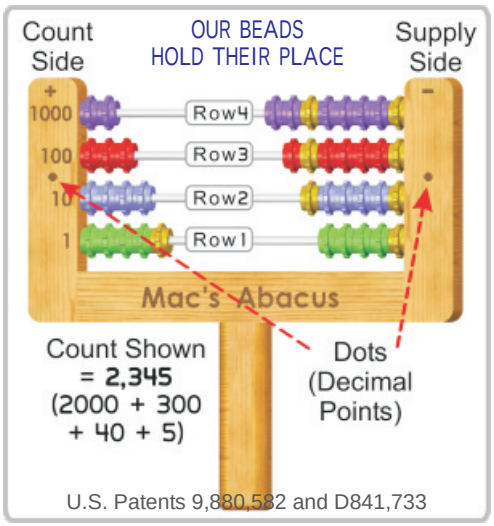
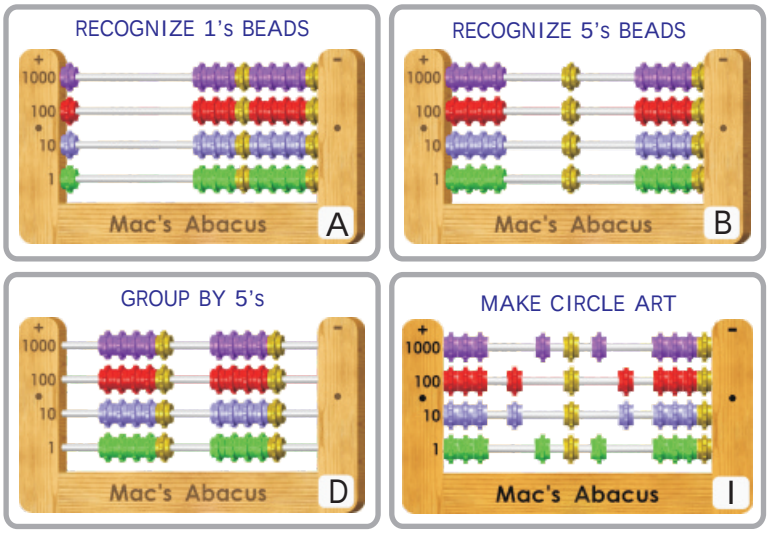
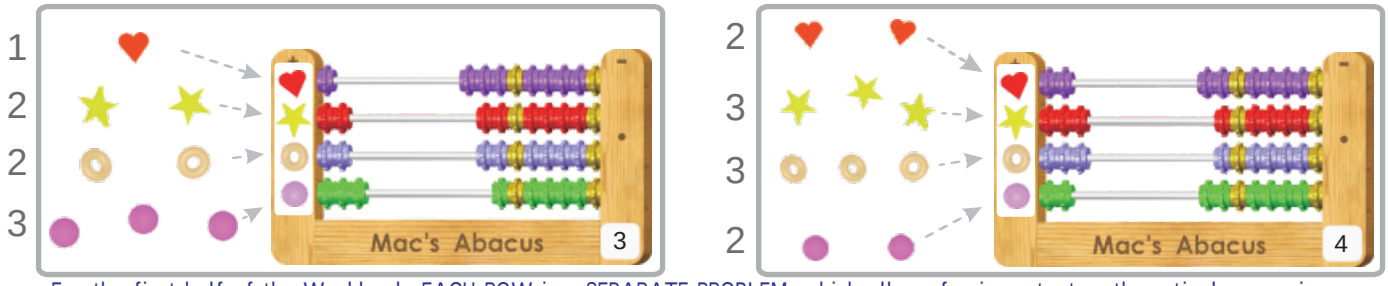
# A BRIEF TOUR of Mac's Abacus Basic SUPPLEMENTARY MATH CURRICULUM



