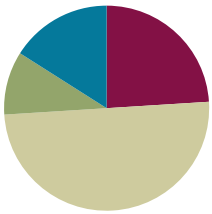
Lesson 2

Objective: Model composition and decomposition of numbers to 5 using fingers and linking cube sticks.

Suggested Lesson Structure

Fluency Practice	(12 minutes)
Application Problem	(5 minutes)
Concept Development	(25 minutes)
Student Debrief	(8 minutes)
Total Time	**(50 minutes)**



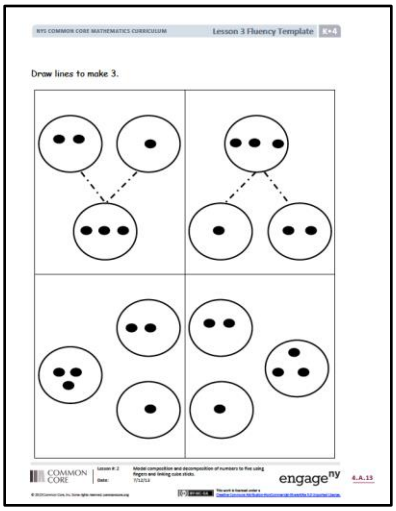
Fluency Practice (12 minutes)

- Draw Lines to Make a Bond of 3 **K.OA.1** (4 minutes)
- Hidden Numbers (5 as the Whole) **K.OA.3** (4 minutes)
- Say Ten Push-Ups **K.NBT.1** (4 minutes)

Draw Lines to Make a Bond of 3 (4 minutes)

Materials: (S) 3 beans, make a bond of 3 (Fluency Template 1) inserted into personal white board

Note: This fluency activity reinforces the part–total relationship represented by the number bond. It helps students understand that the lines of the number bond should connect the two parts with the total and that the orientation of the parts and total do not affect the numerical relationship.



T: Take out 3 beans. Point to the first number bond. Put 2 beans on top of the 2 dots and 1 bean on top of the 1 dot.
S: (Place the beans on top of the number bond.)
T: Our job is to make 3. Slide your beans along the lines to make 3.
S: (Move the beans to the 3 dots on the number bond.)
T: Now, slide your beans back to take apart 3.
S: (Move the beans to the 2 and 1 dots.)
T: Let's slide the beans again, and this time, tell how to make 3, like this 2 and 1 make 3.
S: 2 and 1 make 3. (Move the beans to the 3 dots.)

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T: Take them apart again.
S: (Move the beans to the 2 and 1 dots.)
T: This time, we'll flip it: 1 and 2 make 3.
S: 1 and 2 make 3. (Move the beans to the 3 dots.)
T: Great. Now, leave your beans there. Draw (or trace) the lines to show how to make 3.

Continue guiding students through the process as necessary, and then allow them to complete the remainder of the template independently. Circulate to ensure that they are saying the compositions aloud.

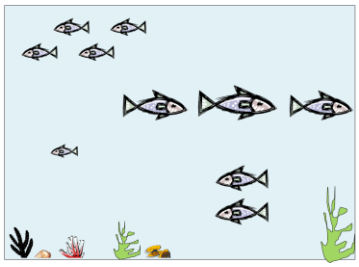
As a variation, have students state the decomposition (i.e., 3 is 2 and 1, 3 is 1 and 2).

Hidden Numbers (5 as the Whole) (4 minutes)

Materials: (S) Hidden numbers mat (Fluency Template 2) inserted into personal white board

Note: Finding embedded numbers anticipates the work of this module by developing part–whole thinking.

T: Touch and count the fish on your mat. Raise your hand when you know how many. (Wait for all hands to go up, and then give the signal.) Ready?
S: 10.
T: 10 what?
S: 10 fish!
T: Put X's on 5 of the fish. Pretend they swam away!
S: (Cross out 5 fish.)
T: How many fish are left?
S: 5 fish.



