Kindergarten Number Talks

Based on *Number Talks* by Sherry Parrish, Math Solutions 2010

Number Talks is a ten-minute classroom routine included in this year's Scope and Sequence. Kindergarten through fifth grade teachers will facilitate Number Talks with all students three days a week.

Number Talks are designed to support proficiency with grade level fluency standards. The goal of Number Talks is for students to compute accurately, efficiently, and flexibly. This includes fluency with single-digit combinations in addition, subtraction, multiplication and division as well as procedural fluency with two or multi digit numbers.

In addition to developing efficient computation strategies, Number Talks encourages students to make sense of mathematics, be able to communicate mathematically, and reason and prove solutions.

The key components of successful Number Talks:

- ***A safe and accepting classroom environment and mathematical community***

- ***Classroom discussions (PROTOCOL)***

    1. Teacher provides the problem.
    2. Teacher provides students opportunity to solve problem mentally.
    3. Students show a visual cue when they are ready with a solution. Students signal if they have solved it in more than one way too. (Quiet form of acknowledgement allows time for students to think, while the process continues to challenge those that are already have an answer)
    4. Teacher calls for answers. S/he collects all answers- correct and incorrect- and records answers.
    5. Students share strategies and justifications with peers.

- ***The teacher's role as a "facilitator, questioner, listener, and learner"***

- ***Use of mental math to increase efficiency and knowledge of number relationships***

- ***Purposeful computation problems that support mathematical goals in number and operations***

Number talks provide Kindergarten students with opportunities for counting, building fluency with small numbers, and developing the concepts of one-to-one correspondence and conservation of number.

Using dot images and five- and ten- frames provide context for reasoning with numbers. When working with students with these tools, recording number sentences to match students thinking is often helpful. This will help create a bridge from the visual model to the numerical model. For example, after showing the student a dot image and asking "How many dots do you see?", you can connect the child's thinking to a number sentence by circling the dot arrangement the child describes and writing a correlating number sentence.

The variety of visual and spatial arrangements of the images is important. The variety of layouts can open student thinking to multiple strategies. Arranging dots that link to previous images can foster connections for students.

Equally important is using the opportunity to build a quick recognition of the groupings of dots or images. When shown briefly for only two to three seconds, dot images encourage students to see numbers in groups (unitizing). Limiting the students viewing time of the image encourages students to look at the dots in groupings instead of counting them one by one.

You can show the images to students in many ways: for example, as individual large cards, as Velcro or magnetic dots placed on a plate or card for dot images or on a five or ten frame, or projecting them onto a screen.

You may adjust the numbers according to your students' needs and responses.

1. **Fluency Number Talks Using Dot Images**

Dot images are a key tool to help students build a visual link to composing and decomposing small numbers. Incorporating dot images into classroom number talks provides opportunities for students to work on counting, seeing numbers in variety of ways, subitizing, and learning number combinations.

The following dot image number talks are each designed to be used in a single session, in any order. Dot images number talks consist of three to five problems, each sequentially labeled A, B, C, and so on.

This sequence of problems within a given number talk allows students to apply the strategies from previous problems to subsequent problems or provides opportunities for students to reason with the same quantity from multiple perspectives. This provides an opportunity to informally assess whether the students unitizing a specific amount and conserving number.

As each problem is shown, ask students, "How many dots do you see? How do you see them?"

Number Talks: Kindergarten

Dot Images with the Number 3

As each number talk is shown, ask students, "How many dots do you see? How do you see them?"

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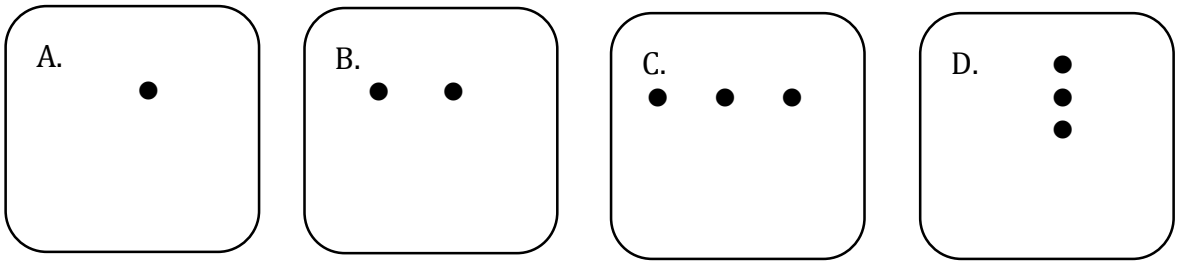

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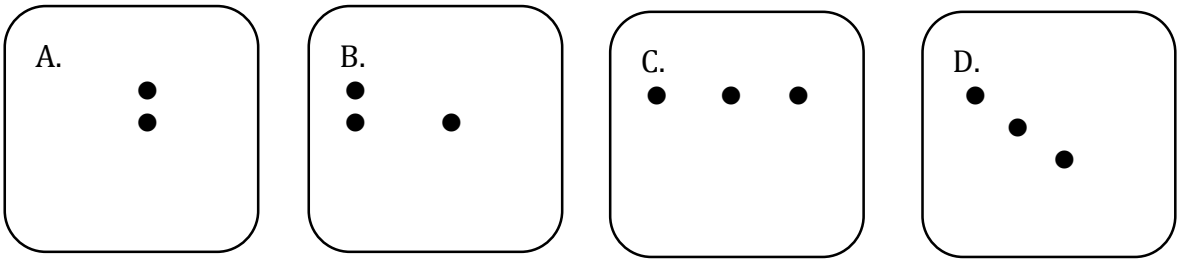

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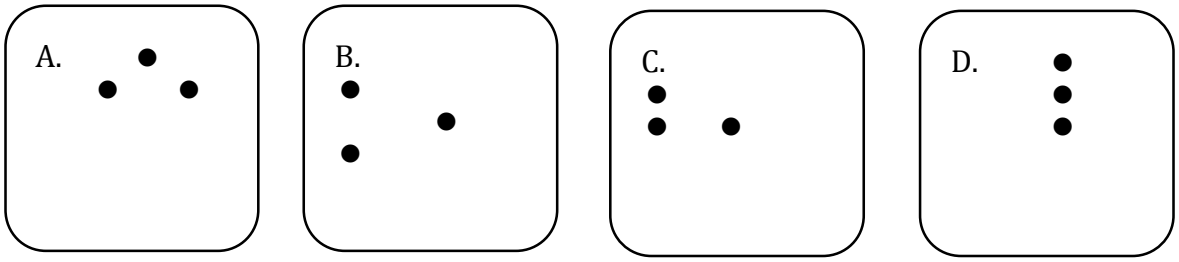

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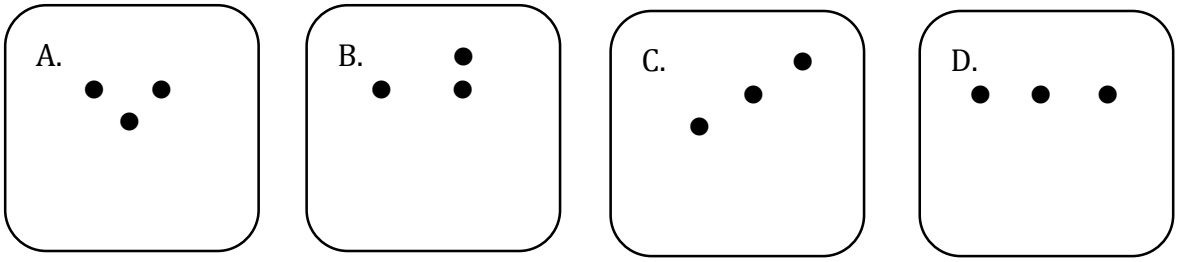

Number Talks: Kindergarten

Dot Images with the Number 4

As each number talk is shown, ask students, "How many dots do you see? How do you see them?"

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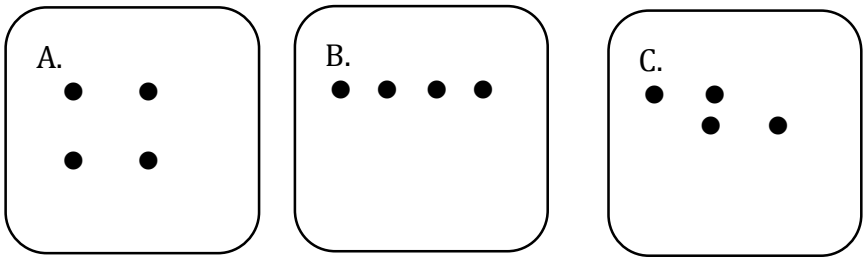

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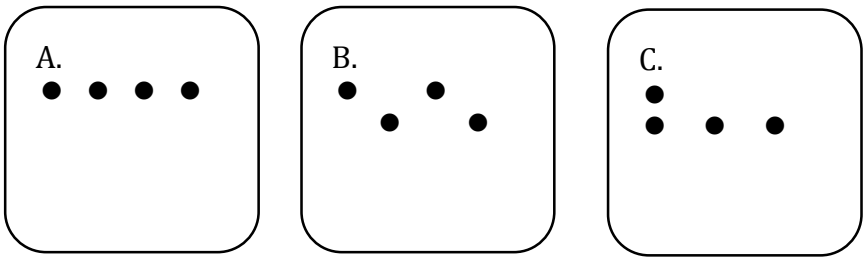

