

Adventures in Guided Math

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Developing Fact Fluency

3s, 4s, 6, 7s, 8s, & 9s Scaffolding Flashcards
Using Known Facts



**3-9s Multiplication
Using Known Facts Array Cards**

- These array cards are customized by students to show their thinking
- Students shade the known fact/s on the array and then write their thinking in the thought bubble.

Example:

 $3 \times 6 =$	 $6 \times 4 =$
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Multiplication Fact
Fluency

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Scaffolding Multiplication Fact Flashcards: 3s, 4s, 6, 7s, 8s, & 9s Using Known Facts

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Rationale:

Flashcard use is an important part of basic fact practice. Practice should be done at the concrete, semi-concrete/pictorial, and abstract levels (in that order). This process is referred to as CSA or CPA.

Concrete—A student uses fact cards (with the numbers and symbols), BUT he/she physically models a strategy using manipulatives/tools.

Semi-concrete/Pictorial—A student uses **scaffolding flashcards**—those with a basic fact and visual representation of a strategy.

Abstract—A student uses fact cards with the numbers and symbols only. The goal is not to drill BUT to sort fact cards by strategy and to say answers from memory.

At whatever flashcard level my students are practicing, I always expect them to talk to each other about what strategy they are using or use self-talk when working alone.

Scaffolding Multiplication Fact Flashcards: 3s, 4s, 6, 7s, 8s, & 9s Using Known Facts

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- The following multiplication fact cards are used to **scaffold** students from concrete representation of facts (using manipulatives) to abstract understanding (using a strategy and/or saying the answer when given a fact without using manipulatives or pictures).
- When working as partners, students should always explain their thinking/reasoning to one another aloud.
- Simply write the sums in pencil on the back of each card.

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Scaffolding Multiplication Fact Flashcards: 3s, 4s, 6, 7s, 8s, & 9s Using Known Facts

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- Foundational facts (known facts as I refer to them here), are essential for students to master. These facts include 2s, 5s, and 10s. Foundational facts can then be used to understand the remaining facts.
- How one student chooses to think of a fact may be different from another, therefore each student is able to customize these cards to show his/her own thinking.
- Ample practice using known facts to derive unknown facts, in various contexts (these scaffolding flashcards being just one), can lead students to the successful mastery of all facts.
- Using Ten cards are included for the 9s facts, as many students use foundational 10 facts to reason 9 facts.

For more information about the importance of students mastering foundation facts and using them to master the remaining facts, read the following article. It is a MUST READ for anyone teaching students to master basic multiplication facts.

[Three Steps to Mastering Multiplication Facts](#)

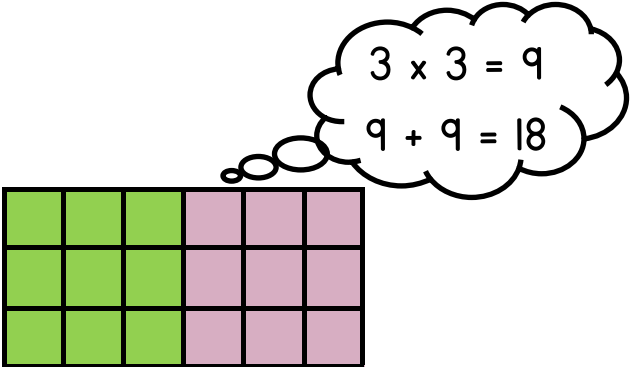
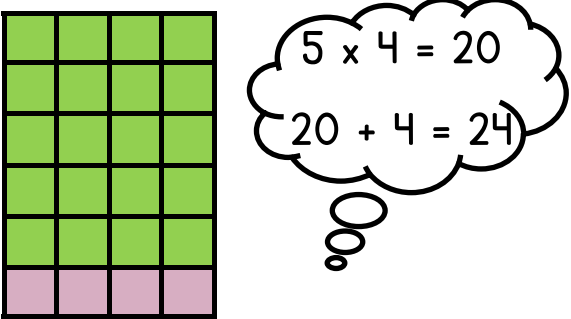
by Gina Kling and Jennifer M. Bay-Williams

3-9s Multiplication

Using Known Facts Array Cards

- These array cards are customized by students to show their thinking.
- Students shade the known fact/s on the array and then write their thinking in the thought bubble.

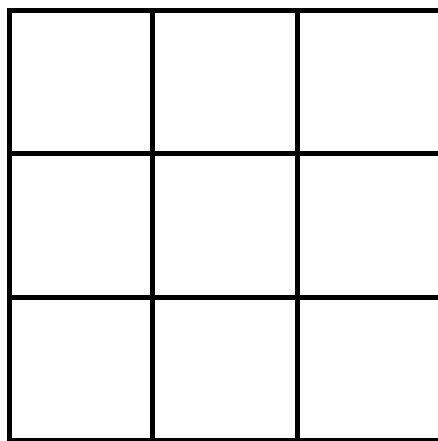
Examples:

 <p>$3 \times 6 =$</p>	 <p>$6 \times 4 =$</p>
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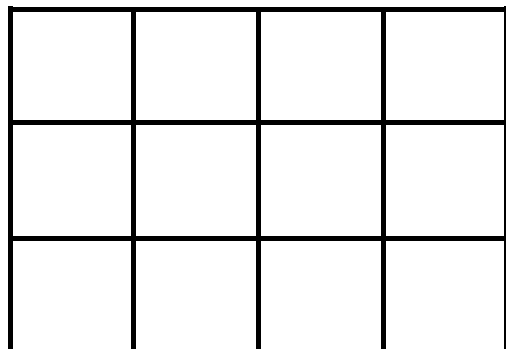
3s Multiplication

Using Known Facts Array Cards

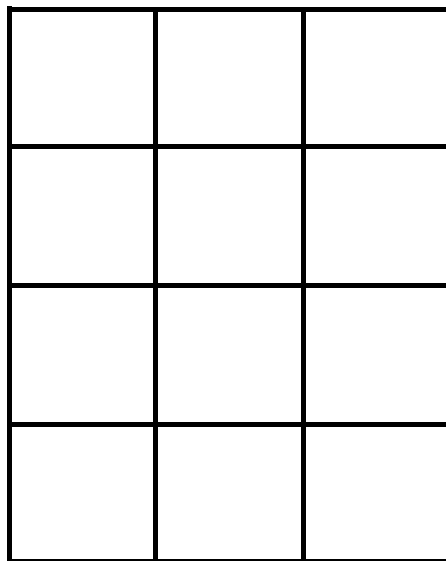
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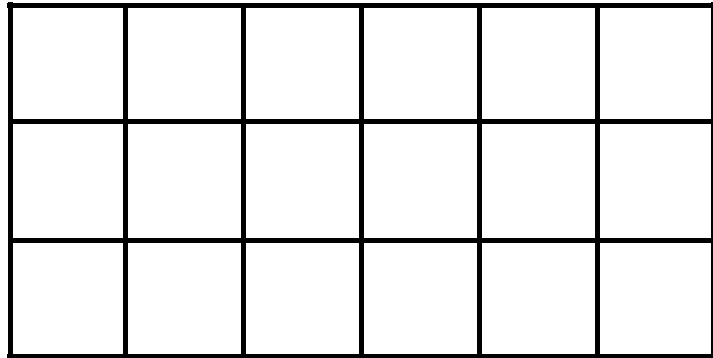
3×3



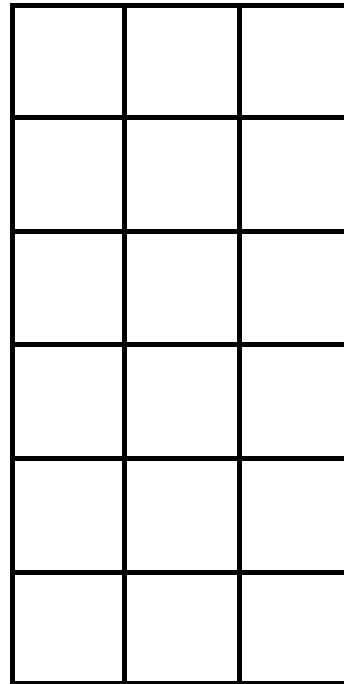
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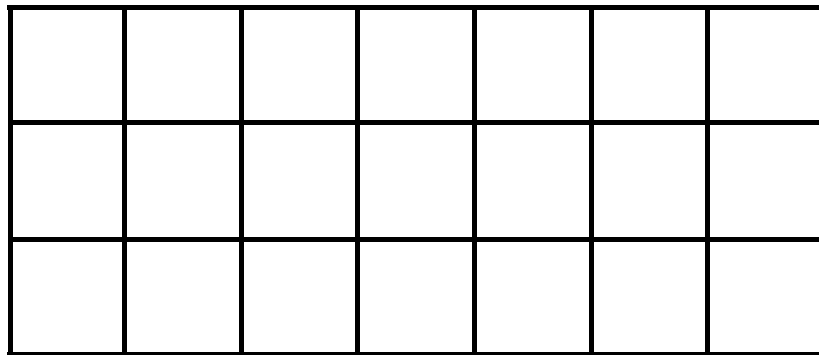
4×3