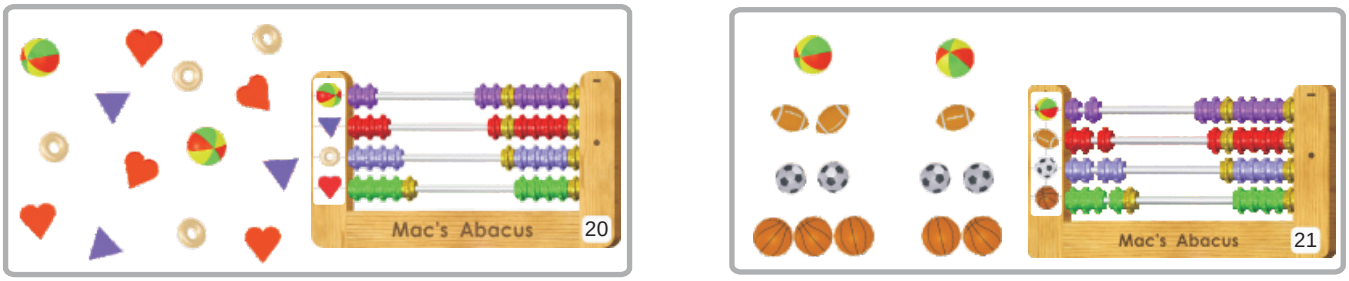

STRUCTURE of MAC's ABACUS
Dots can Separate Dollars from Cents




FOUR of the 16 PRELIMINARY EXERCISES to GAIN FAMILIARITY with MAC's ABACUS

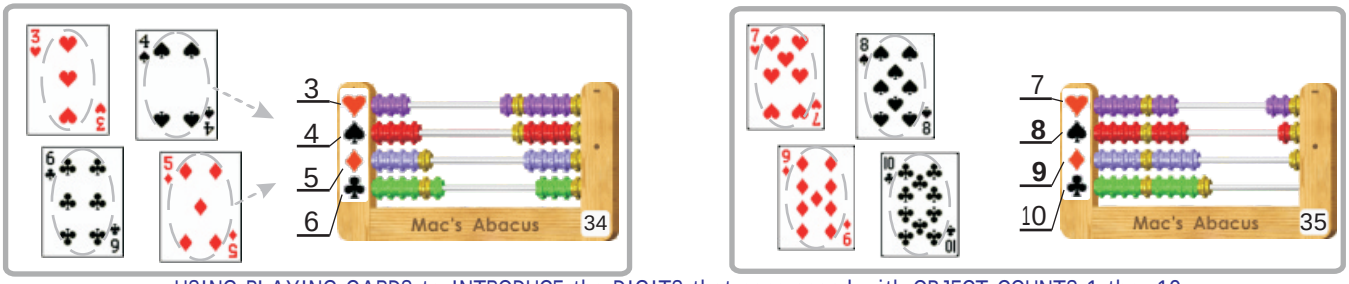



For the first half of the Workbook, EACH ROW is a SEPARATE PROBLEM, which allows for important mathematical comparisons.
Here: We Start with 1. One more makes 2, Compare 2's. One more makes 3. We Make 2 again. Make 3, Compare 3's, Confirm 2.
Besides Learning to Count, the ABOVE LESSON PROBLEMS demonstrate CONSISTENCY: [ that 2 is always 2 and that 3 is always 3 ]

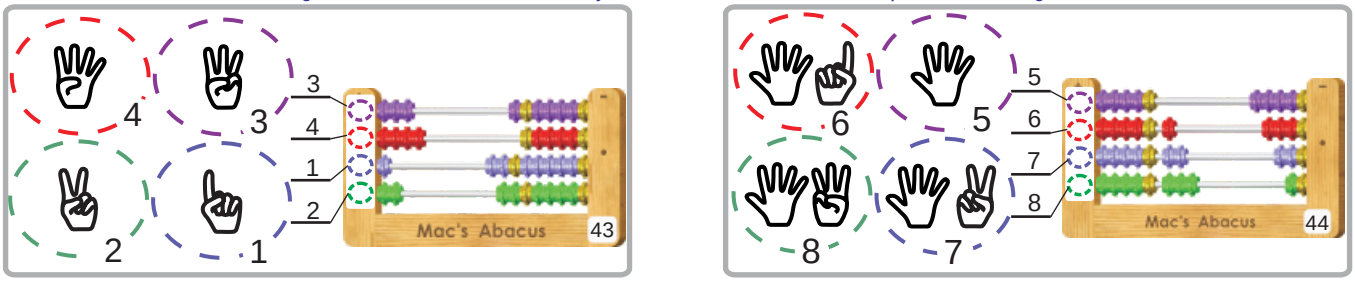



COUNTING SCATTERED OBJECTS
Develop a Strategy: Start in a Corner / A Surprise Sequence here!

