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## Multiplication Makeover

Sandra White
swhite@shallowaterisd.net
snannyw@aol.com
info@lonestarlearning.com


## Multiplication \& More (Math Made Easy Night) CAMT 2014

A. Concepts: Marilyn Burns is the Queen! The Math Solution

1. Chopstick Problem
2. Children's Line-up
3. Circles \& Stars
4. Visual Multiplication with Rectangles
5. Visual Multiplication with Base Ten Blocks
6. Things That Come in Groups
7. Generate Problems - Concepts to Applications
B. Master Multiplication Facts in $10 \& 10$ ! -10 min. \& 10 days!
8. 0's, 1's, 2's, 5's, 10's, \& 9's
9. Hard 15 Made Easy!
10. 11 's \& 12's
11. Short Consistent Review - Square Scramble
12. Missing Factor Bingo (Introduction to Division)
C. Mathematical Patterns That Work
13. 6-10 Hand Jive
14. Check with a Big X.
15. Legal Cheat Sheet
D. Going Beyond Lessons
16. Individual Multiplication Projects
17. Multiplication Number Sense Tricks








on the line below the rectangles． 1．List all the factors of each number 1．List all the factors of each number

$$
\begin{aligned}
& \underset{0}{Z} \\
& \stackrel{0}{3} \\
&
\end{aligned}
$$







$\square$



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|  | 0's | 1's | 2's | 3's | 4's | 5's | 6's | 7's | 8's | 9's | 10's |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |
| 0's | 0x0= | $1 \times 0=$ | $2 \times 0=$ | $3 \times 0=$ | $4 \times 0=$ | $5 \times 0=$ | $6 \times 0=$ | $7 \times 0=$ | $8 \times 0=$ | $9 \times 0=$ | $10 \times 0=$ |
| 1's | 0x1= | 1x1= | 2x1= | $3 \times 1=$ | 4x1= | 5x1= | 6x1= | $7 \times 1=$ | $8 \times 1=$ | 9x1= | 10x1= |
| 2's | 0x2= | 1x2= | $2 \times 2=$ | $3 \times 2=$ | 422 $=$ | 5x2= | 6x2= | $7 \times 2=$ | $8 \times 2=$ | 9x2 $=$ | $10 \times 2=$ |
| 3's | 0x3= | 1x3= | $2 \times 3=$ | $3 \times 3=$ | $4 \times 3=$ | 5x3= | $6 \times 3=$ | $7 \times 3=$ | $8 \times 3=$ | 9x3= | 10x3 $=$ |
| 4's | 0x4= | 1×4= | $2 \times 4=$ | $3 \times 4=$ | $4 \times 4=$ | $5 \times 4=$ | 6x4= | $7 \times 4=$ | $8 \times 4=$ | 9x4= | 10x4= |
| 5 's | 0x5= | $1 \times 5=$ | $2 \times 5=$ | $3 \times 5=$ | $4 \times 5=$ | 5x5 $=$ | $6 \times 5=$ | $7 \times 5=$ | $8 \times 5=$ | 9x5= | 10x5 |
| 6's | 0x6= | 1x6= | 2×6= | 3x6= | $4 \times 6=$ | 5x6= | $6 \times 6=$ | $7 \times 6=$ | $8 \times 6=$ | 9x6= | 10x6 $=$ |
| 7's | 0x7= | $1 \times 7=$ | 2×7 $=$ | 3x7= | $4 \times 7=$ | $5 \times 7=$ | $6 \times 7=$ | $7 \times 7=$ | $8 \times 7=$ | 9x7= | 10x7= |
| 8's | 0x8= | $1 \times 8=$ | $2 \times 8=$ | $3 \times 8=$ | $4 \times 8=$ | $5 \times 8=$ | $6 \times 8=$ | $7 \times 8=$ | $8 \times 8=$ | $9 \times 8=$ | 10x8= |
| 9's | 0x9= | $1 \times 9=$ | $2 \times 9=$ | $3 \times 9=$ | $4 \times 9=$ | $5 \times 9=$ | 6x9 $=$ | $7 \times 9=$ | $8 \times 9=$ | 9x9= | 10x9 $=$ |
| 10's | $0 \times 10=$ | $1 \times 10=$ | $2 \times 10=$ | $3 \times 10=$ | $4 \times 10=$ | 5 $\times 10=$ | $6 \times 10=$ | $7 \times 10=$ | $8 \times 10=$ | $9 \times 10=$ | $10 \times 10=$ |

