

Area Model Multiplication and Division

Concept Apply knowledge of using an area model to solve multiplication and/or division problems.

Materials needed Each student will need:

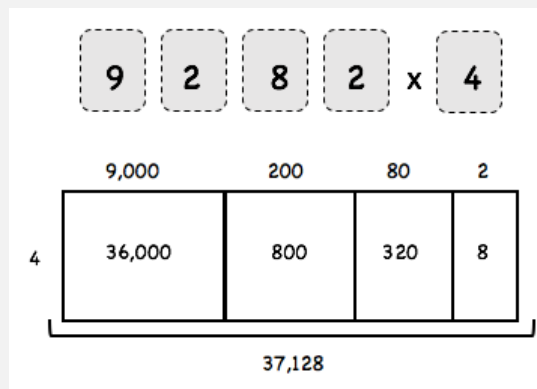
- 1 die
- Deck of Cards, **Ace=1** (Jacks, Queens, Kings removed)
- *Area Model Multiplication and/or Division* recording sheet
*** There are three different recording sheets to choose from:
 2-digit by 2-digit multiplication, 4-digit by 1-digit multiplication, and 4-digit by 1-digit division*
- Pencil

Directions Students will work independently on this activity.

1. Student selects either 2 or 4 cards (depending on recording sheet) from the deck and records them on his/her recording sheet in the first set of boxes.
2. Student either rolls 1 die or 2 dice depending on which recording sheet is being used, then records this value in the final box/boxes.
3. Using the blank area model provided, student solves the problem by using an area model.

Example:

If I am using the 4-digit by 1-digit multiplication recording sheet and I turn over the following values from my deck of cards: 9, 2, 8, 2 and I roll a 4 on the die, my work would look like this:



4. Repeat steps 1-3 building new problems and solve using the area model.

Differentiate To differentiate for students who are struggling:

- Remove some of the larger values from the deck of cards, so numbers are not so large.

- Modify the recording sheet to have students work with problems that are 2-digit by 1-digit, or 2-digit by 2-digit.
- Have them work with a partner to complete the activity

To differentiate for students who are more advanced:

- Have students solve 4-digit by 2-digit division problems using the area model
- Have students use the area model to solve the problem, but check their work by using the standard algorithm, too.

CCSS 4.NBT.B.5

Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place values and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

4.NBT.B.6

Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Other grade levels this could work for:

Grade 5

5.NBT.B.6

Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.



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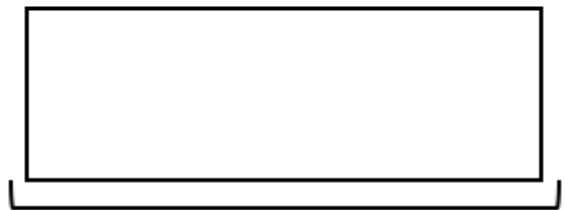
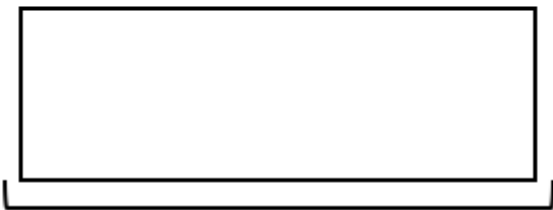
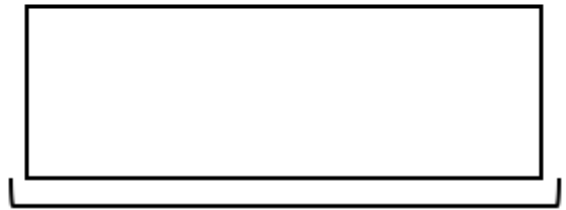
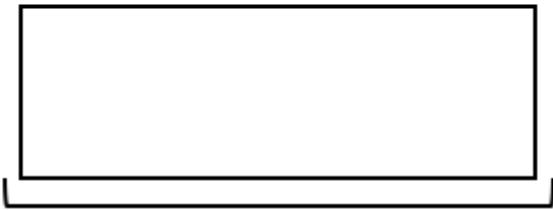
AREA MODEL MULTIPLICATION

Directions:

Turn over 4 cards from the deck. Record them, in order, in the first four boxes.

Then, roll 1 die. Record this value in the remaining box.

Solve the problem using an area model.



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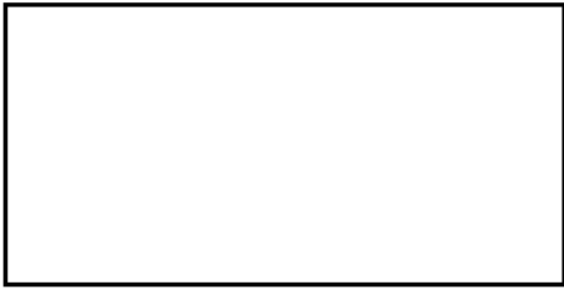
AREA MODEL MULTIPLICATION

Directions:

Turn over 2 cards from the deck. Record them, in order, in the first two boxes.

Then, roll 2 dice. Record this value in the remaining two boxes.

Solve the problem using an area model.



NAME: _____

AREA MODEL DIVISION

Directions:

Turn over 4 cards from the deck. Record them, in order, in the first two boxes.

Then, roll 1 die. Record this value in the remaining box.

Solve the problem using an area model.



A large empty rectangular box with a bracket underneath, intended for drawing an area model.

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