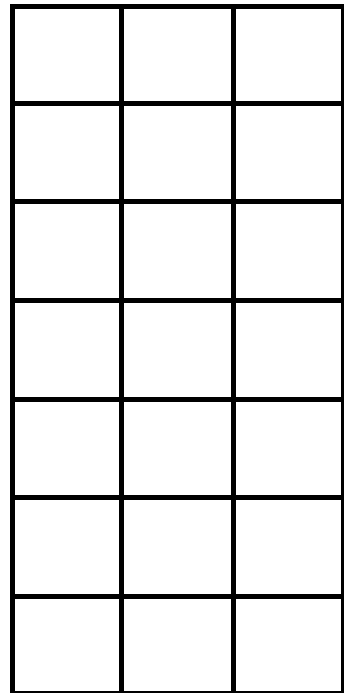
$$3 \times 6$$



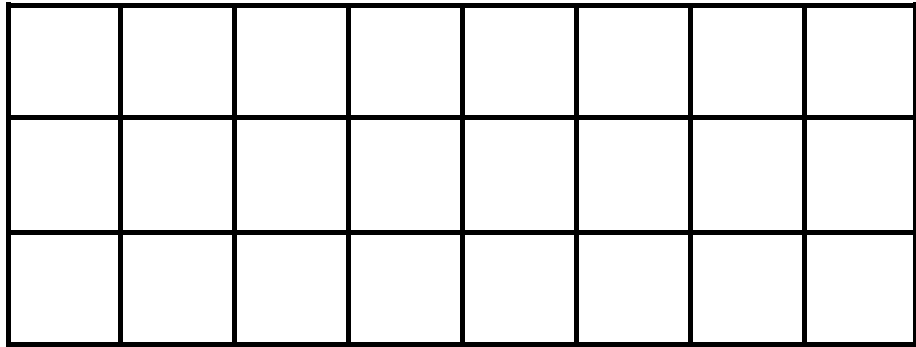
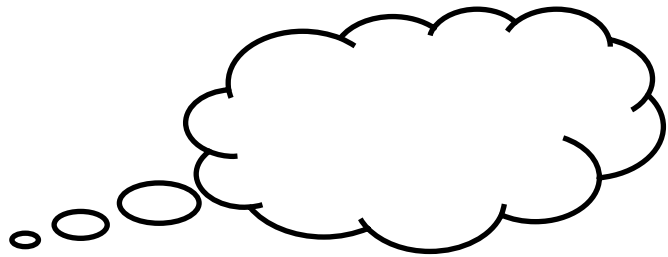
$$6 \times 3$$



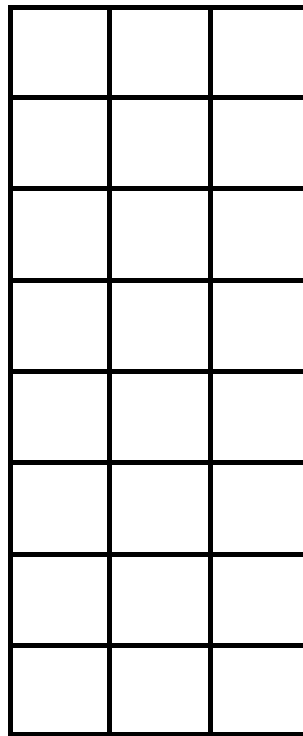
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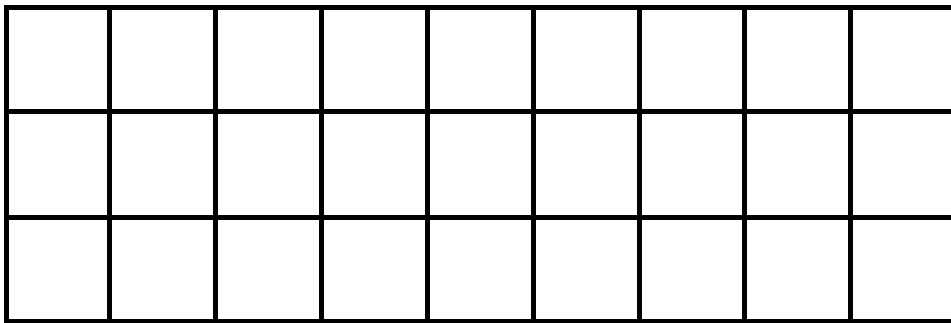
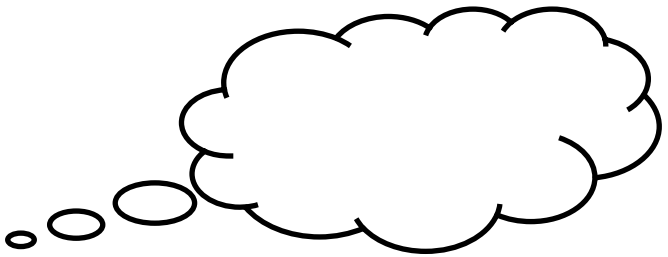
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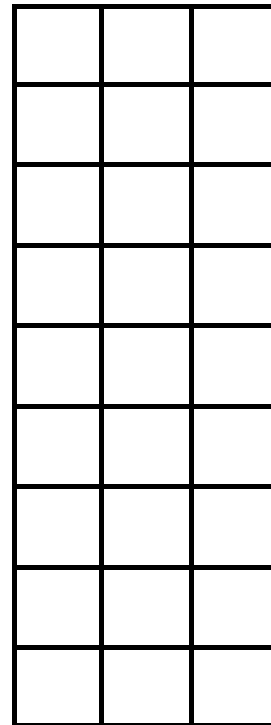
$$3 \times 8$$



$$8 \times 3$$



$$3 \times 9$$



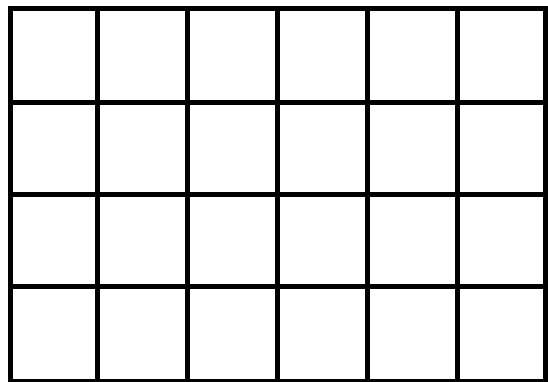
$$9 \times 3$$



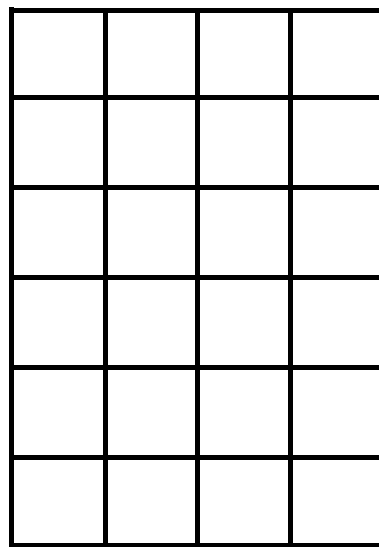
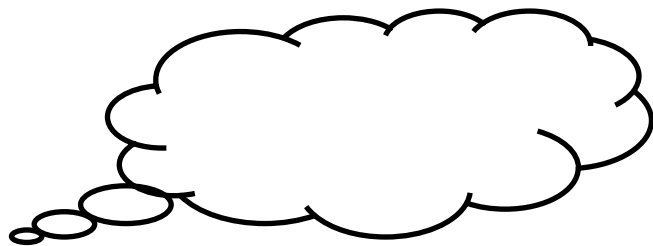
4s Multiplication

Using Known Facts Array Cards

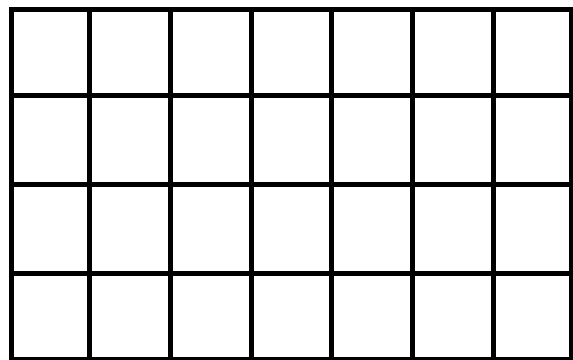
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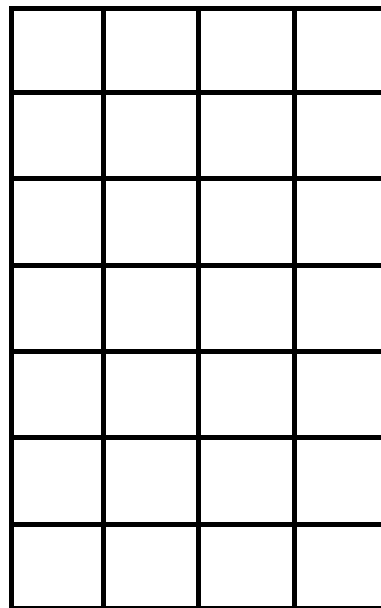
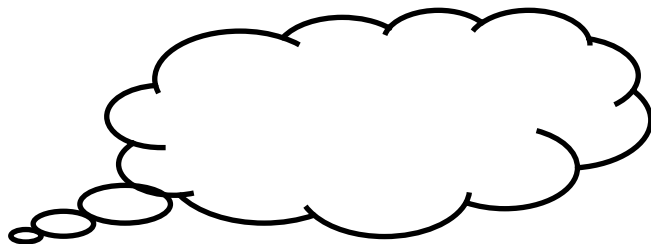
$$4 \times 6$$