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Select an Advanced Multiplication Project to complete independently. Be prepared to present to the class.
A. Write and illustrate word problems using these guidelines. Each one should be on a single sheet of $8.5 \times 11$ paper.

1. One step multiplication problem.
2. Two step problem using multiplication only.
3. Two step problem including multiplication and addition.
4. Two step problem including multiplication and subtraction.
5. Two step problem including multiplication and division.
6. Two step problem including multiplication and measurement or geometry.
B. List five different ways / situations when you would use multiplication in real life. Illustrate.
C. Find the surface area of a Kleenex Box. Draw and label your findings. You may Google "Surface Area."
D. Make a Multiplication Game for the class to play.
E. Fill in blanks. Use a calculator to check. Show work. I am $\qquad$ years old. I am $\qquad$ months old. I am $\qquad$ days old. I am $\qquad$ hours old. I am $\qquad$ minutes old.

## Enjoy some of my favorite Multiplication $\mathcal{N}$ umber Sense Tricks!

 Teach your favorite "Math-In-Your-Head-Tricks" to your class.A. Two Digits $\times 101$ Write digits down twice
B. Two Digit Squares Ending in 25.

1. Write 25.
2. Write Tens digit $\times 1$ larger.
(Say, "HTAM," like Shazam to remind you to work backwards, from right to left.)
Ex: Write 25 first: then Multiply tens digit $\times$ one larger.
C. Two Digits $\times 11$
3. Write ones digit.
4. Write sum of 2 digits.

Regroup when necessary.
3. Write tens digit.
D. Three digits $\times 11$.

1. Write ones digit.
2. Write sum of ones and tens digits.
3. Write sum of tens and hundreds digits.
4. Write hundreds digit.
E. Two Digits $\times 2$ Digits
5. Write product of ones digits.
6. Multiply outside numbers.

Multiply inside numbers.
Write sum of two products.
3. Write product of tens digits.

Ex: $35 \times 101=\underline{3535}$
$46 \times 101=\underline{4646}$
$78 \times 101=$ $\qquad$
Ex: $15 \times 15=\underline{225}$
$25 \times 25=625$
$35 \times 35=\underline{\underline{1225}}$
$45 \times 45=$ $\qquad$
$55 \times 55=$ $\qquad$
$65 \times 65=$
$75 \times 75=$ $\qquad$
$85 \times 85=$
$95 \times 95=$
Ex: $45 \times 11=495$
$34 \times 11=374$
$76 \times 11=836$
$89 \times 11=979$
$72 \times 11=$
$53 \times 11=\square$
$88 \times 11=$
$97 \times 11=$
Ex: $452 \times 11=\underline{4972}$
$541 \times 11=5951$
$769 \times 11=\underline{8459}$
$623 \times 11=$
$752 \times 11=$
$482 \times 11=$
Ex: $13 \times 24=312$
$74 \times 52=\underline{3848}$
$81 \times 96=\underline{7776}$
$41 \times 35=$
$92 \times 36=$
$47 \times 12=$
$\qquad$
$85 \times 53=$
$62 \times 19=$ $\qquad$

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1. Randomly number your Bingo Cards using the numbers 1-10 across the top and down the side of your card. That assures every card will be different.
2. Your teacher will draw a product from a container. For example, she might say, "The Product is 6 ." Find the factors of 6 on the top and side of your Bingo Card. Move your fingers until they intersect and write the product 6 in that square.
6 may be written in four places: $\quad 1 \times 6=6 \quad 6 \times 1=6 \quad 2 \times 3=6 \quad 3 \times 2=6$ See example
3. To win the game, you must have correct answers in all ten like items.

