OAK-5 Adding with Pictures

Pages 10–12

Standards: K.OA.A.1, K.OA.A.2

Goals:
Students do “Add To with Result Unknown” additions within 5 by modeling them with pictures. Students are introduced to the equal sign (=).

Prior Knowledge Required:
Can count to 5
Can do “Add To with Result Unknown” additions within 5 by modeling them with objects
Knows numbers less than 5

Vocabulary: add, all, equal sign (=), equals, more, plus, plus sign (+)

Materials:
BLM I Have ___, Who Has ___? (p. R-8)
BLM Number Cards 0 to 5 (p. R-2, see Activity Centers 1–4, Extension 2)
paper and/or magazines, scissors, and glue (see Activity Center 1)
miniature model animals or BLM Animal Cards (pp. R-6–7, see Activity Center 2)
BLM Adding with Objects (pp. J-53–54, see Activity Centers 2–4, Extensions 1, 2)
BLM Adding Stories (2) to (3) (pp. J-50–51, see Activity Centers 2, 4, Extensions 1, 3)

Counting practice. Practice counting to 70. Play “Let’s Compare” using numbers between 1 and 10.

(MP.4) Adding with pictures. SAY: We have been using stories to add. This story is about children playing and more children joining them. We add to find how many children in all.
ASK: How can we keep track of how many children there are in the story? PROMPT: We have done it two different ways: by acting out and by using blocks or counters. SAY: Today we will draw pictures to help us count children. I will tell a story. One day, three children are making a sand castle.

```
3 children
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ASK: How many happy faces did I draw? (3) Why did I draw three? (to show how many children are making a sand castle at the start) SAY: I drew three happy faces because the children are playing. I could have drawn three children making a sand castle, but that is a lot of work just for counting.

SAY: Now two more children come to help. Write “+ 2 more” on the board. Point to the “+” sign and SAY: Remember, this sign means plus. This says three children plus two more. ASK: How
many more happy faces do I need to draw to show two more children? (2) Draw a second box and two happy faces in it. The picture should look like this:

3 children + 2 more

ASK: How many children are there in all? (5) Have a volunteer count to check. Write “5 children” and draw a line below the 5, as shown below:

3 children + 2 more

= 5 children

SAY: Three children plus two more children make five children. In math sometimes we say “Three children plus two more children equals five children.” We write an equal sign with two little lines. Equals means “is the same as.” Write the equal sign, as shown below:

3 children + 2 more

= 5 children

(MP.2) Drawing circles to show addition. Write on the board:

2 cats + 1 more cat

Point to “2 cats” on the left. SAY: In this story we start with two cats, and then (pointing to the “1 more cat” on the right) one more cat comes. Cats are hard to draw so we will draw circles instead. ASK: How many circles do we need to draw to show two cats? (2) Have a volunteer draw circles for two cats. ASK: How many circles do we need to show one more cat? (1) Have a volunteer draw a circle for one more cat. ASK: How many are two cats and one more cat? (3) Finally, have a volunteer count how many cats in all and write “3” in the blank, as shown below:

2 cats + 1 more cat

= 3 cats
Pointing to the parts of the sentence as you speak, SAY: Two cats plus one more cat equals three cats.

Activity

(MP.2) I Have ___, Who Has ___? (see unit introduction, p. J-2) In advance, make cards using BLM I Have ___, Who Has ___?. For “I have,” show a picture of addition within 5 that students can work out in advance. For “Who has,” write a number from 2 to 5. Make sure that the bottom of each card can be matched to the top of another card, and vice-versa. Example:

<table>
<thead>
<tr>
<th>I have</th>
<th>Who has</th>
</tr>
</thead>
<tbody>
<tr>
<td>O O</td>
<td></td>
</tr>
<tr>
<td>O O O</td>
<td>4</td>
</tr>
</tbody>
</table>

Demonstrate how to play the game before breaking the class into small groups. Each player plays once.

(end of activity)

Preparing for the AP pages. Show students AP Book K.2, Unit 7, pp. 10–12. Pointing to the first page, SAY: Here are two number stories with pictures already drawn for you. For each story, your job is to find how many animals in all.