$$6 \times 4$$

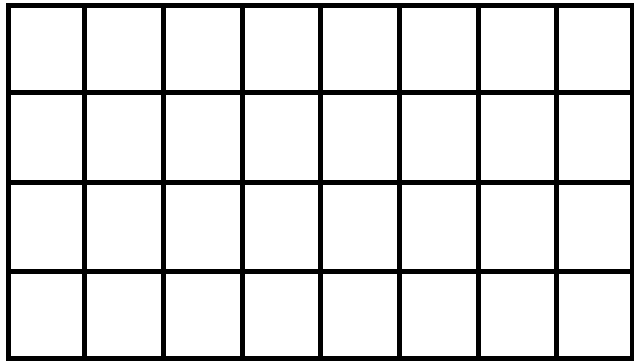


$$4 \times 7$$

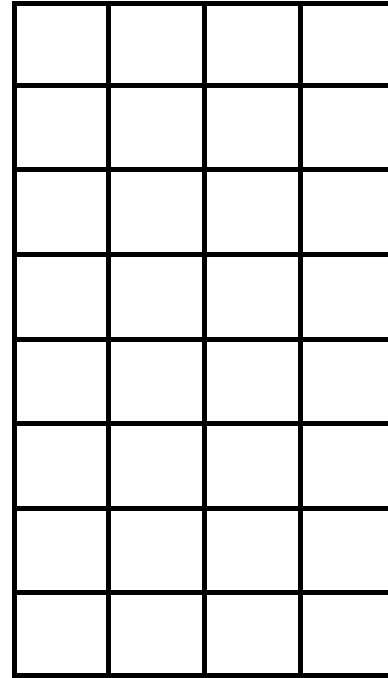


$$7 \times 4$$

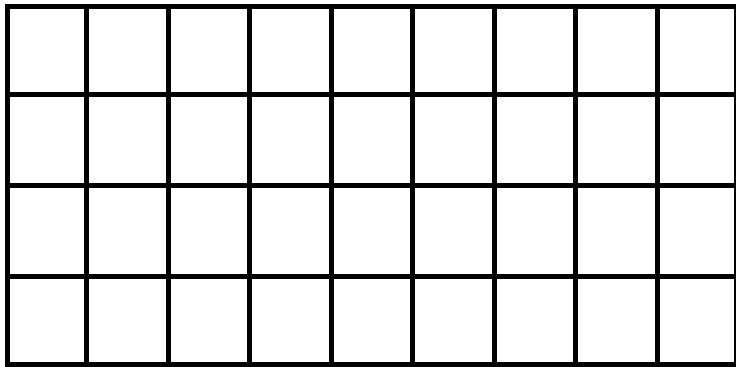




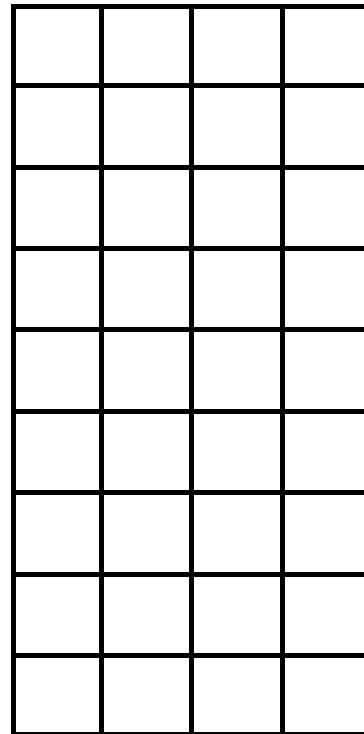
$$4 \times 8$$



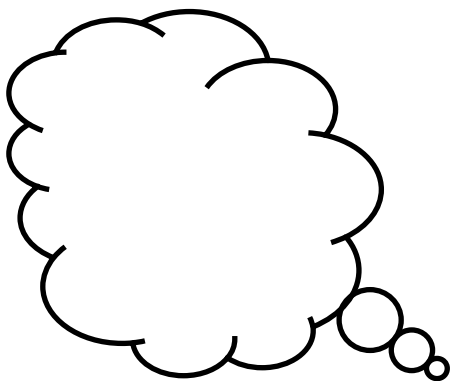
$$8 \times 4$$



$$4 \times 9$$



$$9 \times 4$$



4 x 4



4 x 4



4 x 4

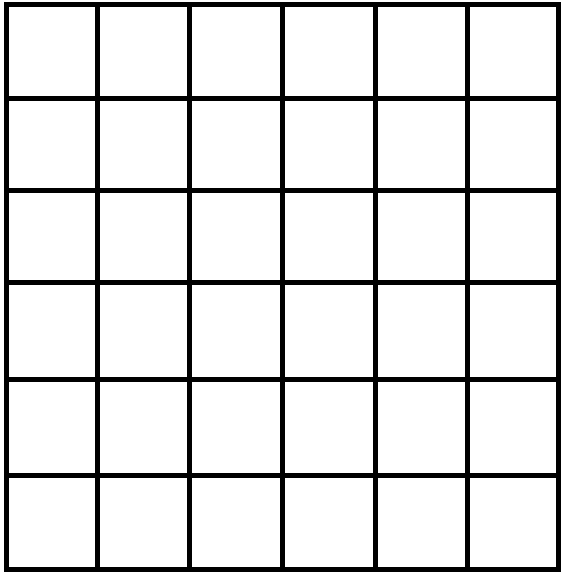


4 x 4

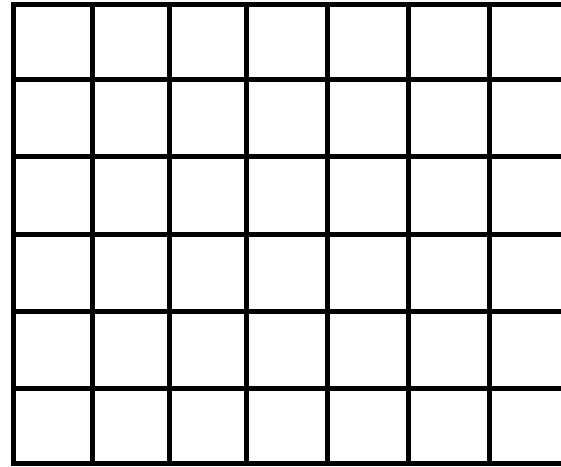
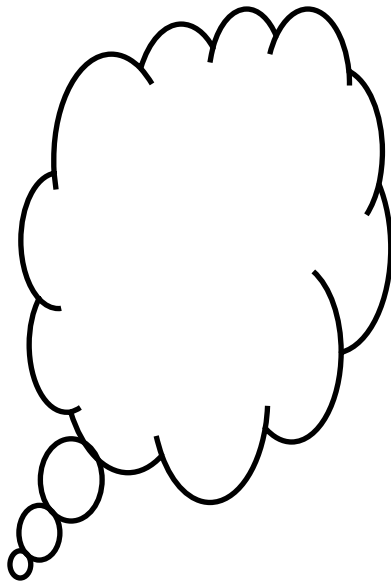
6s Multiplication

Using Known Facts Array Cards

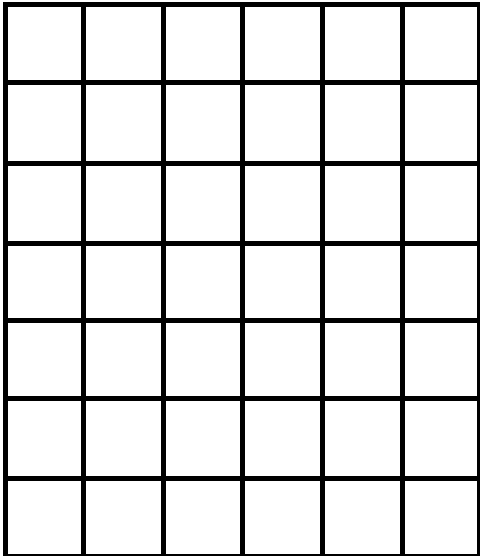
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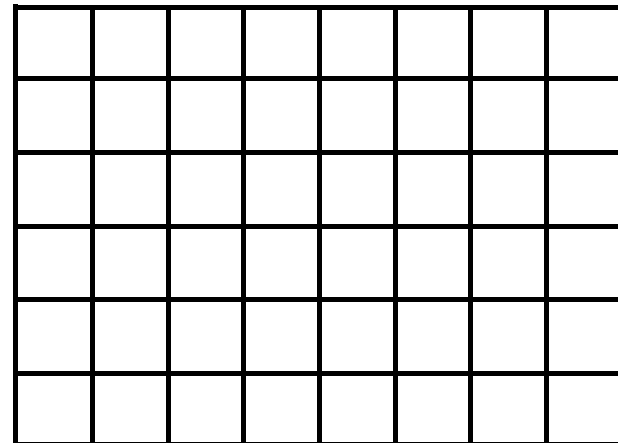
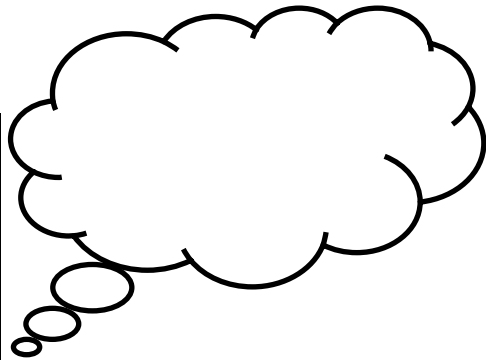
$$6 \times 6$$



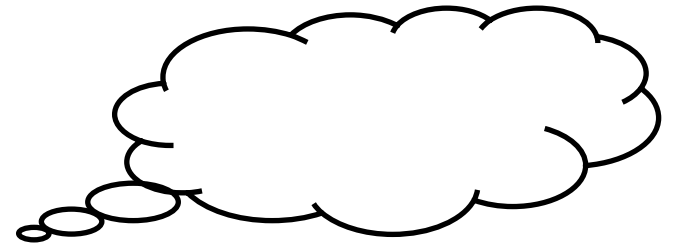
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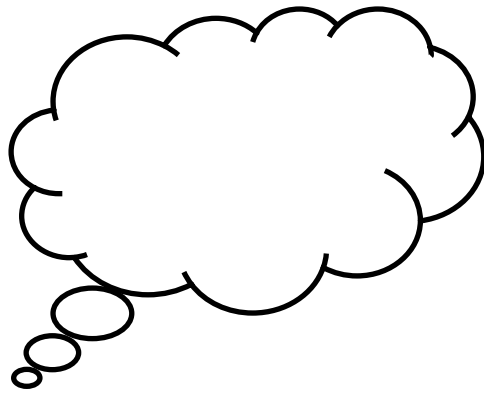
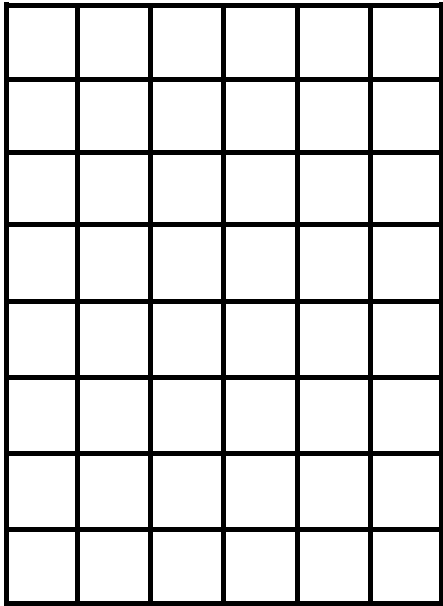


