SUBITIZING

Ten Frames and Dot Cards

Ten frames and dot cards can be used to develop students' **subitizing** skills, the ability to "instantly see how many". This skill plays a fundamental role in the development of students' understanding of number. Two types of subitizing exist. Perceptual subitizing is closest to the original definition of subitizing: recognizing a number without using other mathematical processes. For example, a child as young as two might "see 3" without using any learned mathematical knowledge. Conceptual subitizing is being used when a person sees an eight dot domino and "just knows" the total number. The number pattern is recognized as a composite of parts and as a whole. The domino is seen as being composed of two groups of four and as "one eight".

Enlarged dot cards can be used during mental math sessions to prompt mental images of numbers and different mental strategies for manipulating these numbers. Activities with **enlarged ten frames** enable children to automatically think of numbers less than ten in terms of their relationship to ten, and to build a sound knowledge of the basic addition and subtraction facts for ten, which are an integral part of mental calculation.

Listed below are some examples of ways that dot cards and ten frames can be used during mental math sessions. Examples of math center activities using these materials can be found on the Kindergarten Number Activities page.

Dot Card/Ten Frame Flash
Flash a dot or **ten frame card** briefly and have students write the number on a whiteboard. Using whiteboards, rather than having students say the number, ensures that all children attempt to respond and allows the teacher to assess class progress. When the response is oral, not all student responses are audible. Encourage students to share the different strategies used to find the total number of dots for cards, "How did you see it?" This can be varied by asking students to write the number and draw the pattern they saw, or by having them build the number flashed on their own blank frame.

Dot Card/Ten Frame Flash: One More
Once students are familiar with the basic patterns and know them automatically flash a ten frame or dot card and ask students to, name the number that is one more than the number flashed.

Variation: ask students to give the number that is two more/one less/double/ten more than the number flashed

I Wish I Had 10
Flash a dot card or ten frame showing 9 or less and say, “I wish I had 10”. Students respond with the part that is needed to make ten. The game can focus on a single whole, or the “wish I had” number can change each time.
Variation: teacher flashes card and students write the complement of ten on individual whiteboards with dry erase markers.

I Wish I Had 12
As above but students respond with how many more are needed to make twelve. Students should be confident in facts of 10 before this is attempted. For example to go from 8 to 12, they should realize they need 2 more to get to 10, then 2 more to 12. 2 and 2 is 4.
Variation: students draw an empty number line on their whiteboards to show the two jumps used to get to 12.

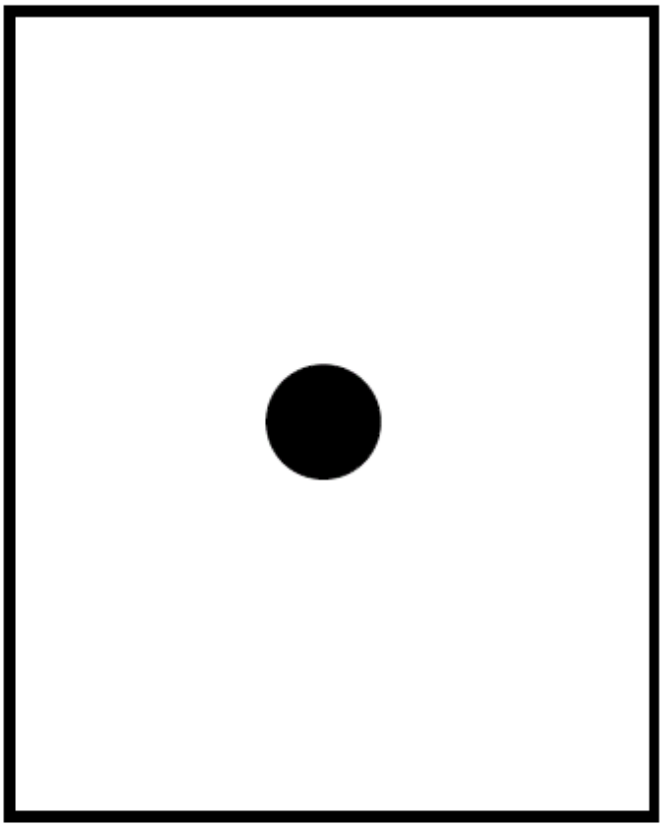
1 more/1 less/10 more/10 less
The following prompts are written on the board:
one more
one less
ten more
ten less
The teacher flashes a dot or ten frame card as the ‘starting number’. The first student selects one prompt. For example, if the teacher flashes a card showing ‘5’ the first student might say, “one more than 5 is 6”, the second student might say, “ten more than 6 is 16”, and the third student might say, “one less than 16 is 15”. Continue until all students have had a turn.

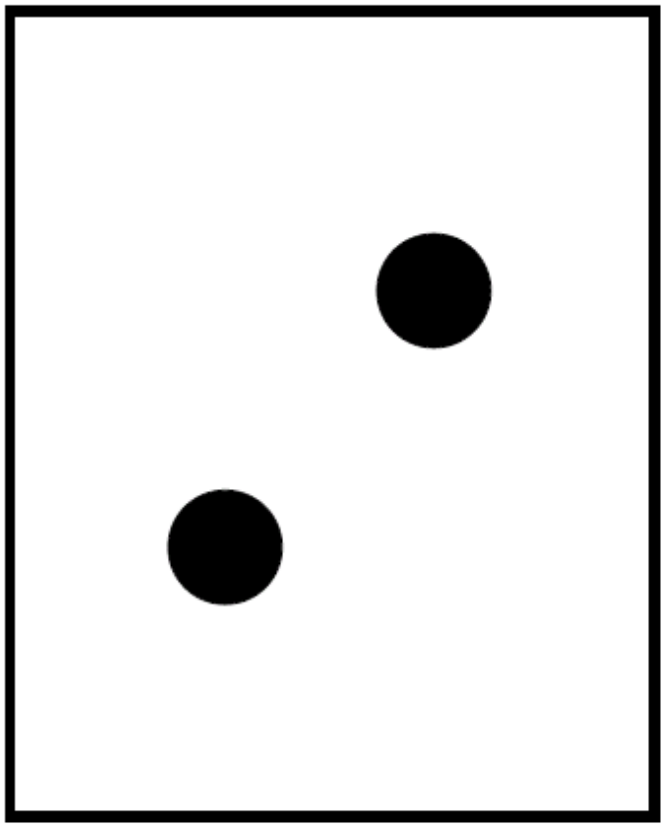
Teen Frame Flash (11-20)
Once students are subitizing dot/ten frame patterns 0- 10, cards showing larger numbers (i.e. more than one ten frame) can be introduced. A large copy of **dot cards 11-20** can be posted on the math bulletin board showing the numeral and numeral word and a **smaller version, without numerals**, used during mental math sessions with the following key questions: How many?; How many more than 10?

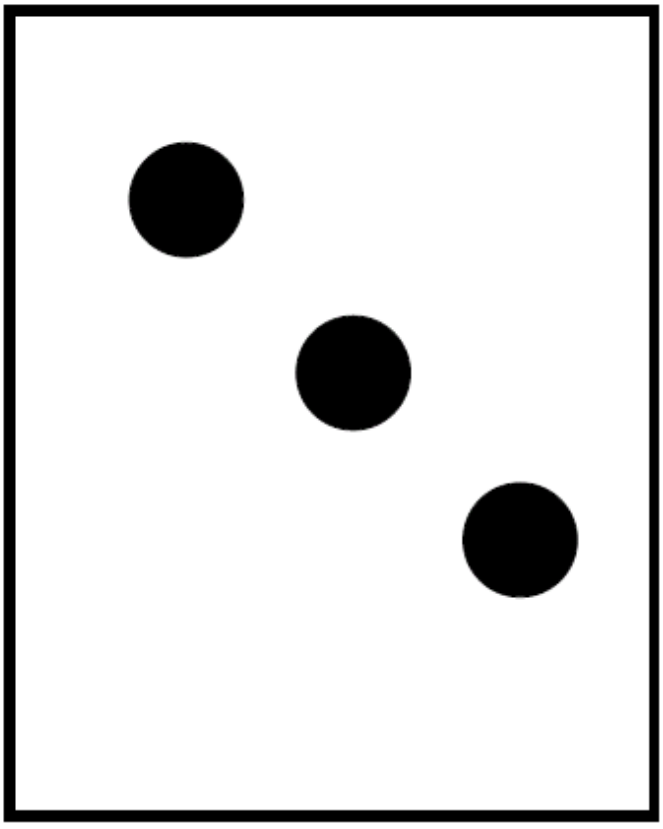
As students become familiar with the 'teen' patterns introduce further questions to develop number relationships.
- What is one more/two more than the number I flashed?
- What is one less/two less than the number I flashed?
- How far away is the number I flashed from twenty?
- Double the number I flash.

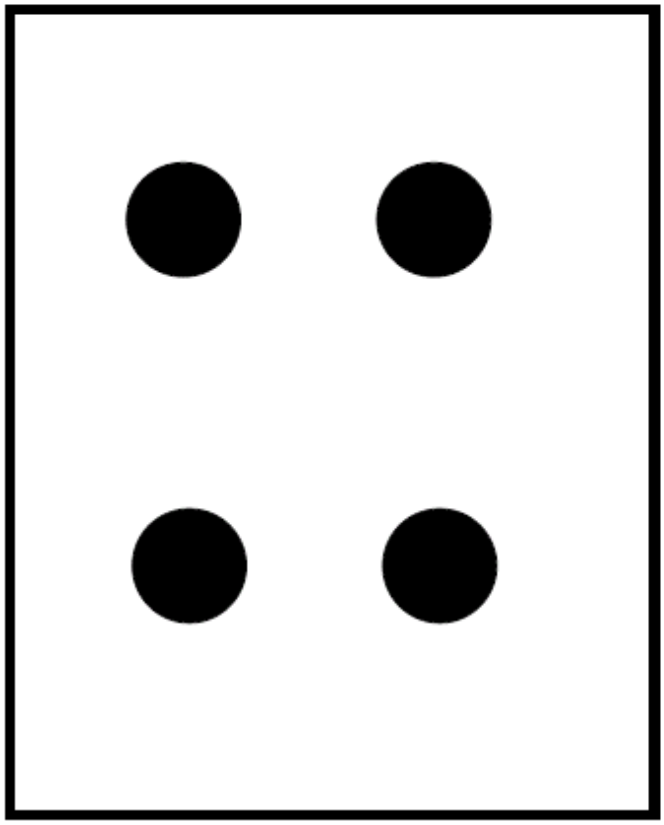
- What is the near Doubles fact? (i.e., if 15 is flashed, students answer 7+8)

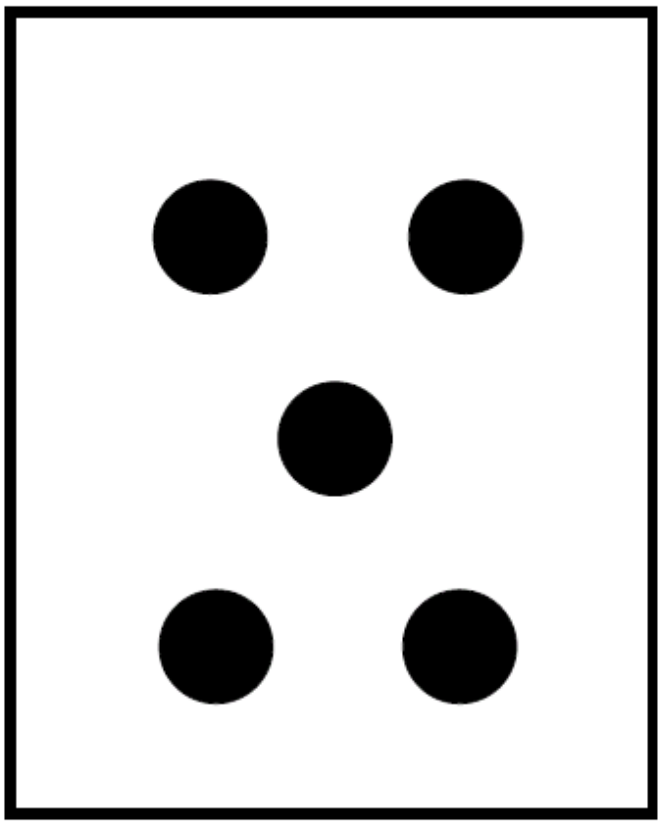
Dot Card/Ten Frame Multiples (Grades 3-5)
Flash a dot or ten frame card and ask students to give you the product if the number you flash was multiplied by 2, 5 et