Show students the second page. SAY: For each story, there are two number stories with circles drawn for you. You need to find how many animals in all.

Show students the third page. SAY: On this page, you still need to find how many in all but first you need to draw the circles. In the first box, you draw circles to show how many at the start. In the second box, you draw circles to show how many more. Then you write how many in all here (point to the space provided).

Activity Centers

NOTE: Consider providing number cards for 1 to 4 from BLM Number Cards 0 to 5 to help students do the activities. For Activity Centers 2–4, students should not show their number cards to their partner.

(MP.2, MP.4) 1. Making Addition Pictures

Type: Individual

Objective: To make a picture to illustrate an addition story

Preparation: Provide paper and/or magazines, scissors, and glue to each student.

Instructions: Have students draw or cut and paste images to make a picture that shows an addition (e.g., some cats and some more cats). Have students write the total on their picture.
2. **Telling Addition Stories**

*Type:* Pairs, imaginative

*Objective:* To make up and answer addition stories

*Preparation:* As an option, have students use miniature models of animals (or animal cards from BLM Animal Cards) to help do the activity.

*Explanation:* SAY: You can make up your own number stories and tell them to each other. To the first student in the pair, ASK: What would you like your story to be about? (sample answer: horses) How many horses are there? Pick a number smaller than 5. (sample answer: 3) SAY: So there are three horses in the barn. Give the second student BLM Adding with Objects (1) and SAY: Show three horses in the first box. ASK: Will you draw horses or circles to show the horses? (circles) If the student says horses, SAY: That is a good idea, but drawing circles is faster. For now, just draw circles. To the first student, ASK: How many more horses come to the barn? (sample answer: 1) Then, to the second student, SAY: How many circles will you draw in the second box? (1) How many horses are there in all? (4) Have students take turns telling stories and adding.

*Variation:* Have students record their addition stories using BLM Adding Stories (2) or (3).

3. **Adding Jumps** (see unit introduction, p. J-2)

*Variation:* Provide each student pair with several copies of BLM Adding with Objects (1), cut in two. Students record the number of jumps by drawing circles in the boxes on the BLM.

4. **Adding Jumps** (see unit introduction, p. J-2)

*Variation:* Provide each student pair with several copies of BLM Adding with Objects (1), cut in two. Have students record claps instead of jumps on the BLM. Alternatively, they can use BLM Adding Stories (3).

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**Extensions**

1. In advance, prepare BLM Adding Stories (2) to show addition stories that include zero. Students can use BLM Adding with Objects (1) to draw and answer the addition.

2. Distribute BLM Adding with Objects (2). Give students sums involving three numbers (or provide number cards for 1 to 3 from BLM Number Cards 0 to 5 and have students draw three cards). Do not exceed a total of 10. For example, SAY: Two children are playing soccer. ASK: How many circles do we draw in the first box? (2) SAY: One more child joins them. ASK: How many circles do we draw in the second box? (1) SAY: Then three more children come to play soccer after that. ASK: How many circles do we draw in the third box? (3) How many children are playing soccer in all? Count them all. (6) Repeat with any numbers from 0 to 3.

3. Distribute BLM Adding Stories (2). Give students a starting number—for example, 1. Ask them to write all the number stories they can think of that start with “1 frog and then some more frogs come.”
OAK-6 Putting Together with Objects

Pages 13–15

Standards: K.OA.A.1, K.OA.A.2

Goals:
Students do “Put Together with Total Unknown” additions within 5 by modeling them with objects.

Prior Knowledge Required:
Can count to 5
Can do “Add To with Result Unknown” additions within 5 by modeling them with objects

Vocabulary: add, all, equal sign (=), equals, plus, plus sign (+)

Materials:
blocks or counters
red and blue chalk or markers
up to 5 pattern blocks of two types per student
miniature models of two types of objects (e.g., fruit, vehicles, shapes), four of each type per student pair (see Activity Center 1)
shopping bag per student pair (see Activity Center 1)
BLM Addition Story Blanks (p. R-9, see Activity Centers 1, 3, 4, Extension 2)
BLM Adding Stories (4) (p. J-52, see Activity Center 2, Extension 2)
paper cup and 5 two-sided counters per student pair (see Activity Center 3)
yarn circles (see Activity Center 3, Extension 1)
BLM Number Cards 0 to 5 (p. R-2, see Extension 1)

Counting practice. Practice counting to 70. Play “Let’s Compare” using numbers between 1 and 10.