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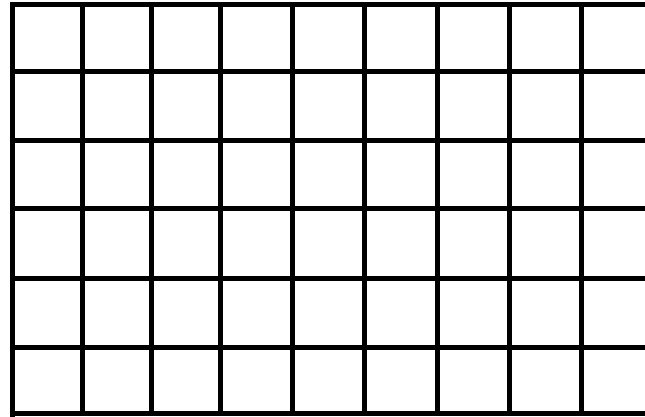
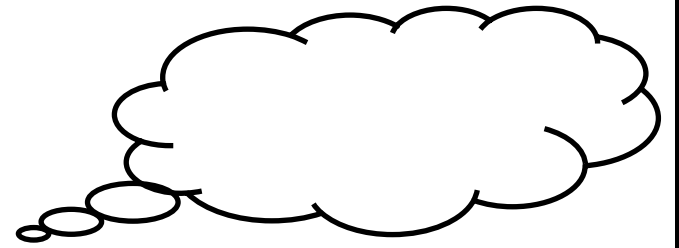


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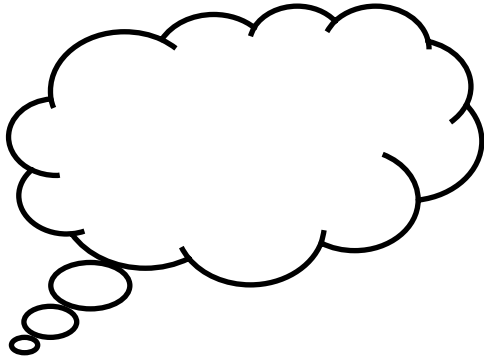
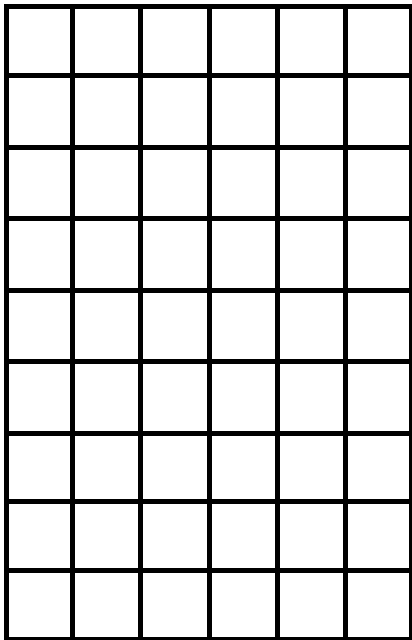




$$8 \times 6$$



$$6 \times 9$$

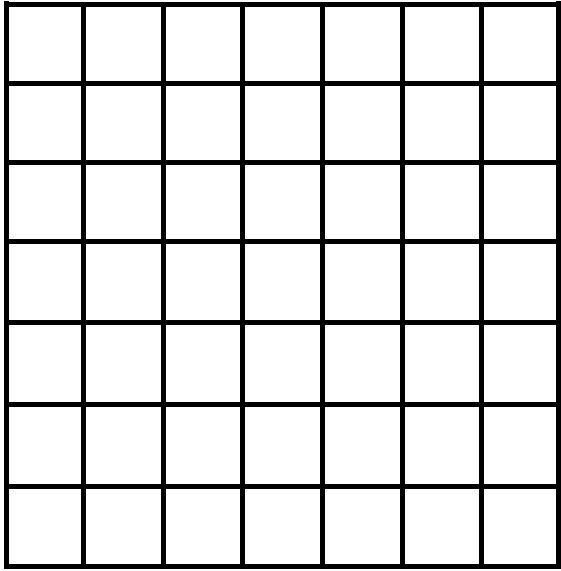


$$9 \times 6$$

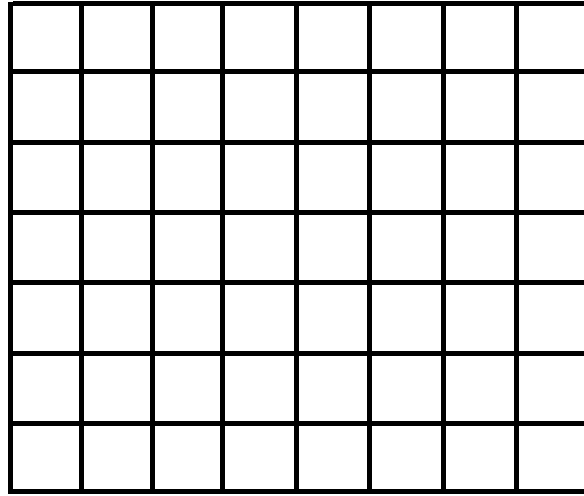
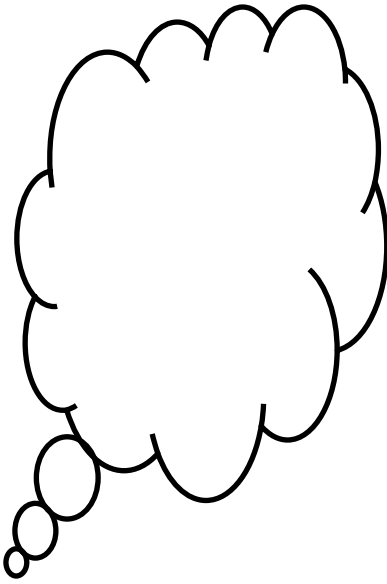
7s Multiplication

Using Known Facts Array Cards

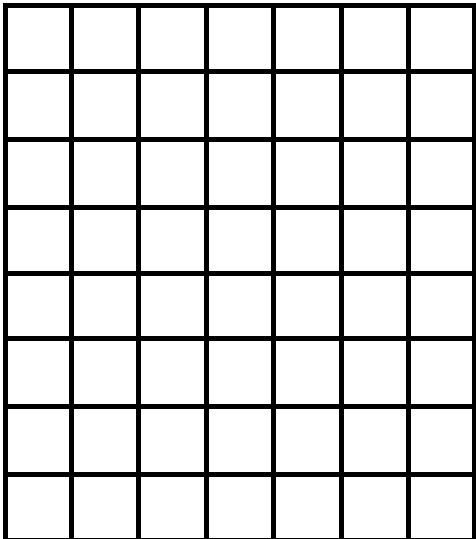
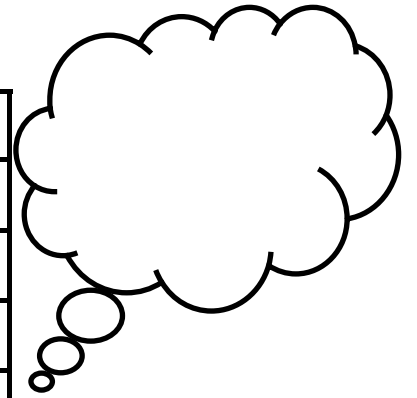
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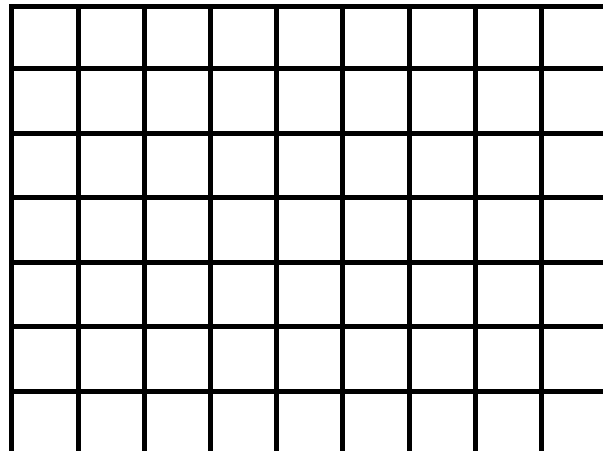
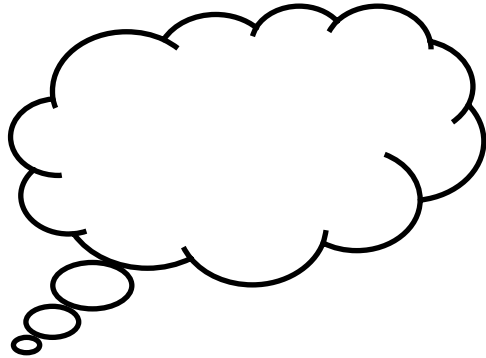
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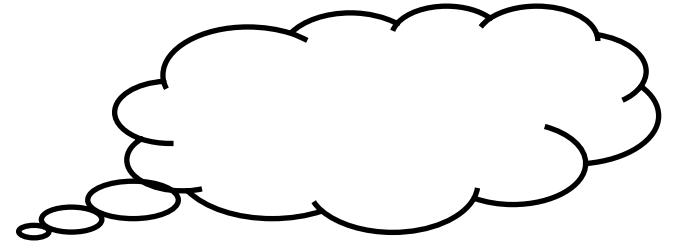
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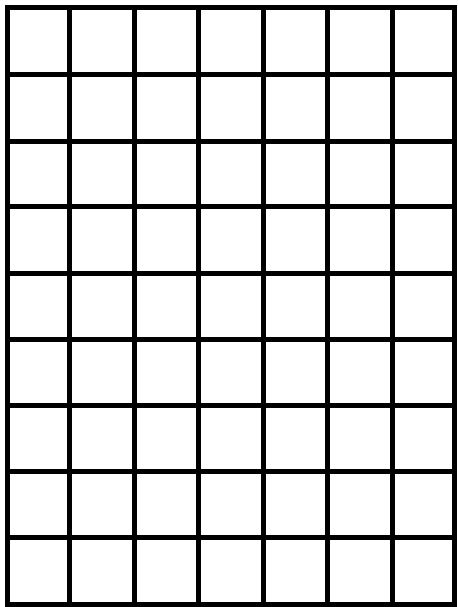