T: Circle a group of 4 of the fish who didn't swim away. Pretend they swam away, too.
T: How many fish are left now?
S: 1 fish.
T: Let's circle that 1 fish. How many did you circle altogether?
S: 5.

Repeat the process. This time, have 5 fish swim away again, but circle 3 fish, then another 2 fish, and ask how many are circled. Repeat with other combinations equal to 5. Continue this procedure looking for hidden numbers within groups of 3, 4, and 5. Pause occasionally to allow students to explain efficient ways of locating the groups.

Say Ten Push-Ups (4 minutes)

Note: This activity reviews students' understanding of numbers to 10 for the work of this module and extends to teen numbers in anticipation of Module 5.

T: We are going to do Say Ten Push-Ups. First, let's get ready to push up by counting to 10 the Math Way.
S: 1, 2, 3, 4, 5, 6, 7, 8, 9, 10. (Students should start counting with 1 on the left pinky and continue to 10 on the right pinky.)

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T: Great! Now that we have 10, we can continue counting with ten (push out both hands as if doing a push-up exercise in the air) and (then, pause with closed fists close to body) 1 (push out the right hand pinky finger). Repeat, please.

S: Ten (push out both hands as if doing a push-up exercise in the air) and (closed fists close to body) 1 (push out the left hand pinky finger).

T: Keep going with me. Ten (repeating push-up) and (closed fists close to body) 2 (push out the right hand pinky and ring fingers).

S: Ten (repeating push-up) and (closed fists close to body) 2 (push out the left hand pinky and ring fingers).

Continue to 20 (2 tens or 10 and 10).

Application Problem (5 minutes)

Materials: (S) 5 pennies

Margaret and Caleb discovered that if they put their money together, they would have the 5 pennies they need to buy some gum. Yum!

Put 5 pennies in the middle of your desk. Now, slide some to one side of your desk to show how much money Margaret might have had. Put the other coins on the other side of the desk to show how much money Caleb might have had.

NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

Scaffold the directions to the Application Problem for English language learners by modeling the instructions. Slide the pennies together while directing students to slide the pennies together.

Check with your friend to see how he showed Margaret's and Caleb's coins. What do you notice?

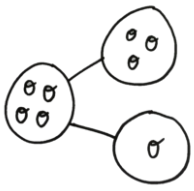
Slide the coins together again to make sure you have enough for the gum. Now, act out the story again. Could you take apart the pennies in a different way?

Note: The practice in making different compositions for 5 serves as the anticipatory set for today's lesson.

Concept Development (25 minutes)

Materials: (T) 3 hula hoops, colorful masking tape (S) Number bond (Lesson 1 Template 2), personal white board, linking cube 5-stick

Prepare a large number bond template in the center of the rug using the hula hoops and tape. Have students seated on the edges of the rug.



T: It's time for another party game! Students A, B, C, and D, would you please come stand in our hula hoop? (Direct students to stand in the "whole" of the model.) What do you notice?

S: There are four students standing up! → Two of the hoops are empty. → We have the paths on the floor.

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T: The students have had a wonderful time at the party, and now it is time to go home. Student A, please take this path to your hoop home. Students B, C, and D, take the other path to your hoop home. Don't forget—stay on the path! What do you see now?

S: There are 3 in one hoop and 1 in the other! → There are still 4 students. (Have students rotate around the rug as in Lesson 1 to view the number bond from another perspective.)

T: Let's draw what happened on the board. We had 4 students, but we made our 4 into 3 and 1. (Demonstrate by creating the pictorial number bond on the board. Practice the decomposition and number bond recording several times with groups of 2, 3, 4, and 5 students until students seem confident and familiar with the material.)

T: (Hand out the number bond templates in the personal white boards). Let's play our party game some more using our linking cubes. Put your 5-stick in the place where the paths come together to show the students at the party. (Circulate to ensure accuracy.) Now, let's pretend it is time for the students to go home to two houses. Break your 5-stick into two pieces, and send each piece home on one of the paths. Put them in your hoops. What do you have now?

NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSION:

Extend the lesson for students working above grade level by asking them to help the teacher by writing down all the decomposition possibilities for numbers 2 to 5. Challenge them to find the 0 and number combination if they do not come up with it on their own.

S: I have a 1 and a 4 in my hoops! → I have a 2 and a 3. → I have 4 and 1.

T: Gently turn your number bond to see it a different way.

S: (Rotate to view whole on top, bottom, or side.)

MP.2

T: Does your story change?

S: No. I still have 1 in this house and 4 in this one. → The houses are just in a different place. → I can follow the paths to put the children back where the party was no matter where their houses are!

T: We can make number bonds to show what you have! Tell me your stories. I will draw how many students were at the party and then what happened when they went home. (Demonstrate several student examples using linking cube sketches in the bonds.)

T: In the first picture, I can see that 5 students is the same as 1 student and 4 students. Could we show this with our fingers? Show me 1 on your left hand and 4 on your right hand. How many fingers are you showing me in all?

S: 5.

T: What do you see in the other number bonds? Could you show me each of these with your fingers, too? (Allow time for discussion.) Let's practice more of this in our Problem Set.

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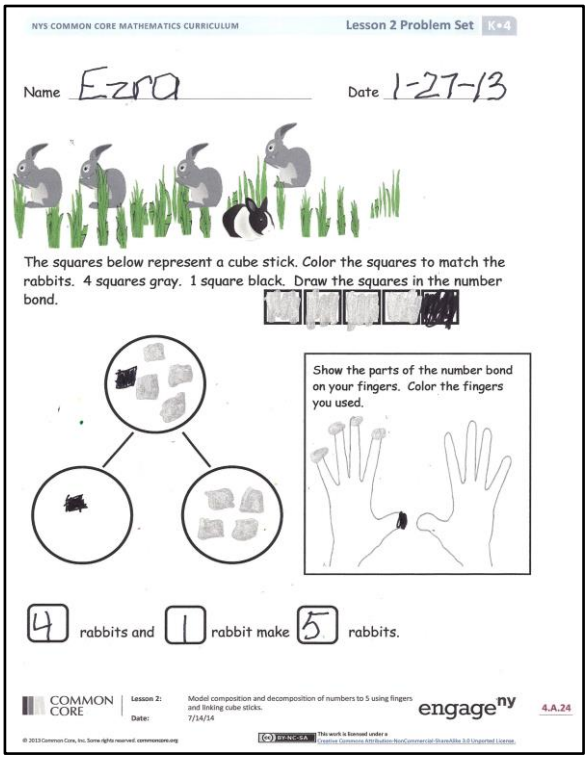
Problem Set (10 minutes)

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


NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 2 Problem Set K•4

Name Ezra Date 1-27-13

The squares below represent a cube stick. Color the squares to match the rabbits. 4 squares gray. 1 square black. Draw the squares in the number bond.

Show the parts of the number bond on your fingers. Color the fingers you used.

4 rabbits and 1 rabbit make 5 rabbits.

COMMON CORE Lesson 2: Date: Model composition and decomposition of numbers to 5 using fingers and linking cube sticks. 7/14/14 engage^ny 4.A.24

Student Debrief (8 minutes)

Lesson Objective: Model composition and decomposition of numbers to 5 using fingers and linking cube sticks.

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.

- What happened in our number bond when we decided to send the students home from the party?
- Did the whole number of students change when they went home in different groups?
- How did we make our stories into number bonds?
- What did you think about when you were deciding how to break apart your 5-stick?
- How did you show me the number bonds with your fingers?

