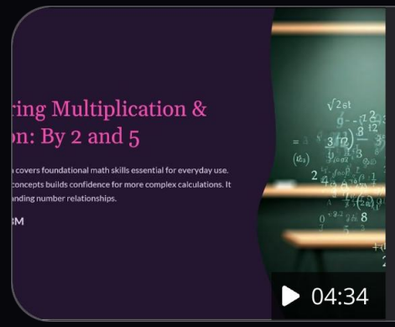
Mastering Multiplication and Division: The Power of 3s and 4s

This presentation explores foundational math skills. We will focus on multiplication and division by three and four. These concepts are essential for problem-solving. They build number sense and computational fluency.

I would recommend you watch my video "**Mastering Multiplication & Division By 2 and 5**" if you haven't yet. The video link is in the description.



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Mastering Multiplication & Division By ...

This presentation covers foundational math skills essential for everyday use. Mastering...

by Tony BM

Understanding Multiplication: Repeated Addition & Groups

Equal Groups

Multiplication combines equal groups.

Example: 3 x 4

This means "3 groups of 4." It is also "4 + 4 + 4."

The Product

The result of multiplication is called the "product."

Visualizing Arrays

Think of arrays, like 3 rows of 4 objects.

Multiplying by 3: Strategies for Success

1 Skip Counting

Recite: 3, 6, 9, 12, 15, 18, 21, 24, 27, 30.

2 Doubling & One More

Use (2n) + n . For example, 3 x 7 = (2 x 7) + 7 = 14 + 7 = 21.

3 Digit Sum Rule

The sum of digits of a multiple of 3 is also a multiple of 3. For instance, 3 x 8 = 24, and 2 + 4 = 6.

4 Finger Tracking

Utilize your fingers as a visual aid. They help in tracking skips.

Multiplying by 4: Doubling Twice

Skip Counting

Recite: 4, 8, 12, 16, 20, 24, 28, 32, 36, 40.

1

Double Twice

2

Use (2n) x 2. For example, 4 x 6 = (6 x 2) x 2 = 12 x 2 = 24.

Even Multiples

3

All multiples of 4 are even numbers.

Connect to 2s Facts

4

Knowing 2n facts helps with 4n facts.

Connecting 3s and 4s: Patterns and Relationships

Commutative Property

The order does not matter. For example, 3 x 4 = 4 x 3 = 12.

Relationship

4n is n more than 3n. For instance, 4 x 5 = 20, while 3 x 5 = 15; 20 - 15 = 5.

Both 3 and 4 are fundamental numbers. They are small primes or composites. These properties are useful for building larger multiplication facts.

Understanding Division: Sharing Equally & Groups

Equal Sharing

Division involves splitting things into equal groups.

