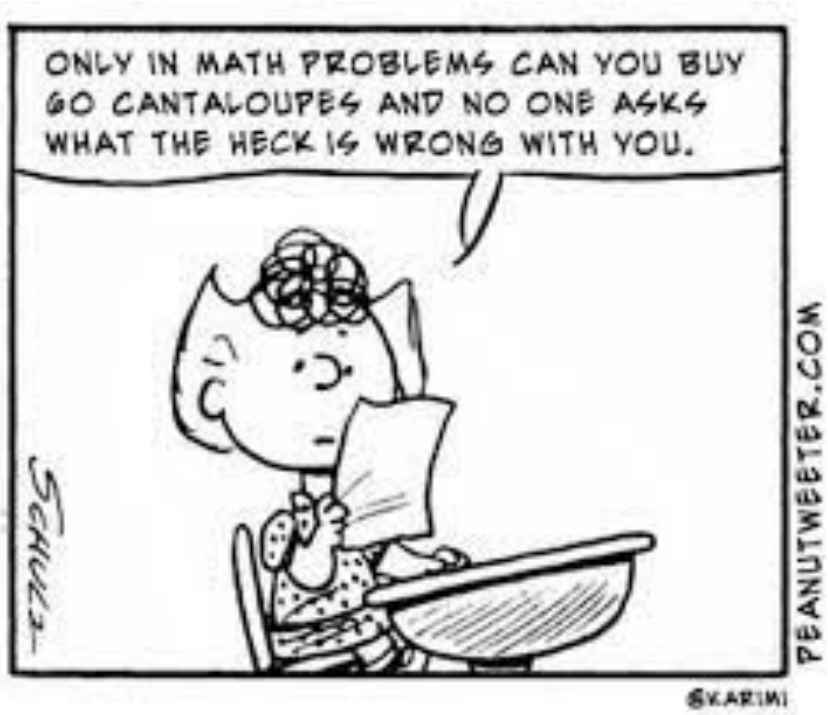


K-2 Math Curriculum

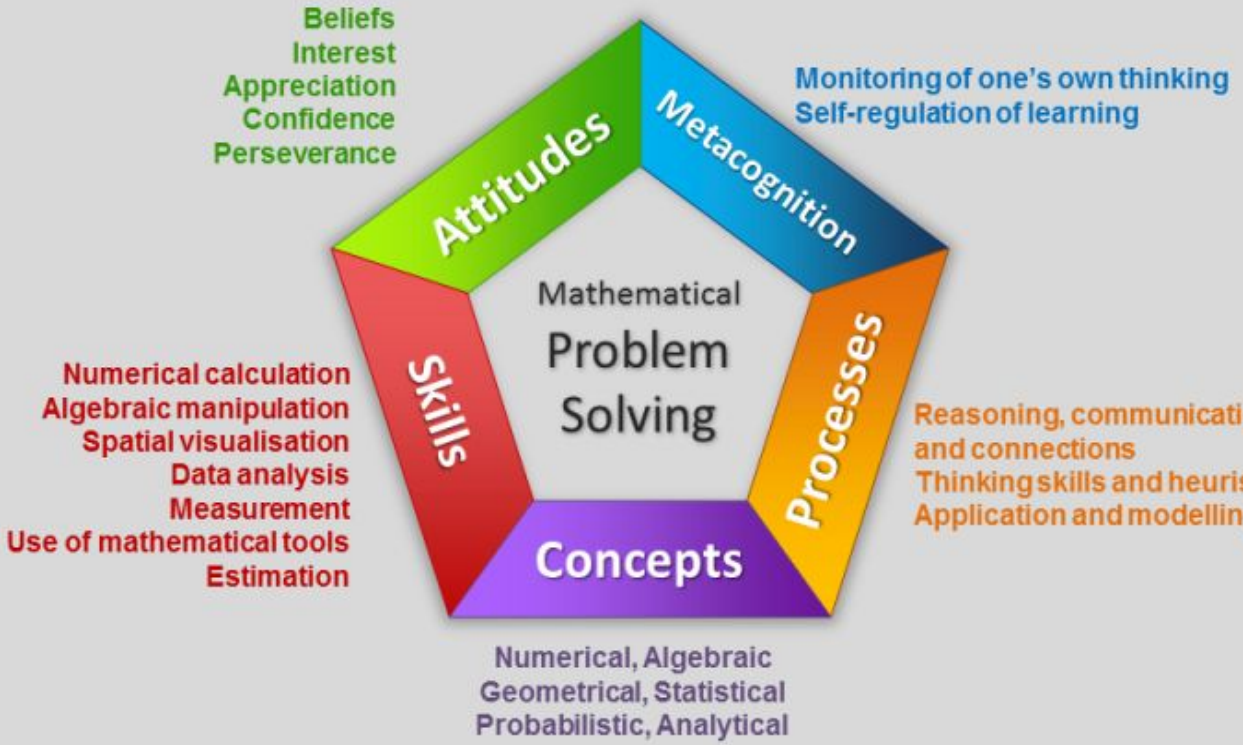
Presented by Beth Finkelstein, Mathematics Professional Developer (K-5)

