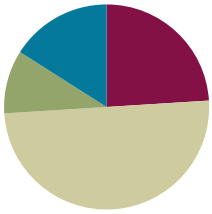
Lesson 30

Objective: Represent pictorial decomposition and composition addition stories to 10 with 5-group drawings and equations with no unknown.

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)

- Grade K Core Fluency Differentiated Practice Sets **K.OA.5** (5 minutes)
- Spill the Beans **K.OA.5** (4 minutes)
- Flash Five **K.OA.2** (3 minutes)

Grade K Core Fluency Differentiated Practice Sets (5 minutes)

Materials: (S) Core Fluency Practice Sets (Lesson 29 Core Fluency Practice Sets)

Note: This activity assesses students' progress toward mastery of the required fluency goal for kindergarten: Add and subtract within 5.

Give Practice Set B to students who correctly answered all the questions on Practice Set A in the previous lesson. All other students should try to improve their scores on Practice Set A.

Students complete as many problems as they can in 96 seconds. Assign a counting pattern and start number for early finishers, or have them play an independent game such as the Make 10 Memory Game (Lesson 28). Collect and correct any Practice Sets completed within the allotted time.

NOTES ON MULTIPLE MEANS OF REPRESENTATION:

If students need concrete materials to complete the Practice Sets, encourage them to use their fingers. Most naturally stop the practice as they master the grade level fluency and move quicker. Some students may want to create drawings to solve. Encourage them to find faster, accurate ways to solve the equations.

Spill the Beans (4 minutes)

Materials: (S) 5 beans painted red on one side or 5 two-sided counters, cup, personal white board

Note: This activity leads students to mastery of adding and subtracting within 5, a fluency goal for kindergarten.

1. Take 3 beans out of the bag, and place them in the cup.
2. Shake the cup gently, and then spill the beans onto the personal white board.
3. Count the number of red and the number of white, and record as an addition sentence.
4. Erase, and repeat a few more times.
5. If students demonstrate mastery with addition to 3, then direct them to place 4 beans in the cup to practice addition to 4 and similarly with 5.

Challenge students to solve by counting on or subitizing to add more efficiently.

Flash Five (3 minutes)

Note: This activity allows students to practice more efficient methods of addition using fingers.

T: Quick! Show me 5 as fast as you can!
S: (Open one full hand quickly to show 5.)
T: Now, show me 5 on the other hand.
S: (Show 5 on the other hand.)
T: Great. Show me 1 the Math Way.
S: (Show the left pinky finger.)
T: We want to add 5 to it. I could do it this way. (Reveal the 4 remaining fingers, plus 1 more from the other hand.) 1, 2, 3, 4, 5. Can you think of a faster way? (If students are unsure, elicit a response by flashing five or opening and closing the full hand to show 5.)
S: We can just open the other hand! We have 5 fingers on the other hand!
T: That's right! We can flash five! How many fingers are you showing now?
S: 6.
T: Say the addition sentence starting with 1, please.
S: 1 + 5 = 6.

Continue with the following possible sequence: 2 + 5, 3 + 5, 4 + 5, and 5 + 5.

NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSION:

Help students working below grade level by asking them comprehension questions before they attempt the Application Problem. This serves as a review and helps students solve the problem.

- How many pears are there altogether?
- How many pears are on the ground?
- How many pears are on the tree?
- Where do we put the total number of pears on the number bond?
- Where do we put the parts?

Application Problem (5 minutes)

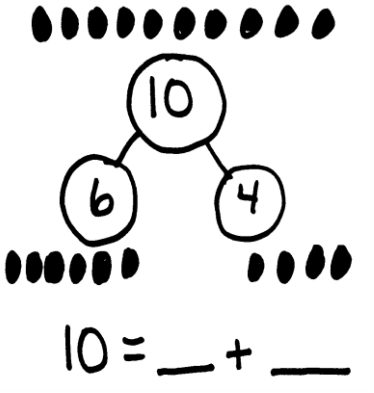
Materials: (S) Tree (Template), 10 linking cubes, paper and pencil or personal white board

Pretend your linking cubes are pears from the pear tree! How many pears do you have in all? Using your linking cubes, put 5 pears in the tree and 5 pears on the ground. Make a number bond about the pears in your picture. Use your math words to tell your partner about the pears. Can you think of a number sentence? Now, show another pear falling out of the tree. How many cubes are in the tree now? Would your number bond change? Is there a different number sentence you would use to tell about what

you just did? Talk about your ideas with your partner. (If students focus on the pears in the tree, e.g., 5 – 1 = 4, confirm that work, and ask them to show a number bond or number sentence that includes all of the pears on the page.)

