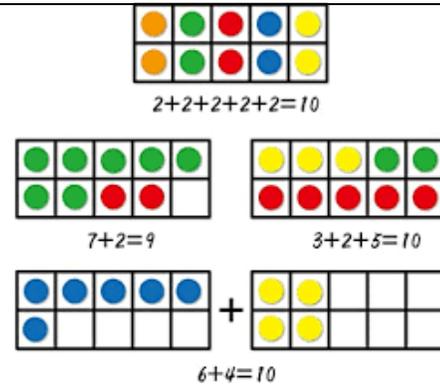


Math Terms to Know

Addition/Subtraction:

Ten Frame - a ten frame is a two-by-five rectangular **frame** into which counters are placed to demonstrate numbers less than or equal to 10. Counters can be arranged in different ways to represent different numbers, which visually help your children develop strong number sense.

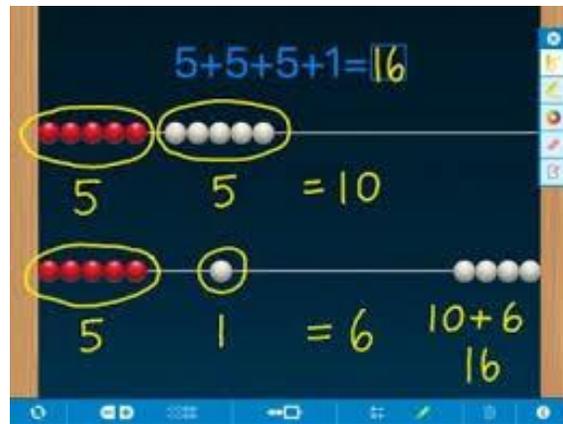


Number Rack



Number Rack

Number Rack facilitates the natural development of children's number sense. Rows of movable, colored beads encourage learners to think in groups of fives and tens, helping them to explore and discover a variety of addition and subtraction strategies. Free activities and free book available.



Open Number Line - An open number line starts as a line with no numbers. They can be used as a visual representation for recording thinking during the process of mental computation.

Open Number Line Strategies

Make jumps of ten, then jumps of 1

$45 + 34$

Started at 45, jumped up 3 tens and 4 ones.

Add a "friendly number" & compensate

$63 + 29$

Started at 63, jumped up 3 tens then back 1.

Combine tens, then combine ones

$32 + 56$

Combined tens (30+50), then added on the combined ones (2+6)

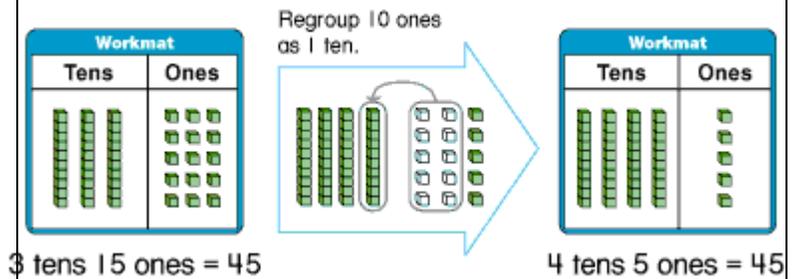
Break up one addend

$74 + 27$

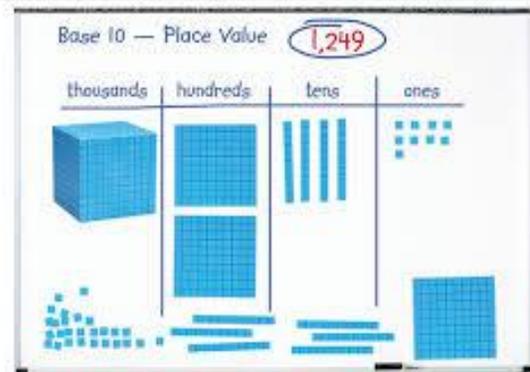
Broke second addend into 20+6+1. Added 6 to 74 to get to 80, then added remaining 10s and 1s.

Regrouping or Trading – (You may know these as borrowing or carrying.)

- In math, **regrouping** can be **defined** as the process of making groups of tens when carrying out operations like addition and subtraction with two-digit numbers or larger. To **regroup means** to rearrange groups in place value to carry out an operation.