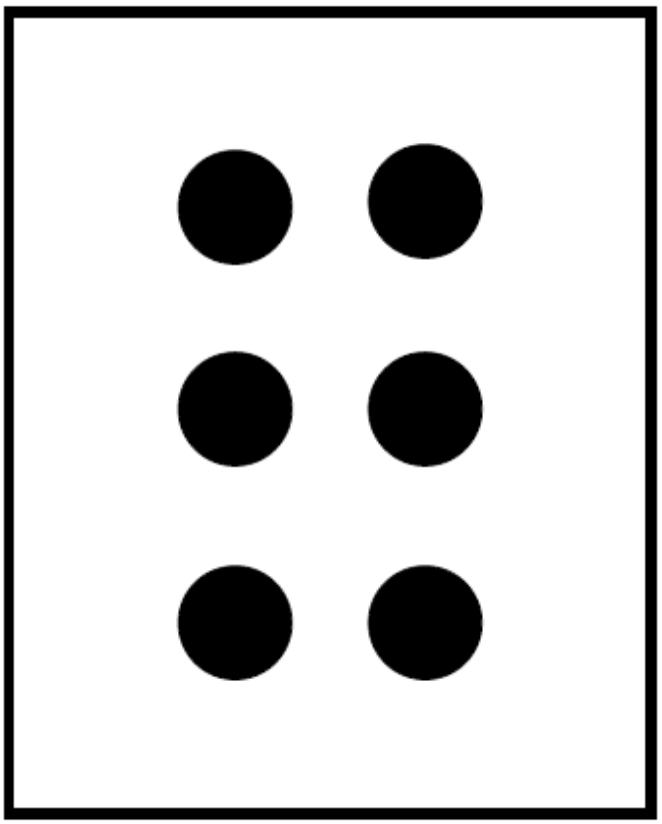


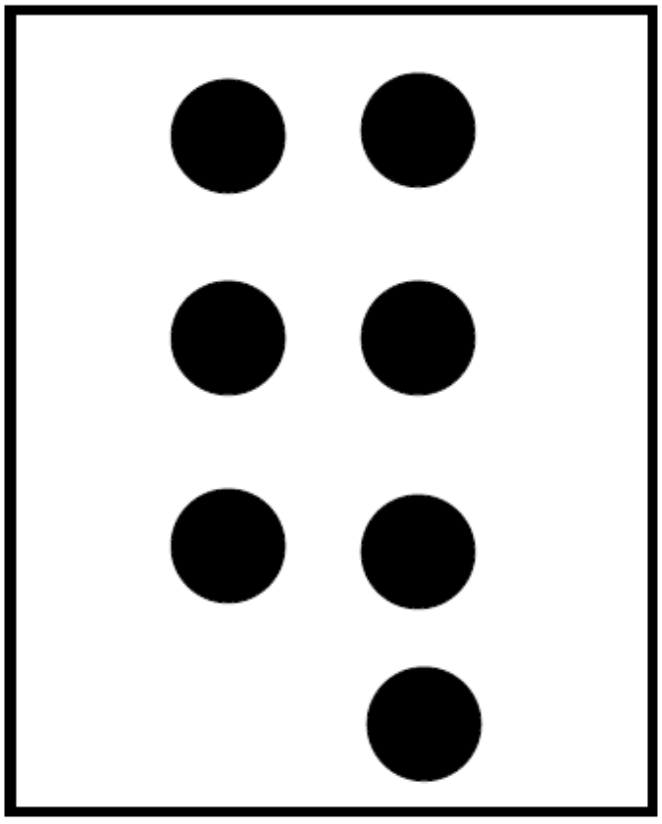


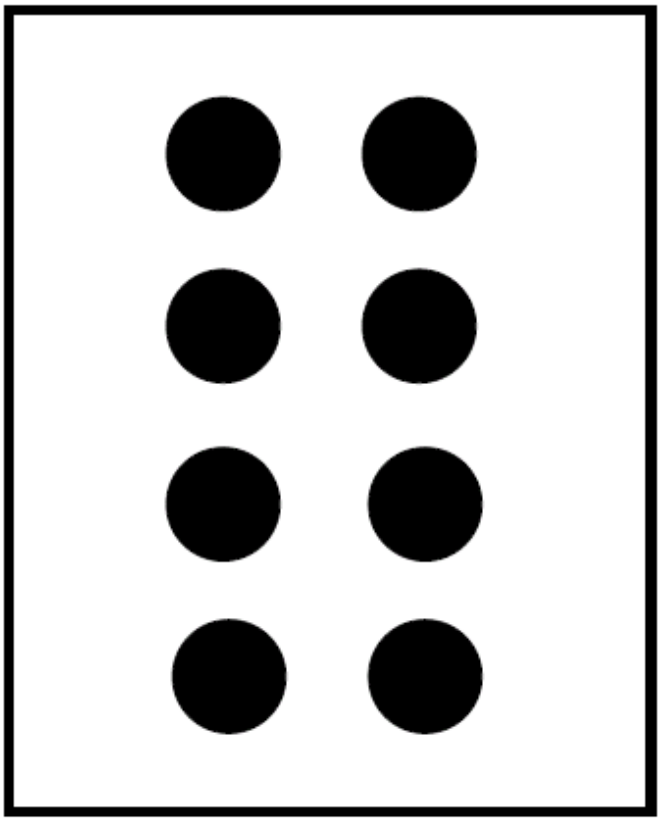


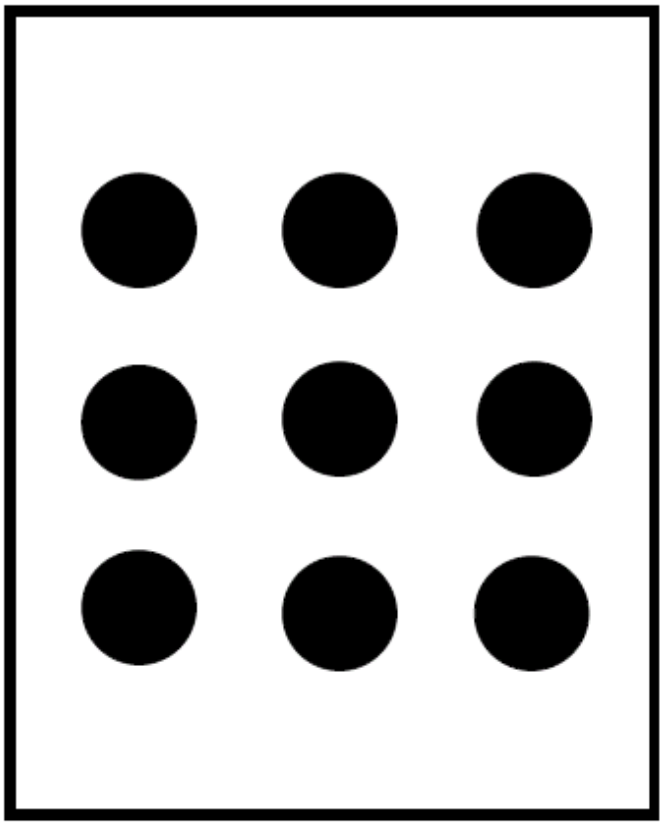


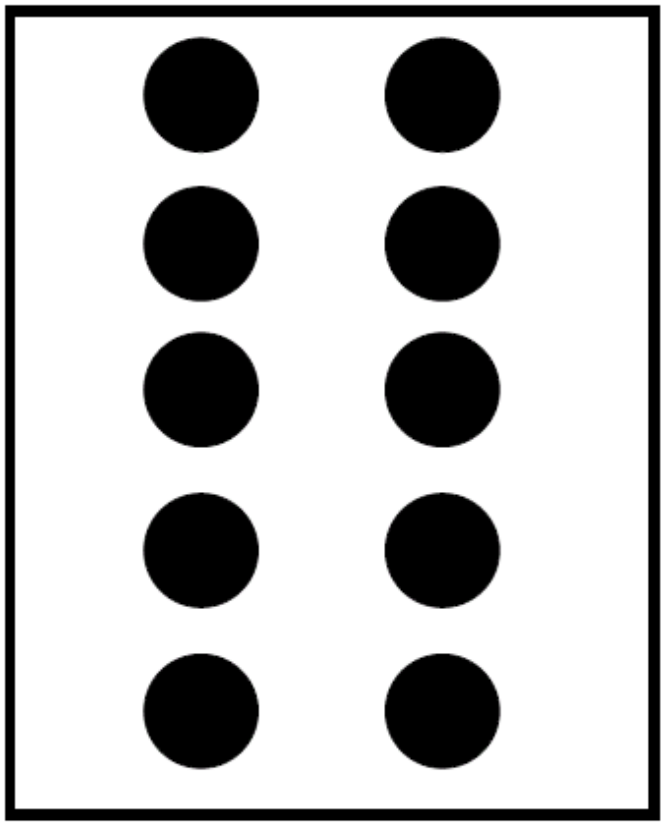


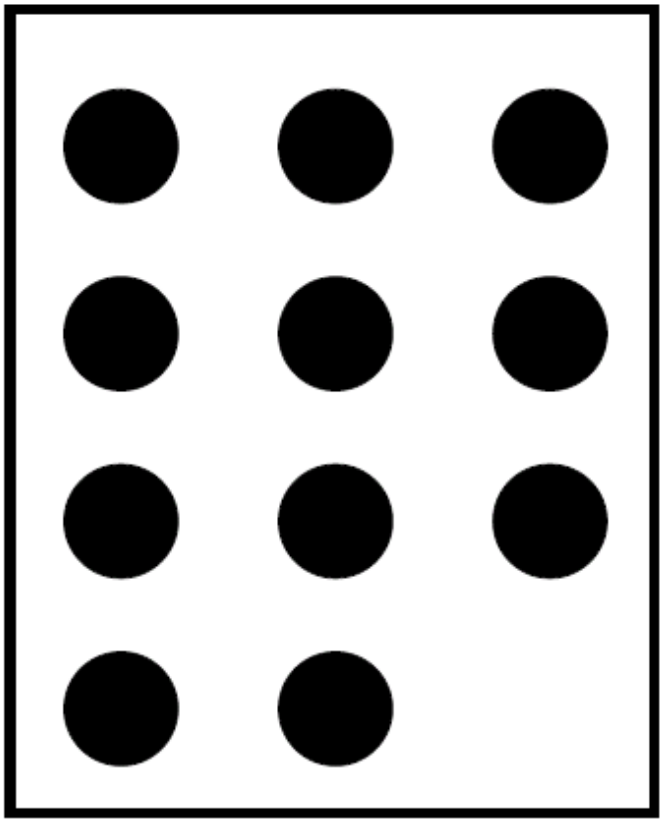


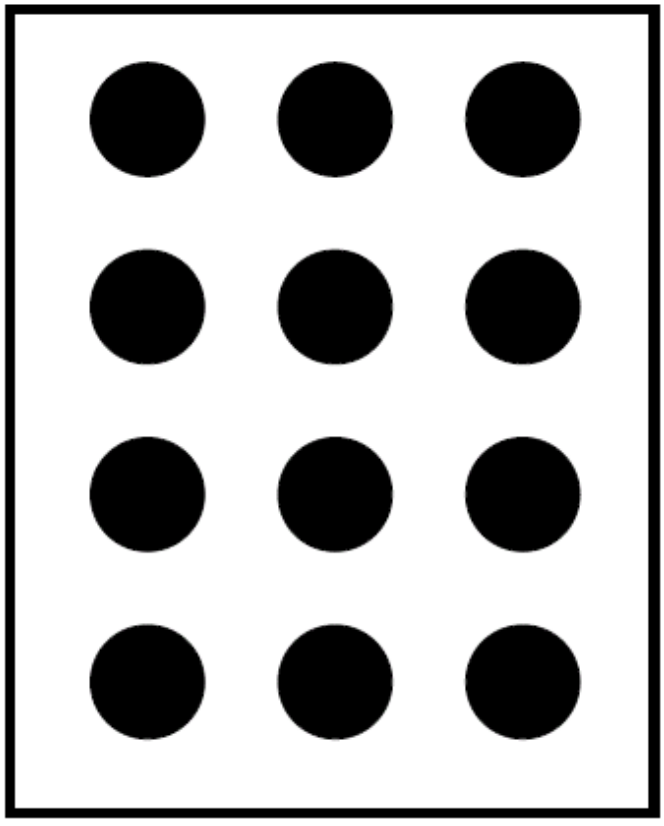




