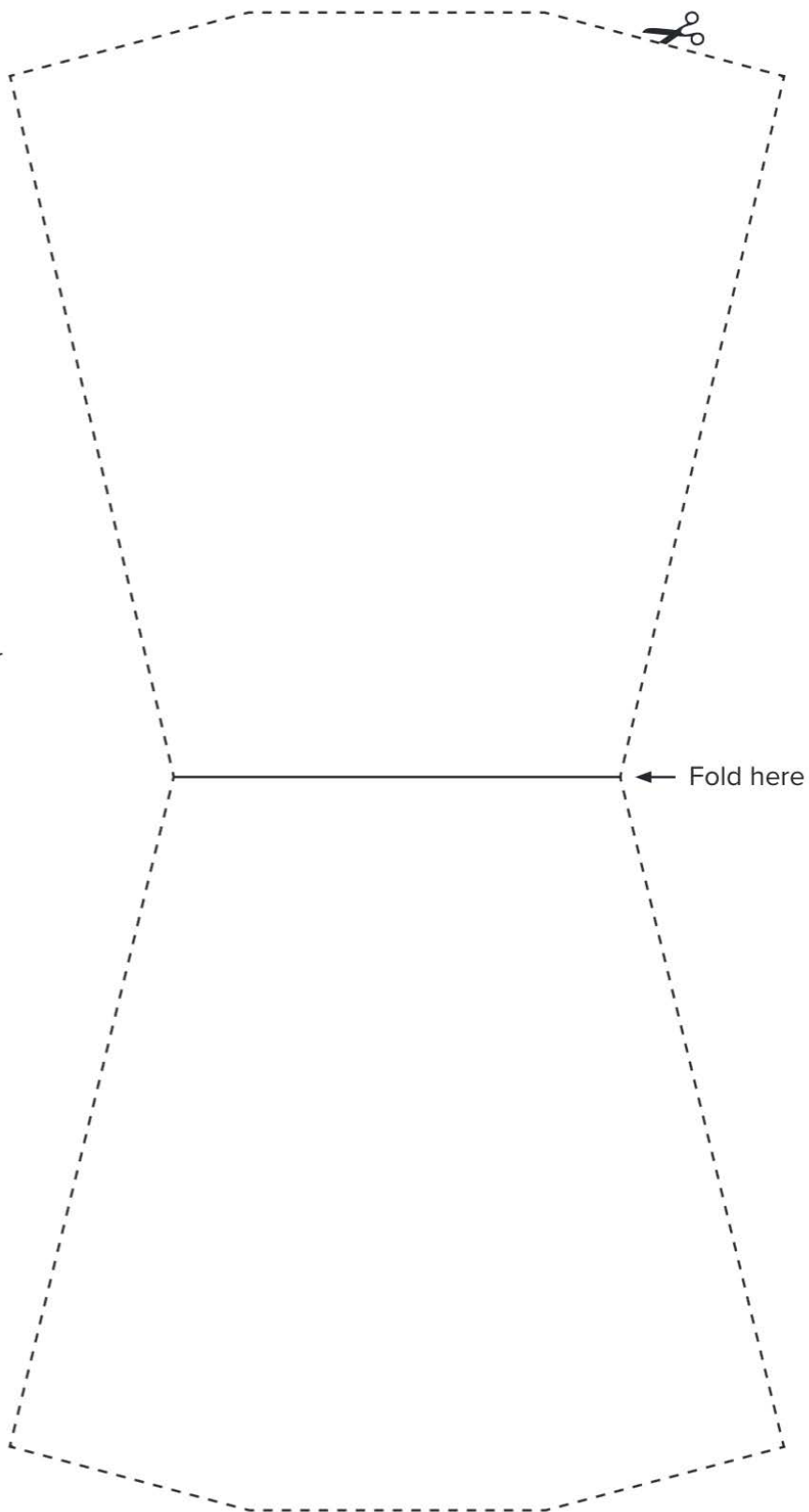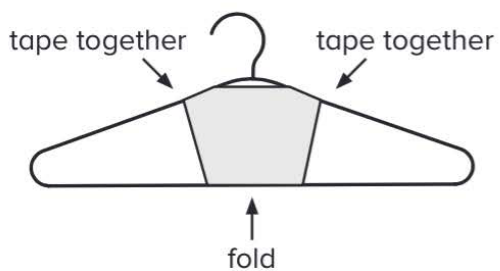
REINFORCE: Double plus 1

11	19	13	15
13	9	17	19
17	11	15	9

Cube: 4, 5, 6, 7, 8, 9   *(Same as previous game)*

REINFORCE: Bridge to Ten

- Roll your number cubes and write the fact below the example in the grid that will help you figure out the answer.
- Write the answer to both facts.

