Multiplication Patterns and Shortcuts (SAVE THIS)

factor x factor = product N=any factor

X0 Nx0=0 (7x0=0, 0x9=0, etc.) **Product is always 0.**

X1 Nx 1=N (1x3=3, 1x5=5, 0x1=0, etc.)

X2 2xN= double N. (2x8= 8+8=16, 2x7=7+7=14)

Count by 2 N times. (2x8= count by 2 eight times = 16)

All products are even numbers.

X5 **All products end with 0 or 5.**

Count by 5 however many times.

X10 **All products end with 0.**

Count by 10 however many times.

X11 The number in the **ones place and tens place of the product are the same** for factors 1 through 9. (11, 22, 33, 44, etc.)

X9 Use the finger trick. (Google this to find a video.)

If you add the number in the ones place and tens place of the product, the sum is always 9. (9, 18, 27, 36,45, 54, 63, 72, 81, 90)

After 45, it reverses. (45→54, 36→63, 27→72)

In the product, the ones place goes DOWN a number and tens place goes UP a number each time.

X others Use the distributive property. Break apart a large number into smaller parts. Multiply each part and combine the products.

X3 3xN is the same as (2xN)+(1xN). 3x8=(2x8)+(1x8)= 16+8=24

X4 4xN is the same as (2xN)+(2xN). 4x7=(2x7)+(2x7)= 14+14=28

Product is always an even number.

(If you know your x2 fact, double the product to figure out x4 fact.)

BY NOW YOU SHOULD KNOW MOST OF X6, X7 AND X8 BY USING RELATED FACTS.

X6 6xN is the same as (5xN)+(1xN). 6x8=(5x8)+(1x8)= 40+8=48

6xN is same as doubling 3xN because 6 is double of 3. 6x8=(3x8)+(3x8)= 24+24= 48 Think of arrays if you are having trouble visualizing this.

Product is an even number.

(If you know your x3 fact, double the product to figure out x6 fact).

X7 7xN is the same as (5xN)+(2xN). 7x7=(5x7)+(2x7)= 35+14=49

X8 8xN is the same as doubling 4xN. 8x7=(4x7)+(4x7)=28+28=56

Or 8x7=(5x7)+(3x7)=35+21=56

Product is an even number.

(If you know your x4 fact, double the product to figure out x8 fact.)

X12 12xN is the same as (10xN)+(2xN). 12x8=(10x8)+(2x8)=80+16=96

The breakdowns I listed are just my suggestions because most of the class knows how to count by 1s, 2s, 5s and 10s. Other breakdowns are just as fine as long as your child knows those facts.

Other Notes

- Use **related facts** (commutative property)
  If you know 6x8=48, then 8x6=48.
- Use **basic facts to solve fact extensions**. If you know 4x7=28, then 40x7=280 and 400x7=2,800
- When you xN, you are counting on by that number. If you forgot 7x8, you can **count on from a fact you already know**. 5x8=40, 6x8=48, 7x8=56
- Make flashcards for the ones you're still having trouble with and practice.

If you know your multiplication facts, use your fact families/number bonds/related facts to solve division facts!

6x8=48, 8x6=48, 48/6=8, 48/8=6

By the end of third grade, you should KNOW multiplication and division facts within a hundred FLUENTLY (x0 to x10). I just added x11 and x12 for the following reasons:

X11 is pretty easy if you use the pattern

X12 help with measurement conversions in the future (i.e. 2 ft= __ inches, 48 inches = __ ft, etc.)