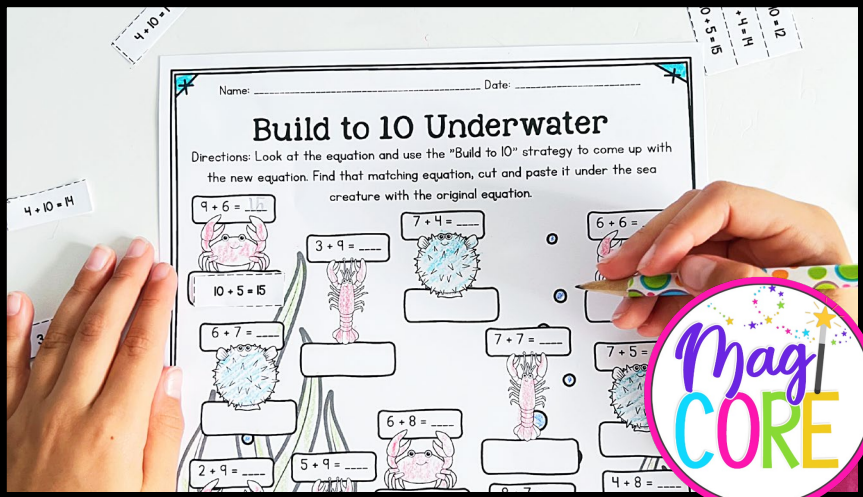
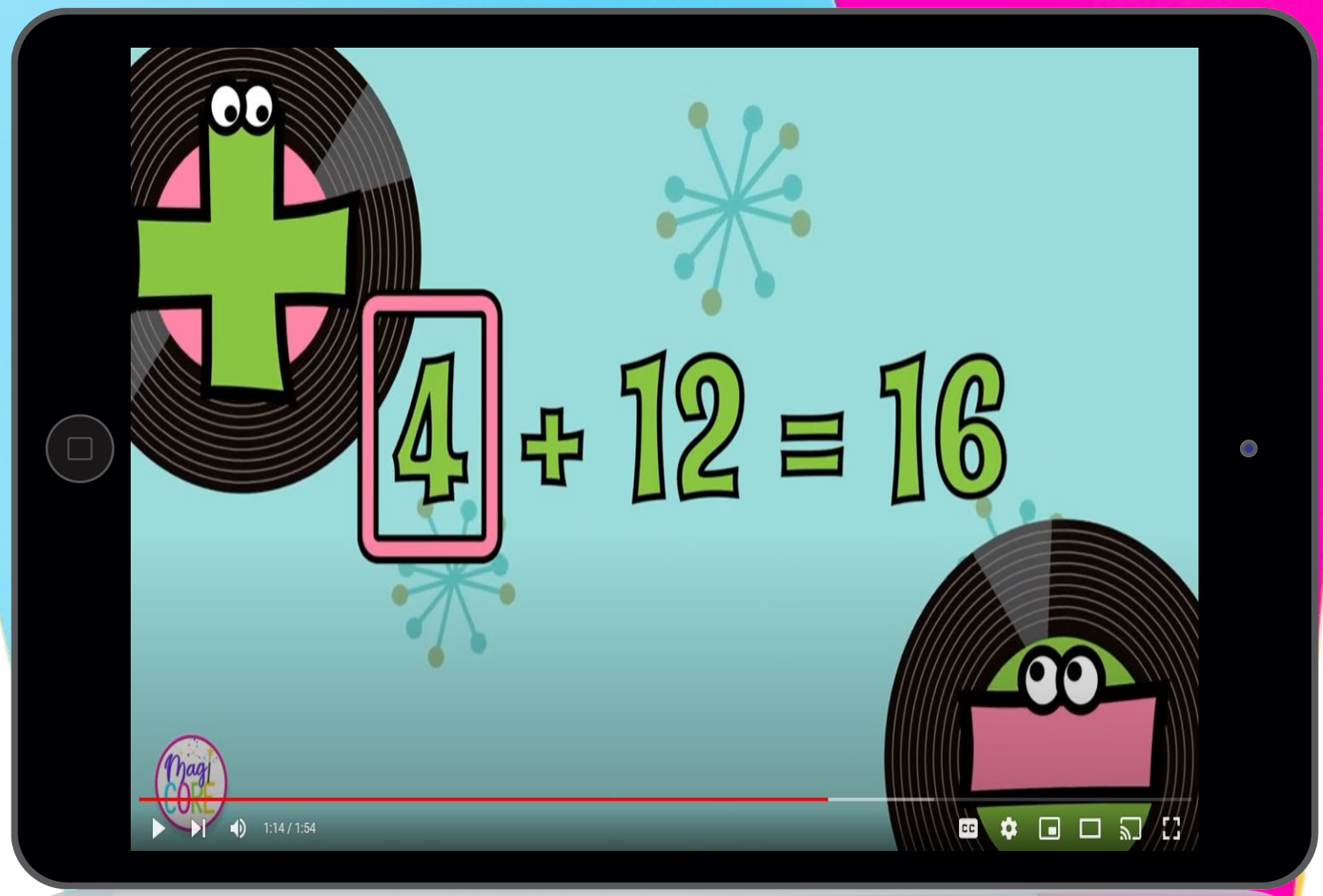
RELATE ADDITION AND SUBTRACTION

subtraction as an unknown addend



1st Grade

Mag CORE



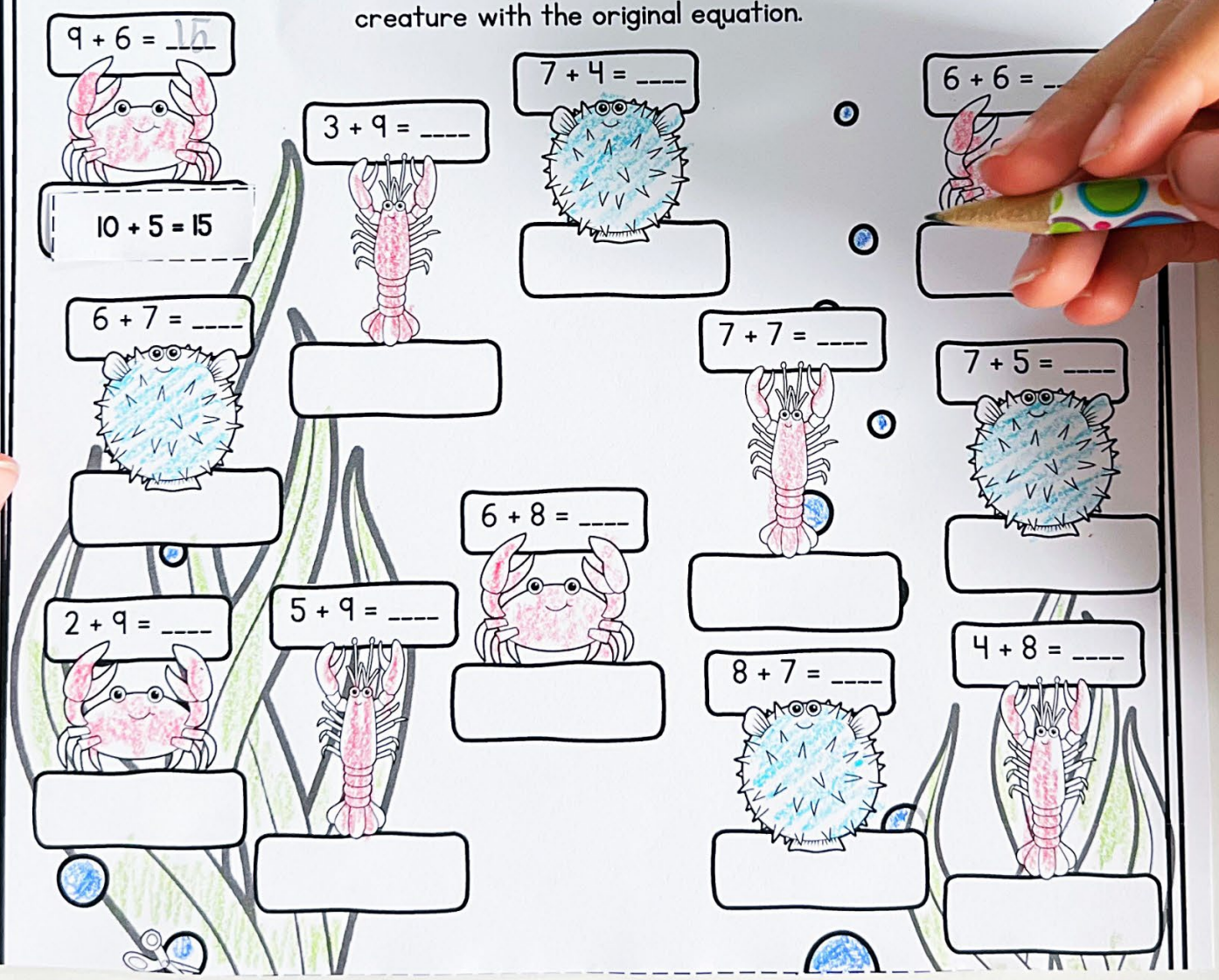
Make Learning Fun!
Original song and
video to introduce and
reinforce the skill.

Look at how the image is divided. Fill out a Part-Part-Whole box to represent the image. Then, write the two possible equations.
12
4
8
4 + 8 = 12
12 - 8 = 4
Continue the same steps on this page.
_____ + _____ = _____
_____ - _____ = _____
_____ = _____

Name: _____ Date: _____

Build to 10 Underwater

Directions: Look at the equation and use the "Build to 10" strategy to come up with the new equation. Find that matching equation, cut and paste it under the sea creature with the original equation.



4 + 10 = 14

2 + 10 = 12 | 1 + 10 = 11 | 11 + 2 = 12 | 10 + 4 = 14 | 10 + 5 = 15

Name: _____ Date: _____

Problem Solver

Solve the word problems. Use whichever strategy you want to solve the equation.

1. There are 12 butterflies in the garden. 7 of those butterflies are orange-spotted butterflies. The other butterflies are purple-spotted butterflies. How many purple-spotted butterflies are there?

2. Mrs. Quinn brought 17 pieces of candy for her cla
brought 9 pieces of candy for her class. How many m
pieces of candy did Mrs. Quinn bring than Mrs. Hugh?