COUNTING OBJECTS as GROUPS
Develop a Strategy: Select Counts by Groups as shown

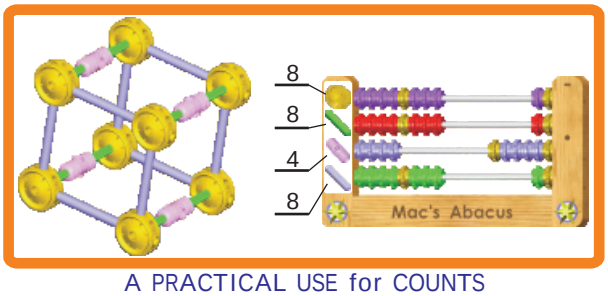



USING PLAYING CARDS to INTRODUCE the DIGITS that correspond with OBJECT COUNTS 1 thru 10
Bead Lengths in Successive Rows easily reveal these Numerical Sequences as Progressions

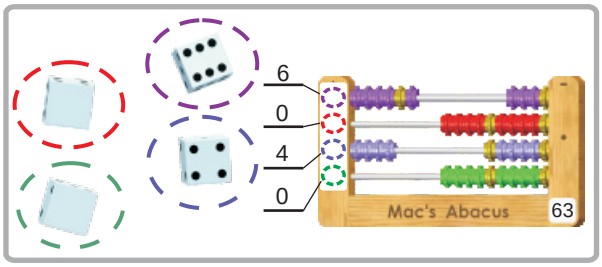



ASSOCIATING COUNTS with YOUR FINGERS - Everybody learns to do this!

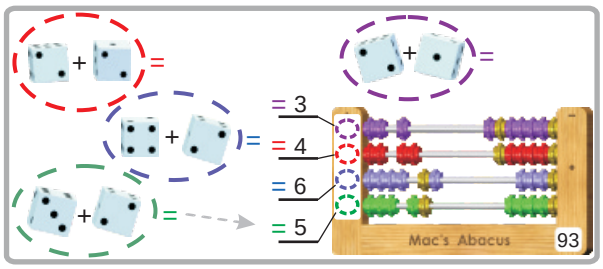
# ZERO, BASIC ADDITION & SUBTRACTION, EQUATIONS, LENGTHS, HEIGHTS, TIME, TOKENS



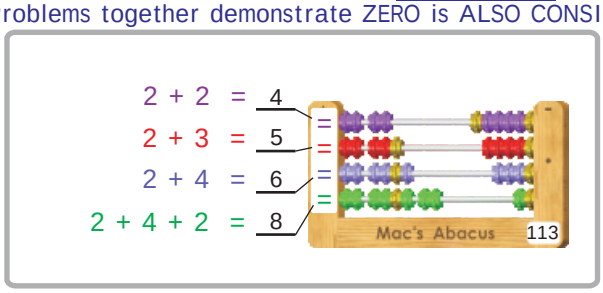

A PRACTICAL USE for COUNTS
COUNTING PARTS needed to BUILD a KIT



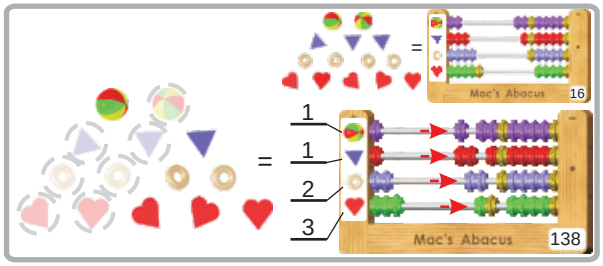

ZERO IS REPRESENTED BY AN ABSENT BEAD
Two Problems together demonstrate ZERO is ALSO CONSISTENT