Note: Again in this lesson, using concrete objects at first to decompose and then compose the number serves as the anticipatory set for the more formal equation work during the lesson.

Concept Development (25 minutes)



Materials: (S) Personal white board

T: Listen carefully to my story. Nancy had 10 beans. She picked up 6 in one hand and 4 in the other.

T: How many beans did she have in all?

S: 10.

T: How many did she pick up in each hand?

S: She picked up 6 in one and 4 in the other!

T: You are good listeners. Draw Nancy's 10 beans on your board. I will draw them here. Write the number for Nancy's beans. (Demonstrate.)

T: Now, let's draw the beans she had in each of her hands. (Demonstrate.) We will write the number for each of the groups and use our numbers to make a number bond. (Demonstrate.)

T: We want to make a number sentence about the beans. How could we begin our number sentence?

S: Let's begin it with how many in all. Then, we can put our parts! → This is like what we did yesterday!

NOTES ON MULTIPLE MEANS OF REPRESENTATION:

Scaffold the lesson for English language learners by pointing to visuals on the board or word wall when terms such as *number bond, number sentence,* and *parts* are mentioned.

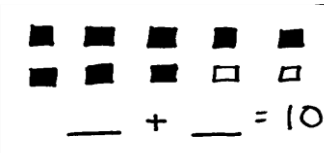
T: Good idea. (Write 10 = ___ + ___.) How do we know which numbers should go in the blanks?

S: The 6 and the 4. → They are the parts.

T: Finish your number sentence. Turn to your partner, and read the number sentence. Talk about how you knew which number should go where. (Circulate to ensure understanding.)

T: Listen to our next story.

T: Shelly had 8 presents. Her friend gave her 2 more presents! Shelly has 10 presents now.



T: How many presents did Shelly have at first? (8.) How many did her friend give her? (2.) How many presents did Shelly have altogether? (10.)

T: Draw 8 little squares to show the presents Shelly had first. Make sure you draw them in the 5-group way. Color in the little squares. Now, draw 2 empty squares to show the 2 presents her friend gave her. How could we make a number sentence about the story?

S: Write the numbers for the parts first! Then, we can put the total at the end after our equal sign.

T: Great! (Write ___ + ___ = 10.) Write this on your board. How should we fill in the blanks?

S: We will put in the parts! → Put an 8 in the first blank and a 2 in the second blank to show her new presents.

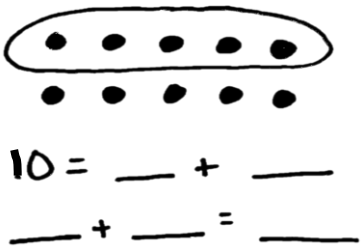
T: Finish your number sentence. Let's read the number sentence together.

S: 8 + 2 = 10.

T: How is this number sentence different from the first one you wrote today? How are they the same? (Allow time for discussion about the types of equations.)

T: Erase your board again, and draw 10 the 5-group way.

T: With your marker, circle the group of 5 dots at the top. We want to write two different number sentences about your picture. (Write 10 = ___ + ___ and ___ + ___ = ___.) Who can help me fill in the blanks? (Allow time for discussion.)



T: Write the number sentences on your board. Let's read these number sentences together.

MP.2

S: 10 is 5 and 5. → 5 and 5 make 10.

T: Erase your board. Work with your partner to draw 10 in the 5-group way, and decide how to separate it into two groups. Circle one of the groups. Make two different number sentences about your new picture.