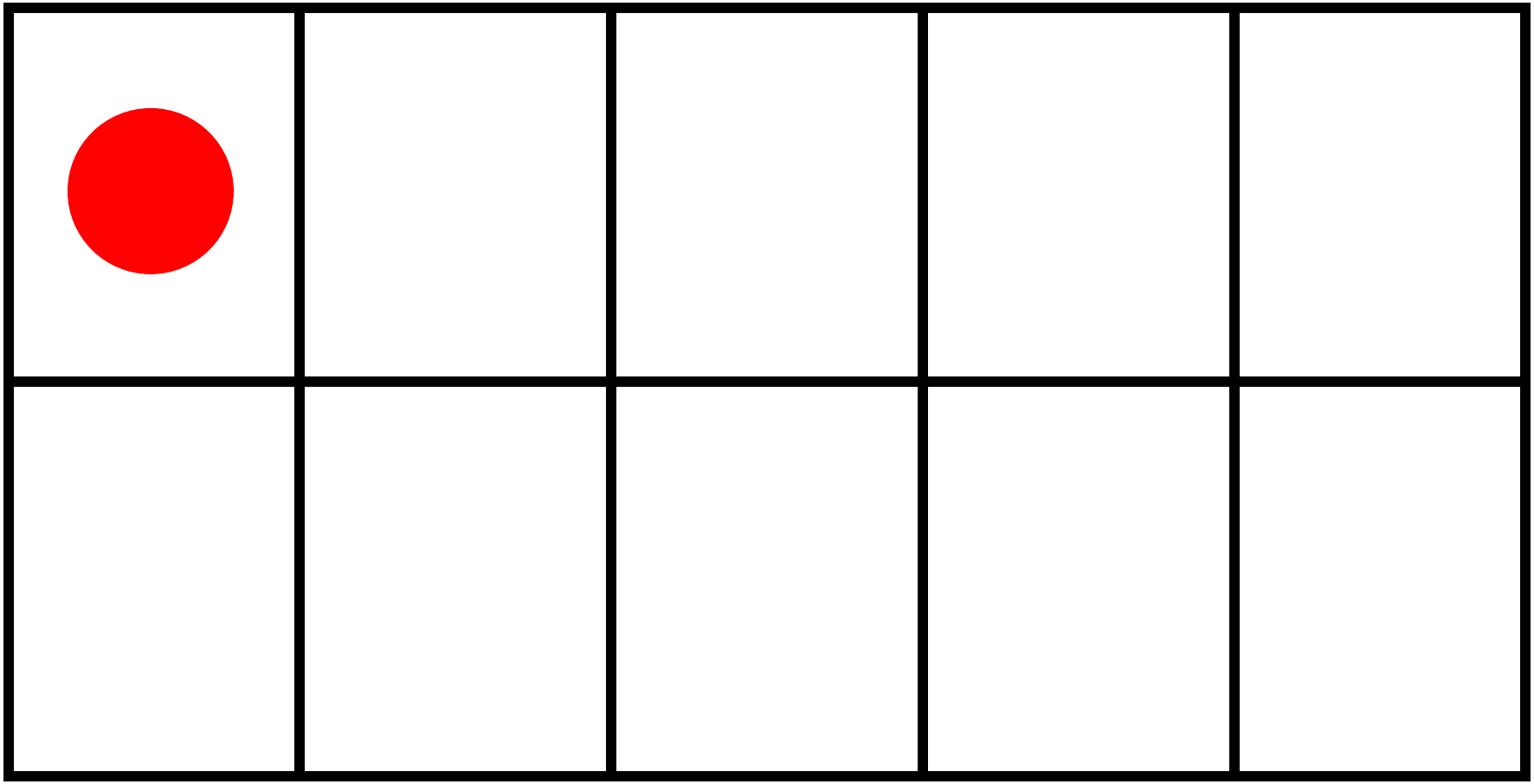








Ten Frames



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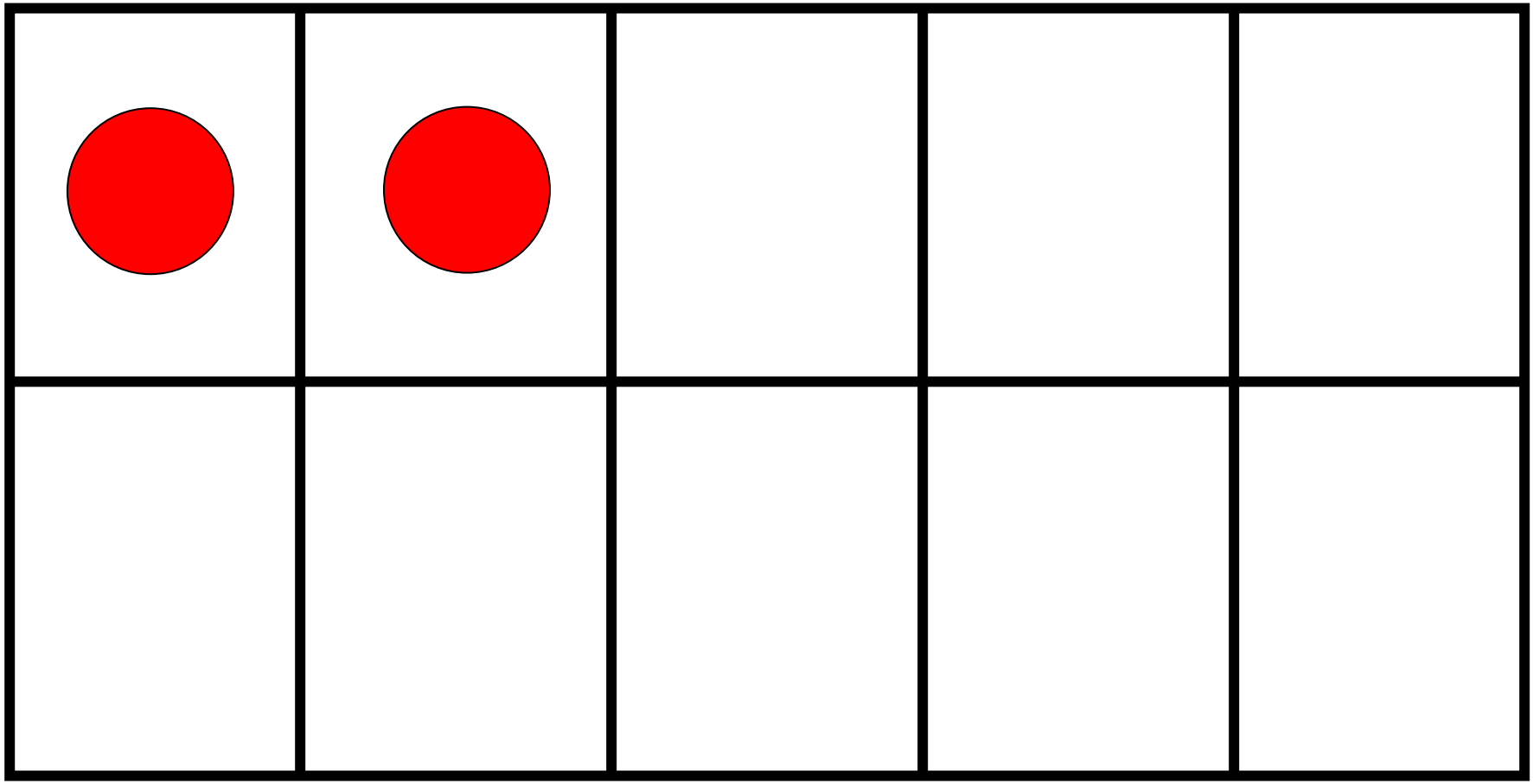

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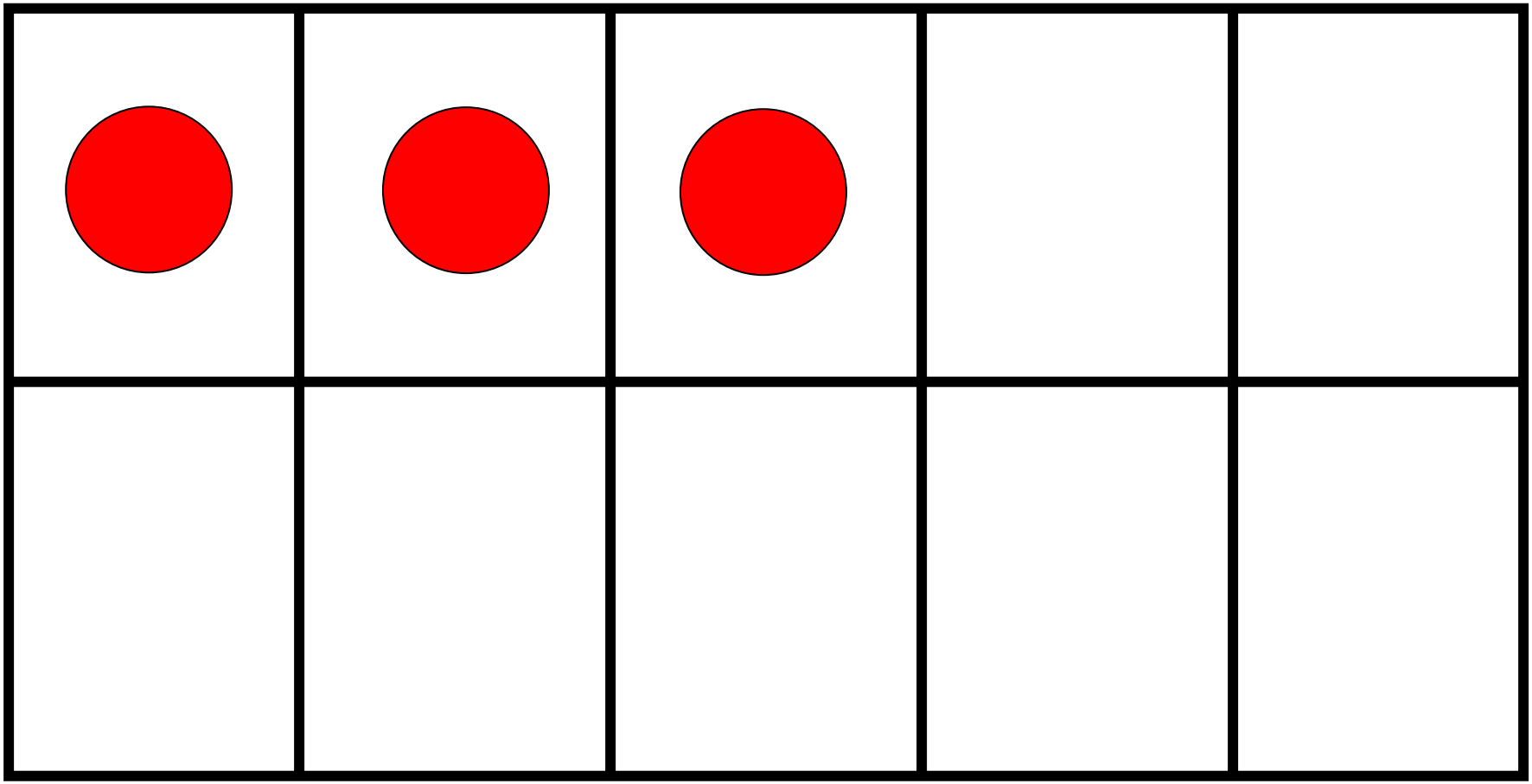

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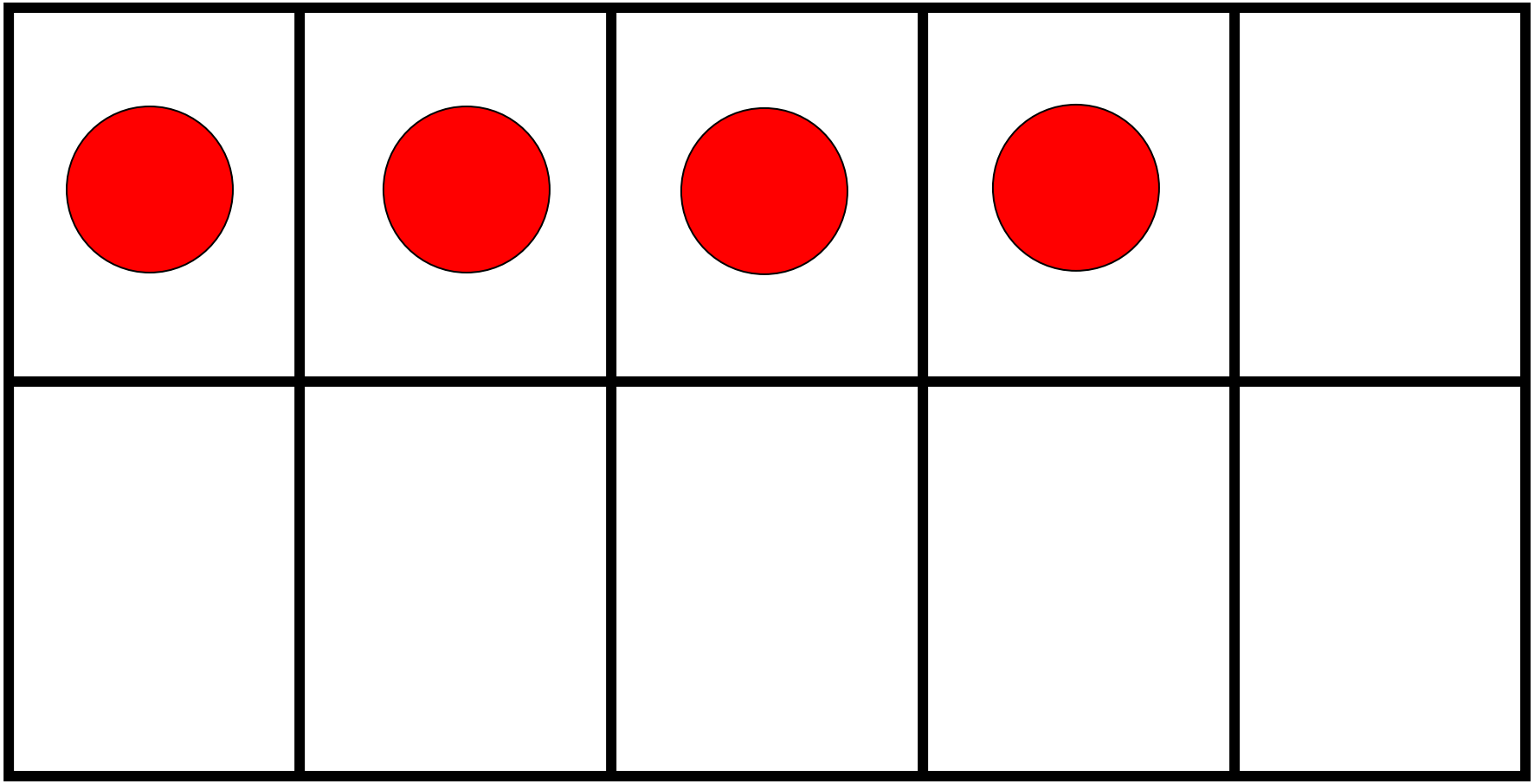

