



# KINDERGARTEN SUPPLEMENT

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## Set A4 Number & Operations: Addition & Subtraction

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### Skills & Concepts

- ★ use one-to-one correspondence to count sets of objects to 30, and produce sets of given sizes
- ★ use one-to-one correspondence to compare sets of objects to 30 using phrases such as “same number”, “more than”, or “less than”
- ★ recognize the number of objects in a small set without counting
- ★ identify the ordinal position of objects
- ★ read and write numerals to 30
- ★ model addition by joining sets of objects and model subtraction by removing objects from sets for numbers less than 10.
- ★ verbally describe mathematical relationships involving addition and subtraction situations for numbers less than 10
- ★ compose and decompose numbers from 2 to 10
- ★ record mathematical thinking by writing simple addition and subtraction sentences

## **Bridges in Mathematics Kindergarten Supplement**

### **Set A4** Numbers & Operations: Addition & Subtraction

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*Bridges in Mathematics* is a standards-based K–5 curriculum that provides a unique blend of concept development and skills practice in the context of problem solving. It incorporates the Number Corner, a collection of daily skill-building activities for students.

Acknowledgements:

- Thanks go to Kindergarten teacher Lori Lawrence for her encouragement and support in developing the activities in this supplement set.
- The work of Robert J. Wright, Garry Stanger, Ann K. Stafford, and James Martland, in their Math Recovery publications (listed below) also inspired and informed some of the activities in this supplement set. In particular, we are indebted to these authors for reinforcing the important role played by visual models, including fingers (“bunny ears”), domino dot formations, five frames, and ten frames, in helping young children learn to combine and partition small numbers.
- Wright, Stanger, Stafford & Martland, *Teaching Number in the Classroom with 4–8 Year-Olds*, 2006
- Wright, Martland, Stafford, and Stanger, *Teaching Number: Advancing Children’s Skills & Strategies*, 2006

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# Set A4 ★ Activity 1



## ACTIVITY

### Numbers & Combinations to Ten Through the School Year

#### Overview

Below, you'll find a set of exercises to add to your Number Corner routines each month. These exercises involve the numbers 1 through 10, and are designed to be taught from the start of each month, in conjunction with the Our Month in School workout. They are short and simple, and provide a solid foundation on which to help kindergartners build skills with early addition and subtraction.

#### Skills & Concepts

- ★ count objects in a set using one-to-one correspondence and produce sets of given sizes
- ★ recognize the number of objects in a small set without counting
- ★ read and write numerals to 10
- ★ model addition by joining sets of objects and model subtraction by removing objects from sets for numbers less than 10.
- ★ verbally describe mathematical relationships involving addition and subtraction situations for numbers less than 10
- ★ compose and decompose numbers from 2 to 10
- ★ record mathematical thinking by writing simple addition and subtraction sentences

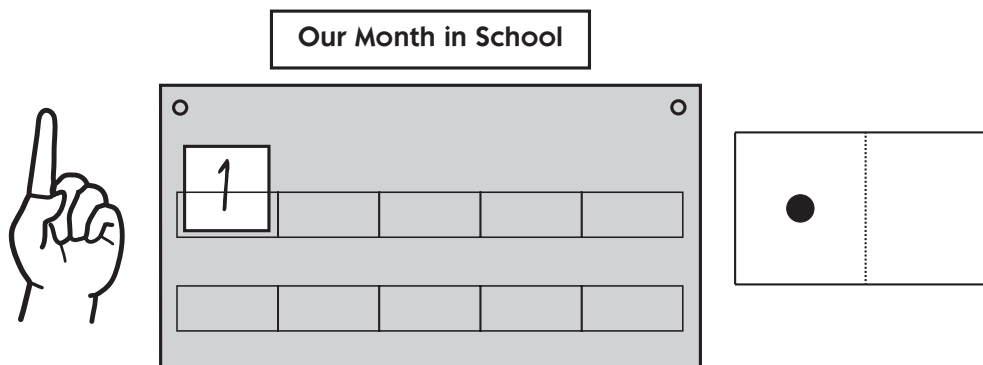
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### September: Dots & Fingers

#### You'll need

- ★ Five Plus Dot cards (pages A4.10 – A4.14, run 1 copy of each sheet on white cardstock)

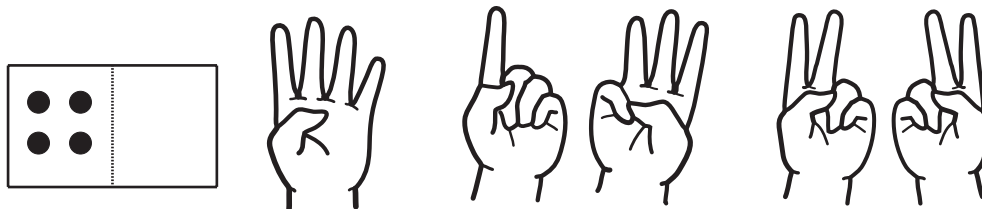
1. In addition to posting the number of days students have been in school on the Our Month in School pocket chart each day, have children hold up the corresponding number of fingers. Also, post the corresponding dot card.



**Activity 1** Numbers & Combinations to Ten Through the School Year (cont.)

2. Continue to post a dot card and have students show the number of days with their fingers through the tenth day of school. After the first 3 to 4 days, vary the routine by doing one or more of the following:

- Point to a numeral card on the Our Month in School Chart and have children show that number of fingers. Encourage students to begin showing the number without counting their fingers one by one.
- Show a number of fingers on your own hand(s) to represent the quantity on one of the dot cards posted so far. Have students name the number of fingers they see.
- Point to one or more of the posted dot cards, and ask students to name the quantity and show that many on their fingers. Encourage the group to find more than one way to show the quantity.



**Students** *It's 4!*

*I can make that on one hand!*

*I do it like this, 1 and then 3.*

*I do 2 and 2.*

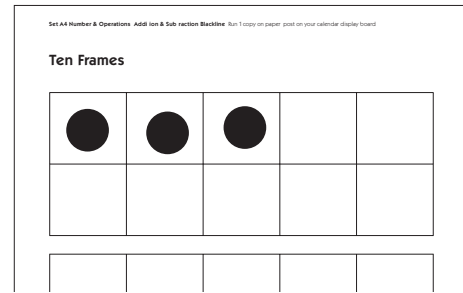
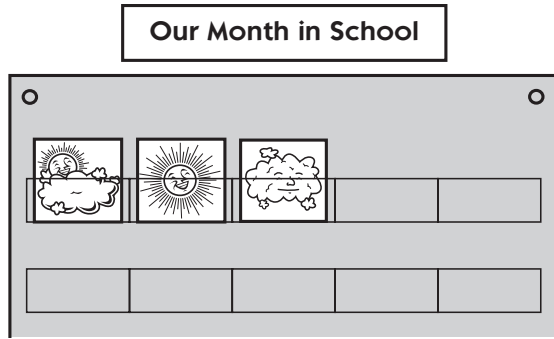
3. After you have been in school for 10 days, you will have posted all of the dot cards, 1-10. Continue throughout the rest of the month with the activities described above. From time to time, take several of the cards down, mix them up, and place them in a stack, face down. Turn the first card up and show it to the students for about half a second before turning it face down again. Ask students to pair-share how many dots they saw, and then have the group hold up their fingers to show the corresponding number of dots. Show the card a second time so they can confirm their responses.

**October: Frames & Bunny Ears****You'll need**

- ★ Ten Frames sheet (page A4.15, run 1 copy on paper, post on your calendar display board)
- ★ 3/4" adhesive dots or marking pens in two different colors
- ★ Five Plus Dot cards (pages A4.10 – A4.14, run 1 copy of each sheet on white cardstock)

1. In addition to posting a weather card each day during the Our Month in School workout, place an adhesive dot, or make a colored circle on the Ten Frame sheet. Start in the upper left-hand corner of the sheet, and work your way across the top row, using the same color dot for the first five school days in October.

**Activity 1** Numbers & Combinations to Ten Through the School Year (cont.)



2. Each day, have children show the number of days you've been in school so far this month with their fingers, and name the quantity. Starting from the first day, ask them to place their fists on top of their heads (like bunny ears) and show the number without looking at their fingers, if possible. While some children may need to move their hands down to count or double-check the number of fingers they're holding up, others will begin to gain confidence at showing the correct number of fingers quickly, sight unseen, as they develop a "feel" for the numbers one through ten.

Encourage them to explain how they can tell how many dots are on the Ten Frame Sheet.

**Teacher** *We all agree that there are 3 dots so far on our Ten Frame Sheet. How do you know it's 3?*

**Students** *I went 1, 2, 3!*

*I can just do 3 on my fingers*

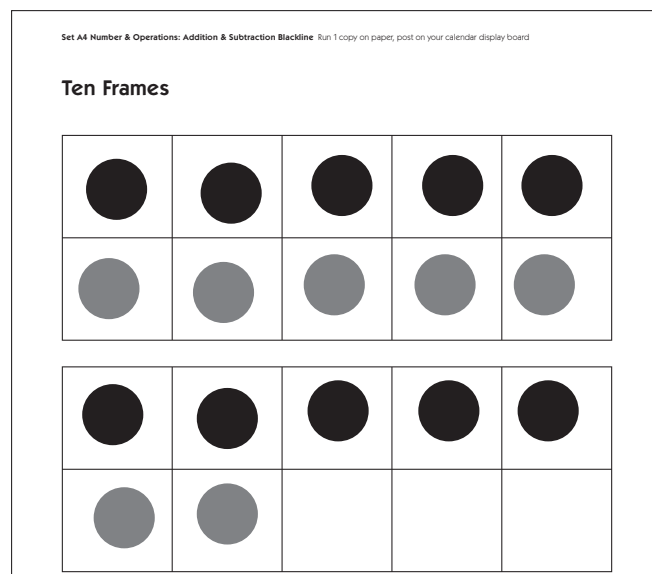
*I can just see it's 3!*

*There are 2 and then 1 more. That's 3.*

*There's 5 in the whole row, but 2 are empty, so that makes 3.*

3. Continue in this fashion through the tenth day. (Switch dot colors on the sixth day, and move across the second row of the first frame from left to right.)

4. From the eleventh day forward, count the dots on the sheet one by one with the children. Alternate colors each time you start a new row so that the groups of 5 show up as clearly as the groups of 10 on the sheet.



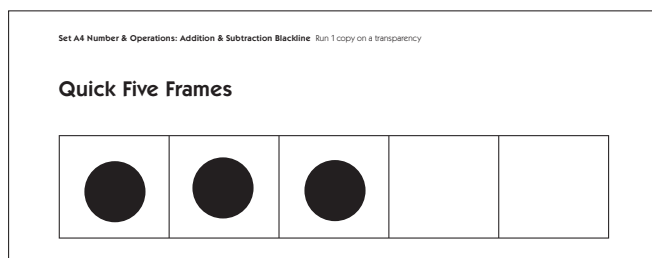


**Activity 1** Numbers & Combinations to Ten Through the School Year (cont.)**December: Quick Fives****You'll need**

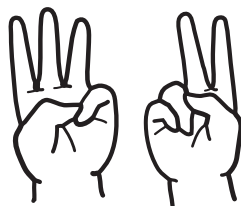
- ★ Quick Fives Frame (page A4.21, run 1 copy on a transparency)
- ★ 10 translucent counters; 5 blue and 5 red
- ★ overhead projector or document camera
- ★ chart paper and markers in blue, red, and black

In addition to discussing the ten-frame dot cards you post on the Our Month in School pocket chart each day, conduct the exercises described below a couple times a week.

1. Display the Quick Fives Frame on the overhead. Ask students how many squares they see, first whispering to one another, and then reporting the number out loud.
2. Turn off the projector light, and place blue counters in 3 of the squares on the frame. Work from left to right, leaving no empty squares between markers.

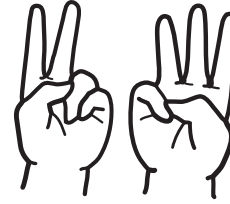
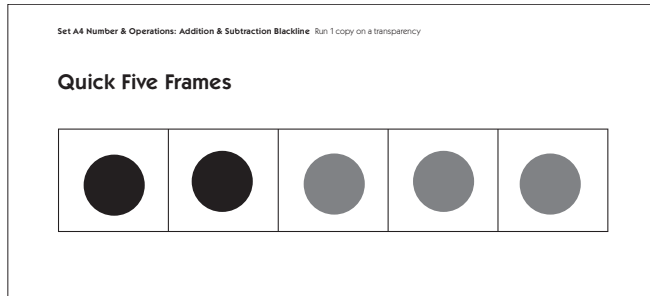


3. Turn on the projector light. Ask students how many dots they see, and how many empty squares. Have them raise their fists to their foreheads to make bunny ears, and then show the number of dots on one hand, and the number of empty squares on the other. Ask them to share observations.



**Students** *There are 3 dots up there, and 2 empty boxes.  
I made my fingers like that, 3 and 2.  
This hand is for the dots, and this hand is for empty places.*

4. Repeat this exercise several times during the first half of the month. During the latter half of the month, modify it by turning off the projector light and filling the 5-frame with blue and red counters. When you turn the light on, ask students to use their bunny ears to show what they see, and have them share their observations.

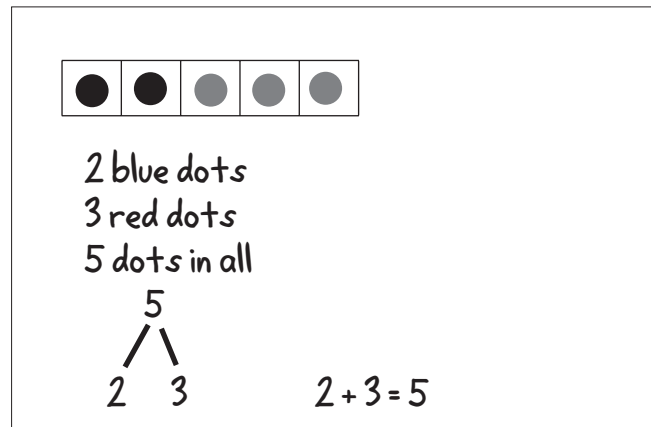
**Activity 1** Numbers & Combinations to Ten Through the School Year (cont.)

**Students** 2 blues and 3 reds, like this!

Now they all have dots.

I see 5 dots.

5. Make a quick sketch of the frame and dots on a piece of chart paper, and record students' observations. Work with input from the class to write a number sentence reflecting the numbers of counters.



6. Repeat steps 4 and 5 several times, keeping records on the same piece of chart paper if possible. By the end of the month, you should have several combinations of 5 displayed on the chart.

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## January: Combinations to 10 on Frames and Fingers

### You'll need

- ★ Quick Tens Frame (page A4.22, run 1 copy on a transparency)
- ★ 20 translucent counters; 10 blue and 10 red
- ★ overhead projector or document camera
- ★ chart paper and markers in blue, red, and black

In addition to discussing the ten-frame dot cards you post on the Our Month in School pocket chart each day, conduct the exercises described below a couple times a week.

1. Display the Quick Tens Frame on the overhead. As students watch, place 5 blue counters in the top row and 2 red counters in the bottom row. Ask:



**Activity 1** Numbers & Combinations to Ten Through the School Year (cont.)

**Teacher** How many blue markers do you see?

How many red markers do you see?

How many markers are there in all? How do you know?

Can you show this combination on your fingers? Right – 5 fingers on one hand and 2 on the other.

Keep your fingers showing and put your hands on your head, like bunny ears. Wiggle the hand that has 5 fingers up. Wiggle the hand that has 2 fingers up. How many fingers are you showing in all?

Can you figure it out without looking at your fingers?

2. Repeat with other “5-plus” combinations, such as  $5 + 1$ ,  $5 + 3$ ,  $5 + 4$ , and  $5 + 5$ .

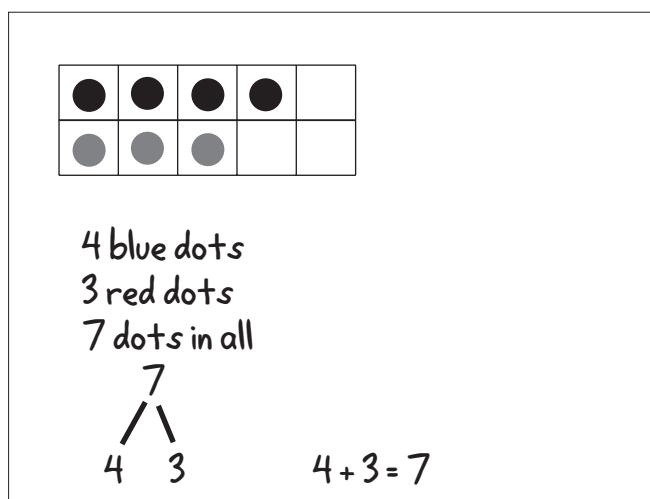
3. Later in the month, place 4 blue counters in the top row of the Quick Tens frame, and 3 red counters in the bottom row with the projector light turned off. Explain that you are going to show the frame for just a moment, and ask children to watch carefully. Turn on the projector light for a little less than a second, and then turn it off again. Ask:

**Teacher** How many blue markers did you see? Show it on your fingers.

How many red markers did you see? Show it on your fingers.

How many markers in all? How do you know?

4. Turn on the projector light so children can confirm the quantities and the total. Then make a quick sketch of the frame and dots on a piece of chart paper, and record students' observations. Work with input from the class to write a number sentence reflecting the numbers of counters.



5. Repeat steps 3 and 4 with other combinations for numbers between 6 and 10 that can be shown on frames and fingers, such as  $3 + 3$ ,  $4 + 2$ ,  $3 + 4$ ,  $4 + 4$ , and  $4 + 5$ .

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## February: How Many Empty Squares?

### You'll need

- ★ Quick Fives Frame (page A4.21, run 1 copy on a transparency)
- ★ Quick Tens Frame (page A4.22, run 1 copy on a transparency)
- ★ 10 red translucent counters

**Activity 1** Numbers & Combinations to Ten Through the School Year (cont.)

- ★ overhead projector or document camera
- ★ white board and markers
- ★ individual whiteboards/chalkboards, markers/chalk, and erasers for students (optional)

In addition to discussing the pennies and nickels you post on the Our Month in School pocket chart each day, conduct the exercises described below a couple times a week.

1. Seat children so they can all see the screen. Place the Quick Fives Frame under the projector, light turned off. Explain that you're going to turn on the projector light for just a second so they can see the picture, and then turn it off again, so they'll need to watch carefully.
2. Show the frame for a little less than a second, and turn the projector light off again. Ask children to show on their fingers how many empty squares they saw.
3. Tell the class that you're going to put a red counter in 4 of the empty squares. How many of the squares will still be empty? Working with the projector light still off, place the 4 counters while children pair-share responses to your question. Then turn on the projector light so they can see if they were correct. Ask:

**Teacher** *How many squares do you see in all? (5)*  
*How many of the squares have counters in them? (4)*  
*How many of the squares are empty? (1)*

4. Work with input from the class to record the combination, as shown below:

$$\begin{array}{c}
 5 \\
 \swarrow \searrow \\
 4 \quad 1 \\
 4 + 1 = 5
 \end{array}$$

5. Repeat with other partitions of 5 ( $2 + 3$ ,  $1 + 4$ ,  $3 + 2$ ,  $0 + 5$ )
6. Later in the month, repeat steps 1–4 with the ten frame instead of the five frame. Start with 8 counters. Repeat with other partitions of 10 ( $9 + 1$ ,  $7 + 3$ ,  $6 + 4$ ,  $5 + 5$ , and so on). You might also consider giving students each an individual whiteboard or chalkboard, marker or chalk, and eraser later in the month, and having them record the combinations with you when you get to that step in the exercise.

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## March & April: Our Month in School Workouts

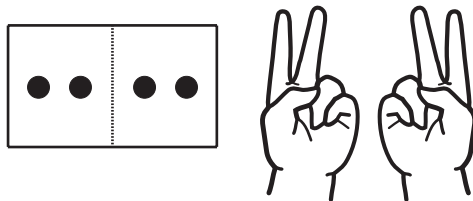
The Our Month in School workouts in March and April provide many opportunities for children to verbalize, read, and write addition combinations to 10.

**Activity 1** Numbers & Combinations to Ten Through the School Year (cont.)**May:** Dot Card Subtraction**You'll need**

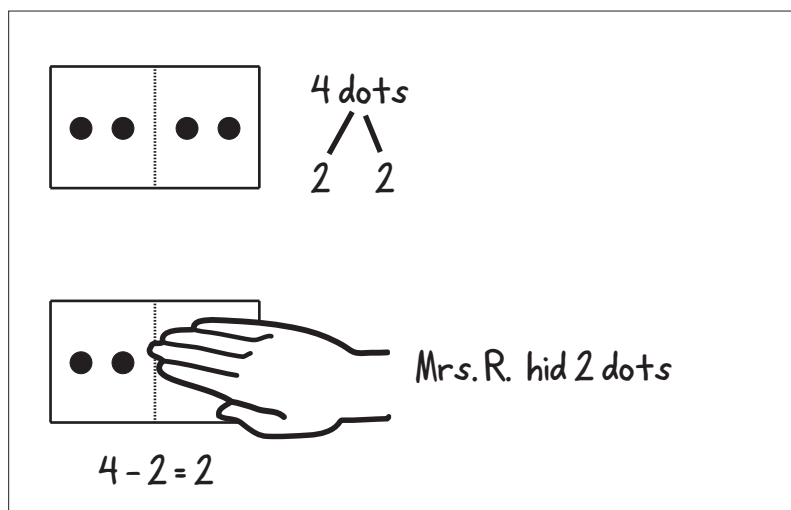
- ★ Doubles Dot Cards, 2 – 9 (pages A4.16–4.20, run 1 copy of each sheet on pastel cardstock)
- ★ Five Plus Dot Cards, 6 – 10 (pages A4.12 – A4.14, run 1 copy of each sheet on white cardstock)
- ★ white board and markers
- ★ individual whiteboards/chalkboards, markers/chalk, and erasers for students

In addition to counting by 5s with the 5-pointed stars during the Our Month in School workout, do the exercise described below a couple of times a week.

