AIM4S^{3}™ Compendium Template

Título/ Enfoque: Multiplicación

Se parece a

4+4+4=12

factores: 4 x 3 = 12 ← resultado

4 · 3 = 12

4(3) = 12

x 3 / 12

4 por 3 es 12

Modelos en multiplicación

_____ Compró 5 paquetes de madalenas. Cada paquete contenía 3 madalenas ¿Cuántas madalenas compró _____?

5 grupos de 3 _____ = 5 x 3

matriz

modelo de área

3 / 5

multiplicando decenas

50 x 4 = 200

5 decenas x 4 = 20 decenas

20 decenas = 200

5 x 4 = 20

5 diez x 4 = 20

patrones de multiplicación

	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144

5 5 5 5

0 5 10 15 20

multiples de 5

5, 10, 15, 20, 25, 30, 35, 40

Comparando en multiplicación

Un sombrero azul cuesta $6. Un sombrero rojo cuesta 3 veces más que el sombrero azul. ¿Cuánto cuesta el sombrero rojo?

$6 | $6 | $6 = 6 x 3 (3 veces más)

El sombrero cuesta $18

Propiedades de la multiplicación

Propiedad conmutativa

5 x 2 = 10

2 x 5 = 10

Propiedad del cero

0 x 7 = 0

7 x 0 = 0

Propiedad asociativa

(7 x 5) x 2 =

2 x 5 x 7 =

Propiedad distributiva

7 x 8 = (5+2) x 8

5 x 8 + 2 x 8 = ____

40 + 16 = 56

Propiedad de identidad de 1

1 x 9 = 9

9 x 1 = 9

Encontrando el valor de la incógnita

_____ tiene 6 bolsas con canicas hay 24 canicas en total. ¿Cuántas canicas hay en cada bolsa?

24 = n x 6

Hay 4 canicas en cada bolsa

La Relación con la división

24 = 4 x 6

24 = 6 x 4

24 ÷ 6 = 4

24 ÷ 4 = 6

Familia de datos

dividendo / divisor

12 ÷ 4 = 3 ← cociente

4 | 12 (3)

12 dividido por 4 es 3

Estándares y prácticas matemáticas

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

Multiplicación **Lo que sabemos sobre** _____

La investigación

Multiplicación **Lo que queremos aprender** _____

Looks like.

☺☹☺☹

1+4+4=12

tacos

4 × 3 = 12 ← product

4 · 3 = 12

4 (3) = 12

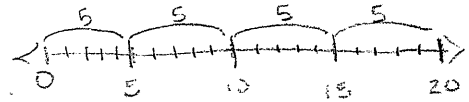
4 times 3 equals 12

× 3 / 1 2

Multiplication

Patterns in multiplication

×	1	2	3	4	5	6	7	8	9	10	11	12
1	1	2	3	4	5	6	7	8	9	10	11	12
2	2	4	6	8	10	12	14	16	18	20	22	24
3	3	6	9	12	15	18	21	24	27	30	33	36
4	4	8	12	16	20	24	28	32	36	40	44	48
5	5	10	15	20	25	30	35	40	45	50	55	60
6	6	12	18	24	30	36	42	48	54	60	66	72
7	7	14	21	28	35	42	49	56	63	70	77	84
8	8	16	24	32	40	48	56	64	72	80	88	96
9	9	18	27	36	45	54	63	72	81	90	99	108
10	10	20	30	40	50	60	70	80	90	100	110	120
11	11	22	33	44	55	66	77	88	99	110	121	132
12	12	24	36	48	60	72	84	96	108	120	132	144



multiples of 5

5: 5, 10, 15, 20, 25, 30, 35, 40

Models in Multiplication

_____ purchased 5 packages of muffins. Each package contained 3 muffins. How many muffins did _____ purchase?

5 groups of 3 ___ = 5 × 3

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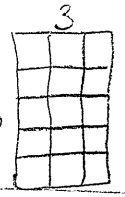
Array

○ ○ ○
○ ○ ○
○ ○ ○
○ ○ ○
○ ○ ○

Area model



Multiplying by tens

50 × 4 = 200

5 × 4 = 20

5 tens × 4 = 20 tens

☺ ○○○

5 tens × 4 = 20 tens

20 tens = 200

Comparing in Multiplication

A blue hat costs $6. A red hat costs 3 times as much as the blue hat. How much does the red hat cost? The red hat costs $18.

