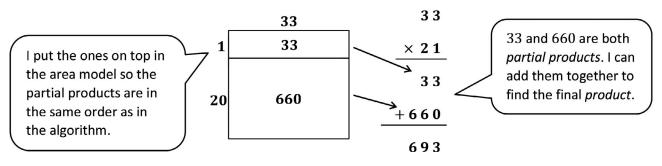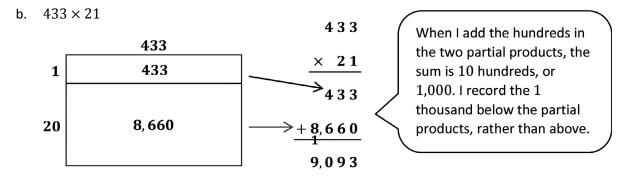1. Draw an area model, and then solve using the standard algorithm. Use arrows to match the partial products from the area model to the partial products in the algorithm.

   a. 33×21

   > I put the ones on top in the area model so the partial products are in the same order as in the algorithm.

   $$\begin{array}{r} 3\ 3 \\ \times\ 2\ 1 \\ \hline 3\ 3 \\ +\ 6\ 6\ 0 \\ \hline 6\ 9\ 3 \end{array}$$

   > 33 and 660 are both *partial products*. I can add them together to find the final *product*.

   b. 433×21

   $$\begin{array}{r} 4\ 3\ 3 \\ \times\ \ 2\ 1 \\ \hline 4\ 3\ 3 \\ +\ 8{,}6\ 6\ 0 \\ \hline 9{,}0\ 9\ 3 \end{array}$$

   > When I add the hundreds in the two partial products, the sum is 10 hundreds, or 1,000. I record the 1 thousand below the partial products, rather than above.

2. Elizabeth pays $123 each month for her cell phone service. How much does she spend in a year?

   > I can draw an area model to help me see where the 2 partial products come from.

   $$\begin{array}{r} 1\ 2\ 3 \\ \times\ \ 1\ 2 \\ \hline 2\ 4\ 6 \\ +\ 1{,}2\ 3\ 0 \\ \hline 1{,}4\ 7\ 6 \end{array}$$

   Elizabeth spends $1,476 *in a year for cell phone service.*

Lesson 9:   Connect visual models and the distributive property to partial products of the standard algorithm without renaming.

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Name _____   Date _____

1. Draw an area model, and then solve using the standard algorithm. Use arrows to match the partial products from the area model to the partial products in the algorithm.

   a.   24 × 21 = _____

$$\begin{array}{r} 2\,4 \\ \times\ 2\,1 \\ \hline \end{array}$$

   b.   242 × 21 = _____

$$\begin{array}{r} 2\,4\,2 \\ \times\ \ \ 2\,1 \\ \hline \end{array}$$

2. Solve using the standard algorithm.

   a.   314 × 22 = _____   b.   413 × 22 = _____   c.   213 × 32 = _____

Lesson 9:   Connect visual models and the distributive property to partial products of the standard algorithm without renaming.

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3. A young snake measures 0.23 meters long. During the course of his lifetime, he will grow to be 13 times his current length. What will his length be when he is full grown?

4. Zenin earns $142 per shift at his new job. During a pay period, he works 12 shifts. What would his pay be for that period?

Lesson 9: Connect visual models and the distributive property to partial products of the standard algorithm without renaming.

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