1. Place the Doubles Dot Cards in a stack face down. Turn the top card up and show it to the children for about half a second. Ask them to use their bunny ears to show the number of dots they saw.
2. Show the card again so children can confirm the quantity and discuss what they see.

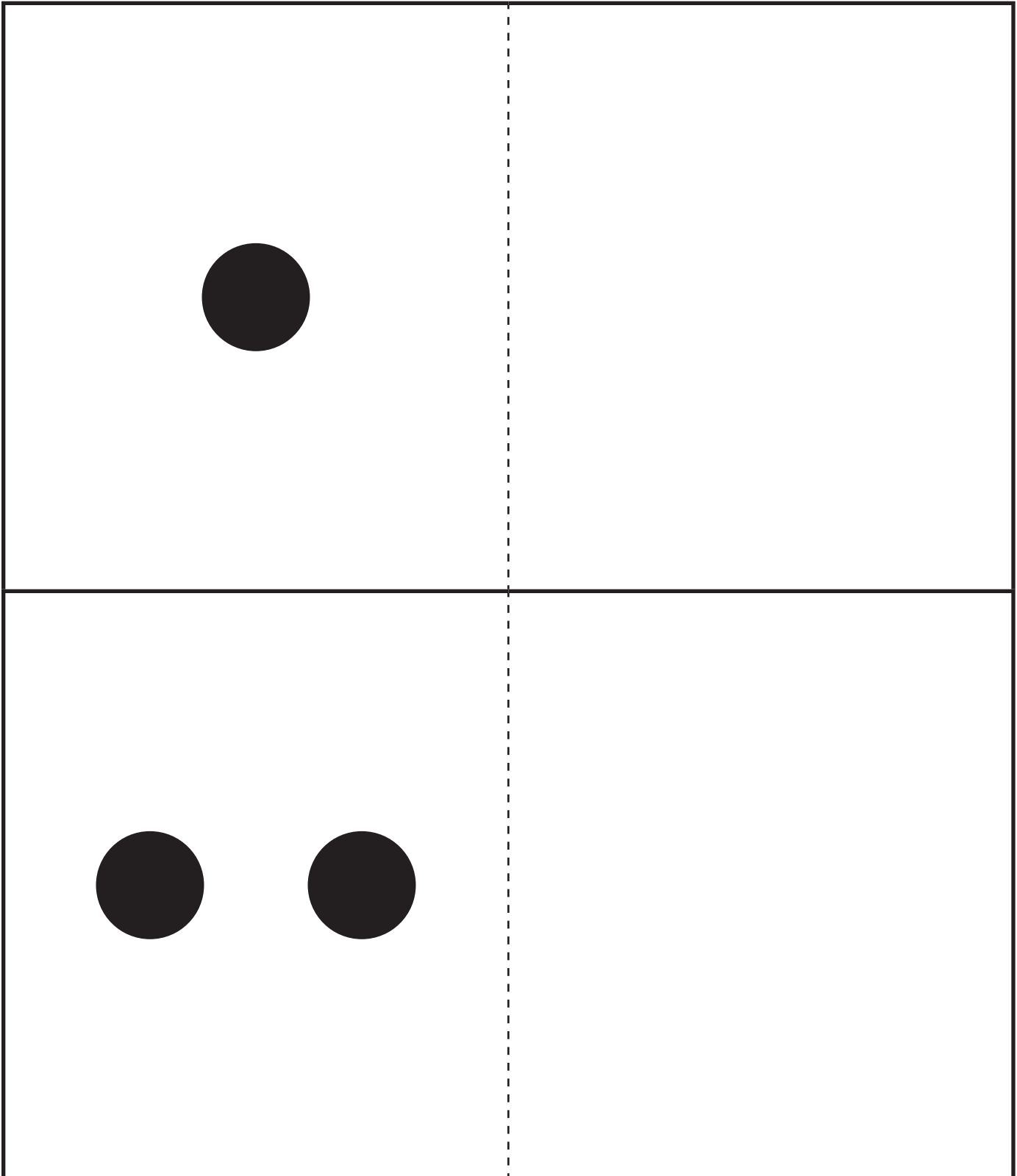


3. Cover one side of the card, and ask children how many dots they can still see. Where are the other dots? (hiding under your hand) Are there still (4) dots on the card (yes) How many are you hiding? (2)
4. Make a record of the action with sketches, words, and an equation.

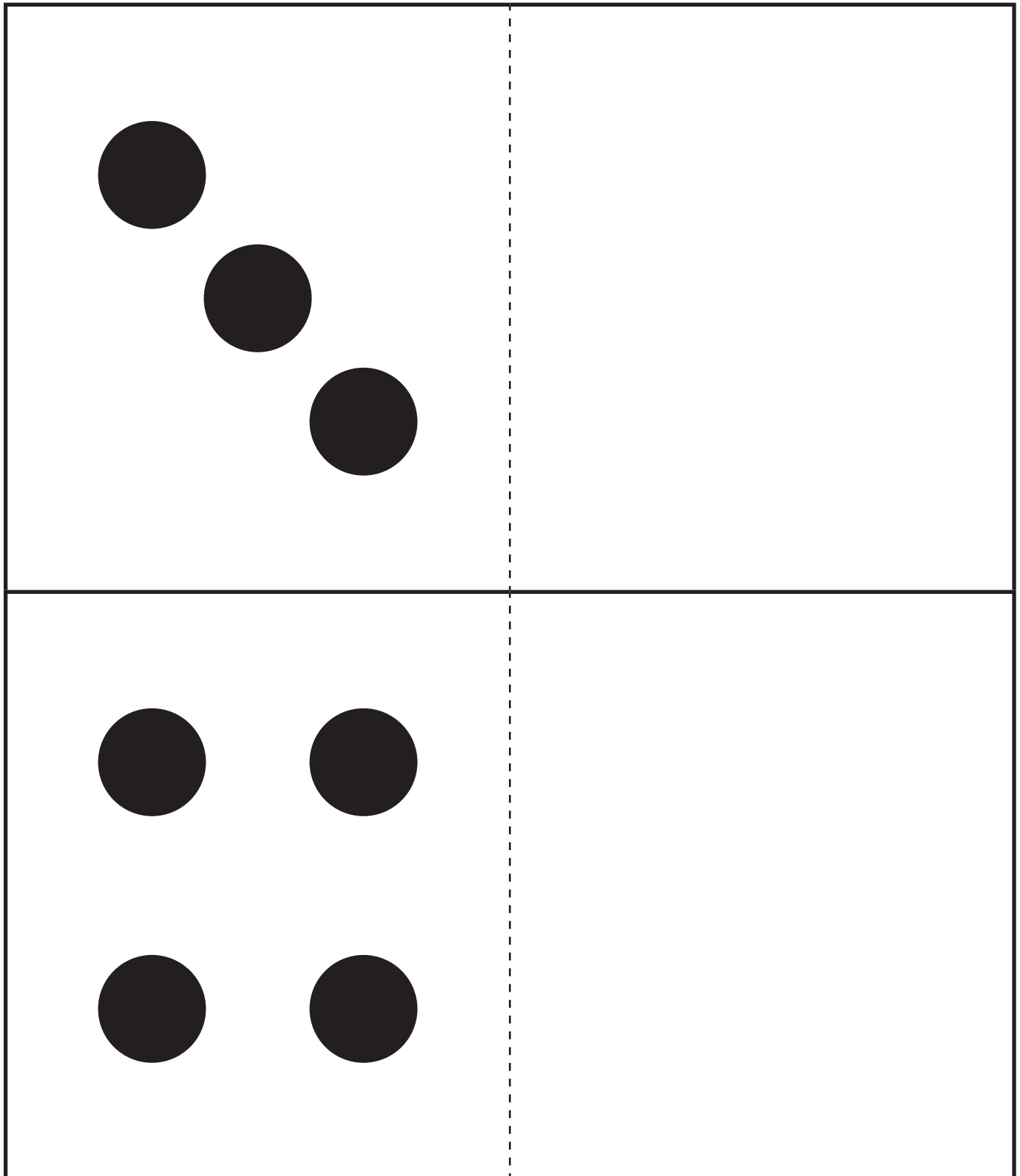


5. Repeat steps 1–4 with a couple more of the Doubles Dot cards.
6. Toward the middle of the month, mix the Five Plus cards into the stack. Also, give children each a whiteboard/chalkboard, pen/chalk, and eraser, and ask them to record the subtraction equations with you.

# Five Plus Dot Cards Page 1 of 5



# Five Plus Dot Cards Page 2 of 5



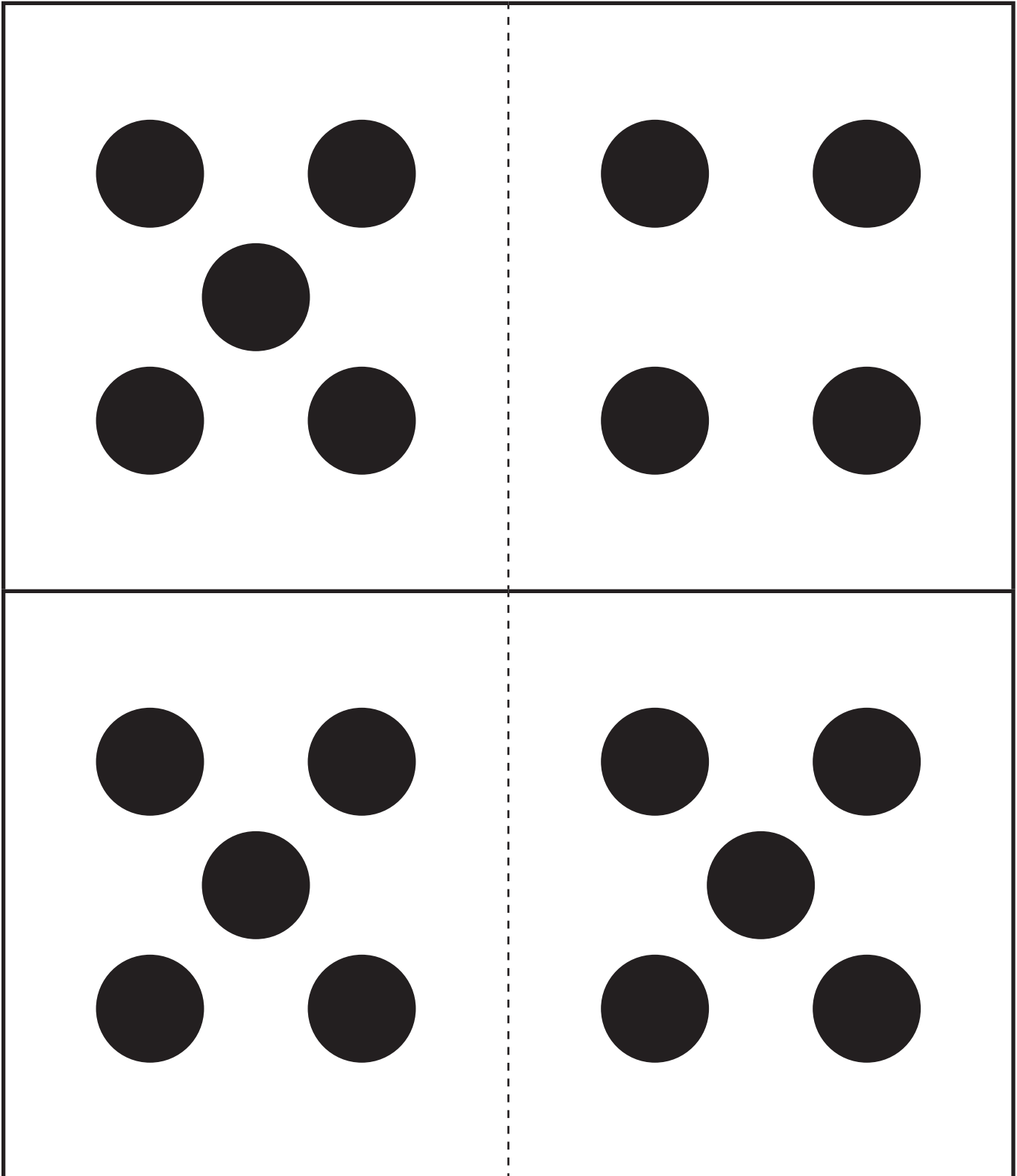
# Five Plus Dot Cards Page 3 of 5

The image displays two dot cards arranged vertically. Each card is a large rectangle divided into two equal halves by a vertical dashed line. The top card has five solid black circles on the left half, arranged in a pentagonal pattern (two on the top row, one in the middle, two on the bottom row). The right half of the top card is empty. The bottom card has five solid black circles on the left half, arranged in the same pentagonal pattern. The right half of the bottom card contains one solid black circle centered vertically.

# Five Plus Dot Cards Page 4 of 5

The image shows a large rectangular area divided into four quadrants by a horizontal and a vertical dashed line. Each quadrant contains a set of five black dots arranged in a pentagonal pattern. The dots are positioned at the corners and the center of each quadrant.

# Five Plus Dot Cards Page 5 of 5





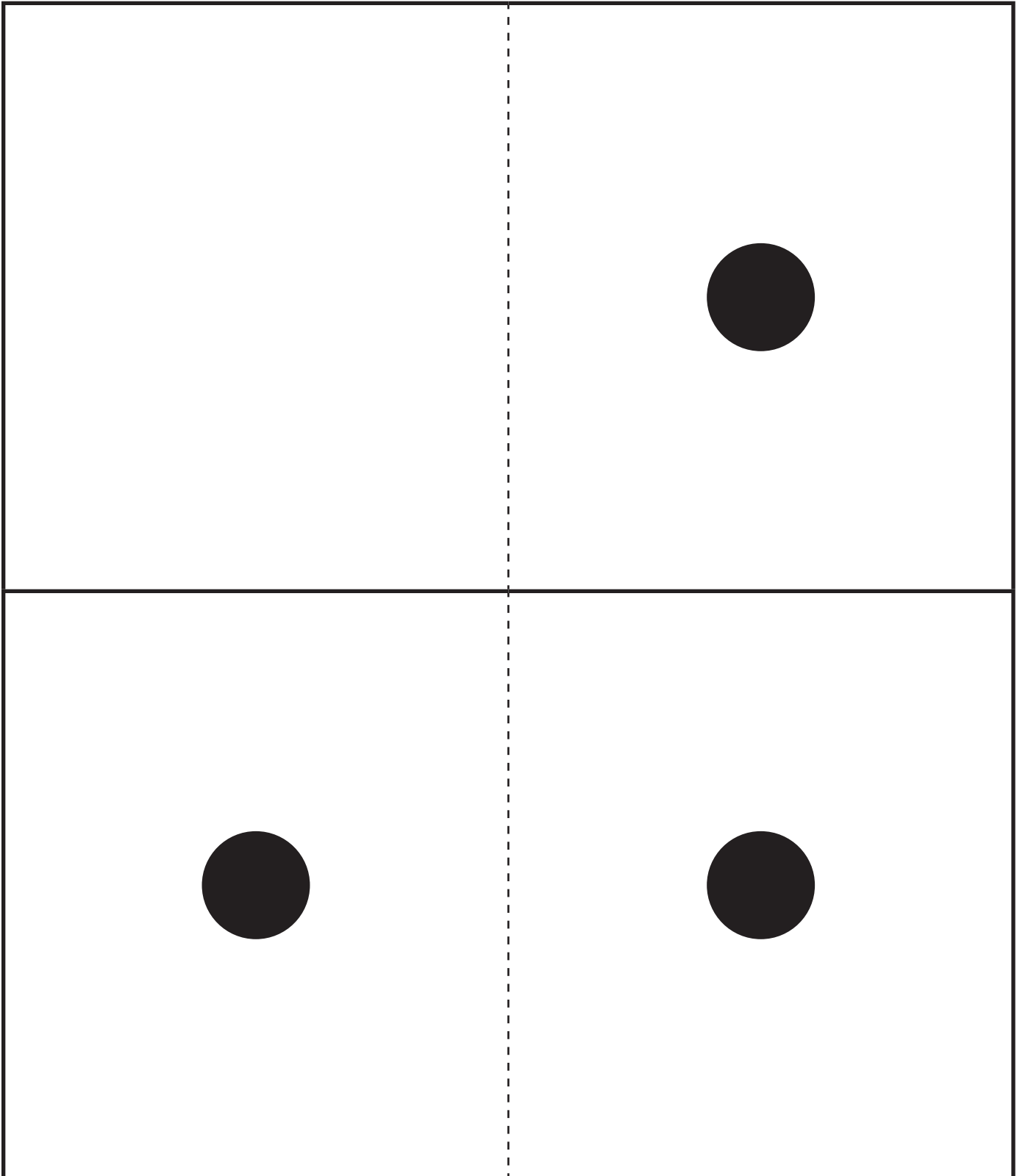
# Ten Frames

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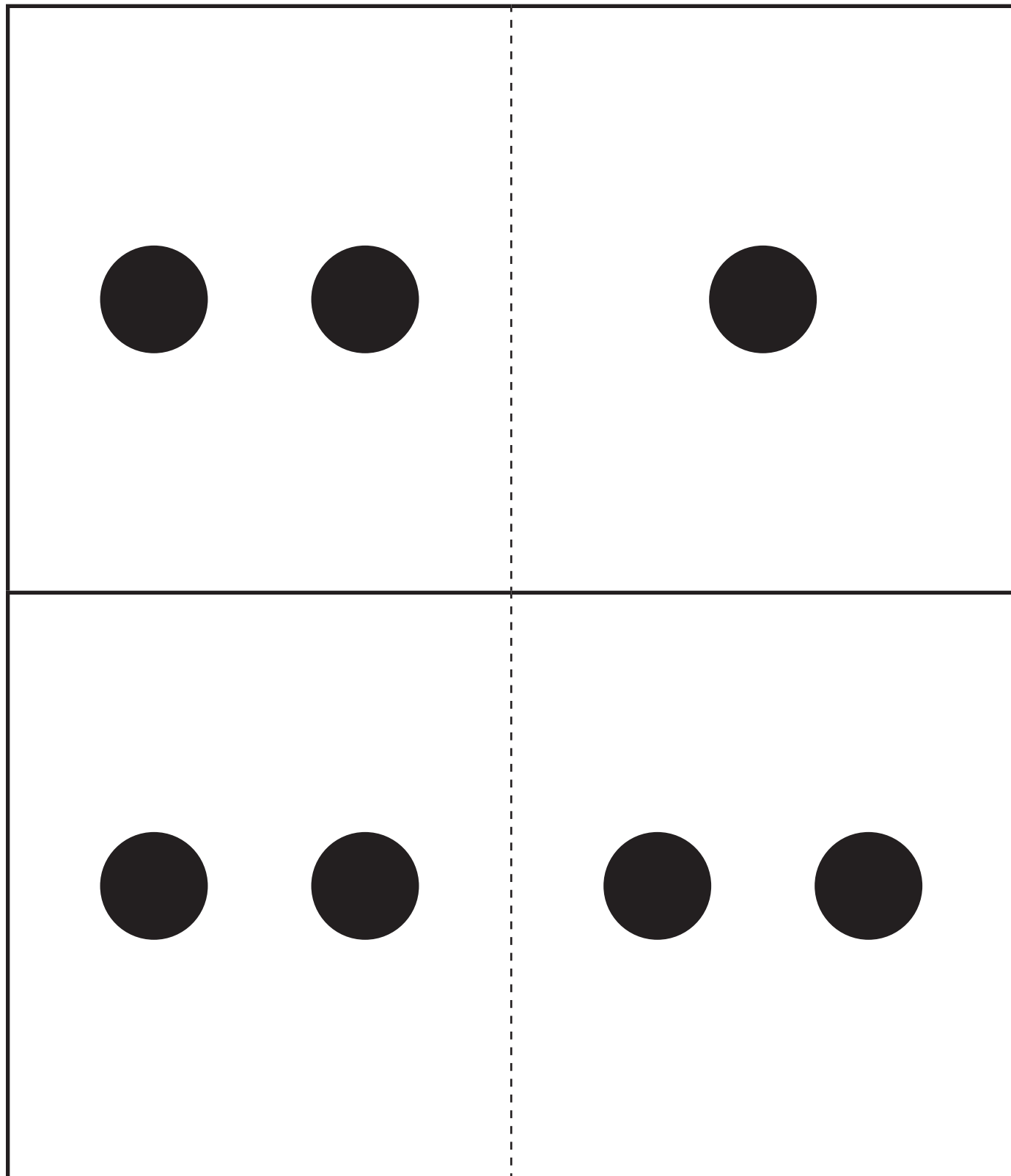
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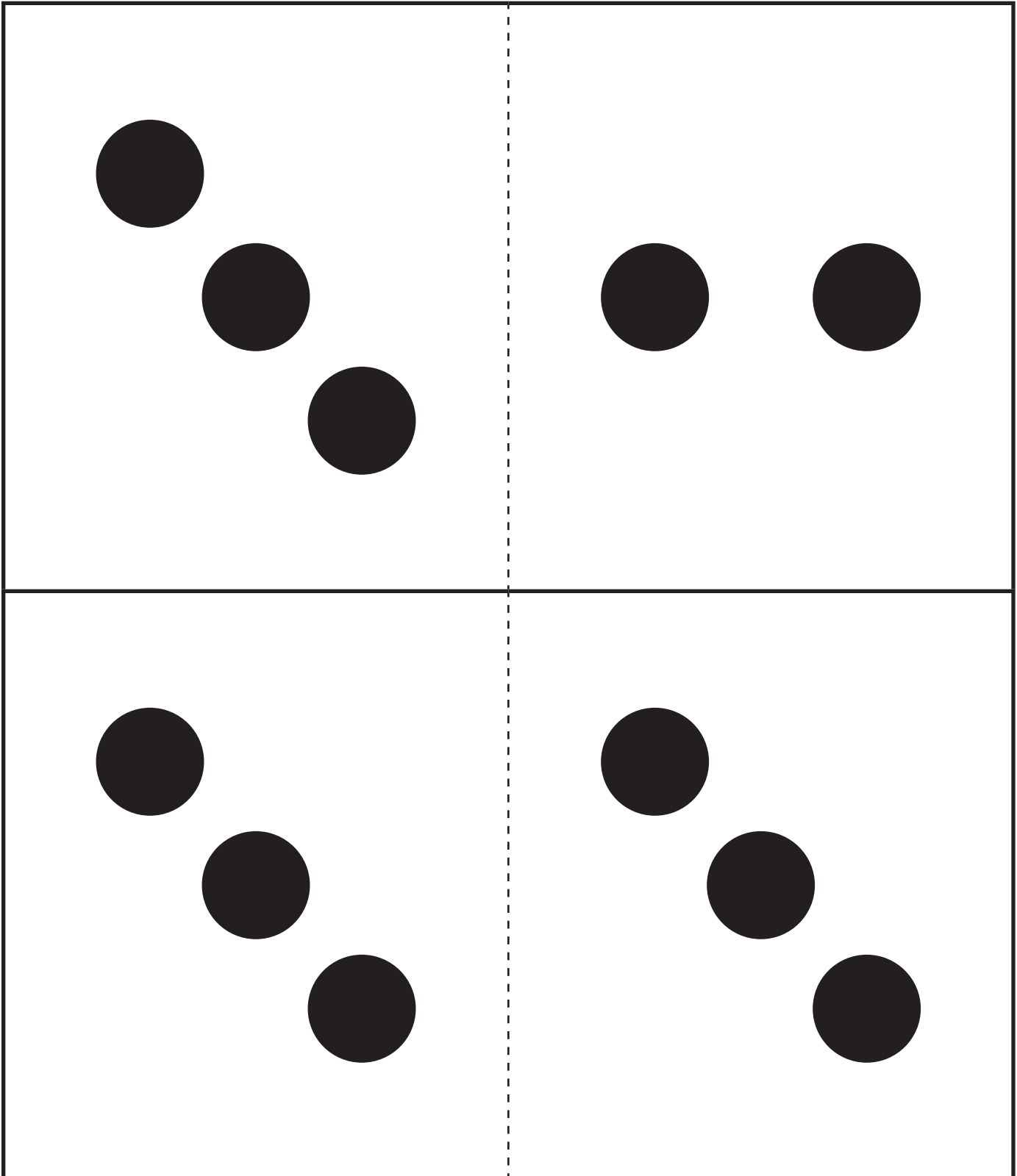
# Doubles Dot Cards Page 1 of 5