Acting out “put together” additions. SAY: Let’s do another kind of story. Choose five volunteers from the class, two boys and three girls. Separate the boys from the girls at the front of the class. SAY: In this story, some boys and some girls are playing. ASK: How many boys are playing? Show me on your fingers. (2) How many girls are playing? (3) How many children are playing in all? (5)

Repeat with a different set of volunteers and a different selection criterion, such as color of hair or clothing.
(MP.2, MP.4) Modeling “put together” additions with objects. SAY: Let’s do the story another way. This time we will use blocks. There are one girl and three boys. Draw on the board:

1 girl + 3 boys

ASK: How many blocks should I use to show the girls? (1) Affix one block in the first box. Pointing to the 1, SAY: One block for one girl. ASK: How many boys are there? (3) Where do you see the 3? (students should point to the 3) How many blocks do we need? (3) Affix three blocks in the second box. ASK: How many children in all? (4) Have a volunteer count the four blocks.

SAY: Let’s do another story. I like apples and pears, so I buy one apple and two pears. Draw on the board:

1 apple + 2 pears

Pointing to the plus sign, ASK: What does this sign say? (plus) Read aloud what you have written. SAY: I can say one apple and two pears or one apple plus two pears. It is the same. ASK: How many blocks do I need to show my apple? (1) Affix one block in the first box. ASK: How many blocks do I need to show the pears? (2) Do I have to use different blocks to show the pears or can I use the same kind of blocks? (the same blocks) SAY: Apples and pears are both fruit. So I can show them using the same kind of block. Affix two blocks in the second box, as shown below:

1 apple + 2 pears

ASK: How can we find out how much fruit I bought in all? (count) How many pieces of fruit did I buy? (3) SAY: One apple plus two pears equals three fruits. Write the answer on the board, as shown below:

1 apple + 2 pears

= 3 fruits
Pointing to the equal sign, SAY: Remember, these two little lines say “equals.” ASK: What does equals mean? (makes or the same as) When we put one apple and two pears together to get three pieces of fruit in all, what are we doing? (adding) SAY: We add one fruit plus two fruits to get three fruits. One fruit plus two fruits equals three fruits.

**(MP.2, MP.4) Practice adding with blocks.** SAY: Let’s do another story. I want to put some flowers in a vase. Draw on the board:

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  2 red + 2 blue = 4 flowers
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SAY: I would like two red flowers and two blue flowers. Use red chalk and blue chalk to write “2 red” and “2 blue” above the two boxes. Have volunteers affix the correct number of blocks in each box. Write “+” between the boxes and “= ___ flowers” below the picture. ASK: How many flowers do I have in all? (4) SAY: Two red flowers plus two blue flowers equals four flowers in all. Have a volunteer write “4” in the blank. The final picture should look like this:

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  2 red + 2 blue = 4 flowers
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**Activity**
**(MP 4)** In advance, prepare up to five pattern blocks of two types for each student. Have students sort their blocks by shape. In pairs or as a class, have students tell the story of their blocks (e.g., two squares and three circles make five shapes).

**(end of activity)**

**Preparing for the AP pages.** Show students Questions 1–2 on AP Book K.2, Unit 7, p. 13. SAY: There are two number stories. The first one says three ants plus one ladybug. Your job is to find how many bugs in all. You can put blocks in the boxes to help you. Then you need to write how many in all here (indicate the space provided).
Activity Centers
(MP.2, MP.4) 1. Playing Store
Type: Pairs, imaginative
Objective: To add items students shop for in a store
Preparation: Provide miniature models of two types of objects, four of each type per student pair. For example, students may have four apples and four pears, or four cars and four trucks. If possible, provide a shopping bag for each pair.
Instructions: Have Player 1 be the seller of the objects. Have Player 2 select some of each type of object. Together, the players count how many of each type and how many in all. Have players switch roles.
