Welcome to….

Welcome

Norms

Name a Math Manipulative

Agenda & Handouts

Mastering the **Basic Math Facts** in Addition and Subtraction

STRATEGIES, ACTIVITIES & INTERVENTIONS to Move Students Beyond Memorization

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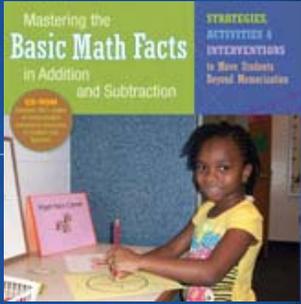
Mastering Basic Addition & Subtraction Facts

ନ୍ଦWe are going to explore numerous **strategies and activities** that support all students in **understanding** basic addition and subtraction math facts and **committing** those facts to memory

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Mastering Basic Addition & Subtraction Facts

ନ୍ଦ What are **basic facts**?

ନ୍ଦ What constitutes **mastery**?

ନ୍ଦ Why do we need to **KNOW** basic facts?

ନ୍ଦ Why is it important to **UNDERSTAND** basic facts?

ନ୍ଦ How can we help our students **master basic facts**?

Mastering Basic Addition & Subtraction Facts

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Foundation Facts
ᘓ Plus 1 / Plus 2
ᘓ Adding 0
ᘓ Adding 10
ᘓ Doubles
ᘓ Making 10

**Building on the Foundation**
ᘓ Using Tens
ᘓ Using Doubles

Plus 1 / Plus 2

Students build on their understanding of counting by exploring 1 or 2 more & 1 or 2 less.

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BIG IDEAS:
ᘓ The sum when 1 is added is the next counting number.
ᘓ Our number system is a system of patterns.
ᘓ Addition is a joining or combining process
ᘓ Subtraction is a separation or comparison process.
ᘓ The order of the addends does not change the sum.
ᘓ Addition & subtraction are inverse processes.

Mouse Count

Ellen Stoll Walsh
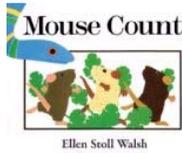
Mice in a Jar

In bag _____, there were _____ mice.

I added 1 mouse, so there were _____.

I added 2 mice, and there were _____.

Draw a picture and write a number sentence to show how many mice there were when you added 1 mouse to the bag.

Draw a picture and write a number sentence to show how many mice there were when you added 2 mice to the bag.
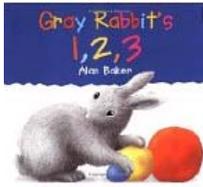
Mice in a Bag

Number of Mice in a Bag	Plus 1 Mouse	Plus 2 Mice
1	1 + 1 = 2	1 + 2 = 3
2	2 + 1 = 3	2 + 2 = 4
3	3 + 1 = 4	3 + 2 = 5
4	4 + 1 = 5	4 + 2 = 6
5	5 + 1 = 6	5 + 2 = 7
6		
7		
8		
9		
10		

Adding 0

Using their knowledge of the concept of addition, students explore what happens when they add or subtract nothing from a quantity.

BIG IDEAS:

- The zero property of addition tells us that 0 added to any number results in a sum that is the original number.
- The order of the addends does not change the sum.
- Addition is a joining or part-part-whole process.
- Subtraction is a separate or compare process.

How Many Animals?

Gray Rabbit made animal friends from clay.

Animals	How Many?	What if he added 0 more?
worm	1	1 + 0 = 1
toucans	2	2 + 0 = 2
bears	3	3 + 0 = 3
dogs	4	4 + 0 = 4
frogs	5	5 + 0 = 5

Adding 10

Adding 10 to a single-digit number results in a 2-digit sum. Students explore adding 10 in order to build understanding & automaticity that will be needed later when exploring using the using-10 strategy.

BIG IDEAS:

- Numbers can represent separate objects or groups of 10 objects.

- Adding 10 to a single-digit number will add on more place value.

- The order of the addends does not change the sum.
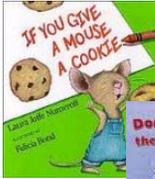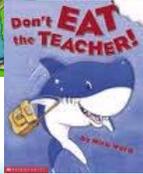
Ten More Chocolate Chips

Draw a picture of your cookie. Tell how many chips are in your cookie. Write a number sentence to tell how many chips there would be if you added 10 more to your cookie.