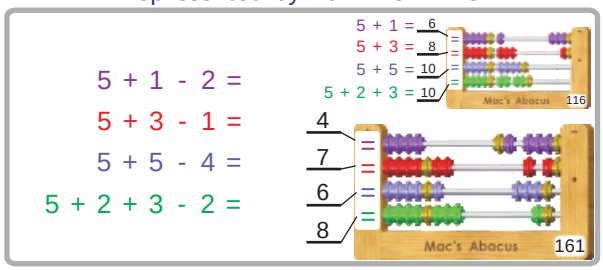

ADDITION: USING the "+" and "=" OPERATORS
to COMBINE GROUPS



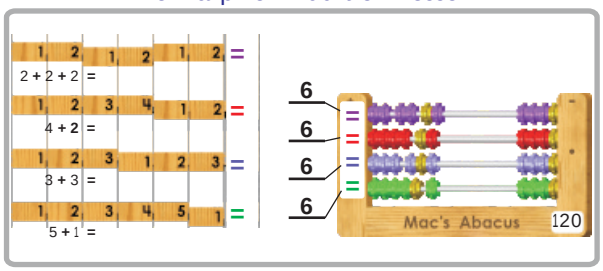

ABSTRACT ADDITION: Adding Quantities
represented by PURE NUMBERS



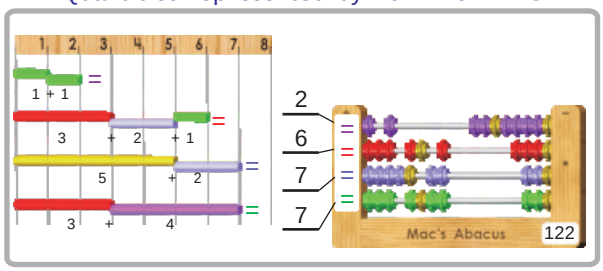

SUBTRACTION: PRESENTED as REMOVING OBJECTS
from a prior Addition Lesson



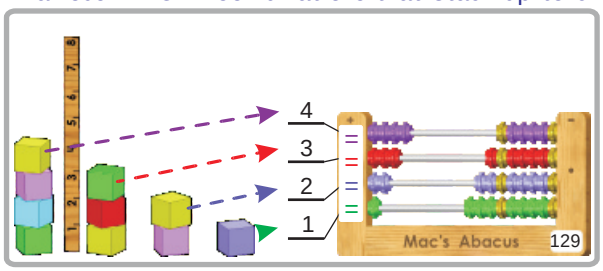

ABSTRACT SUBTRACTION: Subtracting
Quantities represented by PURE NUMBERS



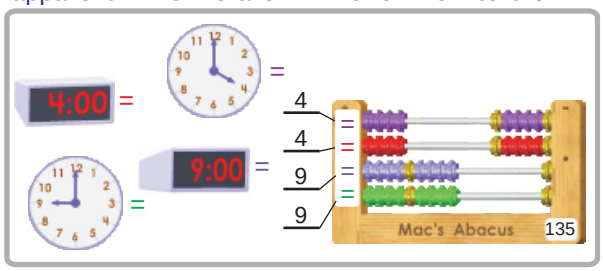

STACKING RULER PIECES TOGETHER
Various LENGTH Combinations that Stack up to 6



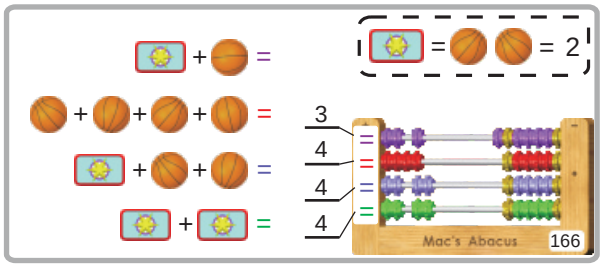

COUNTS AS LENGTHS of STICKS
The apparent LENGTHS are IN PROPORTION to their VALUE



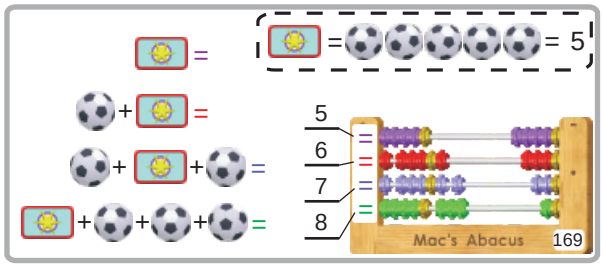

COUNTS AS HEIGHTS
The apparent HEIGHTS are IN PROPORTION to their VALUE.