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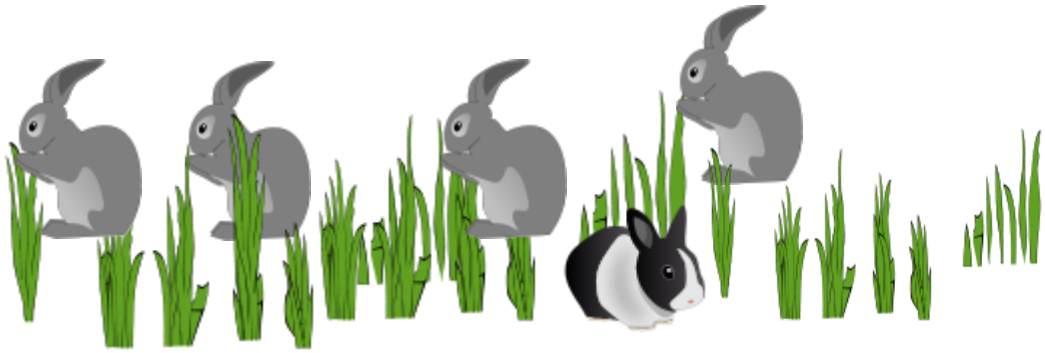

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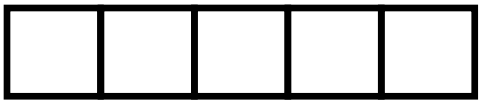
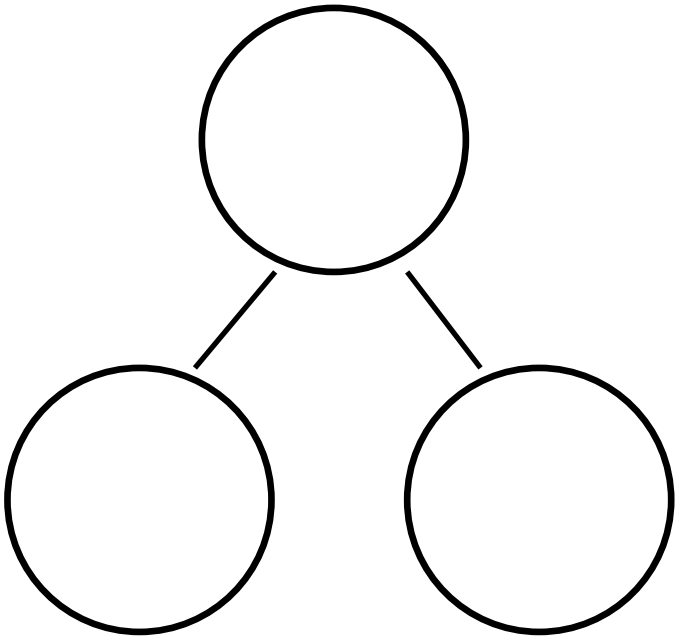
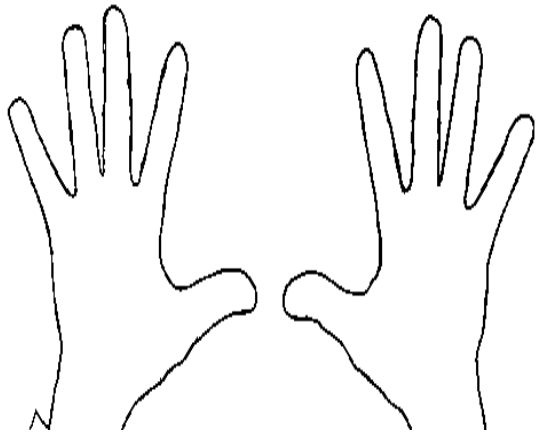




Show the parts of the number bond on your fingers. Color the fingers you used.



☐ rabbits and ☐ rabbit make ☐ rabbits.