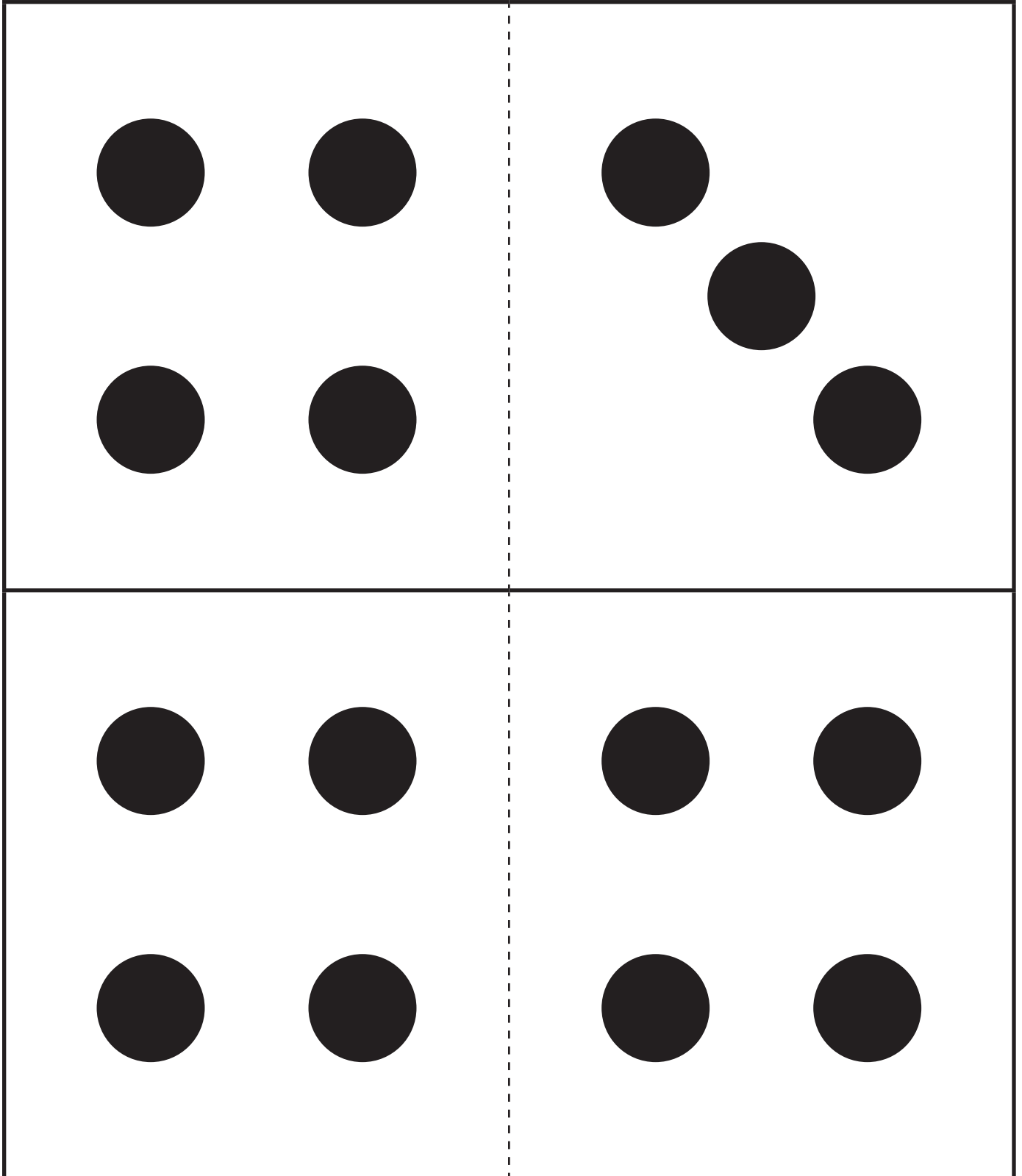
# Doubles Dot Cards Page 2 of 5



# Doubles Dot Cards Page 3 of 5



# Doubles Dot Cards Page 4 of 5



# Doubles Dot Cards Page 5 of 5

The image shows a large rectangular frame divided into four quadrants by a horizontal and a vertical dashed line. Each quadrant contains a set of black dots representing a math problem.

- Top-Left Quadrant:** Two vertical columns of three dots each, representing the equation  $3 + 3 = 6$ .
- Top-Right Quadrant:** Three dots arranged in a descending diagonal line from top-left to bottom-right, representing the equation  $3 + 2 = 5$ .
- Bottom-Left Quadrant:** Two vertical columns of three dots each, representing the equation  $3 + 3 = 6$ .
- Bottom-Right Quadrant:** Two vertical columns of two dots each, representing the equation  $2 + 2 = 4$ .

## Quick Five Frames

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# Quick Ten Frames

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# Set A4 ★ Activity 2



## ACTIVITY

### Butterfly Race

#### Overview

Butterfly Race is a simple game that provides practice with a variety of counting skills. Introduce it to the whole class, and play it with the group several times before adding it to your current set of Work Places.

#### Skills & Concepts

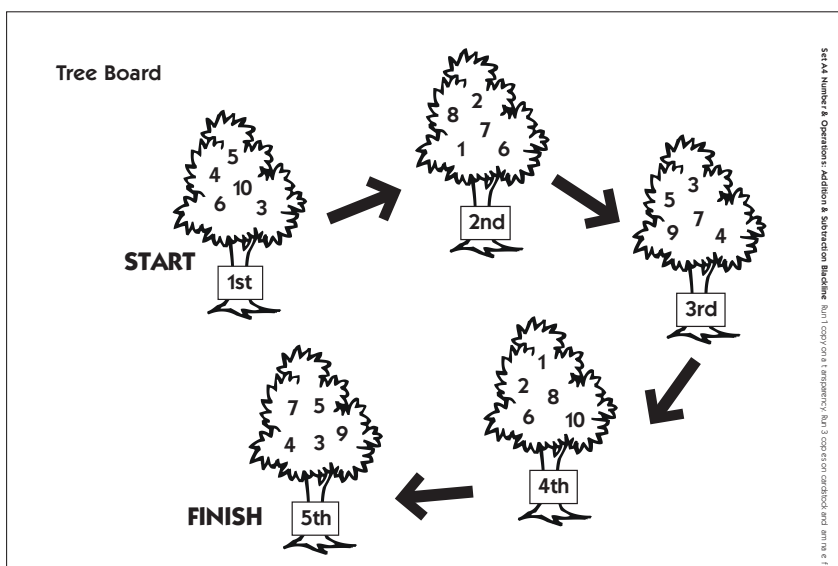
- ★ count pictures in a set
- ★ read numerals to 10
- ★ identify the ordinal position of objects
- ★ compose and decompose numbers from 2 to 10

#### You'll need

- ★ Butterfly Race Card (from Work Place Menu Cards, page A4.26, run 1 copy on cardstock, cut apart and laminate if desired)
- ★ Tree Boards (page A4.28, run 1 copy on a transparency and 3 copies on cardstock)
- ★ Count & Compare Butterflies Cards Overhead (pages A4.29 & A4.30, run 1 copy on transparency)
- ★ 3 sets of Count & Compare Butterflies Cards (pages A4.31–A4.33, run 3 copies on different color cardstock, cut apart and laminate if desired.)
- ★ 6 translucent game markers, 3 red and 3 blue

#### Instructions for Introducing Butterfly Race

1. Gather children where they can all see the screen easily. Display a copy of the Tree Board, and give students a minute or two to pair-share observations. Then ask volunteers to share observations about the game board with the class.

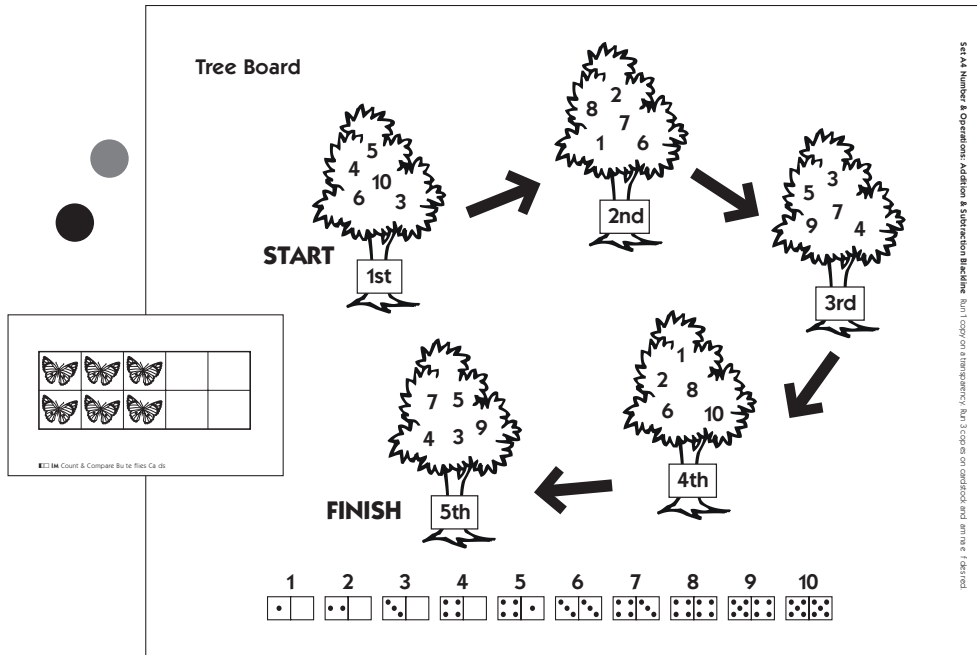


2. Once they have shared some observations, explain that this is a racetrack for butterflies that are going to fly from one tree to the next, starting with the first tree and moving in order to the fifth tree. The first butterfly to reach the fifth tree is the winner. Then point to each tree and name its ordinal position with the children: first, second, third, fourth, and fifth.

**Activity 2** Butterfly Race (cont.)

3. Place a red and a blue translucent counter near the board to the left of the first tree. Explain that the blue marker is yours, and the red one is for the class. These are your butterflies. You're going to race them through the trees to see which team is the first to get to the finish (the fifth tree).

4. Mix the overhead Count & Compare Butterflies cards, stack them, and set the stack near the projector. Take the top card and place it on the board. Ask students to show on their fingers the number of butterflies they see on the card. Then explain that you get to move your "butterfly" to the first tree if it has the numeral that matches the number of butterflies on your card.

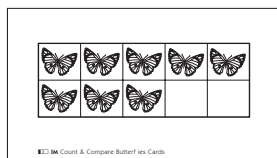


**Students** You got a 6!  
 There are 3 and 3 on there. That's 6.  
 I can show it on my fingers like 3 and then 3.

**Teacher** Can I move my blue butterfly marker to the first tree? Is there a 6 on that tree? Whisper to your neighbor yes or no. Okay, now let's hear from all of you.

**Students** Yes!

5. Call on a student volunteer to draw the next card from the stack and place it on the board. Ask students to pair-share how many butterflies they see on the card, and then choose 2 or 3 volunteers to share and explain their answers.



**Students** It's 8 because I counted them.  
 It's 5 on top, and then 6, 7, 8.  
 I know it's 8 because there are 2 empty ones.

**Activity 2** Butterfly Race (cont.)

**Teacher** *Can you move your red butterfly marker to the first tree?*

**Students** *No! There's no 8 on that tree.*

*What about the next tree? See the 8 there?*

*But we have to go around in the right order, like first and then second.*

6. Continue to take turns with the class until one team has reached the fifth tree. Remove the markers from the board, re-shuffle the cards, and play a second round of the game if time allows. (If you run out of cards before one team gets to the fifth tree, reshuffle and reuse the same cards.)

**Work Place S1** Butterfly Race**This Work Place will need**

- ★ 3 Tree Boards (page A4.28, run 3 copies on cardstock.)
- ★ 3 sets of Count & Compare Butterflies cards (pages A4.31–A4. 33, run 3 copies on different color cardstock, cut apart and laminate if desired.)
- ★ 6 translucent game markers, 3 red and 3 blue

**Object of the Game**

Be the first player to get your “butterfly” (game marker) to the fifth tree.

**Work Place Instructions**

1. Mix the Count & Compare Butterfly cards, stack them, and place the stack face down near the game board. Each player takes a different color game-marker and sets it to the left of the first tree.
2. First player draws the top card from the stack, and determines how many butterflies there are on the card. If the first tree on the game board has the corresponding numeral, the player can move his or her marker to the tree and set it on top of that numeral. If the first tree doesn't have that numeral, the first player must leave his/her marker where it is.
3. Second player takes a turn to draw a card and move his/her marker to the first tree if possible. Partners continue to take turns drawing cards and moving their markers ahead, one tree at a time. The first player to reach the fifth tree wins the game.

***Note** If the players go through the entire stack of cards before one of them wins, mix the cards thoroughly, place them in a facedown stack again, and continue playing.*

**Instructional Considerations for Butterfly Race**

If some of your students need support recognizing the numerals, encourage them to use the “key” at the bottom of the game board.

Questions to ask:

- Which tree are you on right now? (first, second, third, fourth, or fifth)
- How many butterflies are on the card you just picked? How do you know?
- Can you use bunny ears to show me how many butterflies are on your card?
- Which card do you hope you'll get on your next turn?
- Are there any cards you don't want to get on your next turn? Why not?