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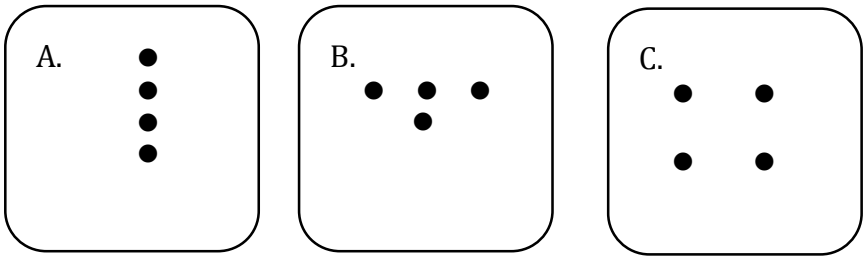

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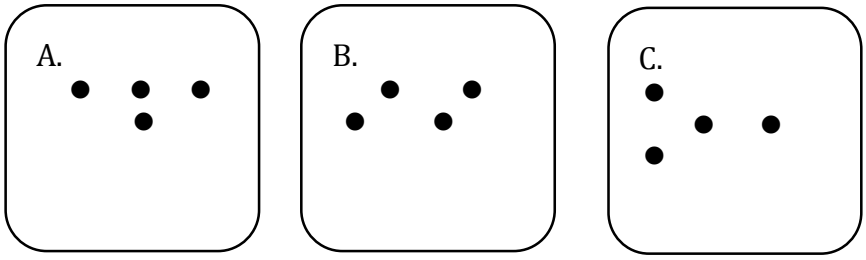

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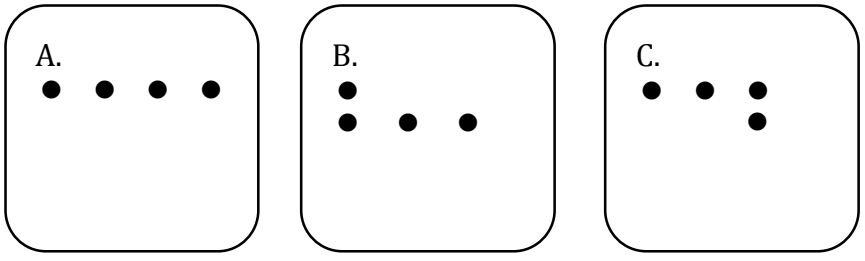

Number Talks: Kindergarten

Dot Images with the Number 5

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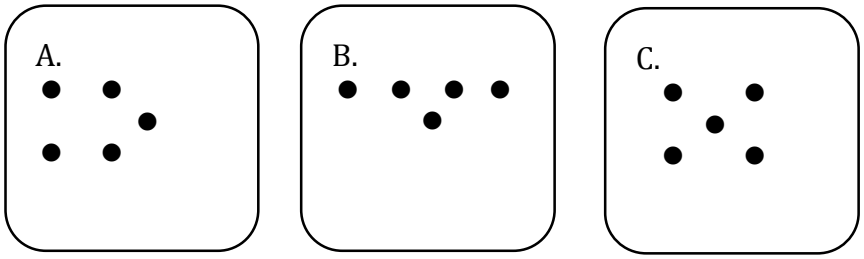

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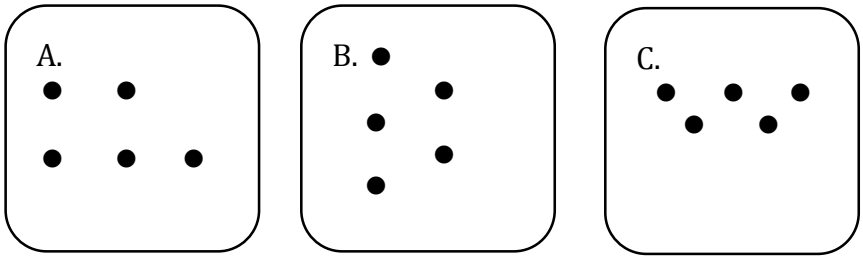

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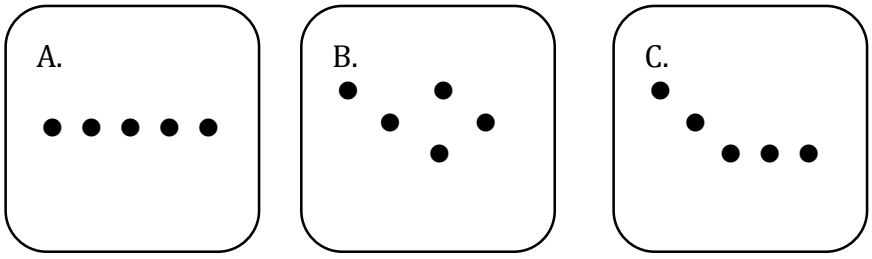

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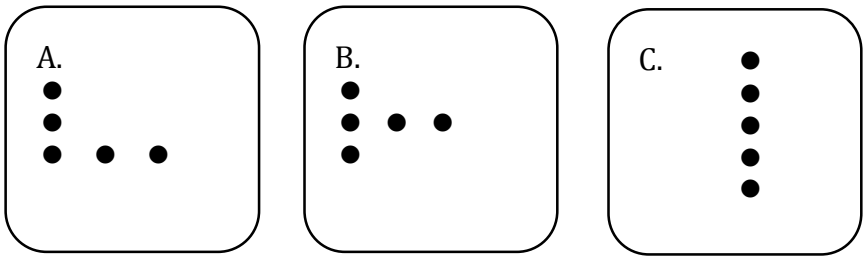

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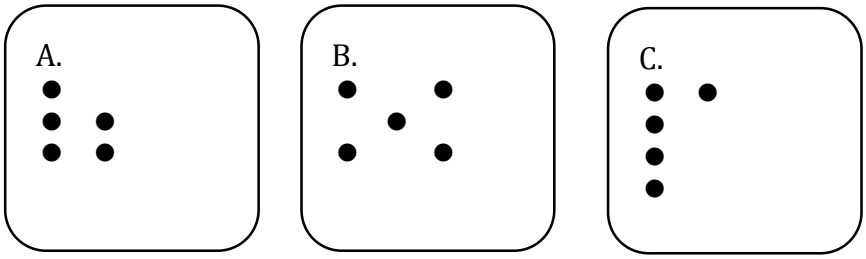

Dot Images with the Number 6

As each number talk is shown, ask students, "How many dots do you see? How do you see them?"

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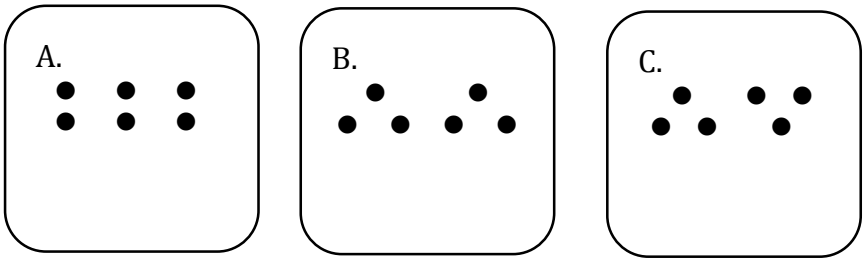

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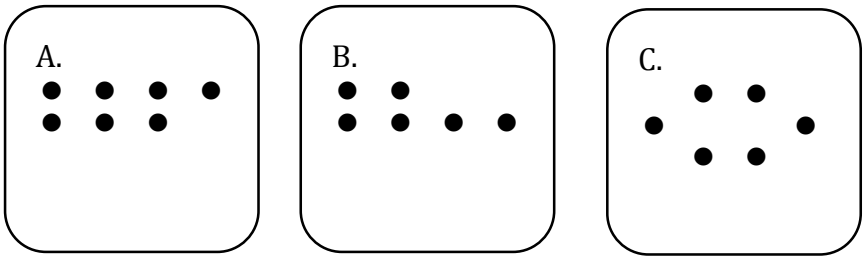

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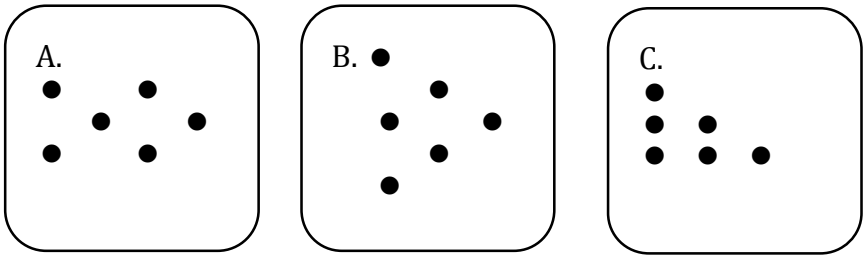

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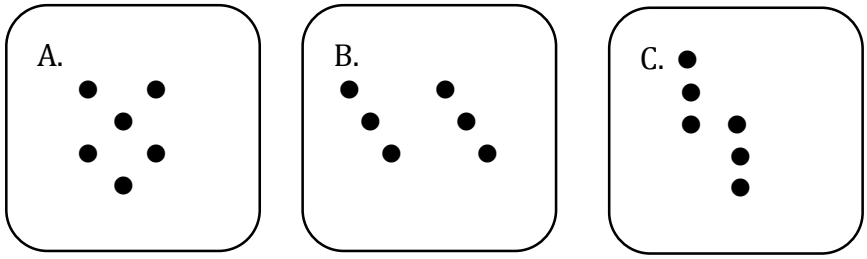