(MP.7) Variation: Have students record their purchases on BLM Addition Story Blanks. They can draw pictures of the objects or write the words.
Bonus: Have students play the game using no more than three of each of the three types of objects.

(MP.2, MP.4) 2. Using Fingers to Add
Type: Pairs
Objective: To keep track of numbers using fingers and then count to find how many in all
Preparation: Provide BLM Adding Stories (4).
Explanation: SAY: We can use our fingers to keep track of number stories. Let’s try. There are two ants on a wall. Have students show 2 on their fingers. SAY: Keep two fingers up. Then a ladybug crawls up the wall. ASK: How many fingers do you need to show? (1) SAY: Show me one finger on the other hand. ASK: How many fingers are you showing in all? (3) SAY: Now there are three bugs on the wall. Repeat with the first story on the BLM. Show students where to write the numbers on the BLM.
Bonus:
a) Have students do the additions using the fingers on one hand.
b) Write stories such as “2 cats and 3 dogs.” Have students find and circle the numbers, add them, and then write how many in all.

(MP.2, MP.4) 3. Adding with Counters
Type: Pairs
Objective: To add counters and find how many in all
Preparation: Give each student pair a paper cup, 5 two-sided counters, and 2 yarn circles. Instead of counters, you can color one side of large dried beans.
Instructions: Player 1 puts up to 5 two-sided counters in the cup and puts aside the rest. Player 2 shakes the cup and dumps the counters on the table. Player 2 sorts the counters into the two yarn circles by color, counts how many of each color, and then counts how many in total.
Variation: In advance, fill in BLM Addition Story Blanks with the two colors of counters used (e.g., red, blue). Have students record their additions on the BLM.
Bonus: Have students guess how many counters are not in the cup.
4. Gathering and Counting Objects

Type: Pairs, active

Objective: To find, count, and then add two kinds of familiar objects

Preparation: In advance, consider the kinds of objects in the classroom that are easily accessible to students.

Instructions: Have students work with a partner to gather objects that you specify. For example, SAY: Find blue crayons and yellow crayons. When one partner has found three of the specified objects, have students count and then add how many objects they found in all.

Bonus: Have students record the additions on BLM Adding Stories (5), either completely on their own or filled in by you ahead of time.

Extensions

1. Adding three numbers. Give each student blocks or counters, three yarn circles, and seven number cards from BLM Number Cards 0 to 5 (three cards each numbered as 1 and 2 and one card numbered as 3). Students turn over three cards and place one card below each yarn circle. Next they place the corresponding number of blocks in each yarn circle. Then students count how many objects there are in all.

(MP.1, MP.4, MP.7) 2. Distribute BLM Adding Stories (4) or BLM Addition Story Blanks, two yarn circles, and five blocks or counters to each student.

a) Have students write all the number stories that can be shown with their blocks that start with “Two cats and some dogs.”

b) Have students explain to a partner how they know they’ve written all the stories, and how they know how many pets in all in each story.

Answers: a) 0 dogs (2 pets in all), 1 dog (3 pets in all), 2 dogs (4 pets in all), 3 dogs (5 pets in all).

Sample answer: b) I used two blocks in one yarn circle to show cats, then the rest of the blocks to show dogs in the other yarn circle. First I showed zero blocks, and then one more each time until I had no more blocks. I counted the blocks each time to find how many pets in all.

Individual or small group follow-up: If students struggle to make sense of the problem, ASK: How can you show the cats? (2 blocks in a yarn circle) How can you show dogs? (blocks in another yarn circle) Encourage them to choose an amount of dogs, using their remaining blocks, and then ASK: What addition have you shown? Once students are able to record a single addition story, encourage them to look for as many as they can.
OAK-7  Putting Together with Pictures (1)

Pages 16–19

Standards: K.OA.A.1, K.OA.A.2

Goals:
Students do “Put Together with Total Unknown” additions within 5 by modeling them with pictures.