Inverse Operation

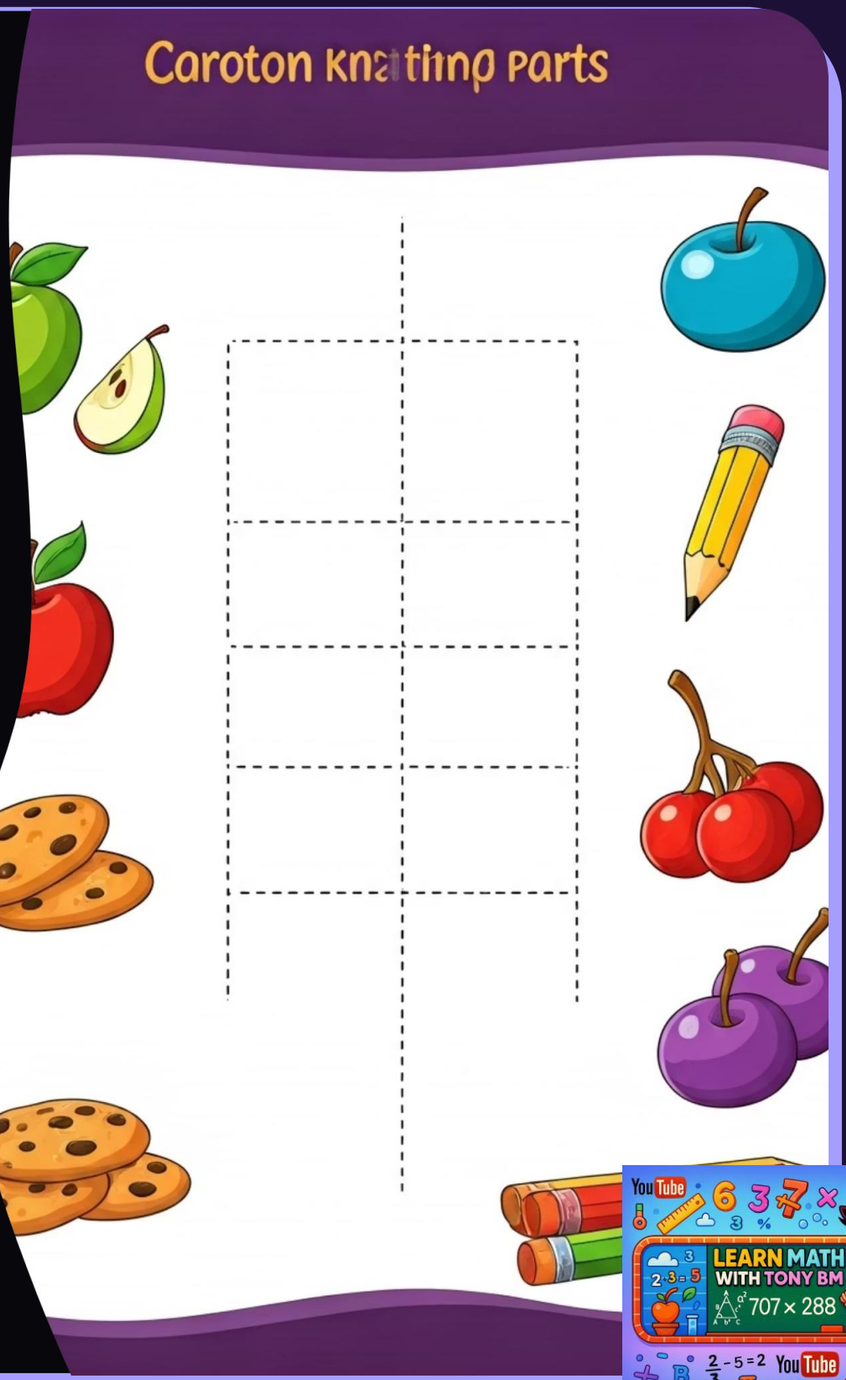
Division is the inverse operation of multiplication.

Example: 12 ÷ 3

This means "12 shared into 3 groups." Or "how many groups of 3 in 12."

The Quotient

The result of division is called the "quotient."



Dividing by 3: Using Inverse Operations

Think Multiplication

To solve 27 ÷ 3 = ?, ask "3 x ? = 27." The answer is 9.

Repeated Subtraction

Start with the total. Subtract 3 until zero. Count the subtractions.

The divisibility rule for 3 states that if the sum of a number's digits is divisible by 3, the number itself is divisible by 3. For example, for 36, 3 + 6 = 9, and 9 is divisible by 3, so 36 is divisible by 3.

Dividing by 4: Halving Twice

Halve Twice

To solve N ÷ 4 = ?, find (N ÷ 2) ÷ 2. For instance, 24 ÷ 4 = (24 ÷ 2) ÷ 2 = 12 ÷ 2 = 6.

Think Multiplication

To solve 32 ÷ 4 = ?, ask "4 x ? = 32." The answer is 8.

The divisibility rule for 4 indicates that if the last two digits of a number form a number divisible by 4, the whole number is divisible by 4. For example, for 128, 28 is divisible by 4, so 128 is also divisible by 4.

Real-World Applications: Math in Action

Shopping: Three packs of pens at $4 each cost $12 total.

Sharing: Twenty-four cookies divided among four friends means six cookies each.

Cooking: Tripling a recipe requiring three cups of flour needs nine cups.

Measurement: Four wheels on five bicycles equal 20 wheels in total.

Team Sports: Three teams of four players make 12 total players.

Conclusion: Practice Makes Perfect

Review Operations

Multiplication is repeated addition or groups. Division is sharing equally or finding groups.

Practice Strategies

Use skip counting, doubling, and inverse operations.

Utilize Resources

Use flashcards, online games, and daily scenarios for practice.

Consistent Practice

Regular effort builds confidence and mastery.

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