COMPARING COUNTS OF TIME (Hours)
Proves the EQUIVALENCE of DIAL and DIGITAL Clocks

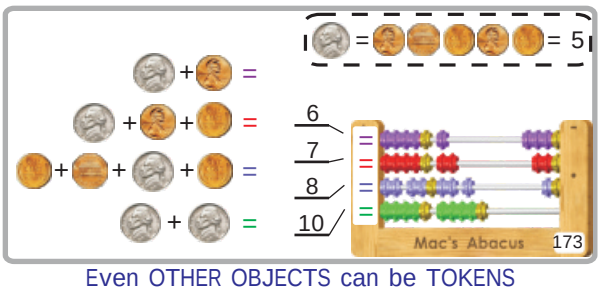



INTRODUCING TOKENS to represent SPECIFIC QUANTITIES
This TOKEN is worth 2 Basketballs

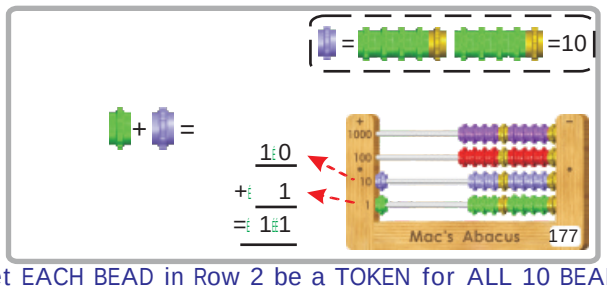



TOKENS can represent both VARIOUS OBJECTS
and VARIOUS QUANTITIES (it's the "Rule of the Game")

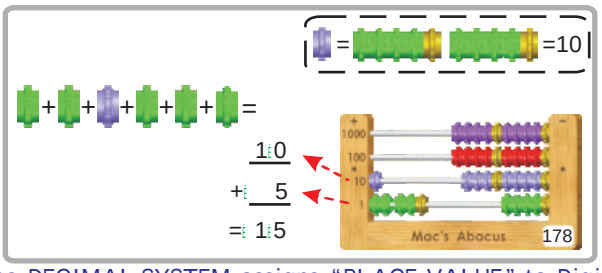
# USING the TOKEN to DEVELOP the DECIMAL SYSTEM and MONEY



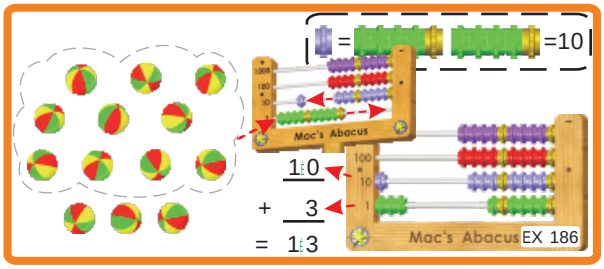

Even OTHER OBJECTS can be TOKENS
The NICKEL is a Token for 5 PENNIES



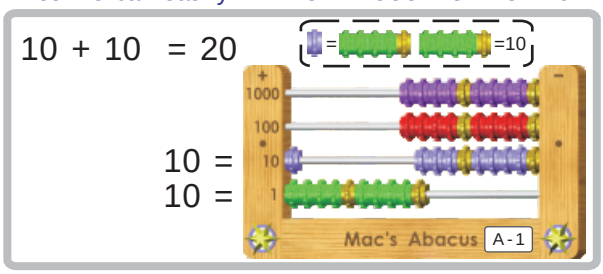

Let EACH BEAD in Row 2 be a TOKEN for ALL 10 BEADS
in Row1. Then we can COUNT PAST 10 on MAC's ABACUS



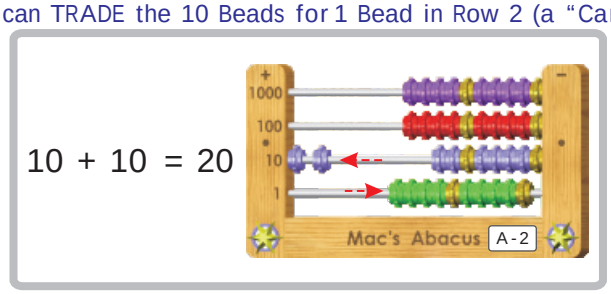

The DECIMAL SYSTEM assigns "PLACE VALUE" to Digits,
so we can easily REPRESENT COUNTS PAST 10