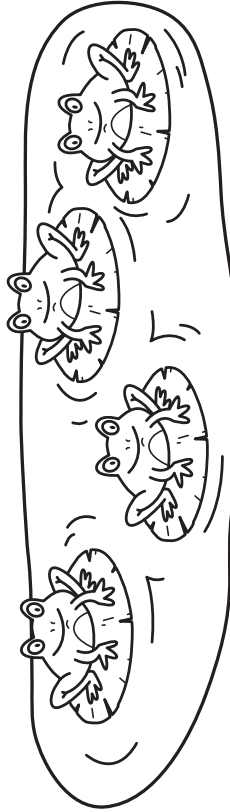
# Work Place Menu Cards Page 1 of 2

**S2 Fives Up**



**5**

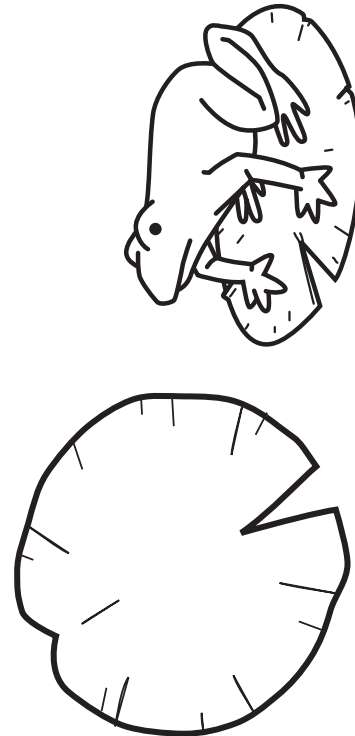
**S4 Pond Game**



**S1 Butterfly Race**

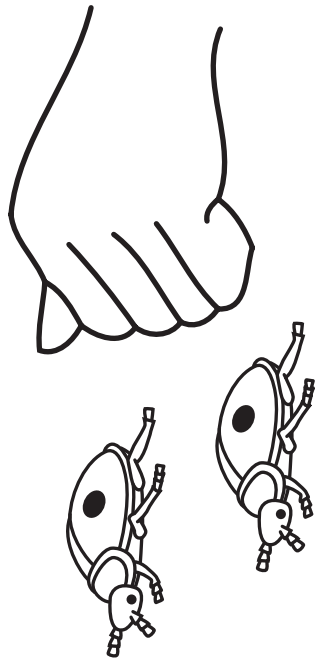


**S3 Frogs & Lillypads**

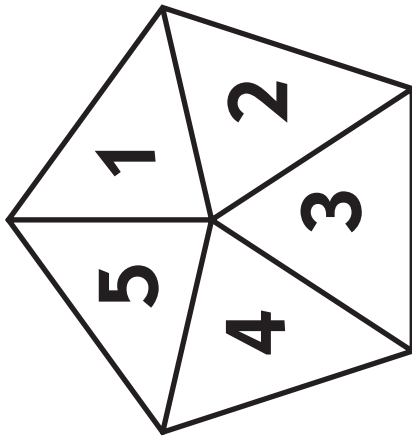


# Work Place Menu Cards Page 2 of 2

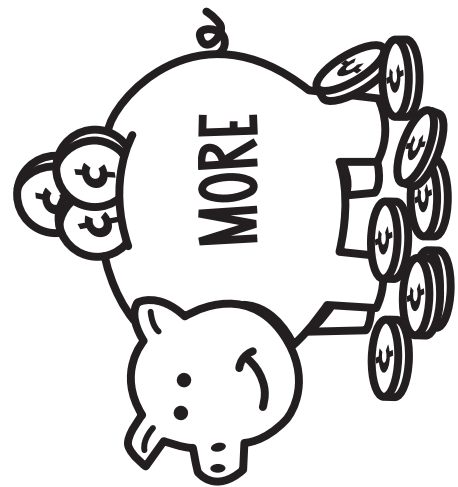
## S6 Bug Catchers



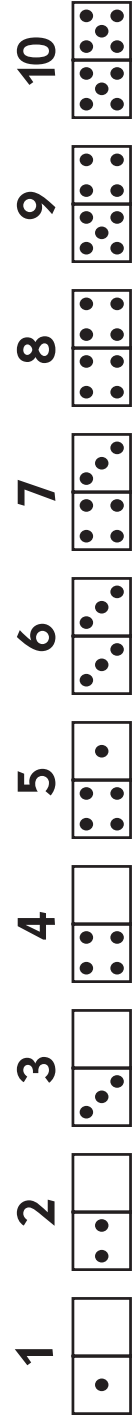
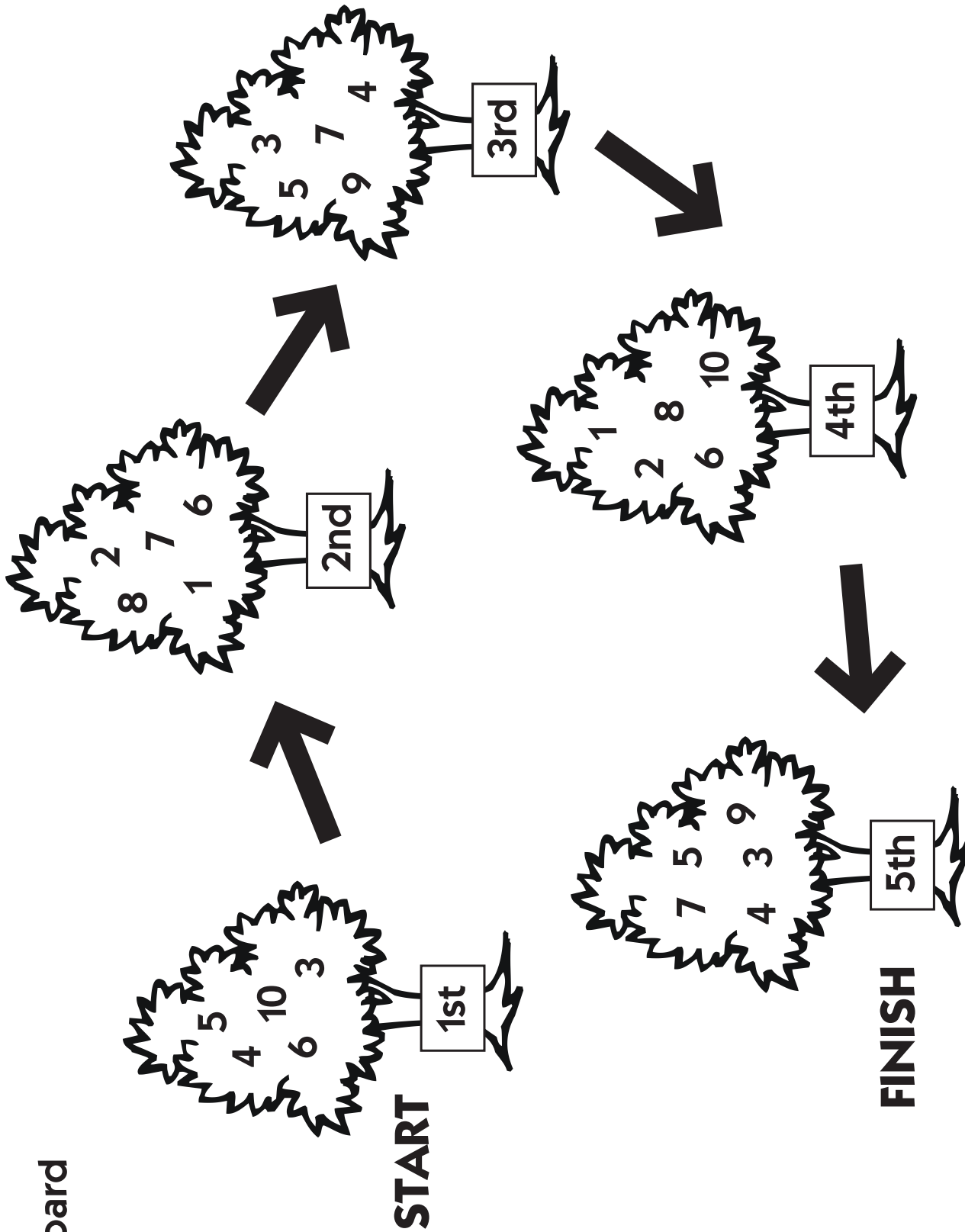
## S5 Spin, Add & Compare







































































































































## S7 Piggy Bank Subtraction































































































































































# Tree Board



# Count & Compare Butterfly Cards Page 1 of 2

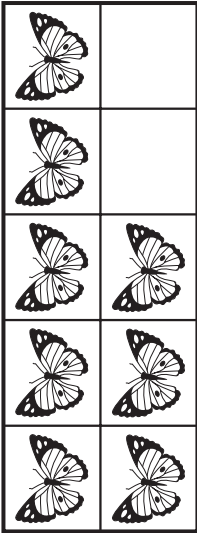

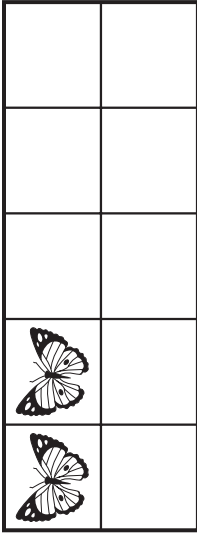
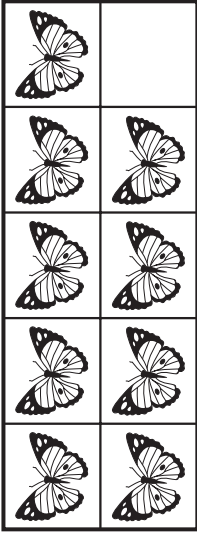

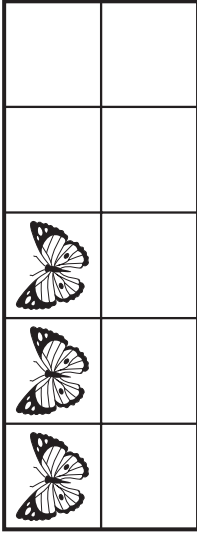
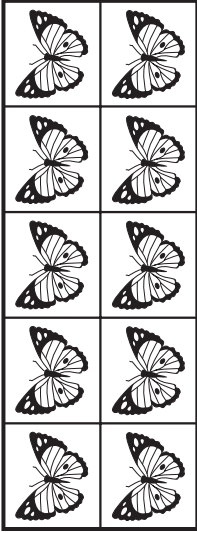

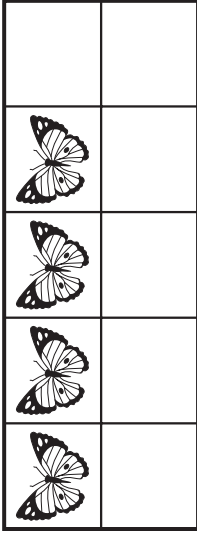
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# Count & Compare Butterfly Cards Page 2 of 2

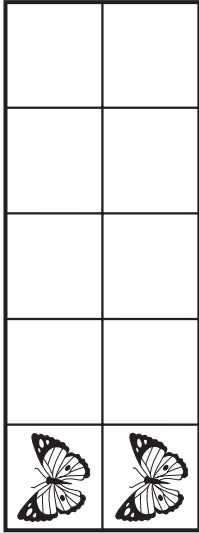
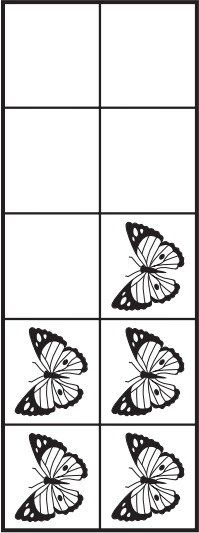
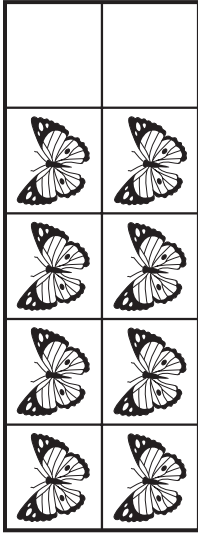
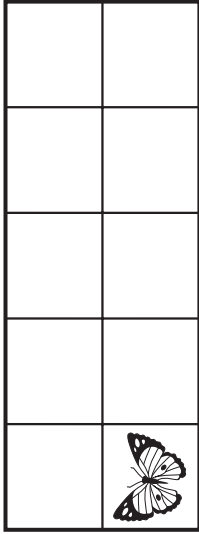
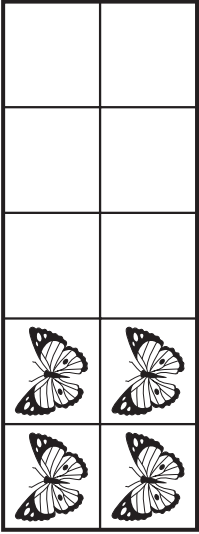
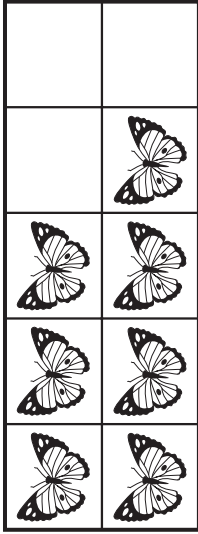
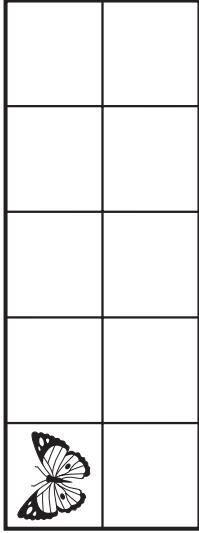
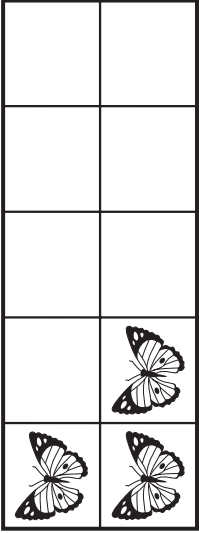
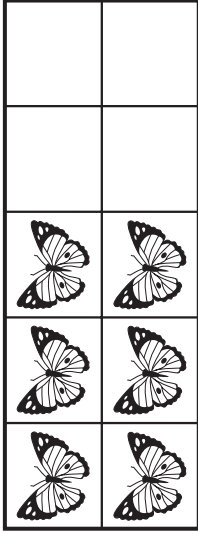
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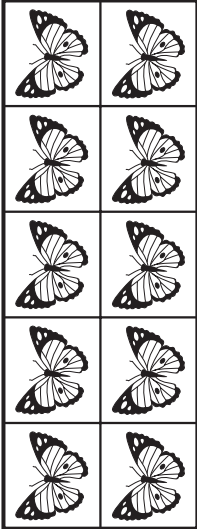
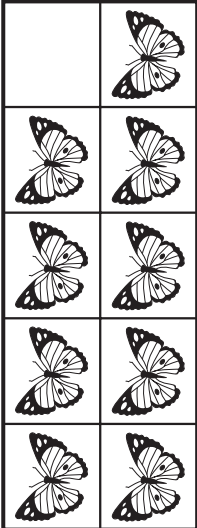
# Count & Compare Butterfly Cards Page 1 of 3

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# Count & Compare Butterfly Cards Page 2 of 3

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# Count & Compare Butterfly Cards Page 3 of 3

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# Set A4 ★ Activity 3



## ACTIVITY

### Fives Up

#### Overview

Fives Up is a partner or small group game in which students search for combinations of dot cards and/or numeral cards that total 5. Introduce it to the whole class, and play it with the group several times before adding it to your current set of Work Places.

#### Skills & Concepts

- ★ read numerals to 5
- ★ compose and decompose numbers to 5
- ★ model addition by joining sets
- ★ verbally describe mathematical relationships involving addition situations
- ★ use one-to-one correspondence to count and compare sets of objects

#### You'll need

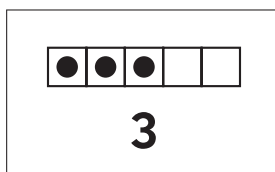
- ★ Fives Up Work Place Menu Card (from Work Place Menu Cards, page A4.26, run 1 copy on cardstock, cut apart and laminate if desired)
- ★ Fives Up cards (pages A4.39–A4.42, see Advance Preparation)
- ★ Fives Up Record Sheet (page A4.43, optional; run as needed)
- ★ helper jar containing a popsicle stick for each child with his/her name on it

**Advance Preparation** Run 1 copy of each page, A4.39–A4.42, on each of 3 different pastel colors of cardstock. Cut cards apart and laminate if desired. Collate so you have 3 decks of 32 cards, each in a different color.

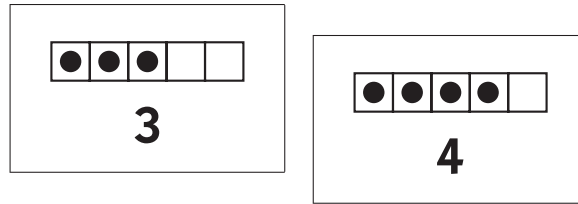
#### Instructions for Introducing Fives Up

1. Gather children to your discussion circle, and explain that you have a new game to play with them. Show them a deck of the Fives Up dot cards you have prepared, and then hold up 6 or 7 of the cards in quick succession as children hold up their fingers to show how many dots they see on each card.
2. Explain that the object of the game is to find cards that can be combined to make a total of 5 dots. Use the cards to show and discuss a couple of examples and counter-examples (e.g., 4 dots and 1 dot, 2 dots and 3 dots, 4 dots and 3 dots). Tell the children that you are going to take your turn first, and then pick a stick from your helper jar to choose a student to take the first turn for the class.

**Teacher** *I'm going to take the first card from the stack and turn it up so we can all see it. How many dots did I get? Three? You're right!*



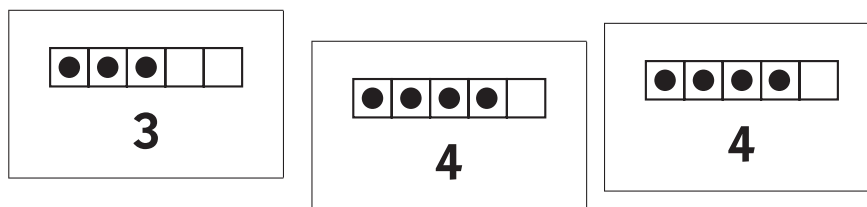
**Teacher** *I didn't get 5, did I? So now it's your turn. Imani, I picked your stick from the jar. Please come turn up the next card in the stack for the class, and set it beside mine.*

**Activity 3** Fives Up (cont.)

**Teacher** Can Imani use these two cards to make 5 for you? What happens if we put the two cards together and count up all the dots? Talk to the person sitting next to you, and raise your hand when you have an idea.

**Students** It makes 7 because it's 1, 2, 3, 4, 5, 6, 7.  
I know because 3 and 3 is 6, then 1 more is 7.

3. Take your next turn, and then choose a stick from your jar to choose the next student to turn over a card for the class.



**Teacher** So far, neither team has been able to make a combination of 5. Jorge, I just picked your stick. Before Jorge turns over the next card, let's think. What card do you hope he gets for you?

**Jon** One with 5 dots!

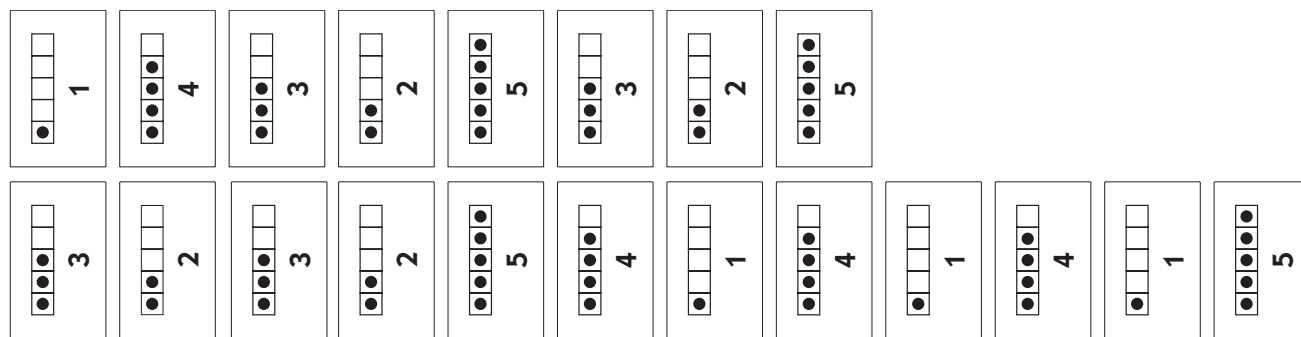
**Teacher** Yep, if Jorge got one with 5 dots, you could take it. Is there any other card that would be good for Jorge to pick for you?

**Alicia** If he gets 2 dots, he can put it with 3. That will make 5.

**Teacher** Do you all agree with Alicia? Thumbs up if you think 3 and 2 will make 5. Does anyone else have an idea?

**Dawn** He should get a 1 because then he can put it with the 4.

4. Play back and forth with the class, picking sticks from the jar to choose children to turn the cards over for the class, as you conduct a play-by-play discussion. At the end of the game, tell the class that the team with the most cards will be the winner. Can they predict which team will win? How will you know for sure? After a little discussion, work with the class to set out the two sets of cards side by side, matching them one for one, so it is easy to see which team got more. Ask children to compare the two sets using such phrases as “more than”, “less than”, or “the same as”. Then have the class count each set, and compare the two in terms of how many more than, and how many less than.

**Activity 3** Fives Up (cont.)

5. Work with the children to count all the dot cards as you pick them up one by one and mix them in preparation for another game.

6. Play Fives Up again with your group several times before making it available during Work Places. Depending on the needs of your students, you might also play it with small groups before adding it to your current set of Work Places.

**Work Place S2** Fives Up**You'll need**

- ★ 3 sets Fives Up Cards (dot cards only; numeral cards are optional, see Instructional Considerations)
- ★ Fives Up Record Sheets (optional; see Instructional Considerations)

**Object of the Game**

Collect pairs or sets of cards that total 5 (e.g., 2 dots and 3 dots; or 2 dots, 2 dots, and 1 dot; a single card with 5 dots). The player with the most cards at the end of the game wins.

**Work Place Instructions**

1. The players mix up the cards and place them in a stack face down between them.
2. First player takes the card from the top of the stack, turns it face up and reports the number of dots. If there are 5 dots, Player 1 can take the card. If there are fewer than 5 dots, Player 1 leaves the card sitting out between him/herself and the other player.
3. Player 2 takes the next card from the stack, turns it face up and reports the number of dots. If there are 5 dots, or if this card can be combined with the other card to make a total of 5, Player 2 gets to take one or both the cards. If it is not possible to make a combination of 5, Player 2 leaves the cards sitting out between him/herself and the other player.
4. Players take turns drawing one card at a time, reporting the number of dots on the card, and trying to combine it with one or more of the cards that are sitting face up to make 5.
5. Play continues until no more cards can be combined to make 5.
6. When as many as possible of the cards have been used, partners lay their cards out in two lines, side-by-side, and count them to determine who got more.

**Note** No one gets extra turns in this game. If a player wins a set of cards, play still reverts to the other player. Also, players can combine more than 2 cards to make 5, for instance,  $2 + 2 + 1$ .

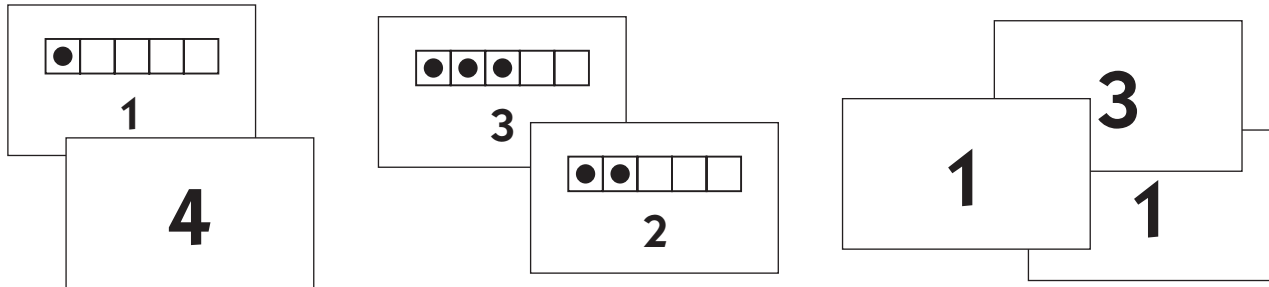
## Activity 3 Fives Up (cont.)



## CHALLENGE

## Instructional Considerations

You can make the game more challenging for students who are ready by adding the numeral cards to the deck. The game is played exactly the same, but some of the combinations will involve dot cards only, some dot and numeral cards, and some just numerals. Some of your students might also enjoy playing the game with numeral cards only.



Another way to extend a challenge is to ask students to record their game results, using the optional Fives Up Record Sheet blackline. The sheet asks students to record the number of cards each partner won, circle “yes” or “no” in response to three questions, and show three different ways to make 5 by drawing pictures or recording combinations.

Name JASON

**Fives Up Record Sheet**


I won 8 cards. My partner won 12 cards.

I won more cards than my partner. YES  NO

I won less cards than my partner. YES  NO

I won the same number of cards as my partner. YES  NO

Here are three different ways to make 5:

 4 + 1      2 2 1

Students who are ready might also be challenged to play for combinations of 6, 7, or 8 using just the dot cards, or even the all the dot and numeral cards in the set.