October 3, 2022

Thank you to Dr. Tom Callahan, Director of Math and Sciences K-12

Math in Focus:

Singapore's Mathematics Framework

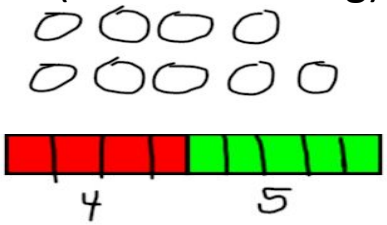


Mathematics Framework (Ministry of Education since 1990)

Pedagogy of Math in Focus

Concrete
(Manipulatives)

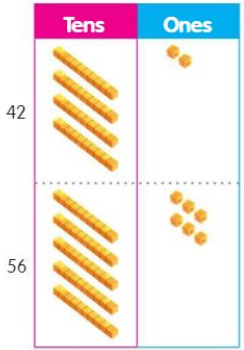
Pictorial
(Model Drawing)



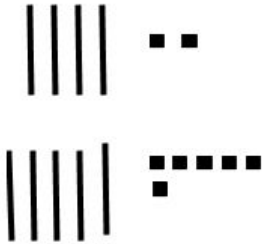
Abstract
(Algorithm)

$$4 + 5 = 9$$

Concrete
(Manipulatives)



Pictorial
(Model Drawing)



Abstract
(Algorithm)

$$\begin{array}{r} 42 \\ +\,56 \\ \hline 98 \end{array}$$

Try this problem:

$48 + 37$

48 + 37

Adding by Place Value

40 + 30 =70
8 + 7 = 15
70 + 15 =85

Compensation

(Take some from one number and give to the other or Make the [Next] 10)

48 + 2 = 50
37 – 2 =35
50 + 35 = 85

Incremental Adding

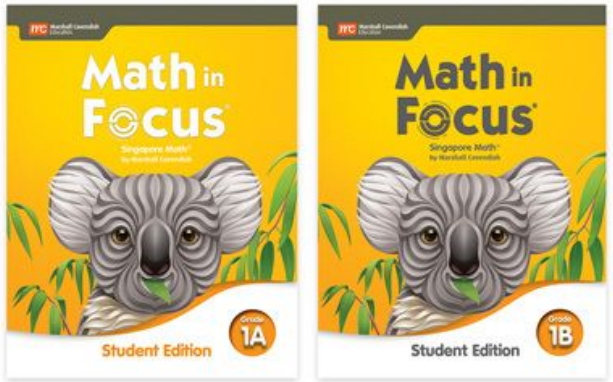
48 + 30 = 78
78 + 7= 85

Standard Algorithm

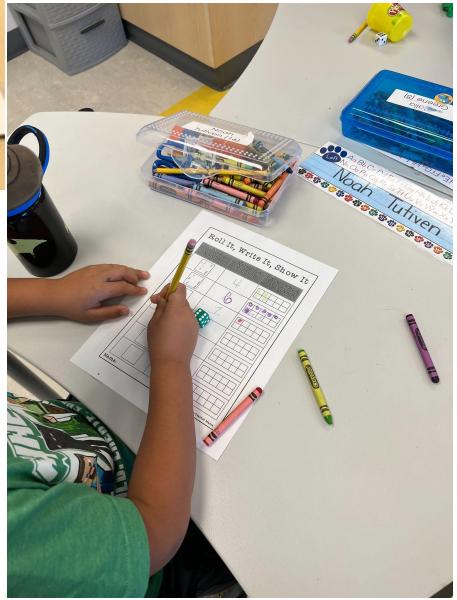
$$\begin{array}{r} {\scriptstyle 1} \\ 48 \\ +37 \\ \hline 85 \end{array}$$

What does math look like during the class lesson?

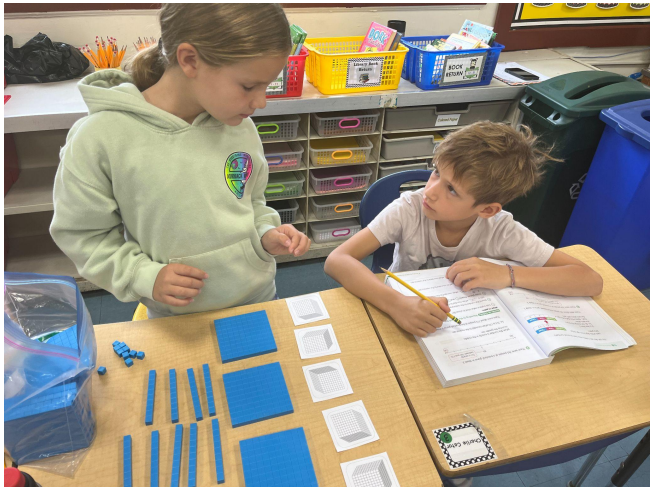
What does math look like to practice in the Student Edition?



