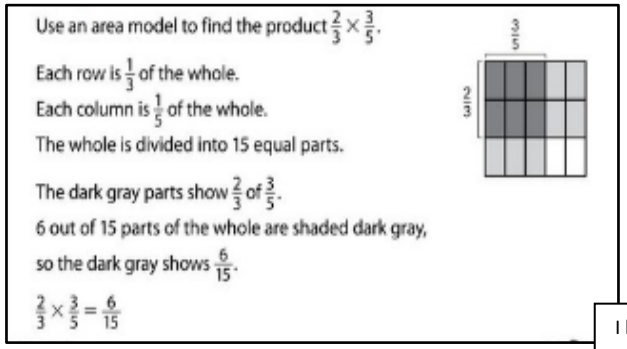
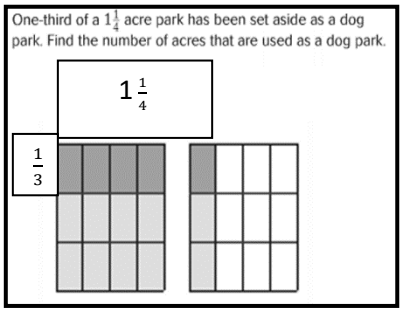
Grade 5

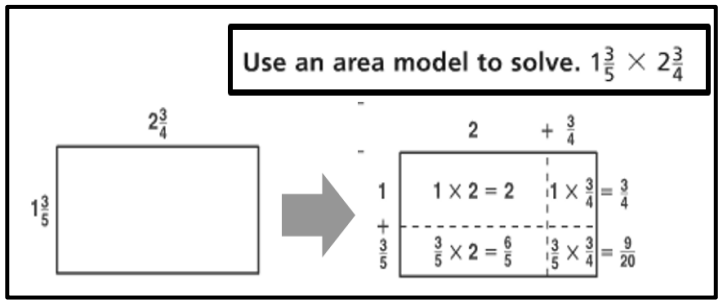
Using Area Models to Multiply Fractions

Overarching Student Learning Goals In this unit, your child will work to build an understanding of the following:	Resources/Tasks to support your child at home.
• Students can use an area model to multiply a fraction (including mixed numbers) by a fraction.	• Use an area model to multiply these fractions: $\frac{1}{2} \times \frac{2}{3}$ $\frac{3}{4} \times \frac{3}{4}$ $1\frac{1}{2} \times \frac{3}{4}$ $2\frac{2}{5} \times \frac{1}{3}$ • LearnZillion: goo.gl/YqgHtR Multiply Fractions by Fractions Using Area Models • LearnZillion: https://goo.gl/Lx3wWR Multiply Mixed Numbers by Mixed Numbers Using Visual Representations
• Students can determine the area of a rectangle with fractional side lengths.	• Virtual Manipulatives: https://goo.gl/xPf4W1 Rectangle Model of Multiplication of Fractions • Martin has a vegetable garden that is $2\frac{1}{2}$ yards long and $3\frac{2}{3}$ yards wide. What is the area of his garden? • Scott is making chocolate chip cookies. A batch calls for $1\frac{1}{2}$ cups of chocolate chips. He wants to make $2\frac{1}{2}$ batches. How many cups of chips will he need?





I have 5 pieces out of 12 pieces that are needed to make one whole. Therefore $1\frac{1}{4} \times \frac{1}{3} = \frac{5}{12}$



Add the partial products:

$2 + \frac{3}{4} + \frac{6}{5} + \frac{9}{20} =$

$2\frac{48}{20}$ or $4\frac{8}{20}$

For more information on the learning goals and your child's progress, please contact your child's teacher.

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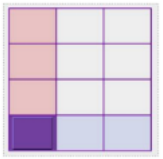
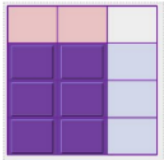
- Students can connect work with fractional models to using a written method for multiplying fractions.



What fraction multiplication equation does the area model represent?

What is the product?

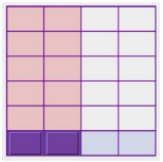
$$\frac{1}{4} \times \frac{1}{3} = \frac{1}{12}$$



What fraction multiplication equation does the area model represent?

What is the product?

$$\frac{3}{4} \times \frac{2}{3} = \frac{6}{12}$$



What fraction multiplication equation does the area model represent?

What is the product?

$$\frac{2}{4} \times \frac{1}{6} = \frac{2}{24}$$

- LearnZillion: https://goo.gl/vbV6or Multiply Fractions by Fractions: Using a Sequence of Operations

- LearnZillion: https://goo.gl/qpJNQT Multiply Fractions by Fractions Using an Algorithm

- Use an area model to multiply these fractions:
  $\frac{1}{2} \times \frac{2}{3}$ $\frac{2}{4} \times \frac{3}{4}$ $\frac{3}{5} \times \frac{2}{3}$ $\frac{1}{4} \times \frac{1}{2}$
  - What patterns do you notice?
    (I can multiply the numerators and then the denominators to find the product of the two fractions).
  - How does the area model help to understand why this works?

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