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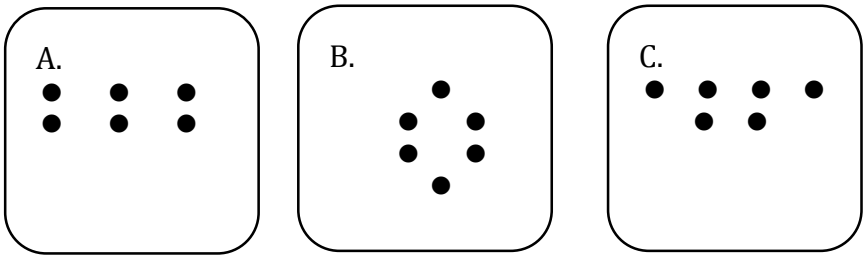

Number Talks: Kindergarten

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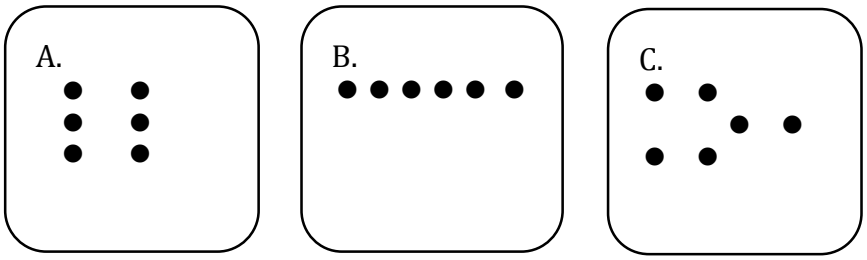

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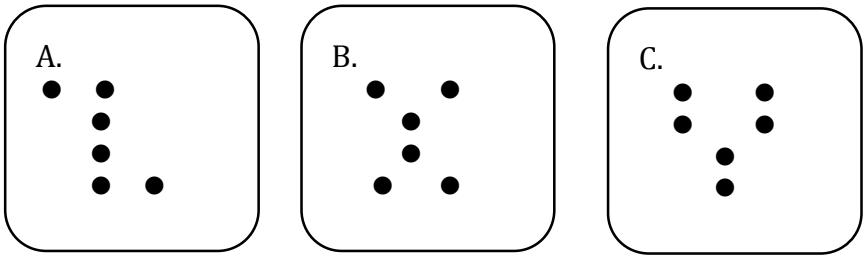

Dot Images with the Number 7

As each number talk is shown, ask students, "How many dots do you see? How do you see them?"

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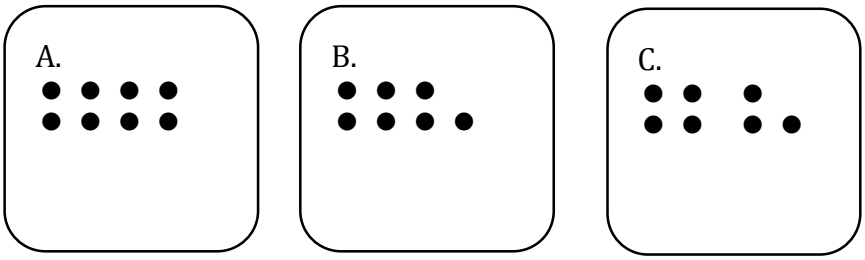

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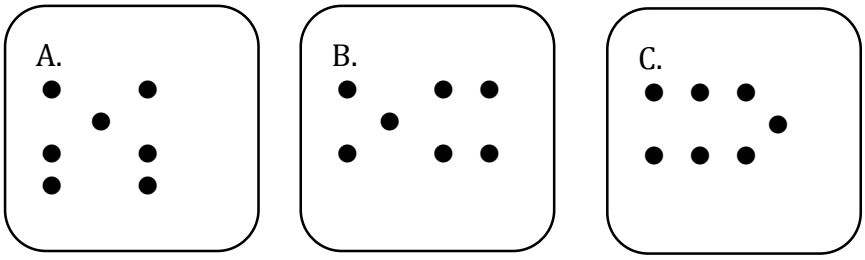

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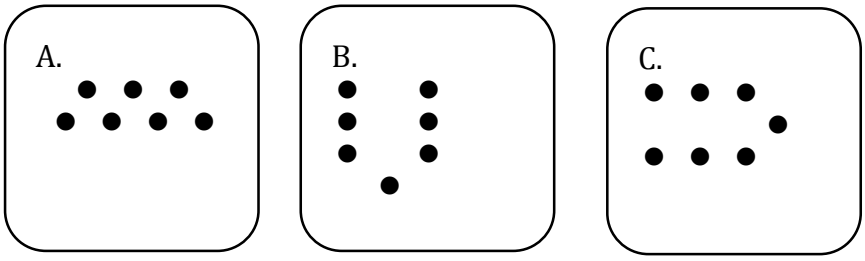

Number Talks: Kindergarten

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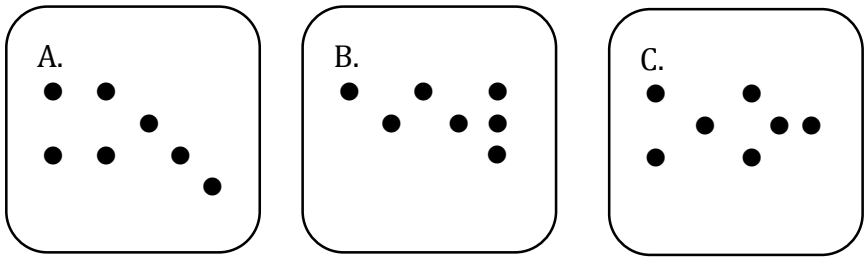

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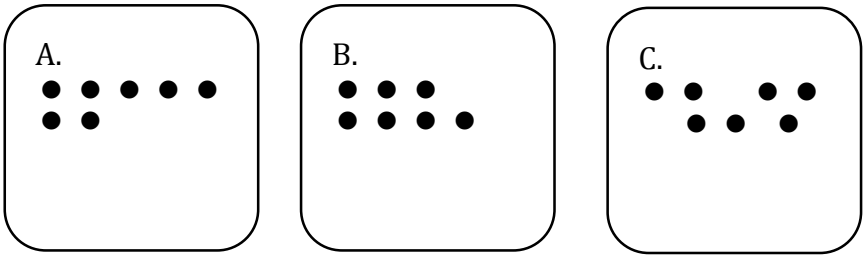

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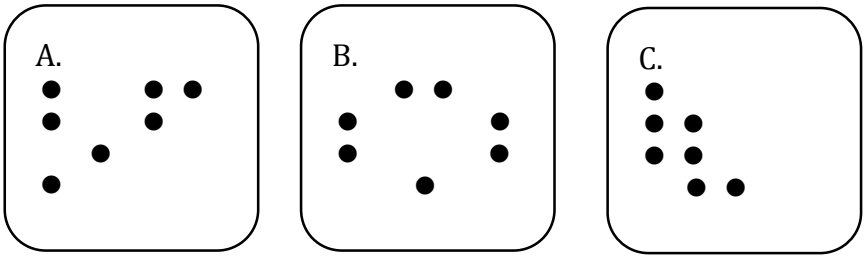

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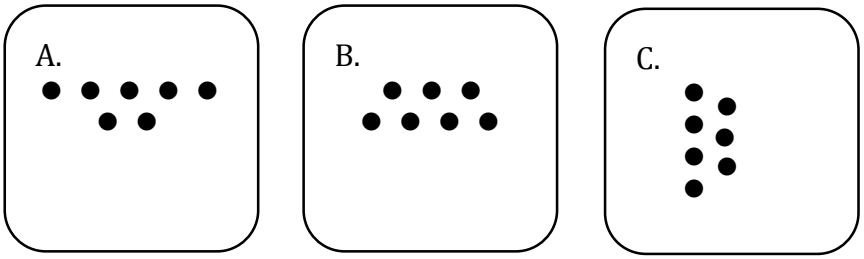

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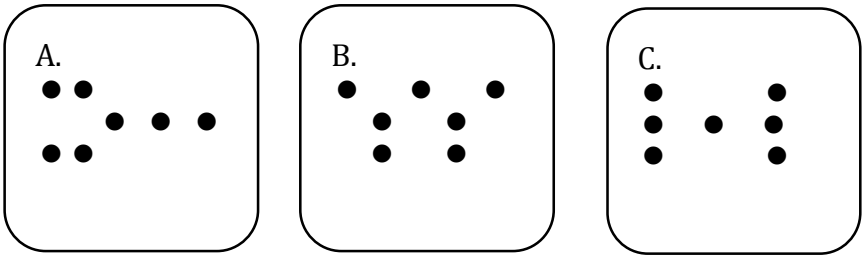

Number Talks: Kindergarten

Dot Images with the Number 8

As each number talk is shown, ask students,
"How many dots do you see? How do you see them?"

