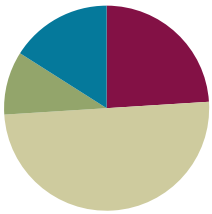
Lesson 37

Objective: Add or subtract 0 to get the same number and relate to word problems wherein the same quantity that joins a set, separates.

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)

- Imagine More to Add to 5 **K.OA.5** (5 minutes)
- Hide 1 **K.OA.1** (3 minutes)
- Cross Out 2 to Subtract Within 5 **K.OA.5** (4 minutes)

Imagine More to Add to 5 (5 minutes)

Materials: (S) Imagine more to add to 5 (Fluency Template 1)

Note: This activity bridges the pictorial to the abstract as students make progress on the grade level fluency goal.

This activity is similar to Lesson 12 Draw More to Make 5; however, this activity challenges students to add just by visualizing and then write the addition sentence. Students who are struggling can show more on their fingers to solve, rather than drawing more.

After giving clear instructions and completing the first few problems together, allow students time to work at their own pace. Encourage them to do as many problems as they can within a given time frame. Go over the answers, and direct students to energetically shout, "Yes!" for each correct answer.

Hide 1 (3 minutes)

Materials: (T) Large 5-group cards 0–5 (Lesson 12 Fluency Template 2)

Note: This activity helps students represent subtraction situations using number sentences.

T: (Show the 2 dot card.) Raise your hand when you know how many dots are on the card. (Wait for all hands to go up, and then give the signal.) Ready?

S: 2.

T: Now, hide 1. You can use your hand to hide 1 of the dots from your eyes, or you can just see it in your mind. Now, how many dots are left?

S: 1.

T: Say the subtraction sentence starting with 2. (Pause.) Ready?

S: 2 – 1 = 1.

Continue with the following suggested sequence: 3, 4, 5, 1, and then random numbers.

Variation: Students can write the subtraction sentence on their personal white boards instead of answering verbally.

Cross Out 2 to Subtract Within 5 (4 minutes)

Materials: (S) Cross out 2 (Fluency Template 2)

Note: Working with both addition and subtraction in this fluency activity prepares students for today's lesson by helping them gain flexibility with both operations.

After giving clear instructions and completing the first few problems together, allow students time to work at their own pace. Encourage them to do as many problems as they can within a given time frame. Go over the answers, and direct students to energetically shout, "Yes!" for each correct answer.

Application Problem (5 minutes)

Materials: (S) Small ball of clay

Chico the puppy had 8 tennis balls. His owner threw 2 of them, but Chico brought them right back!

Make 8 balls with your clay. Show the story with the clay balls you created. (But don't throw them! Remember, he brought them right back!) Did Chico lose any of his tennis balls? Did he find any more balls? How many balls does Chico have at the end of the story?

Turn to your partner, and talk about how you might be able to create number sentences about Chico's adventures. Then, act out the story with different numbers of balls.

Note: Thinking about inverse subtraction and addition situations in the story, and modeling them with concrete materials, provides the anticipatory set for today's lesson.

Concept Development (25 minutes)

Materials: (T) Construction paper number path (1–10) on the floor, additional number path for 1–10 drawn on the board (S) Number path (Template), personal white board

T: What do you notice on the floor and on the board? Do you remember what we call this?

S: There are squares with numbers on them, all in a row. → I see numbers from 1 to 10. → It is a number path!

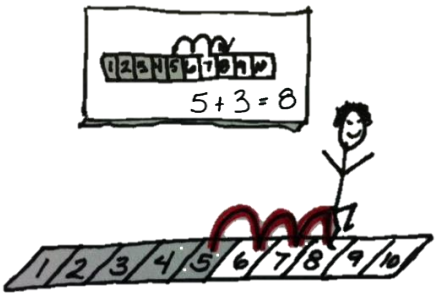
T: Today, we are going to show how we can use a number path to help us write a number sentence. Student A, please start at the beginning. (Point to the spot next to the number line by number 1.) Count and walk 5 spaces to get to the number 5. I want to make an addition sentence starting with the number 5. If I were thinking about an addition sentence, would I be adding more or taking some away?