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RELATE ADDITION AND SUBTRACTION

subtraction as an unknown addend

1. Pedagogy
2. Lesson Plans
3. Vocabulary Cards
4. "6 Bears" demonstration word problem
5. Anchor Chart: Addition Subtraction Swap
6. Addition Subtraction Swap Worksheet
7. Part-Part-Whole Mat
8. Image Cards
9. Mini-Book: Addition Subtraction Swap
10. Anchor Chart: Build to "10"
11. 10 Frames
12. Build to 10 Pizza/Build to 10 Underwater Cut and Paste Worksheets
13. Anchor Chart: Down to "10"
14. Popping Down to 10 Worksheet
15. Day 5 Mini-Lesson Word Problems
16. Guided Practice Word Problem
17. Problem Solvers
18. Addition Subtraction Memory Center Game
19. Quiz

Relate Addition and Subtraction

Understanding how addition and subtraction are related greatly impacts a student's ability to grasp basic and necessary mathematical reasoning. As an adult, how often do you "make 10" mentally to help you solve a simple everyday math problem? Or inverse a subtraction situation to addition to make the mental math quicker? Not only is this standard for understanding how numbers relate to one another, but it is about establishing a life skill. These mental math skills will help students throughout their lives, whether they become mathematicians or not.

The unit begins by discussing the relationship between addition and subtraction on a conceptual level, reasoning through their relation. The unit then takes students through various approaches to solving equations and relating addition and subtraction. Students will explore using manipulatives, the part-part-whole model, and how to go to 10 to make their mental math easier. The unit will also dive into real-world application with word problems.

Students will learn how to use mental math of counting on and counting back, the part-part-whole model, and how to use the number 10 to their advantage when solving addition and subtraction equations. Students will use subtraction or addition to help them solve more complex equations and break them down into simpler forms. Students will gain a strong understanding of how to use subtraction to solve addition and how to use addition to solve subtraction, and when to use what.

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Relate Addition and Subtraction

Day 1: Introduce relating addition and subtraction up to 10

Mini Lesson: Introduce the purpose of the lesson today: to relate addition and subtraction through counting on and counting back.

- Show students the unit vocabulary cards.
- Watch the Relating Addition and Subtraction Song.
- Introduce the word problem "6 bears"
    - As you read this word problem, follow the directions. The idea of introducing the content through a word problem is for students to volunteer different ways they could solve the problem. Some might suggest addition, some might suggest subtraction. This is a great way to get the conversation going and help students begin making connections between addition and subtraction.
- Introduce the "Addition and Subtraction Swap" Anchor Chart.
- Model solving the equation 4 + ____ = 9 first by using addition to count on. Then, model and narrate how you can also solve the equation through subtraction, by taking 4 from 9. It might also be helpful to mention how these numbers, 4, 5, and 9, now make up a fact family. Use manipulatives to visually show how the two equations would be solved.
    - Repeat this process for 3-4 more equations of your choice.

Guided Practice: Pass out a manipulative of choice to the students. Write up the following equations on the board: 6 + ____ = 10; 2 + ____ = 7; and 5 + ____ = 8. Tell students they need to solve using subtraction and writing a new equation from the unknown addend equation.

- i.e., 6 + ____ = 10 becomes 10 - 6 = 4; 2 + ____ = 7 becomes 7 - 2 = 5; and 5 + ____ = 8 becomes 8 - 5 = 3. Call on students to share their reasoning for solving the equations and discuss these answers and how the two equations are related.

Independent Practice: Students work on the Addition/Subtraction Swap worksheet.

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Day 2: Relating Addition and Subtraction up to 20 with Part-Part-Whole

Mini Lesson: Introduce the purpose of the lesson today: to relate addition and subtraction through solving equations with Part-Part-Whole

- Review the unit vocabulary cards.
- Watch the Relating Addition and Subtraction Song.
- Review the "Addition and Subtraction Swap" Anchor Chart.
- Model solving 4-5 missing addend equations by changing the equation to subtraction. Use a Part-Part-Whole model to work out the equations.
    - Be sure to continue to discuss the rationale and how the two equations are related. Discuss how the three numbers in the equation make up a Fact Family.

Guided Practice: Pass out Part-Part-Whole mats to each student. Show the image cards to students on a poster. As a class, work together to compose a missing addend and a subtraction equation from the number of objects on each image card. Discuss the relationship between the two equations. In addition, discuss the various equations that could come out of the image cards.

- i.e., if the image card has 13 objects on it. Some students might make the equations 10 + 3 = 13 and 13 - 3 = 10, or they might see the card differently and make the equation 6 + 7 = 13 and 13 - 6 = 7. There are many possible answers.

Independent Practice: Show students the Addition Subtraction Swap mini-book. Students begin working on their mini-books.

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Day 3: Relating Addition and Subtraction using go to 10

Mini Lesson: Introduce the purpose of the lesson today: to relate addition and subtraction through solving equations by making 10 in addition.

- Review the unit vocabulary cards.
- Watch the Relating Addition and Subtraction Song.
- Show students these two problems: 8 + 5 = ____ and 10 + 3 = ____
    - Ask students to solve both equations. Have students share out their answers (13). Ask them which equation was easiest to solve. Most will say 10 + 3 = ____ was the easiest. This is a great introduction to why making 10 is such a great mental math strategy.
- Introduce the "Build to 10" Anchor Chart. *We just built to 10 today with addition.*
- Discuss with students how adding on to 10 is so easy for them! Show the equation 8 + 5 = ____ again. Model and narrate how to get 8 to 10 by taking 2 from 5. Use a 10 frame to offer visualization. The new equation is then 3 + 10 = ____. Now solve that equation. Model the making 10 strategy with 3 more equations.

Guided Practice: Pass out 10 frames to each student. If you do not already have laminated 10 frames for your class, there is a printable version in this document. Write out several addition equations on the board. As a class, work together to solve by making 10, writing a new equation, and then solving for the sum.

Independent Practice: Students work on one of the "Build to 10" cut-and-paste worksheets.

Day 4: Relating Addition and Subtraction go to 10

Mini Lesson: Introduce the purpose of the lesson today: to relate addition and subtraction through solving equations by making 10 in subtraction.

- Review the unit vocabulary cards.
- Watch the Relating Addition and Subtraction Song.
- Review the "Build to 10" Anchor Chart.
- Introduce the "Down to 10" Anchor Chart.
- Model solving subtraction equations by working back down to 10. Fully narrate each equation and model with two 10 frames.
    - i.e., 14 – 5 = ____; Start with 14 and take off 4 to go down to 10. Because the number is 5, you need to take off 1 more and that makes 9. 14 – 5 = 9.

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Day 4 Continued . . .

Guided Practice: Pass out two 10 frames to each student. Write out several subtraction equations on the board. As a class, work together to solve by working down to 10. Have students explain the process to support understanding. Making 10, especially to solve subtraction equations, can be very complex at first for our students. However, this strategy, once it takes, will make mental math so much easier for students.

Independent Practice: Students work on their "Popping Down to 10" worksheet.

Day 5: Solving word problems with Addition and Subtraction

Mini Lesson: Introduce the purpose of the lesson today: to relate addition and subtraction in to help us solve word problems

- Review the unit vocabulary cards.
- Watch the Relating Addition and Subtraction Song.
- Review the "Addition and Subtraction Swap," "Build to 10," and "Down to 10" Anchor Charts.
- Model solving the Day 5 Mini-Lesson word problems. Demonstrate the use of each strategy from the previous days. Solve one with manipulatives by making two equations, an addition equation and a subtraction equation. Solve one using the Part-Part-Whole mat. Solve another two by building to 10 and going down to 10.

Guided Practice: Place students in pairs. Pass out Part-Part-Whole mats and 10 frames to students to use as aids. Display the Day 5 Guided Practice word problem on a poster for the whole class to see. Read through the word problem and ask the pairs to come up with two separate strategies to solve the word problem and solve it together. Then, ask each pair to share which two strategies they used.

Independent Practice: Students work on the Problem Solvers.

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Day 6: Review the relationship between Addition and Subtraction

Mini Lesson: Introduce the purpose of the lesson today: review the relationship between addition and subtraction.

- Review the unit vocabulary cards.
- Watch the Relating Addition and Subtraction Song.
- Review the "Addition and Subtraction Swap," "Build to 10," and "Down to 10" Anchor Charts.

Guided Practice: Teach the "Addition Subtraction Memory Solver Game." In this game, students will play the game of memory but with addition and subtraction equations. They will work for matching pairs of equations, one addition and one subtraction. Once they find a matching pair, they will need to solve the equations to determine the missing number.

- i.e., 7 + ____ = 15 is matched to 15 - 7 = ____, they solve the equations to determine the missing number is 8.

Independent Practice: Students work in pairs or groups up to 4, playing the "Addition Subtraction Memory Game."

Day 7: Relate Addition and Subtraction

Mini Lesson: Introduce the purpose of the lesson today: to relate addition and subtraction.

- Review the unit vocabulary cards.
- Watch the Relating Addition and Subtraction Song.
- Review the "Addition and Subtraction Swap," "Build to 10," and "Down to 10" Anchor Charts.

Guided Practice: Optional for students to play the "Addition Subtraction Memory Solver Game" as a review activity.

Independent Practice: Relate Addition and Subtraction Quiz. Supply students with part-part-whole mats and 10 frames for them to use when solving problems on the quiz.

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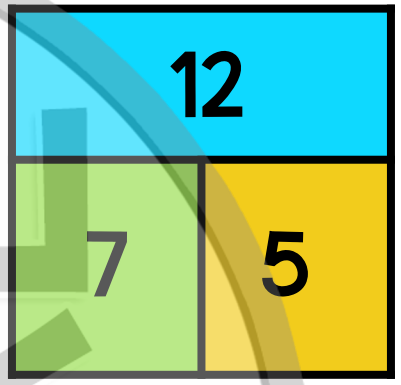
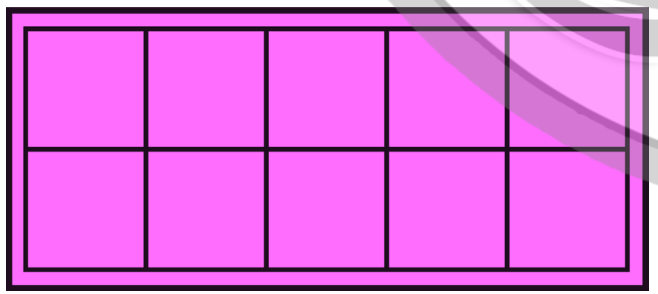
Missing Number

$8 + \square = 11$

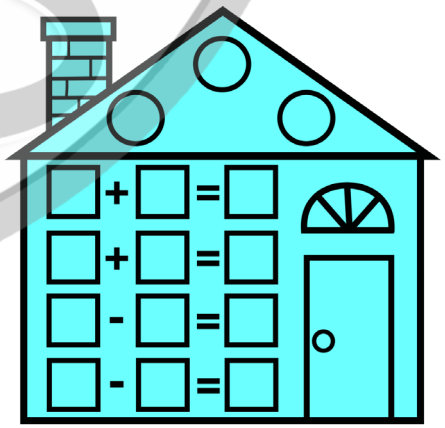
Part-Part-Whole



10 Frame



Fact Family



Swap Bop

They Do the swap bop they do the swap bop
Addition and subtraction do the swap bop
They Do the swap bop they do the swap
Addition and subtraction do the swap bop