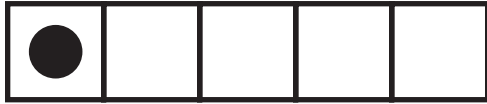
**Note** The National Council of Teachers of Mathematics (NCTM) offers a collection of free online computer activities for K-12 students on their Illuminations web site (<http://illuminations.nctm.org/>). One of the activities on the web site is called Five Frame, and can be reached directly by going to the following URL:

<http://illuminations.nctm.org/ActivityDetail.aspx?ID=74>

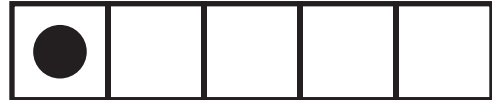
Five Frame allows children to count, build, and add quantities in five frames on screen, and provides a nice way to reinforce and extend the skills introduced in Fives Up. You might consider adding Five Frame to your Work Places, or linking parents to the activity so children can use it at home on their own computer.



# Fives Up Cards Page 1 of 4



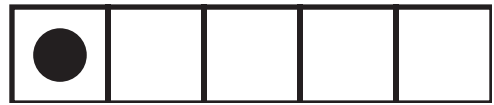
**1**



**1**



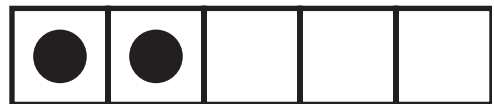
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**1**



**2**



**2**



**2**

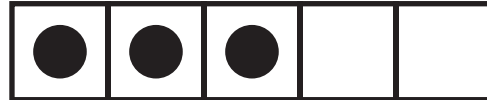


**2**

# Fives Up Cards Page 2 of 4



**3**



**3**



**3**



**3**



**4**



**4**



**4**

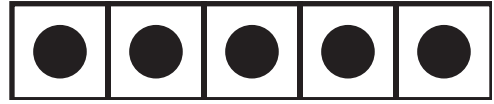


**4**

# Fives Up Cards Page 3 of 4



**5**



**5**



**5**



**5**

**0**

**0**

**1**

**1**

## Fives Up Cards Page 4 of 4

**2**

**2**

**3**

**3**

**4**

**4**

**5**

**5**

Name \_\_\_\_\_

## Fives Up Record Sheet

I won \_\_\_\_\_ cards. My partner won \_\_\_\_\_ cards.

I won more cards than my partner.    YES    NO

I won less cards than my partner.    YES    NO

I won the same number of cards as my partner.    YES    NO

Here are three different ways to make 5:

Name \_\_\_\_\_

## Fives Up Record Sheet

I won \_\_\_\_\_ cards. My partner won \_\_\_\_\_ cards.

I won more cards than my partner.    YES    NO

I won less cards than my partner.    YES    NO

I won the same number of cards as my partner.    YES    NO

Here are three different ways to make 5:



# Set A4 ★ Activity 4



## ACTIVITY

### Frogs & Lily Pads

#### Overview

Frogs & Lily Pads is a board game similar to Butterfly Race that provides an opportunity to teach and reinforce the skill of counting on. Introduce it to the whole class, and play it with the group once or twice before adding it to your current set of Work Places.

#### Skills & Concepts

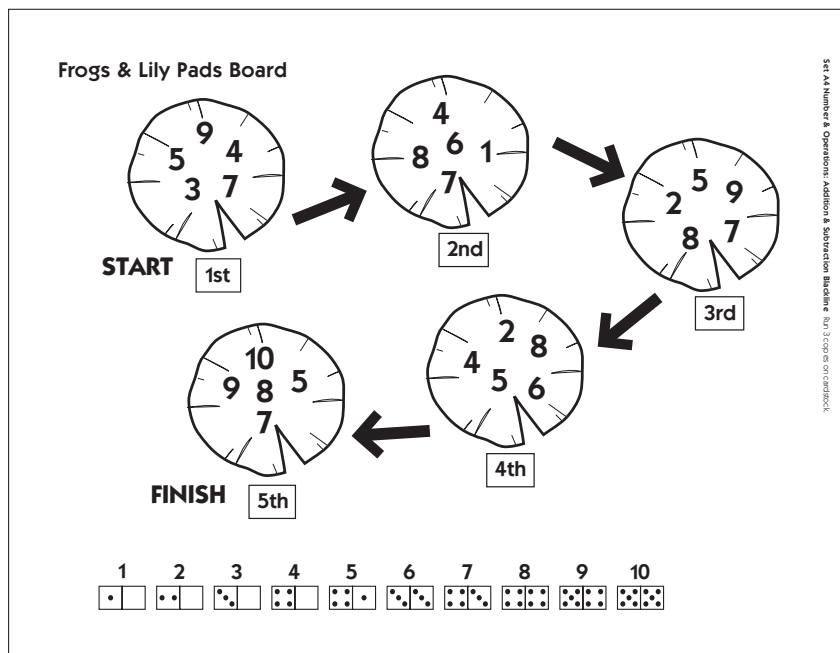
- ★ read numerals to 10
- ★ identify the ordinal position of objects
- ★ model addition for numbers less than 10 by joining sets of objects
- ★ count on to add two numbers

#### You'll need

- ★ Frogs & Lily Pads Work Place Menu Card (from Work Place Menu Cards, page A4.26, run 1 copy on cardstock, cut apart and laminate if desired)
- ★ 3 Lily Pad Boards (page A4.49, run 3 copies on cardstock)
- ★ 3 Frogs & Lily Pads Spinners (pages A4.50–A4.51, run 1 copy of each sheet on cardstock. Color each of the number spinners green. Color the dot spinners light blue. Cut sheet in half and laminate if desired.)
- ★ 6 translucent game markers in several different colors
- ★ helper jar containing a popsicle stick for each child with his/her name on it

#### Instructions for Introducing Frogs & Lily Pads

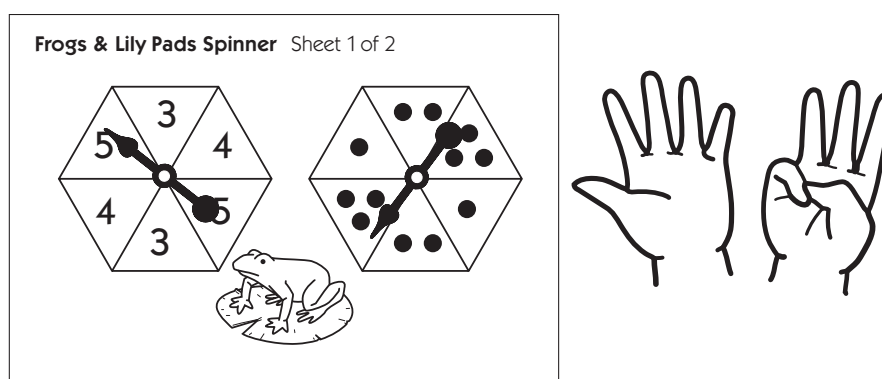
1. Pin one of the Lily Pads boards to a display easel or whiteboard near your discussion area. Gather children to the area, and seat them in a way that they can all see the game board. Explain that you have a new game to share with them, and this is the playing board you will use. Give them a minute or two to pair-share observations about the game board. Then ask volunteers to share their observations with the class.



**Activity 4** Frogs & Lily Pads (cont.)

2. Next, tell them that this game is called Frogs and Lily Pads. It is similar to the Butterfly Race in that the object of the game is to be the first player to reach the fifth lily pad. This time, instead of drawing cards from a stack, you're going to use a double spinner to help get from one lily pad to the next.

3. Ask children to form a circle. Place the spinner on the floor near enough for you to reach as you sit in the circle, but far enough into the middle so children can see it. Give them a moment to examine the spinner, and then spin the arrow on the first spinner. Ask children to name the numeral you spun and show the corresponding quantity on the fingers of one hand. Then spin the arrow on the second spinner. Ask children to identify the number of dots, and show the corresponding quantity on the fingers of their other hand. What happens if they add the two quantities? Give them a moment to pair-share ideas, and then call on volunteers.



4. While some students probably counted their fingers one by one to find a total of 8, others may have counted on from 5 to get the answer. Reinforce the counting on strategy by modeling it and practicing it with the group. Ask children to stretch the fingers on their first hand wide as they say the numeral that was spun, and then tap their heads with each of the fingers on their other hand as they count on: five, six, seven, eight!

5. Repeat steps 3 and 4 several times. Then place the Lily Pads board on the floor next to the spinner, and play the game with the students, following the instructions on the next page. Use your helper jar to select students to spin the spinner each time the class takes their turn. Model and reinforce the counting-on strategy throughout.

6. Play Frogs and Lily Pads again with your group at least once before making it available during Work Places. Depending on the needs of your students, you might also play it with small groups before adding it to your current set of Work Places.



**Activity 4** Frogs & Lily Pads (cont.)**Work Place S3** Frogs & Lily Pads**This Work Place will need**

- ★ 3 Lily Pads boards
- ★ 3 Frogs & Lily Pads spinners
- ★ 6 translucent game markers in several different colors

**Object of the Game**

Be the first player to get your “frog” (game marker) to the fifth lily pad.

**Work Place Instructions**

1. Each player takes a different color game marker and sets it to the left of the first lily pad on the game board.
2. First player spins both spinners, names the number on the first spinner, and counts on the number of dots spun on the second spinner to determine the total. If the first lily pad on the game board has a numeral that matches the total, the player can move his or her marker to the lily pad and set it on top of that numeral. If the first lily pad doesn't have that numeral, the first player must leave his/her marker where it is.
3. Second player takes a turn to spin both spinners, count on to find the total, and move his/her marker to the first lily pad if possible. Partners continue to take turns spinning, adding, and moving their markers ahead, one lily pad at a time. The first player to reach the fifth lily pad wins the game.

**Instructional Considerations for Frogs & Lily Pads**

This game presents a good opportunity to teach and reinforce the strategy of counting on, instead of counting one by one. While some of your students may already be proficient with this strategy, others will need more support to develop the skill.

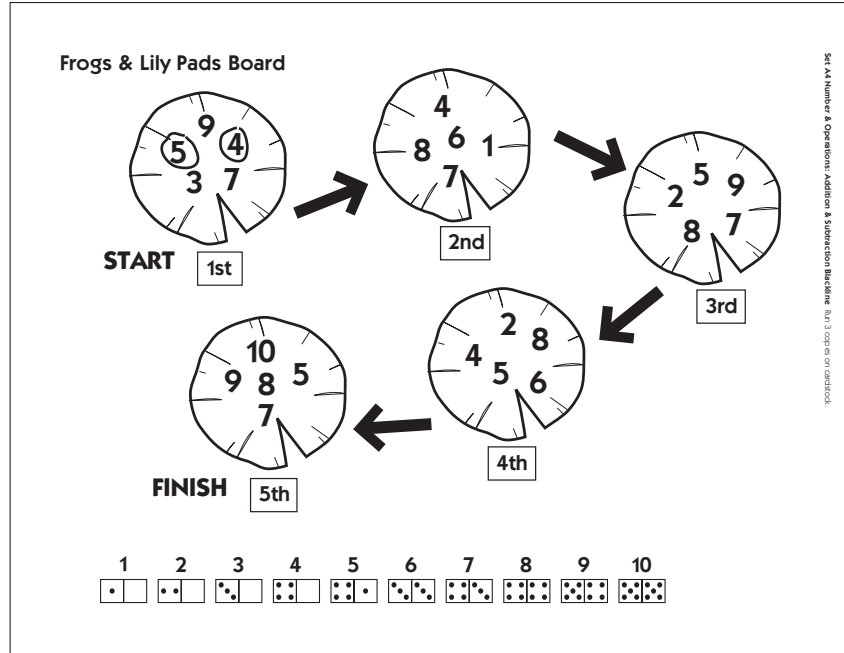
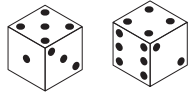
If you encourage children to show both quantities on their fingers each time, students who aren't yet able to count on will have recourse to one-by-one counting, which is fine, but you'll also want to work with those students, or have them play the game with a more capable classmate, older student, or parent volunteer, so they can learn to count on as well.

**CHALLENGE**

Students who are ready for more of a challenge can be asked to spin the numeral spinner twice, add the two numbers, spin the dot spinner, and subtract that number of dots from the total by counting backwards (e.g.,  $4 + 5 = 9$  and  $9 - 2 = 7$ ).

Another way to extend a challenge is to have students roll two regular dice (dotted 1–6), and allow them to use any of the four operations (add, subtract, multiply, or divide) to make a number that will allow them to move their game marker to the next lily pad.

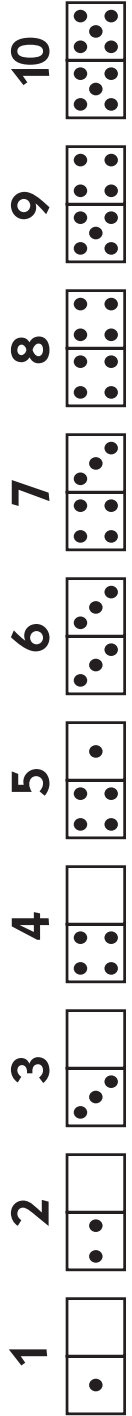
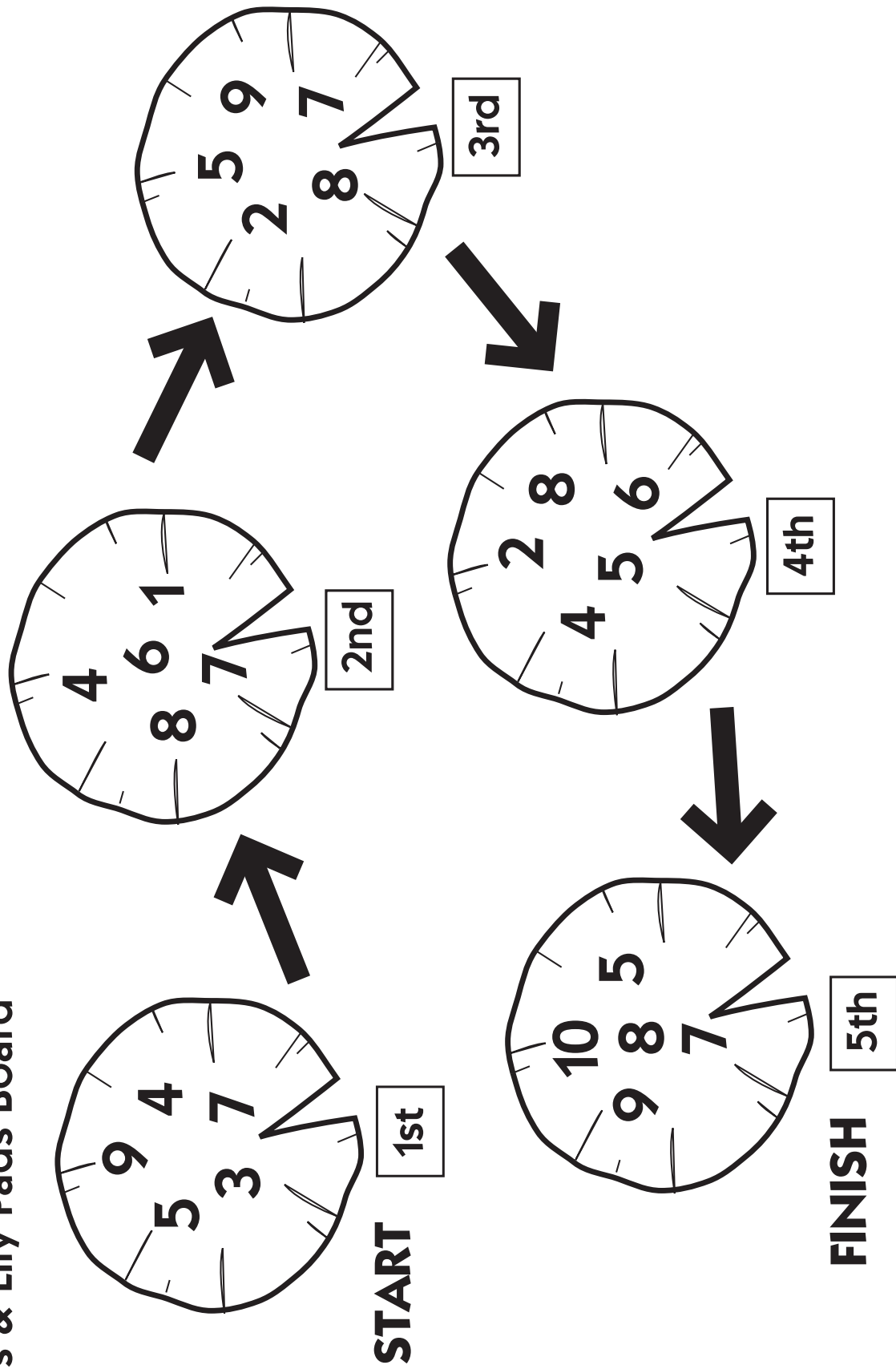
**Activity 4** Frogs & Lily Pads (cont.)



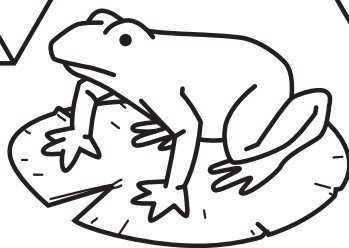
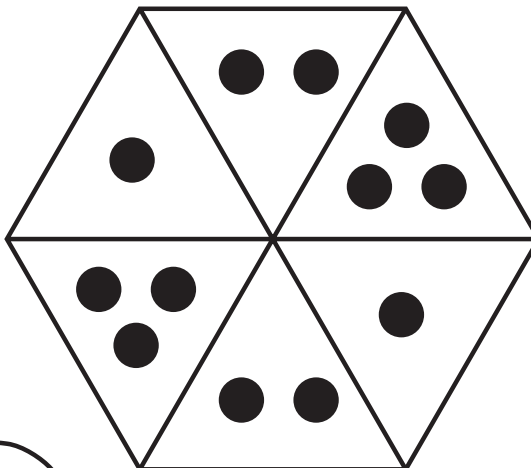
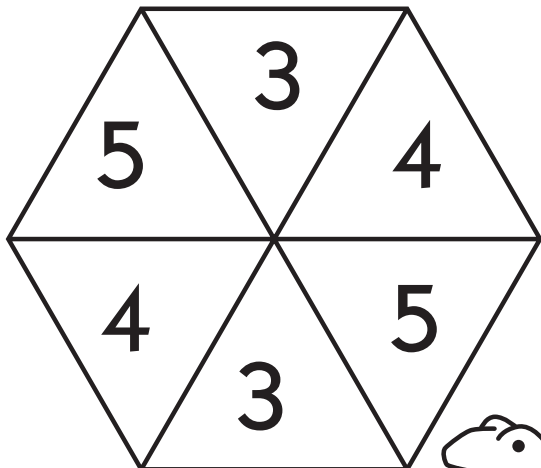
**Jessica** Hmmmm.....I got a 5 and a 4. If I add them, it makes 9, but there's no 9 on the next lily pad. I know! I could go  $5 - 4$ , and that makes 1.

**Josh** I see something else you could do. You could subtract them and take that answer times 4. Five minus four is one. One times four is four which is on the next lily pad.

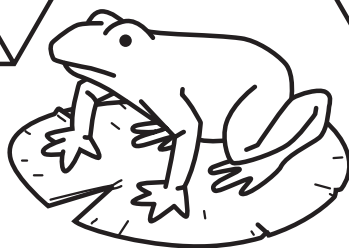
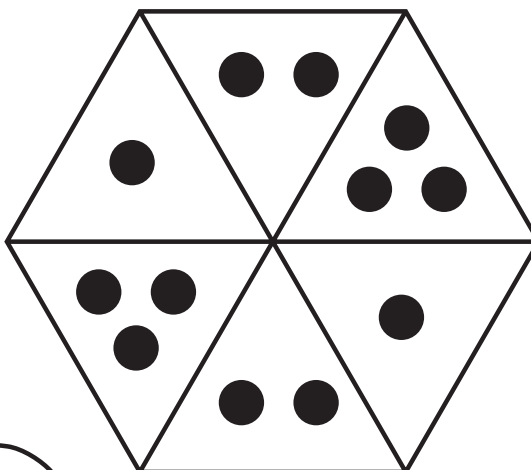
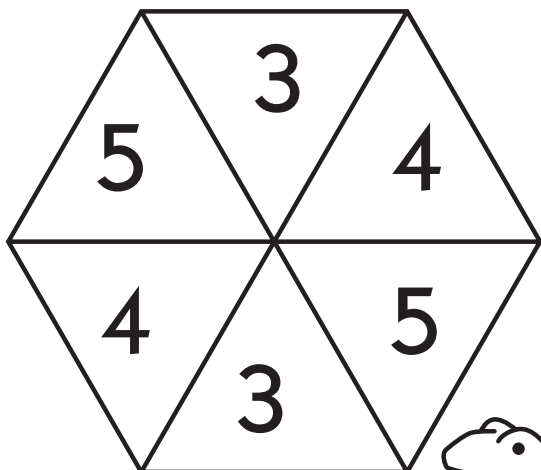
# Frogs & Lily Pads Board



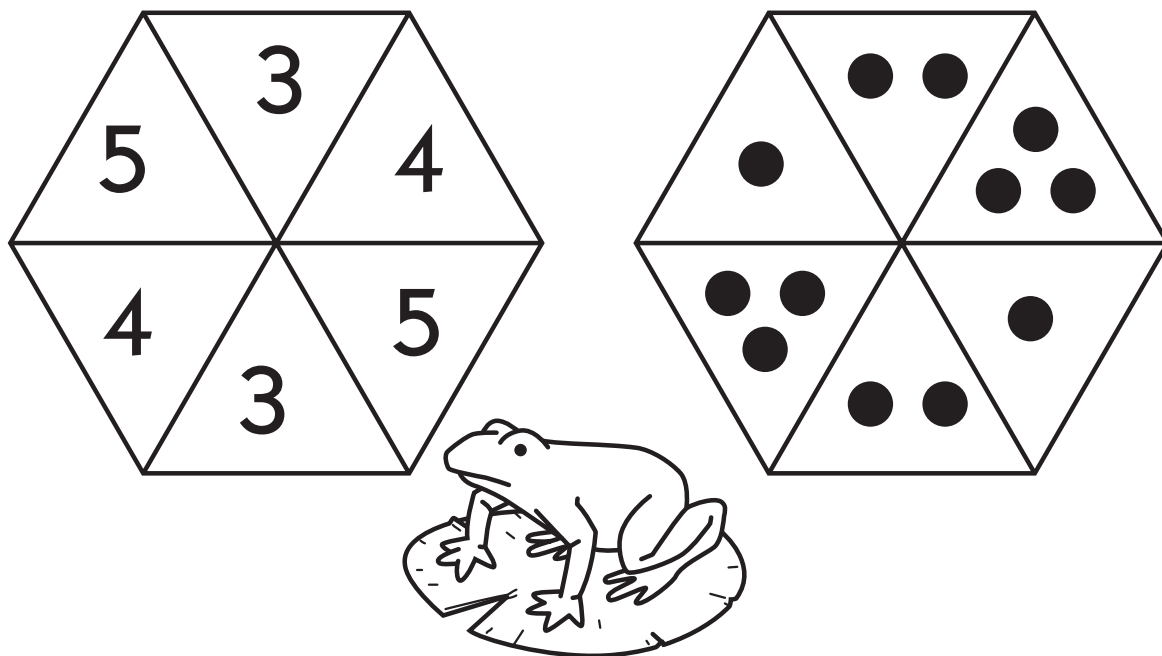
## Frogs & Lily Pads Spinner Page 1 of 2



## Frogs & Lily Pads Spinner

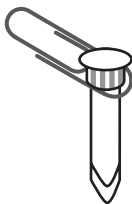


## Frogs & Lily Pads Spinner Page 2 of 2



### Spinner-Making Instructions

1. Poke a brass fastener through a  $\frac{1}{4}$ " length of drinking straw and a paperclip. Be sure to insert the brad and straw into the large end of the paperclip, as shown.