Prior Knowledge Required:
Can count to 5
Can do “Add To with Result Unknown” additions within 5 by modeling them with pictures
Can do “Put Together with Total Unknown” additions within 5 by modeling them with objects

Vocabulary: add, addition, all, equal sign (=), equals, plus, plus sign (+)

Materials:
BLM I Have ___, Who Has ___? (p. R-8, see Activity Center 1)
BLM Game Cards (p. R-10, see Activity Center 2)
BLM Pets (1) (p. R-11, see Activity Center 3)
BLM Addition Story Blanks (p. R-9, see Activity Center 3, Extension 1)
BLM Pictures with Shapes (p. J-55, see Extension 2)
counters (see Extension 3)

Counting practice. Practice counting to 70. Play “Let’s Compare” using numbers between 1 and 10.

(MP.2) Putting together pictures. SAY: I like collecting stickers. I have some square stickers and some round stickers. Draw on the board:

+  

ASK: How many square stickers do I have? (2) Write “2 stickers” on the board above the squares. ASK: How many round stickers do I have? (3) Write “3 stickers” above the circles.
ASK: How many stickers did I draw in all? (5) Write “= 5 stickers” below the picture. The final picture should look like this:

2 stickers + 3 stickers  

= 5 stickers

Pointing to the words and symbols as you go, SAY: Two stickers plus three stickers equals five stickers.
(MP.2, MP.4) Beginning expressions. SAY: Let’s do another example. Draw on the board:

\[
\begin{array}{ccc}
\square & \bigcirc & \bigcirc & \bigcirc \\
\end{array}
\]

ASK: How many square stickers do I have? (1) Write “1” above the square. ASK: How many round stickers do I have? (3) Write “3” above the circles, and “+” between the numbers. ASK: One sticker plus three stickers are how many stickers? (4) Write “= 4 stickers” below the picture. The final picture should look like this:

\[
\begin{array}{cccc}
1 & + & 3 & \\
\square & \bigcirc & \bigcirc & \bigcirc \\
\end{array}
\]

= 4 stickers

Pointing to the expression above the picture, SAY: This picture shows 1 plus 3. When we write the numbers and the symbols without any words, it is called an addition. This picture shows the addition 1 + 3 (indicate the numbers). Draw on the board:

\[
\begin{array}{ccc}
\square & \square & \bigcirc \\
\end{array}
\]

ASK: How many square stickers do I have? (2) How many stickers are round? (1) What addition does this show? (2 + 1) Write “2 + 1” above the picture. ASK: What does 2 + 1 equal? How many stickers are there? (3) Write “= 3 stickers” below the picture. The final picture should look like this:

\[
\begin{array}{cc}
2 & + & \bigcirc \\
\square & \square & \bigcirc \\
\end{array}
\]

= 3 stickers

(MP.2) Using circles to add. ASK: Who has a brother? Have a volunteer say how many brothers he has. SAY: I cannot draw your brother(s) very well. ASK: What can I draw to show how many brothers [volunteer] has? (answers may vary) SAY: I will draw circles to show [volunteer]’s brothers. Repeat for a volunteer’s sisters, keeping the sum below 5. Have the class determine how many brothers and sisters in all. The final picture should look like the following, but using your numbers:

\[
\begin{array}{ccc}
\bigcirc & \bigcirc & \bigcirc \\
\end{array}
\]

= 4 brothers and sisters
Activity
Show students AP Book K.2, Unit 7, pp. 16–19. SAY: On these pages you need to find how many in all. Pointing to the first and second pages, SAY: On these pages, the pictures are drawn for you. ASK: How will you find how many in all? (count, add)

Pointing to the third page, SAY: On this page, you have to draw circles to show how many. Then you will add to find how many in all.

Pointing to the last page, SAY: Here there are pictures but no numbers. You have to count how many in each box. Then find how many in all. When you are done, every story should show a number above each box, pictures in each box, and how many in all (indicating the answer space).

Have students complete Questions 1–8 on their own.

(end of activity)

Activity Centers
(MP.2) 1. I Have ___, Who Has ____? (see unit introduction, p. J-2)
Variation: In advance, make cards using BLM I Have ___, Who Has ____?. For “I have,” show a picture of an addition within 5 that students can work out in advance. For “Who has,” write a number from 2 to 5. Example:

```
I have
0 0
□ □ □

Who has
4?