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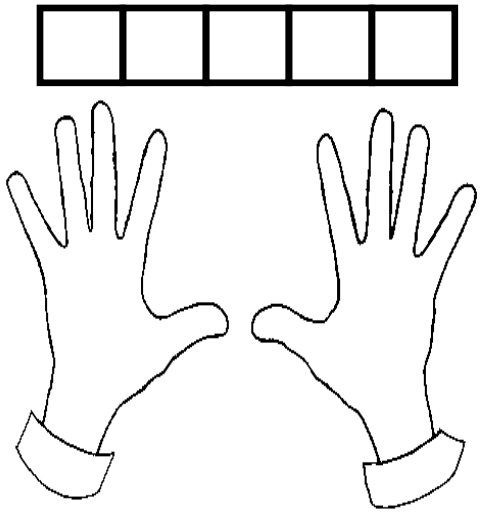
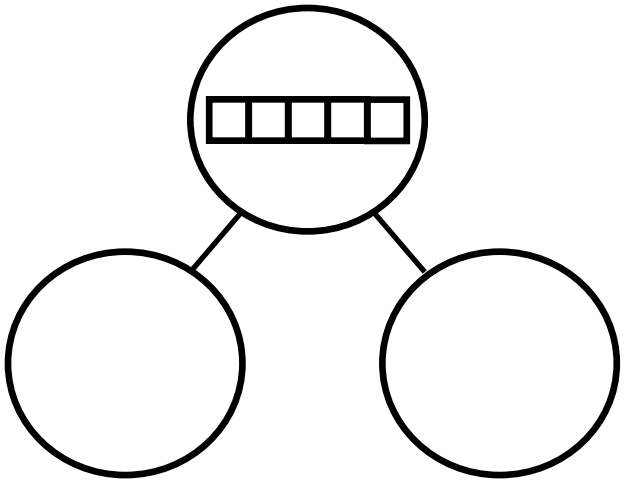
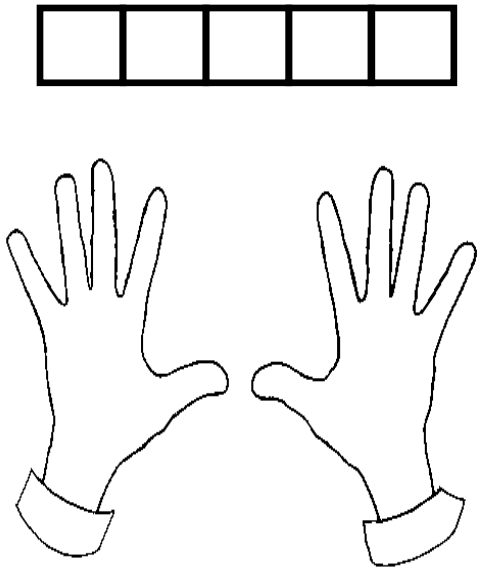
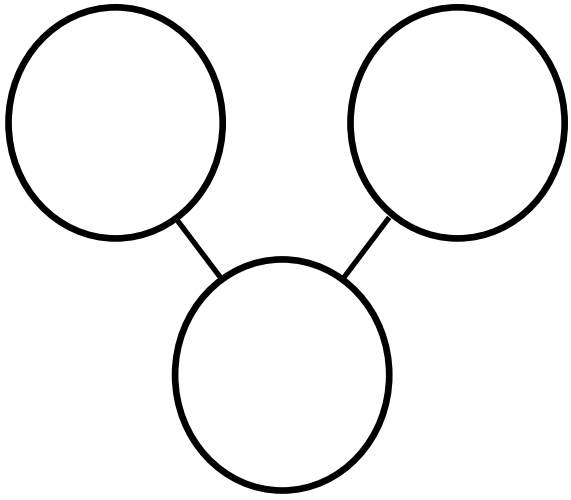
Name _____ Date _____

The squares below represent a cube stick. Color some squares blue and the rest of the squares red. Draw the squares you colored in the number bond. Show the hidden partners on your fingers to an adult. Color the fingers you showed.