10 + 6 = ____ ____ + ____ = ____	10 + 6 = ____ ____ + ____ = ____
10 + 5 = ____ ____ + ____ = ____	10 + 5 = ____ ____ + ____ = ____
10 + 5 = ____ ____ + ____ = ____	10 + 5 = ____ ____ + ____ = ____
10 + 4 = ____ ____ + ____ = ____	10 + 4 = ____ ____ + ____ = ____
10 + 4 = ____ ____ + ____ = ____	10 + 4 = ____ ____ + ____ = ____
10 + 3 = ____ ____ + ____ = ____	10 + 3 = ____ ____ + ____ = ____
10 + 3 = ____ ____ + ____ = ____	10 + 3 = ____ ____ + ____ = ____
10 + 2 = ____ ____ + ____ = ____	10 + 2 = ____ ____ + ____ = ____
10 + 1 = ____ ____ + ____ = ____	10 + 1 = ____ ____ + ____ = ____

Cube A: 8, 8, 8, 9, 9, 9

Cube B: 3, 4, 5, 5, 6, 7

DOMINO SORT

Sort these dominos according to the addition strategy you would use to calculate the total number of dots.
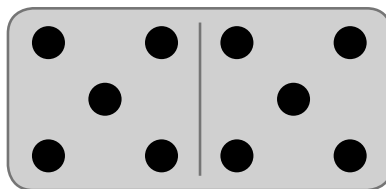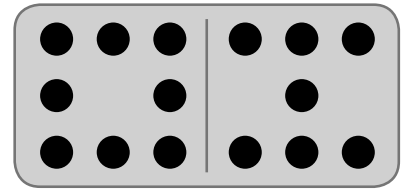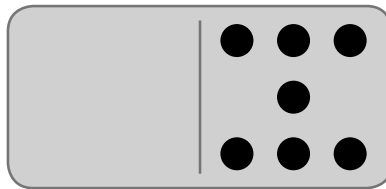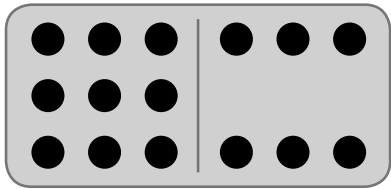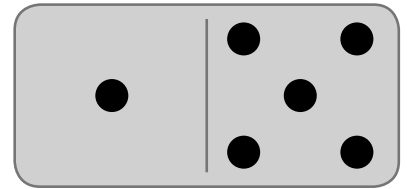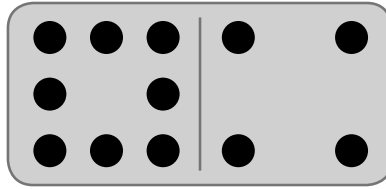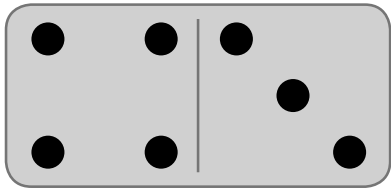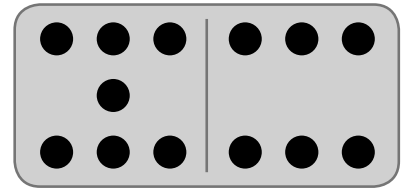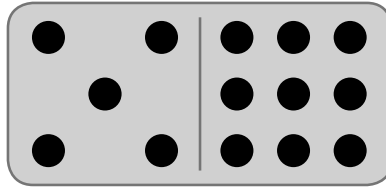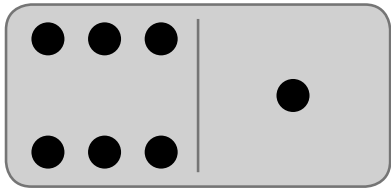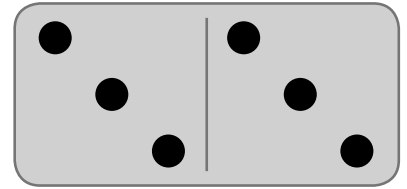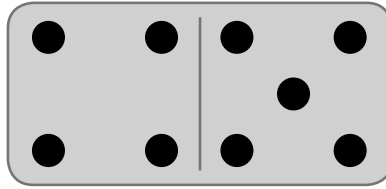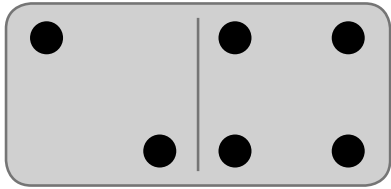
☐ Count On   ☐ Use Doubles   ☐ Make Ten