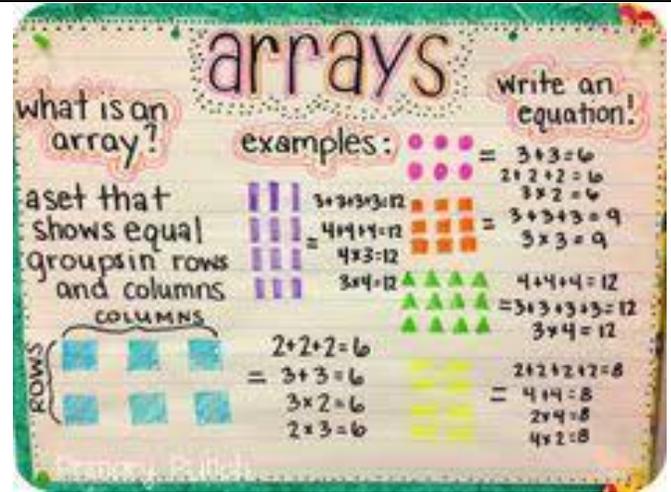


Base Ten Pieces or Base Ten Blocks – Base ten blocks are a mathematical manipulative used by students to learn basic mathematical concepts including addition, subtraction, number sense, place value and counting.



Multiplication/Division:

Array - An array is a way to represent multiplication and division using rows and columns. Rows represent the number of groups. Columns represent the number in each group or the size of each group.



Area Model

In mathematics, an area model is a rectangular diagram or model used for multiplication and division problems, in which the [factors](#) or the [quotient](#) and [divisor](#) define the length and width of the rectangle.

Area Model - Multiplication

$$27 \times 35 = ?$$

$$27 \times 35 = (20 + 7) \times (30 + 5)$$

	20	7
30	600	210
5	100	35



$$\begin{array}{r} + 600 \\ + 100 \\ + 210 \\ + 35 \\ \hline 945 \end{array}$$

$$27 \times 35 = 945$$

Area Model - Division

$$825 \div 5 = ?$$

	100	+	60	+	5
5	825	-	500		325
				-	300
					25
				-	25
					0

$$825 \div 5 = 100 + 60 + 5 = 165$$

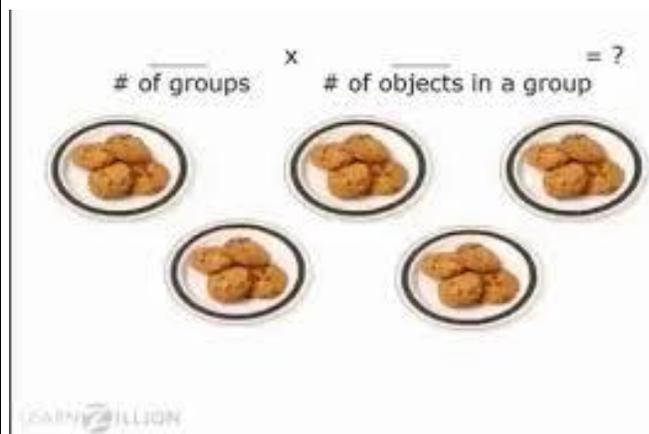
Loops and Groups (mostly for 3rd grade)

When learning multiplication and division students may be asked to use loops and groups. This is when they group a certain number of objects into multiple loops.

For example:

- If you have 5 groups of 4, how many do you have?
- Or if I have 20 chicken nuggets and I divide them between 5 people how many does each person get?

* Students can use the loops and group method to help visualize and find these answers.



Ratio Table - A **ratio table** is a structured list of equivalent (equal value) **ratios** that helps us understand the relationship between the **ratios** and the numbers.

Find Equivalent Ratios

Ratio of **Boys** to **Girls**: 3 to 5 or $\frac{3}{5}$

Boys	3	6	9	
Girls	5	10	15	

Mult. by 2: Mult. by 3: Mult. by 4:

$$\frac{3}{5} \cdot \frac{2}{2} = \frac{6}{10} \qquad \frac{3}{5} \cdot \frac{3}{3} = \frac{9}{15} \qquad \frac{3}{5} \cdot \frac{4}{4} = \frac{12}{20}$$

Lattice Method - Lattice multiplication is a **method** of multiplication that uses a **lattice** to multiply two multi-digit numbers.

Lattice Multiplication

$37 \times 56 =$

Write the numbers to be multiplied on the top and on the right.

Multiply the number on top of the box with the number to the right of the box and write the answer in the box.

Add the numbers in the box diagonally and carry to the next column when necessary.

2072

$37 \times 56 = 2072$