

Problem Solvers Activity 5: Animals in a Line

CHILDREN ARE LEARNING TO¹:

- Understand that one number word represents one object being counted (one-to-one correspondence).
- Understand that the last number named represents how many objects are in a group (cardinality).
- Understand that number names occur in a particular order that doesn't change (stable order principle).
- Add and subtract very small collections of objects with adult support.

MATERIALS NEEDED:

Masking tape or painter's tape

Measuring tape

Clear packing tape


20 animal figures

2 baskets

Handout 1: Number Labels: 1-10

Handout 2: Train

PREPARATION:

- Print **Handout 1** and cut out each label from 1 to 10.
- Create a number line for your classroom. Lay a 9 foot line of masking tape or painter's tape on the floor of the classroom. Ensure that the line is positioned so that children have space to move on top of and around the line. (If your floor is tiled, you can tape along the tiles on your floor which ensures an even space between each number on the number line. You can also create this line in a hallway or outdoors so there is enough space for children to spread out.)
- Create a number line by adding ten lines of tape, one per foot, to make 10 lines. Example:

- At each spot on the number line, place the appropriate number label (1-10) using the **Handout 1** and cover with clear packing tape so children can step on labels without damaging.
- Place 10 animal figures in each of 2 baskets.
- Print **Handout 2** only if you are doing the optional song activity.
- Prepare copies of the parent handout for distribution. (Note that the parent handout this week is 2 pages long.)
- If you plan on implementing the optional book activity, refer to the preparation instructions in that section.

¹ Head Start Early Learning Outcomes Framework: Ages Birth to Five. <https://eclkc.ohs.acf.hhs.gov/interactive-head-start-early-learning-outcomes-framework-ages-birth-five>

Activity Instructions

ENGAGE

Gather a group of 4 children.

Point out the number line.

SAY: Problem Solvers, what do we have here in our classroom? What do you see? *Take several responses from children.*

CONNECT: Have you ever seen anything like this before? What do you see here? How do you think we might use this line today?

SAY: This is called a *number line*. It shows us the numbers in order from 1 to 10. Let's count together from 1 to 10.

As you count with the children, point to each number on the number line as you say it.

EXPAND

SAY: Let's be Problem Solvers! [Take out 3 animals and line them up in a row.] Hmmm, what can I do to use the number line to help me figure out how many animals I have here?

Encourage children to help you think through how to do this.

If children suggest placing animals on each number of the number line, select a child to help you with this task. When they are done, say, "Let's see if we can figure out how many animals we have now. How can we tell?" See if children share counting strategies with you.

If children do not suggest placing animals on the number line, observe: "Our number line helps us count from 1 to 10. Help me line our animals up and so we can see how many we have."

SAY: Let's check our work, Problem Solvers. Who would like to help me use the number line? We will start at number 1 and count the animals: 1, 2, 3. We have 3 animals. [Ask your helper to point/say to each number as you say it.]

SAY: What do you see on the number line? *Point to the numbers.*

SAY: The counting words we say are the same as the numbers we see on the number line. We can use the number line to help us count our animals.

SAY: Hmmm, our friend the Horse [take animal figure from the basket] wants to join the other animals. If we add the horse, then we have **one more** animal. [Point to the horse.] What can we do to find out how many animals we have altogether now? *Elicit children's ideas. If children don't suggest it, say: Let's put the horse at the end of our line of animals.*

OBSERVE: Do children share their counting strategies (wanting to place the horse at the 4, pointing to the 4, counting the horses, etc.)?

Count the set again starting from 1 (with a helper), again pointing to each number as you count it.

SAY: 4 is one more than 3 on the number line. Now we have 4 animals.

Select another animal from the basket.

SAY: Oh wow! It is dinner time at the barn and now 1 *more* animal wants to join us for dinner!

ASK: What can we do to find out how many animals we have now?

OBSERVE: Do the children want to place it on the number line (at number 5)? Choose a child to help with this task. Count again.

SAY: Our last counting word was five, and look: here is a 5 on the number line. We have 5 animals.

SAY: Dinner is all done now. Our friend here (tap the animal on number 5) is tired and wants to go sleep in the barn. Would anyone like to walk this animal back to the barn? [Choose a helper to return the animal to the basket.] We had 5 animals and 1 went home. We have one less animal. Can someone help me figure out how many animals we have? *Take some ideas from children.* Let's count to find out.

Count again, pointing to each number as you say it.

SAY: Our last counting word was four. And here is the number 4! We have 4 animals now.

Continue returning animals to the barn, one by one, until there are two left.