CONNECT ADDITION AND SUBTRACTION

Take or Tally

Player 1	Player 2

13 – _____ = _____

12 – _____ = _____

11 – _____ = _____

10 – _____ = _____

9 – _____ = _____

8 – _____ = _____

Tally

13 – _____ = _____

12 – _____ = _____

11 – _____ = _____

10 – _____ = _____

9 – _____ = _____

8 – _____ = _____

Tally

Cube A: 1, 2, 3, 1, 2, 3
Cube B: 7, 8, 9, 10, 11, 12

Cat and Mice

5	🐭	1	🐭	5	🐭	1
4	3	2	3	4	3	2
2	1	3	1	2	1	3
1	4	2	5	3	4	1
2	1	3	1	2	1	3
4	1	2	3	4	1	4
2	3	1	🐱	5	3	2
1 HOME	4 HOME	2 HOME	3 HOME	2 HOME	4 HOME	1 HOME

Materials: 2 standard dice

Directions for the Games

Count on 1 or 2

Focus:
Adding 1 or 2 using the count on strategy

Materials:
Two number cubes configured as follows:
Cube A: 4, 5, 6, 7, 8, 9
Cube B: 1, 1, 1. 2. 2. 2
Colored pencil or marker for each student in different colors
Game board

Directions:
The player who completes the most equations is the winner.

How to Play:
Player 1 rolls, finds the matching equation with the matching sum and fills in the dice and equation on the game board in his/her color.
Next player rolls and fills in dice and equation in his/her color.
If a player rolls a sum that is already filled, he/she misses a turn.
Play continues until board is filled or time runs out.

Example:
Gertrude rolls a numeral six and 2 dots. She says. Six count on 2 is seven, eight. I will fill in one of the equations with the sum of 8 and fill in the dice to match my roll.

Doubles plus 1

Focus:
Using doubles facts to solve a doubles plus 1 equation

Materials:
Doubles add one game board
Once cube showing the numerals 4, 5, 6, 7, 8, 9
Four counters per player, each player has a different color counter

Directions:
The player who places all four counters on the board first, wins.

How to Play:
First player rolls the number cube and doubles the number rolled, then adds one to it.
Player claims the sum by covering it with a counter. If that sum is already covered, the player misses a turn.
Other players have a turn.

Example:
Carla rolls a 7 and says, "I know that double 7 is 14, so 7 add 8, must be one more, that's 15."

For ideas on how to bring out the mathematics in this game, see Fundamentals Yellow, pp 56-57.

Bridge to Ten

Focus:
Reinforce the Bridge-to-Ten strategy for addition

Materials:
Two number cubes configured as follows:
Cube A: 8, 8, 8, 9, 9, 9
Cube B: 3, 4, 5, 5, 6, 7
Colored pencil or marker for each student in different colors
Game board

Directions:
The player who completes the most equations in their color is the winner. One player plays the left side of the board, one plays the right side. It is possible to add another player or two. In that case, each player would use the entire board and count the equations completed in his/her color at the end of the game.

How to Play:
First player rolls both cubes.
Player finds the tens fact that corresponds to the 8 or 9s fact that is rolled.
Player fills in the sum of the tens fact and the equation for the 8 or nines fact.
Next player has a turn.
Play continues until one player fills a side (in a two-player game), or the board is filled (if more than two are playing), or until time runs out.
Player with the most equations in his/her color is the winner.

