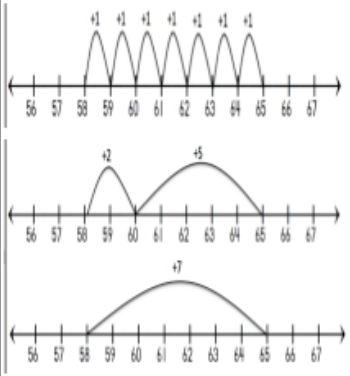
Math Night

Kindergarten and First Grade

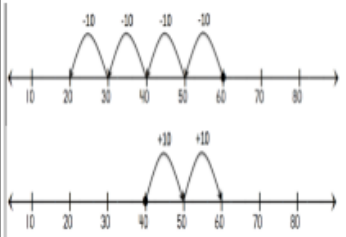
Fluency Brochure

Addition and Subtraction on Number Lines

Number lines are useful for adding and subtracting. At first, students will jump in increments of 1. They will develop more efficient strategies and jumps as their number sense improves. This experience develops mental math skills and supports work with algorithms. These number lines show 58 + 7 with jumps of 1, by breaking 7 apart, and one single jump.



When subtracting, we can count back from a number or we can count up from one number to another to find the difference. The number lines show examples for 60 - 40.



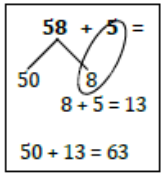
Addition: Partial Sums

Students may break numbers apart to add tens with tens and ones with ones. They find "parts" of the sum and can then combine to find the total sum.

58 + 5 =

50 + (8 + 5)=

50 + 13 = 63



Subtraction: Place Value

Students apply their knowledge of subtracting single digit numbers and place value to subtract multiples of 10.

50 – 20 = 30

5 – 2 = 3

5 tens – 2 tens = 3 tens

50 - 20 = 30

Addition: Properties

Students can add numbers by using the properties of addition to rearrange or group the numbers.

Commutative Property rearranging the numbers
8 + 6 = 6 + 8

4 + 8 + 6 =

4 + 6 + 8 =

10 + 8 = 18

Associative Property grouping the numbers
4 + 6 + 8

Developing Computational Fluency

Grade 1

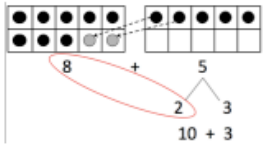
Elementary Mathematics Office
Howard County Public School System

This brochure highlights some of the methods for developing computational fluency. For more information about computation and elementary mathematics visit http://smart.wikispaces.hcpss.org

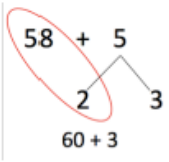
Fluency Brochure

Addition: Making Tens

Making tens is an important strategy for fluency. Students work with ten-frames (below). They combine dots to fill a ten-frame. Below, we moved 2 dots from 5 to make a ten. The result is 10 + 3.

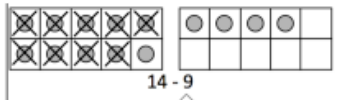


We can apply the combinations of tens to add other numbers. In 58 + 5, we might break apart 5 into 2 + 3 and then add the 2 to 58 making the next ten which is 60.



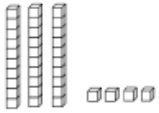
Subtraction Using Ten Frames

We can also use tens for subtraction. The ten-frame below shows 14. To subtract 14-9, we can break 9 into 4 and 5. We can subtract the 4 from 14 giving us 10. Then, 5 less than 10 is 5. Eventually, this will become automatic for students.



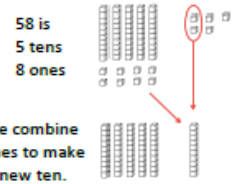
14 – 4 = 10, then 10 – 5 = 5
So, 14 – 9 = 5

Working with Base Ten Blocks



Base ten blocks are a math tool that help us build numbers. The rod is equal to 10 and the single cube is equal to 1.