What does math look like in the classroom today?

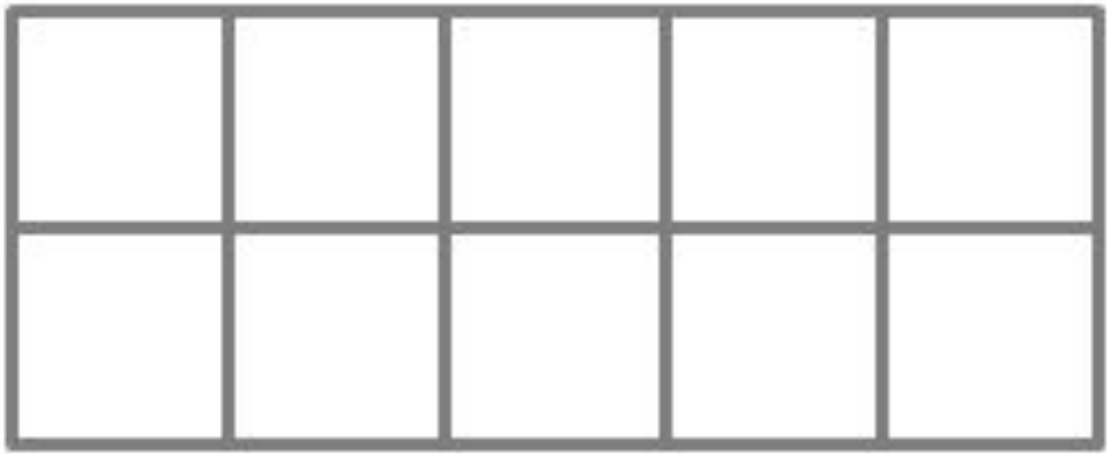


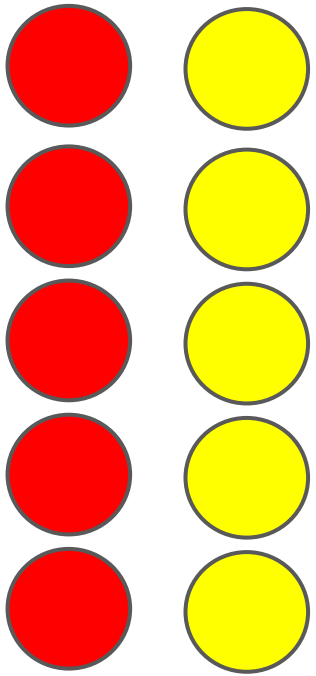
What does math look like in the classroom today?



K: 1:1 Counting + Numbers in relation to 5 and 10

Take 6 counters.
Place 6 counters on the ten frame in different ways.



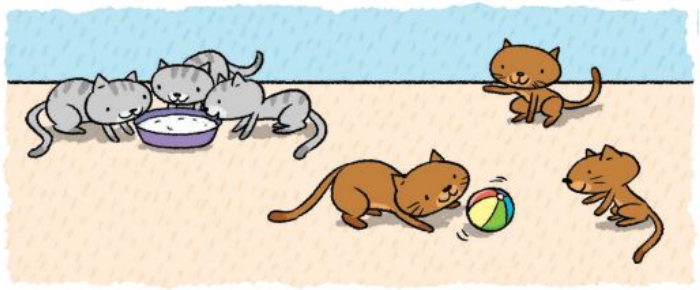


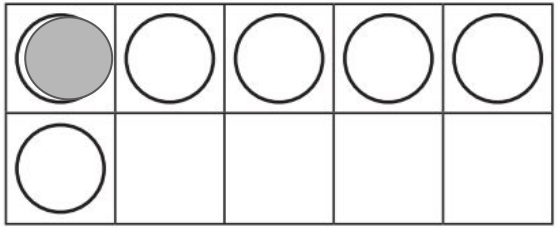
Which is the easiest way to tell that there are six counters on the ten frame? Why?

PRACTICE

How many cats are there in all?
Color the ◯ to show the story.
Add.
Fill in each blank.

1





3 + _____ = _____

There are _____ cats in all.