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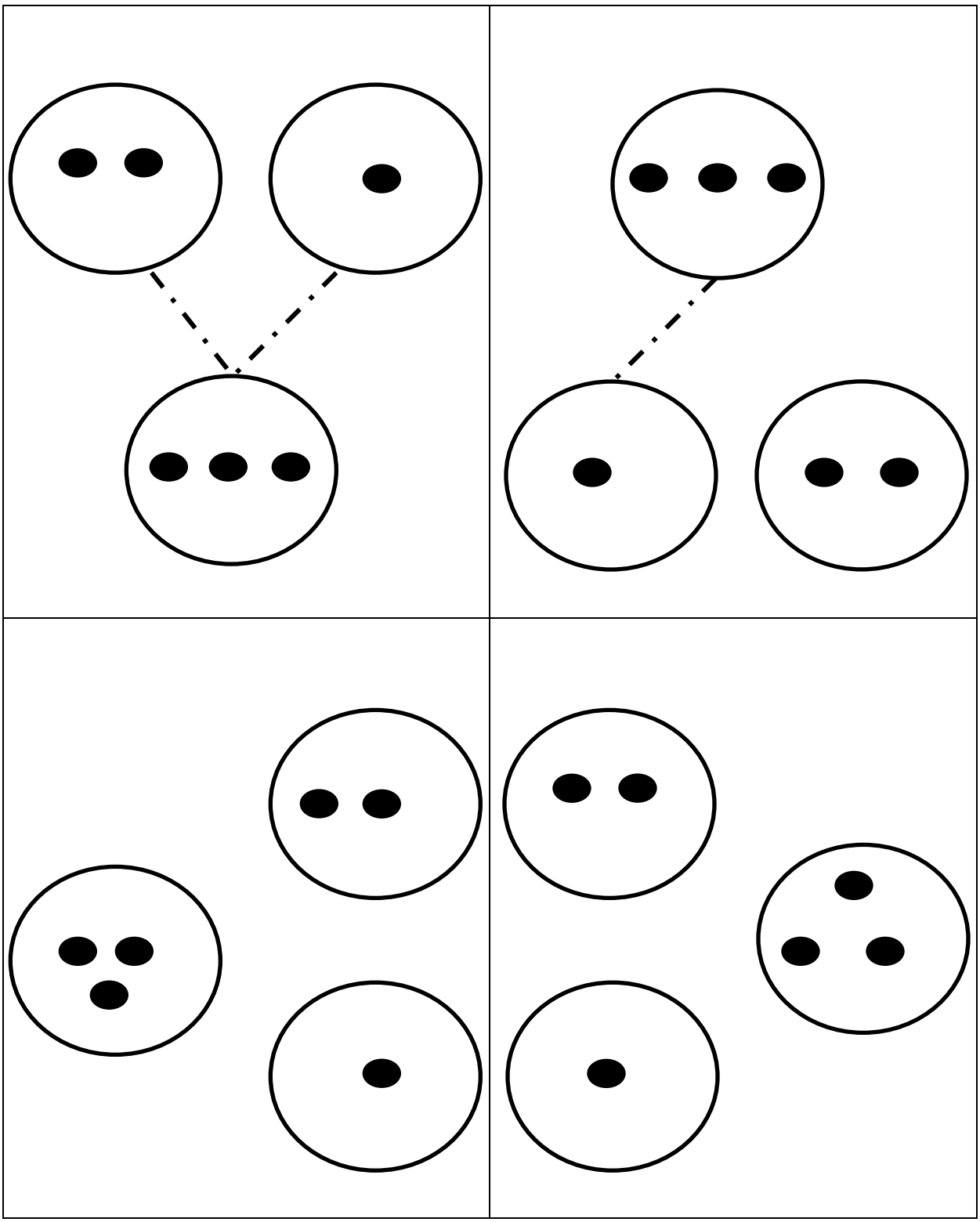

