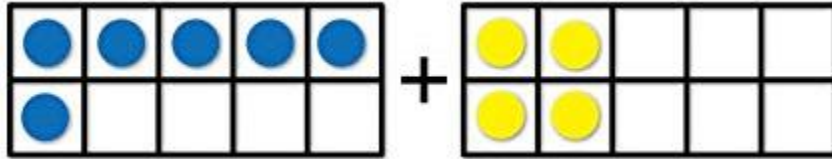
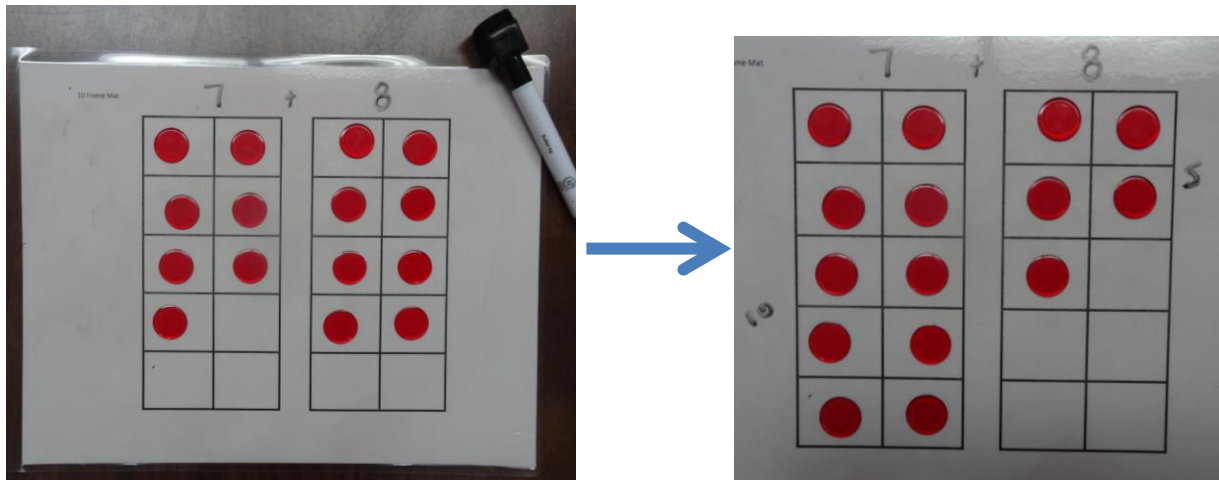


Ten Frames for Addition and Subtraction

Grouping is foundational. Teach students to operate around the 10.



Have students physically move the chips over to the other box to see that it fills up the 10 frame. Use a dry erase marker to write problems on the mat: $7 + 8$. Have students put 7 chips in one frame and 8 in another. Teach them to move some from one over to the other to see a full 10, plus what's left in the other frame.



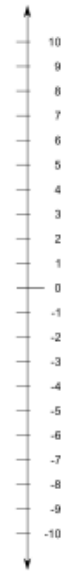
Skip Counting and Grouping

Put out popsicle sticks and have students physically put together groups of 10 (or 5). Practice skip counting (5, 10, 15, 20, etc. / 10, 20, 30, 40, etc.)



Use a VERTICAL number line (instead of horizontal).

This is like a thermometer, which is something that actually goes *below* zero (a negative number!)



Read don't spell!

$$3 \times 4 =$$

Spelling → "Three times four equals ? "

***Reading → "three groups of four is the same as ? "

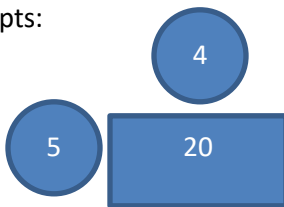
$$12 / 2 =$$

Spelling → "~~twelve divided by two equals ?~~"