S: Adding more.

T: I want to add 3. Student A, go forward 3 hops on the path to show 3 more. Where do you land?

S: Now I am on 8.

T: Yes. (Demonstrate on the class board number path as well.) We started at 5. 3 more makes …?



S: 8.

T: Let's make a number sentence about that together. I will write it here while you write it on your personal white board.

S: 5 + 3 = 8.

T: Student B, please stand on the number 8. I want to make a subtraction sentence starting with my number 8. How do you think we might show that type of story on the number path?

S: You would go the other way! → This time, the numbers would get smaller.

T: Good! Student B, could you subtract by going back 3 hops? Where do you land?

S: I'm back at 5. → We are right back where we started!

T: Write the number sentence with me: 8 – 3 = 5. Now, listen to the next story. I will ask someone to show it on our big number path while we show it on our board number paths.

T: There were 4 pigeons on the sidewalk. 5 more pigeons came to join them. How many pigeons are there now? Student C, please show us how we could use our number path to help us solve this problem. Where would you begin?

S: I would start at the 4. → I would take 5 hops forward to show the 5 new pigeons. (Demonstrate.)

T: Show what Student C just did by hopping along your little number path with your finger. Where did you land?

S: I am on 9.

T: How many pigeons do we have now?

S: Now we have 9 pigeons!

T: Write and say the number sentence with me.

S: 4 + 5 = 9.

T: Pretend that the 5 pigeons flew away again. Show the new story on your number path with your finger while Student C shows us on the big number path. Where do you land this time?

S: We had to go backward. → We are back at 4. → We are right back where we started.

T: How many pigeons do we have now?

S: We have 4 pigeons left.

T: Write and say the new number sentence with me.

S: 9 – 5 = 4.

T: Does anyone notice anything interesting?

S: We keep ending up back where we started. → The number sentences undo each other!

T: (Repeat several iterations of similar stories, showing inverse number sentences each time. Ask students to state and write a subtraction sentence that *undoes* the addition for each scenario or vice versa. If students demonstrate understanding, allow them to do some partner work in this manner.)

T: Let's try a different kind of story this time. Student D, please come up to the number path to demonstrate while your friends work on their number paths.

T: David found 6 pinecones in the park. Show me 6 pinecones on the number path.

S: (Count all the way to 6, or stand on the number 6.)

T: He looked and looked, but he couldn't find any more! Then, it was time to go, so he took his 6 pinecones home. How many pinecones does he have now? Hmm. What should we do on our number paths?

MP.8

S: We have to stay right here. → He didn't get any more, but he didn't lose any. → I don't have to go anywhere on the number path.

T: Who remembers the number that means *no more* or *none*?

S: Zero! → He has zero more pinecones!

T: I wonder how we could write an addition number sentence for this using zero.

S: Six pinecones and zero more pinecones is still 6 pinecones. → 6 + 0 = 6.

T: How about a subtraction sentence?

S: Six pinecones minus zero pinecones is still 6 pinecones! → 6 – 0 = 6.

T: (If needed, provide a few more examples of addition and subtraction number sentences with zero. If students exhibit understanding, move to partner work.)

T: Turn to your partner. Use your number path to make up some more stories and number sentences using zero. When you have one, raise your hand so I may hear your story and collect your number sentences for our board. (Circulate to ensure understanding. List equations on the board to be discussed during the Student Debrief.)

NOTES ON MULTIPLE MEANS OF ACTION AND EXPRESSION:

Build on English language learners' background knowledge by making the most of cultural and home experiences to help them bridge the language gap. For example, simply pair the term *no more* with *no más* and pair *none* with *nada* and *ninguno* for native Spanish speakers. Point out that the Spanish word *cero* is a cognate of *zero*.