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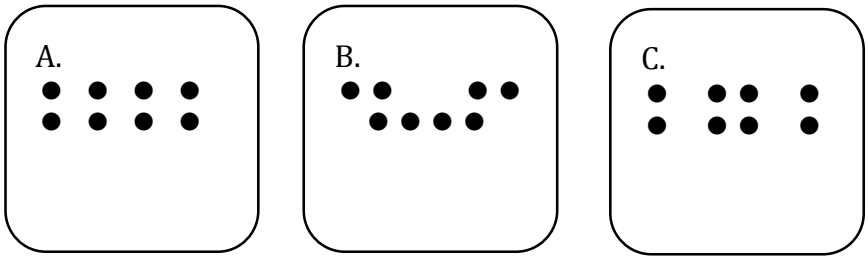

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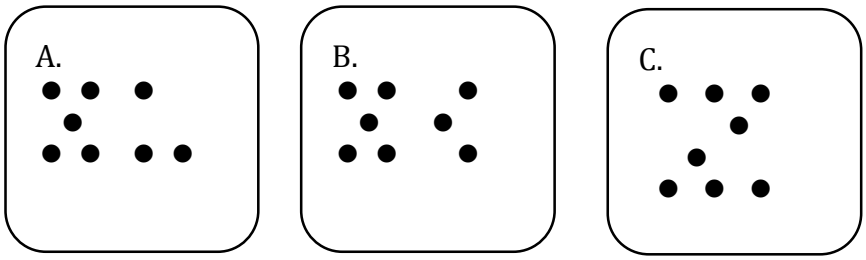

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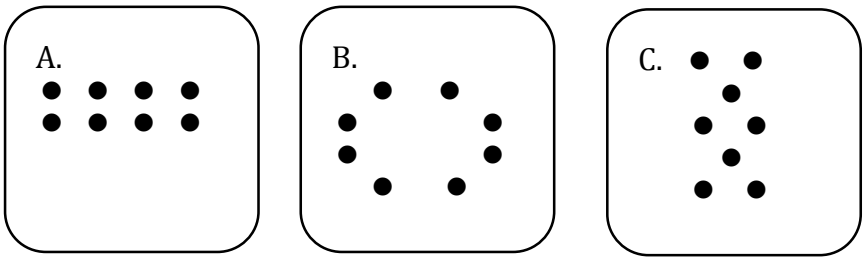

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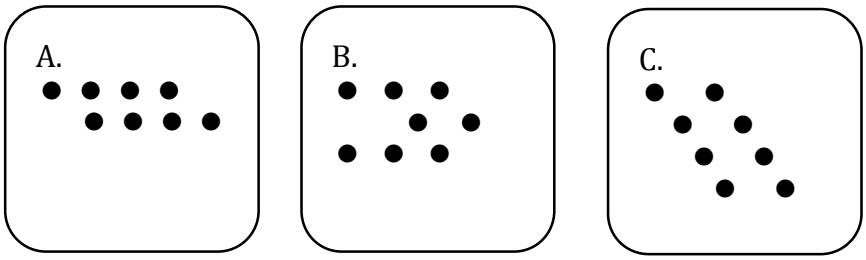

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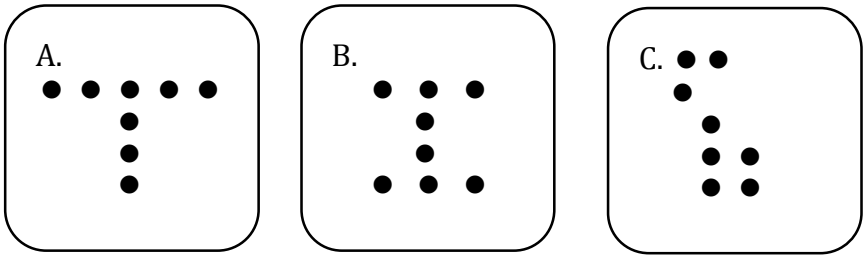

Number Talks: Kindergarten

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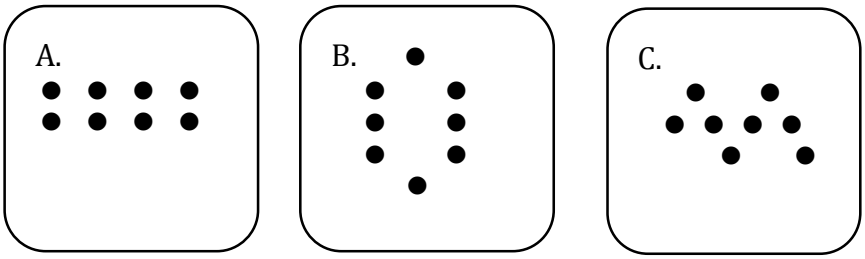

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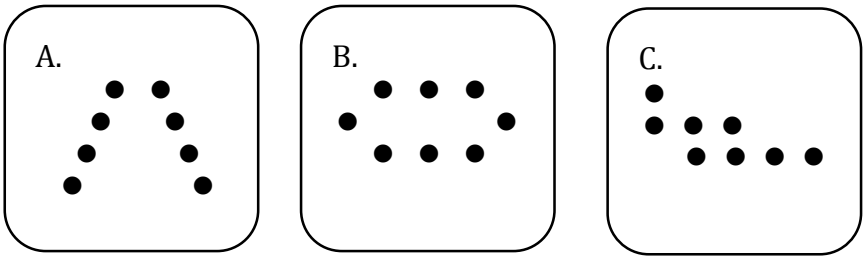

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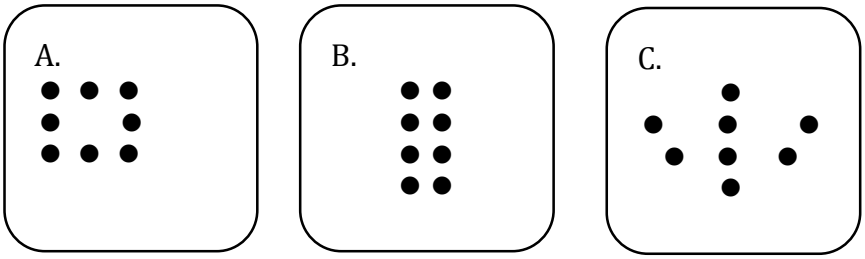

Dot Images with the Number 9

As each number talk is shown, ask students, "How many dots do you see? How do you see them?"

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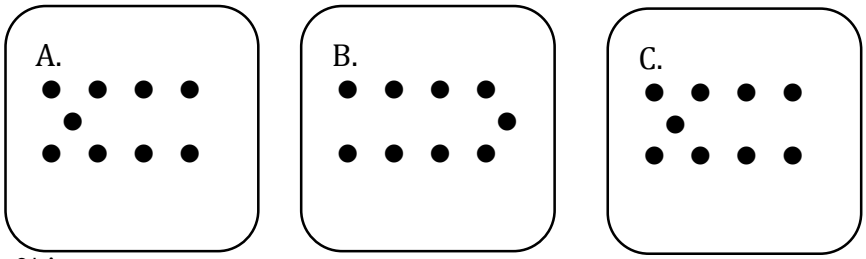

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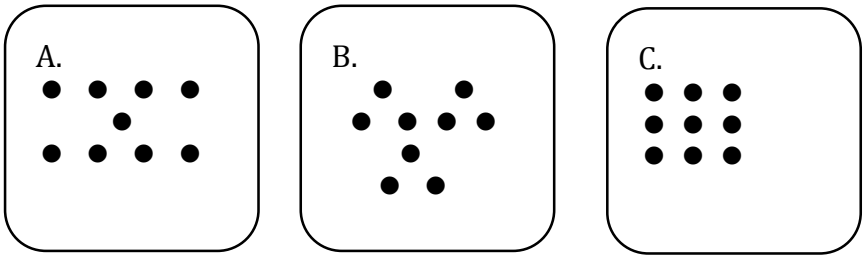

Number Talks: Kindergarten

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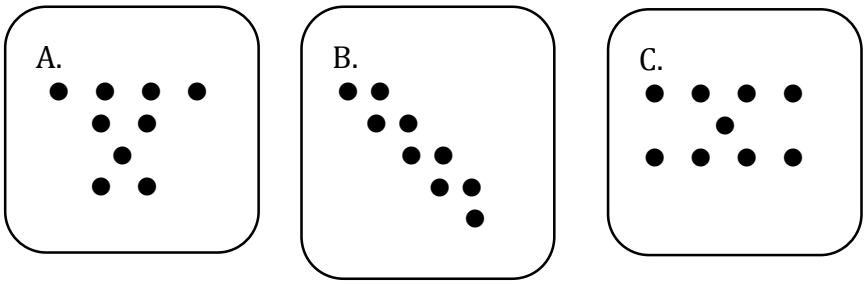

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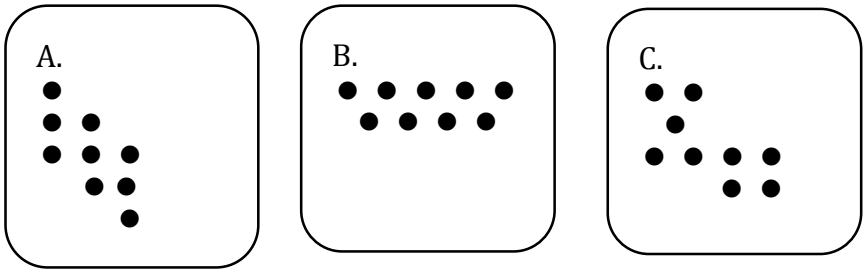

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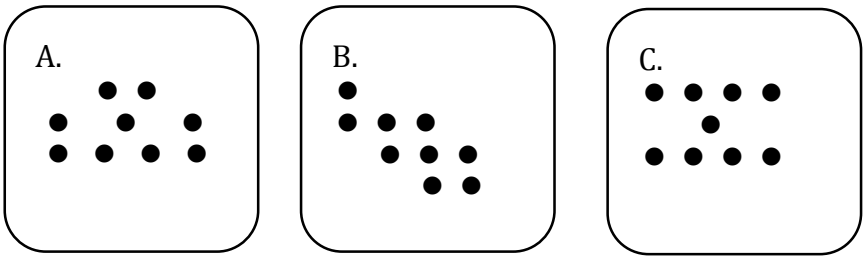

Dot Images with the Number 10

As each number talk is shown, ask students, "How many dots do you see? How do you see them?"