***Reading → "12 split into 2s" or "12 split into 2 equal groups"

Multiplication and Division Framing

Use this shape method to bypass language of multiplication and division, and instead to focus on the concepts:



$$\text{circle} \times \text{circle} = \text{rectangle}$$

$$\text{rectangle} / \text{circle} = \text{circle}$$

circle is a factor of rectangle

rectangle is a multiple of circle

Partial Quotients Division

$$\begin{array}{r}
 5 \overline{)86} \\
 \underline{-50} \quad 10 \\
 36 \\
 \underline{-25} \quad 5 \\
 11 \\
 \underline{-10} \quad 2 \\
 \hline
 \text{remainder } 1 \quad \text{quotient } 17
 \end{array}$$

Step 1: Think!
Easy Facts!

$$\begin{array}{l}
 1 \times 5 = 5 \\
 10 \times 5 = 50 \\
 100 \times 5 = 500 \\
 2 \times 5 = 10 \\
 20 \times 5 = 100 \\
 5 \times 5 = 25 \\
 50 \times 5 = 250
 \end{array}$$

Step 2: Subtract!

Stop when you get less than your divisor.

Step 3: Add!

Rewrite as number sentence.

$$86 / 5 = 17 \text{ remainder } 1$$

Tell a story to make it real!

"It's my lucky day! I found 67 candies. I'm going to give 3 candies to everybody I see until I run out. How many people can I give 3 candies to?"

$$\begin{array}{r}
 3 \overline{)67} \\
 \underline{-30} \quad 10 \text{ candies each, } 30 \text{ given out altogether} \\
 37 \\
 \underline{-30} \quad 10 \text{ candies each, } 30 \text{ more given out} \\
 7 \\
 \underline{6} \quad 2 \text{ candies each, } 6 \text{ more given out} \\
 1
 \end{array}$$

So I add up $10 + 10 + 2 = 22$. I can give candy to 22 people, and there will be 1 piece leftover for me!

[See a short video watching how to use partial quotients division here.](#)

***A Trick** → Turn notebook paper sideways and use columns to keep place values straight:

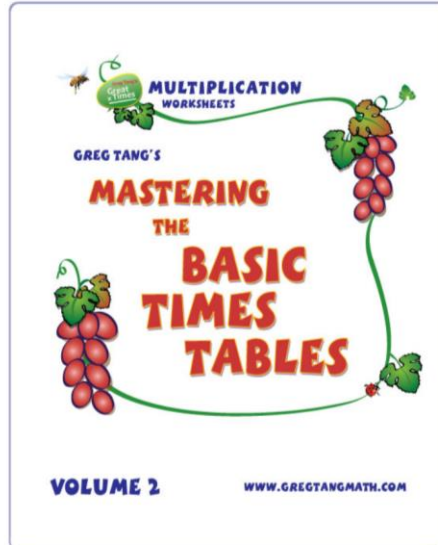
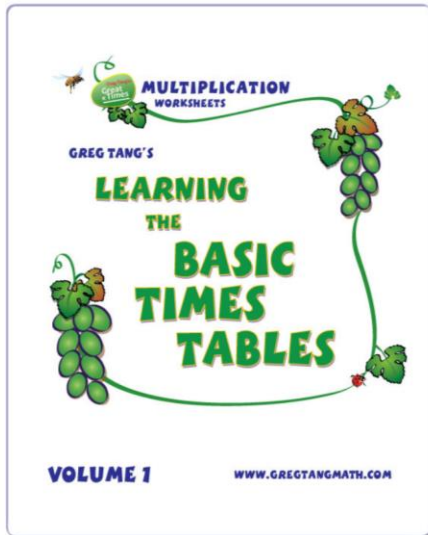
$$\begin{array}{r}
 4,321 \\
 + 654 \\
 \hline
 4,975
 \end{array}$$

Greg Tang's Method to Teaching the Basic Times Tables

Use the binder with these worksheets to teach basic times tables. ([online version here](#))

Please do not write directly on the worksheets in the binder (they are originals).