make a bond of 3

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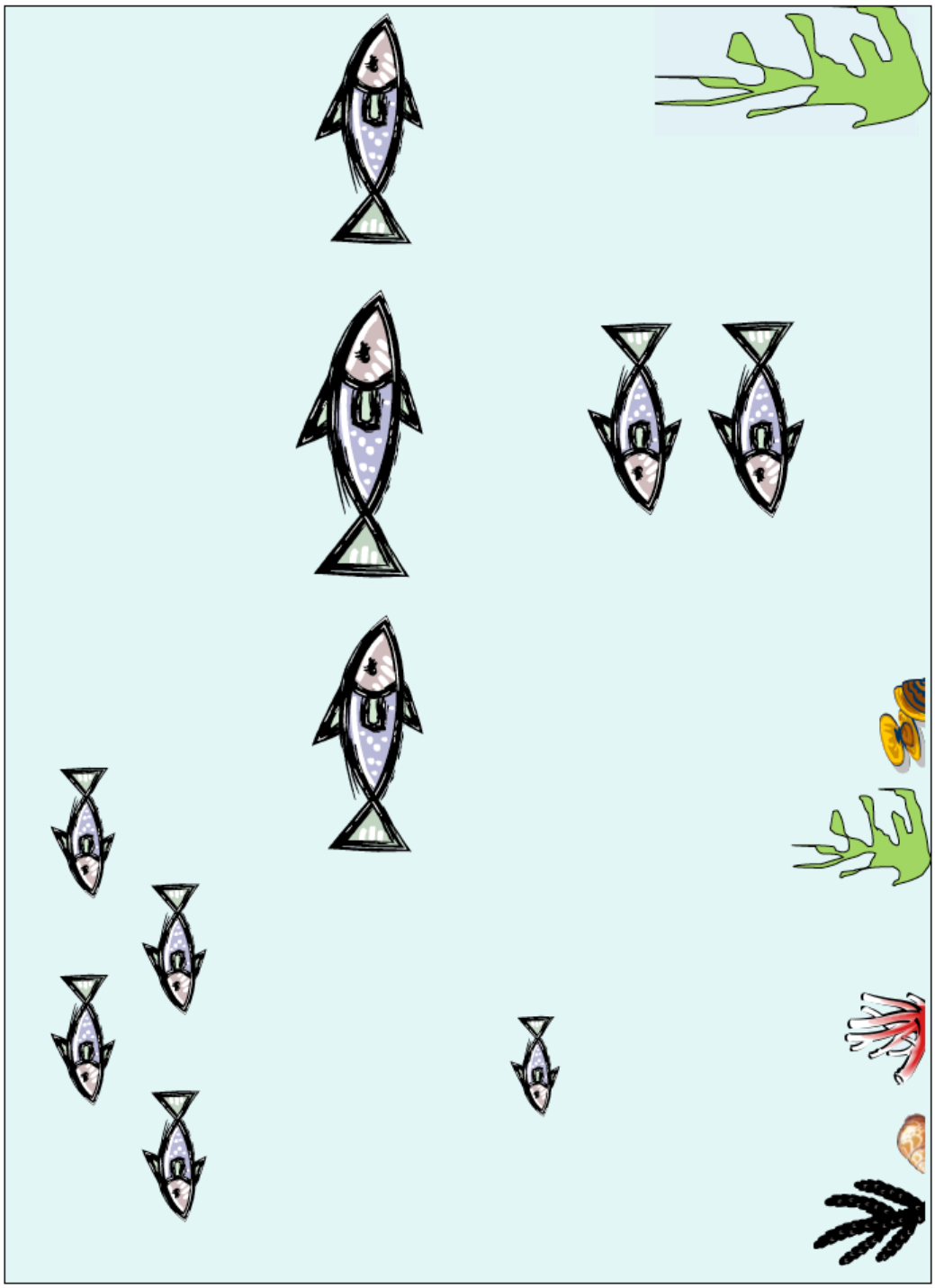

hidden numbers mat

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