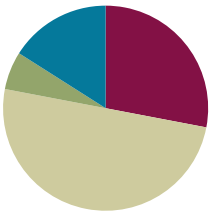
Lesson 7

Objective: Model decompositions of 6 using a story situation, objects, and number bonds.

Suggested Lesson Structure



Fluency Practice	(14 minutes)
Application Problem	(3 minutes)
Concept Development	(25 minutes)
Student Debrief	(8 minutes)
Total Time	**(50 minutes)**

Fluency Practice (14 minutes)

- Number Bond Flash **K.OA.5** (5 minutes)
- 5-Group on the Dot Path **K.CC.2** (4 minutes)
- Make 6 Matching Game **K.OA.1** (5 minutes)

Number Bond Flash (5 minutes)

Materials: (T) Magnetic shapes or dry-erase markers (S) Personal white board

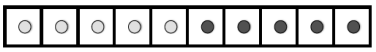
Note: This is a maintenance activity to support fluent understanding of the relationships between numbers to 5 through number bonds.

T: (Show 3 red squares and 1 yellow square.) How many squares do I have?
S: 4 squares.
T: How many are yellow?
S: 1.
T: How many are red?
S: 3.
T: 1 and 3 are the parts. 4 is the whole. Draw a number bond to tell about my squares. Lift up your board when you are done.
S: (Write number bonds using drawings or numerals. Lift boards to signal completion.)
T: Nice job.

Repeat with 2 + 2, 4 + 1, and 2 + 3. As students show mastery, stop naming the parts and whole before they draw.

5-Group on the Dot Path (4 minutes)

Materials: (S) Dot path (Fluency Template 1) inserted into personal white board



Dot Path

Note: This activity helps students gain flexibility in grouping 5 and starting to count on from 5 pictorially. This helps students think about 6 as 5 and 1 more in preparation for the day's lesson.

T: Touch and count the dots on your dot path.
S: 1, 2, 3, …, 10.
T: What do you notice about the dot path?
S: There are 10 dots. → There are two different colors of dots. → The color changes after 5.
T: Yes. I'm going to ask you to circle a group of dots. Use the color change after 5 to count and circle them as fast as you can. Ready? Circle 5.
S: (Circle a group of 5 dots.)
T: How did you do that so fast?
S: I just circled all the light ones, and I knew it was 5.
T: Erase. Get ready for your next number. Circle 6.
S: (Circle a group of 6 dots.)
T: How did you count 6?
S: I counted all of the dots until I got to 6. → I counted 1 more than 5.

If students are starting to count on, let them share their thinking with the class. Continue the process with numbers to 10. Deviate from a predictable pattern as students show mastery.

NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Counting on is a Level 2 method for solving single-digit addition and subtraction problems. Students are not expected to use this method until Grade 1. Those working above grade level may be ready to count on in this simplified context. If students are starting to count on, invite them to talk or write about their thinking.

Make 6 Matching Game (5 minutes)

Materials: (S) Matching game cards 0–5 (Lesson 1 Fluency Template 2), matching game cards 6–10 (Fluency Template 2) per pair (use 1 picture of each quantity 0–6)

Note: Reviewing the hidden partners of 6 helps students recall familiar relationships between numbers 1–6, preparing them to depict those relationships using the number bond model.

1. Shuffle and place the cards faceup from 0 to 6 in one equal row.
2. Partner A chooses 2 cards that make 6.
3. If the total of the numbers on both cards is 6, then she collects both cards. If not, then Partner A puts them back in their place.
4. Repeat for Partner B.

Have early finishers repeat the game, but this time put the cards in order from 0 to 6 to see if they notice that they can take the cards from either end: 0 and 6, 1 and 5, etc.

Application Problem (3 minutes)

Materials: (T) Bell or other gentle noisemaker or instrument

Close your eyes, and count each time that I clap. (Clap 5 times; pause, and then clap 1 more time.) Open your eyes. How many claps did you hear? (Allow time for students to answer.) Let's do it 1 more time. (Repeat.) How many claps did you hear? What is 1 more than 5?

Repeat this exercise several times, using claps and instrument sound parts of 4 and 2, 3 and 3, 2 and 4, and 1 and 5.