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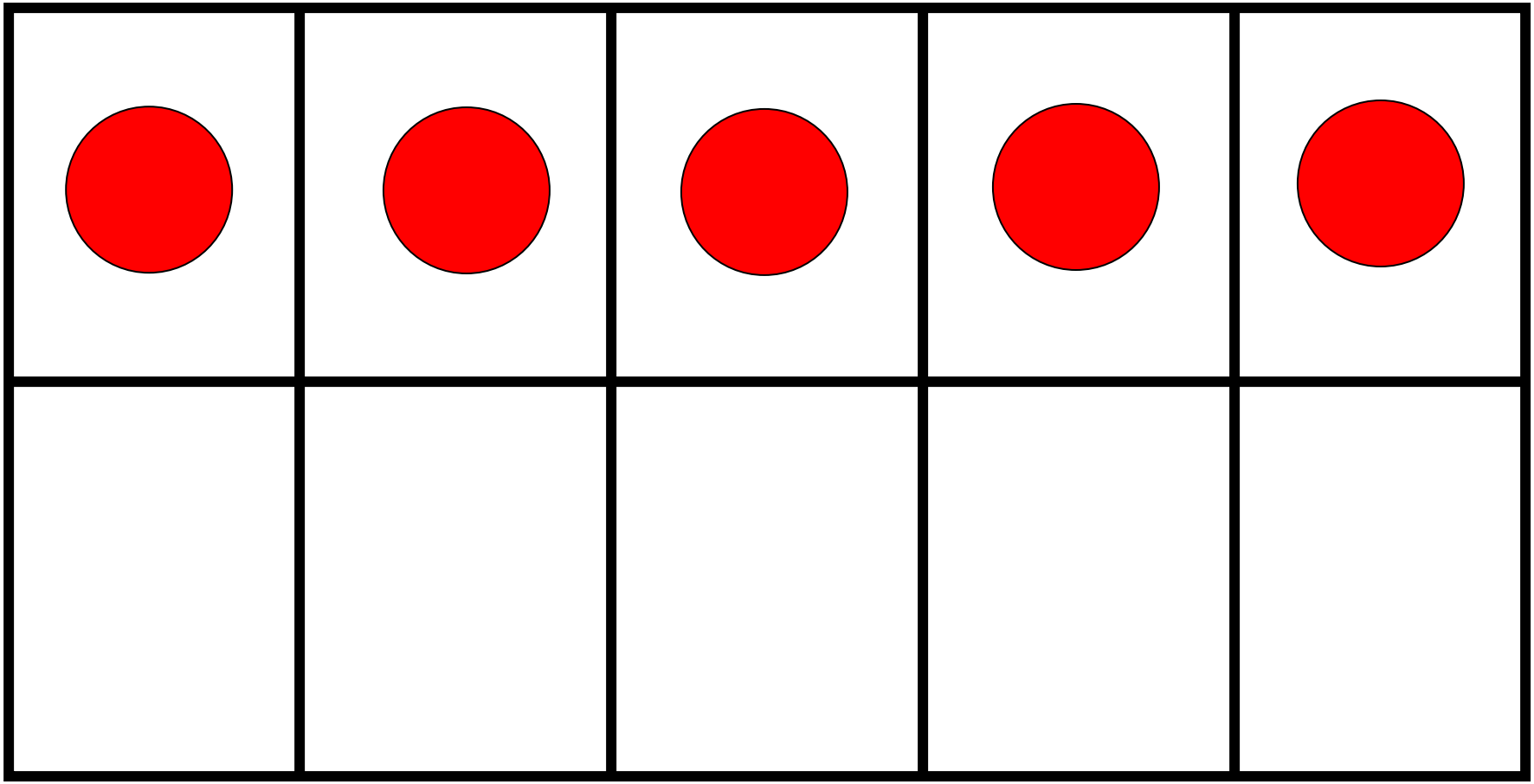

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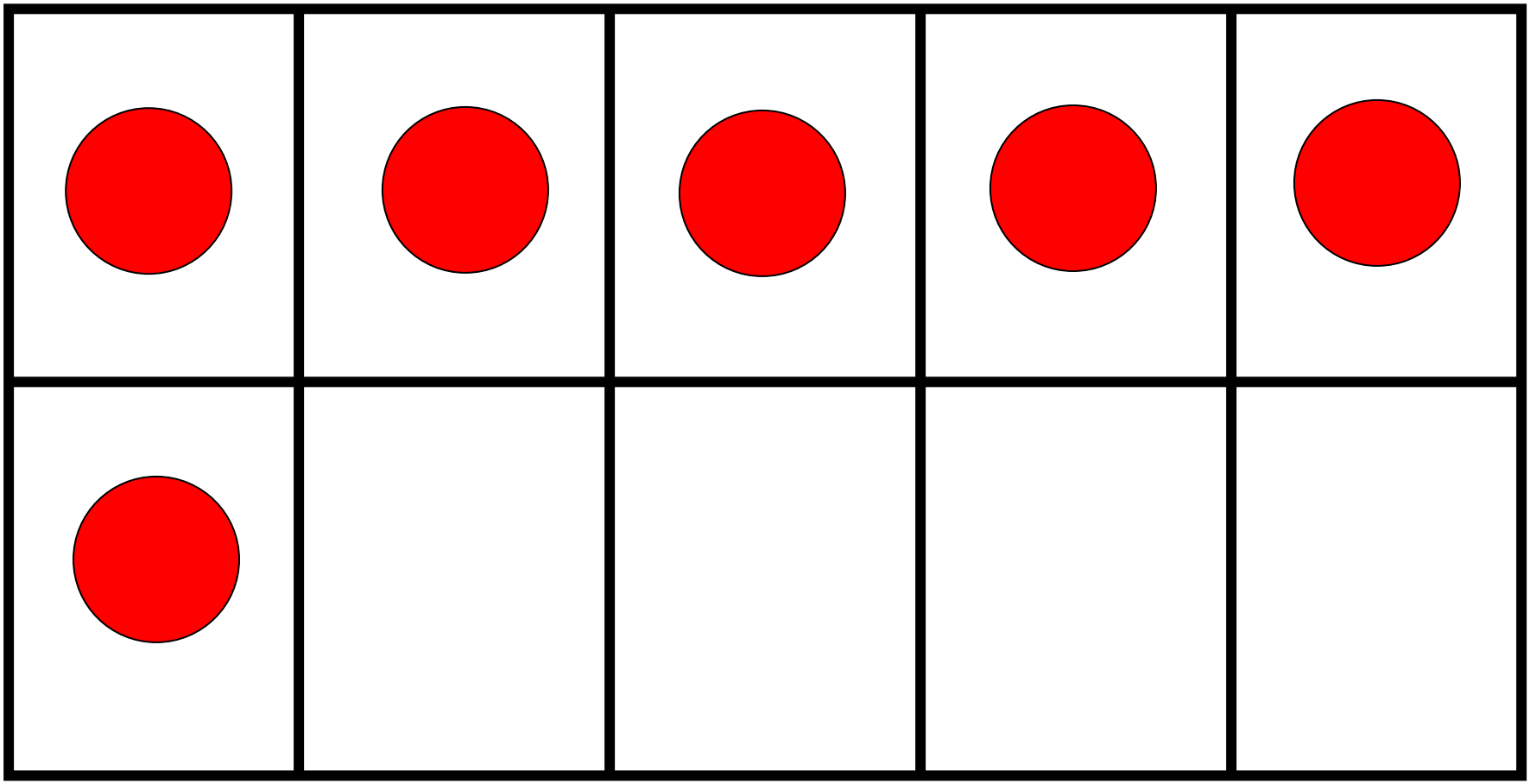

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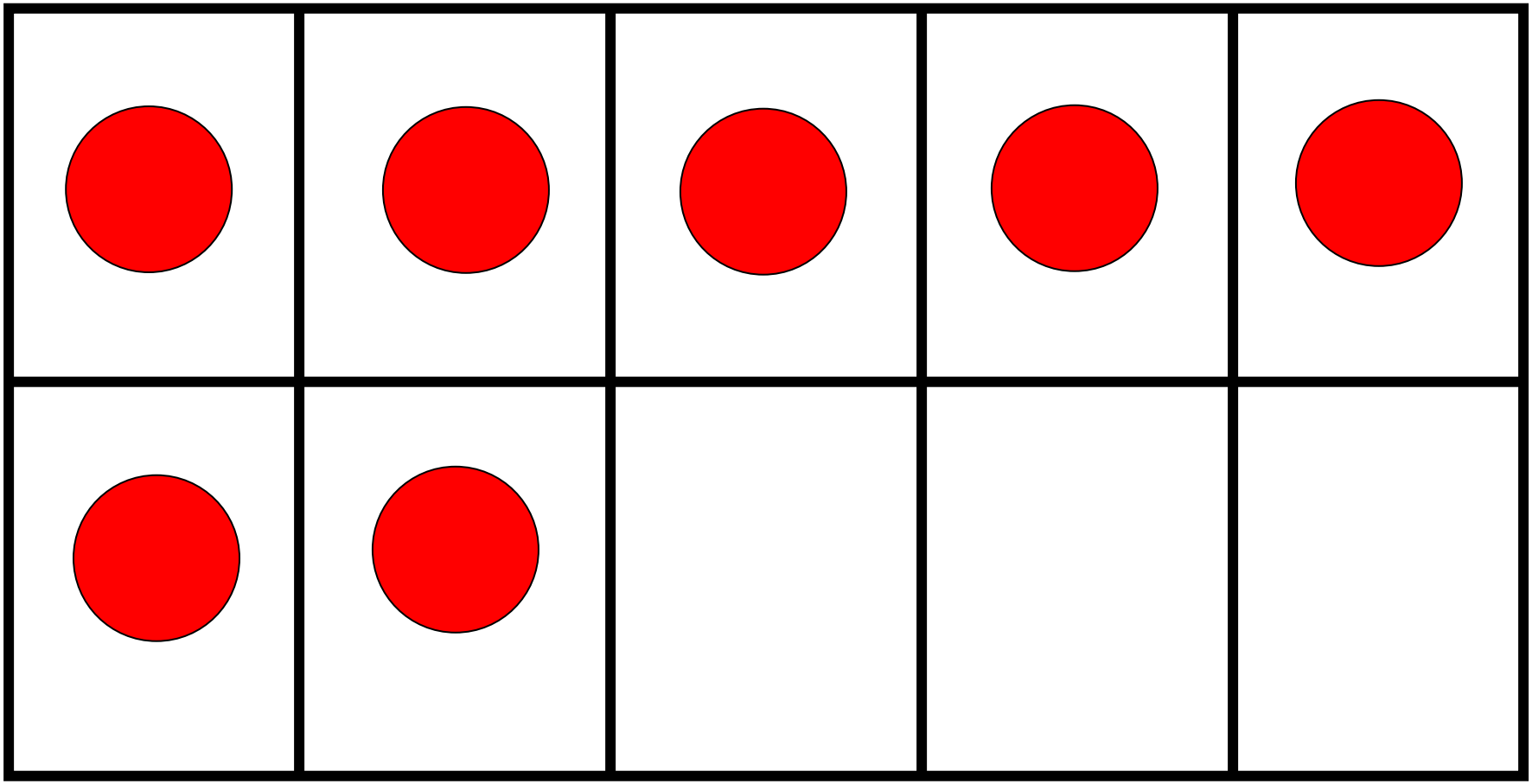

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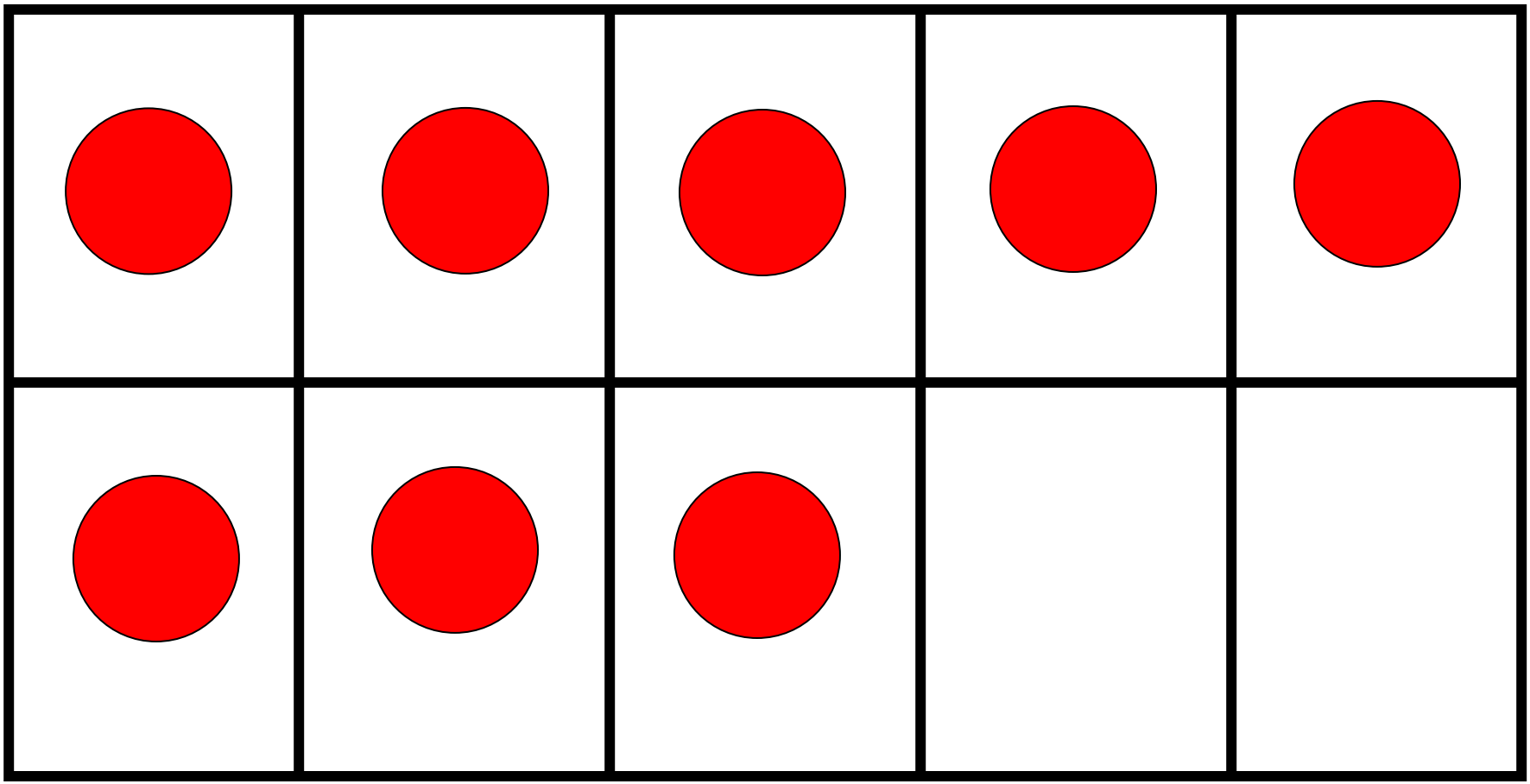