My cookie has __4__ chips.   How many chips would your cookie have if you added 10?

4 + 10 = 14

| 1 + 10 = 11 |
| 2 + 10 = 12 |
| 3 + 10 = 13 |
| 4 + 10 = 14 |
| 5 + 10 = 15 |

Connect to Subtraction

Don't Eat the Teacher

There were 20 fish in Sammy's class. He accidentally ate 10 fish on the playground. How many fish are still in Sammy's class?

There were 17 crayons in the box. Sammy ate 10 of them. How many crayons are left in the box?

Sammy ate 10 pieces of chalk. There were 12 pieces of chalk. How many pieces of chalk are left?

There were 14 pencil cases. Sammy ate 10.   How many are left?
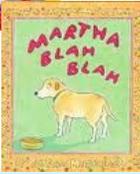
FACTS I KNOW

Doubles

Students explore the concept of doubling & what it means to add 2 groups of equal size.

BIG IDEAS:

- Doubling is the process of joining 2 groups of the same quantity.

- Halving is the opposite of doubling.
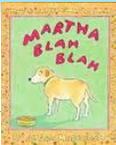
- Addition & subtraction are inverse operations.

Connecting to Subtraction

Letters in Our Soup

| Letters in our Bowl	How many would be left if we took half away?	Number Sentence
14	7	14 – 7 = 7
10	5	10 – 5 = 5
16	8	16 – 8 = 8

Making 10

Because 10 is foundational in our number system, students explore the different ways in which 2 addends result in a sum of 10. This knowledge becomes critical as they later explore using 10 to find unknown facts.
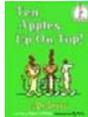
ଓ **BIG IDEAS:**

ଓ Our number system is a system of 10.

ଓ The order of the addend does not change the sum.

ଓ Addition & subtraction are inverse operations.
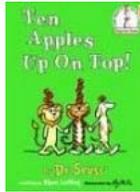
Apples Up On Top

There are 10 apples. Write a number sentence to show how many could be red and yellow. You can draw a picture or use tools to help you.

Red Apples	Yellow Apples	Number Sentence
8	2	8 + 2 = 10
5	5	5 + 5 = 10
6	4	6 + 4 = 10

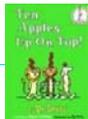List some numbers that can be added together to make 10.

Connecting to Subtraction

Apples Up On Top

Dropping Apples

There were 10 apples on the tiger's head. What if some dropped? Write a number sentence to show how many are left. You can draw a picture to help you.
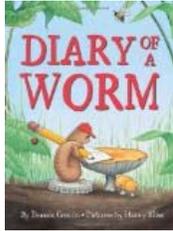
Apples on his head	Dropped	How many are left?
10	3	10 – 3 = 7
10	2	10 – 2 = 8
10	5	10 – 5 = 5
10	4	10 – 4 = 6

Using 10

Now students know combinations of addends that have a sum of 10, they use their understanding of the flexibility of numbers to find ways to break apart addends to create simpler facts by using 10s (9+7 = 10+6)

BIG IDEAS:

- Working with tens simplifies computations.

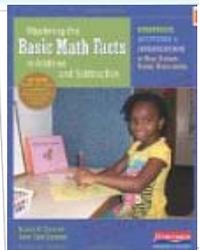- Numbers are flexible. They can be broken apart to more easily perform calculations.

Using Doubles

Students' knowledge of doubles facts is now put to use to find unknown facts that are near-doubles (4+5 = 4+4+1)

BIG IDEAS:

- Doubling is the process of joining two groups of the same quantity.

- Halving is the opposite of doubling.

- There are many strategies to simplify math facts.

Mastering the Basic Math Facts in Addition and Subtraction

Susan O'Connell & John SanGiovanni

Amazon $26

BYE!

What **B**ELIEF has changed?
What do you **YE**ARN to do differently?
What **E**ND RESULT do you anticipate as a
result of your learning?

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Stipends
Evaluations
LUNCH!
Next session starts @ 1:30