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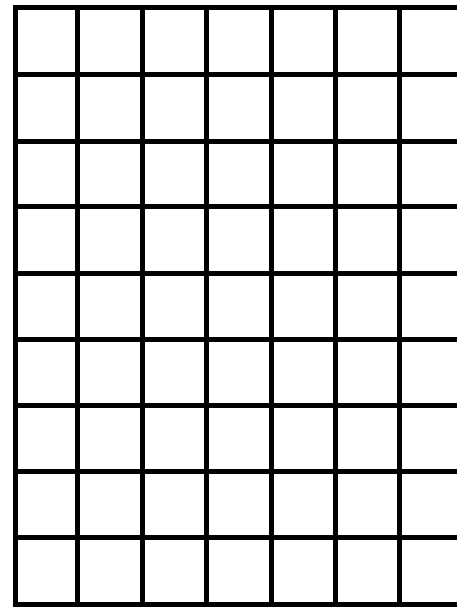
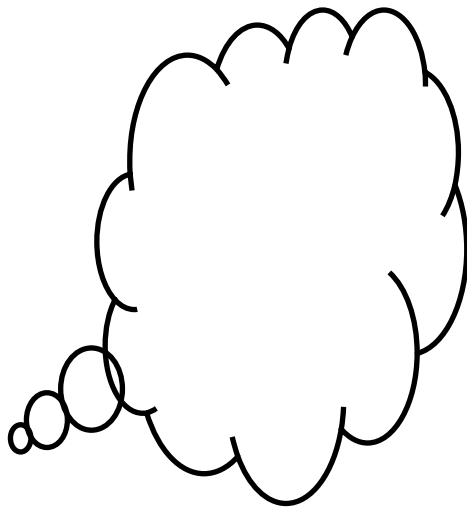


$$7 \times 9$$

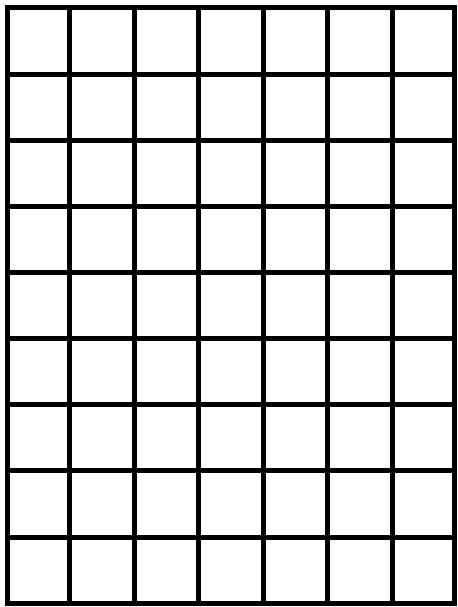
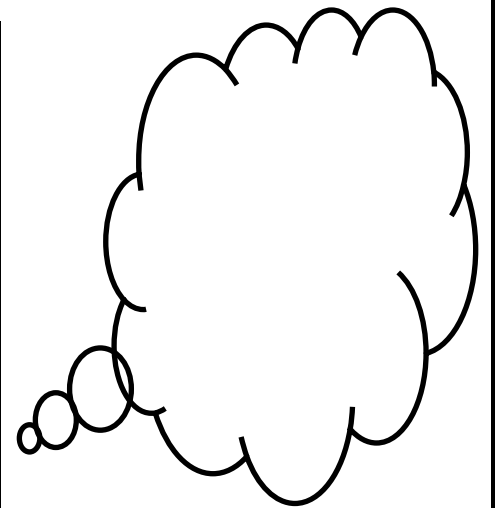




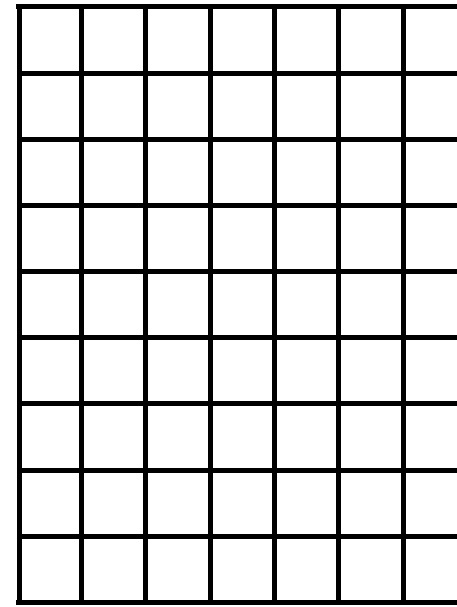
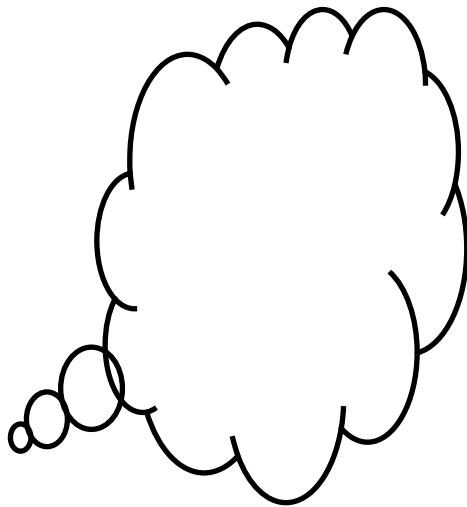
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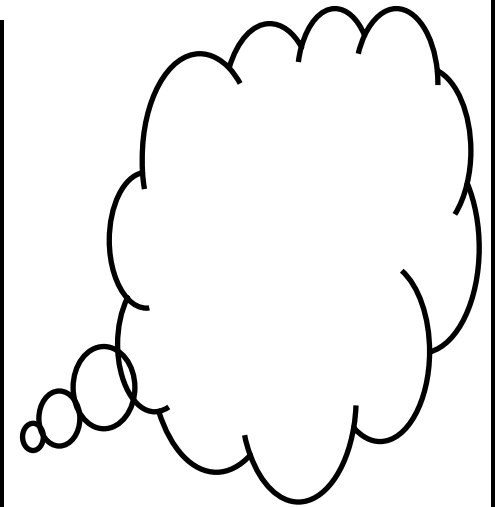
9 x 7



9 x 7



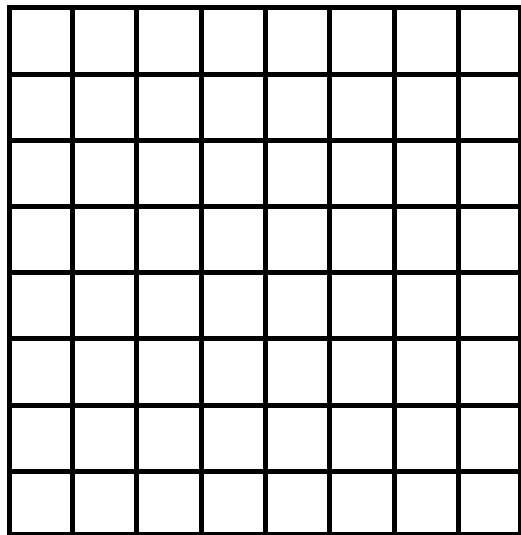
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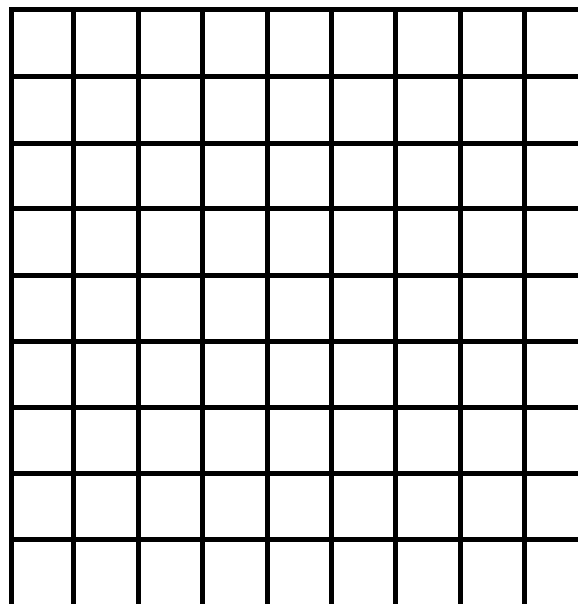
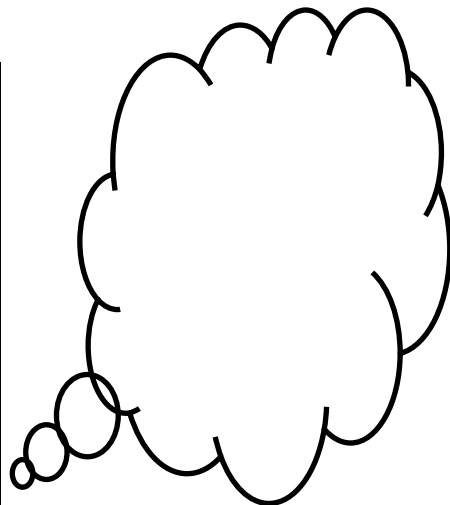
8s & 9s Multiplication