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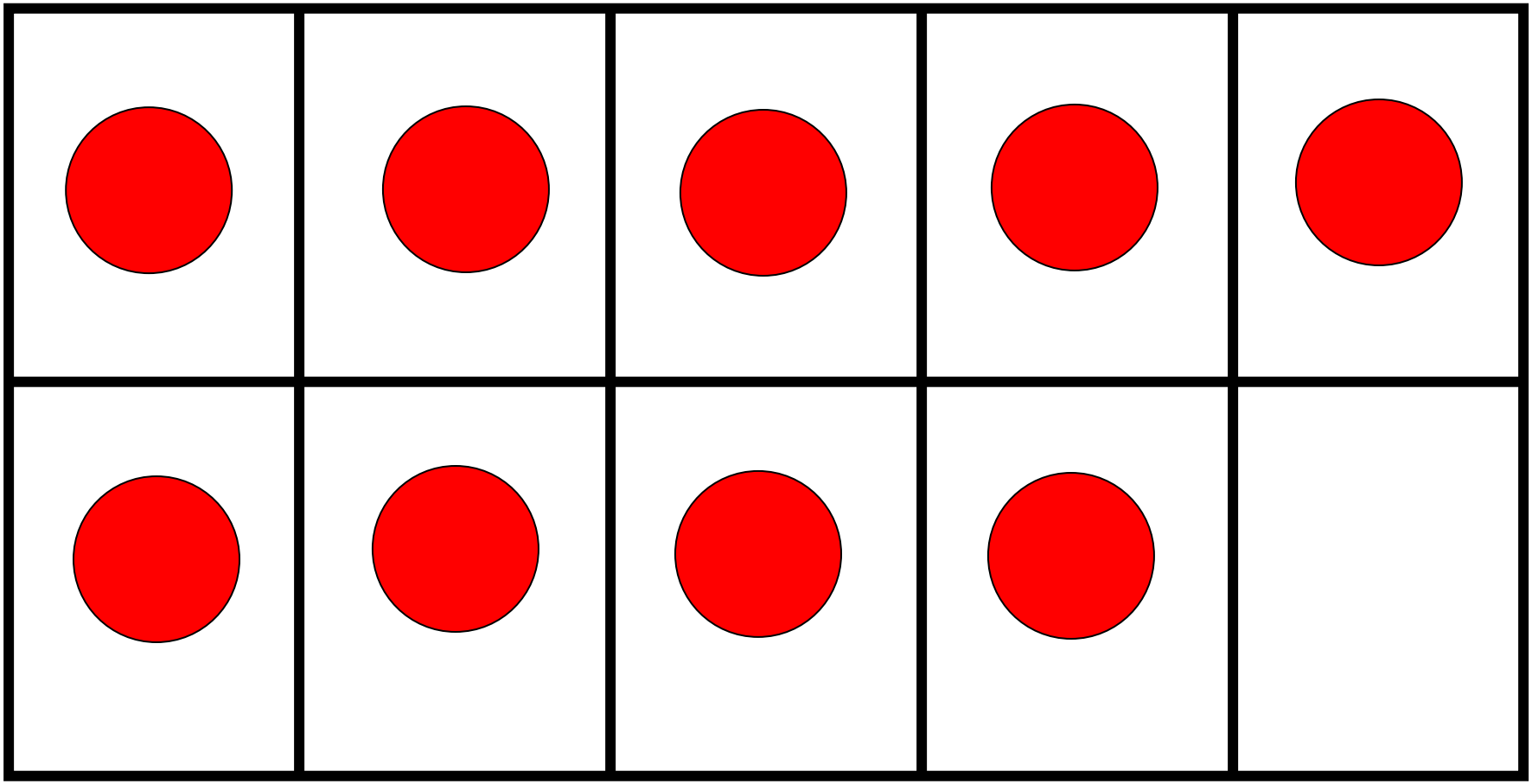

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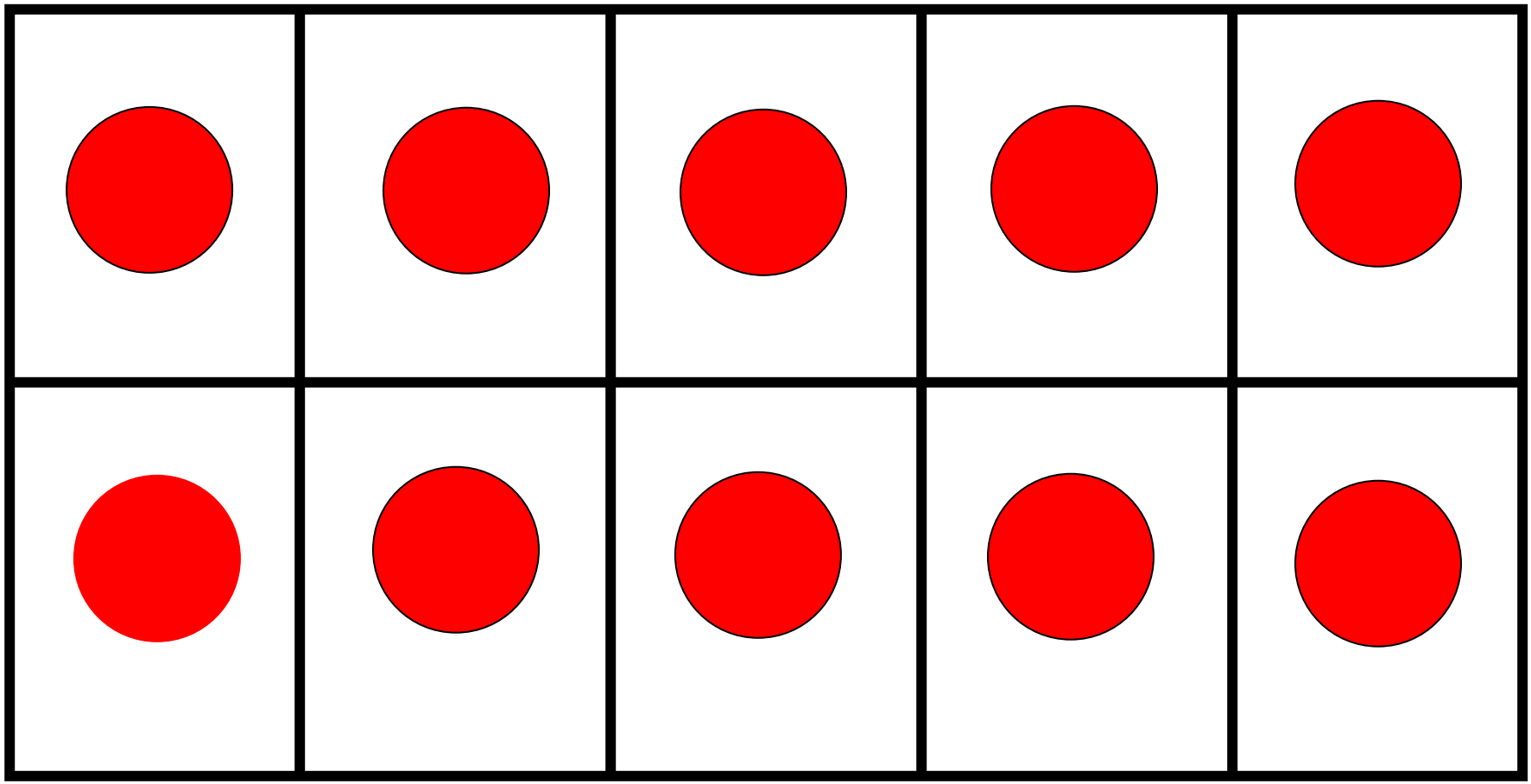

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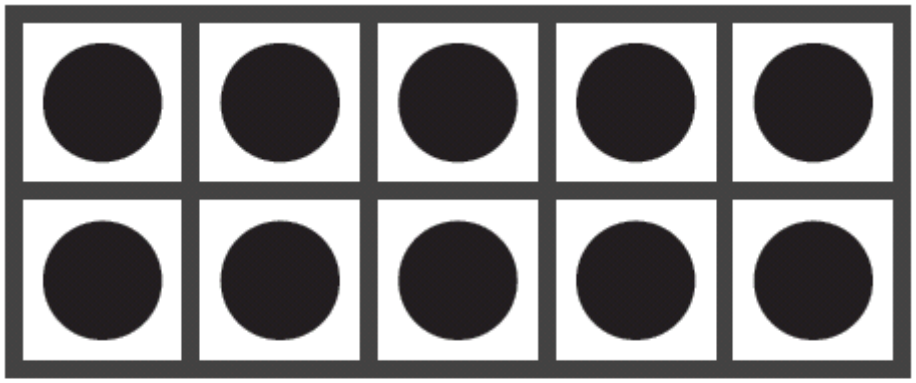

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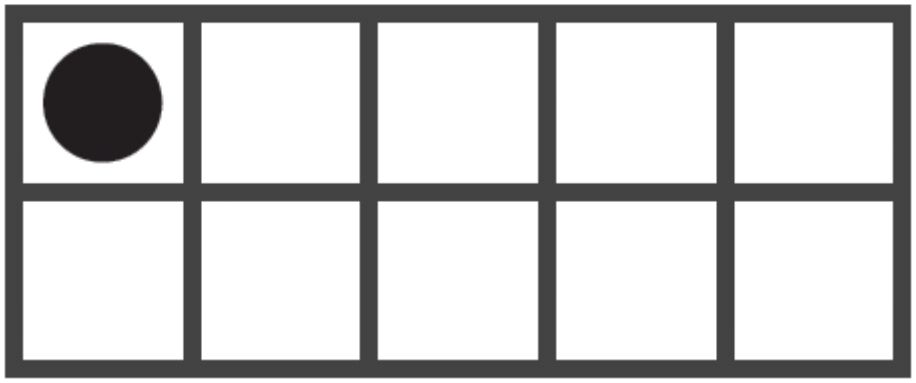

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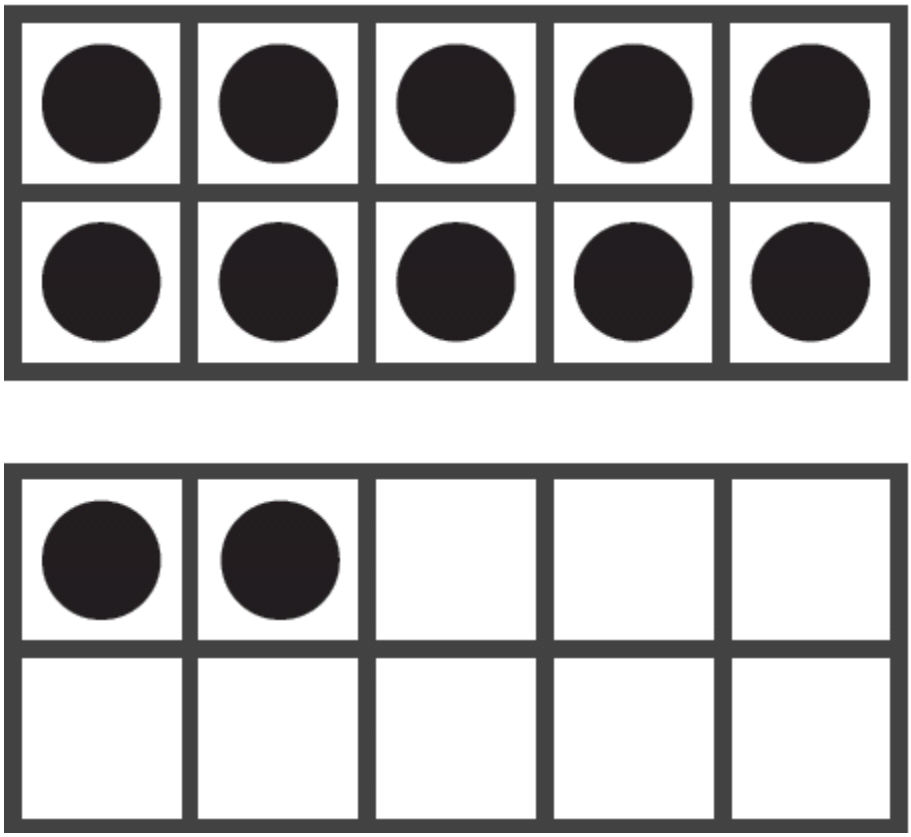
eleven



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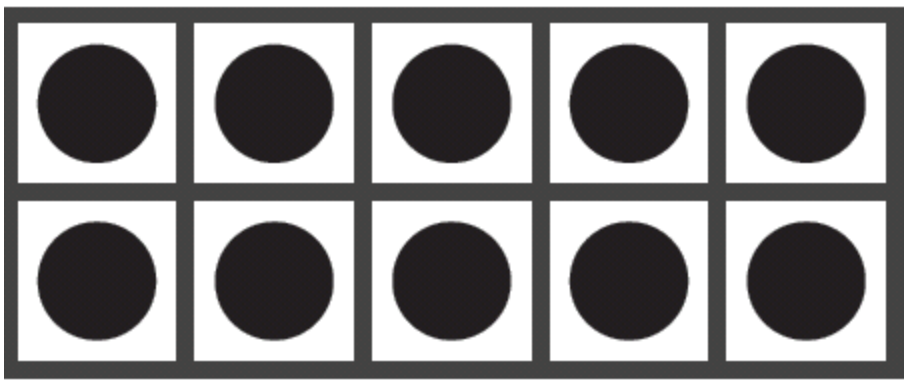