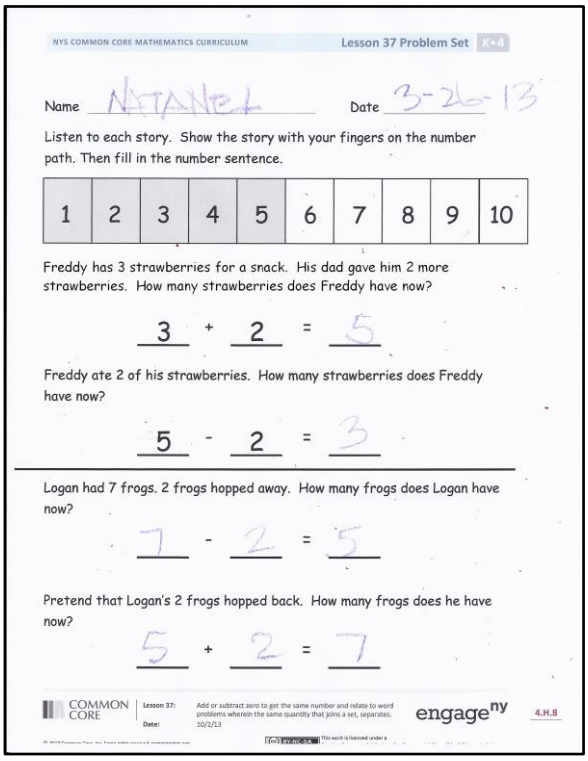
NOTES ON MULTIPLE MEANS OF ENGAGEMENT:

Extend learning for students working above grade level by asking them to explain how the problems of adding and subtracting the same number are related to the addition and subtraction of zero problems.

Problem Set (10 minutes)

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

Note: Depending on the abilities of students, it may be necessary to read the problems individually and give students a time allotment to complete them. Early finishers can be encouraged to create additional story problems on the back if they have extra time.



NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 37 Problem Set K•4

Name NATHAN Date 3-26-13

Listen to each story. Show the story with your fingers on the number path. Then fill in the number sentence.

1	2	3	4	5	6	7	8	9	10

Freddy has 3 strawberries for a snack. His dad gave him 2 more strawberries. How many strawberries does Freddy have now?

3 + 2 = 5

Freddy ate 2 of his strawberries. How many strawberries does Freddy have now?

5 - 2 = 3

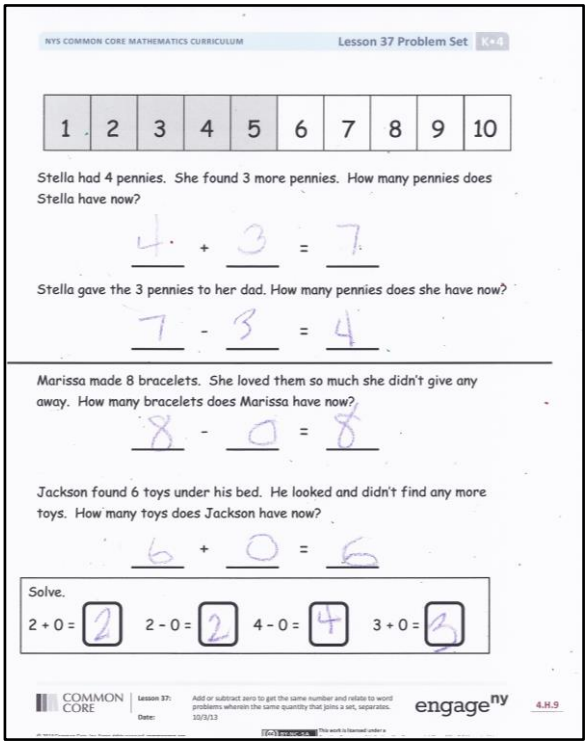
Logan had 7 frogs. 2 frogs hopped away. How many frogs does Logan have now?