```

(MP.2, MP.4) 2. Matching (see unit introduction, p. J-3)
Variation: In advance, make four pairs of matching cards using BLM Game Cards. Use the boxes to write a number from 2 to 5 and one addition for each number you wrote (e.g., 4, 1 + 3).

(MP.2, MP.4) 3. Adding with Picture Cards
Type: Individual or pairs
Objective: To count and add the quantities shown on randomly drawn cards
Preparation: Cut out cards from BLM Pets (1) and distribute a set to each student or student pair.
Instructions: Have students take turns to select two cards at random and add how many in all.
Variation: Students record their additions on BLM Addition Story Blanks.
Extensions

**MP.4, MP.5** 1. There are 10 babies and 10 toys. Can each baby have a toy?
Have students solve the problem using a tool of their choice, such as pencil and paper to draw pictures, or blocks. Students explain their solution to a partner.

**Sample answers:**
- I drew 10 happy faces to show 10 babies, and I used 10 blocks for the 10 toys. I matched the blocks with the happy faces. Since each happy face had a block, the babies can each have a toy.
- I drew 10 babies, and 10 toys. I counted them and noticed the numbers are the same, so they are equal. So each baby can have a toy.
- I solved the problem in my mind. I noticed that the number of babies is the same as the number of toys. Since the numbers are equal, I know that each baby can have a toy.

**MP.8** 2. Provide students with colored blocks and colored pencils to model parts a) and b).

a) Take 3 red blocks. Take 1 blue block. How many blocks did you take?
b) Draw 3 red squares. Draw 1 blue square. How many squares did you draw?
c) What did you do the same in parts a) and b)? Did you get the same answer?
d) Are there the same number of cubes as squares? How do you know?
e) When you start with 3 and then add one more, will you always get the same number? Have students explain to a partner why or why not.

**Answers:**
- a) 4
- b) 4
- c) I started with 3, and then I added one more. I got the answer 4 both times.
- d) There are the same number of cubes as squares. I know because I matched them (or, because I counted them).
- e) When you start with 3 things and add one more, you will always get the next number, or one more than 3, which is 4. It doesn't matter whether you use blocks or pictures.
OAK-8 Putting Together with Pictures (2)

Pages 20–22

Standards: K.OA.A.1, K.OA.A.2

Goals:
Students continue to do “Put Together with Total Unknown” additions within 5 by modeling them with pictures. The format of the written story reflects the format of equations. Students see addition equations that the teacher writes.

Prior Knowledge Required:
Can count to 5
Can do “Add To with Result Unknown” additions with pictures
Can do “Put Together with Total Unknown” additions with objects

Vocabulary: add, addition, all, equal sign (=), equals, more, plus, plus sign (+)

Materials:
red and blue chalk or markers
BLM I Have ___, Who Has ___? (p. R-8, see Activity Center 1)
BLM Game Cards (p. R-10, see Activity Center 2)
BLM Pets (1) (p. R-11, see Activity Center 3, Extension 1)
BLM Pictures with Shapes (p. J-55, see Extension 2)
counters (see Extension 3)

Counting practice. Practice counting to 70. Play “Let's Compare” using numbers between 1 and 10.

(MP.2, MP.4) Putting together pictures. SAY: Sometimes I keep track of sunny days and rainy days. I can use suns and clouds. Draw on the board:

\[
\begin{array}{c}
\text{sun} \\
\text{sun} \\
\text{cloud} \\
\text{cloud}
\end{array}
\]

ASK: How many sunny days did I draw? (2) Write “2 sunny days” below the suns. ASK: How many cloudy days did I draw? (2) Write “2 cloudy days” below the clouds. ASK: How many days did I draw in all? (4) Write “= 4 days” to the right of the addition. The final picture should look like this:

\[
\begin{array}{c}
\text{sun} \\
\text{sun} \\
\text{cloud} \\
\text{cloud}
\end{array}
\]

2 sunny days \[ + \] 2 cloudy days = 4 days

Pointing to the words and symbols as you go, SAY: Two sunny days plus two cloudy days equals four days.