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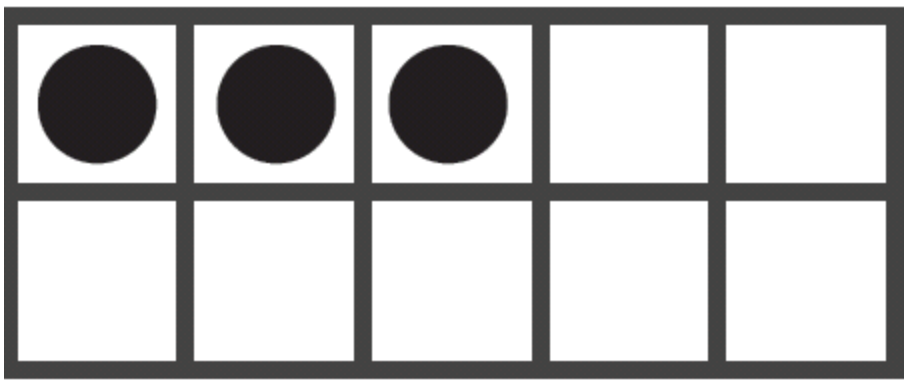

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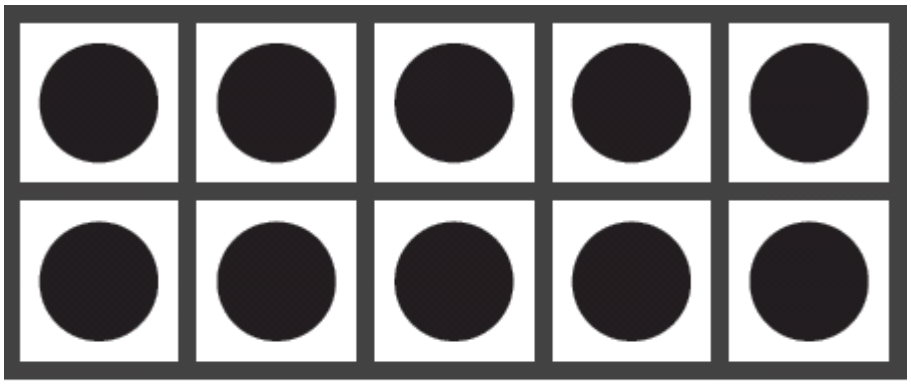
thirteen



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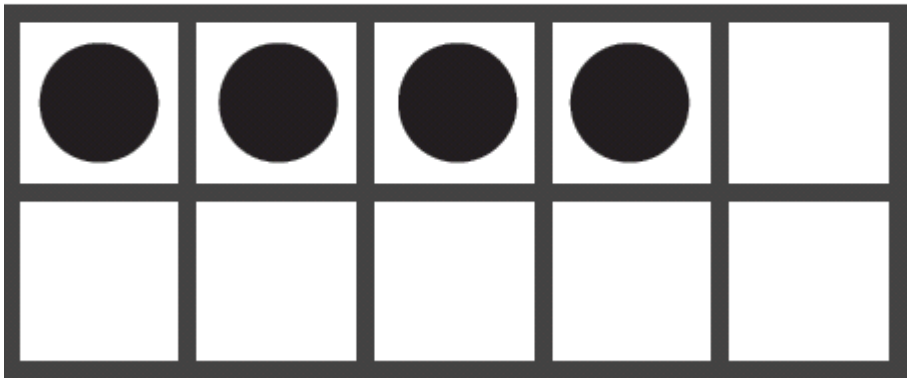

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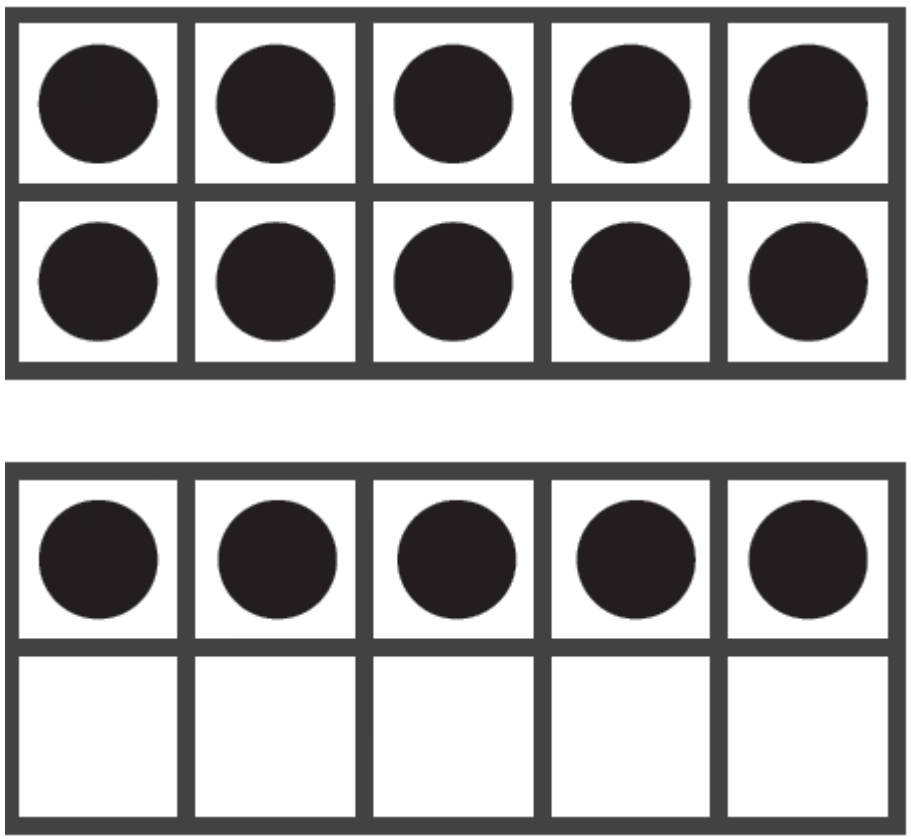

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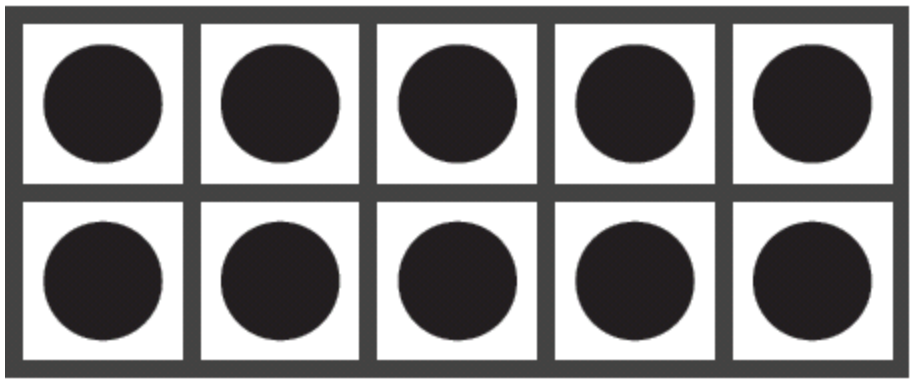

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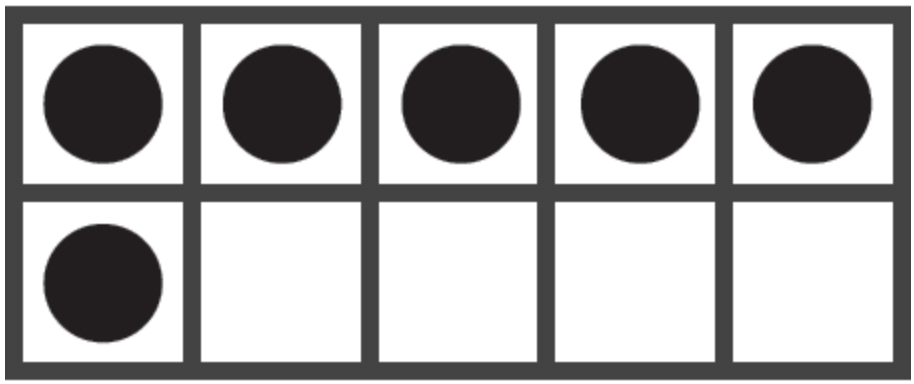

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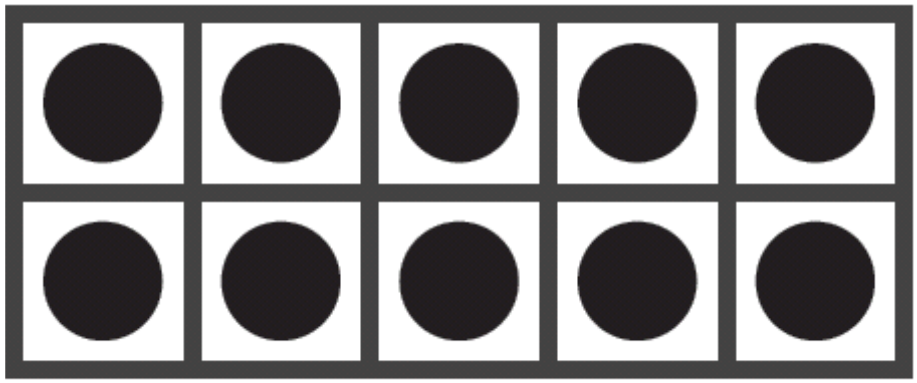

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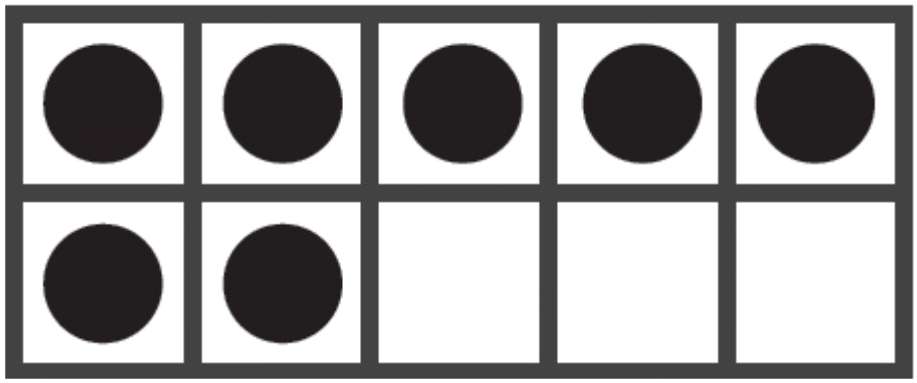

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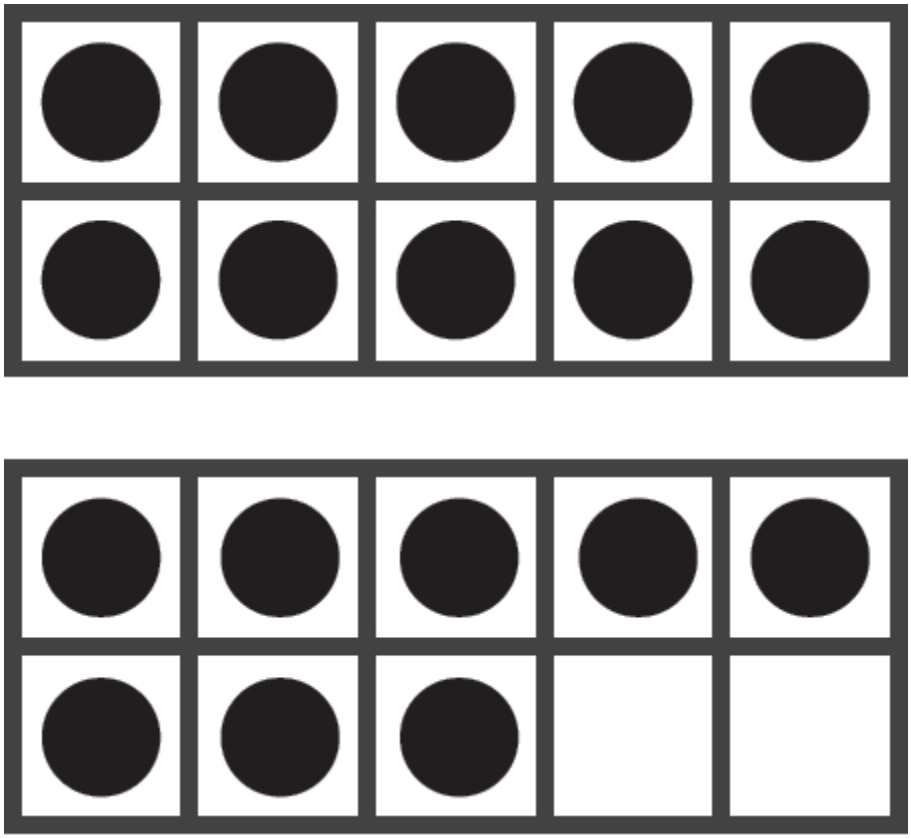