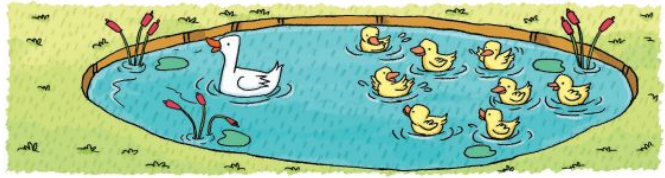
PRACTICE

Fill in each blank.

1

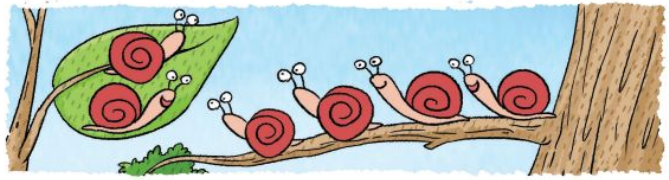
5 and 2 make _____.

2



1 and _____ make _____.

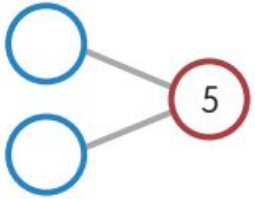
3

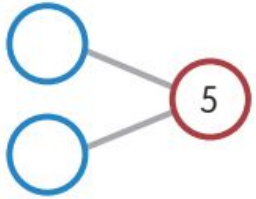


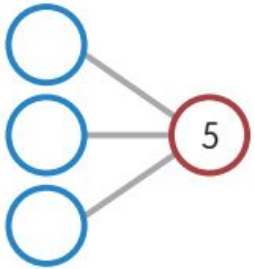
_____ and _____ make 6.

Grade 1: Number Combinations: Adding/Subtracting

Use  to make number bonds of 5.
What numbers make 5?



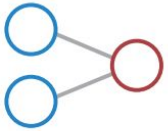




INDEPENDENT PRACTICE

Add.
Use number bonds to help you.

1. How many crayons are there in all?

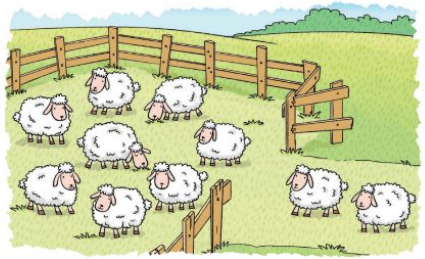


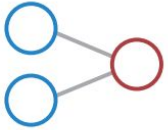
_____ + _____ = _____ or

_____ + _____ = _____

There are _____ crayons in all.

2. How many sheep are there in all?



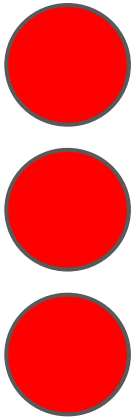


_____ + _____ = _____ or

_____ + _____ = _____

There are _____ sheep in all.

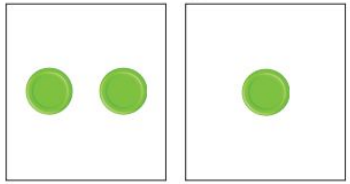
Counting on to add



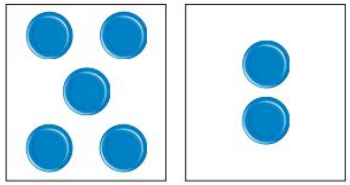
4 + 3 =____

4, ____, _____, _____

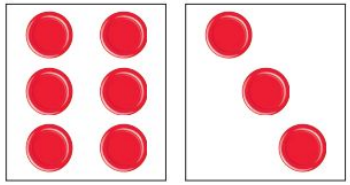
Add.
Count on from the greater number.

8 

2 + 1 = _____

9 

5 + 2 = _____

10 

6 + 3 = _____

Add.
Use the counting tape to help you.

1	2	3	4	5	6	7	8	9	10

11 8 + 1 = _____

12 2 + 2 = _____

13 3 + 3 = _____

14 3 + 5 = _____

Grade 1: Adding/Subtracting : Number Bonds and Ten Frames in relation to 5-10, doubles