Now, try the game with your partner! Take turns clapping different **number partners** for 6.

Note: This exercise helps students to focus on the decomposition of 6 in preparation for today's lesson.

Concept Development (25 minutes)

Materials: (S) Linking cube 5-stick, loose cubes, personal white board

Put the loose cubes in between students so there are enough for each student to choose 1 additional cube.

Draw a blank number bond on the board in any configuration.

T: I'm going to tell you a story. Show me the story with your cubes as I go.

T: A squirrel collected 6 nuts for the fall. With your cubes, show me a linking cube stick as long as her 6 nuts. Begin with your 5-stick.

T: She buried 4 nuts in the ground and stored the other 2 nuts in a tree. Break your stick, and hold up the piece that shows me how many nuts were in the ground. How many?

S: (Hold up a 4-stick.) 4.

T: Hold up the stick that shows how many nuts were stored in the tree. How many?

S: (Hold up a 2-stick.) 2.

T: Yes! She took her 6 nuts and made sets of 4 and 2. Let's show what the squirrel did in this number bond. (Guide students to help place the numbers representing the whole and the parts in the number bond.) Our number bond shows us that 6 is the same as …?

S: 4 and 2.

T: (Write 6 = 4 + 2.) 6 is 4 and 2.

T: Put your 6-sticks back together. Does anyone know another way the squirrel can divide her nuts?

MP.2

S: She can put 3 in the tree and bury the other 3.

T: Show me with your linking cube sticks what that looks like. Hold them up! (Check for understanding.)

A NOTE ON MULTIPLE MEANS OF REPRESENTATION:

To help English language learners follow the story and lesson, show pictures of a squirrel and nuts with the words *squirrel* and *nuts* on it. This encourages them to follow along and respond to questions.

T: Help me to make a new number bond for the new story. (Create a new blank number bond in a different orientation.) Do we still put the 6 in the place for the whole?

MP.2

S: Yes. She still has 6 nuts altogether.

T: What did change?

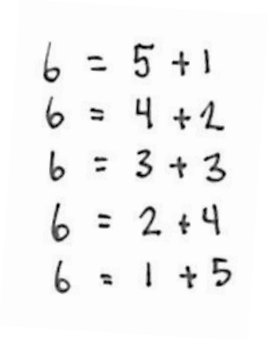
S: The parts in the other circles. We have to change the 4 and the 2 for the 3s.

T: (Demonstrate.) Thank you! You are right. I'll write it the special math way, too. (Write 6 = 3 + 3 underneath the number bond.) 6 is the same as 3 and 3. Is there another way she could have split up her nuts?

Continue the exercise several times with other partners for 6, each time asking students to model the decomposition with the linking cubes; each time, they create new number bonds and corresponding equations.

T: Now, draw the 6 nuts on your personal white board. With your partner, take turns deciding how the squirrel should store her nuts. Circle the nuts that she will bury, and draw a box around the nuts that she will hide in the tree. Draw a number bond to show how the squirrel stored them each time.

T: Wow! You found a lot of different ways to make 6. The squirrel will be happy. How many different ways did you discover? (Allow time for discussion.) Let's review them, and then do some more work with 6 in our Problem Set. (Review the different number bonds, using the language "6 is …" We can omit the partners including zero from the written list to keep the list more manageable.)



Problem Set (10 minutes)

Students should do their personal best to complete the Problem Set within the allotted time.

Note: Encourage students to find many decompositions of 6 in the birds: 1 facing left and 5 facing right, 2 finches and 4 ducks, 3 white and 3 shaded, 4 big and 2 small, or, for students working above grade level, 2 big ducks, 2 small ducks, and 2 big finches. Add a part to the number bond if students see a combination with three parts.