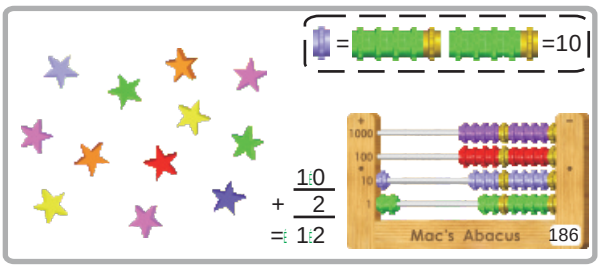

MAC'S ABACUS works the same as the DECIMAL SYSTEM
You can TRADE the 10 Beads for 1 Bead in Row 2 (a "Carry")



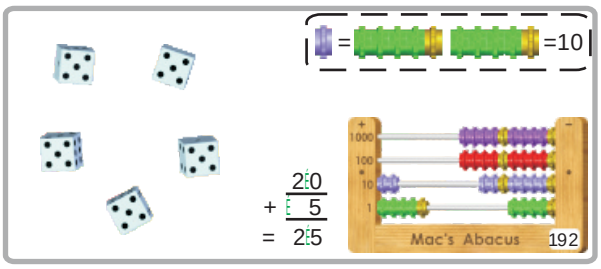

TWO WAYS TO REPRESENT 10 in MAC's ABACUS
10 + 10 = 20



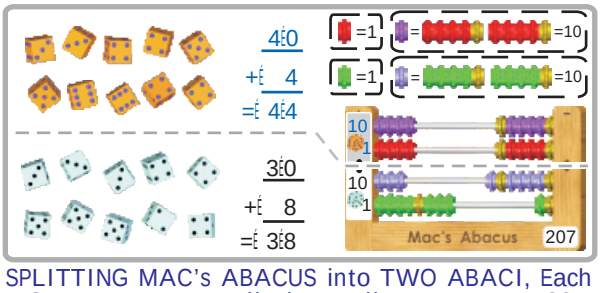

COMBINING 10 + 10 = 20
as in the DECIMAL SYSTEM

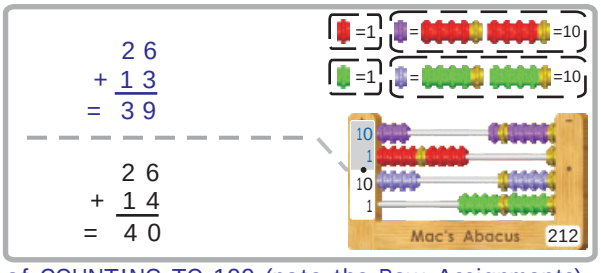



COUNTING PAST 10 by using the CARRY
in the DECIMAL SYSTEM

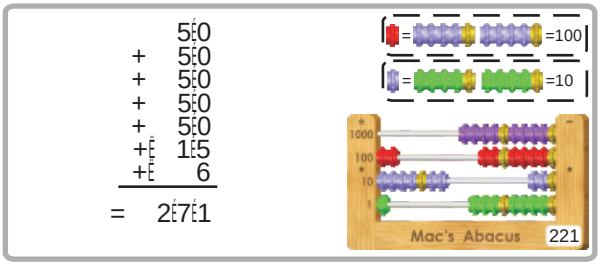



COUNTING BY 5's here uses the CARRY TWICE

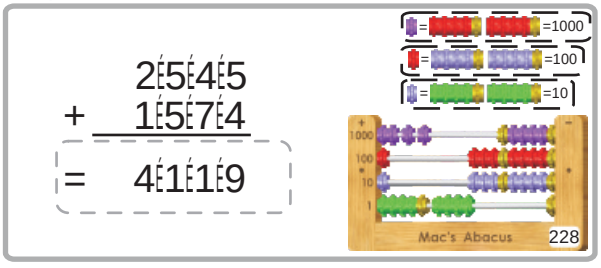



SPLITTING MAC's ABACUS into TWO ABACI, Each capable of COUNTING TO 100 (note the Row Assignments)
GAME: Two can Roll Dice until one gets to 100
Top Problem has no CARRY but Bottom one does