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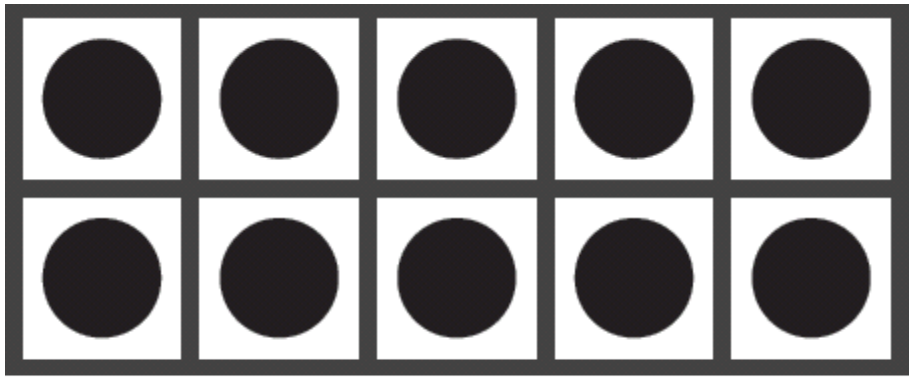

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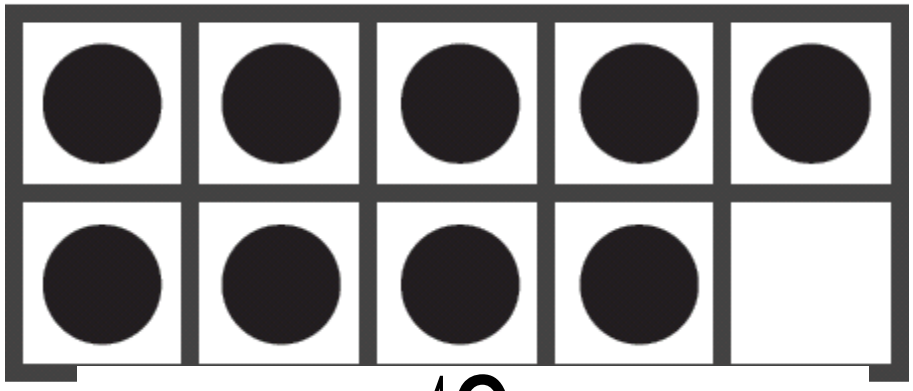

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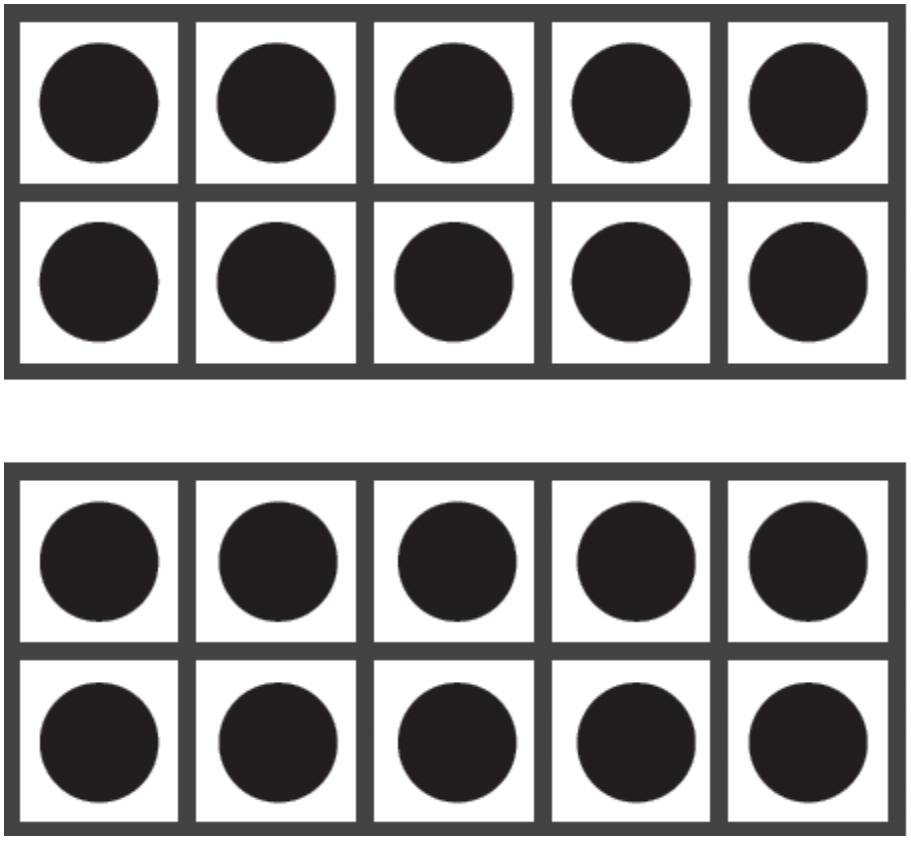