Student Debrief (8 minutes)

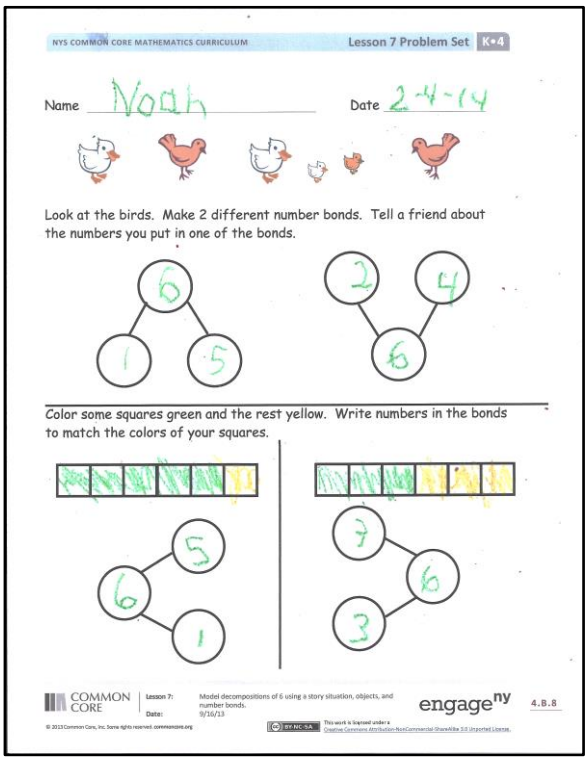
Lesson Objective: Model decompositions of 6 using a story situation, objects, and number bonds.

The Student Debrief is intended to invite reflection and active processing of the total lesson experience.

Invite students to review their solutions for the Problem Set. They should check work by comparing answers with a partner before going over answers as a class. Look for misconceptions or misunderstandings that can be addressed in the Student Debrief. Guide students in a conversation to debrief the Problem Set and process the lesson.

Any combination of the questions below may be used to lead the discussion.

- Share with a partner how you sorted the birds. Did your partner sort differently than you?
- Look with a partner at the numbers you put in both of your number bonds. Which numbers are the same? Why? Which numbers are different? Why?
- When I told my story, how did you know which number to put in which circle in the first number bond?
- How did the number bond change when you split up the squirrel's nuts in different ways?
- Did the total number of nuts ever change?
- What are some of the ways you found to make 6?


NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 7 Problem Set K•4

Name Noah Date 2-4-14

Look at the birds. Make 2 different number bonds. Tell a friend about the numbers you put in one of the bonds.

Color some squares green and the rest yellow. Write numbers in the bonds to match the colors of your squares.

COMMON CORE Lesson 7: Date: Model decompositions of 6 using a story situation, objects, and number bonds. 9/16/13 engage^ny 4.B.8

Name _____ Date _____

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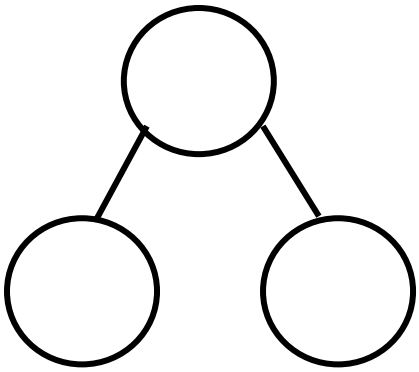