$6

$6 $6 $6 = 6 × 3

3 times as much

Properties of Multiplication

Commutative property

5 × 2 = 10

2 × 5 = 10

Zero property

0 × 7 = 0

7 × 0 = 0

Associative property

(7 × 5) × 2 =

3 × 5 × 7 =

Distributive Property

7 × 8 = (5 + 2) × 8

5 × 8 + 2 × 8 = ___

40 + 16 = 56

Identity Property of 1

1 × 9 = 9

9 × 1 = 9

Solving for an unknown

_____ has 6 bags with marbles. _____ has 24 marbles total. How many marbles are there in each bag?

24 = n × 6

There are 4 marbles in each bag.

☺ ☺ ☺ ☺ ☺ ☺

Relationship to Division

24 = 4 × 6

24 = 6 × 4

24 ÷ 6 = 4

24 ÷ 4 = 6

fact family

dividend ÷ divisor = quotient looks like

12 ÷ 4 = 3

$4\overline{)12}$ 3

12 divided by 4 equals 3

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

??? Inquiry ???

What we know about multiplication?

What we want to learn about multiplication?

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UNIT PLANNING TOOL

Chapters
Unit 5+6 : Multiplication

CCSSM: 3.OA.1 - Interpret products of whole #'s
3.OA.3 - Use multiplication to 100 to solve word problems
3.OA.4 - Determine the unknown in a multiplication equation
3.OA.5 - Apply properties of operations as strategies to multiply
3.OA.7 - Fluently multiply and divide using relationship between both
3.NBT.3 - Multiply 1-digit whole numbers by multiples of 10

Math Practices being emphasized:
1. Make sense of problems and persevere in solving them
2. Reason abstractly & quantitatively
4. Model with mathematics
7. Look for and make use of structure

Essential Questions

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

Pre and Post Assessments

Pre - Teacher made to mirror post test
or
Envision topic 5+6 Multiple choice modified

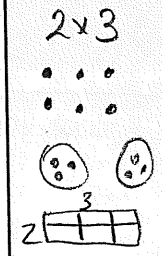
Post - Envision Topic 5+6 Free Response

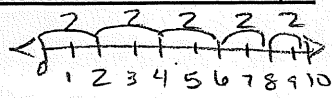
Key Concepts

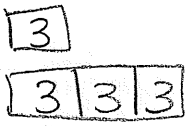
- multiplication as repeated addition
- understand how to create and use models
- relationship to division
- properties of multiplication
- using patterns as a strategy

Visual Models of Concepts

2x3







3 times as many

Algorithms/Diagrams

$3 \times 4 = 12$ $3 \times n = 12$

$3 \cdot 4 = 12$ $12 = n \times 3$

$8 \times 4 = (5+3) \times 4$

$5 \times 4 + 3 \times 4$

$20 + 12 = 32$

$50 \times 4 =$

5 tens x 4 = 20 tens

$50 \times 4 = 200$

$(7 \times 5) \times 2 = 70$

$7 \times (5 \times 2) = 70$

Connections (Real World Applications)

Conversions - in measurement
Construction - carpeting a room
Shopping - # of objects in each pkg.
Recipes - doubling a recipe

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Language Functions/Structures

____ is ___ times as many as _____

___ times _____ equals _____.

This array shows _____ rows of _____.

The unknown in _____ is ___ because _____.

Vocabulary

multiplication
factor
product
array
area model

~~Properties~~
~~Associative~~
Commutative
Distributive
Zero
Identity of 1

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