(MP.2, MP.4) Beginning expressions. SAY: Let’s do another example. Anna picked some flowers. I will draw the flowers that she picked. Draw one red flower and three blue flowers on the board:

![Red and Blue Flowers](image)

ASK: How many red flowers are there? (1) Write “1” below the red flower. ASK: How many blue flowers do you count? (3) Write “+ 3” below the blue flowers. ASK: How many flowers are one flower plus three flowers? (4) Write “= 4 flowers” to the right, as shown:

![Flowers](image)

Pointing to the expression below the picture, SAY: This picture shows one plus three. ASK: What do we call it when we write “1 + 3 = 4” with numbers and plus signs? (an addition) Point to the numbers as you SAY: This picture shows the addition 1 + 3.

SAY: I want to draw another flower addition. I want to add three flowers plus two flowers. This time I will draw circles instead of flowers. Circles are easier to draw. ASK: Can I draw circles instead of flowers to find three flowers plus two flowers? (yes) SAY: As long as I draw the correct number of shapes, it does not matter what shape I draw. Draw on the board:

![Circles](image)

ASK: How many flowers are there in all? (5) How many are three flowers plus two flowers? (5) Write “= 5 flowers” beside the equal sign. ASK: How many are three circles plus two circles? (5) What if we add zoo animals? How many are three giraffes plus two tigers? (5) If we put together three things and two things will we always get five things? (yes)

(MP.2, MP.4) Drawing equations. SAY: Some children are playing in the park. There are two boys and one girl playing. Write on the board (leaving space above), “2 boys + 1 girl.” ASK: I want to draw a picture to show two boys plus one girl. Do I need to use my paintbrush and paint beautiful pictures of boys and girls? (no) SAY: It might be fun, but I am more interested in adding. ASK: What can I draw that will be easier than boys and girls? (answers may vary) SAY: Let’s draw circles. Have volunteers draw two circles to show the boys and one circle to show the girl. ASK: How many children are there in all? (3) How do I write that there are three children in all? (= 3) Have a volunteer write “= 3 children” to the right of the addition. The final picture should look like this:

![Children](image)

Repeat, if necessary, with three soccer balls and two baseballs.
**Adding with fingers.** Write “1 + 2” on the board. SAY: We can use our fingers to add. Show me one finger. On your other hand, show me two fingers. ASK: How many fingers are you holding up in all? (3) Repeat for 3 + 2.

SAY: Sometimes it is better to use one hand. Show me three fingers again. When everyone has three fingers raised, ASK: Can you put up two more fingers on the same hand? (yes) How many fingers are you holding up? (5) Do you need to count to find out? (no) Why not? (because we have 5 fingers on one hand and all of them are up) Repeat as necessary with 2 + 3.

**Activity**
Show students AP Book K.2, Unit 7, pp. 20–22. SAY: On these pages you need to find how many in all. Pointing to the first and second pages, SAY: On these pages, the pictures are drawn for you. ASK: How will you find how many in all? (count, add)

Pointing to the last page, SAY: On this page, you have to draw circles to show how many. Then find how many in all and write the answer here (indicate the answer space).

Have students complete Questions 1–12 on their own.

(end of activity)

**Activity Centers**

**1. I Have ___, Who Has ___?** (see unit introduction, p. J-2)  
*Variation:* In advance, make cards using BLM I Have ___, Who Has ___?. For “I have,” show a picture of an addition within 5 that students can work out in advance. For “Who has,” write a number from 2 to 5.

**2. Matching** (see unit introduction, p. J-3)  
*Variation:* In advance, make four pairs of matching cards using BLM Game Cards. In each box, write a number from 2 to 5 and one addition for each number you wrote (e.g., 4, 1 + 3).

**3. Adding with Picture Cards**  
*Type:* Individual or pairs  
*Objective:* To count and add the quantities shown on randomly drawn cards  
*Preparation:* Cut cards from BLM Pets (1) and distribute a set to each student or student pair.  
*Instructions:* Have students take turns to select two cards at random and add how many in all.  
*Bonus:* Have students write an addition sentence for their cards.