SAY: When these two animals go to sleep, how many will be left? *Elicit children's ideas.* That's right! There won't be any animals left. *Put the final animals to bed.*

EXPLORE

Choose a different number of animals and repeat the activity as a group.

Try *Animals in a Line* as partner practice. Form pairs of children. Position one group to the right of the number line and one group to the left of the number line so they each have room to place their animals. Give each group a basket of animals.

Explain: One partner chooses how many animals to put on the number line. Together, you can count your set of animals. Then the other partner can add one more animal, or take one animal away. And you can count again. You can use the number line to help you count and find out how many animals you have.

TIP: If children are having difficulty selecting the number of animals to use, you can create number cards (with 1 to 4 dots on them). A child can choose a number card and then place that number of animals on the number line.

OBSERVE children to ensure they are counting correctly and accurately counting to the number right before or right after (one more or one less). Conclude the activity when children have had several turns to select sets as well as add/remove items from the set.

REFLECT

Close the activity by gathering the children.

ASK: What can we do to find out how many children we have here? (Gesture to the group.) How can we use the number line to figure out how many children we have in our group? *Take several ideas from the children.*

ASK: Would you like to line up on our number line, Problem Solvers? We can figure out how many children we have in our group! Let's start at the beginning of our number line: Number 1. (Guide children to stand on the number line, beginning at 1.) We can count together to find out how many children we have (count aloud): 1, 2, 3, 4. We have 4 children in our group.

SAY: Now it's time for [Child Name] to go to Circle [tap the child at number 4 and have then step off the number line]. How many children are left in the group?" Count together to 3 and point out: "Look, 3 is one less than 4." Repeat with the remaining 3 students.

Individualizing the Activity

MAKE IT MORE CHALLENGING:

- Create a larger set of animals for children to add to or subtract from (10 items and up).
- Create a number line that goes to 15-20.
- Use larger numbers (farther from 1) for the game.
- Add or remove animals in quantities of two.

MAKE IT LESS CHALLENGING:

- Skip the number line and focus on counting a set of animals in a line on a table or the floor. Observe to see if the child uses one-to-one correspondence (each item is only counted once) and can say how many animals there are in total (cardinality).
- Create a number line that goes from 1 to 5, or only use the first 5 numbers on the line.
- Use smaller numbers (closer to 1) for the game.

MAKING CONNECTIONS ACROSS THE DAY:

- Make the number line a choice for free play. Offer a basket of animal figures or blocks to encourage counting play.
- Use the number line to solve daily "problems." For example, if you want to know how many cups you have when you are setting the table for snack, you can use the number line to count.
- Point out instances of one more (right after) and one less (right before) as they come up during the day: "We had 3 children building with blocks: 1, 2, 3. Then Madison joined us. What is one more than 3? Let's count our group now: 1, 2, 3, 4. 4 is right after 3!"
- Create a number line on the playground using chalk that encourages math play while outside.

Song: *Animals on the Train*

Verse 1: Animals on the train!

Animals on the train!

First stop! Mouse gets on;

One friend is riding along.

One animal on the train.

One animal on the train.

Verse 2: Animals on the train!

Animals on the train!

Second stop! Bird gets on

One more friend is riding along

Two animals on the train.

Two animals on the train.

Verse 3: Animals on the train!

Animals on the train!

Third stop! Rabbit gets on!

One more friend is riding along.

Three animals on the train.

Three animals on the train.

Verse 4: Animals on the train!

Animals on the train!

Fourth stop! Cat gets on!

One more friend is riding along.

Four animals on the train.

Four animals on the train.

Verse 5: Animals on the train!

Animals on the train!

Fifth stop! Dog gets on!

One more friend is riding along.

Five animals on the train.

Five animals on the train.

Verse 6: Animals on the train!

Animals on the train!

Now it's time to go back home!

Let's count them all as they depart.

5 – Goodbye, Dog!

4 – Goodbye, Cat

3 – Goodbye, rabbit!

2 – Goodbye, bird

1 – Goodbye, mouse!

No more animals on the train!

Build On the Song:

Collect animal figures (mouse, bird, rabbit, cat, dog) or print out images of these animals and glue to sturdy cardboard.

Print **Handout 2: Train** and glue to sturdy cardboard.

GATHER children in a circle.

SAY: Today, let's pretend that our animals are going for a train ride. Each time a new friend gets on, we add one more animal on the train!

PLACE the train image in the center of the circle.

DISTRIBUTE an animal figure to each of 4 children and keep one for yourself (Mouse) to use as a demonstration.