7 - 2 = 5

Pretend that Logan's 2 frogs hopped back. How many frogs does he have now?

5 + 2 = 7

COMMON CORE Lesson 37: Date: 10/2/13 Add or subtract zero to get the same number and relate to word problems wherein the same quantity that joins a set, separates. engage^ny 4.H.8



NYS COMMON CORE MATHEMATICS CURRICULUM Lesson 37 Problem Set K•4

1	2	3	4	5	6	7	8	9	10

Stella had 4 pennies. She found 3 more pennies. How many pennies does Stella have now?

4 + 3 = 7

Stella gave the 3 pennies to her dad. How many pennies does she have now?

7 - 3 = 4

Marissa made 8 bracelets. She loved them so much she didn't give any away. How many bracelets does Marissa have now?

8 - 0 = 8

Jackson found 6 toys under his bed. He looked and didn't find any more toys. How many toys does Jackson have now?

6 + 0 = 6

Solve.

2 + 0 = 2 2 - 0 = 2 4 - 0 = 4 3 + 0 = 3

COMMON CORE Lesson 37: Date: 10/3/13 Add or subtract zero to get the same number and relate to word problems wherein the same quantity that joins a set, separates. engage^ny 4.H.9

Student Debrief (8 minutes)

Lesson Objective: Add or subtract 0 to get the same number and relate to word problems wherein the same quantity that joins a set, separates.

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 the number path help you in the first problem in your Problem Set?
- Did you notice any patterns in the Problem Set?
- How can addition and subtraction sentences undo each other?
- If we add or subtract zero in a number sentence, what happens?
- What significant math vocabulary did we use today to communicate precisely?
- Think about our Application Problem at the beginning of the lesson. Now could we write some number sentences about the adventures that Chico had with his tennis balls?

Name _____ Date _____

Listen to each story. Show the story with your fingers on the number path. Then, fill in the number sentence.

1	2	3	4	5	6	7	8	9	10

Freddy had 3 strawberries for a snack. His dad gave him 2 more strawberries. How many strawberries does Freddy have now?

3 + 2 = ____

Freddy ate 2 of his strawberries. How many strawberries does Freddy have now?

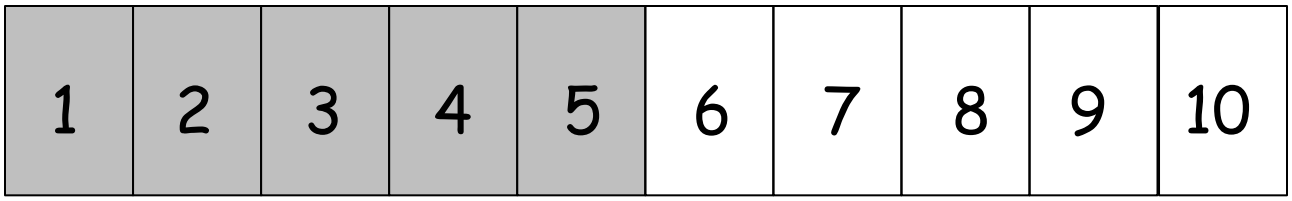
5 - 2 = ____

Logan had 7 frogs. 2 frogs hopped away. How many frogs does Logan have now?

____ - ____ = ____

Pretend that Logan's 2 frogs hopped back. How many frogs does he have now?

____ + ____ = ____



Stella had 4 pennies. She found 3 more pennies. How many pennies does Stella have now?

_____ + _____ = _____

Stella gave the 3 pennies to her dad. How many pennies does she have now?

_____ − _____ = _____

Marissa made 8 bracelets. She loved them so much she did not give any away. How many bracelets does Marissa have now?

_____ − _____ = _____

Jackson found 6 toys under his bed. He looked and did not find any more toys. How many toys does Jackson have now?

_____ + _____ = _____

Solve.