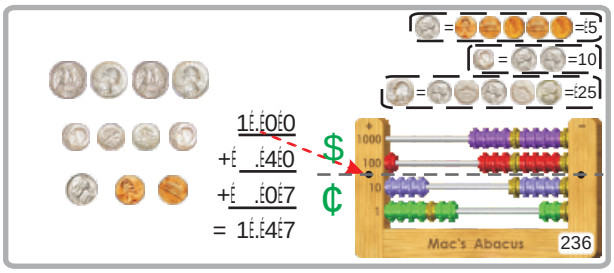



EACH BEAD in Row 3 is a TOKEN for ALL 10 BEADS in
Row 2, so we can COUNT PAST 100 on MAC's ABACUS

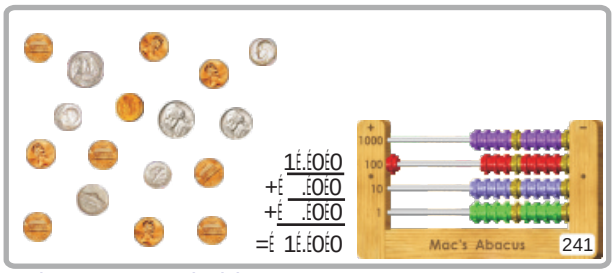



EACH BEAD in Row 4 is a TOKEN for ALL 10 BEADS in
Row 3, so we can COUNT PAST 1000 on MAC's ABACUS

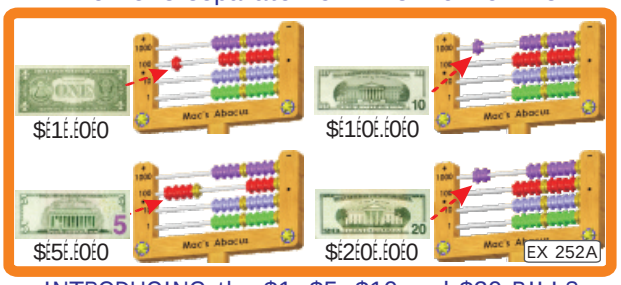
# DECIMAL ADDITION and SUBTRACTION, COUNTING and USING MONEY