5 + 2

4 + 4

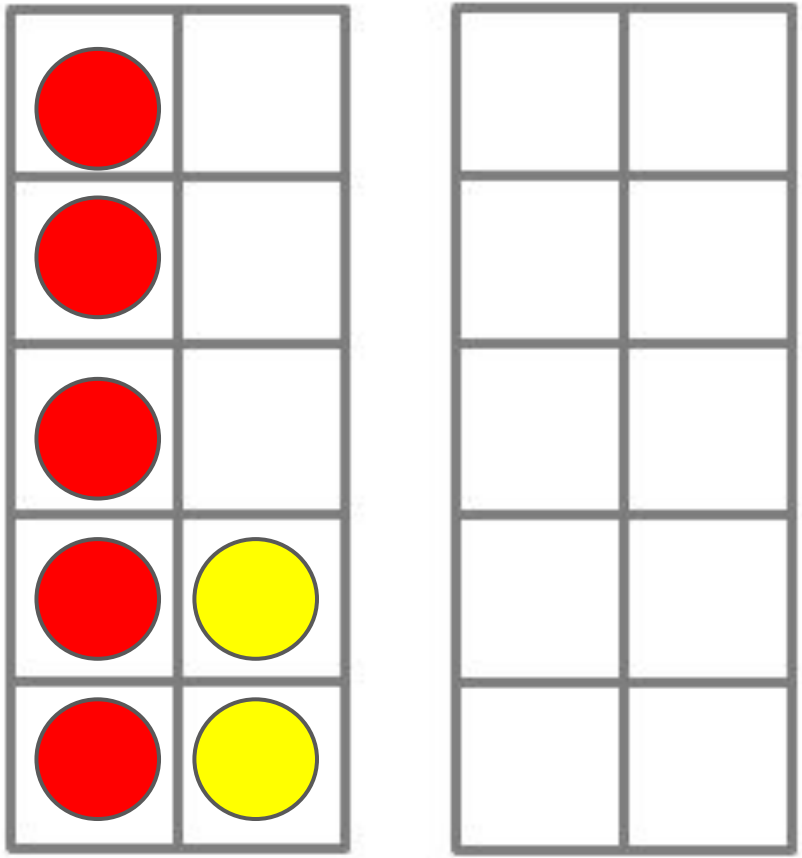
4 + 5

5 + 5

7 + 5

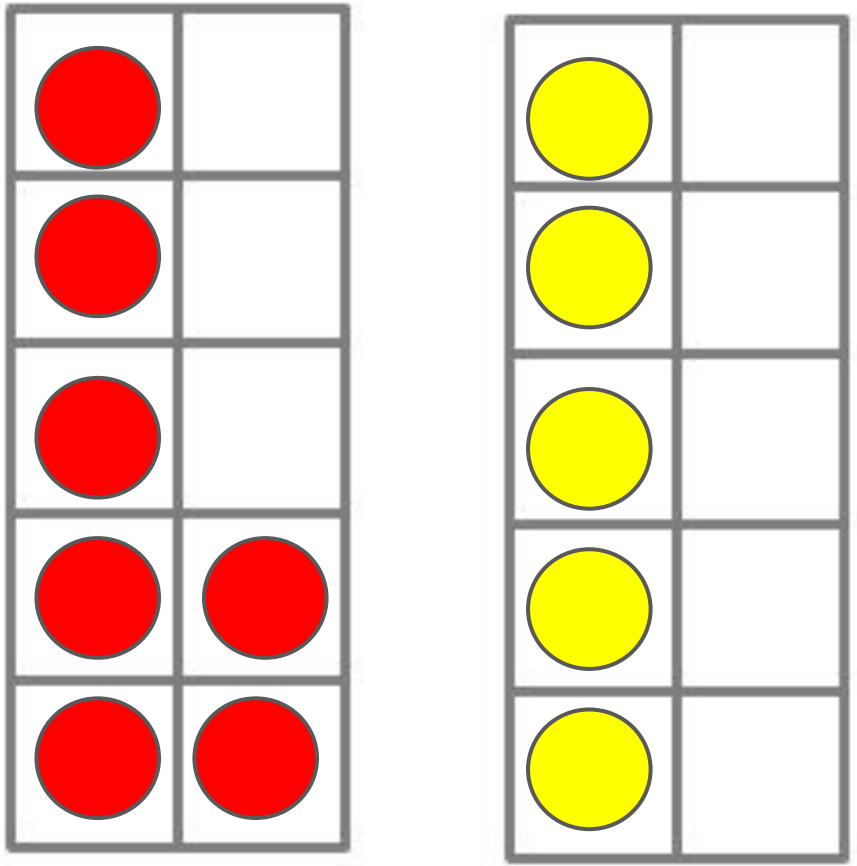
8 + 3

8 + 7

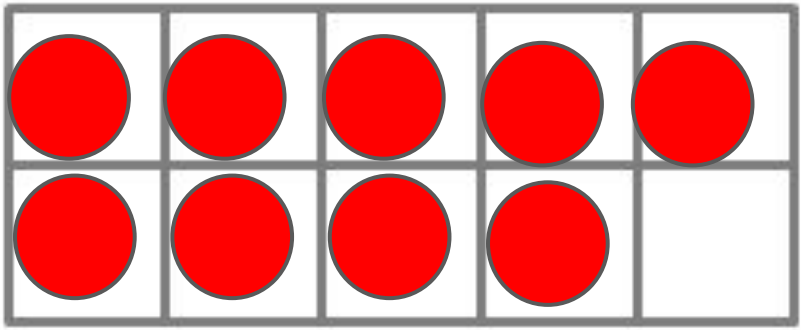


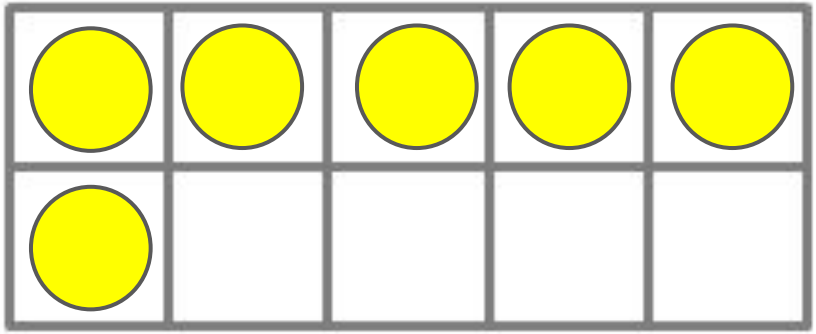
Grade 1: Adding/Subtracting : Number Bonds and Ten Frames in relation to 5-10, doubles

7 + 5



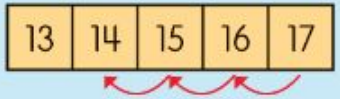
9 + 6





Grade 1: Ways to Subtract

You can count back from the greater number to subtract.
17 – 3 = 14