When you have an addition equation
You can swap it up and change the situation
Try subtracting numbers instead
It makes it easier and won't hurt your head

4 plus a number equals 6 what are we going to do
Well we can take 6 minus 4 and it tells us the number equals 2 because

They do the swap bop, the swap bop
Our addition and subtraction can be swapped

They do the swap bop, the swap bop
Our addition and subtraction do the swap bop

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Do the swap bop do the swap bop
Subtraction and addition do the swap bop
They can also be flip flopped
Subtraction and addition do the swap bop

When you have a subtraction equation
You can also swap it and change the situation
Try adding numbers instead
It makes it easier and won't hurt your head

If 16 minus 12 seems hard there has to be another way
You can add 4 and 12 to get 16 this swap also works okay

They Do the swap bop, they do the swap bop
If you can't find the number don't you stop
They Do the swap bop, they do swap bop
addition to subtraction do the swap bop

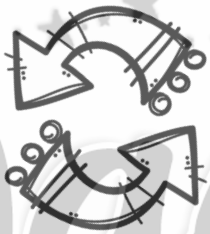
Do the swap bop they do the swap bop
Addition and subtraction do the swap bop
Do the swap bop the do the swap bop
Your math equations love to do the swap bop

©Julie Bochose

Addition Subtraction Swap

Addition and Subtraction are related in many ways!

When you have an addition equation, you can swap it into a subtraction equation to help you solve it.

$4 + \_\_\_\_ = 6$  $6 - 4 = \_\_\_\_$

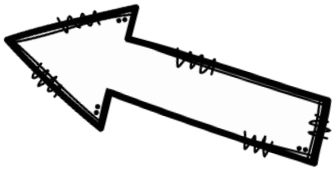
$4 + \underline{2} = 6$ $6 - 4 = 2$

The missing number is 2.

When you have a subtraction equation, you can swap it into an addition equation to help you solve it.

$16 - 12 = \_\_\_\_$ $12 + \_\_\_\_ = 16$

$16 - 12 = \underline{4}$ $12 + 4 = 16$



The difference is 4.

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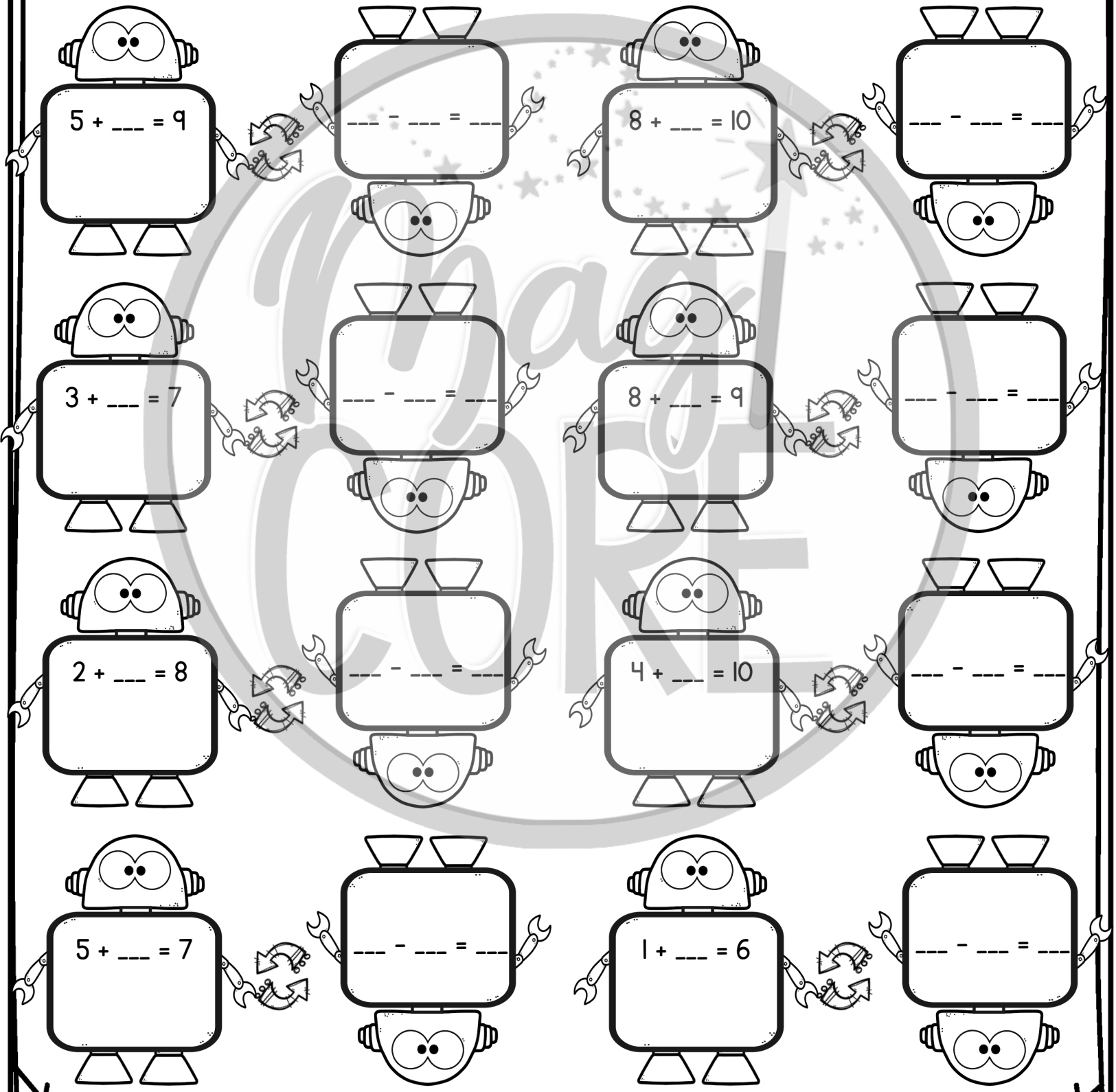
Name: _____ Date: _____

Addition Subtraction Swap

Directions: Look at the addition equation. Swap the equation into subtraction and solve using the subtraction equation.



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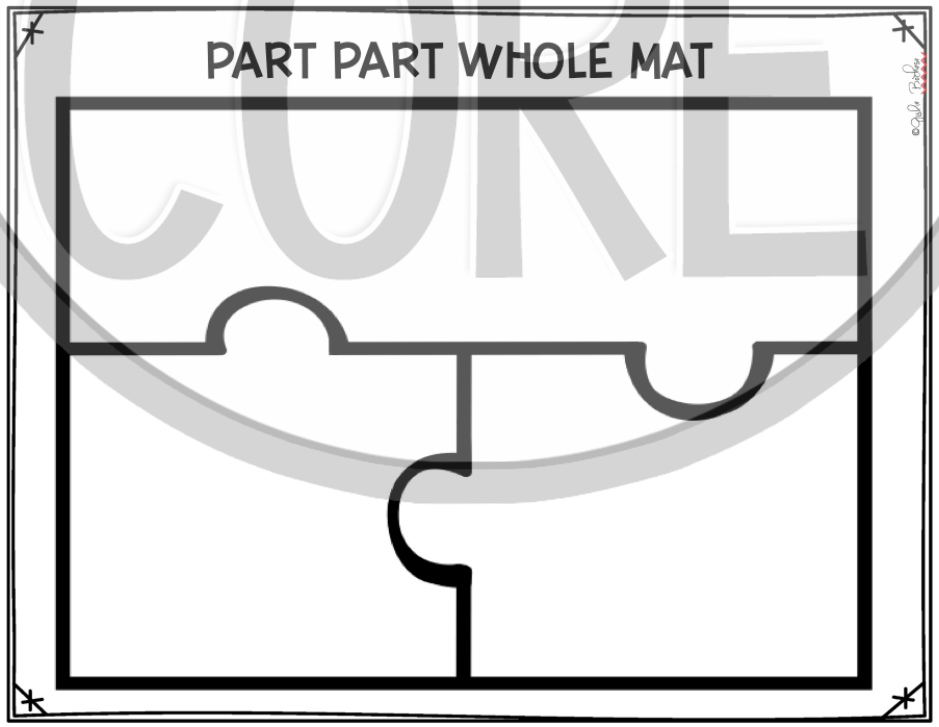
PART-PART-WHOLE MAT

Directions:

Print out, cut in half, and laminate a Part-Part-Whole mat for each student to use throughout the unit. You can have students keep these in their math journals/folders to use the rest of the year, or have a class set that you keep and pass out when necessary.



