Study Link Help: Multiplying Decimals

Grade 4, Study Link 9-8, 9-9

Multiplying Decimals is the name Everyday Mathematics begins with making reasonable estimates for the magnitude or size of the answer. Historically, one of the most common errors students make in multiplying decimal numbers is in misplacing the decimal point in the answer. Determining what a reasonable answer would be before multiplying usually prevents this error.

Help with Study Link Problems

- Children are encouraged to make estimates first. They can multiply decimal numbers using whole number methods that they are familiar, and then identify where the decimal point belongs based on their estimate.

  Using Reasonable Estimates

  Make a reasonable estimate for the product.

  Multiply the factors as though they were whole numbers (ignore the decimal points)

  Use the original estimate to place the decimal point in the product.

  Example:
  34.5 × 20.5

  Think: 2 times 35 would be 70, so 20 times 35 would be 700. A reasonable estimate of the answer is 700.

Multiply:	345 × 205
200 × 300	60000
200 × 40	8000
200 × 5	1000
5 × 300	1500
5 × 40	200
5 × 5	+25
	70725

In this example, the partial-products method is used to multiply the two numbers together.

  Since the original estimate was 700, the answer must be 707.25.

  34.5 × 20.5=707.25

- Here is another way your child might solve the problem that may look more familiar to you:

  Counting Decimal Places

  1. Multiply the factors as though they are whole numbers.
  2. Count the decimal places to the right of the decimal points in each factor.
  3. Add the number of decimal places from the factors to find the number of decimal places in the product.
  4. Start at the right-most digit of the product. Move the decimal point to the left the necessary number of decimal places.

Example:

3.4 × 0.78	34	In this example, the partial-products method is used to multiply the two numbers together.
Multiply:	× 78	
30 × 70	2100	
30 × 8	240	
4 × 70	280	
4 × 8	32	
	2652	

There is 1 decimal place in 3.4.
There are 2 decimal places in 0.78.
1 + 2 = 3
There are 3 decimal places in the product.
So count over from the right to get 2.65
3.4 × 0.78 = 2.652

For more information about using the partial-products method with whole numbers see page 18 in your Student Reference Book or check out the partial-products multiplication video.

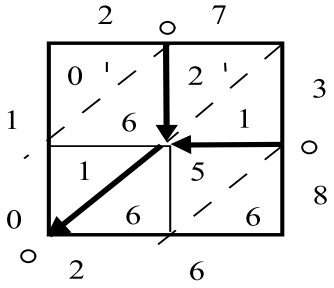
Using Lattice

It is always wise to begin with an estimate to check the final answer to the problem.

Example:

2.7 × 3.8
2.7 × 3.8 = 10.26

A reasonable estimate would be 3 x 4 or 12



For more information about using the lattice method with whole numbers see page 19 in your Student Reference Book or check out the lattice multiplication video.

Extra Practice Ideas

- Pose problems for your child to solve. Encourage your child to try and solve the problems in more than one way.
- To help your child develop number sense around decimal multiplication, have your child use a calculator to multiply decimal numbers as though they were whole numbers, and then have your child figure out where the decimal point belongs.
- You can check your solutions together by multiplying the decimal numbers on the calculator.