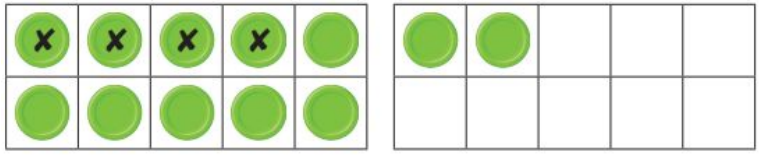


You can group into a 10 and ones to subtract.

12 – 4 = 8

You can use addition facts to help you subtract.

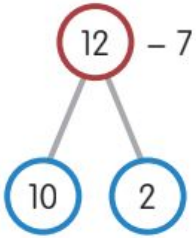
14 – 5 = ?
5 + 9 = 14 is the related addition fact.
So, 14 – 5 = 9.



12 – 4 = _____

12 is 10 and 2.

12 – 7 = ?

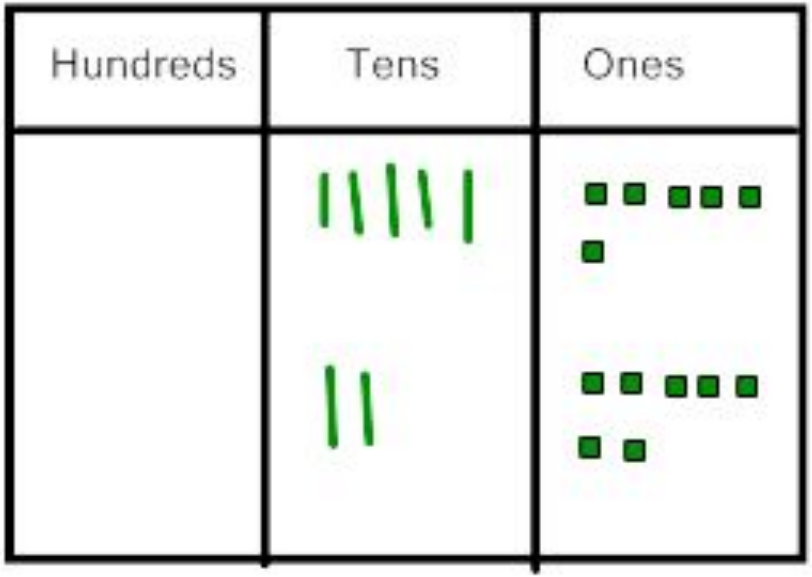


You cannot subtract 7 from 2.
So, subtract 7 from 10.
10 – 7 = 3

Add 2 and 3.
2 + 3 = 5
So, 12 – 7 = 5.
Samuel has 5 stars left.