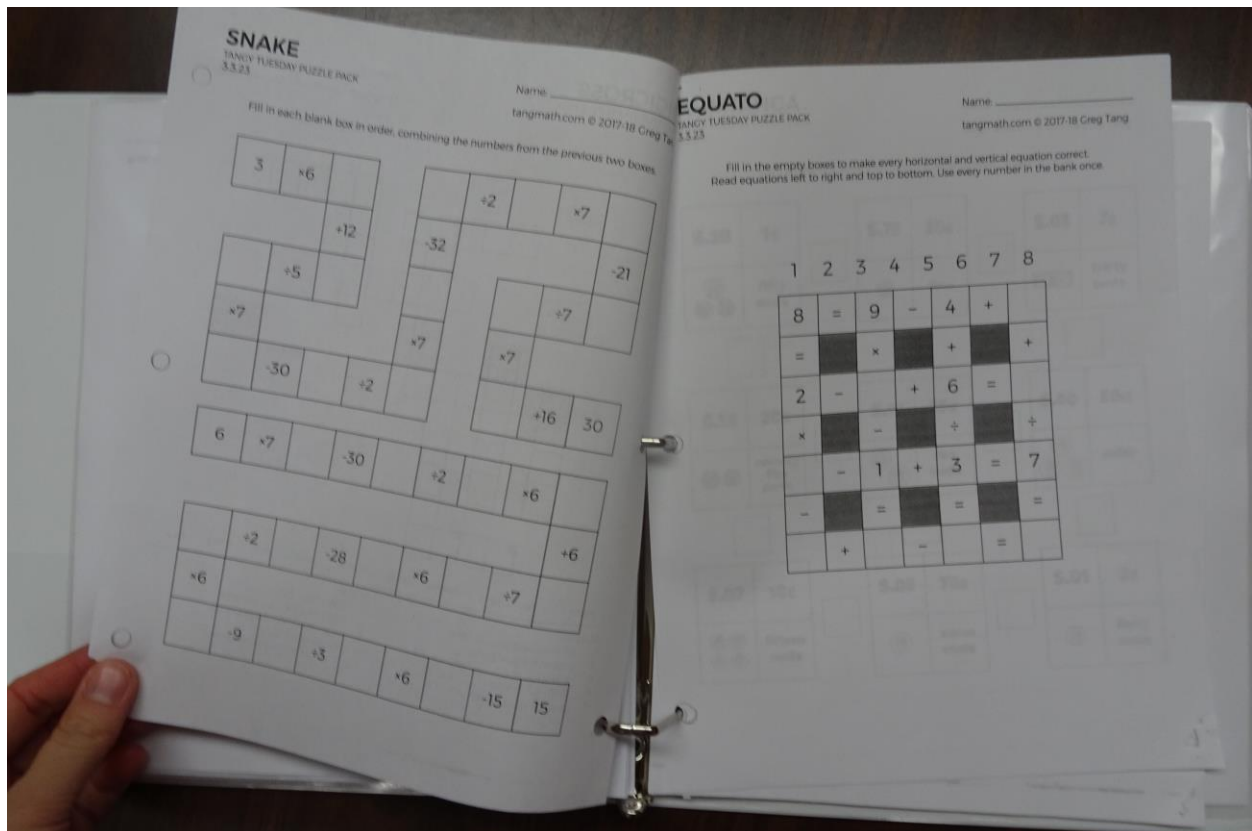
Please use the copy machine/printer to make copies of the sheets you'd like to work on, or just rewrite onto notebook paper as you work with the student.



Fun Activities → Greg Tang Puzzles

Puzzles in this binder encourage students to engage with math/number concepts in a fun way!






Copies of each set of puzzles are behind the originals in the sheet protectors. If there are no more copies in the binder, make copies on the printer from the originals.



Money for Place Value and/or Decimals

Use fake money (in envelopes) to talk about place value in a non-baby-ish way.



				
HUNDREDS	TENS	ONES	TENTHS	HUNDREDTHS
8	4	7	3	6

[Sample explanation here.](#)