Using Known Facts Array Cards

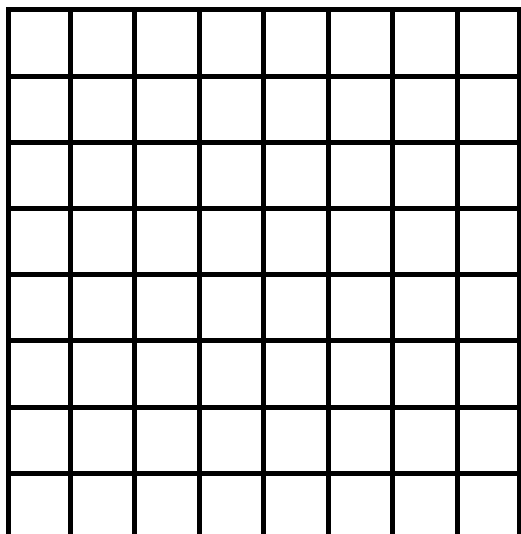
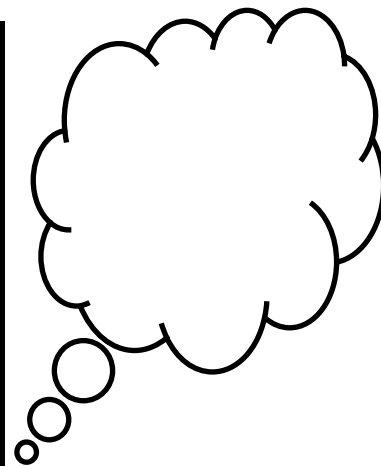
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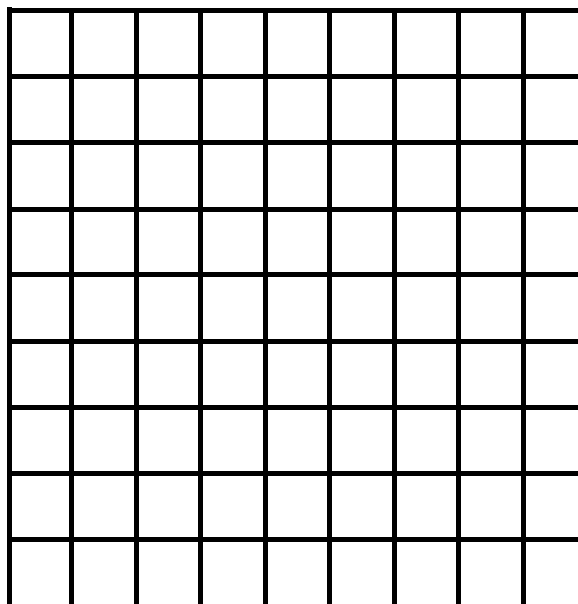
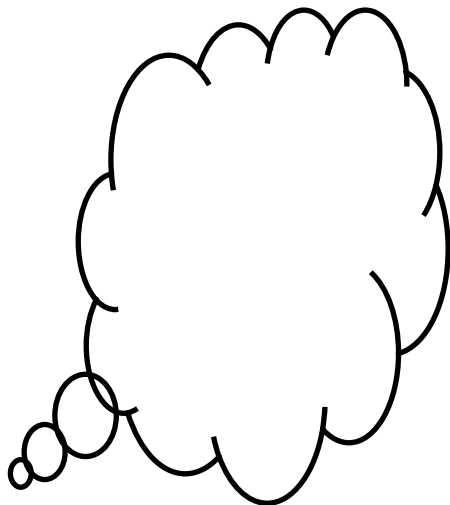
8×8



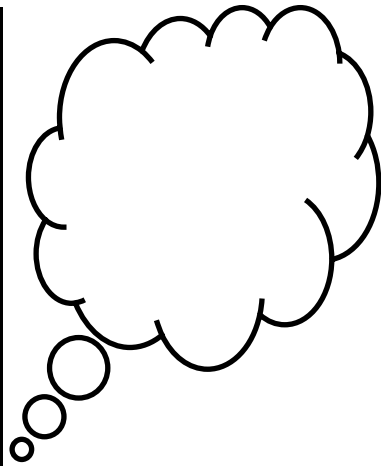
9×9



8×8



9×9



9s Multiplication

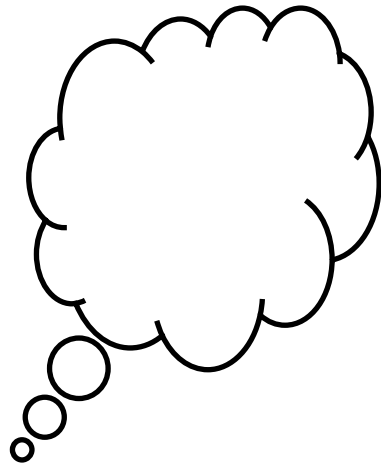
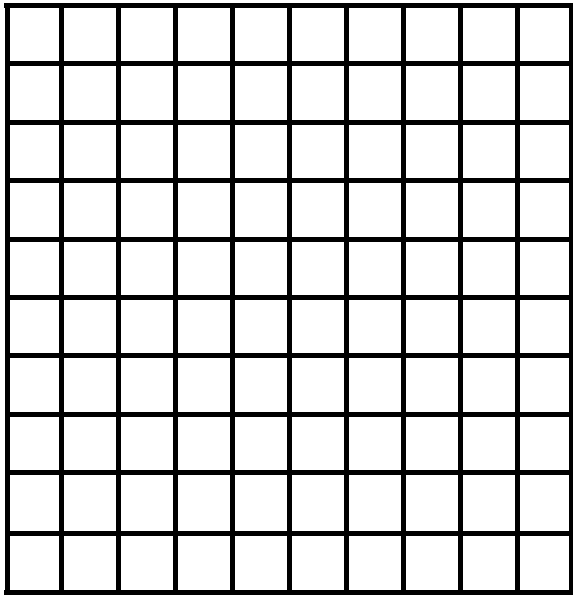
Using Tens

- These array cards are customized by students to show their thinking.
- Students shade the related fact on the array and then write their thinking in the thought bubble.

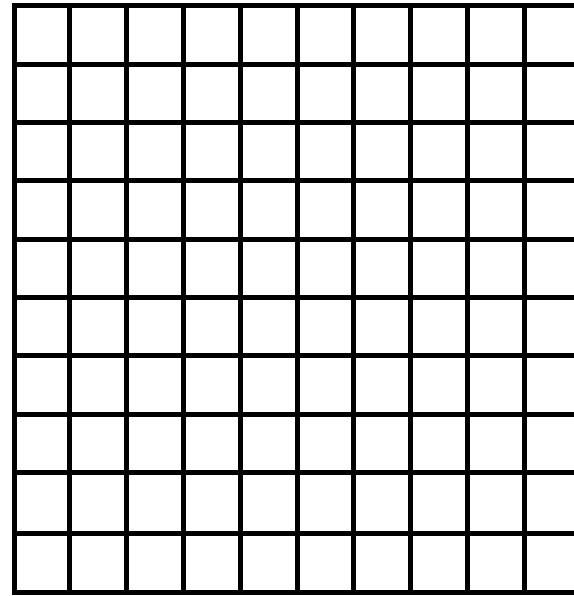
Example:

The image shows a 10x10 grid. The top 6 rows are shaded yellow, and the bottom 4 rows are white. A thought bubble is connected to the grid by a wavy line. Inside the thought bubble, the following equations are written:
 $6 \times 10 = 60$
 $60 - 6 = 54$

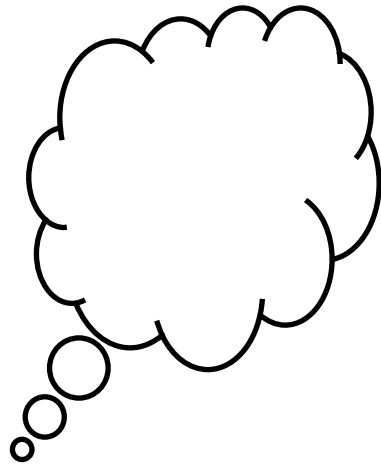
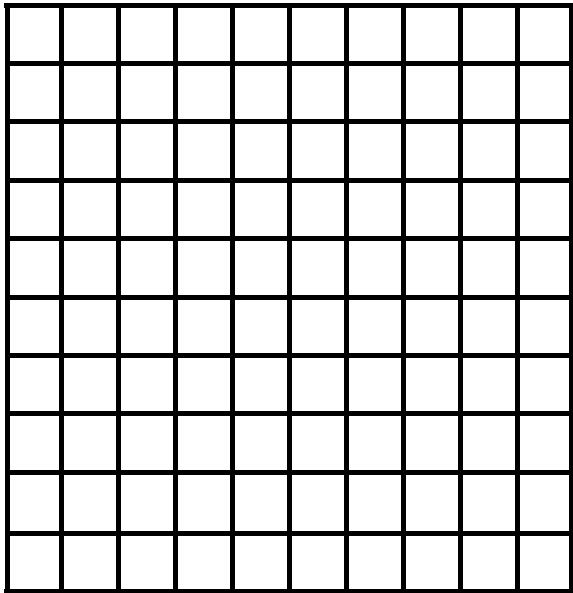
Below the grid, the equation 9×6 is written.



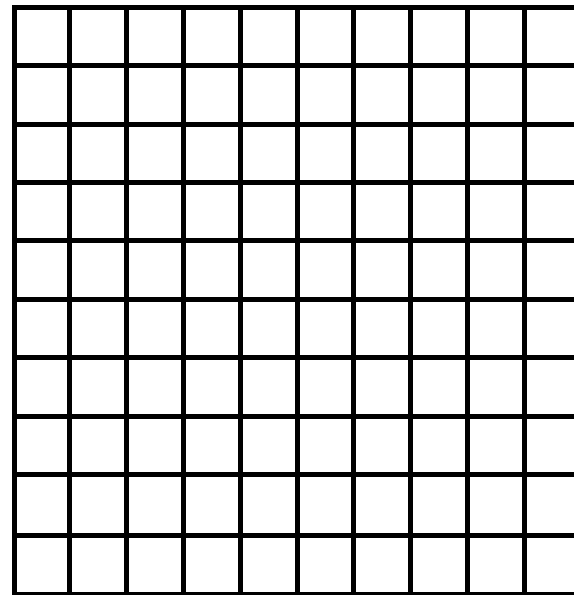
$$9 \times 3$$



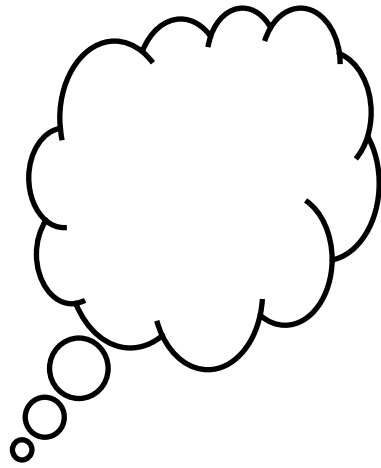
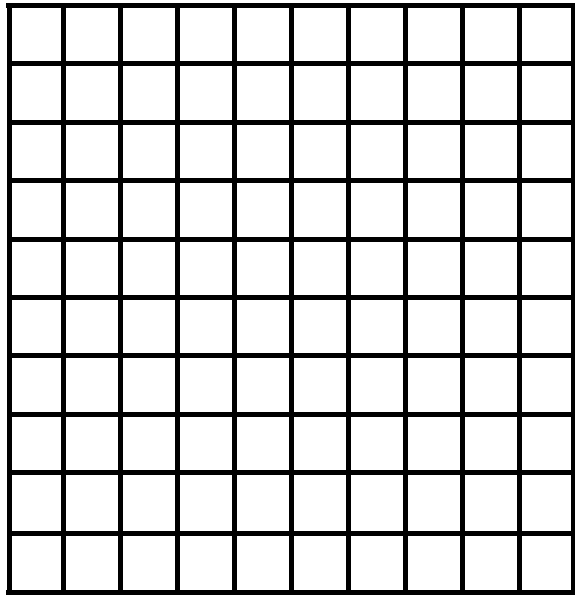
$$3 \times 9$$