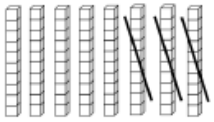
Addition with Base Ten Blocks
58 + 5



In 58 + 5, we make a new ten from the ones (8 + 2). This leaves us with 6 tens and 3 ones leftover. So, 58 + 5 = 63

Subtraction with Base Ten Blocks
80 – 30

In first grade, we work with taking tens from tens. Below, there are 8 tens (80) and we take away 3 tens (30) leaving 5 tens (50). So, 80 - 30 = 50



Hundreds Chart

The hundreds chart is a useful math tool. Students can add and subtract on the hundreds chart.

14 + 30 = 44

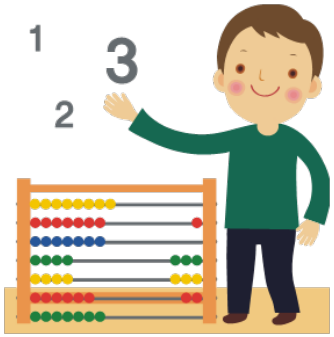
1	2	3	4	5	6	7	8	9	10
11	12	13	14	15	16	17	18	19	20
21	22	23	24	25	26	27	28	29	30
31	32	33	34	35	36	37	38	39	40
41	42	43	44	45	46	47	48	49	50
51	52	53	54	55	56	57	58	59	60
61	62	63	64	65	66	67	68	69	70
71	72	73	74	75	76	77	78	79	80
81	82	83	84	85	86	87	88	89	90
91	92	93	94	95	96	97	98	99	100

A student started at 14 and jumped down 3 rows of 10 (30) to equal 44.

90 – 40 = 50

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

A student started at 90 and jumped up 4 rows of 10 (40) to equal 50.



FACTS FOR FIRST GRADE

- **Q1** Counting On (+1,+2, -1,-2)
- **Q2** Make Ten (6+4=10) (10-3 =7)
- **Q3** Doubles (4+4=8) (6-3=3)
- **Q4** Adding 10 (5+10=15)

Math Activities

- Kindergarten - Games with a ten frame

Ten Frame Activities

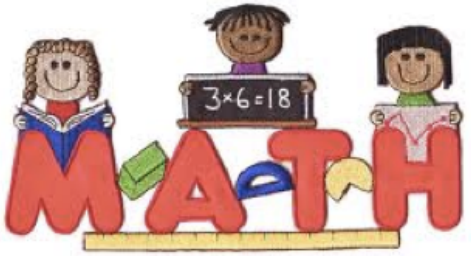
- **Game 1: Show One Less/One More**

(from K-5 Math Teaching Resources)

Materials: Numeral cards 1-10, Blank ten frame, 20 counters

- Turn over the numeral card on the top of the stack.
- Put counters on the ten frame to show one less than the number on the card.
- Say a number sentence stating "____ is one less than ____."
- Repeat with other numeral cards.
- Also repeat with showing one more than the number on the card. Say a number sentence stating "____ is one more than ____."

Ten Frame Activities



- **Game 2: Ten Frame Flash**

(Adapted from K-5 Math Teaching Resources)

Materials: 2 blank ten frames, Counters

- Partner A: Fill a ten frame with a certain about of counters. Then flash the ten frame to Partner B while counting "1, 2, 3" in your head. Hide the ten frame.
- Partner B: Put counters on your ten frame to make it look just like the one you saw flashed.
- Check to see if the ten frames match.

Ten Frame Activities

- **Game 3: Counters on a Ten Frame**

(Adapted from K-5 Math Teaching Resources)

Materials: Ten frame, Counters

- Count out 11 counters.
- Fill your ten frame.
- Answer: How many leftover counters do you have?
- Write a number sentence or equation to show what you did. (10 + 1 = 11)
- Repeat with the following numbers: 12, 13, 14, 15, 16, 17, 18, 19

Ten Frame Activities

- **Game 4: Making Apple Ten Boxes**

(Adapted from K-5 Math Teaching Resources)

Materials: Ten frames, Two groups of counters (two different colors)

- The apple farmer wants to fill a box with ten apples.
- Answer: How many different ways could the farmer make a ten box with some of each counter?
- Use the ten frame to fill with the two different kinds of counters. Talk about the different ways to represent the number 10.