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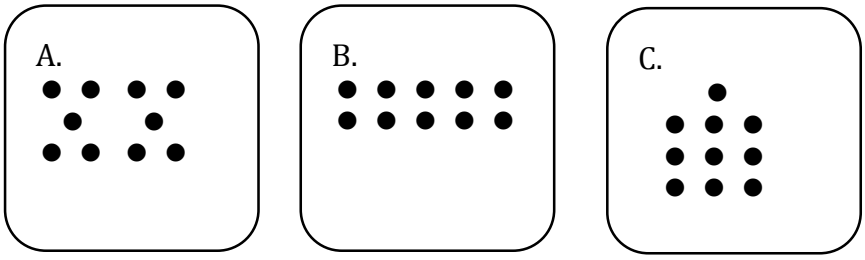

Number Talks: Kindergarten

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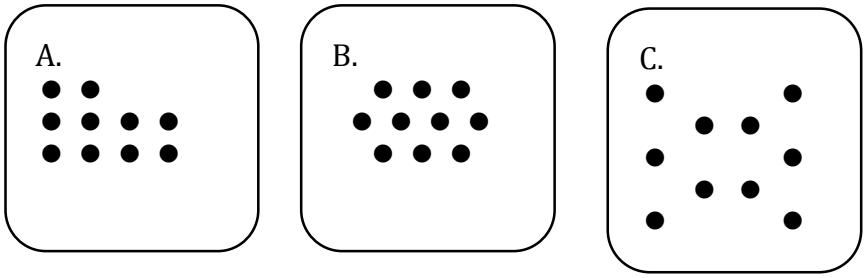

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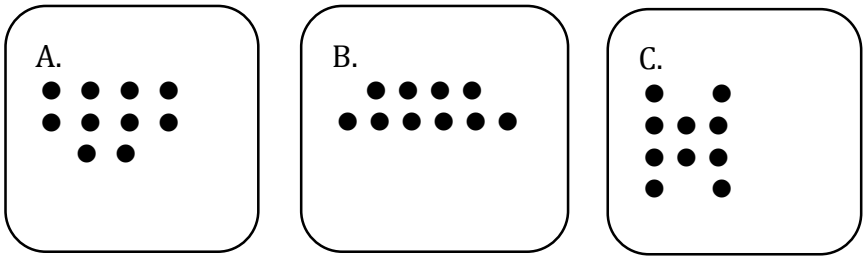

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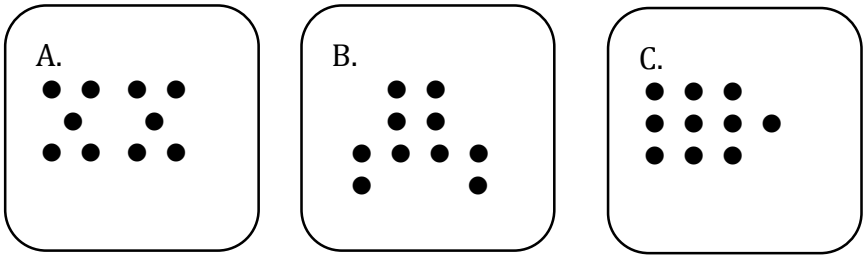

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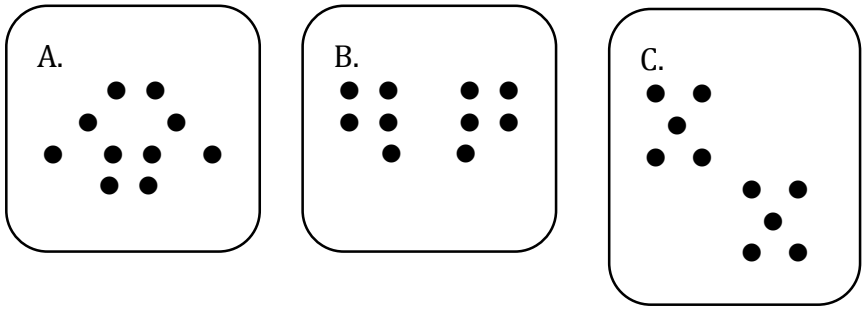


2. **Fluency Number Talks Using Five- and Ten-Frames**

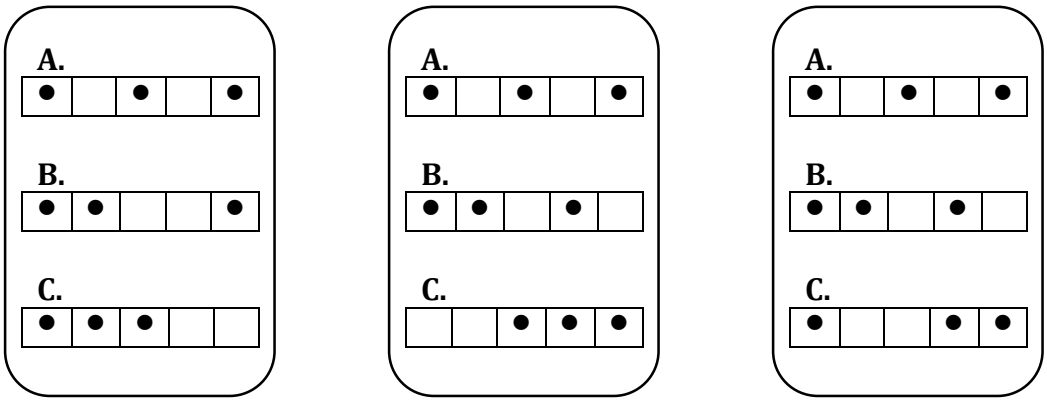
Five- and ten frames can be used as a single row of five (five frame), two rows of five (ten-frame), or as two ten frames together to provide the opportunity to work with numbers to twenty.

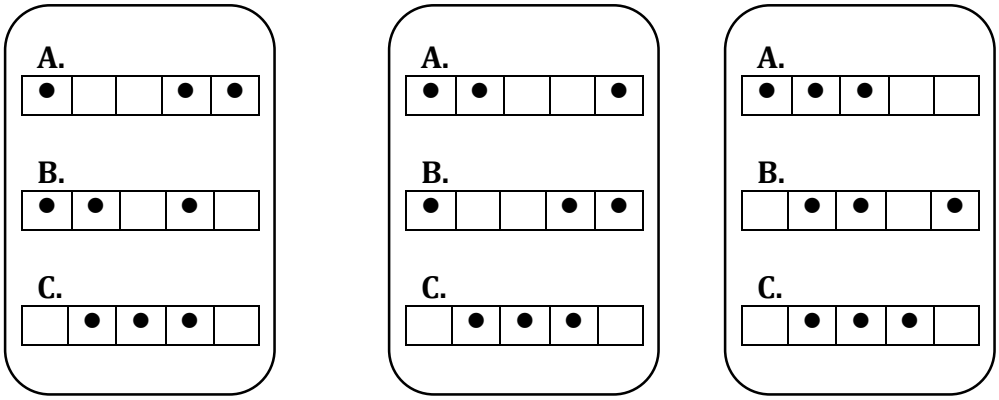
Ten frames can be used to foster fluency, subitize, work with place value, and compute with addition and subtraction. Frames are also arranged to capitalize on subitizing to five as half of ten.

Varying the questions posed to students can change the purpose and focus of each ten-frame. Questions such as, "How many did you see?" and "How do you see seven?" help students to build fluency with targeted numbers. Asking, "How many more do we need to make ten?" and "How many are left after we remove three?" shifts the focus to computations.

The following five- and ten-frame number talks are each designed to be used in a single session, in any order. Five- and ten-frame number talks are each designed to be used in a single session, in any order. Five- and ten-frame number talks consist of three to five problems, each sequentially labeled as A, B, C and so on. The sequence of problems within a given number talk allows students to apply the strategies from previous problems to subsequent problems.
The focus for the numbers 3 to 9 is to ask students, "How many dots do you see? How do you see them?" With frames for the number 10, the question shifts to. "How many more to make ten?"

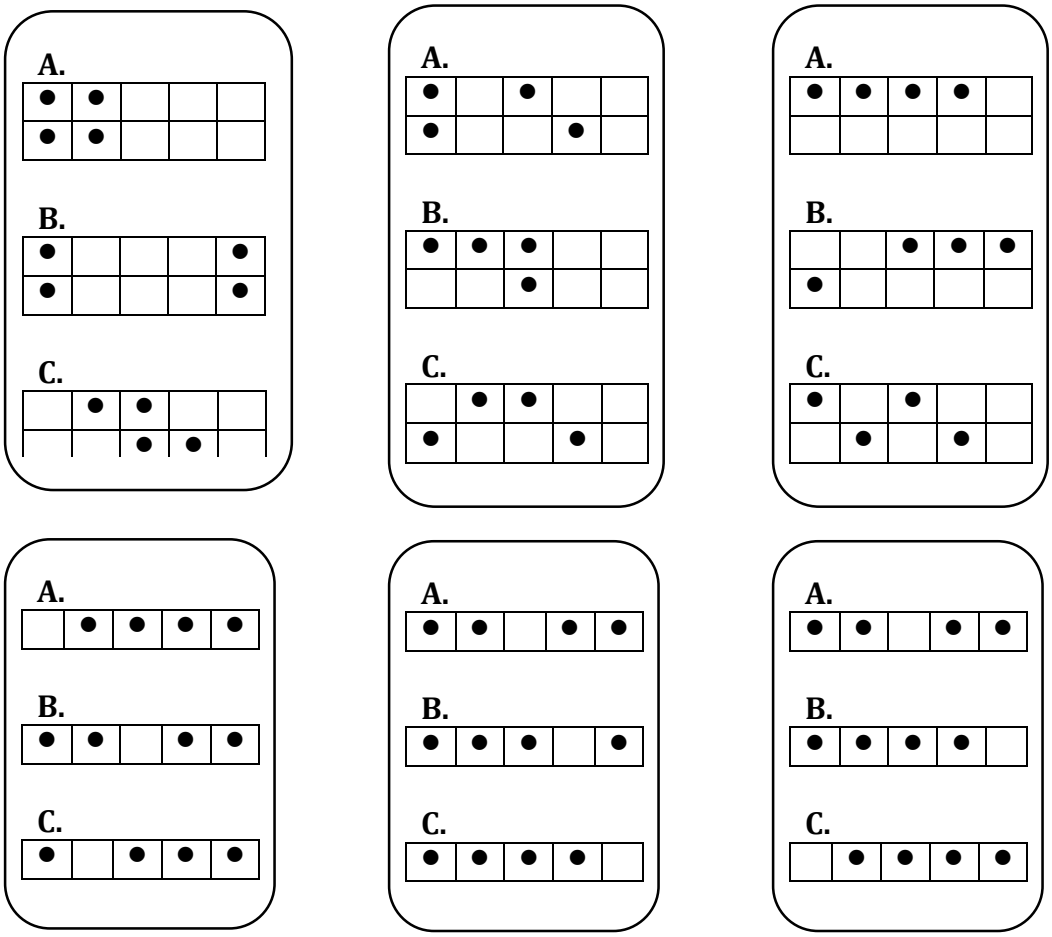
Five-Frames with the Number 3
As each number talk is shown, ask students, "How many dots do you see? How do you see them?"