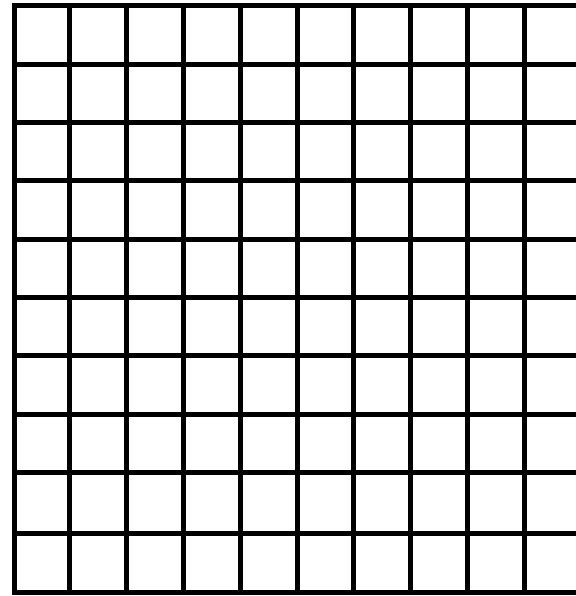
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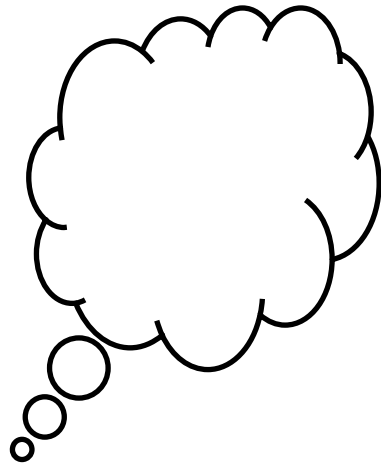
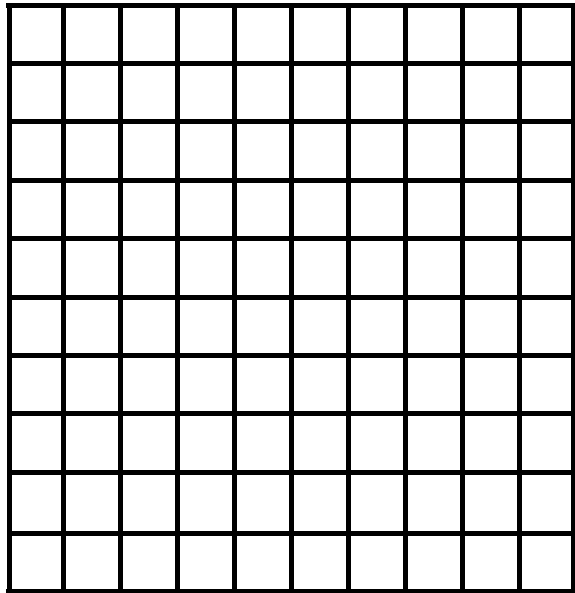
$$4 \times 9$$



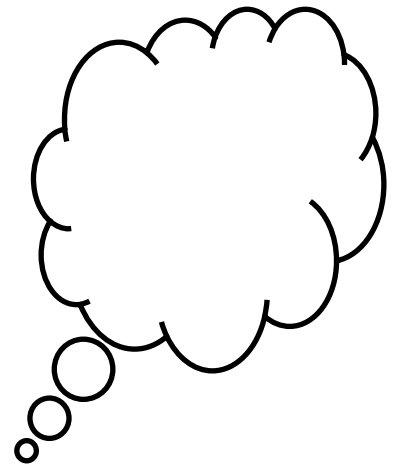
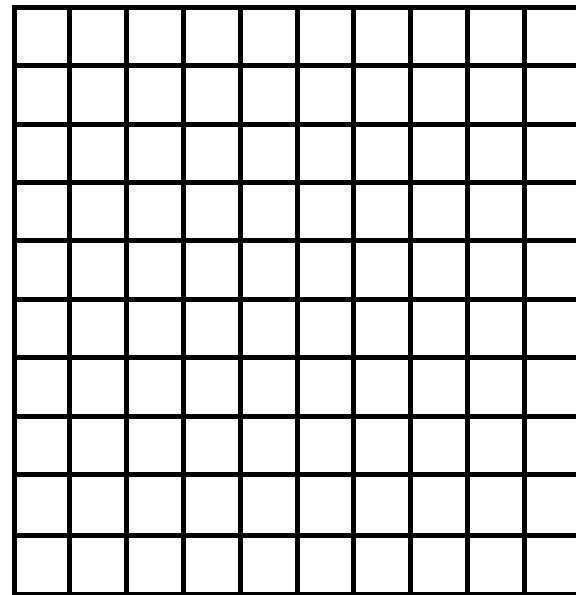
$$9 \times 5$$



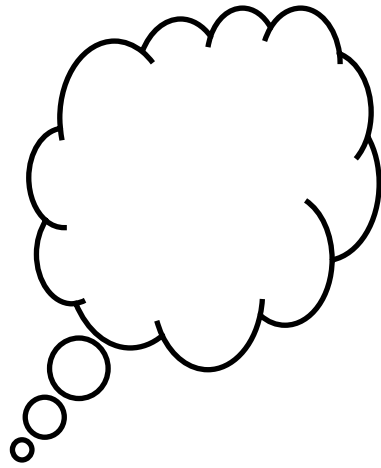
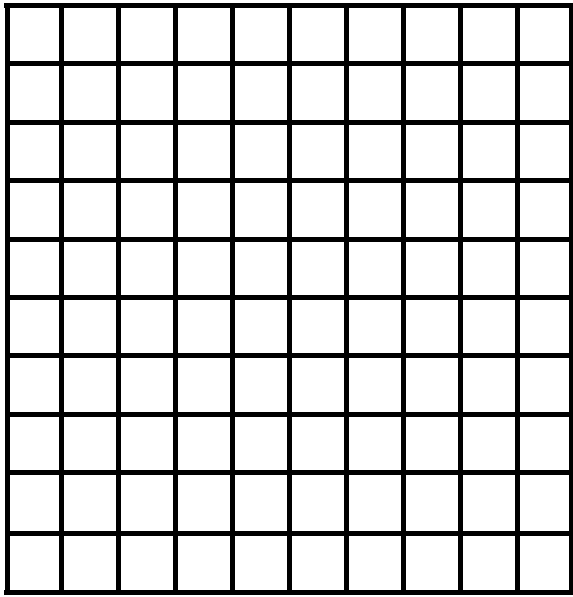
$$5 \times 9$$



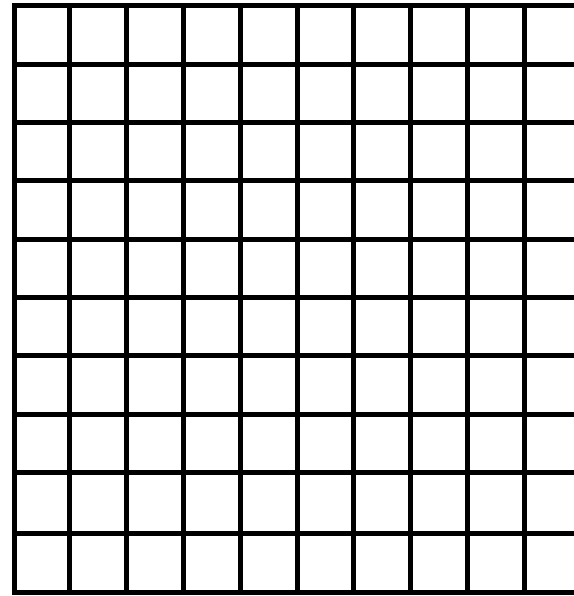
$$9 \times 6$$



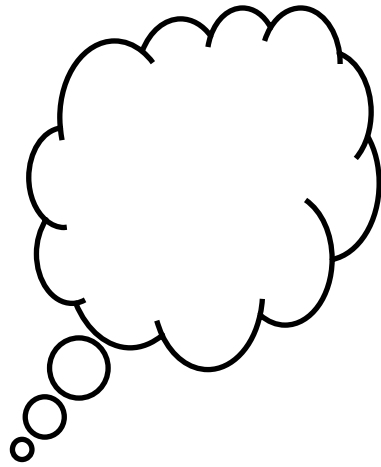
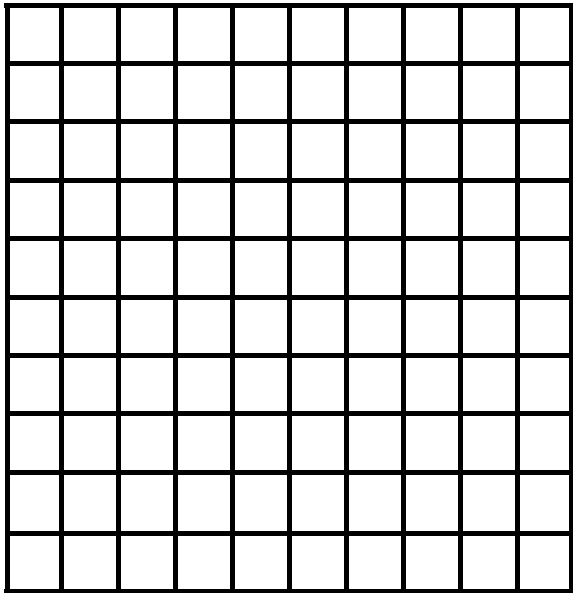
$$6 \times 9$$