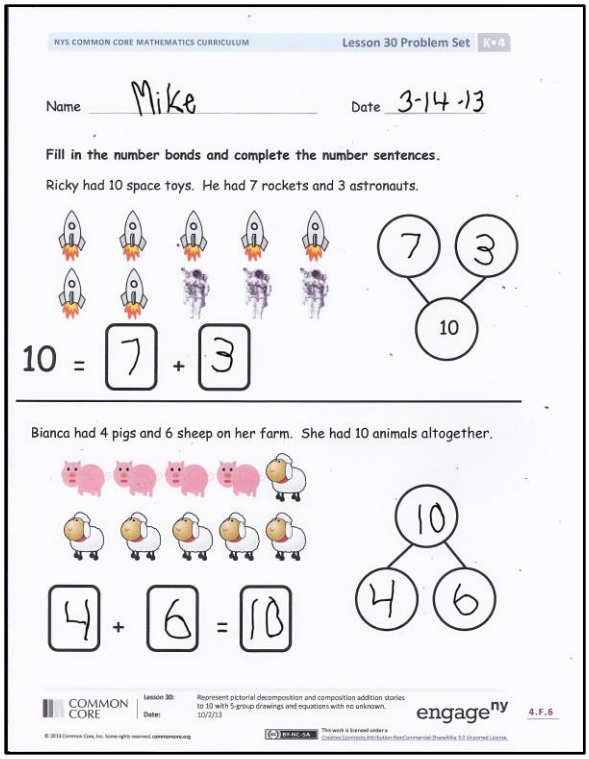
T: (Pause as students work.) Read your number sentences with your partner. How many different number sentences for 10 can we find? (If desired, allow pairs of students to model their work on the board for the group.)

T: Who would like to share her pair of number sentences with the class?

List all different number sentences for 10 on the board. Allow time for sharing and discussion. If time permits, allow students to repeat the exercise with groups of objects less than 10 for additional review.

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 30 Problem Set K•4

Name Mike Date 3-14-13

Fill in the number bonds and complete the number sentences.

Ricky had 10 space toys. He had 7 rockets and 3 astronauts.

10 = 7 + 3

Bianca had 4 pigs and 6 sheep on her farm. She had 10 animals altogether.

4 + 6 = 10

Student Debrief (8 minutes)

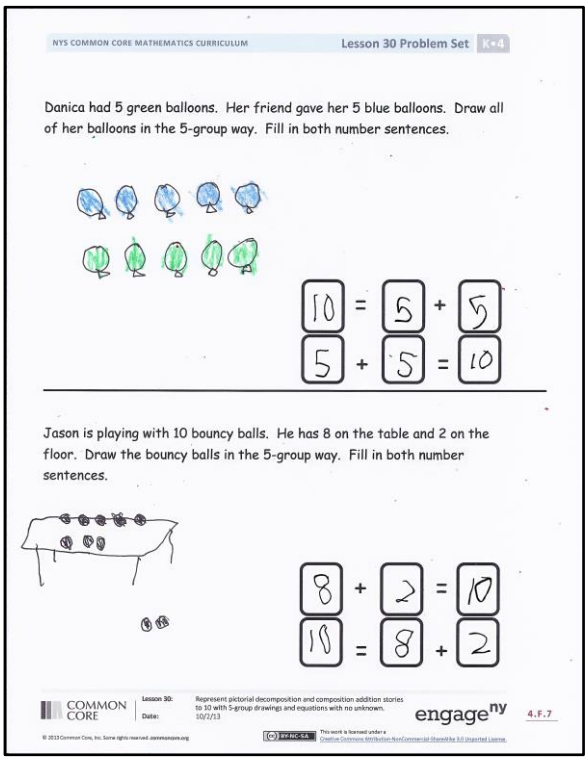
Lesson Objective: Represent pictorial decomposition and composition addition stories to 10 with 5-group drawings and equations with no unknown.

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 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.

- How did you know which were the parts and which were the wholes in your Problem Set?
- In the Problem Set, were the parts easier for you to see in the 5-groups? Why or why not?
- How did the number bonds help you with your number sentences?
- What helps you most when you are writing number sentences? Do you prefer to use pictures, cubes, fingers, or number bonds? Do you have any other strategies?


NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 30 Problem Set K•4

Danica had 5 green balloons. Her friend gave her 5 blue balloons. Draw all of her balloons in the 5-group way. Fill in both number sentences.

10 = 5 + 5

5 + 5 = 10

Jason is playing with 10 bouncy balls. He has 8 on the table and 2 on the floor. Draw the bouncy balls in the 5-group way. Fill in both number sentences.

8 + 2 = 10

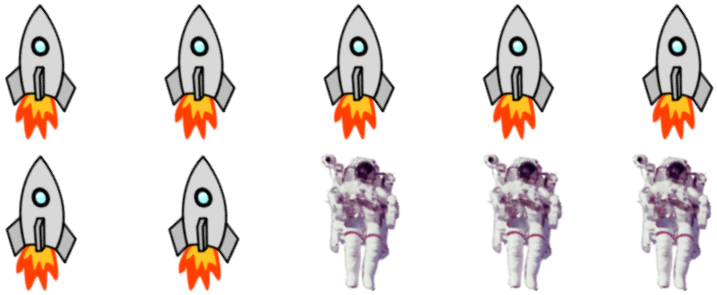
10 = 8 + 2

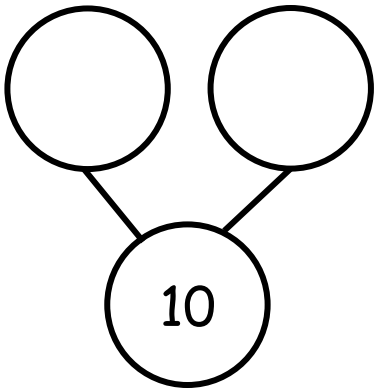
COMMON CORE Lesson 30: Date: Represent pictorial decomposition and composition addition stories to 10 with 5-group drawings and equations with no unknown. 10/2/13 engage^ny 4.F.7

Name _____ Date _____

Fill in the number bonds, and complete the number sentences.

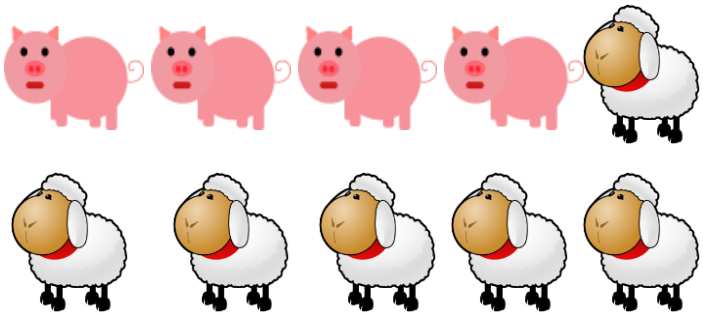
Ricky has 10 space toys. He has 7 rockets and 3 astronauts.

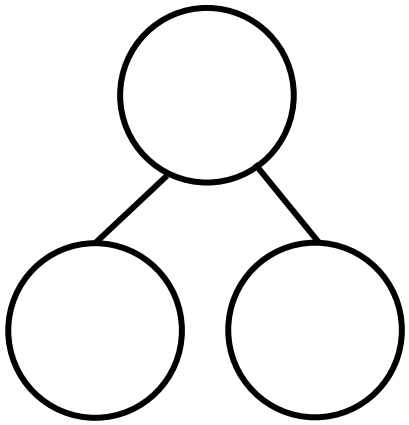




10 = ☐ + ☐

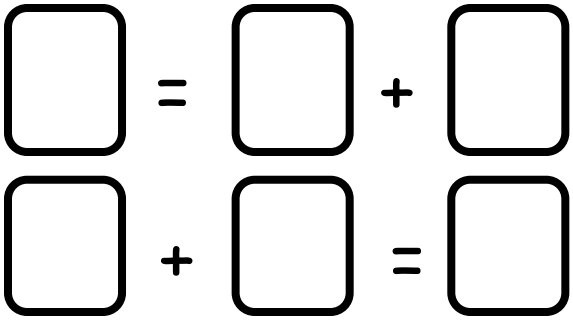
Bianca has 4 pigs and 6 sheep on her farm. She has 10 animals altogether.