Example:
Jorge rolls a 9 and a 5. He says, "I know that 9 is one away from ten. Nine add 5 has the same value as 10 add 4. That's 14. So I will fill in the space with 10 add 4 and add the equation 9 add 5 equals 14.

Cat and Mice

Focus:
Calculating difference for the basic subtraction facts

Materials:
Two number cubes showing numerals 5-10
One counter to represent the cat
Three counters in a different color to represent the mice
45 linking cubes. Connect cubes to make trains to represent each of the numbers 5-10.

Directions:
1) The player for the cat wins if they "capture" all three mice before they reach the spaces marked "home".
To capture a mouse, the player must correctly move their counter onto a space that a mouse counter occupies.
The player for the mice wins if they can avoid be "captured" and all three of their counters reach "home".
2) Decide who will play for the mice and be Player 1. Player 2 will play for the cat.
3) Player 1 places a counter onto each space showing a mouse on the game board. Player 2 places a counter onto the space showing the cat.

How to Play:
Roll the cubes.
Calculate the difference between the numbers rolled and say the answer aloud. The other player must confirm the difference.
A move is one space up, down, left, right, or diagonal in any direction. For Player 1: If your answer is correct, move one of your counters onto an adjacent space that shows the difference. For Player 2: If your answer is correct, move your counter onto an adjacent space that shows the difference.
If an answer is incorrect or the difference is not available on an adjacent space, you miss a turn.
If the two numbers rolled are the same, you miss a turn.
For Player 2: When you move to a space occupied by a mouse counter, take that counter off the game board.
Play continues in turns until all three mouse counters have been removed or the last mouse counter reaches "home".

For ideas on how to bring out the mathematics in this game, see Fundamentals Orange (pp. 32-35).

Take or Tally

Focus:
Using addition to subtract

Materials:
Two number cubes configured as follows:
Cube A: 1, 2, 3, 1, 2, 3
Cube B: 7, 8, 9, 10, 11, 12
Game board

Directions:
First to complete his/her side of the game board without receiving 5 tallies is the winner.

How to Play:
First player rolls both cubes.
Player writes the two numbers in one of the number sentences on his/her game board. The completed equation must be true.
If a true sentence cannot be made, the player makes a tally in the space provided at the bottom of the game board.
The first player to complete 6 equations before making 5 tallies is the winner.

For ideas on how to bring out the mathematics in this game, see Fundamentals Orange (pp28-29).

Addition and Subtraction Strategies Videos

Introducing the ORIGO Model for Teaching Skills
ORIGO One: https://vimeo.com/202679104

Using Five- and Ten- Frames to Represent Numbers
ORIGO One: https://vimeo.com/291989318

Teaching the Count-On Strategy for Addition
ORIGO One: https://vimeo.com/181656043

GS13: Exploring Doubles in the Real World
Gem Stones: https://www.youtube.com/watch?v=qfuWSb5CixY

GS14: Doubling Numbers Less Than 10
Gem Stones: https://www.youtube.com/watch?v=JZt2P4OdGx8

Teaching the use Doubles Strategy for Addition
ORIGO One: https://vimeo.com/181656042

GS15: Using Doubles to Add "Next Door" Numbers (Doubles-Plus-1 facts)
Gem Stones: https://www.youtube.com/watch?v=KMfqfZHzh8I&t=26s

Using Doubles to Add Nearby Numbers (Doubles-Plus-2 facts)
Gem Stones: https://youtu.be/OQcCVR6Yqus

GS4: Exploring combinations that make 10
Gemstone: https://youtu.be/o6ZkDCE5BWc

Using the Make-Ten or Bridge-to-ten Strategy for Addition
ORIGO One: https://vimeo.com/181656039

Making a Ten to Add Basic Facts
Gem Stones: https://youtu.be/ROuWdXdQ11g

GS7: Making a Ten to add a 2 digit number and activity
Gem Stones: https://youtu.be/kq1meaJDirA

Teaching the Think-Addition Strategy for Subtraction
ORIGO One: https://vimeo.com/181656037

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