Título/ Enfoque: Multiplicación

Estándares y prácticas matemáticas

- Namos a modelar con matemáticas al usar multiplicación para resolver problemas textuales usando matrices, grupos iguales, modelos de área.
- Namos a buscar y utilizar las estructuras de las propiedades de multiplicación: distributiva, comutativa, y asociativa al usarlas como estrategias para multiplicar.
- Namos a usar el razonamiento abstracto para encontrar el número incógnita de una multiplicación y haremos una representación de ese problema.

Multiplicación

Lo que sabemos sobre ____________

La investigación

Lo que queremos aprender ____________

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Multiplication

Models in Multiplication
— purchased 5 packages of muffins. Each package contained 3 muffins. How many muffins did — purchase?

5 groups of 3 — = 5 \times 3

Array

Area model

multiplying by tens

5 \times 4 = 20
50 \times 4 = 200

5 \text{ tens} \times 4 = 20 \text{ tens}
20 \text{ tens} = 200

Properties of Multiplication

Commutative property
5 \times 2 = 10
2 \times 5 = 10
0 \times 7 = 0
7 \times 0 = 0

Associative property
(7 \times 5) \times 2 = 2 \times 5 \times 7

Distributive property
7 \times 8 = (5 + 2) \times 8
5 \times 8 + 2 \times 8 =
40 + 16 = 56

Identity property
1 \times 9 = 9
9 \times 1 = 9

Solving for an unknown

has 2 bags with marbles, +
has 24 marbles total. How many marbles are there in each bag?

There are 4 marbles in each bag.

24 = \( n \times 6 \)

Relationship to Division

24 = 4 \times 6
24 \div 6 = 4

12 \div 4 = 3

Fact family

12 divided by 4 equals 3

What we know about multiplication?

Inquiry
What we want to learn about multiplication?

Standards and Mathematical Practices

We will model with mathematics when using multiplication within 100 to solve word problems by using arrays, equal groups, and area models.

We will look for and make use of structures of the Commutative, Associative, and Distributive properties of multiplication by using them as strategies to multiply.

We will find the unknown whole number in a multiplication equation by reasoning abstractly and creating a representation of a problem.
Chapters

**Unit:** 3.xo : Multiplication

**CCSSM:**
- 3.OA.1 - Interpret products of whole numbers.
- 3.OA.2 - Interpreting whole-number quotients of whole numbers.
- 3.OA.3 - Use multiplication to solve word problems.
- 3.OA.4 - Determine the unknown whole number in a multiplication equation.
- 3.OA.5 - Apply properties of operations as strategies to multiply.
- 3.OA.7 - Fluently multiply and divide using strategies within 100.
- 3.NBT.3 - Multiply one-digit whole numbers by multiples of 10.

**Math Practices being emphasized:**
- 1. Make sense of problems and persevere in solving them.
- 2. Reason abstractly and quantitatively.
- 4. Use appropriate tools strategically.
- 5. Look for and make use of structure.

**Essential Questions**
- What are different meanings of multiplication?
- How is multiplication related to addition and multiplication?
- What patterns can be used to find certain multiplication facts?
- How can unknown multiplication facts be found using known facts?

**Key Concepts**
- Multiplication as repeated addition.
- Understand how to create and use models.
- Relationship to division.
- Properties of multiplication.
- Using patterns as a strategy.

**Pre and Post Assessments**
- Pre - Teacher made to mirror post test or Envision Topic 5+6 Multiple Choice Modified
- Post - Envision Topic 5+6 Free Response

**Visual Models of Concepts**
- Diagrams showing multiplication and division concepts.

**Algorithms/Diagrams**
- $3 	imes 4 = 12$
- $3 	imes n = 12$
- $3 + 4 = 12$
- $12 = n \times 3$
- $8 \times 4 = (5+3) \times 4$
- $50 \times 4 = 5 \times 10 \times 4 = 20 \times 4$
- $20 + 12 = 32$
- $50 \times 4 = 200$
- $(7 \times 5) \times 3 = 70$
- $7 \times (5 \times 3) = 70$

**Connections (Real World Applications)**
- Conversions - in measurement.
- Construction - carpeting a room.
- Shopping - # of objects in each pack.
- Recipes - doubling a recipe.
**Language Functions/Structures**

- is times as many as
- times equals
- The unknown in is because
- This array shows rows of

**Multiplication**
- Multiplication
- Properties: Associative, Commutative, Distributive
- Product
- Array
- Area Model

**Vocabulary**
- Equal groups
- Unknown
- Variable
- Strategy

**Focus and Motivation**

- Brain Pop Jr - Arrays
  - repeated addition

- www.brainpopjr.com

- I have, who has - multiplication

- Listen and respond - One Hundred Angry Ants
  - by Elinor J. Pinczes