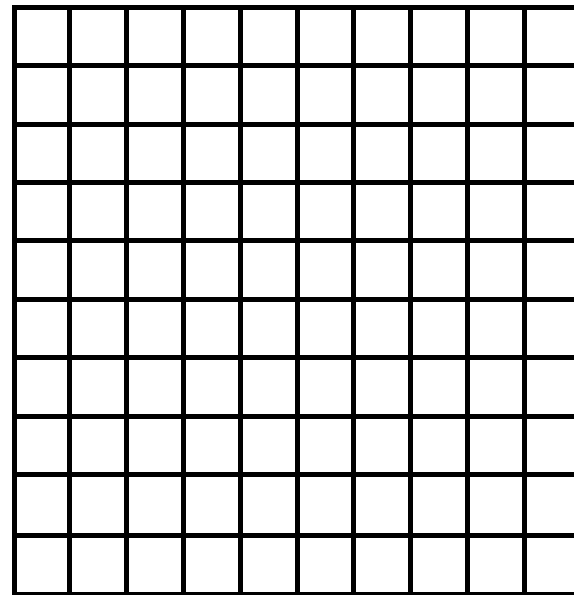
$$9 \times 7$$



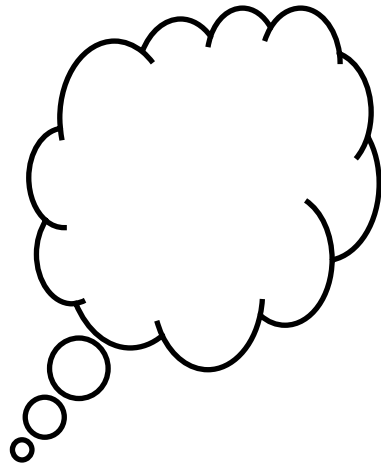
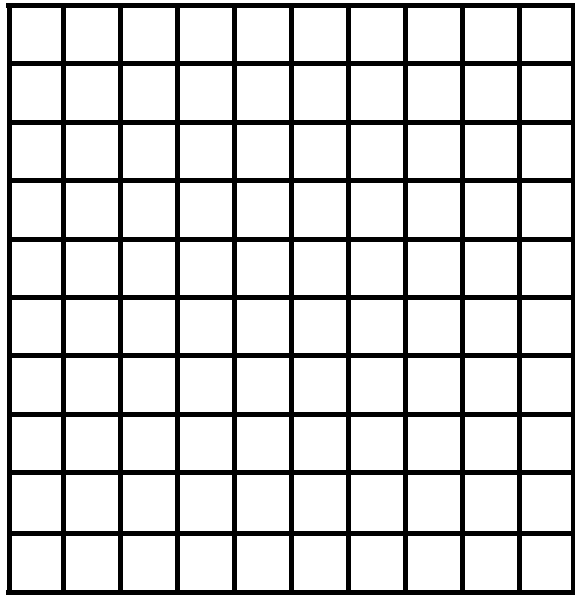
$$7 \times 9$$



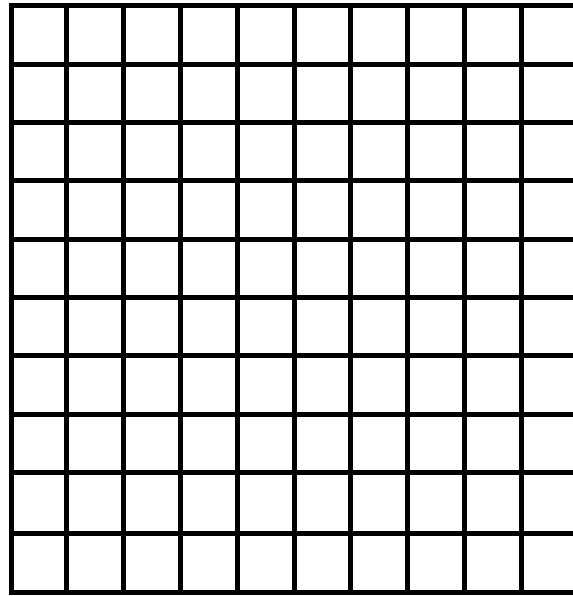
$$9 \times 8$$



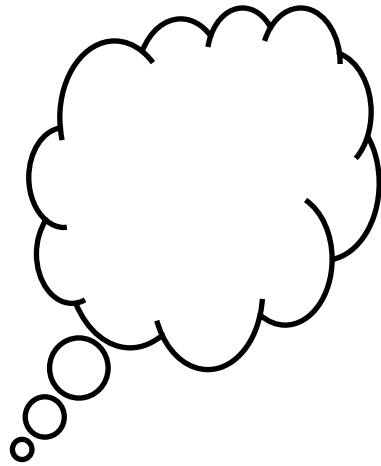
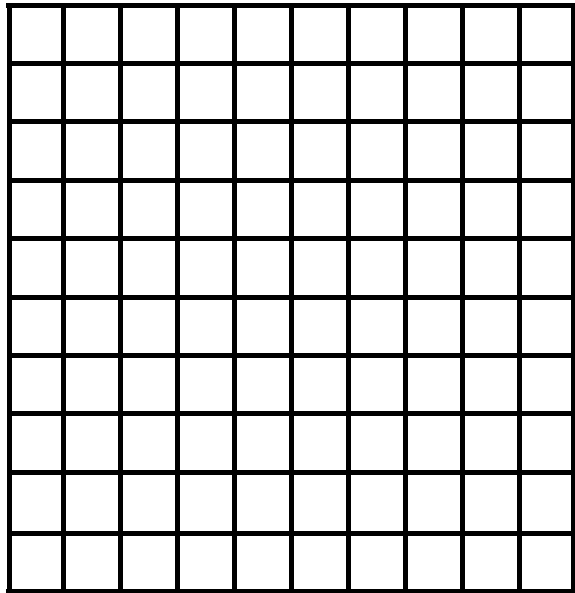
$$8 \times 9$$



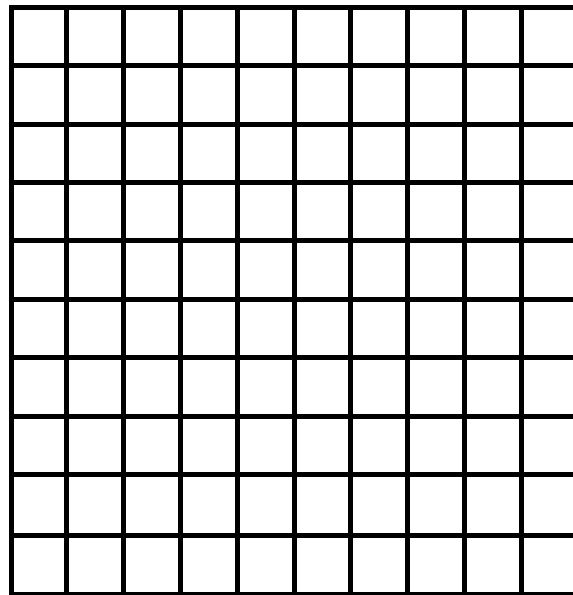
$$9 \times 9$$



$$9 \times 9$$



$$9 \times 2$$

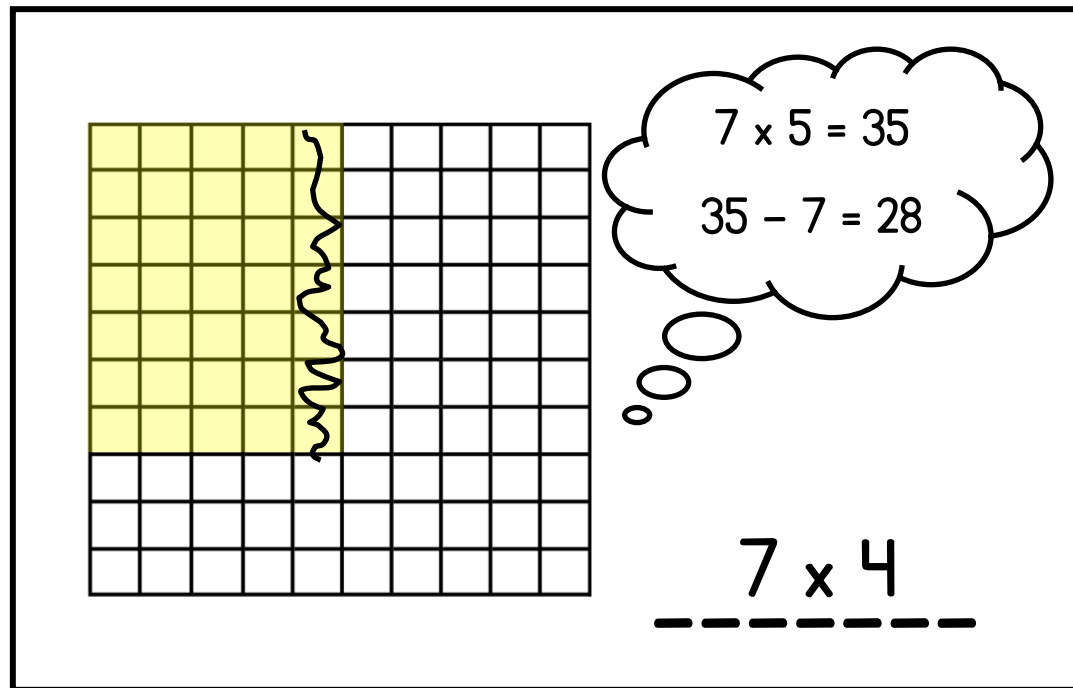


$$2 \times 9$$

Empty Using Known Facts

- These array cards are customized by students to show their thinking.
- Students shade the related fact on the array and then write their thinking in the thought bubble.

Example:



The example shows a 10x10 grid. The top-left 7x5 area is shaded yellow. A wavy line separates this shaded area from the rest of the grid. To the right of the grid is a thought bubble containing the following text:

$$7 \times 5 = 35$$
$$35 - 7 = 28$$

Below the thought bubble is the multiplication problem 7×4 with a dashed line underneath it.