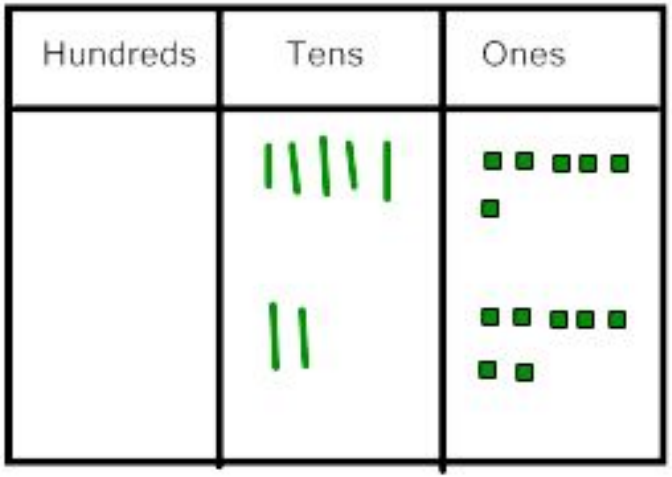
Grade 2: Adding and Subtracting: Using Place Value Strategies

56 + 27



Grade 2: Adding and Subtracting: Using Place Value Strategies

56 + 27

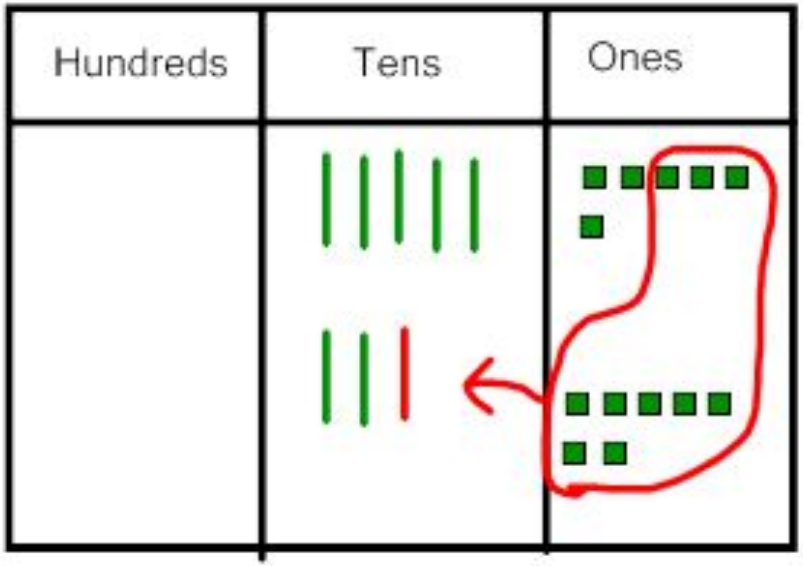


70 + 13

$$\begin{array}{r} 56 \\ +\ 27 \\ \hline 13 \\ +\ 70 \\ \hline 83 \end{array}$$

Partial Sums

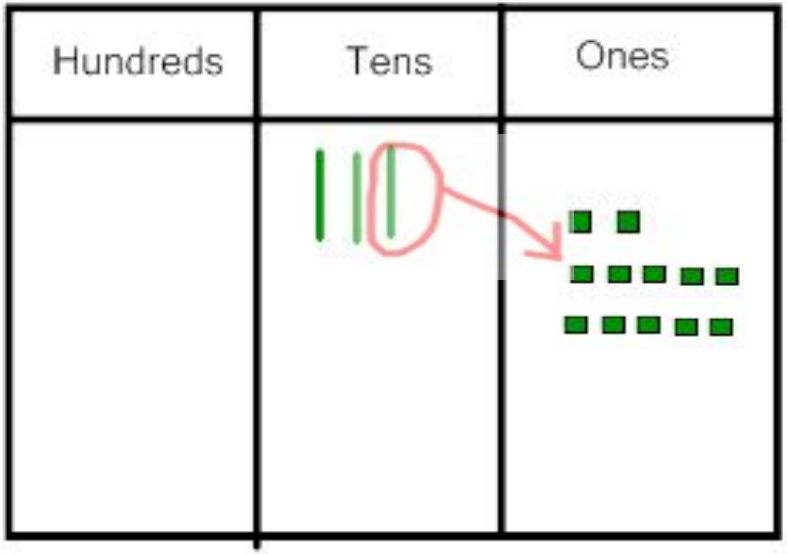
56 + 27



$$\begin{array}{r} {\scriptstyle 1} \\ 56 \\ +\,27 \\ \hline 83 \end{array}$$

Regrouping

32 - 17

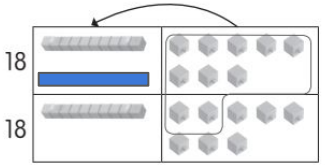


$$\begin{array}{r} {}^{2}\not{3}\,{}^{12}\not{2} \\ -\;1\;7 \\ \hline 1\;5 \end{array}$$

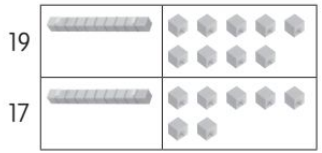
Add and regroup.