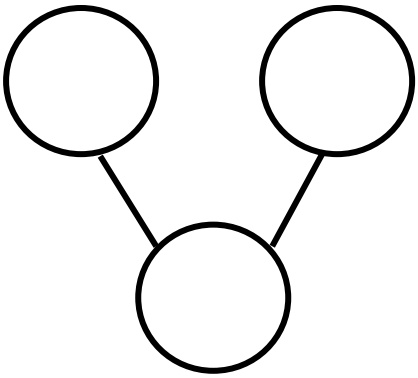

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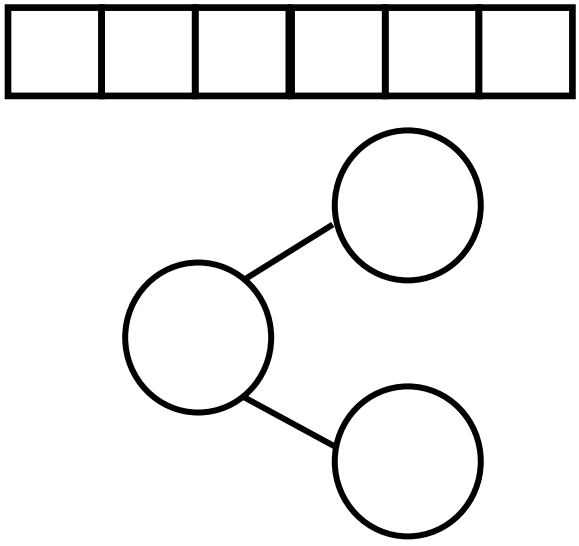
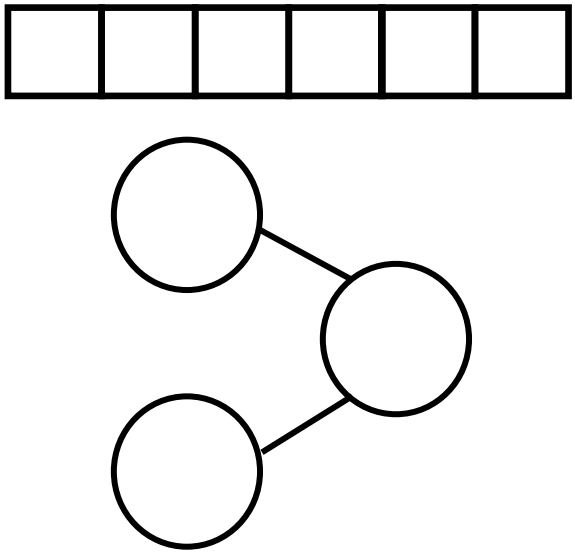
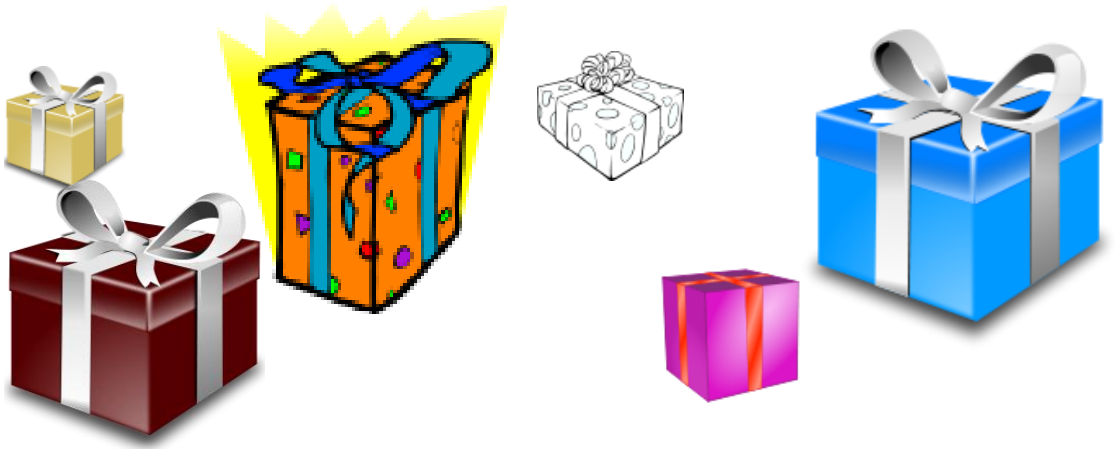
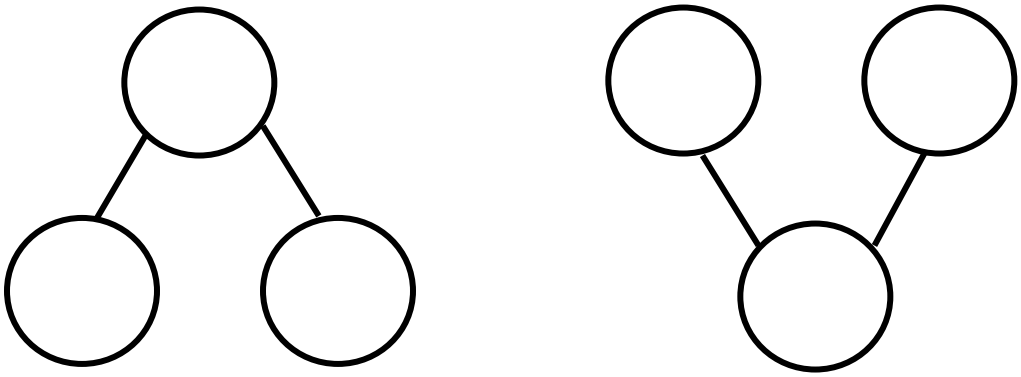




