

# Multiplying Fractions

How were  
you taught to  
multiply  
fractions?



# Key Ideas

## Fractions & Computation



- Taught conceptually and without algorithms or “tricks”
- Students will use a variety of visual models to represent the concepts
- Must help students make sense of the problem – how do we know the answer is reasonable
- There are no restrictions on denominators in 5<sup>th</sup> grade

# Key Vocabulary

- Product: answer to a multiplication problem
- Decomposing: break apart; break down
- Factor: a number or quantity that when multiplied with another produces a given number or expression.

# From 4<sup>th</sup> to 5<sup>th</sup> Grade ...



## 4<sup>th</sup> Grade

- Multiply a fraction by a whole number
- Introduced as an extension of repeated addition

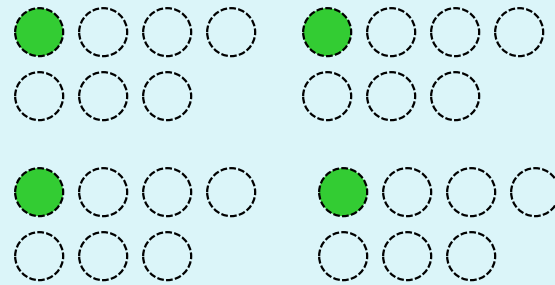


## 5<sup>th</sup> Grade

- Multiply a fraction by a whole number
- Multiply a fraction by a fraction
- Create story contexts (real world applications)
- Includes mixed numbers
- Understand how numbers change when we multiply fractions
- Relate the operations back to what they know about whole numbers

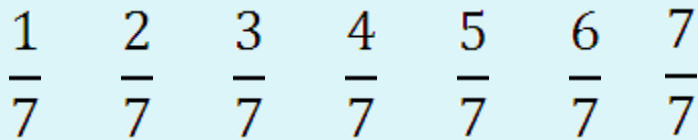
# Multiplication: Fraction x Whole Number

$$\frac{1}{7} \times 4$$



$$\frac{1}{7} \times 4 = \frac{1}{7} + \frac{1}{7} + \frac{1}{7} + \frac{1}{7} = \frac{4}{7}$$

We have 4 groups of  $\frac{1}{7}$  which is  $\frac{4}{7}$



Try modeling this using a number line.

# Multiplication: Fraction x Fraction

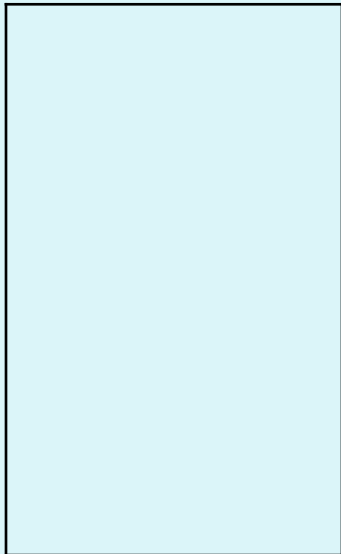


$$\frac{1}{5} \times \frac{1}{3}$$

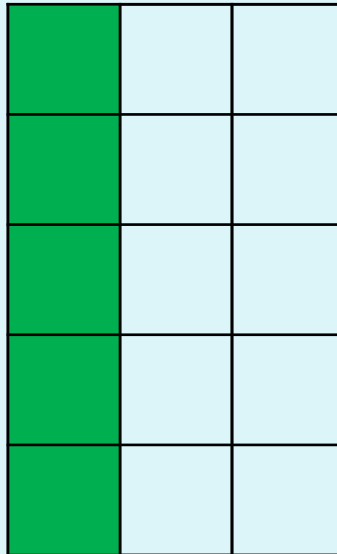


THINK: What is  $\frac{1}{5}$  of  $\frac{1}{3}$  ?

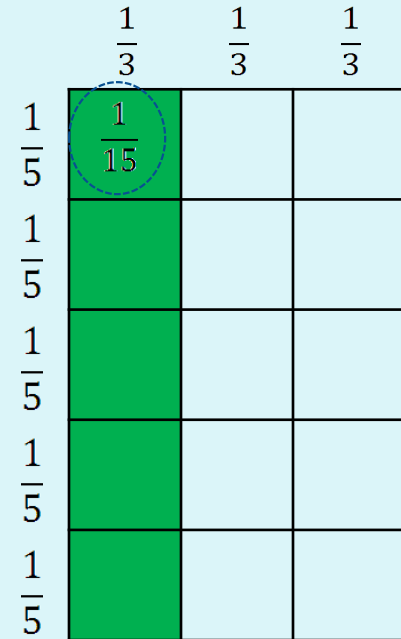
Suppose you have a pan of lasagna and you want to serve one fifth of a third of the pan of lasagna to your son.



You divide the pan of lasagna in thirds and then you divide each  $\frac{1}{3}$  section into fifths.