2. Keeping the straw and the paperclip on the brass fastener, insert it into the midpoint hole of the spinner. Once it has been pushed through to the back side, bend each side of the fastener flat against the underside of the gameboard. The section of straw should serve as a spacer so the brad doesn't push the paperclip flat against the gameboard and prevent it from spinning.

3. Give the paperclip a test spin to see if it works.



# Set A4 ★ Activity 5



## ACTIVITY

### The Pond Game

#### Overview

The Pond Game provides an opportunity to teach and reinforce the meaning of the addition and subtraction signs while helping children develop lively understandings of both operations. Introduce the game to your whole class, and play it with the group once or twice before adding it to your current set of Work Places.

#### Skills & Concepts

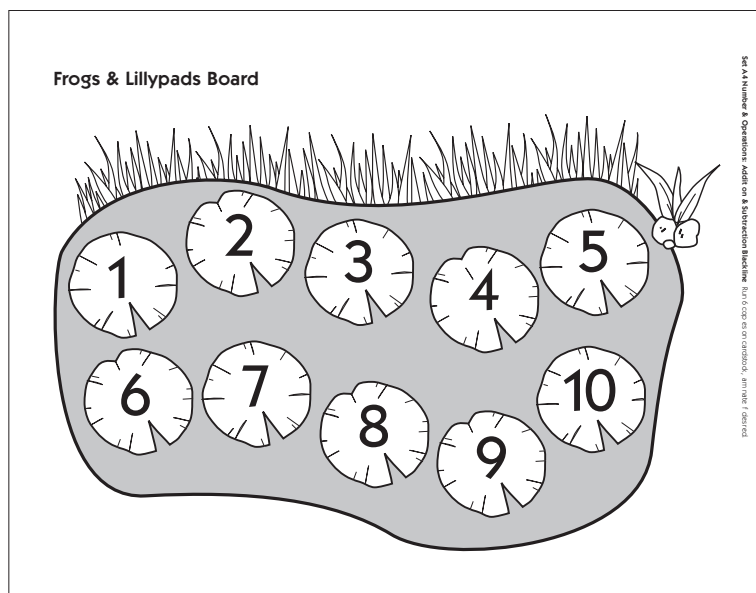
- ★ count objects using one-to-one correspondence
- ★ read the symbols for addition and subtraction, and numerals to 10
- ★ model addition by joining sets of objects and model subtraction by removing objects from sets for numbers less than 10
- ★ verbally describe mathematical relationships involving addition and subtraction situations

#### You'll need

- ★ Pond Game Work Place Menu Card (from Work Place Menu Cards, page A4.26, run 1 copy on cardstock, cut apart and laminate if desired)
- ★ 6 Pond boards (page A4.58, run 6 copies on cardstock, laminate if desired.)
- ★ 3 Add & Subtract spinners (page A4.59, run 1 copy on cardstock, cut apart and laminate if desired.)
- ★ Bucket of Frogs
- ★ Splash! by Ann Jonas (optional)

#### Instructions for Introducing The Pond Game

1. Pin one of the Pond boards to a display easel or whiteboard near your discussion area. Gather children to the area, and seat them in a way that they can all see the game board. Explain that you have a new game to share with them, and this is the playing board you will use. Give them a minute to pair-share observations about the game board. Then ask volunteers to share their observations with the class.



**Activity 5** The Pond Game (cont.)

2. Now ask children to form a circle. Place the board on the floor near enough for you to reach as you sit in the circle, but far enough into the middle so children can see it. Then count 10 frogs out of the bucket as children count with you. Place 5 of them on the board, one on each of the first 5 lily pads, and set the other 5 to the side of the board.

3. Explain that in this game, frogs are going to hop in and out of the pond, but they have to follow the instructions on the game spinner to do so. Then show the spinner and discuss the numbers and symbols on it briefly. Chances are, most of the children can read the numbers. What do those other symbols mean?

**Students** *The one that looks like a cross is for adding. It means you have to add.  
The one that looks like a little line is for taking away, I think.*

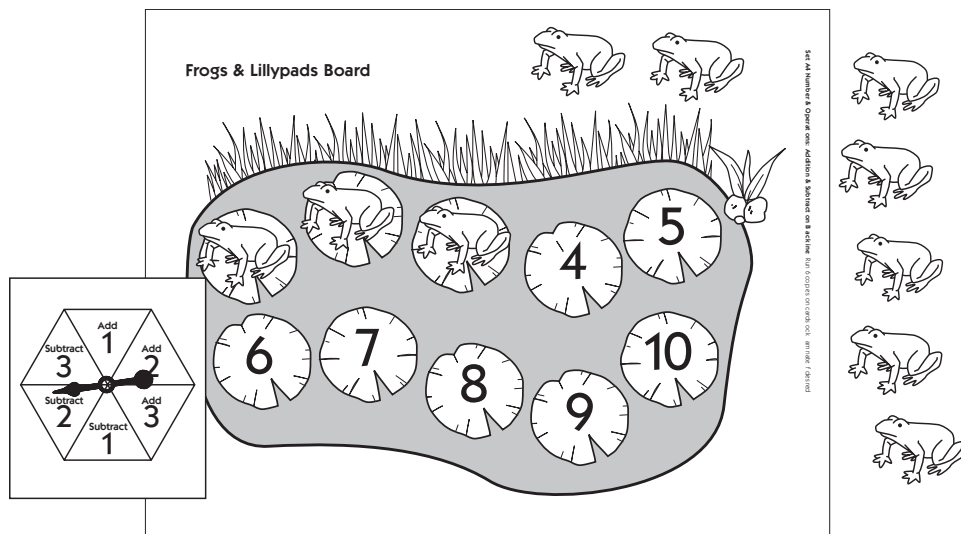
4. Spin the spinner and work with the class to carry out the action indicated by the spinner. Then ask the children to report how many frogs are in the pond.

**Teacher** *The spinner landed on subtract 2. What do I have to do?*

**Students** *You have to take 2 away!  
You have to make 2 of those guys hop out of the pond.*

**Teacher** *Okay, I'll subtract 2. Here they go! How many frogs are in my pond?*

**Students** *Three frogs! Now there are only 3 left! That's not very many.  
Can we put some more in?*



5. Repeat the step above several times, noting with the class that the number of frogs in the pond changes each time, except if the spinner lands on subtract 0. Note too that sometimes it is not possible to carry out the spinner's instructions. If you only have 1 frog on the board, and spin  $-2$ , you have to spin again until you get something you can do. If you have 8 frogs on the board and spin  $+3$ , you have to spin again because you only have 2 frogs left to add, and 2 lily pads left to fill.



**Activity 5** The Pond Game (cont.)

6. Then place another Pond board on the floor next to yours. Ask students to help you count another 10 frogs out of the bucket, and set up both boards so there are 5 frogs on each, and another 5 frogs off to the side for each team. Play the game with the students, following the instructions below. Use your helper jar to select students to spin the spinner and hop the frogs in or out of the pond each time the class takes their turn. Model and reinforce the meaning of the addition and subtraction sign, as well as the two operations, as you play.

7. Play the Pond Game again with your group at least once before making it available during Work Places. Depending on the needs of your students, you might also play it with small groups before adding it to your current set of Work Places.

**Work Place S4** The Pond Game**You'll Need**

- ★ 6 Pond boards
- ★ 3 Add & Subtract spinners
- ★ 10 frogs (or other game markers) for each player

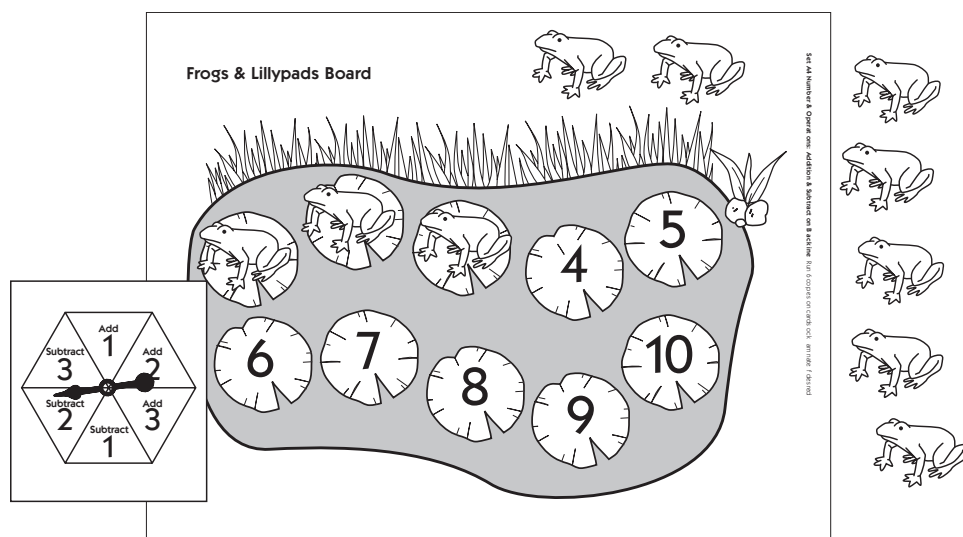
**Object of the Game**

Be the first player fill your Pond board with ten frogs.

**Work Place Instructions**

1. Each player gets a Pond board and 10 frogs. The players each place 5 frogs on their Pond board, on top of the numerals 1–5, and set the other 5 frogs to the side.
2. The first player spins the Add & Subtract spinner, adds or subtracts that many frogs from his/her board, and reports how many frogs are in the pond then.

**Brianna** *I got a 2 with a minus. That means I have to take 2 frogs off my board. Now I only have 3 frogs in my pond.*



3. The second player spins, adds or subtracts the number of frogs indicated by the spinner, and reports how many frogs there are in his/her pond.

**Activity 5** The Pond Game (cont.)

4. Players take turns spinning, adding or removing frogs from the pond, and reporting the results until one player has collected exactly 10 frogs in his/her pond. That player wins the game.

.....

**Note** *If a player makes a spin that cannot be carried out, such as spinning  $-2$  when there is only 1 frog left on the board, or spinning  $+3$  when there are 8 frogs on the board and only 2 available to be added, that player loses his/her turn, and must wait until the next turn to make a move.*

.....

**Instructional Considerations**

Some children will definitely benefit from time spent playing this game with an older student or an adult.

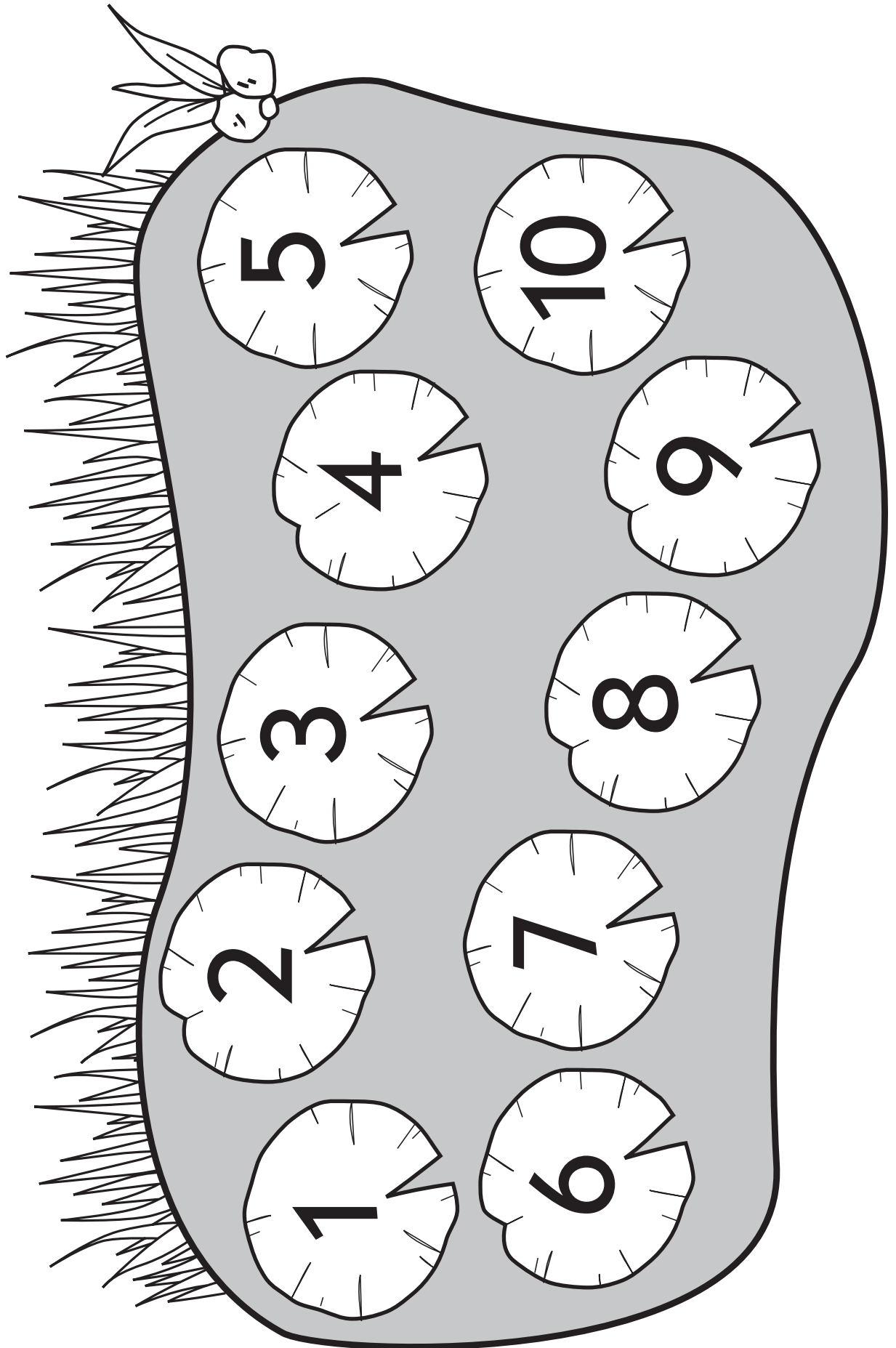
If children have difficulty keeping their frogs organized as they hop in and out of the pond, you might want to provide each player with a 6" x 9" piece of brown construction paper to serve as the bank of the pond, where the frogs that aren't in the pond can sit and sun themselves. An alternative would be to give each player a Counting Mat from your Bridges kit to serve as a resting place for the frogs that aren't in the pond.

Here are some questions you might ask, whether you are observing or playing with a small group of children:

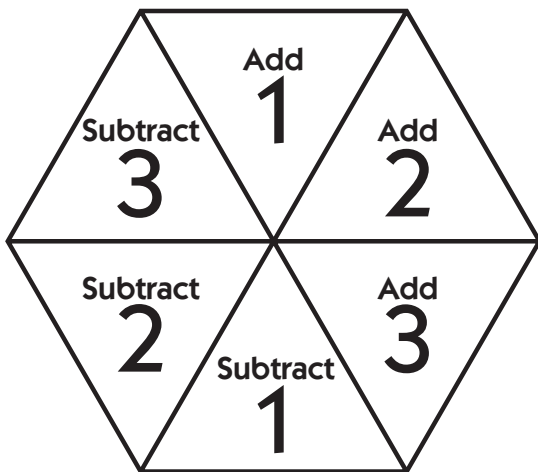
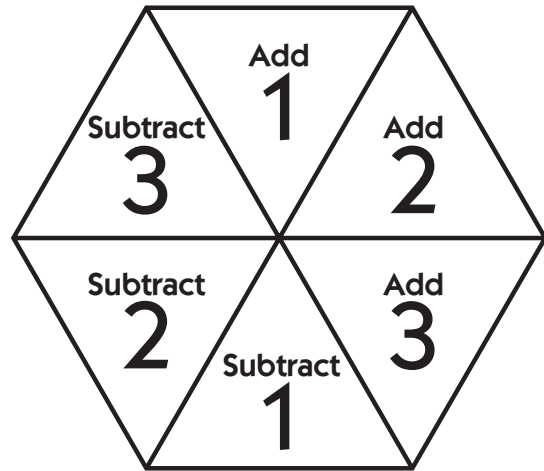
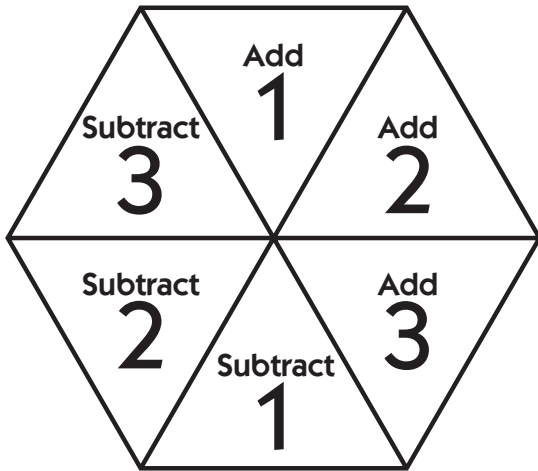
- How many frogs do you have in your pond right now?
- How many more frogs do you need to fill all 10 lily pads?
- How many more frogs does your partner need?
- Where do you want the spinner to land on your next turn? Why?
- Do you think you can win the game? How many more turns do you think it might take? Why?

Either before or after you introduce this game, you might want to read *Splash!* by Ann Jonas to your class. This delightful story is narrated by a little girl who has a pond in her backyard, along with a good collection of pets. It provides a nice introduction to addition and subtraction as the text follows the ins and outs of the pond-side animals.

# Frogs & Lily Pads Board

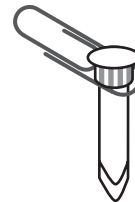


# Add & Subtract Spinners



## Spinner-Making Instructions

1. Poke a brass fastener through a  $\frac{1}{4}$ " length of drinking straw and a paperclip. Be sure to insert the brad and straw into the large end of the paperclip, as shown.



2. Keeping the straw and the paperclip on the brass fastener, insert it into the midpoint hole of the spinner. Once it has been pushed through to the back side, bend each side of the fastener flat against the underside of the gameboard. The section of straw should serve as a spacer so the brad doesn't push the paperclip flat against the gameboard and prevent it from spinning.

3. Give the paperclip a test spin to see if it works.

# Set A4 ★ Activity 6



## ACTIVITY

### Spin, Add & Compare

#### Overview

In Spin, Add & Compare, children spin 2 number spinners, build both quantities with Unifix cubes, add the cubes, and write an equation to show the results. After 3 rounds, partners each snap all their cubes together and compare their winnings. Although you will introduce an abbreviated form of the game to the whole class, and play it several times over a period of a few days, we recommend that you play the full version of Spin, Add & Compare with small groups before adding it to your current set of Work Places.

#### Skills & Concepts

- ★ use one-to-one correspondence to count and compare sets of objects to 30
- ★ read numerals to 5; write numerals to 30
- ★ model addition by joining sets of objects for numbers less than 10
- ★ record mathematical thinking by writing simple addition sentences

#### You'll need

- ★ Spin, Add & Compare Work Place Menu Card (from Work Place Menu Cards, page A4.27, run 1 copy on cardstock, cut apart and laminate if desired)
- ★ Introducing Spin, Add & Compare (page A4.64, run 1 copy on a transparency)
- ★ 3 Spin, Add & Compare Spinners (page A4.65, see Advance Preparation.)
- ★ Spin, Add & Compare Record Sheet (page A4.66, run a class set)
- ★ Unifix cubes
- ★ pencils
- ★ crayons, felt markers, bingo daubers, or small stickers (optional)
- ★ helper jar containing a popsicle stick for each child with his/her name on it

.....  
**Advance Preparation** Run 3 copies of page A4.65 on cardstock. Color the left spinner green and right spinner light blue. Cut page in half and laminate top half. Follow directions on bottom half to create spinners if overlay spinners are not available..  
 .....