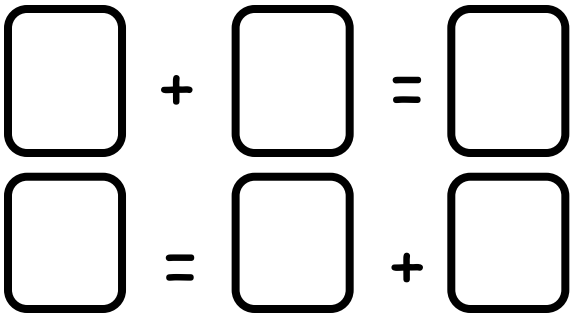


☐ + ☐ = ☐

Danica had 5 green balloons. Her friend gave her 5 blue balloons. Draw all of her balloons in the 5-group way. Fill in both number sentences.



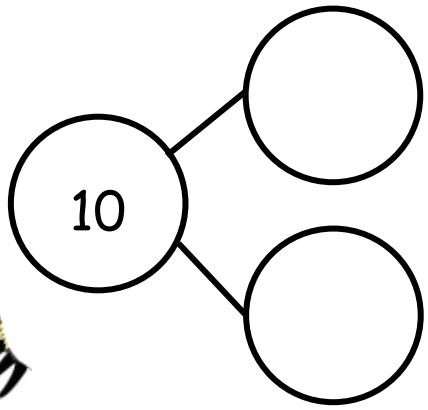
Jason is playing with 10 bouncy balls. He has 8 on the table and 2 on the floor. Draw the bouncy balls in the 5-group way. Fill in both number sentences.



Name _____ Date _____

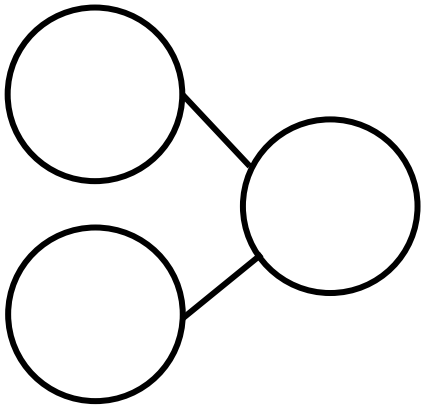
Fill in the number bonds, and complete the number sentences.

Scott went to the zoo. He saw 6 giraffes and 4 zebras. He saw 10 animals altogether.



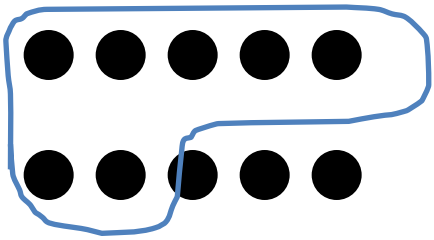
10 = ☐ + ☐

Susan saw 10 animals at the zoo. She saw 5 lions and 5 elephants. Draw the animals in the 5-group way.

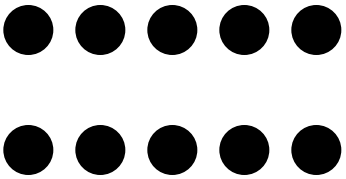


☐ + ☐ = ☐

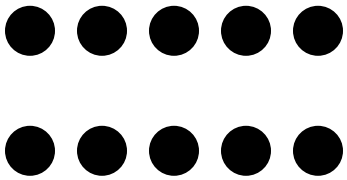
Make 2 groups. Circle 1 of the groups. Write a number sentence to match. Find as many partners of 10 as you can.