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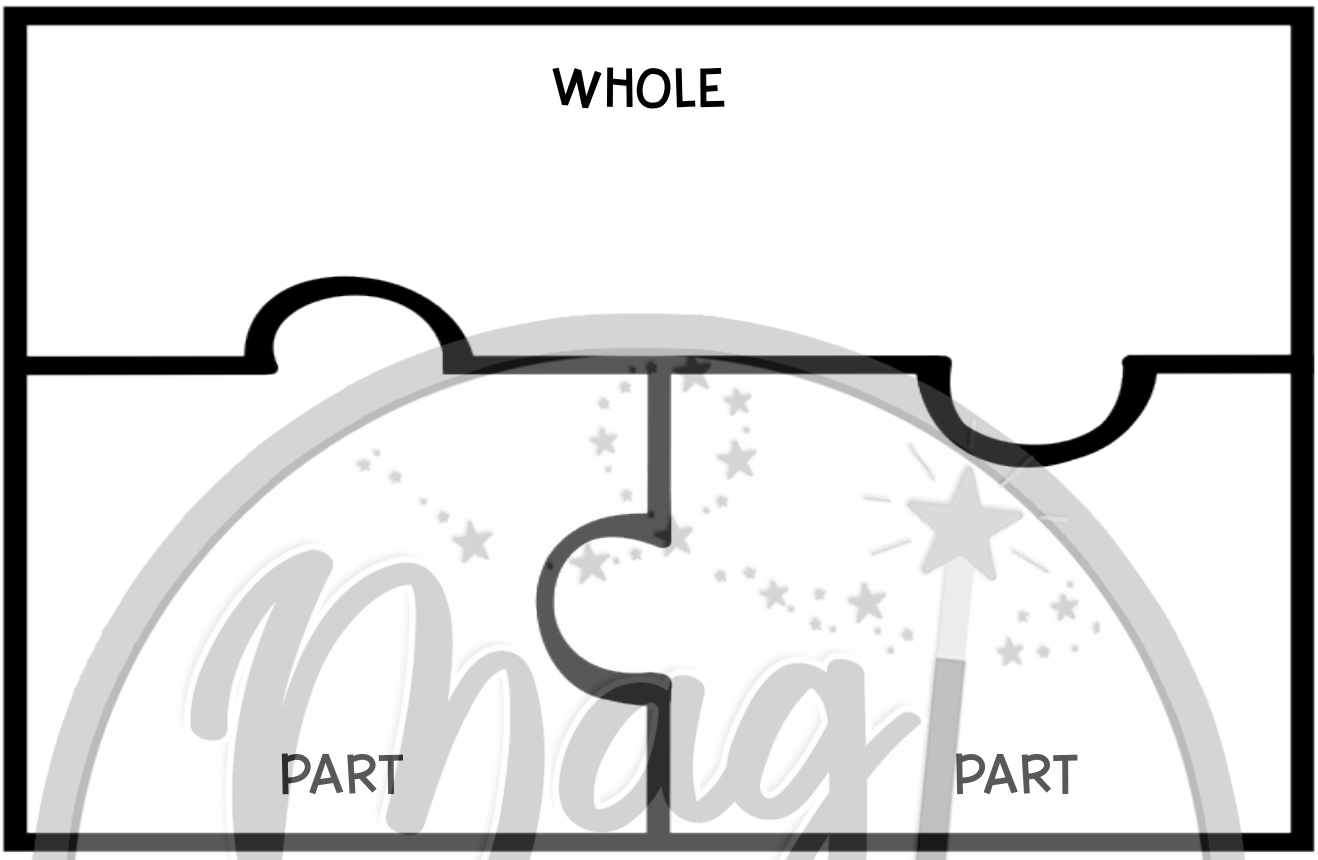
PART-PART-WHOLE MAT



PART-PART-WHOLE MAT

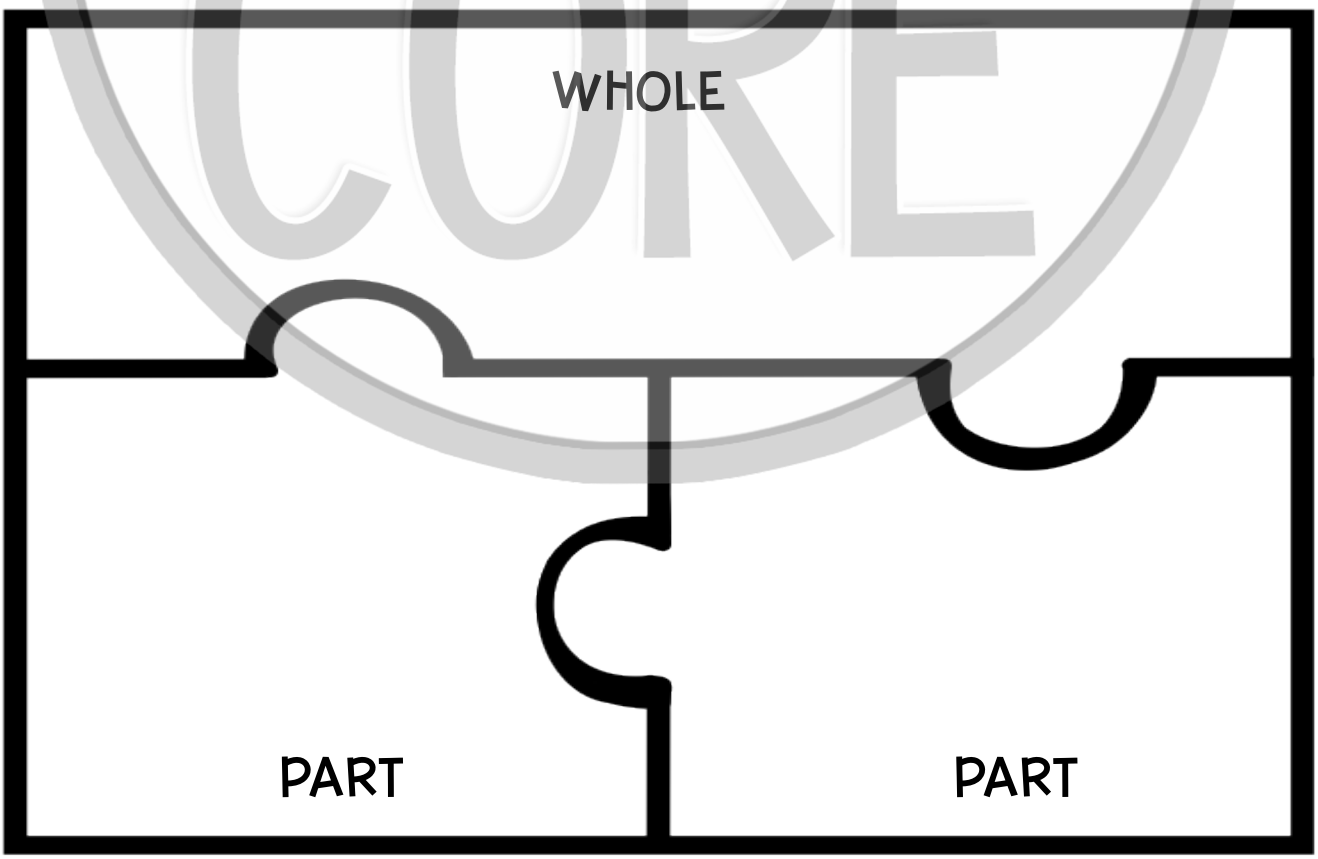


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IMAGE CARDS

Directions:

- Print out the image cards and present them on a poster.
- Display the image cards for the class.
- Work as a class to compose a missing addend and a subtraction equation from the number of objects on each image card.
- Discuss the relationship between the two equations.
- In addition, discuss the various equations that could come out of the image cards.

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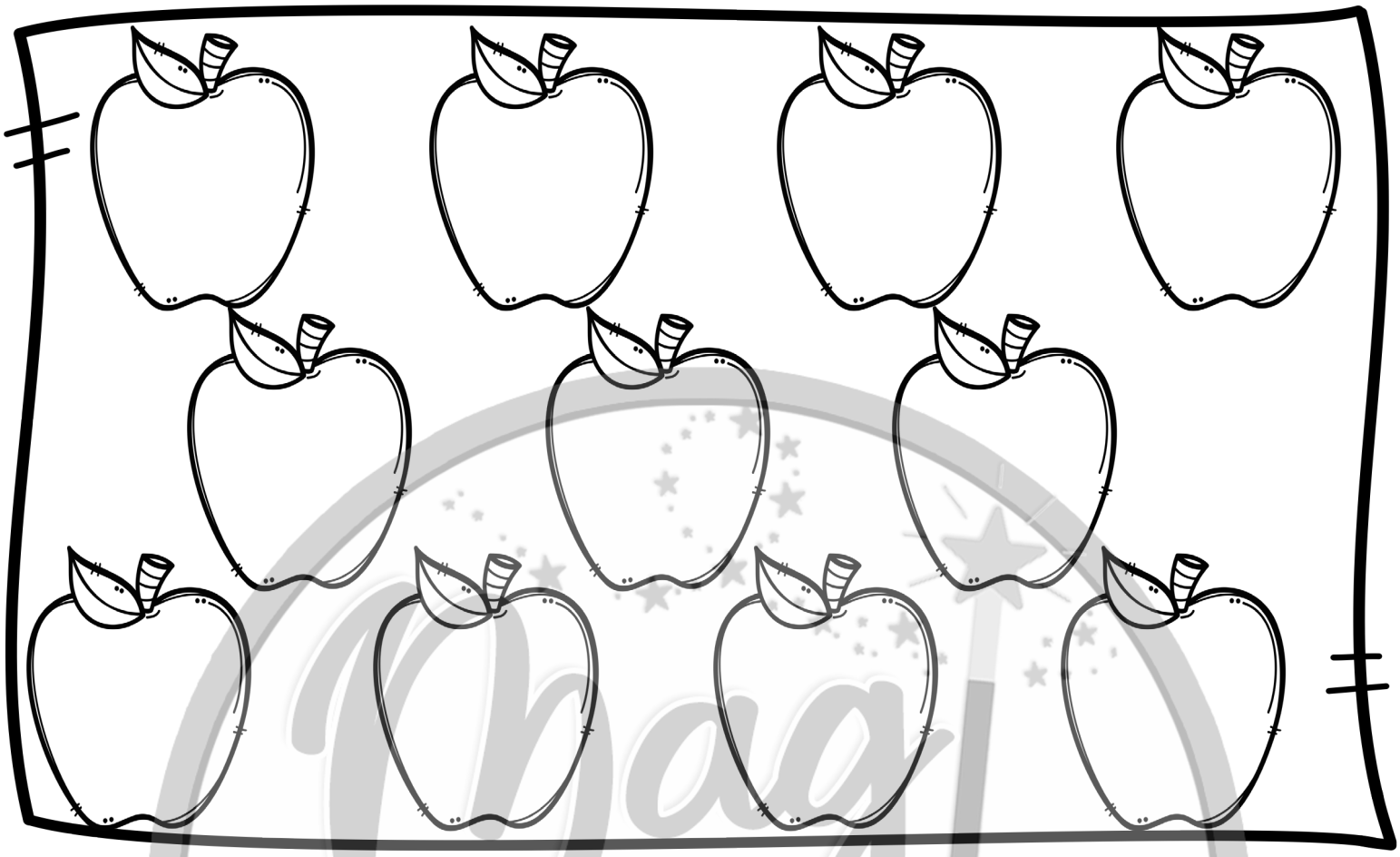