#### Instructions for Introducing Spin, Add & Compare

1. Gather children to your discussion area and seat them so they can all see the screen. Explain that you have a new game to play with them called Spin, Add & Compare. Display the game introduction transparency and give students a few moments to examine it quietly. Then tell them that the object of the game is to win the most cubes, and that you will take the first turn so they can see how to play.
2. Spin both spinners, and read the results with the class. If you added the two numbers, what would your total be? Give children a few moments to pair-share their ideas. Then work with input from the class to build the first quantity in the top row of the first frame using Unifix cubes in a single color. Do the same for the second quantity, using cubes of a different color. Ask children to add the cubes in the two rows and whisper the total to their nearest neighbors.

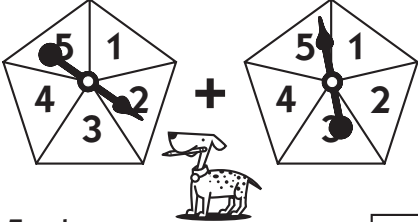
**Activity 6** Spin, Add & Compare (cont.)

3. Work with input from the class to record the results of your turn by writing an addition equation on the transparency.

4. Then have the class take their turn, pulling sticks from your helper jar to select children to spin the spinners and count out the cubes onto the board. Work with input from the class to write an equation to show their results.

Set A4 Number & Operations: Addition & Subtraction Back line Run 1 copy on a transparency

**Introducing Spin, Add & Compare**



**Teacher**

|  |  |  |  |  |
|--|--|--|--|--|
|  |  |  |  |  |
|  |  |  |  |  |

$$\begin{array}{r} 4 \\ + 2 \\ \hline 6 \end{array}$$

**Class**

|  |  |  |  |  |
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$$\begin{array}{r} 2 \\ + 5 \\ \hline 7 \end{array}$$

5. Next, ask children to compare the two quantities. Who won more cubes, the teacher or the class? How do they know?

**Students** *We got more!*  
*We got 7. You only got 6.*  
*We got a whole row full but you didn't.*  
*Let's count them!*

6. Finally, use your helper jar to select two children to snap the cubes into two trains. Hold up the two trains side by side for the children to see, and work with their input to fill in the information at the bottom of the game sheet.

Who won more cubes? TEACHER CLASS TEACHER & CLASS WON THE SAME

The teacher won 6 cubes. The class won 7 cubes.



### Activity 6 Spin, Add & Compare (cont.)

7. Play this game several times with the class. Consider giving the children each 4 stacks of 5 cubes, each stack a different color, and having them build and add the quantities along with you. When they are familiar with the format, introduce and play the game as described below with small groups before adding it to your current set of Work Places.

## Work Place S5 Spin, Add & Compare

### This Work Place will need

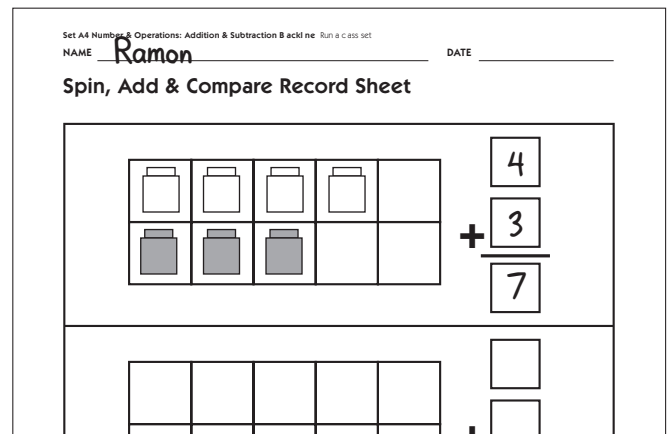
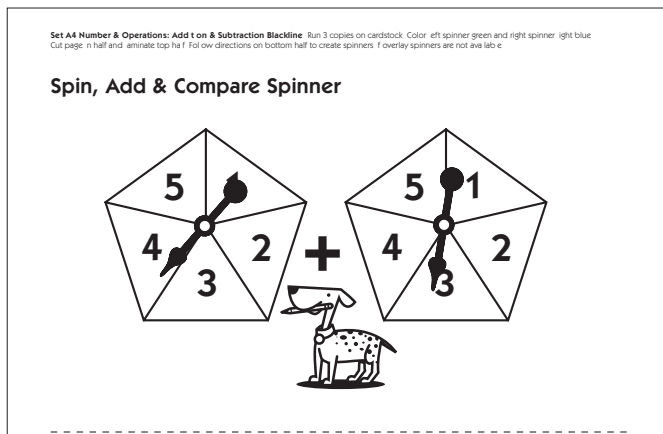
- ★ 3 Spin, Add & Compare spinners
- ★ Spin, Add & Compare Record sheets
- ★ six sets of 30 Unifix cubes; each set should include 5 cubes in each of 6 different colors
- ★ pencils
- ★ crayons, felt markers, bingo daubers, or small stickers (optional)

### Object of the Game

Collect the most Unifix cubes in three turns.

### Work Place Instructions

1. Each partner will need a record sheet, a set of Unifix cubes, and a pencil. Players will need a hard writing surface, and should work at a table rather than the floor, if possible.
2. The first player spins both the top and bottom spinners on the Spin, Add & Compare spinner. Then he/she sets out the specified quantity of Unifix cubes in the top and bottom row of the first frame on his/her record sheet, using a different color for each row. Next, he/she records how many cubes there are in each row, and their total when added.



3. The second player takes a turn to spin, build, and record on his/her sheet.
4. Players each take 2 more turns spinning, building, and recording addition combinations on their own sheets.

**Activity 6** Spin, Add & Compare (cont.)

5. Each player then removes all the cubes from his/her sheet and snaps them together. Players set their cube trains side by side to compare them, and record the results at the bottom of their sheets. Finally, each player counts all the cubes in his/her train and records that information at the bottom of the sheet as well.



Set A4 Number & Operations: Addition & Subtraction B ack ne Run a class set  
 NAME Ramon DATE \_\_\_\_\_

**Spin, Add & Compare Record Sheet**

0 1 2 3 4 5 6 7 8 9 10

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Who won more cubes?  I DID  MY PARTNER DID  MY PARTNER & I WON THE SAME  
 I won 20 cubes. My partner won 17 cubes.

Set A4 Number & Operations: Addition & Subtraction B ack ne Run a class set  
 NAME SAM DATE \_\_\_\_\_

**Spin, Add & Compare Record Sheet**

0 1 2 3 4 5 6 7 8 9 10

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Who won more cubes? I DID  MY PARTNER DID  MY PARTNER & I WON THE SAME  
 I won 17 cubes. My partner won 20 cubes.

**Instructional Considerations for Spin, Add & Compare**

Although some of your students may have the skills to count the cubes in their train by pointing or touching, they will probably get more accurate results if you encourage them to break their trains apart one cube at a time, counting as they go.

You may need to simplify this game for some children by having each partner take just 2 or even 1 turn, instead of 3.

As an extension to this activity, students can be asked once they have completed the game to use crayons, felt markers, bingo daubers, or small stickers to show the number of cubes they got in each row. This gives children an opportunity to picture what has been recorded numerically.



**Activity 6** Spin, Add & Compare (cont.)

Set A4 Number & Operations: Addition & Subtraction Backline Run a class set

NAME Ramon DATE \_\_\_\_\_

**Spin, Add & Compare Record Sheet**

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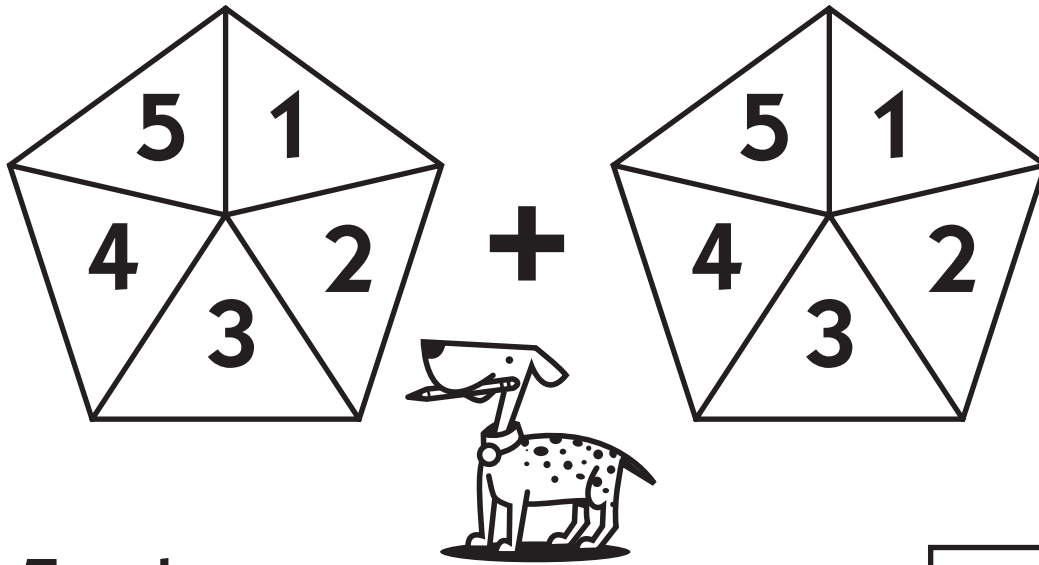
Who won more cubes?  I DID  MY PARTNER DID  MY PARTNER & I WON THE SAME

I won 20 cubes. My partner won 17 cubes.

**Note** The National Council of Teachers of Mathematics (NCTM) offers a collection of free online computer activities for K-12 students on their Illuminations web site (<http://illuminations.nctm.org/>). One of the activities on the web site is called Ten Frame, and can be reached directly by going to the following URL: <http://illuminations.nctm.org/ActivityDetail.aspx?ID=75>

Ten Frame allows children to count, build, and add quantities in ten frames on screen, and provides a nice way to reinforce and extend the skills introduced in Spin, Add & Compare. You might consider adding Ten Frame to your Work Places, or linking parents to the activity so children can use it at home on their own computer.

# Introducing Spin, Add & Compare



**Teacher**

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**Class**

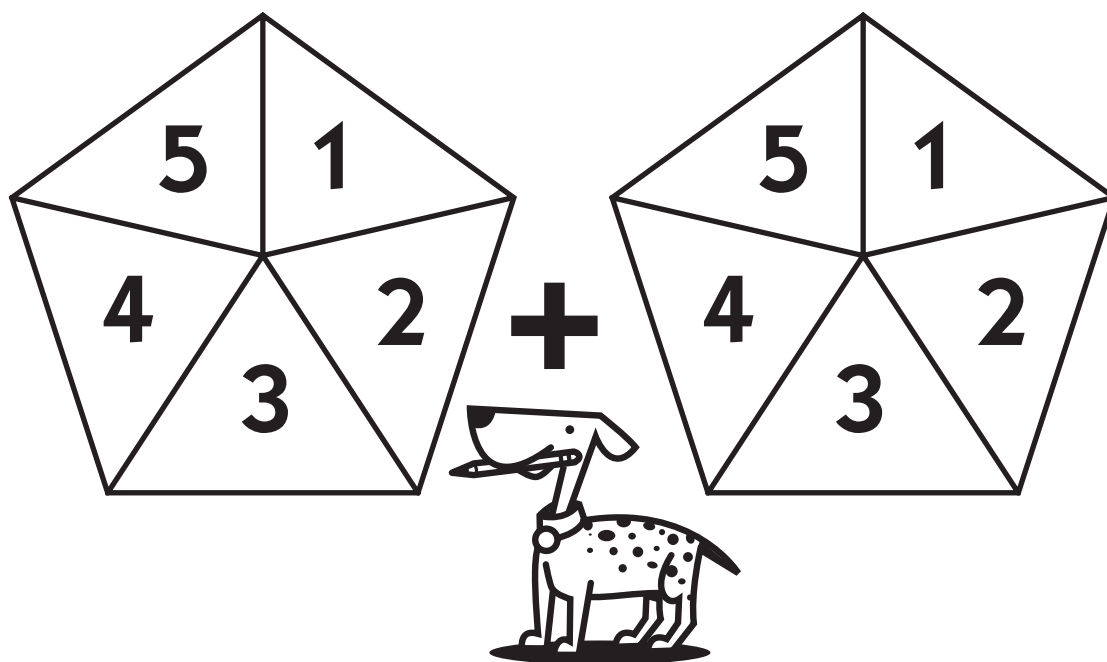
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Who won more cubes?    TEACHER    CLASS    TEACHER & CLASS WON THE SAME

The teacher won \_\_\_\_\_ cubes. The class won \_\_\_\_\_ cubes.

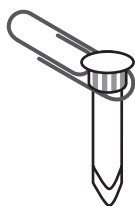
## Spin, Add & Compare Spinner



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### Spinner-Making Instructions

1. Poke a brass fastener through a  $\frac{1}{4}$ " length of drinking straw and a paperclip. Be sure to insert the brad and straw into the large end of the paperclip, as shown.



2. Keeping the straw and the paperclip on the brass fastener, insert it into the midpoint hole of the spinner. Once it has been pushed through to the back side, bend each side of the fastener flat against the underside of the gameboard. The section of straw should serve as a spacer so the brad doesn't push the paperclip flat against the gameboard and prevent it from spinning.

3. Give the paperclip a test spin to see if it works.

NAME \_\_\_\_\_

DATE \_\_\_\_\_

# Spin, Add & Compare Record Sheet

0 1 2 3 4 5 6 7 8 9 10

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Who won more cubes? I DID MY PARTNER DID MY PARTNER & I WON THE SAME

I won \_\_\_\_\_ cubes. My partner won \_\_\_\_\_ cubes.

# Set A4 ★ Activity 7



## ACTIVITY

### Bug Catchers

#### Overview

Bug Catchers is an individual activity rather than a partner game, in which children set out a number of plastic bugs, “catch” some of them, and write a subtraction equation to represent the transaction.

#### Skills & Concepts

- ★ compose and decompose numbers to 10
- ★ model subtraction by removing objects from sets for numbers less than 10
- ★ verbally describe mathematical relationships involving subtraction situations for numbers less than 10
- ★ record mathematical thinking by writing simple subtraction sentences

#### You'll need

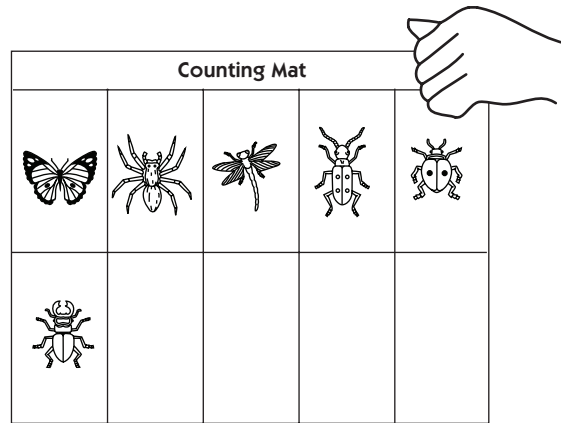
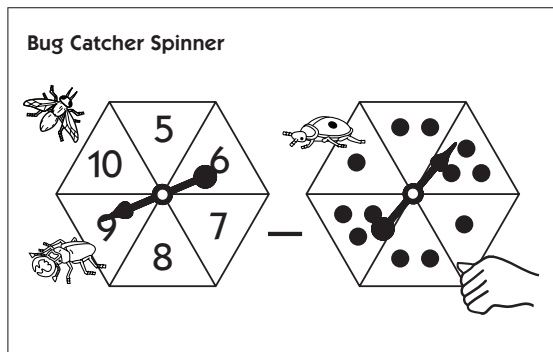
- ★ Bug Catcher Record Sheet (page A4.71, run a class set)
- ★ 6 Bug Catcher Spinners (page A4.72, run 3 copies on cardstock. See Advance Preparation.)
- ★ 6 Counting Mats (introduced in Bridges, Session 4)
- ★ Bucket of Bugs
- ★ Pencils
- ★ individual chalkboard/whiteboard, chalk/pen, and eraser for each student

.....  
**Advance Preparation** Run 3 copies of page A4.72 on cardstock. Color each of the number spinners green. Color each of the dot spinners pink. Cut sheet in half and laminate. Follow directions on page A4.65 to create spinners (unless clear overlay spinners are available).  
 .....

#### Instructions for Introducing Bug Catchers

1. Ask children to each get a chalkboard/whiteboard, piece of chalk/pen, and an eraser, and join you in the discussion area. Ask them to form a circle and place their writing materials on the floor in front of them.
2. Explain that you are going to introduce a new Work Place called Bug Catchers. Set out a counting mat, a handful of bugs, and a spinner. These are some of the materials you'll need to do the activity. Let the children know that this is an individual activity rather than a partner game, and will help them learn more about subtraction.
3. As students watch, spin the numeral side of the spinner. Work with their help and input to read the numeral and place that many bugs on the counting mat. Then spin the dotted side of the spinner. When it lands, ask students to name the quantity, and explain that the dots show how many bugs you get to catch. Place your hand dramatically over that many bugs and remove them from the counting mat, holding them in your fist. How many bugs are still left on the mat? How many bugs are you holding in your hand? Ask students to pair-share ideas, and then call on volunteers to share with the class. As they share, encourage them to explain their answers.

## Activity 7 Bug Catchers (cont.)



**Maribel** 6 bugs left, even the butterfly.

**Teacher** Maribel says there are 6 bugs left on the mat. Thumbs up if you agree. How do you know for sure?

**Students** There are 5 on top and 1 on the bottom. That's 6!

1, 2, 3, 4, 5, 6!

2 up and down, and 4 more. That's 6!

**Teacher** How many bugs am I holding in my hand?

**Gerald** 4, I think, because there are 4 empty boxes on there.

**Teacher** Gerald says there are 4 bugs in my hand. Thumbs up if you agree. How do you know for sure?

**Students** There are 4 empty boxes.

But there were only 9 bugs to start. I think teacher has 3.

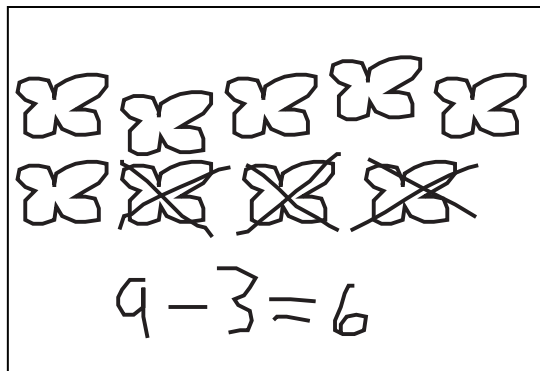
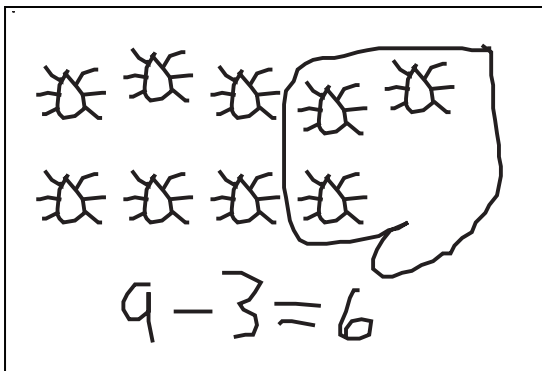
Can we see?

4. Open your hand so students can see how many bugs you caught. Then work with input from the children to re-enact the story.

**Teacher** I spun 9 so I put 9 bugs on the mat. Are there 9 here? Oh, okay. I guess I need to put these 3 bugs back on the mat. Are there 9 now? Okay! Then what happened? Right! I spun 3 dots, so I caught 3 bugs and left the rest on the mat. Max, can you come and catch 3 bugs from the mat? How many bugs are left? How many bugs does Max have in his hand?

5. Ask students to each draw a picture on their board to show the bug catching story you re-enacted. Model as necessary at the whiteboard or on a piece of chart paper. Then work with the students to write an equation that represents the transaction.

**Activity 7** Bug Catchers (cont.)



6. Repeat the teaching sequence described above several times over the course of a week or two, before you introduce the Work Place and add it to your current collection of Work Places.