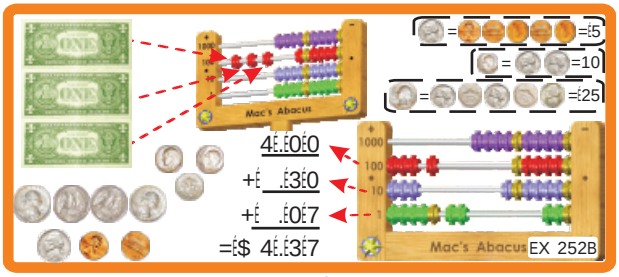

COUNTING COINS on MAC's ABACUS
The DOTS Separate DOLLARS from CENTS



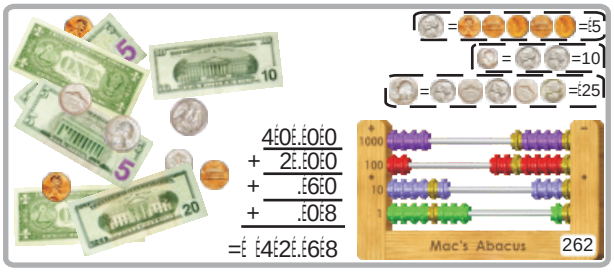

There are probably many COIN COMBINATIONS
that ADD UP to $1.00



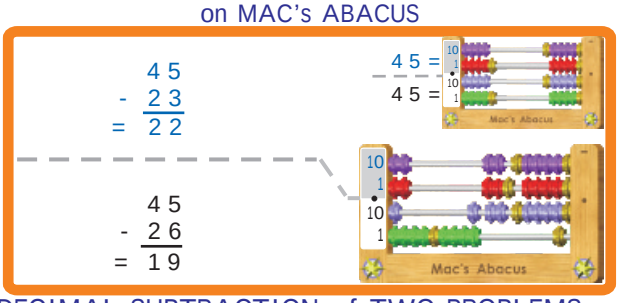

INTRODUCING the $1, $5, $10 and $20 BILLS
on MAC's ABACUS



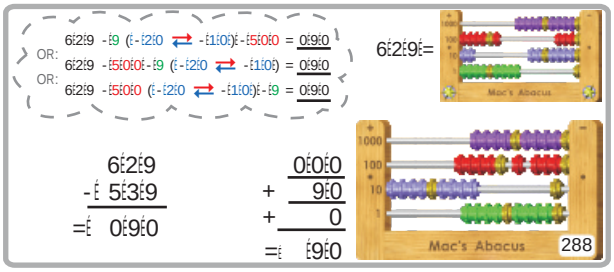

COUNTING BILLS and COINS TOGETHER
on MAC's ABACUS



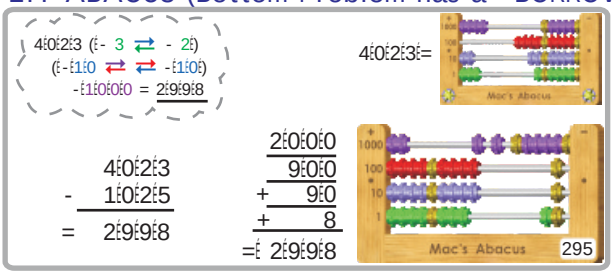

COUNTING PILES of BILLS and COINS
on MAC's ABACUS



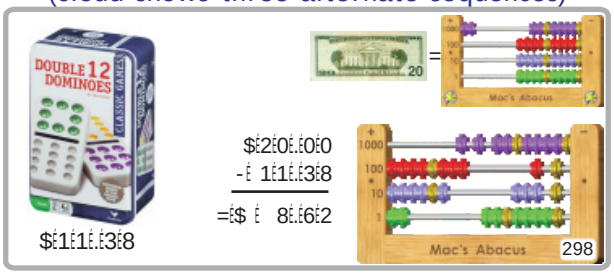

DECIMAL SUBTRACTION of TWO PROBLEMS on
a SPLIT ABACUS (Bottom Problem has a "BORROW")



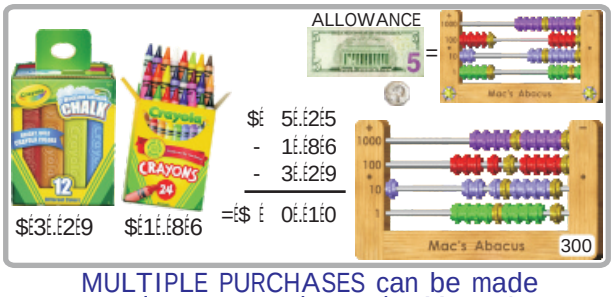

DECIMAL SUBTRACTION of THREE-DIGIT Numbers
(cloud shows three alternate sequences)



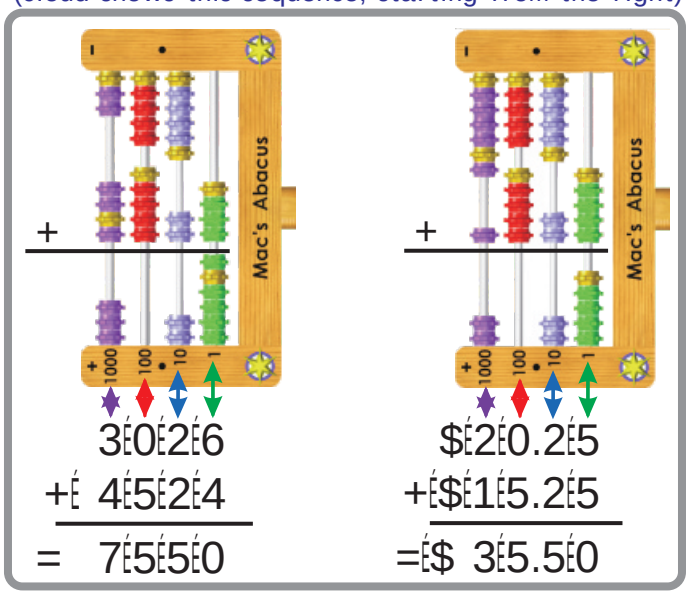

DECIMAL SUBTRACTION of FOUR-DIGIT Numbers
(cloud shows this sequence, starting from the right)




MONEY SUBTRACTION is Used to MAKE CHANGE
in a Purchase




MULTIPLE PURCHASES can be made
as long as you have the Money!




DEMONSTRATING the EQUIVALENCE
of MAC's ABACUS and the DECIMAL SYSTEM