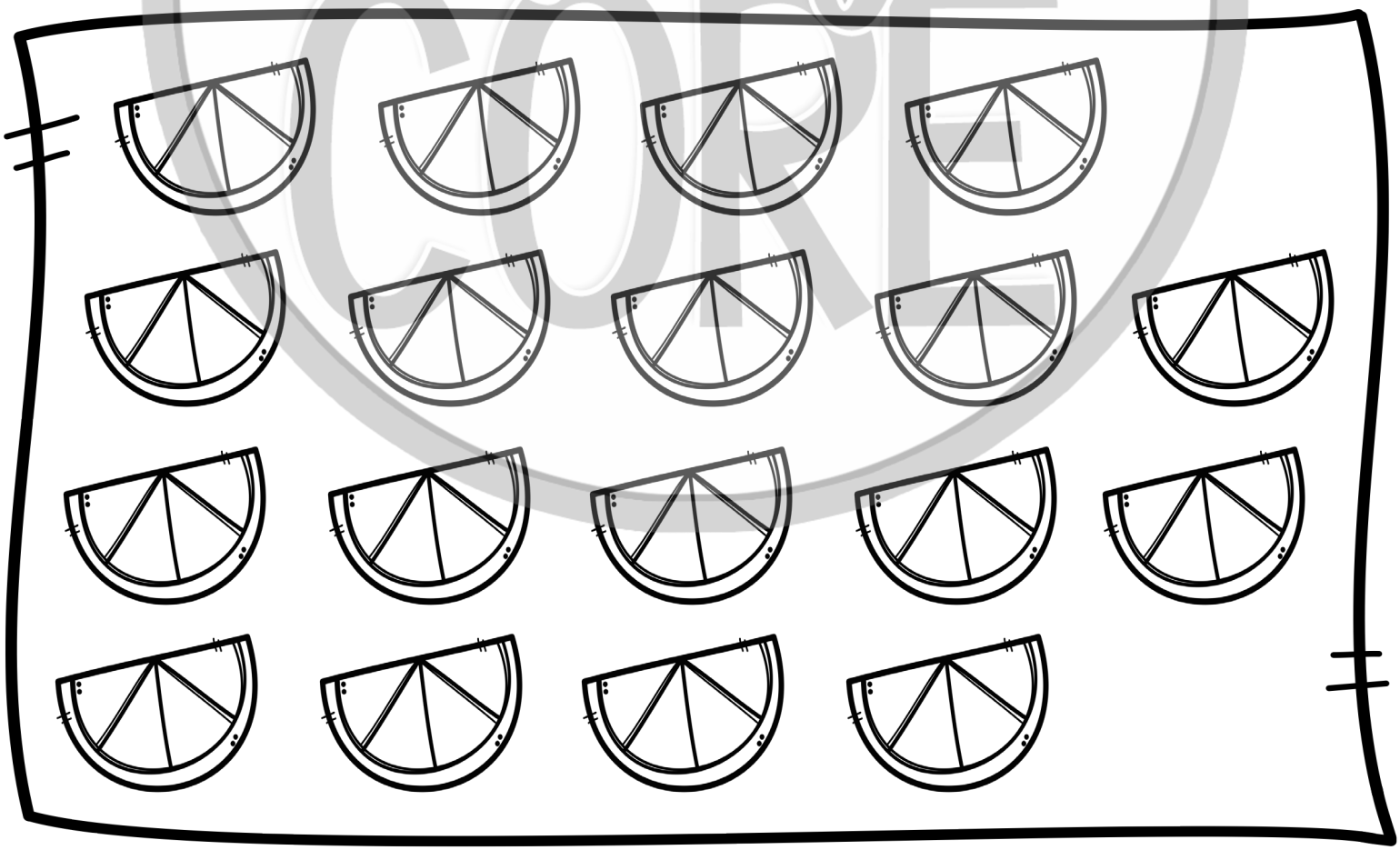

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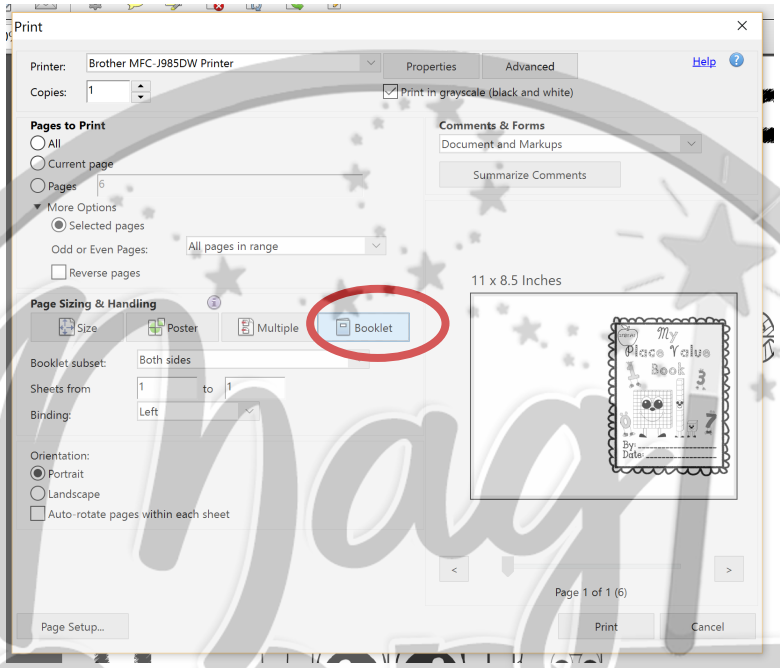
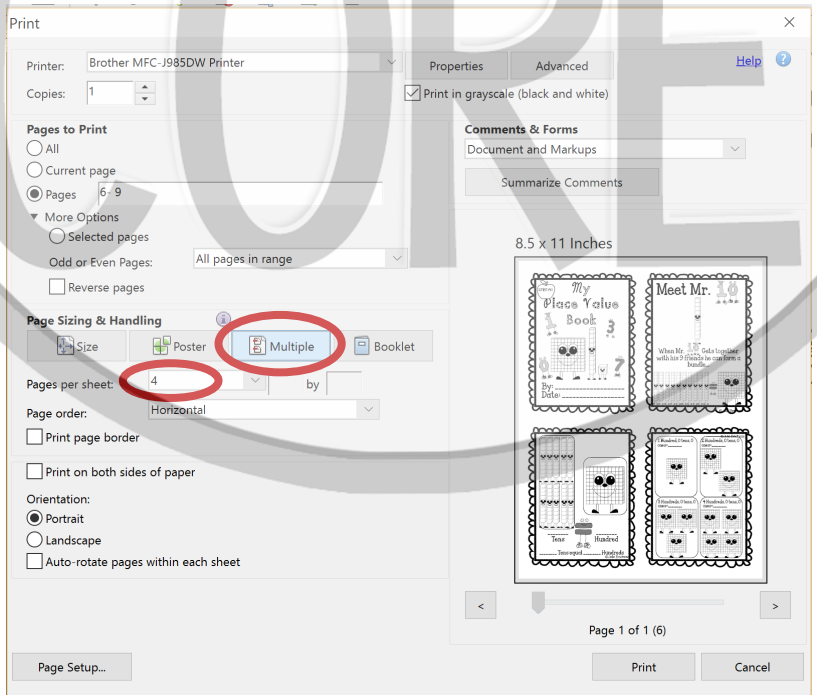
Mini Book Printing Tips

To save paper, you can print using the following options:

Half Page: Select "booklet" under sizing.



Mini Books (4 per page): Select "Multiple" under sizing. Select 4 per sheet.



Print as many pages as you would like to use Number of the Day.

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Addition Subtraction

Relate Addition and Subtraction

By: _____

Date: _____

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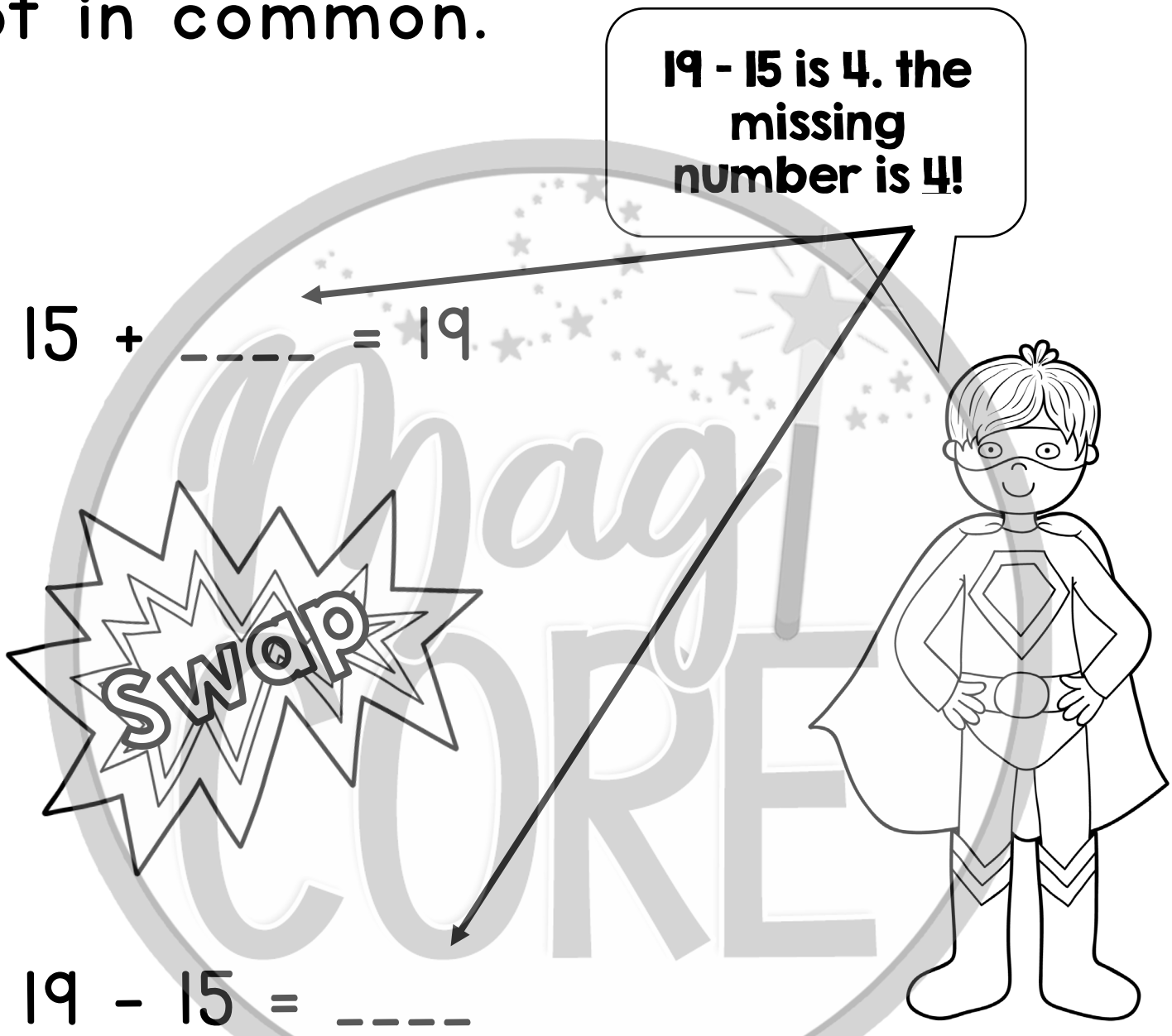
Addition and Subtraction have a lot in common.