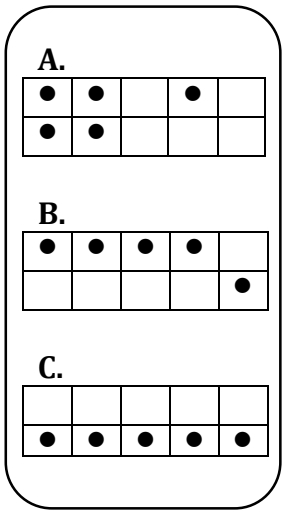
Five- and Ten-Frames with the Number 4

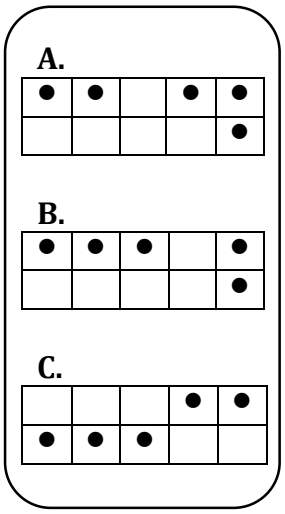
As each number talk is shown, ask students, "How many dots do you see? How do you see them?"

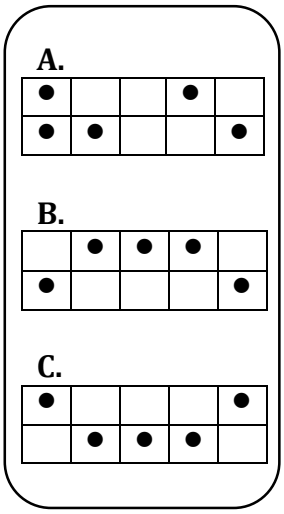


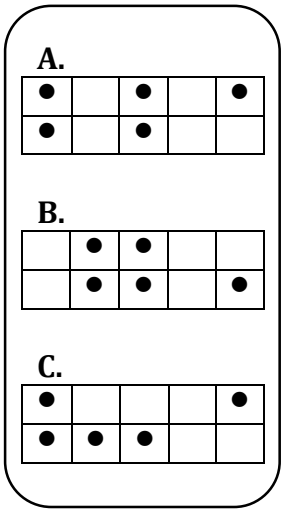
Ten-Frames with the Number 5

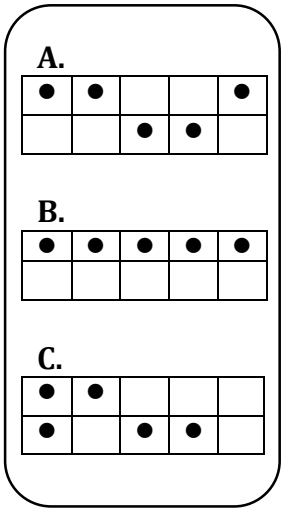
As each number talk is shown, ask students, "How many dots do you see? How do you see them?"

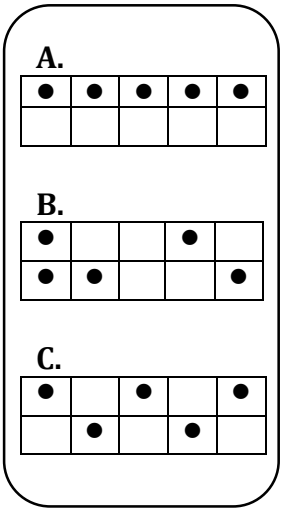






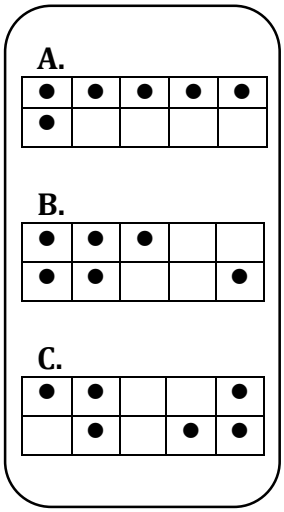


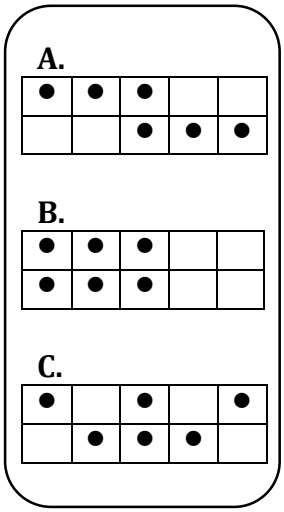


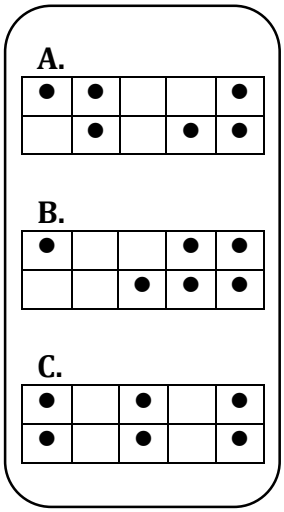


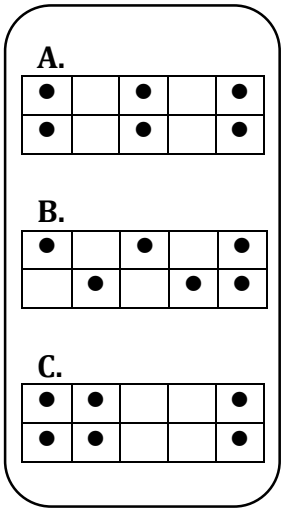
Ten-Frames with the Number 6

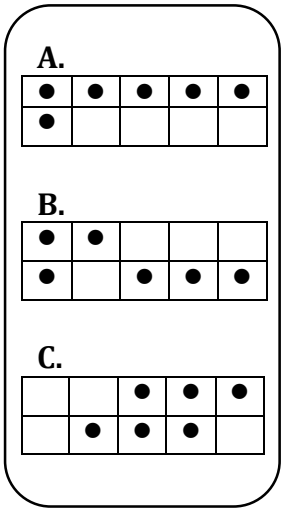
As each number talk is shown, ask students, "How many dots do you see? How do you see them?"