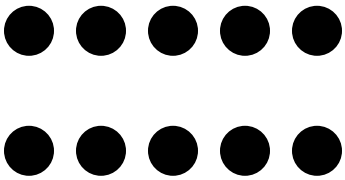
10 = 7 + ☐



10 = ☐ + ☐

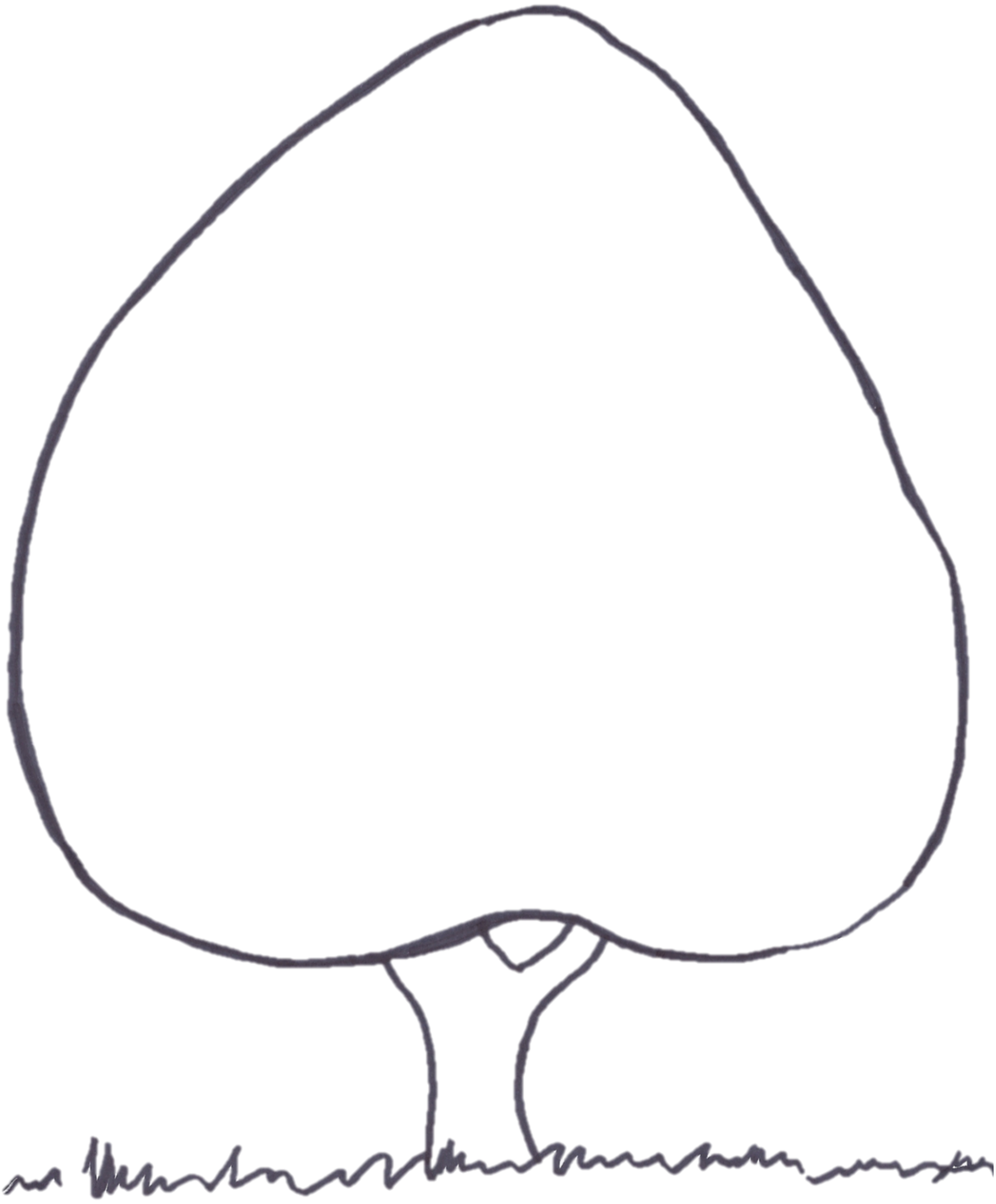


10 = ☐ + ☐



10 = ☐ + ☐

Draw 10 dots the 5-group way. Make 2 groups. Circle one of the groups. Write a number sentence to match your drawing.



tree