Sometimes, when you have an addition equation, you can swap it into a subtraction equation.

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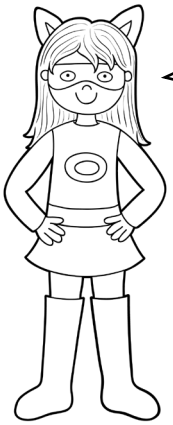

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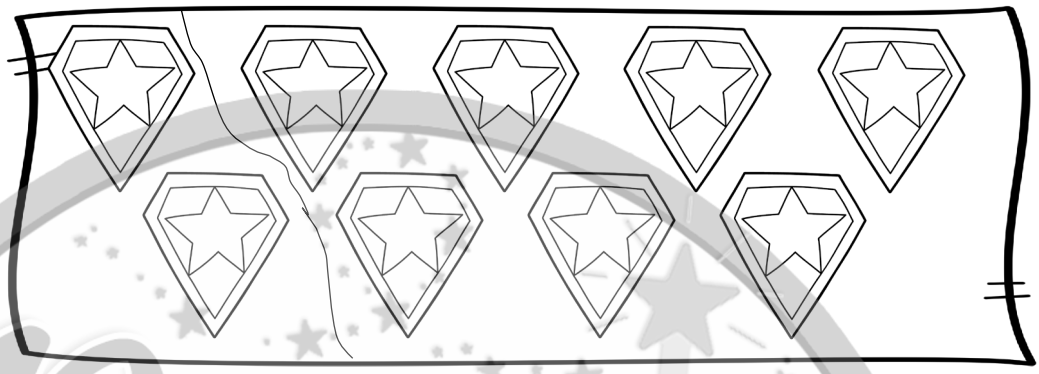
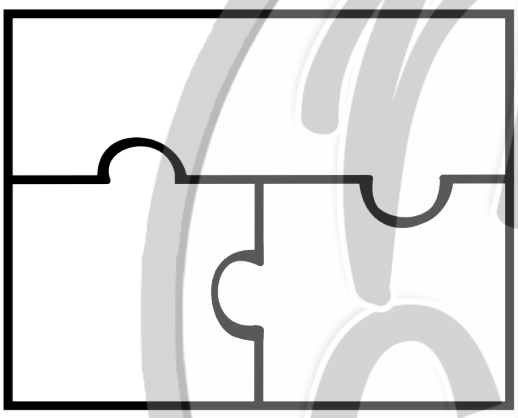
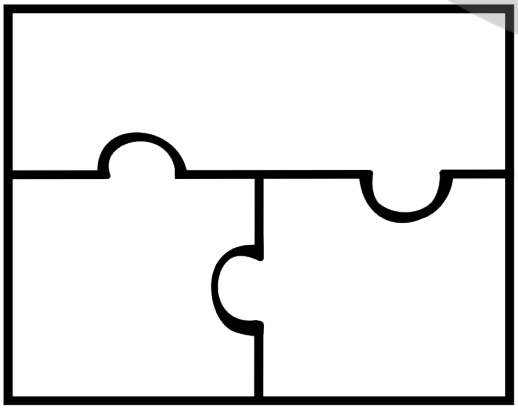




_____ + _____ = _____

_____ − _____ = _____



_____ + _____ = _____

_____ − _____ = _____

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Build to "10"

Addition and subtraction can be tricky.

You can make it easier by "building to 10."

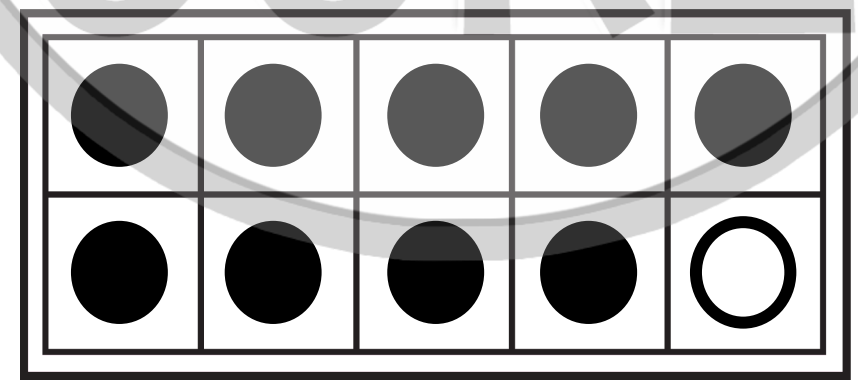
Break the number that is <u>less</u> into two parts.

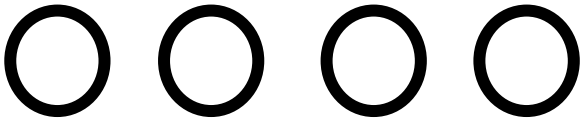
9 + 5 = ____

9 + 1 4

9 + 1 = 10 + 4 = 14

9 + 5 = ____





9 + 1 = 10

10 + 4 = 14

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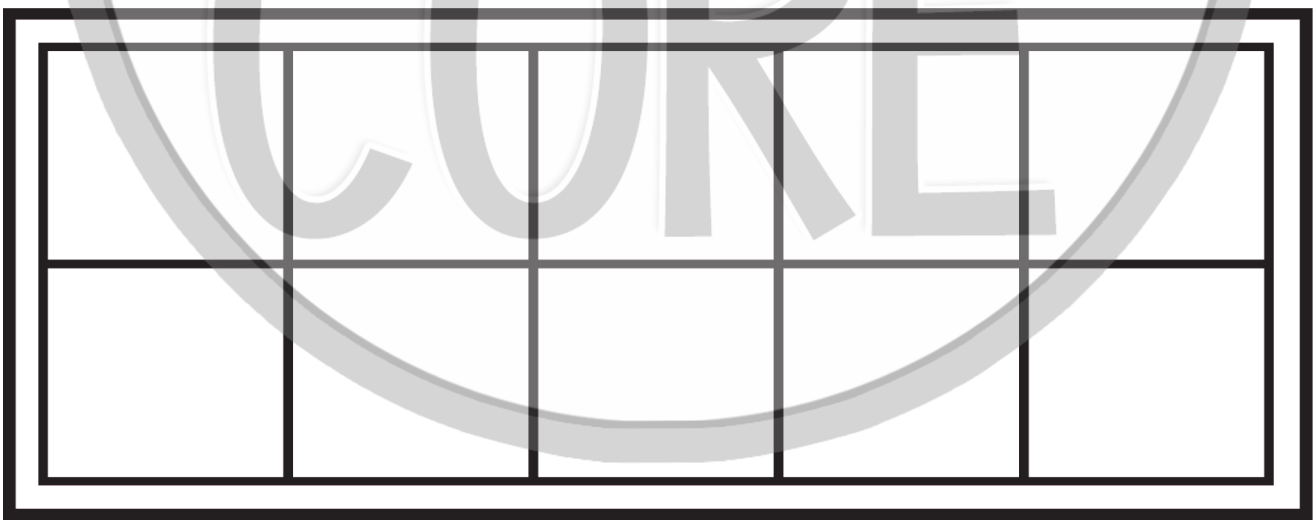
10 Frames

Directions:

Print out, cut in half, and laminate a 10 frame for each student to use throughout the unit.

You can have students keep these in their math journals/folders to use the rest of the year, or have a class set that you keep and pass out when necessary.



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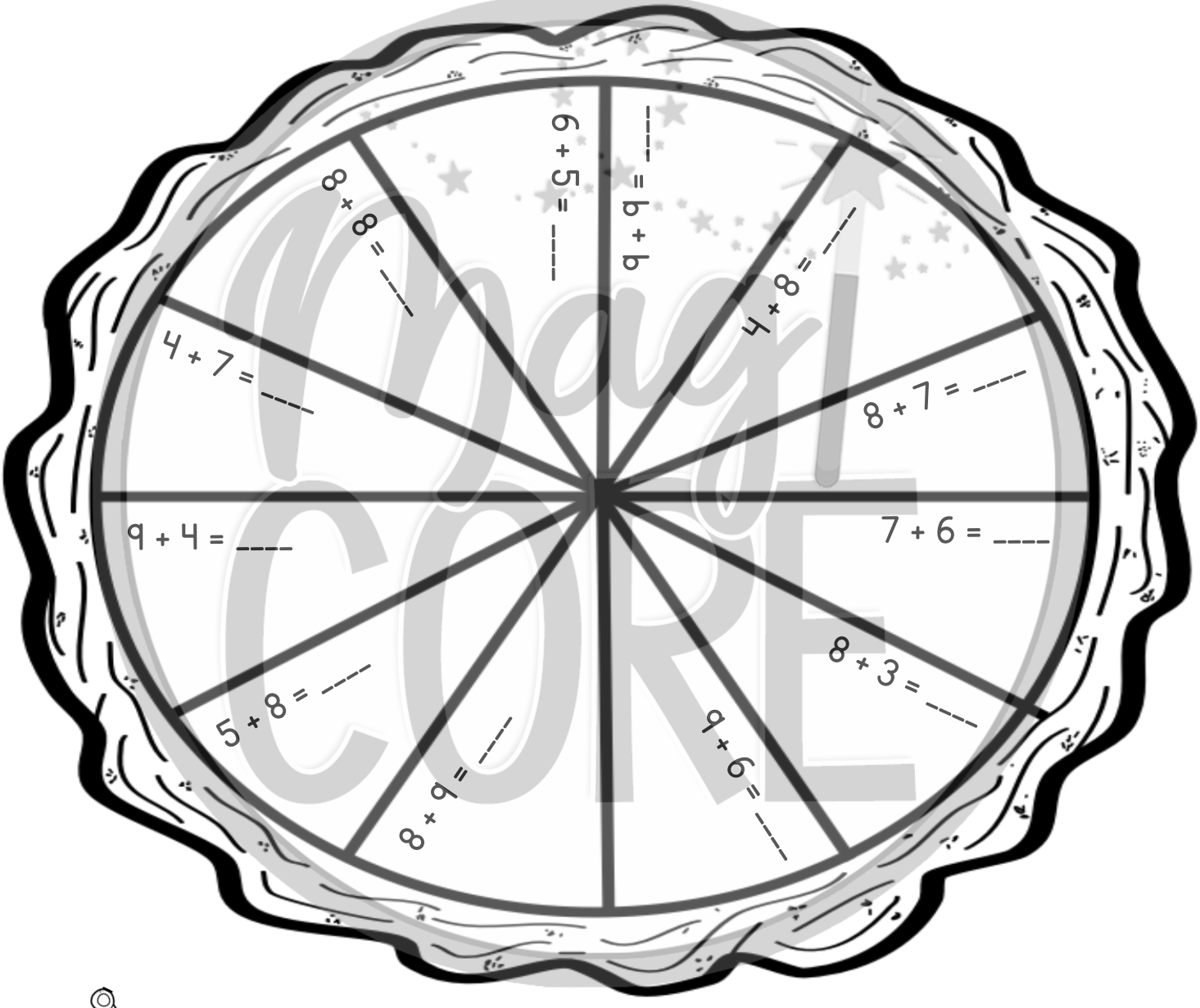
Name: _____ Date: _____

Build to 10 Pizza

Directions: Look at the equation in the pizza slice and use the "Build to 10" strategy to come up with the new equation. Find that matching equation, cut and paste it on the same slice as the original equation.