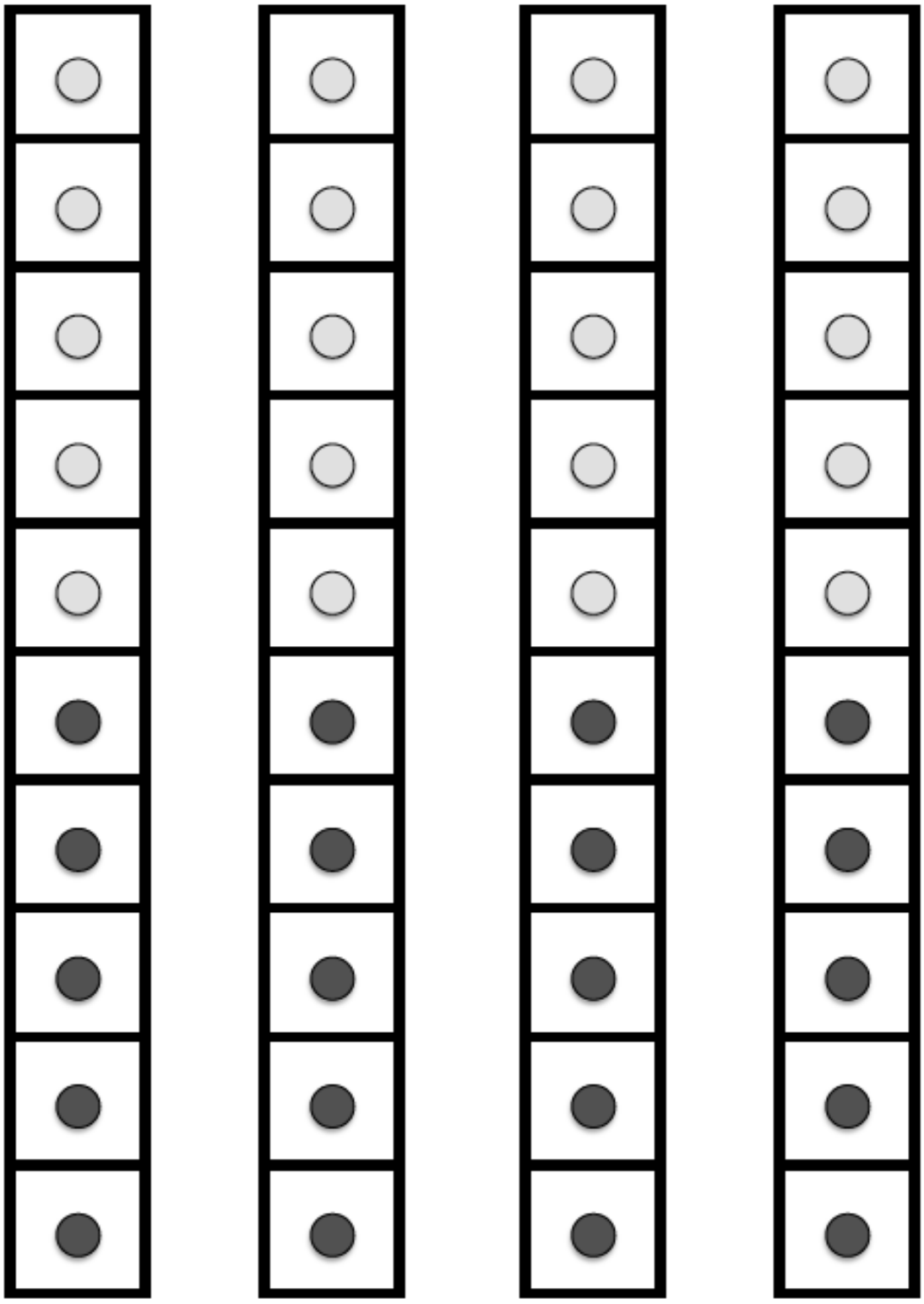
Name _____ Date _____

Look at the presents. Make 2 different number bonds. Tell an adult about the numbers you put in the number bonds.

