Multiplication with Decimals and Whole Numbers

Can use properties and place value to multiply a decimal and a whole number.

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UNLOCK the Problem Real World

In 2010, the United States Mint released a newly designed Lincoln penny. A Lincoln penny has a mass of 2.5 grams. If there are 5 Lincoln pennies on a tray, what is the total mass of the pennies?

Multiply. 5 \times 2.5

Estimate the product. Round to the nearest whole number.

5×____=

One Way

Use the Distributive Property.

 $5 \times 2.5 = 5 \times (_ + 0.5)$ $= (_ \times 2) + (5 \times _)$ $= _ + _$ $= _$ WIR Engage in discussions on 4.1 Engage in discussions on 6.1 Enga

- How much mass does one penny have?
- How many pennies are on the tray?
- Use grouping language to describe what you are asked to find.

Another Way Show partial products.



STEP 2 Multiply the ones by 5.



STEP 3 Add the partial products.

2	.5
×	5
2	5
+ 10	

So, 5 Lincoln pennies have a mass of _____

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Florida's B.E.S.T.

- Number Sense & Operations 5.NSO.2.4
 Measurement 5.M.2.1
- Measurement 5.M.2.1
 Methomatical Thinking 8
- Mathematical Thinking & Reasoning MTR.1.1, MTR.3.1, MTR.4.1, MTR.5.1, MTR.6.1, MTR.7.1

Example Use place value patterns.

Having a thickness of 1.35 millimeters, the dime is the thinnest coin produced by the United States Mint. If you stacked 8 dimes, what would be the total thickness of the stack?

Multiply. 8 × 1.35

STEP 1	STEP 2	STEP 3		
Write the decimal factor as a	Multiply as with whole	Place the decimal point.		
whole number.	numbers.	Think: 0.01 of 135 is 1.35. Find 0.01 of 1,080 and record the product.		
Think: 1.35 × 100 = 135				
$1.35 \xrightarrow{\times 100} 135 \xrightarrow{\times 0.01} 1.35$				
$\times 8 \times 8 \times 8$				
? $\xrightarrow{\times 100}$ 1,080 $\xrightarrow{\times 0.01}$				
A stack of 8 dimes would have a	millimeters.			

1. MTR Explain how you know the product 8×1.35 is greater than 8.

2. What if you multiplied 0.35 by 8? Would the product be less than or greater than 8? Explain.

Share and Show Moth Booard

Place the decimal point in the product.

1. 6.81	Think: The place value of the	2. 3.7	3. 19.34
\times 7	decimal factor is hundredths.	\times 2	\times 5
4767		7.4	9670