10 + 5 = 15	10 + 3 = 13	2 + 10 = 12	10 + 1 = 11
1 + 10 = 11	3 + 10 = 13	7 + 10 = 17	10 + 3 = 13
10 + 6 = 16	10 + 18 = 18	10 + 5 = 15	10 + 1 = 11

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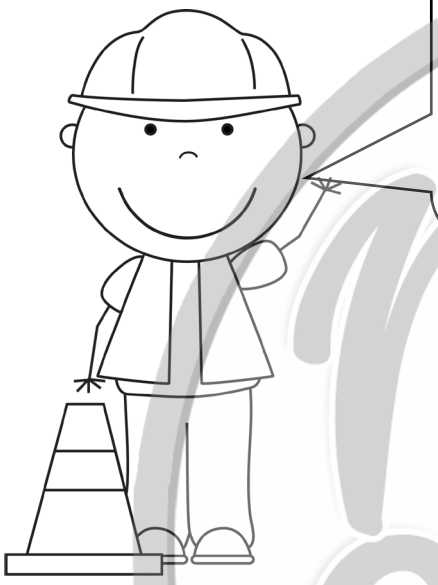
Down to "10"

Addition and subtraction can be tricky.

You can make it easier by "sliding down to 10."



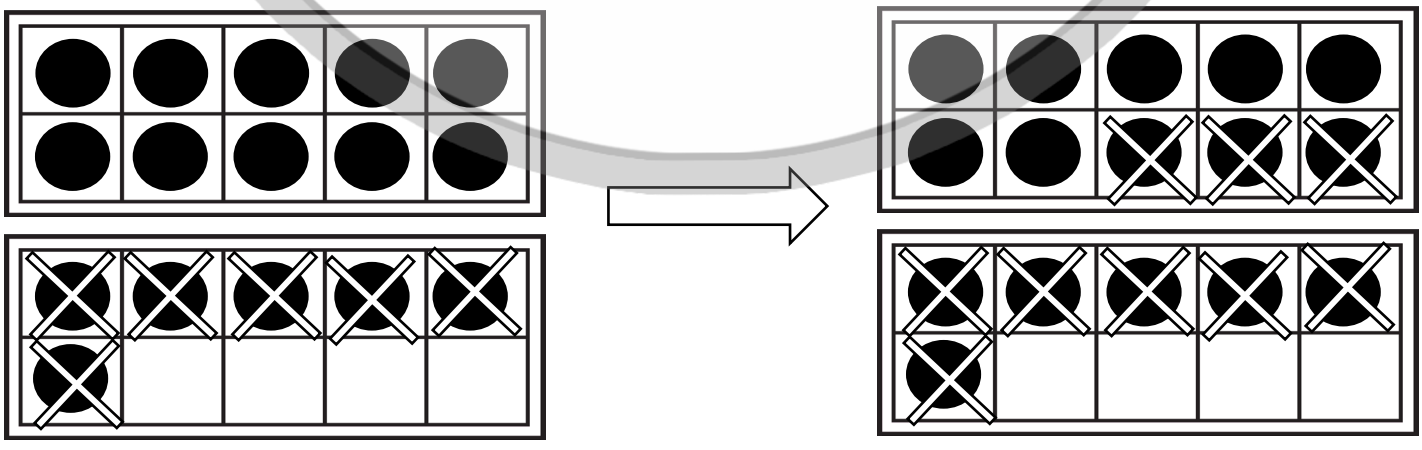
Break up the number that is less.
Then, take off enough from the biggest number to get to 10.

16 - 9 = ____

6 3

16 - 6 = 10 - 3 = 7

16 - 9 = ____



16 - 6 = 10

10 - 3 = 7

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Name: _____ Date: _____

Popping Down to 10

Directions: Look at the equation. Write and solve a new equation using the "Down to 10" strategy.

14 - 8 = ____

4 4

10 - 4 = 6

19 - 10 = ____

____ - ____ = ____

16 - 7 = ____

____ - ____ = ____

12 - 8 = ____

____ - ____ = ____

18 - 9 = ____

____ - ____ = ____

11 - 2 = ____

____ - ____ = ____

17 - 12 = ____

____ - ____ = ____

13 - 10 = ____

____ - ____ = ____

20 - 16 = ____

____ - ____ = ____

14 - 5 = ____

____ - ____ = ____

12 - 3 = ____

____ - ____ = ____

15 - 9 = ____

____ - ____ = ____

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Day 5 Mini-Lesson Word Problems

Directions:

- Print and cut out the four word problems and display them on a poster.
- Model solving the word problems using all the highlighted strategies:
    - Using manipulatives to make an addition and subtraction equation for the problem
    - Using a part-part-whole mat
    - Using the build to 10 strategy
    - Using the go down to 10 strategy

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*manipulatives
+/-

Dolphins

There are 11 dolphins swimming in the ocean.
5 of these dolphins are bottlenose dolphins.
The other dolphins are spotted dolphins.

How many spotted dolphins are there?

*Part-Part-Whole

Herb Garden

My garden has 14 herbs.
8 of my herbs are rosemary, the rest are thyme.

How many of my herb plants are thyme?

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Guided Practice Word Problem

Directions:

- Print and cut out the word problems and display them on a poster.
- Place students in pairs.
- Instruct students, in their pairs, to use two different strategies to solve the word problem.
- Have each group share the two strategies they chose.

Sweet Breakfast

Caroline's mom made her 18 mini-cinnamon rolls for breakfast. Caroline put maple syrup on 12 of her cinnamon rolls and whipped cream on the rest.

How many cinnamon rolls did Caroline put whipped cream on?

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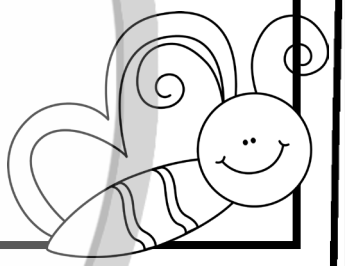
Name: _____ Date: _____

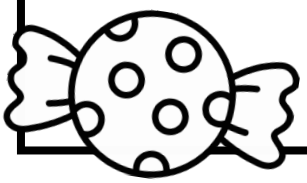
Problem Solver

Solve the word problems. Use whichever strategy you want to solve the equation.

1. There are 12 butterflies in the garden. 7 of those butterflies are orange-spotted butterflies. The other butterflies are purple-spotted butterflies. How many purple-spotted butterflies are there?



2. Mrs. Quinn brought 17 pieces of candy for her class. Mrs. Hugh brought 9 pieces of candy for her class. How many more pieces of candy did Mrs. Quinn bring than Mrs. Hugh?



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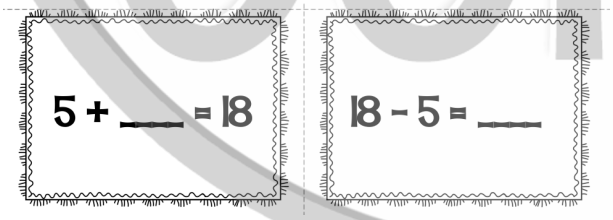
Addition Subtraction Memory

Directions:

1. Print cards.
2. Laminate and cut out.
3. Mix the cards up in a large Ziploc bag.
4. In this game, students will play the game of memory but with addition and subtraction equations. They will work to find matching pairs of equations, one addition and one subtraction. Once they find a matching pair, they will need to solve the equations to determine the missing number.

Label

Addition Subtraction Memory



Directions: Put all the cards equation side down. Take turns flipping two cards over at a time. If the addition equation and subtraction equation match, solve the equations and then you get to keep the match! If the cards aren't a match, flip them back over. Once all the cards are gone, the person with the most matches wins.

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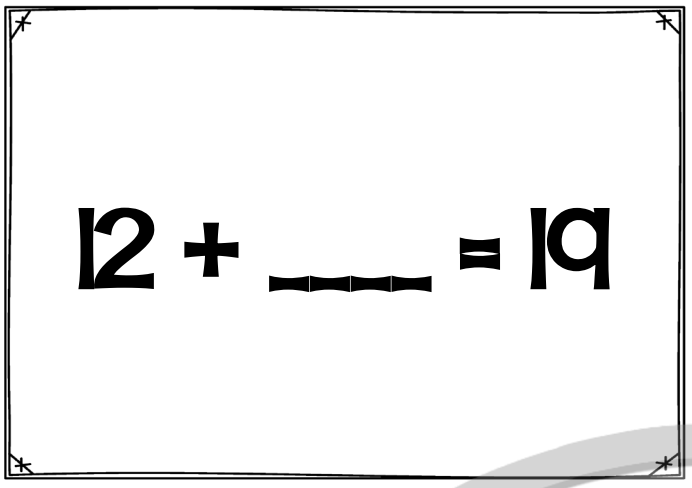