SAY: Let's get our train arms chugging! Chug, chug, chug, chug. (*Model arm movements for children – like train wheels going around. Encourage children to move like you do.*)

PLAY the song and add each animal to the train with the song's cues. Pause the music if needed so children have time to place their animal.

PROMPT children to hold up 1, 2, 3, 4, or 5 fingers as each animal gets on the train.

CLOSE by asking each child to remove their animal, one by one, until no animals are left on the train.

ADD these materials to a dramatic play center to encourage math play during the day.

Making Literacy Connections

Share the following book with children as an opportunity to deepen their understanding of counting and quantity. The literacy extension activity below suggests another play-based experience to invite counting.

Suggested Book: *Fish Eyes: A Book You Can Count On* by Lois Ehlert

AS YOU READ:

Point to each fish illustration and encourage children to count them with you.

Encourage children to fill in what number is next when the text reads, "2 jumping fish plus me makes [pause]...three."


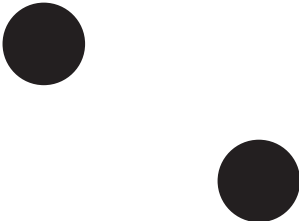
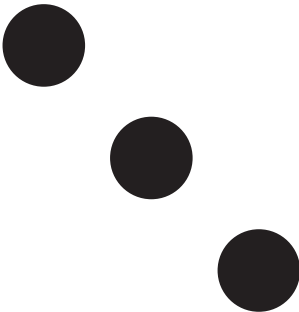
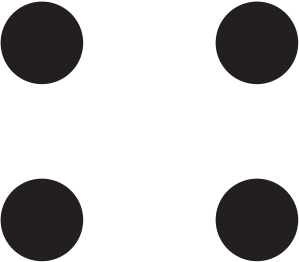
After you have read the book once, suggest children use the classroom number line to figure out what number is coming next on each page. Give children small blocks they can use as counters. When you read the text, pause and give them time to place the blocks on the number line, "The story says we have 2 jumping fish. Choose 2 blocks and put them on the number line. Next, the story says we have 2 *jumping fish plus me*. Let's add one more block to the number line. How many blocks do you have?"

BUILD ON THE BOOK:

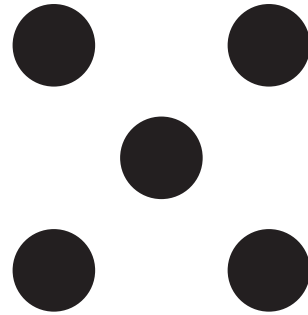
Materials: Assorted stickers, 12 pieces of sturdy paper (or 6 manila folders cut in half), three-hole punch, thin binder, markers

1. Create a classroom book. Make a title page: "One More."
2. On the first page, write: "[Child name] had 1 sticker. [Leave space for a sticker] But he/she wanted 1 more. [Leave space for a sticker] Now they have 2." The named child can place the stickers in the appropriate places.
3. On the next page, write: "[Next child name] had 2 stickers. But he/she wanted 1 more. Now they have 3." The named child can place the stickers in the appropriate place on the page.
4. Continue until you have completed 10 pages (up to 11 stickers).
5. Share the story with children during Circle Time, leave it in the Book Nook, and/or send it home with each child for a night to share with their family.

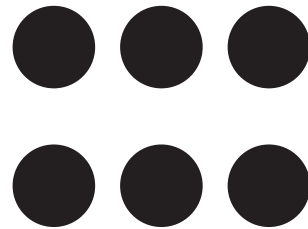
Handout 1: Visual Sets of 1 - 10

1	
2	
3	
4	

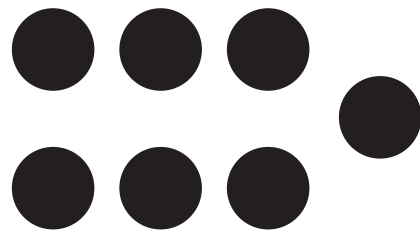
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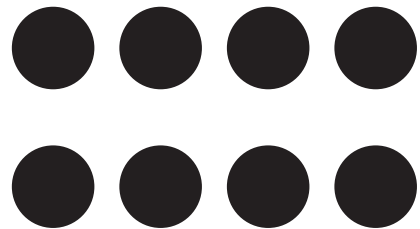
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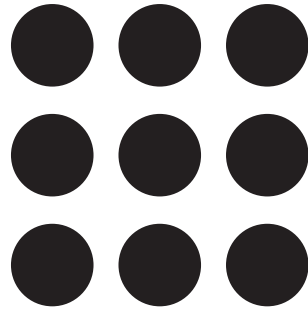
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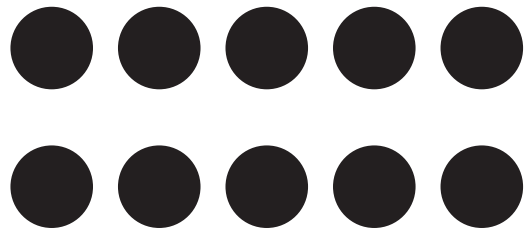
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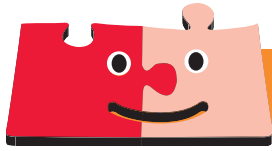