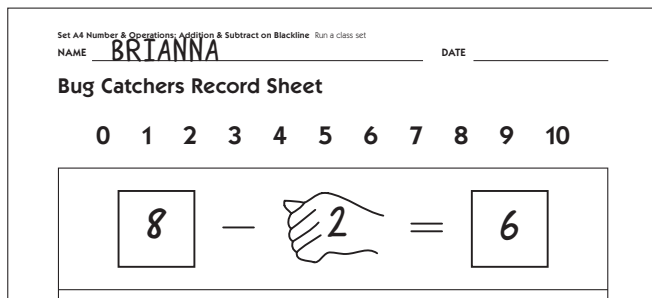
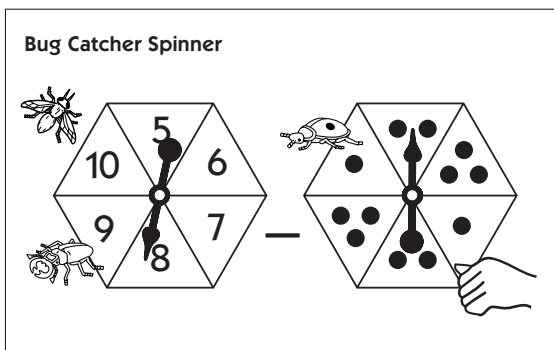
**Work Place S6** Bug Catchers

**This Work Place will need**

- ★ Bug Catcher Record Sheet (page A4.71, run a class set)
- ★ 6 Bug Catcher Spinners (page A4.72, run 3 copies on cardstock.)
- ★ 6 Counting Mats (introduced in Bridges, Session 4)
- ★ Bucket of Bugs
- ★ Pencils

**Work Place Instructions**

1. Get a spinner, a record sheet, a counting mat, 10 bugs, and a pencil. Work at a table instead of the floor if possible because you need a hard writing surface.
2. Spin the number spinner, and place that many bugs on your counting mat. Write the number on your record sheet.
3. Spin the dot spinner. Catch that many bugs and take them off the counting mat.
4. Record the number of bugs you caught and the number of bugs still left on your counting mat.



## Activity 7 Bug Catchers (cont.)

5. Repeat these steps four more times so that your record sheet is full.

### Instructional Considerations for Bug Catchers

Even though this Work Place is an individual activity rather than a game, you might want to encourage children to work in pairs so they can tell their bug catching stories to each other, as well as share and compare their work.

Some children may need to work with support from older students or parent volunteers. Bug Catchers is a good activity to use in a small group setting as well as during Work Places.

### Questions to ask:

How do you know how many bugs to start with? How do you know how many you get to catch?

Can you tell me the story of your first equation? How many bugs did you put on your board to start?

How many bugs were left? What does this number at the end of the sentence mean? Oh, it's the number of bugs that were left on the mat? What happened to the other ones?

.....  
**Note** The National Council of Teachers of Mathematics (NCTM) offers a collection of free online computer activities for K-12 students on their Illuminations web site (<http://illuminations.nctm.org/>). One of the activities on the web site is called *How Many Under the Shell*, and can be reached directly by going to the following URL: <http://illuminations.nctm.org/ActivityDetail.aspx?ID=198>

*How Many Under the Shell* features an animated Octopus who hides some bubbles under a shell, and then either adds more bubbles or takes some away. Students have to figure out how many bubbles are under the shell once Okta has made the transaction. This online activity provides a nice way to reinforce and extend the skills introduced in *Bug Catchers*. You might consider adding *How Many Under the Shell* to your Work Places, or linking parents to the activity so children can use it at home on their own computer.

.....



NAME \_\_\_\_\_

DATE \_\_\_\_\_

# Bug Catchers Record Sheet

0 1 2 3 4 5 6 7 8 9 10

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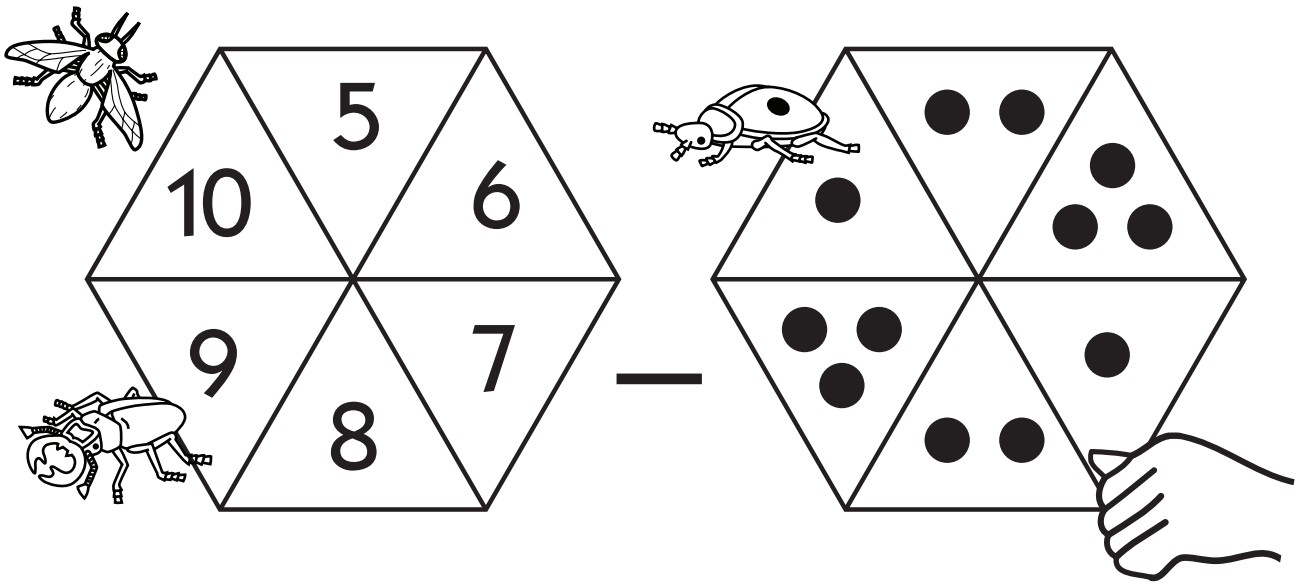
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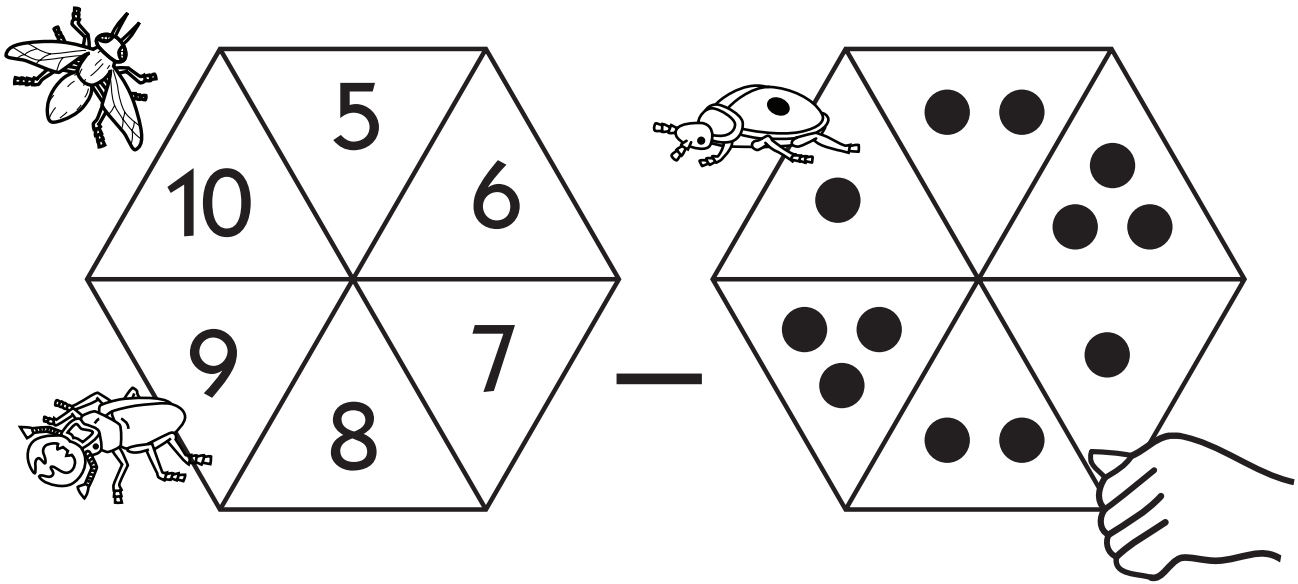
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## Bug Catcher Spinner



## Bug Catcher Spinner



# Set A4 ★ Activity 8



## ACTIVITY

### Piggy Banks

#### Overview

Piggy Banks is an individual activity rather than a partner game, in which children set out a number of pennies, drop some of them into a paper cup piggy bank, and write a subtraction equation to represent the transaction.

#### Skills & Concepts

- ★ composing and decomposing numbers to 10
- ★ model subtraction by removing objects from sets for numbers 10 or less
- ★ counting backwards to subtract
- ★ verbally describe mathematical relationships involving subtraction situations for numbers 10 or less
- ★ record mathematical thinking by writing simple subtraction sentences

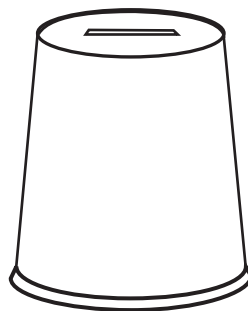
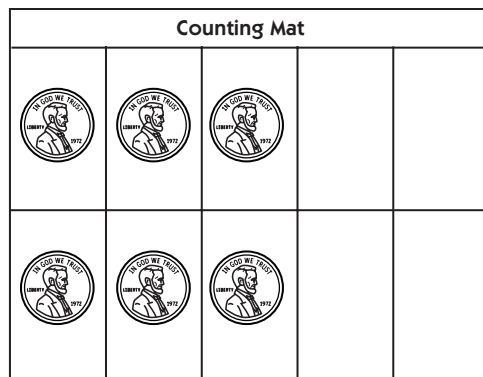
#### You'll need

- ★ 6 Piggy Bank Spinners (page A4.77, run 3 copies on cardstock)
- ★ Piggy Bank Record Sheet (page A4.78, run as needed)
- ★ 6 Counting Mats (introduced in Bridges, Session 4)
- ★ 6 small paper cups and 1 large paper cup (see Advance Preparation)
- ★ 60 real pennies
- ★ pencils
- ★ a metal or plastic tray

.....  
**Advance Preparation** Cut a slot a little wider and longer than a penny in the bottom of each paper cup. Decorate the large cup by gluing on a pair of paper ears and drawing a piggy face on one side if you like.  
 .....

#### Instructions for Introducing Piggy Banks

1. Ask children to join you in the discussion area and form a circle. Explain that you are going to introduce a new Work Place called Piggy Banks. Place the metal or plastic tray in the middle of the circle where children can see it, but you can still reach it easily as you sit at the edge of the circle.
2. Show students the large paper cup, and explain that it is your piggy bank. Demonstrate that you can drop a penny through the slot at the top. Then place the “bank” on the metal or plastic tray, bottom up, so the slot is accessible.
3. Place the counting mat beside the tray and set 10 pennies onto the mat as the children count with you. Explain that you are going to save some of these pennies by dropping them into your bank. Ask students to close their eyes and listen for the sound of the pennies dropping into the bank; they'll need to be extra quiet! Remove 4 pennies from the counting mat one by one, dropping them into the bank as you go.
4. Ask children to keep their eyes shut and show with their fingers how many pennies you dropped into the bank. Then have them open their eyes. How many pennies did you put in the bank? How many pennies do you have left on the mat? How do they know? Have them pair-share their ideas and then ask a few volunteers to share with the group. Encourage them to explain their answers.



**Students** You put 4 in the cup because I heard them.

It's 6 on the mat 'cause 3 and 3.

I know you did 4 because there are 4 empty spaces on the mat.

There were 10 but now only 6. That's 'cause 10 take away 4 is 6.

Can we see?

5. Lift up the cup and show children that you put 4 pennies in the bank. What will happen if you take the pennies out of the bank and put them back on the mat? Will you have 10 again? Why?

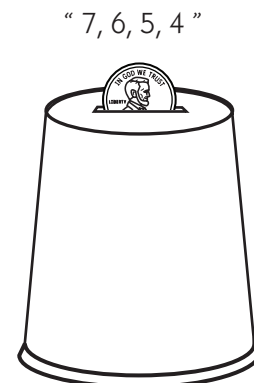
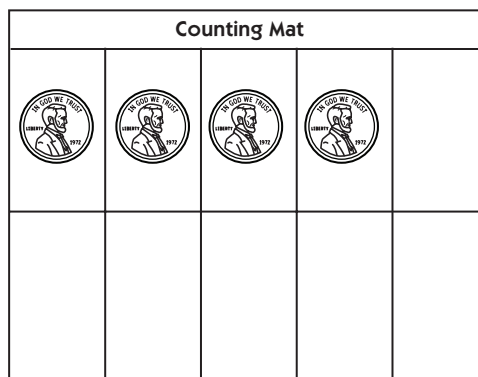
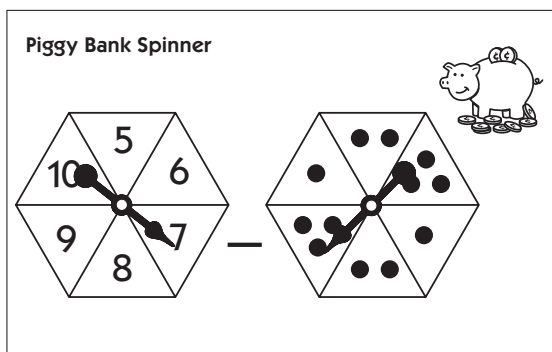
**Students** Because 6 and 4 is 10.

It goes 6, 7, 8, 9, 10.

6. Return the pennies to the counting mat, and repeat steps 3–5 several times. Drop a different number of pennies into the bank each time, but no more than 5.

7. Now clear all 10 pennies off the mat. Show children the Piggy Bank spinner. Explain that the spinner will tell you how many pennies to start with on the counting mat, and how many to put in the bank. Then spin the numeral side of the spinner. Read the numeral the spinner lands on with the students, and call on a volunteer to count that many pennies onto the mat.

8. Now spin the dotted side of the spinner. How many pennies does it tell you to put into the piggy bank? How many pennies will you have left on the mat? Ask children to pair-share their ideas, and then call on a couple of volunteers to share. Then ask children to show on their fingers how many pennies there are on the mat right now. Have them count backward from that number with you as you drop the specified quantity of pennies into the bank. How many pennies are left on the mat? Does that number match the last number they named as they were counting backwards? Why?



9. Repeat steps 7 and 8 once or twice more, and promise to return to the activity the next day.

10. Prior to sending children out to do Work Places the following day, set up the spinner, counting mat, piggy bank on the tray, and pennies again as the students join you in the discussion circle. Ask them to each bring a chalkboard/whiteboard, piece of chalk/pen, and eraser to the circle. Repeat steps 7 and 8 several times, but this time, record an equation to show the transaction on the board, while children work on their own boards.

11. Show children the Piggy Bank Work Place and make it available as one of the day's choices. As soon as students are settled, meet with the group of children who chose to go to the Piggy Bank activity to help them get started. Call other small groups to join you at that Work Place over the next few days as time allows.

## Work Place S7

**Piggy Banks** This Work Place will need

- ★ 6 Piggy Bank Spinners (page A4.77, run 3 copies on cardstock)
- ★ Piggy Bank Record Sheet (page A4.78, run as needed)
- ★ 6 Counting Mats (introduced in Bridges, Session 4)
- ★ 6 small paper cups (see Advance Preparation)
- ★ 60 pennies
- ★ pencils

### Work Place Instructions

1. Get a spinner, a record sheet, a counting mat, a paper cup, 10 pennies, and a pencil. Work at a table instead of the floor if possible because you need a hard writing surface.
2. Spin the number spinner, and place that many pennies on your counting mat. Write the number on your record sheet.
3. Spin the dot spinner, and write the number on the piggy bank's nose because that is how many pennies you will put into the bank.
4. Count backwards from the starting number as you drop each penny into the bank.

5. Record the number of pennies still left on the mat after you put some in the bank.

**Piggy Bank Spinner**

**Counting Mat**

|  |  |  |  |
|--|--|--|--|
|  |  |  |  |
|  |  |  |  |

“ 6, 5, 4, 3 ”

Set A4 Number & Operations: Addition & Subtraction Blackline Run as needed

NAME Maria DATE \_\_\_\_\_

**Piggy Bank Record Sheet**

0 1 2 3 4 5 6 7 8 9 10

|   |   |  |   |   |
|---|---|--|---|---|
| 6 | — |  | = | 3 |
|   |   |  | = |   |

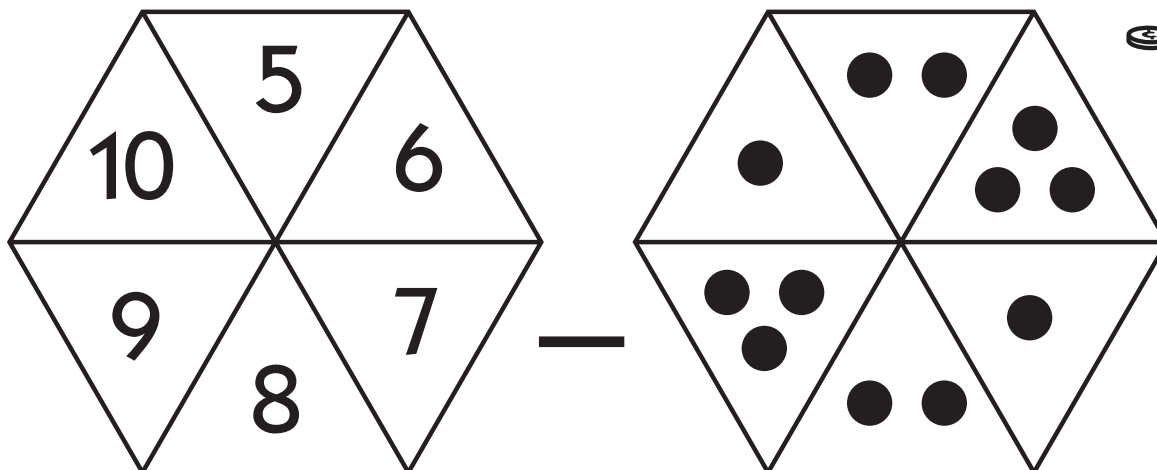
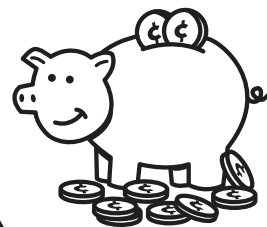
6. Repeat these steps four more times so that your record sheet is full.

**Instructional Considerations for Piggy Banks**

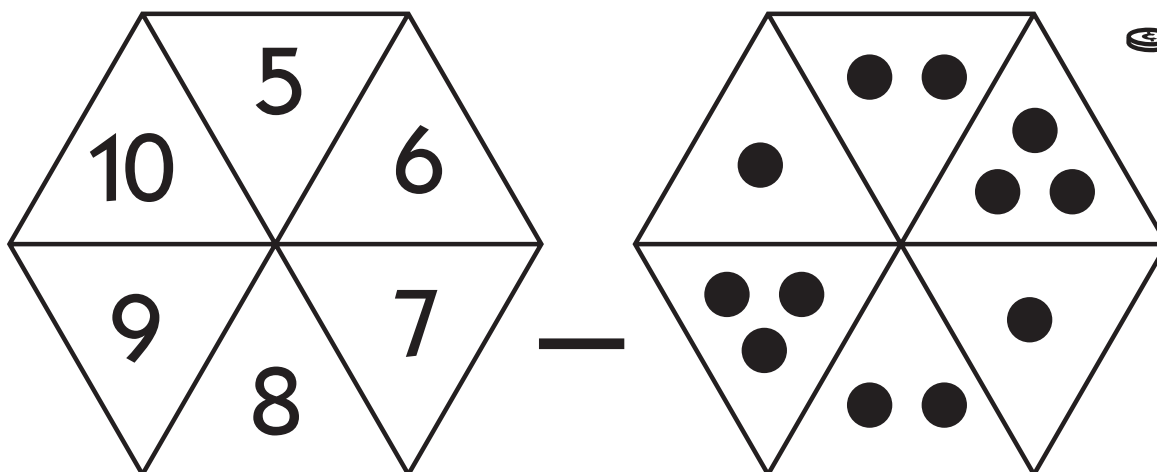
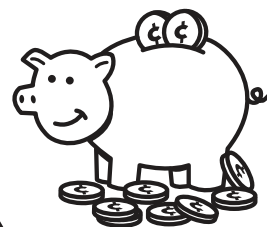
Even though this Work Place is an individual activity rather than a game, you might want to encourage children to work in pairs so they can tell their piggy bank stories to each other, as well as share and compare their work.

Some children may need to work with support from older students or parent volunteers, especially to develop the skill of counting backwards to subtract. Piggy Banks can be used in a small group setting as well as a Work Place.

## Piggy Bank Spinner



## Piggy Bank Spinner



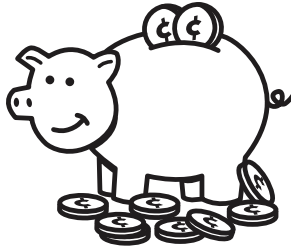
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DATE \_\_\_\_\_

# Piggy Bank Record Sheet

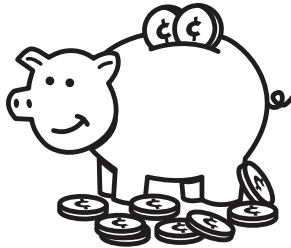
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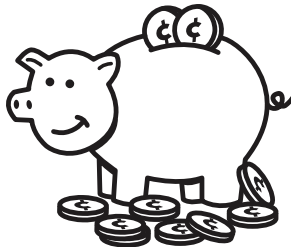
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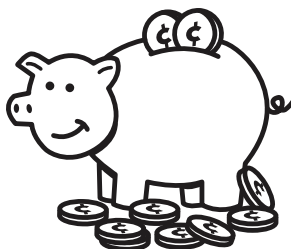
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