Example

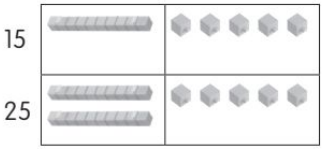
18 + 18 = 36



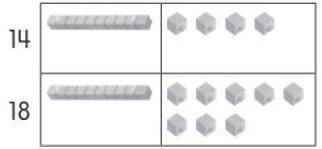
14 19 + 17 = _____



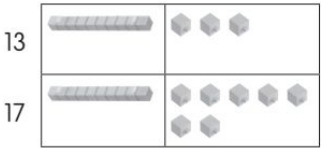
15 15 + 25 = _____



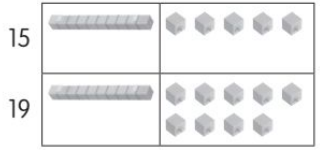
16 14 + 18 = _____



17 13 + 17 = _____



18 15 + 19 = _____



Add.

2 $\begin{array}{r} 136 \\ +\ 27 \\ \hline \end{array}$

3 $\begin{array}{r} 35 \\ +645 \\ \hline \end{array}$

4 $\begin{array}{r} 429 \\ +436 \\ \hline \end{array}$

5 $\begin{array}{r} 274 \\ +706 \\ \hline \end{array}$

Add.
Show your work.

6 408 + 45 = _____

7 53 + 919 = _____

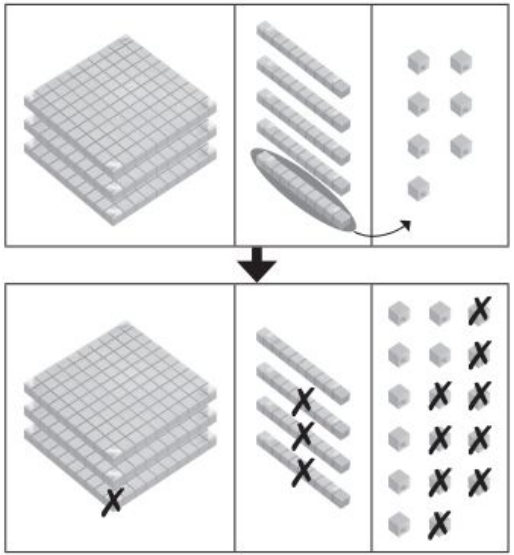
8 634 + 259 = _____

9 128 + 857 = _____

Subtract.

1. 357 – 139 = ?

_____



$$\begin{array}{r} 3\ 5\ 7 \\ -\ 1\ 3\ 9 \\ \hline \end{array}$$

So, 357 – 139 = _____.

Subtract.
Show your work.

3. $\begin{array}{r} 5\ 8 \\ -\ 2\ 9 \\ \hline \end{array}$

4. $\begin{array}{r} 1\ 6\ 0 \\ -\ \ 5\ 2 \\ \hline \end{array}$

5. $\begin{array}{r} 2\ 3\ 2 \\ -\ 1\ 2\ 3 \\ \hline \end{array}$

6. $\begin{array}{r} 3\ 1\ 0 \\ -\ 2\ 0\ 6 \\ \hline \end{array}$

7. $\begin{array}{r} 4\ 7\ 3 \\ -\ 3\ 3\ 7 \\ \hline \end{array}$

8. $\begin{array}{r} 5\ 4\ 1 \\ -\ 2\ 1\ 7 \\ \hline \end{array}$

9. $\begin{array}{r} 6\ 8\ 4 \\ -\ 2\ 5\ 8 \\ \hline \end{array}$

10. $\begin{array}{r} 7\ 5\ 4 \\ -\ 3\ 1\ 7 \\ \hline \end{array}$

What can you do to foster a love of math and support your child at home?

- Play number games, card games, dice games.

- Wonder about numbers. *“How many more would I need to get from 3 to 10?...from 58 to 100?” “How much bigger is 27 than 14?” “How do you know?”*

- Convey your enthusiasm toward math..even when there is a struggle (even if you have to fake it). *“Oooh...this is a good one! Let’s think what we know about the problem. Let’s think of a good tool to use? What should we start with?”*

- As your child works on problems for homework, if they struggle, don’t just tell them how to solve a problem, pose questions instead:.
    - *What is something you know about the problem? What are you thinking? What can you do first? What do you notice about the numbers? What did you do today in class? Can you draw a picture or build something to represent the problem?*

- Have materials close by that students can use to model a problem and draw what is happening.

Article:
[Instill a Love of Math]
By, Laura Lewis Brown (PBS)

Hand-out:
[Additional Math Tools, Games, Online Practice, and Math Challenges]

How to scan the QR Code:
1. Open the camera app.
2. Select the rear-facing camera in Photo mode.
3. Center the QR code you want to scan on the screen and hold your phone steady for a couple of seconds.
4. Tap the notification that pops up to open the link. (You will need to be connected to the internet to do this.)