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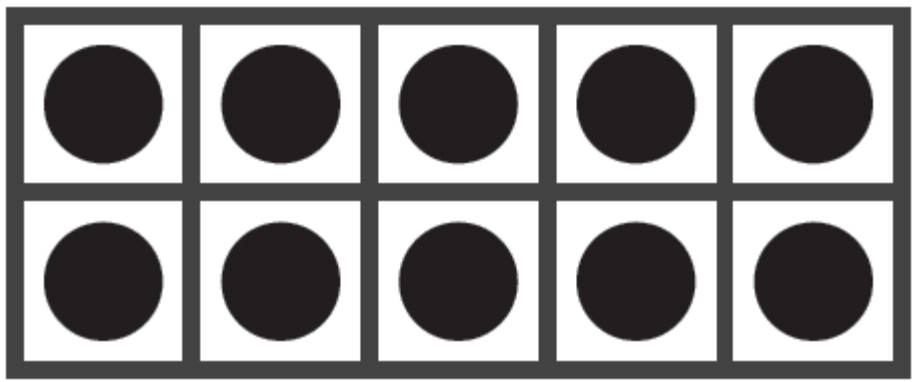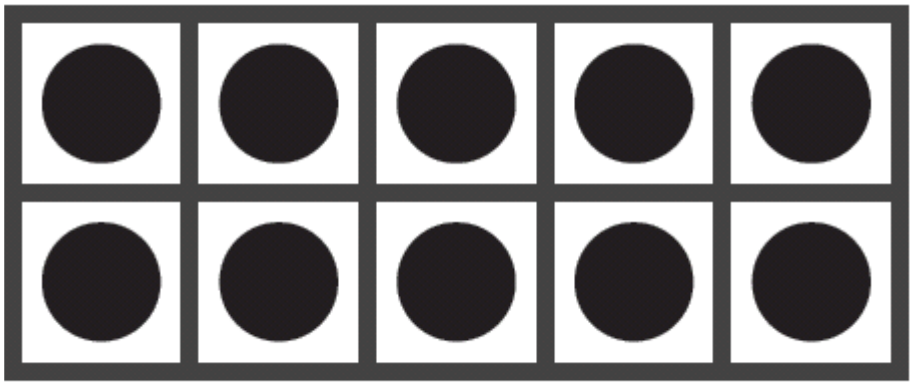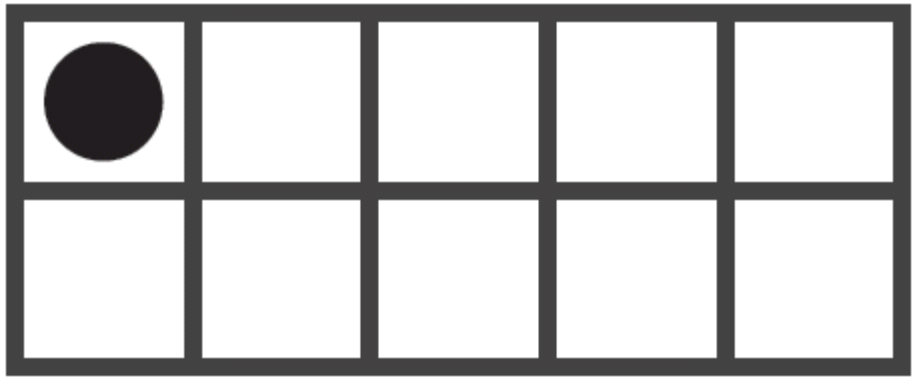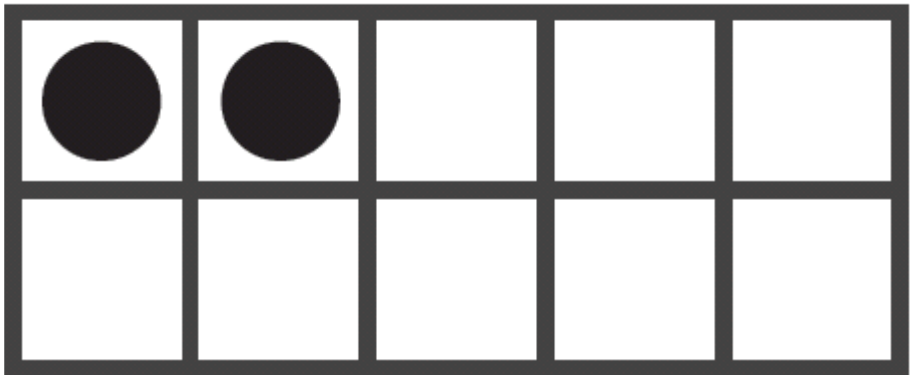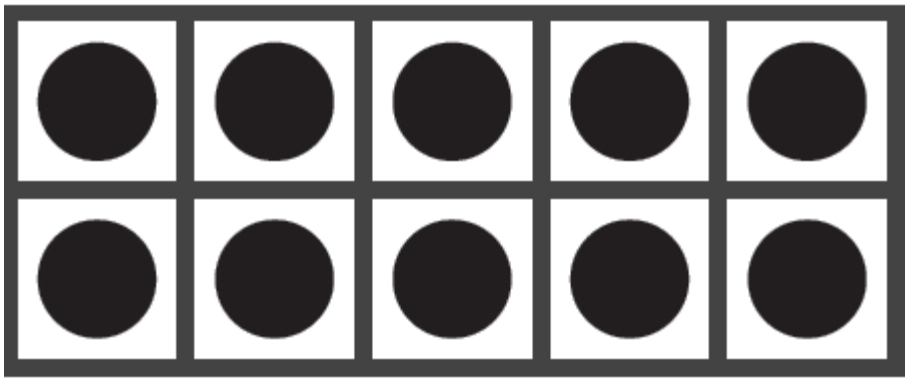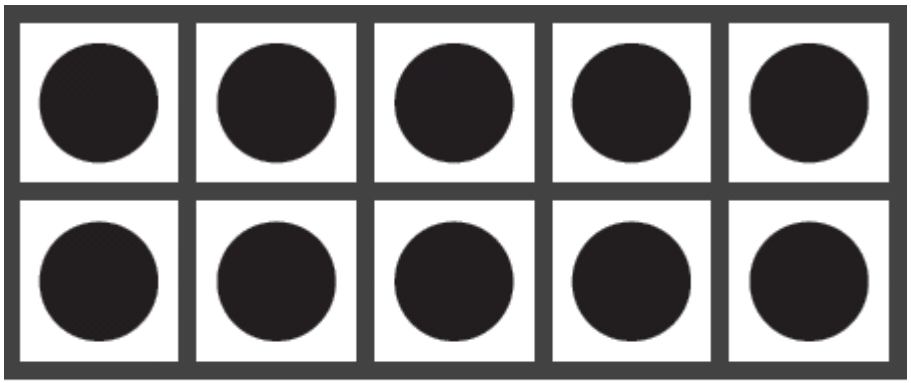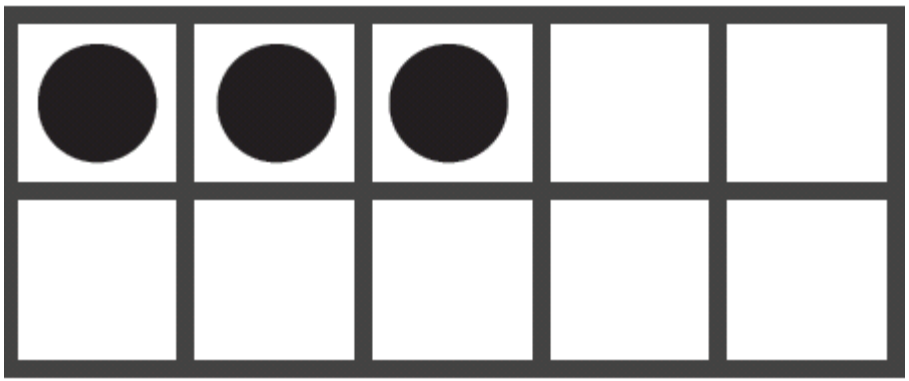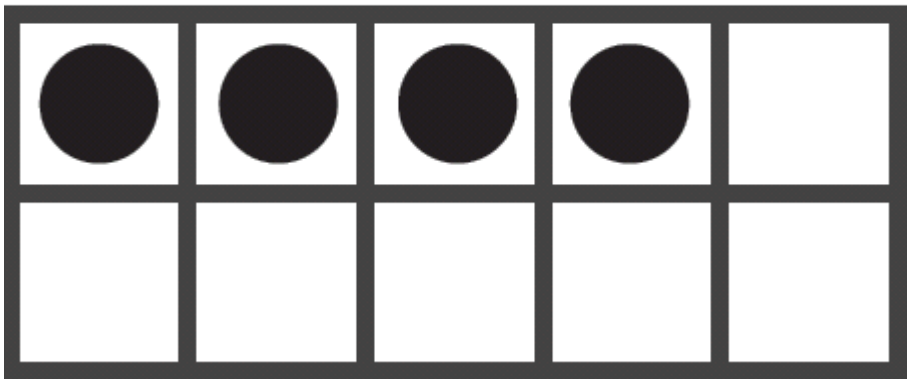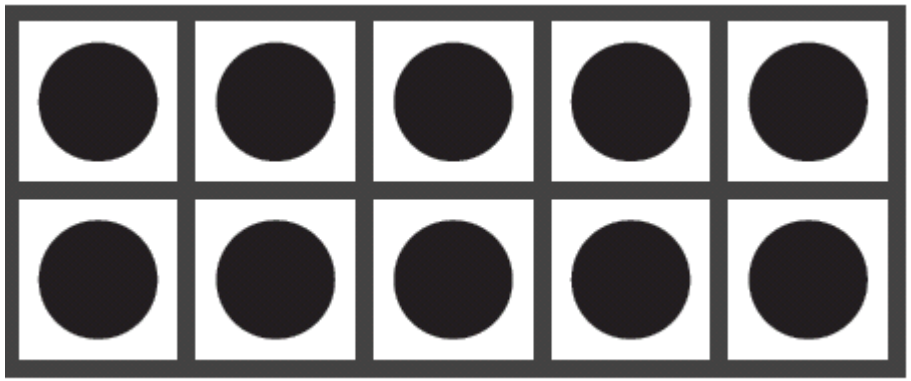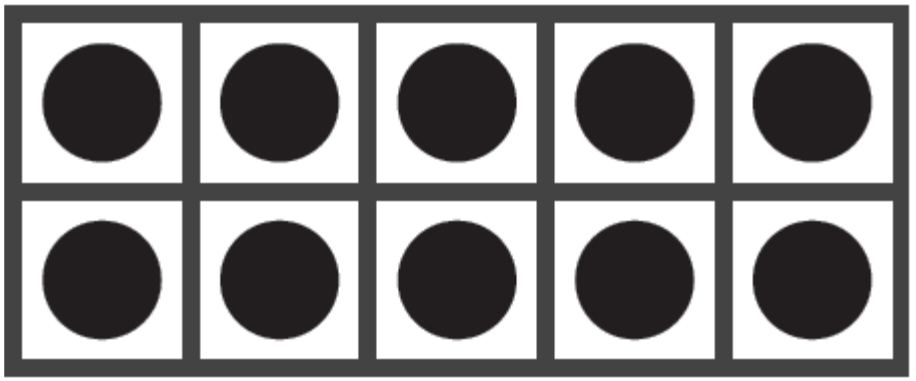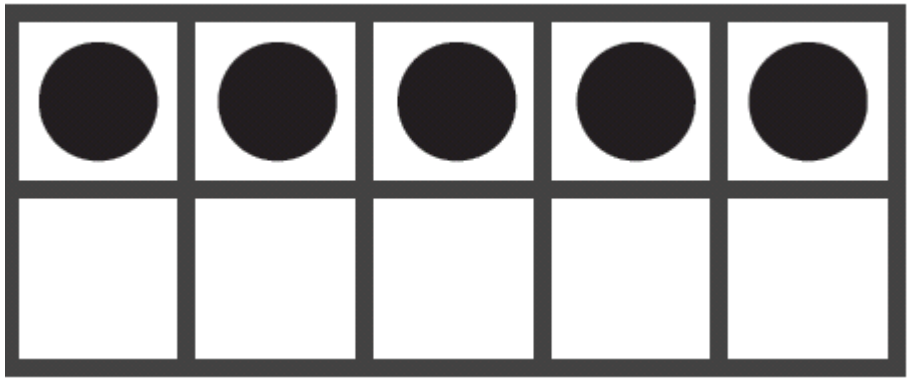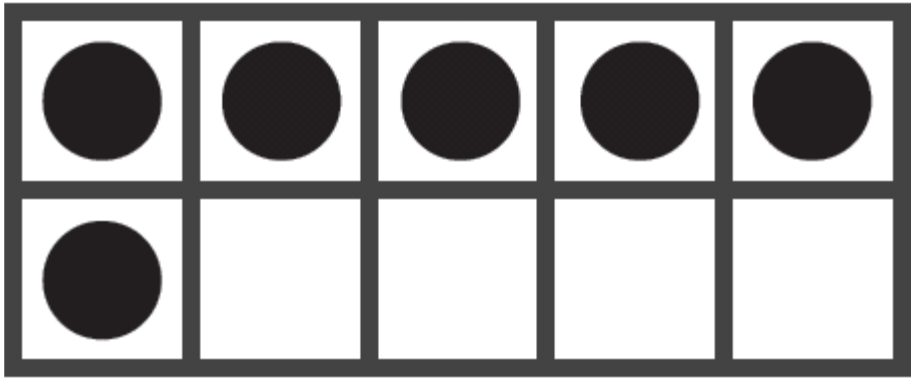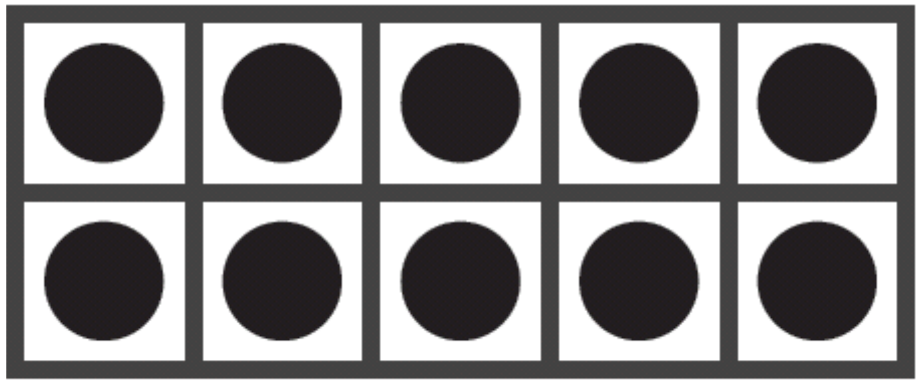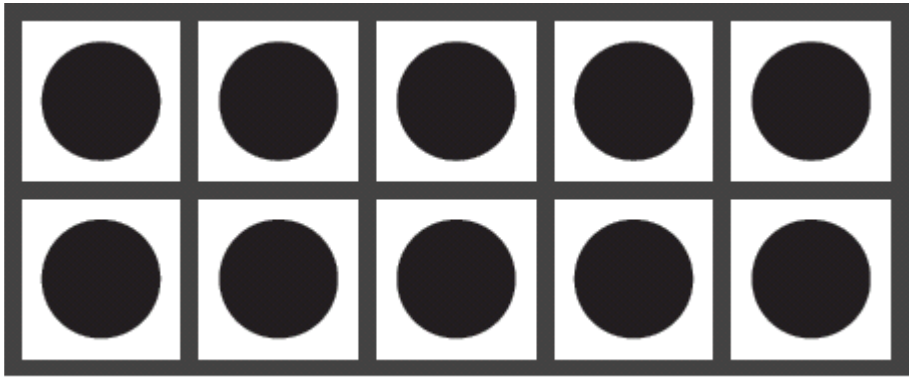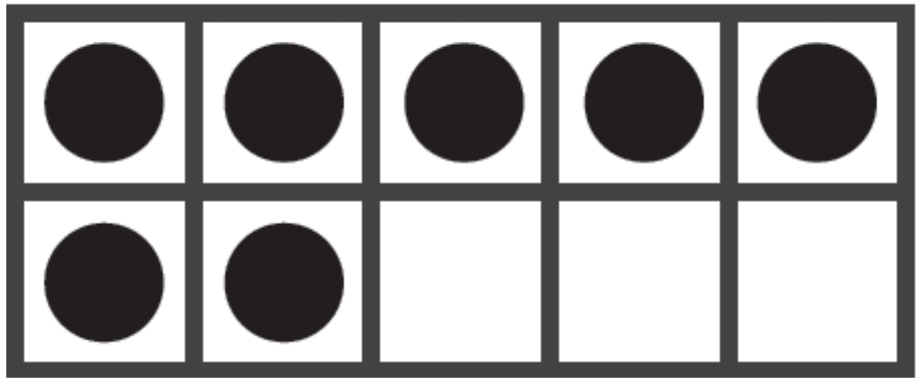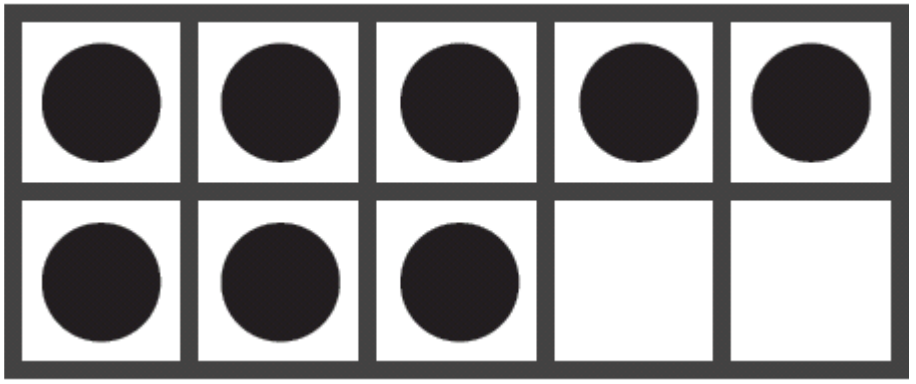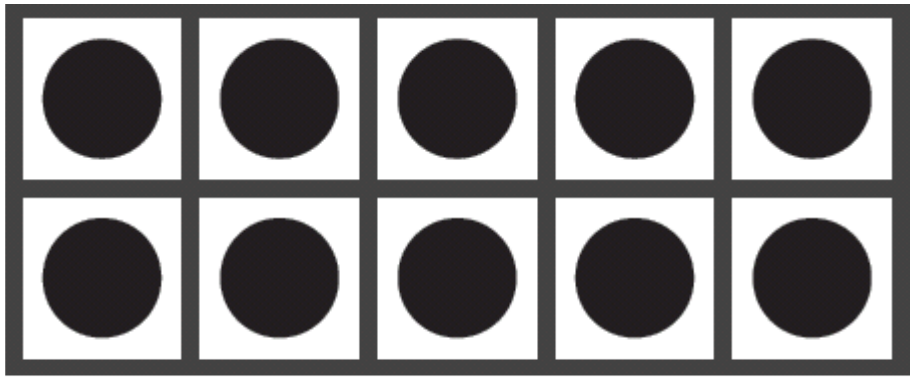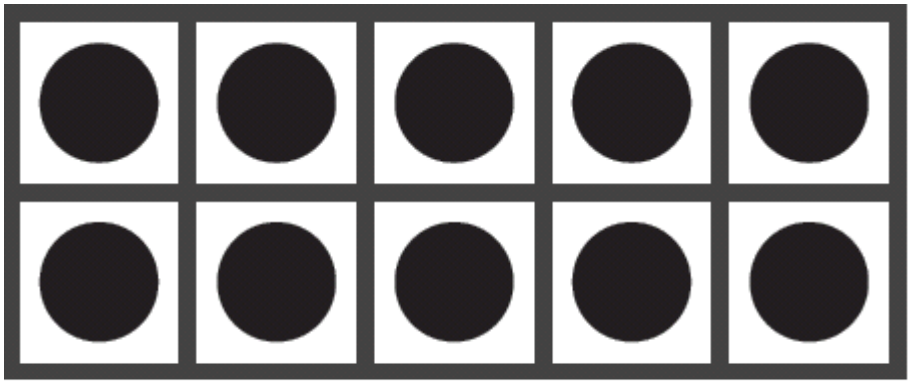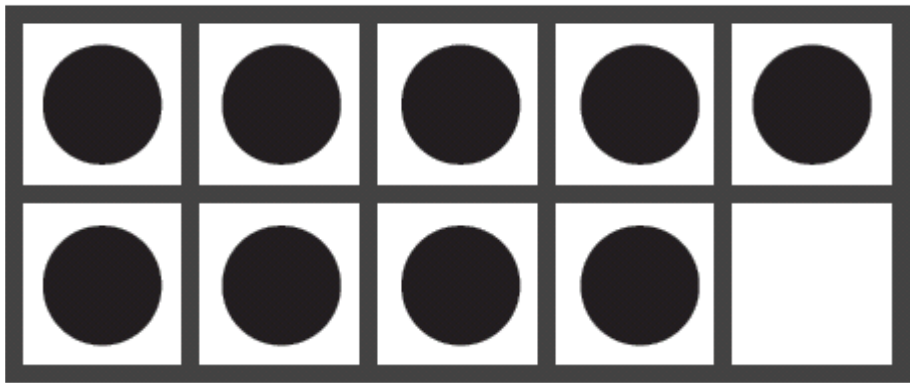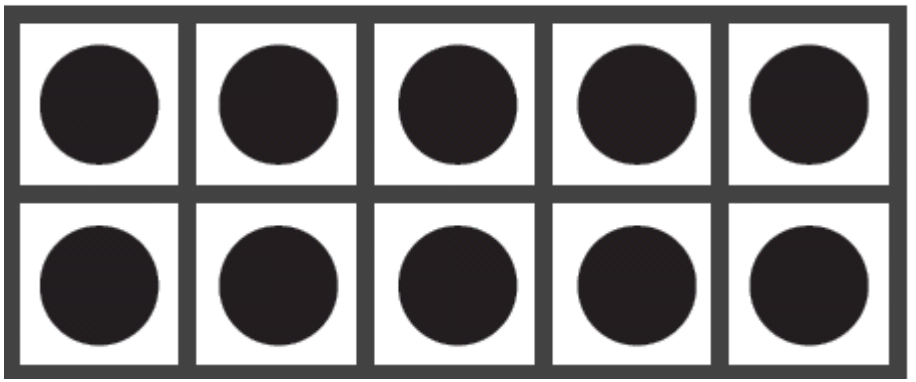
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