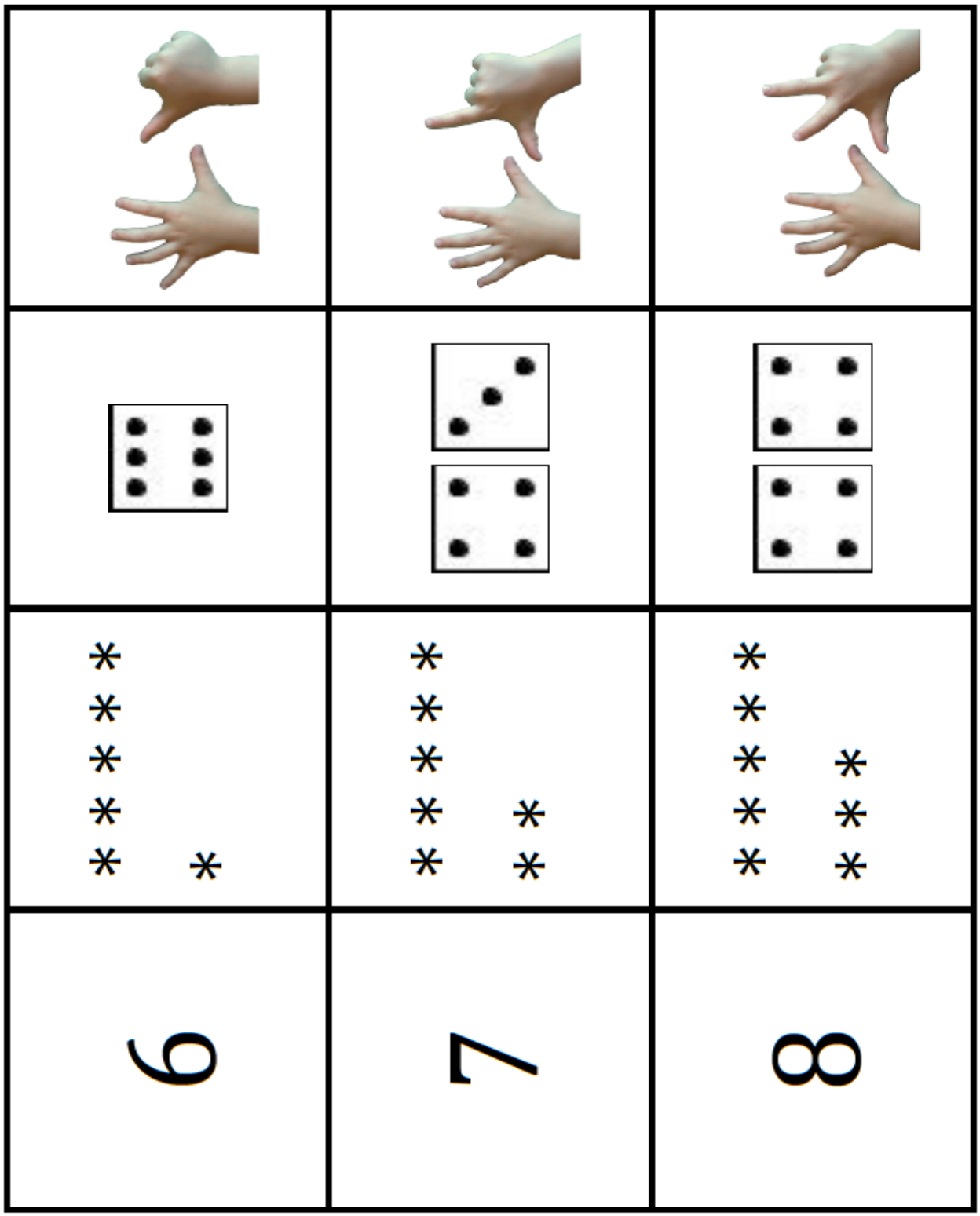




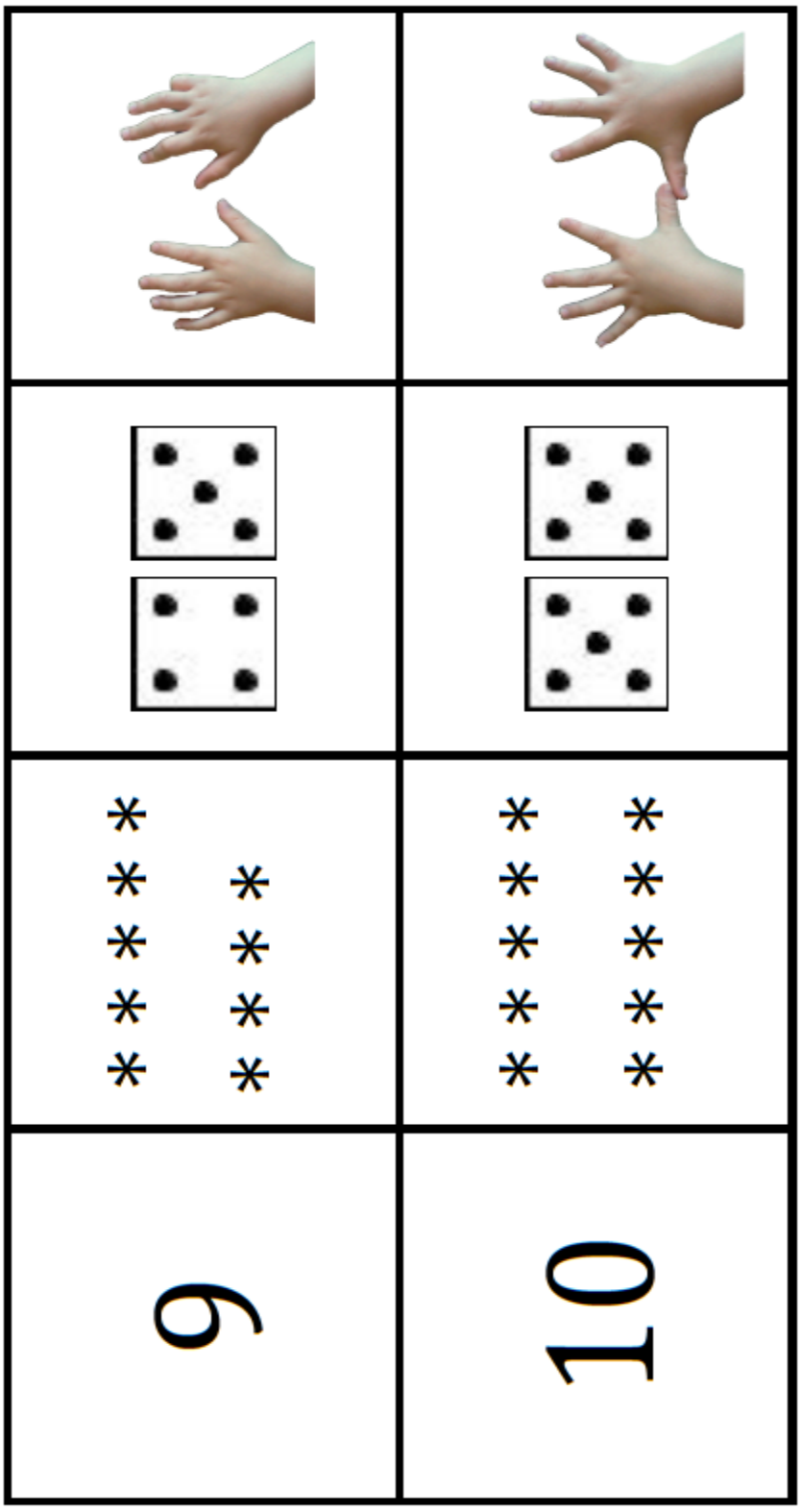
On the back of your paper, draw 6 presents, and sort them into 2 groups. Make a number bond, and fill it in according to your sort.



dot path



matching game cards



matching game cards