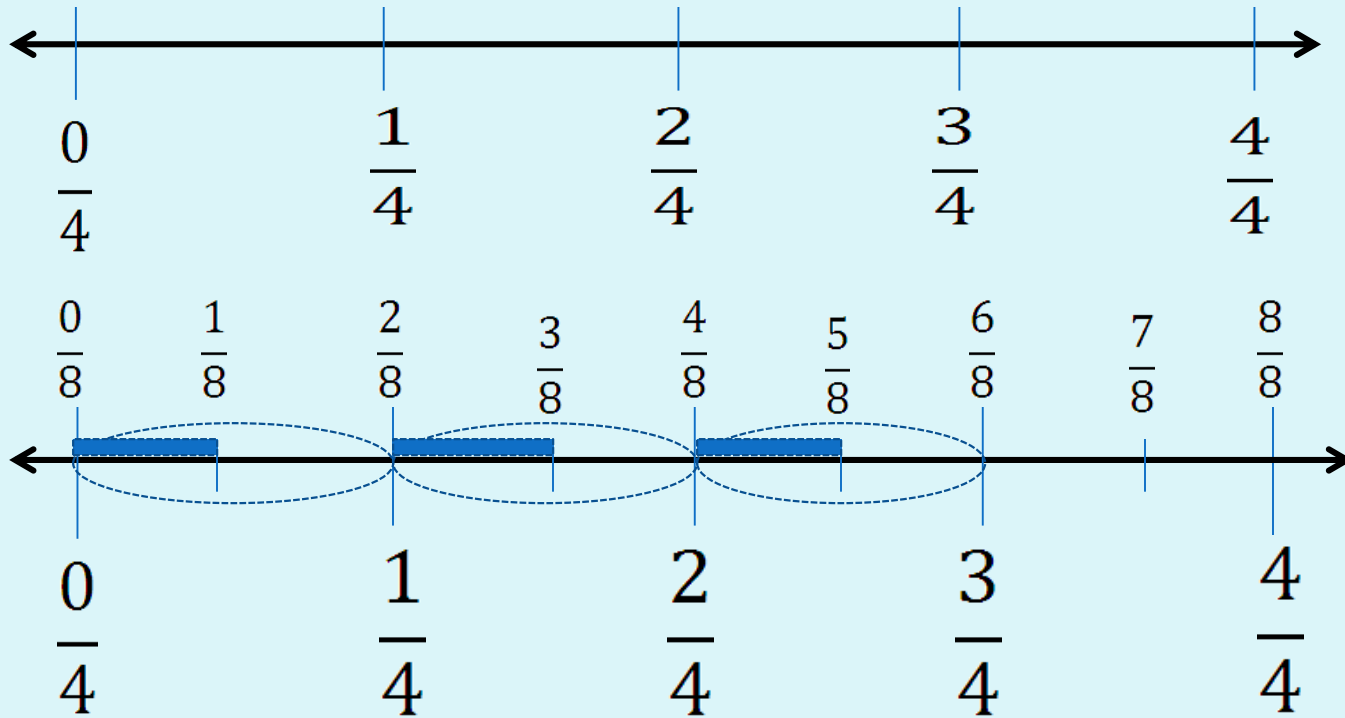


You can see that  $\frac{1}{5}$  of one third is  $\frac{1}{15}$ .



# Multiplication: Fraction x Fraction

$$\frac{1}{2} \otimes \frac{3}{4}$$



So  $\frac{1}{2} \times \frac{3}{4} = \frac{3}{8}$  or  $\frac{1}{2}$  **of**  $\frac{3}{4}$  is  $\frac{3}{8}$

# Multiplication: Fraction x Fraction

## Mixed Numbers

To prepare for March Madness basketball games, The Tarheel Wing Café had their logo painted on the main wall inside the restaurant. The logo is  $2 \frac{3}{4}$  feet long and  $4 \frac{1}{2}$  feet wide. What is the area of the mural?



We will show you how this can be solved using an area model on the next slide.



# Multiplication: Fraction x Fraction

## Mixed Numbers

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# Multiplication: Fraction x Fraction Mixed Numbers by decomposing

$$2 \frac{3}{4} \times 4 \frac{1}{2}$$

$\swarrow$        $\searrow$   
 $2$        $\frac{3}{4}$

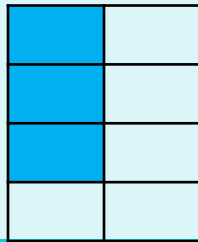
$$2 \times 4 = 8$$

$$2 \times \frac{1}{2} = 1$$


$$\frac{3}{4} \times 4 = 3$$



$$\frac{3}{4} \times \frac{1}{2} = \frac{3}{8}$$



$$2 \frac{3}{4} \times 4 \frac{1}{2} = 12 \frac{3}{8}$$

# Thank You!



- Thank for your participation and your support as we venture into the quarter of fractions!!!
- Feel free to contact us with any questions you may still have.
- <http://cedarfork.weebly.com/>