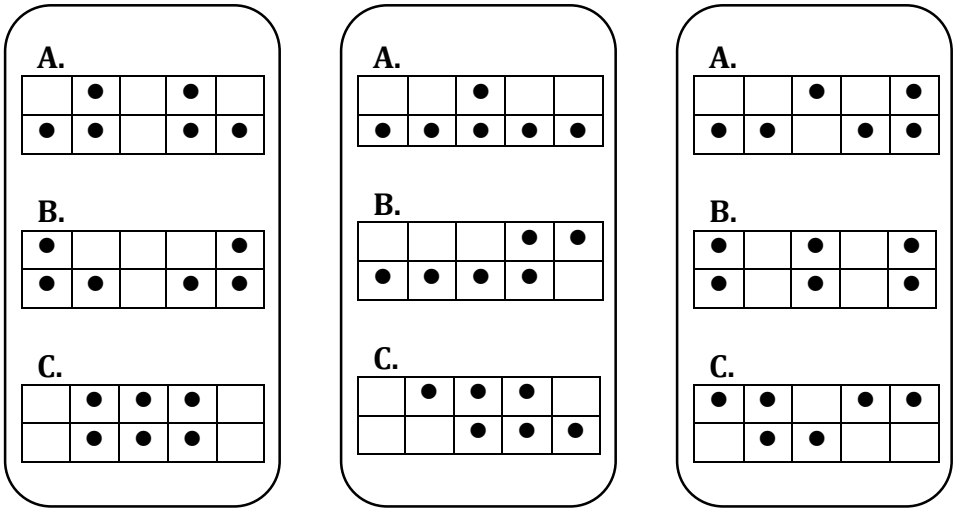






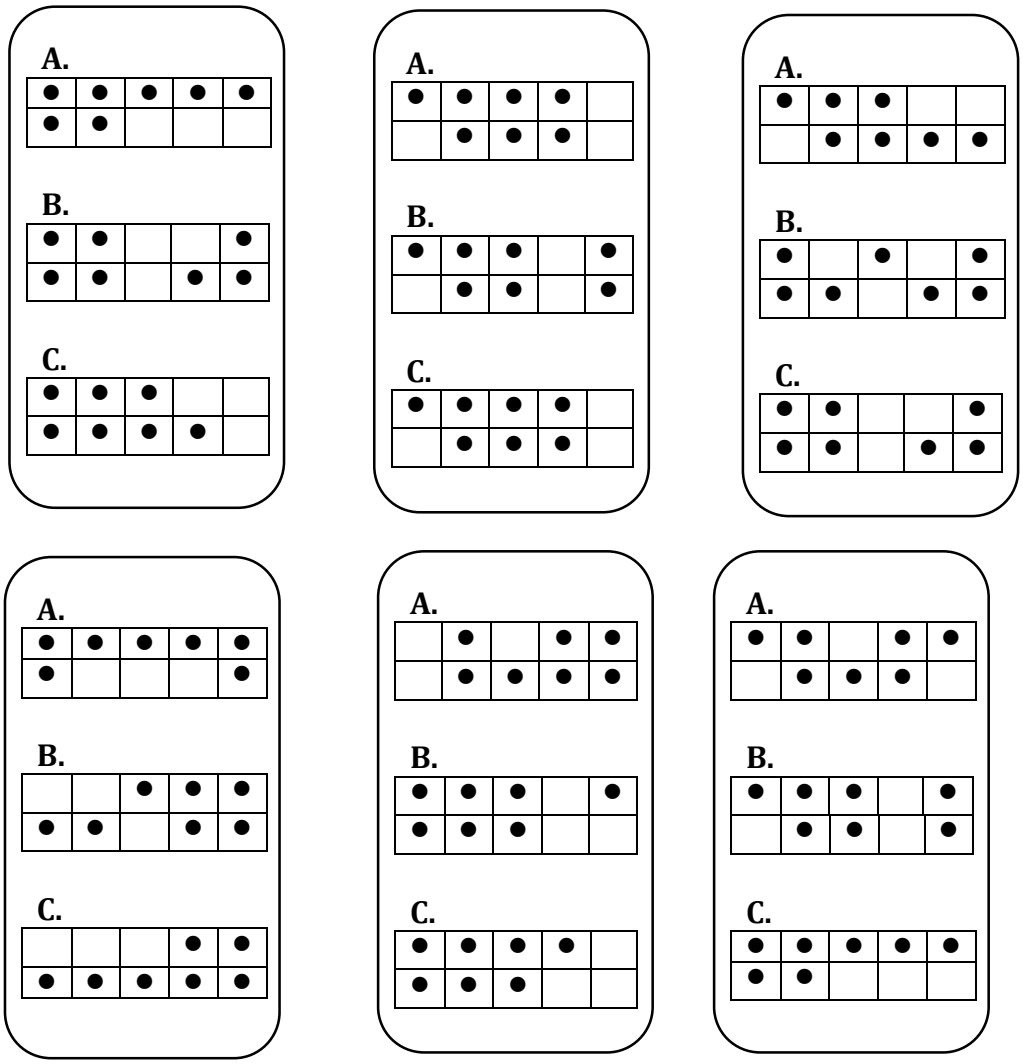


Number Talks: Kindergarten

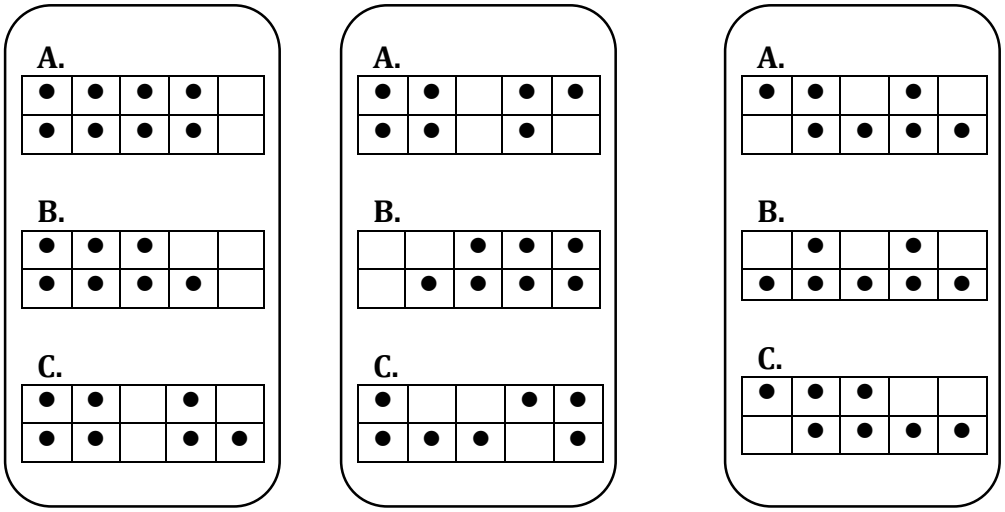


Ten-Frames with the Number 7

As each number talk is shown, ask students, "How many dots do you see? How do you see them?"

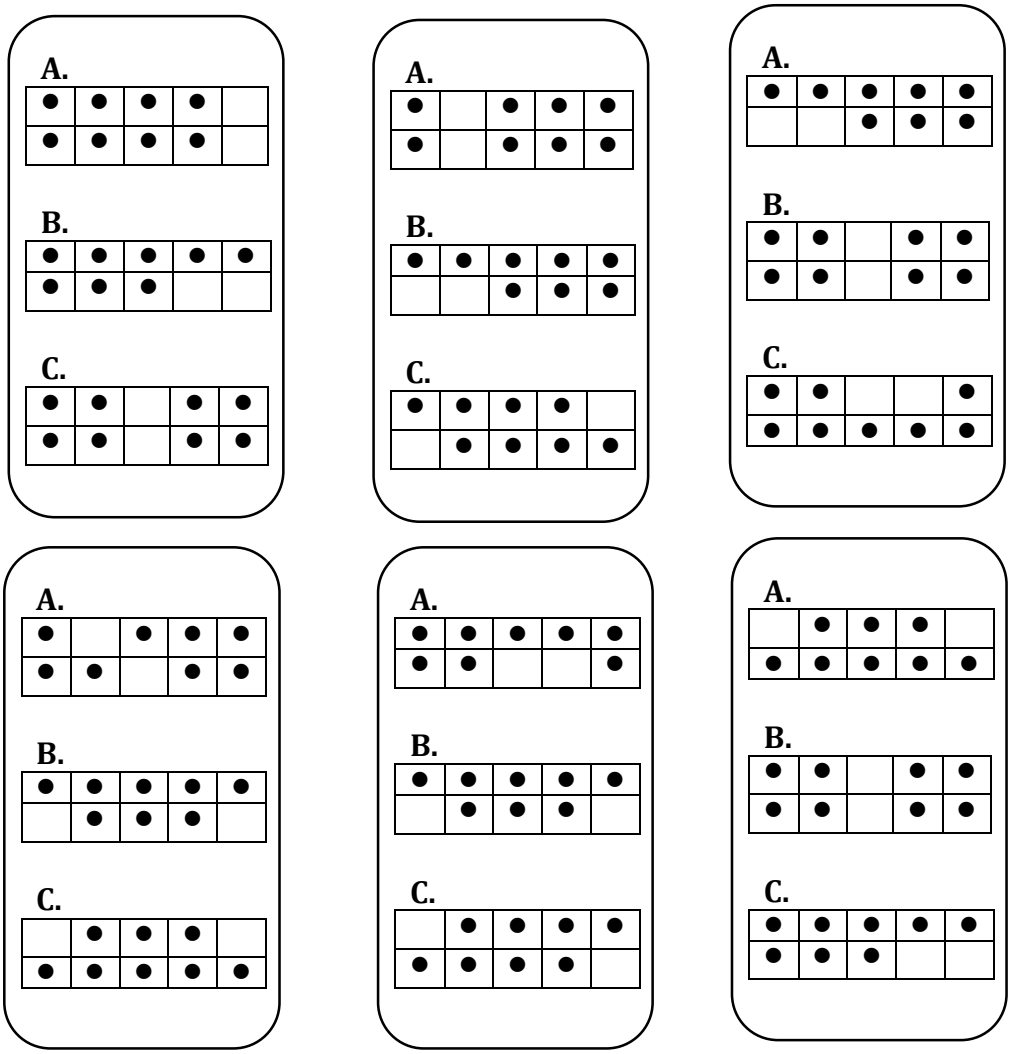


Number Talks: Kindergarten

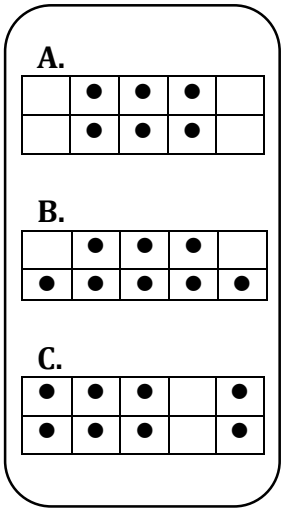


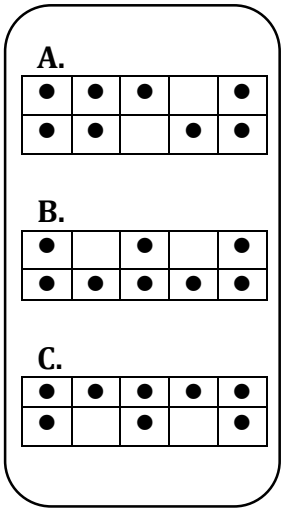
Ten-Frames with the Number 8

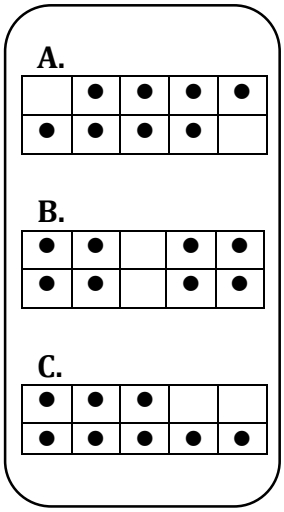
As each number talk is shown, ask students, "How many dots do you see? How do you see them?"