Example: You are a winner with 10 stars or 10 apples or 10 cups or 10 turtles, etc.
NAME

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After successfully completing Mastering Multiplication in 10 and 10, your students will love playing MISSING FACTOR BINGO. It is a fantastic introduction/preparation for division and a great resource for those Hard-To-Teach-Days like Halloween.


- Make a copy, cut squares apart and place in container. - Draw and call out one product at a time.
- Students will mark the number (product) on the Bingo Card everywhere two factors meet.

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Examples: Mark 24, in 4 squares. 6\times4=24 4\times6=24 3*8=24 8*3=24
|. may only be in 1 square: 1\times1=1
. . may be written 3 times: 1\times9=9 9\times1=9 3\times3=9
The product 49 can only be written 1 time: 7\times7=49
40% is written 4 times: 5\times8=40 8\times5=40 10\times4=40 4\times10=40
```

Teachers may want to write the products on the board as they are called out and beside each product list how many squares will be filled in.

| $\begin{aligned} & \infty \\ & \substack{\infty \\ \sum_{2}^{W} \\ \sum_{4}^{\prime} \\ \hline} \end{aligned}$ |  |  | $\begin{aligned} & \stackrel{\rightharpoonup}{x} \\ & \underset{\sim}{x} \\ & \stackrel{\sim}{\\|} \end{aligned}$ |  | $$ |  | $$ |  |  |  |  | $\begin{aligned} & \underset{\sim}{x} \\ & \underset{\sim}{x} \\ & \underset{\sim}{\sim} \end{aligned}$ | $\begin{aligned} & \infty \\ & \sim \\ & \sim \\ & \underset{\sim}{n} \\ & \tilde{n} \\ & \hline \end{aligned}$ |  |  |  | $\begin{aligned} & \underset{\sim}{x} \\ & \underset{\sim}{x} \\ & \stackrel{\rightharpoonup}{N} \\ & \hline \end{aligned}$ |  | $\begin{aligned} & \stackrel{\infty}{\infty} \\ & \stackrel{1}{N} \\ & \text { Nin } \end{aligned}$ | $\begin{aligned} & \infty \\ & \stackrel{\star}{\sigma} \\ & \stackrel{\rightharpoonup}{x} \\ & \stackrel{\pi}{\sim} \end{aligned}$ | $\begin{aligned} & \stackrel{\rightharpoonup}{\star} \\ & \underset{\sim}{\grave{x}} \\ & \underset{\sim}{10} \\ & \stackrel{\sim}{\infty} \\ & \hline \end{aligned}$ |  |  | $$ | $\begin{aligned} & \stackrel{\rightharpoonup}{㐅} \\ & \stackrel{\rightharpoonup}{+} \\ & \stackrel{\rightharpoonup}{\star} \\ & \stackrel{\rightharpoonup}{0} \\ & \stackrel{0}{0} \end{aligned}$ |
| :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: | :---: |

## CONGRATULATIONS!

Multiplication is never more difficult than multiplying one digit $x$ one digit plus a little regrouping!


## Samiracars

Let's check with a BIG X! Rule: Continue to add digits until only one digit remains in each section of the Big X!

Step 1:
Add digits of first factor for top of BIG $\times$.

Step 2:
Add digits of second factor for bottom of BIG X.

Step 3:
Multiply top of BIG X
by bottom of BIG X.
2×8=16 \& 1+6=7
(Our answer must = 7 )

Step 4:
Add digits in product
until only one digit remains.
.

326


\section*{| Problem | $\sqrt{ }$ with BIG X | Box Math |
| :--- | :--- | :--- |}

## Example 1


$\begin{array}{r}632 \\ \times \quad 8 \\ \hline\end{array}$

$\begin{array}{r}346 \\ \times 257 \\ \hline\end{array}$


$$
37
$$