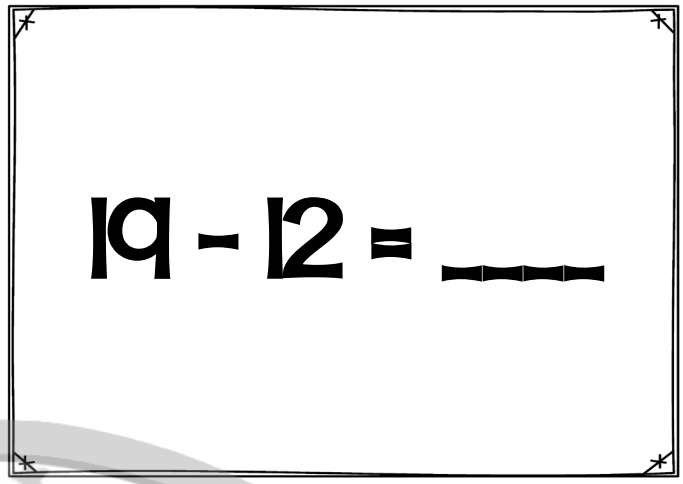

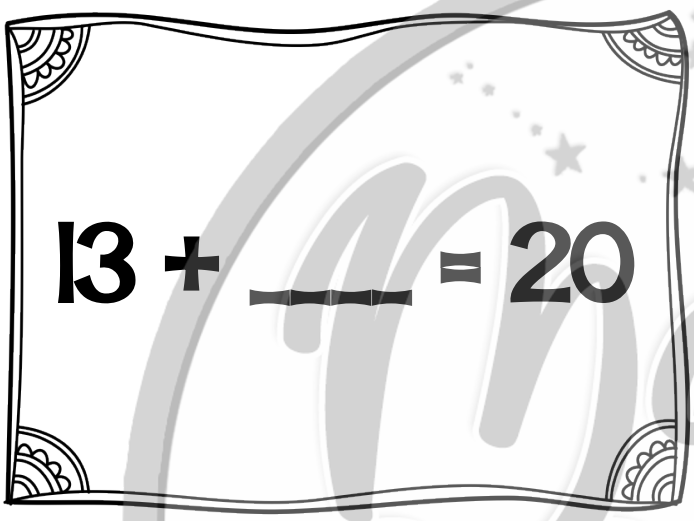

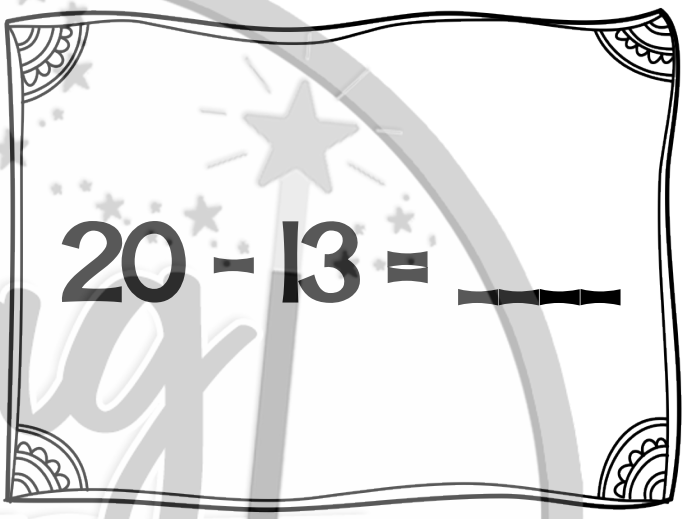

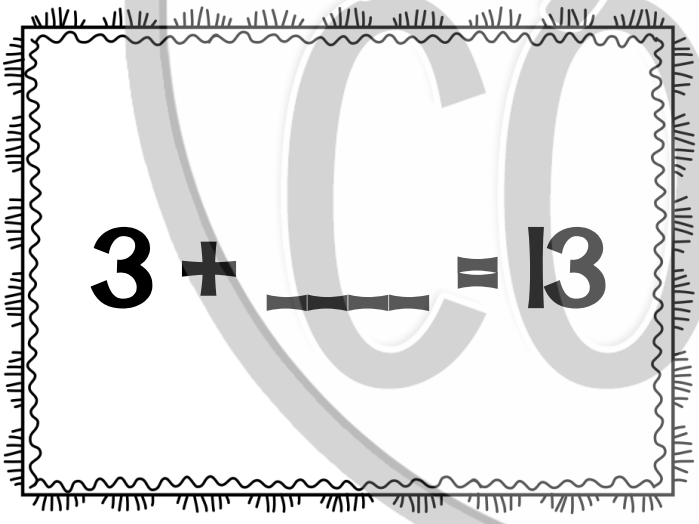

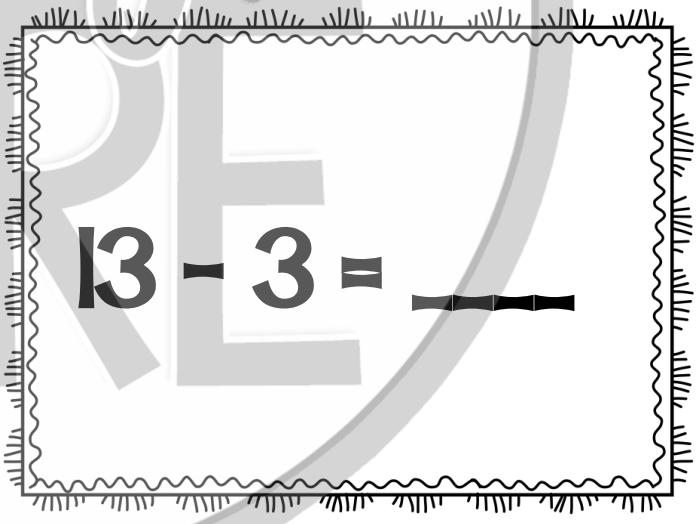

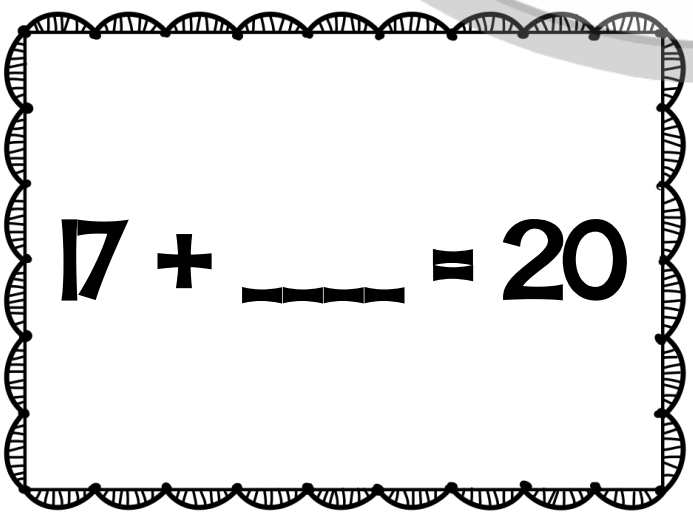

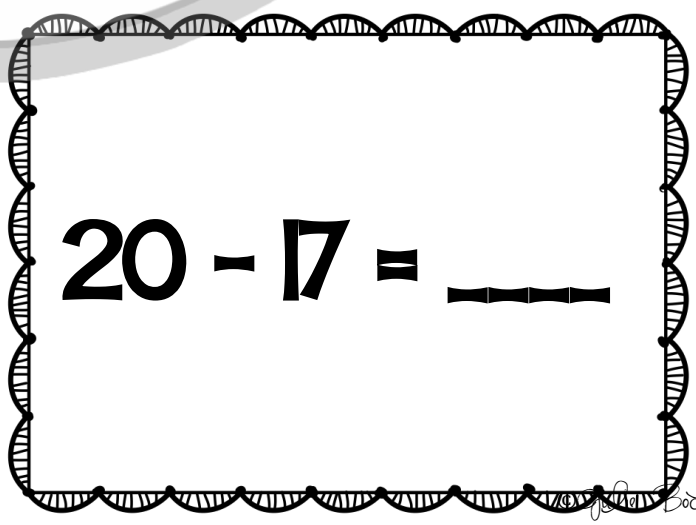

12 + ___ = 19

19 - 12 = ___

13 + ___ = 20

20 - 13 = ___

3 + ___ = 13

13 - 3 = ___

17 + ___ = 20

20 - 17 = ___

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Name: _____ Date: _____

Relate Addition and Subtraction Quiz

Solve the addition equation and also write a matching subtraction equation:

1. 9 + ____ = 15

   ____ - ____ = ____

2. 16 + ____ = 19

   ____ - ____ = ____

5. 14 + ____ = 17

   ____ - ____ = ____

3. 6 + ____ = 14

   ____ - ____ = ____

4. 13 + _____ = 18

   ____ - ____ = ____

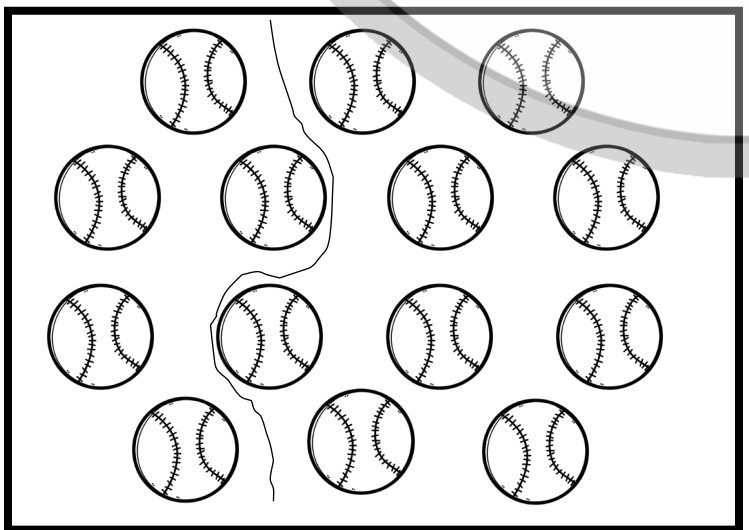
6. 5 + ____ = 12

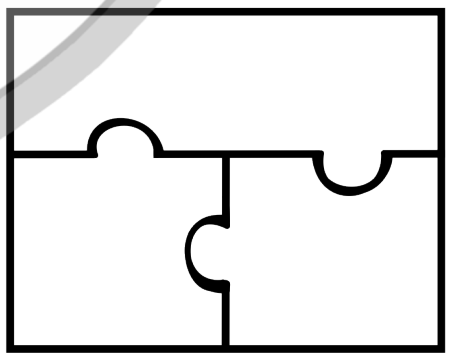
   ____ - ____ = ____

Using the "Build to 10" and "Down to 10" strategies, draw a line to match the equation with it's "Make 10" equation.

7. 3 + 9 = ____	10 - 5 = 5
8. 12 - 8 = ____	2 + 10 = 12
9. 5 + 8 = ____	10 - 6 = 4
10. 16 - 11 = ____	10 - 4 = 6
11. 18 - 12 = ____	3 + 10 = 12

12. Look at the image and complete the Part-Part-Whole model and create an addition and a subtraction equation that matches the image:





_____ + _____ = _____

_____ - _____ = _____

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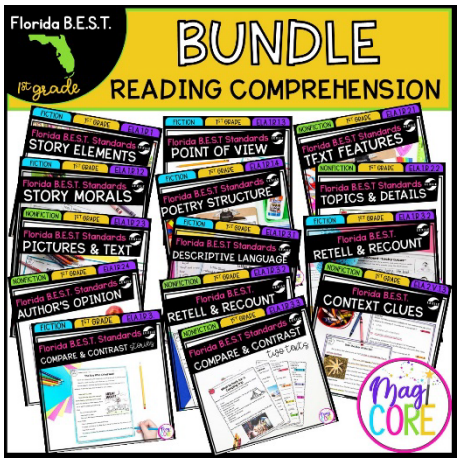

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