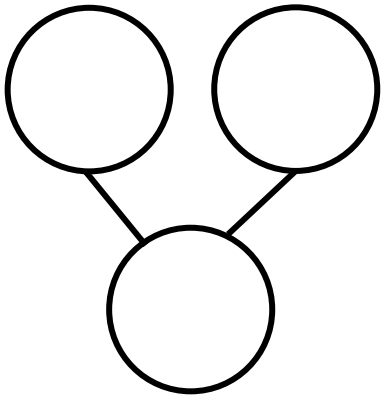
2 + 0 = ☐ 2 − 0 = ☐ 4 − 0 = ☐ 3 + 0 = ☐

Name _____ Date _____

Listen to each story. Show the story with your fingers on the number path. Then, fill in the number sentence and number bond.

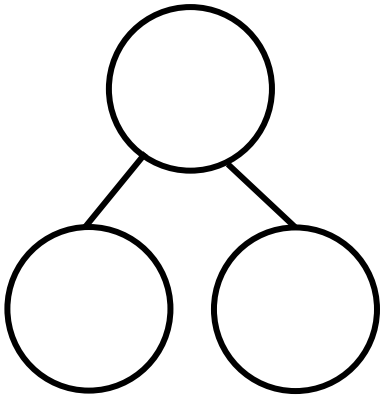
1	2	3	4	5	6	7	8	9	10

Joey had 5 pennies. He found 3 pennies in the couch. How many pennies does Joey have now?



_____ + _____ = _____

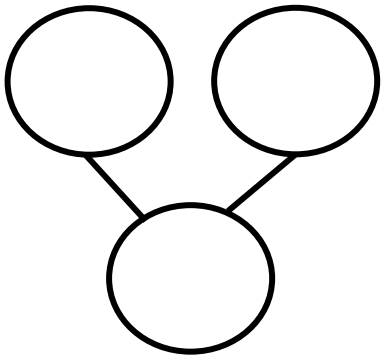
Joey gave the 3 pennies to his dad. How many pennies does Joey have now?



_____ – _____ = _____

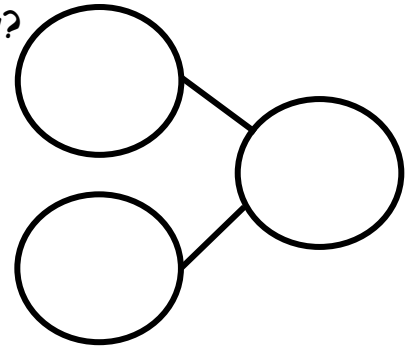
1	2	3	4	5	6	7	8	9	10

Siri had 9 pennies. She looked all around the house but could not find any more pennies. How many pennies does she have now?



_____ + _____ = _____

There were 8 children waiting for the school bus. No more children came to the bus stop. How many children are waiting now?