Number Talks: Kindergarten

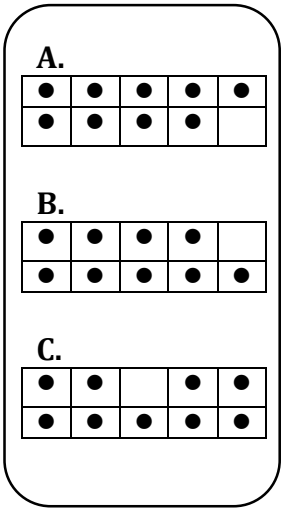


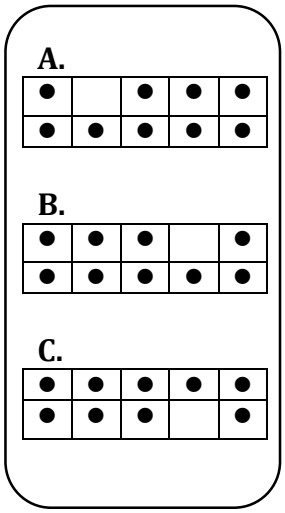


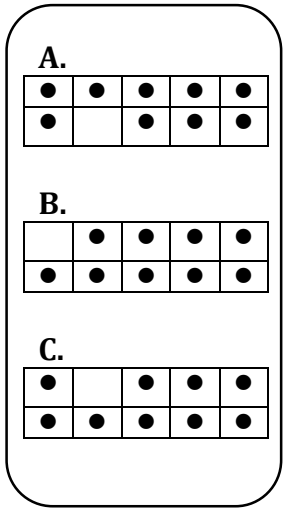


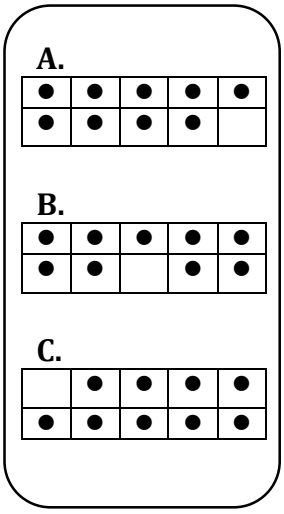
Ten-Frames with the Number 9

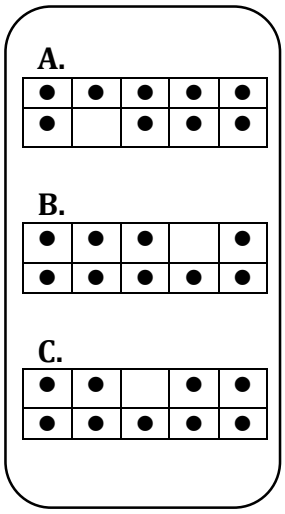
As each number talk is shown, ask students, "How many dots do you see? How do you see them?"

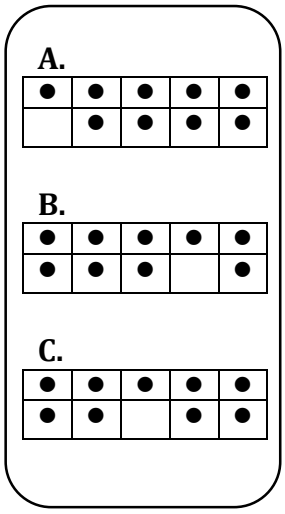






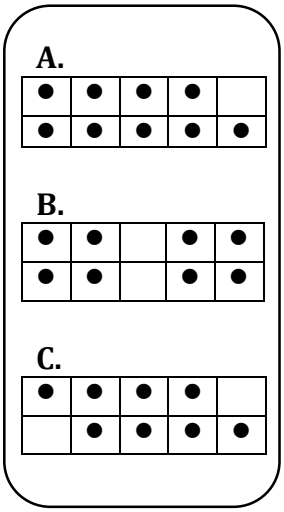


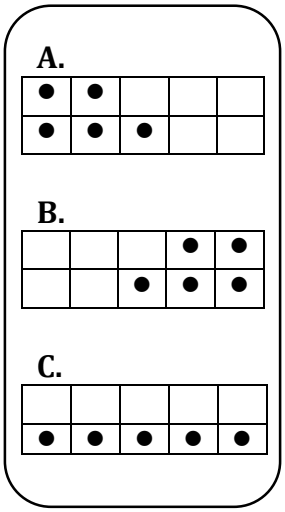


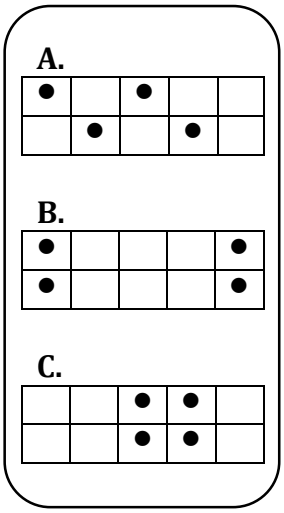


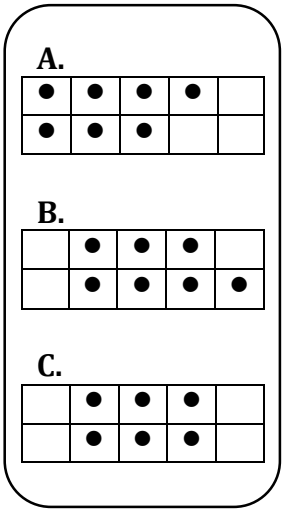
Ten-Frames with the Number 10

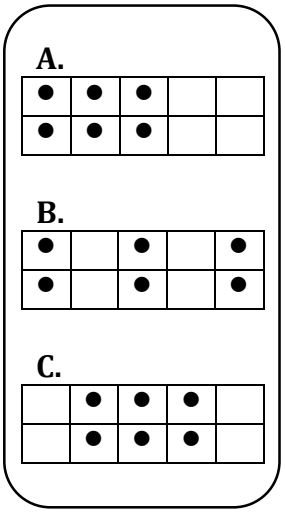
As each number talk is shown, ask students, "How many dots do you see? How do you see them?"
Then ask "How many more to make a ten?"

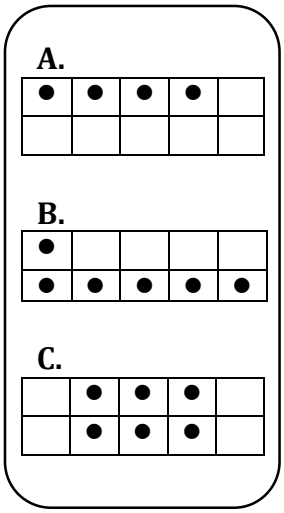


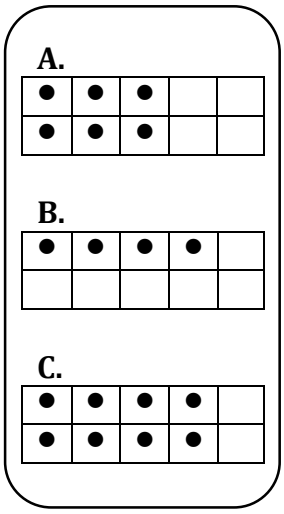


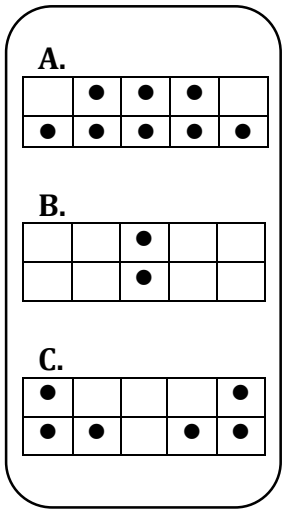









A.
B.
C.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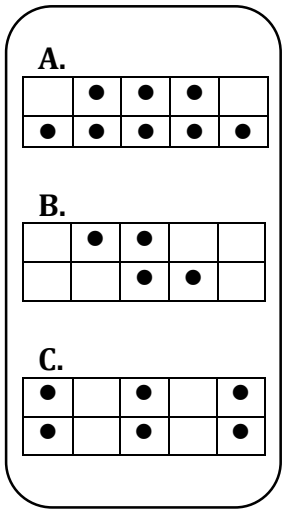
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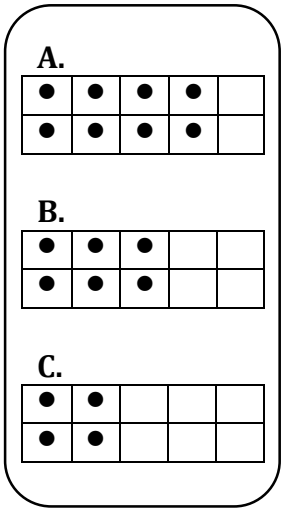
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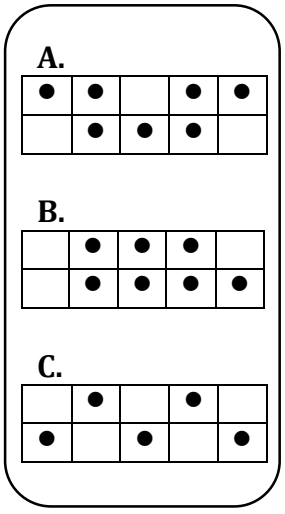
A.
B.
C.