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Handout 2: Train

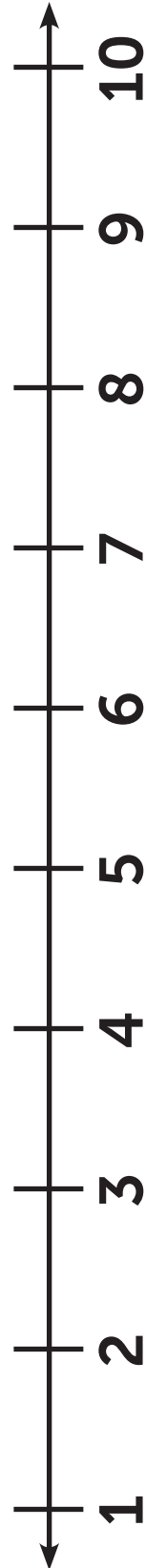


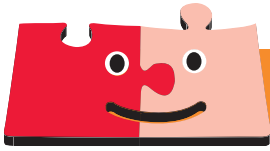


The Monster Is Hungry

This week, use the number line on the following page to play some counting games with your child.

1. Find 10 dried beans or dried pieces of pasta (like elbows).
2. Show your child the monster. Say, "Let's play a game. This monster is hungry. Here are some apples for him." Give your child 2 beans.
3. Say: "Let's see how many apples we have. Can you put the apples on the number line?" Point and count out loud together: "1, 2. Two apples for the monster."
4. Say, "But he wants **one more**." Give your child one more bean. Ask: "What can we do to find out how many apples he has now?"
5. Count up the number line, pointing to each number from 1 to 3. Say, "The monster has 3 apples now."
6. Continue the game with different quantities of apples (from 1-5), each time saying the monster wants "one more" and then counting up again.
7. After you have played a few times, put 4 beans on the number line. Say: "Now the monster ate 1 apple." Take a penny off the number line. "We have one less apple. What can we do to find out how many apples we have now?" Count with your child, as you point to each number. Keep playing, each time saying the monster ate another apple so there is "one less apple."
8. Give your child a turn to tell you how many apples the monster wants. Sometimes children enjoy being the "teacher"!





Solo para familias

El Monstruo tiene hambre

Esta semana, use la recta numérica de la página siguiente para jugar a contar con su hijo.

1. Busque 10 frijoles secos o trozos de pasta secas (como codos). Dígale a su hijo que van a pretender que los frijoles o pasta secas son manzanas.
2. Muéstrole a su hijo el monstruo. Diga: "Juguemos un juego. Este monstruo tiene hambre. Aquí hay algunas manzanas para él ". Dele a su hijo 2 frijoles.
3. Diga: "Veamos cuántas manzanas tenemos. ¿Puedes poner las manzanas en la recta numérica? " Señale y cuente juntos en voz alta: "1, 2. Dos manzanas para el monstruo".
4. Diga: "Pero él quiere uno más". Dele a su hijo un frijol más. Pregunte: "¿Qué podemos hacer para saber cuántas manzanas tiene ahora?"
5. Dele a su hijo un frijol más. Pregunte: "¿Qué podemos hacer para saber cuántas manzanas tiene ahora?"
6. Cuente la recta numérica, señalando cada número del 1 al 3. Diga: "El monstruo tiene ahora 3 manzanas".
7. Continúe el juego con diferentes cantidades de manzanas (de 1 a 5), cada vez que diga que el monstruo quiere "una más" vuelva a contar.
8. Después de haber jugado algunas veces, coloque 4 frijoles en la recta numérica. Diga: "Ahora el monstruo se comió 1 manzana". Quite un frijol de la recta numérica. "Tenemos una manzana menos. ¿Qué podemos hacer para saber cuántas manzanas tenemos ahora? " Cuente con su hijo mientras señala cada número. Sigue jugando, diciendo cada vez que el monstruo se comió otra manzana para que haya "una manzana menos".
9. Dele el turno a su hijo para que le diga cuántas manzanas quiere el monstruo. ¡A veces los niños disfrutan siendo los "maestros"!