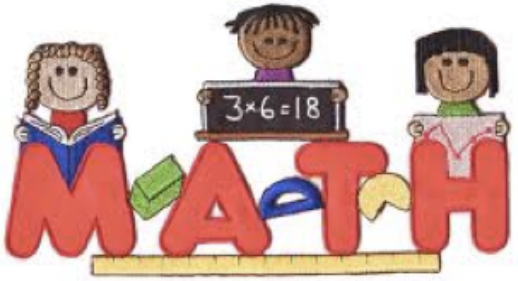
Ten Frame Activities

- **Game 5: I Wish I Had 10**

Materials: Ten frames, Two groups of counters (two different colors)

- Flash a ten frame showing 9 or less of one color and say, “I wish I had 10”.
- The student responds with the part that is needed to make ten and adds the other color to the ten frame.
- Repeat with other numbers. The target number can also be adjusted.

Math Activities

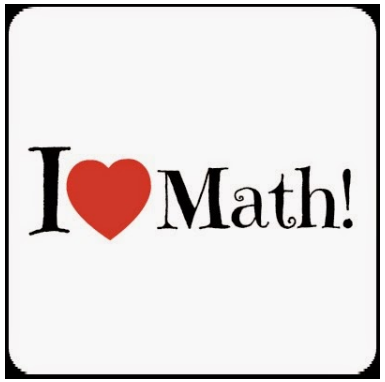


- First Grade - Games with a 120 chart

120 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
101	102	103	104	105	106	107	108	109	110
111	112	113	114	115	116	117	118	119	120

120 Chart Activities



- **Game 1: Mystery Number**
  - Cover different numbers on the 120 chart and have students figure out what the number is.
  - *Ex. I am more than 2. I am less than 7. I am more than 3. I am less than 5. What number am I?*

- **Game 2: Bingo**
  - Pull a number from a bag and have students find one more or one less, or 10 more, or 10 less on the 120 chart.

120 Chart Activities

- **Game 3: Arrow Moves** Students mentally maneuver around the 120 chart. They may need to see the chart at the beginning, but we want them to be able to do it without the chart in front of them.
  - *Ex. 54* ↓ ↓ → →

    This would mean: 54, 64, 75, 76

    Transfer this understanding to

    54 + 10 + 10 + 1 + 1 = 74

    Then 54 + 2- + 2

    Then 54 + 22
  - Also do subtraction with this idea using left pointing and up arrows.

120 Chart Activities

- **Game 4: Money Activity**
  - Lay coins on the 120 chart and count their total value:
  - 1 quarter, 1 dime, and 1 penny
  - 2 quarters, 2 dimes. And 1 nickel
  - 1 quarter, 3 nickels, and 4 pennies
  - 4 dimes, 5 nickels, and 3 pennies
  - Make up more to try

120 Chart Activities

- **Game 5: 120 Chart Nim**

Materials: 120 chart, Counters (Beans, pennies or tokens)

- Place the 120 Chart in the middle of the players with a small pile of tokens
- The First player chooses any number from 1 to 15 and places a token on that number on the 120 Chart.
- On each following turn, the player adds either 5, 10, or 15 to the most recently marked number and places a new token on the new sum.
- Players alternate until no more tokens can be placed.
- The player who places the last legal token (spaces 116 – 120) wins!

- *Variations:*
  - Allow players to add any number from 1 – 20 to the last number. The first player to reach 120 wins.
  - Start at 120 and subtract 5, 10, or 15. The first player to reach 0 wins.