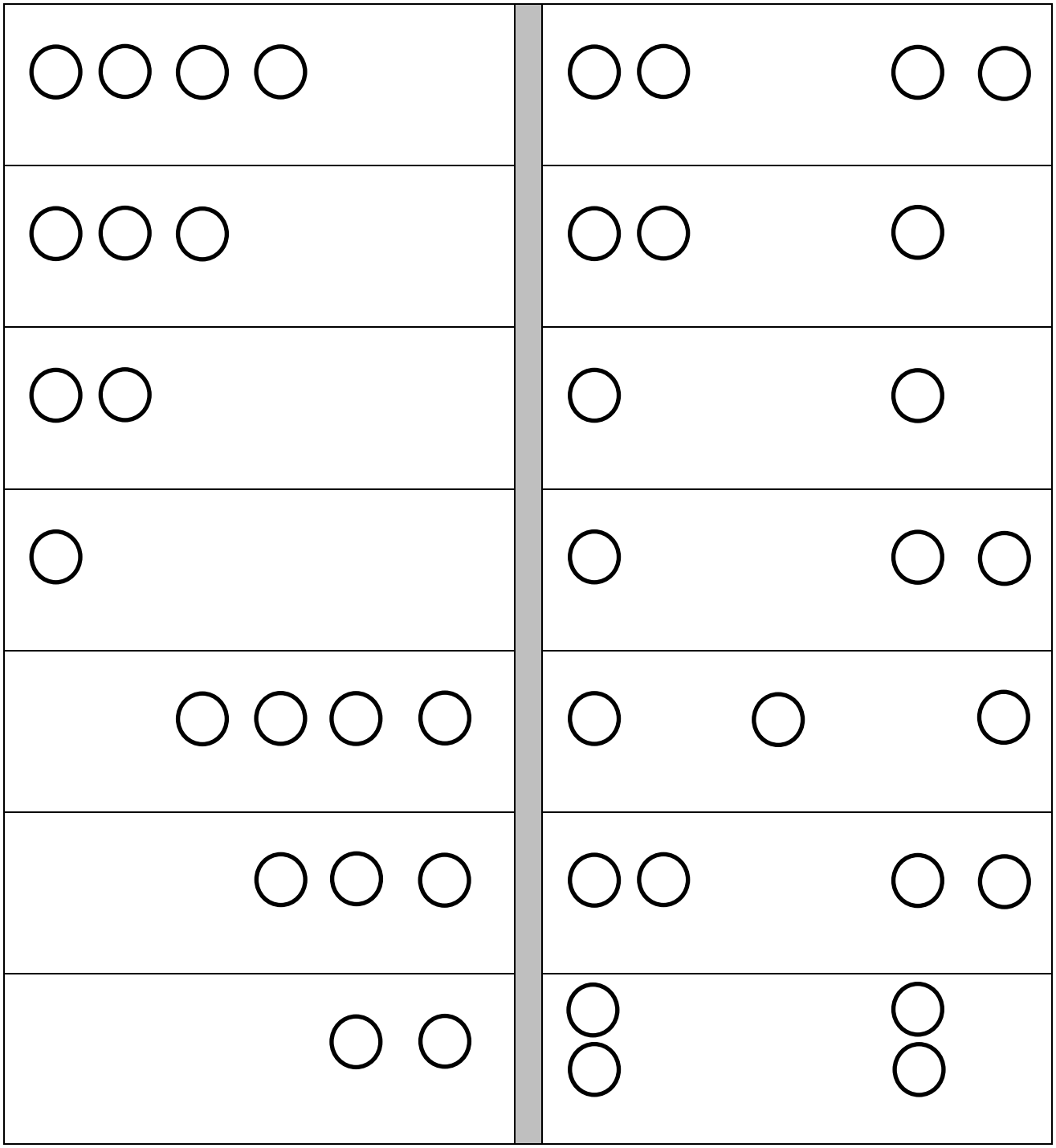
_____ + _____ = _____

Solve.

1 + 0 = ☐ 2 + 0 = ☐ 3 + 0 = ☐ 4 + 0 = ☐

5 – 0 = ☐ 4 – 0 = ☐ 3 – 0 = ☐ 2 – 0 = ☐

Imagine more to add to 5, and write the addition sentence in the box.



imagine more to add to 5

Cross out 2, and finish the subtraction sentence.

★ ★ ★	3 - 2 = ____
☾ ☾ ☾ ☾	4 - 2 = ____
★ ★ ★ ★ ★	5 - 2 = ____
☾ ☾	2 - 2 = _____
★ ★ ★ ★	4 - _____ = _____
☾ ☾ ☾ ☾ ☾	5 - _____ = _____

cross out 2

1	2	3	4	5	6	7	8	9	10

1	2	3	4	5	6	7	8	9	10

1	2	3	4	5	6	7	8	9	10

1	2	3	4	5	6	7	8	9	10

1	2	3	4	5	6	7	8	9	10

1	2	3	4	5	6	7	8	9	10

number path