**Extensions**

**1. Repeat Activity Center 3 using three cards, then four cards.**

**2. Distribute BLM Pictures with Shapes and have students count how many circles and how many squares, and then add them. This can be extended to counting and adding other kinds of shapes.**
3. For very advanced students, draw two overlapping circles, preferably in two colors, for example, in red and blue. Draw dots in the circles, as shown below:

\[ \text{\includegraphics[width=0.2\textwidth]{circle-diagram.png}} \]

ASK: How many dots are in the red circle? (3) How many dots are in the blue circle? (4) How many dots in all? (5) What is 3 + 4? (7) How can there be five dots in all if 3 + 4 = 7? (some dots are in both circles)

Redraw the circles. Have students draw five dots or place five counters so that …

a) there are three dots in each circle.
b) there are five dots in one circle and two dots in the other circle.
c) there are five dots in one circle and one dot in the other circle.

**Sample answers:**

\[ \text{\includegraphics[width=0.2\textwidth]{sample-answers.png}} \]
OAK-9 Decomposing 5

Pages 23–24


Goals:
Students decompose 5 in a variety of ways using objects and pictures, and use those decompositions to answer “Put Together with Both Addends Unknown” questions.

Prior Knowledge Required:
Can count to 5
Can read an addition expression

Vocabulary: add, addition, all, five-frame, more, plus, plus sign (+)

Materials:
7 paper frogs
tape
red, blue, and green chalk or markers
BLM Game Cards (p. R-10)
2 colored pencils per student
BLM Five-Frames (p. J-56) or five-frames made from egg cartons
5 two-sided counters, 5 dried beans painted on one side, or 5 of each of two colors of blocks per student
paper cups (see Activity Center 1)
BLM Making 5 (p. R-13, see Activity Centers 1–3, Extensions 1, 2)
5 plastic bowling pins or empty plastic water bottles and a soft ball per student pair (see Activity Center 2)

Counting practice. Practice counting to 70. Play “Let’s Compare” using numbers between 1 and 10.

(MP.5) Introduce five-frames. Draw on the board:

```
□ □ □ □ □
```

Pointing to the picture and SAY: This is a five-frame. It has five boxes. Count (or have a volunteer count) the boxes. SAY: The frame helps us to count quickly. If there is one thing in each box, then there must be five things in all.

ASK: Where else do we see the number 5? Where do we have five on our body? (fingers on one hand, toes on one foot) SAY: We can use five fingers on our hand to help us think about the number 5.
Affix five paper frogs to the board, one in each box of the five-frame. ASK: How many frogs are there? (5) SAY: Since there are five boxes and there is one frog in each box, there must be five frogs. Remove all the frogs, then put back only three, one per box, from left to right. ASK: Are there five frogs now? (no) How can you tell by looking at the five-frame that we do not have five frogs yet? (some boxes are empty) Add four more frogs by putting two frogs in each of the empty boxes. SAY: None of the boxes are empty. ASK: Are there five frogs now? (no) Why not? (some boxes have more than 1 frog) SAY: When there is exactly one frog in each box, I know that I have five frogs.

(MP.5) Using a five-frame to take apart 5. Draw a five-frame on the board and color the first two boxes red. SAY: This is a five-frame. ASK: How many boxes are red? (2) Write “2” below the two boxes. Color the rest of the boxes blue. ASK: How many squares are blue? (3) Write “3” below the three boxes. SAY: We have two red boxes plus three blue boxes. Write “+” between the 2 and the 3. ASK: How many boxes do we have in all? (5) Do you need to count to know that there are five in all? (no) Write “5 =” to the left of the addition. SAY: We can count to double check, but we know that there are five boxes in the five-frame. The final picture should look like this:

\[
\begin{array}{ccccc}
& & & & \\
5 &=& 2 & + & 3 \\
\end{array}
\]

Repeat with another five-frame with four red boxes and one blue box. The final picture should look like this:

\[
\begin{array}{ccccc}
& & & & \\
5 &=& 4 & + & 1 \\
\end{array}
\]

Pointing to the addition, SAY: This five-frame shows that 5 is 4 + 1.

(MP.4, MP.5) Using a five-frame to model addition expressions. Write “3 + 2” on the board and draw an empty five-frame. SAY: I can use the five-frame to show this addition. We will color some boxes in red and the rest in blue. ASK: To show 3 + 2, how many boxes should we color first? (3) SAY: We start by coloring the first number, 3, one color. Have a volunteer color three boxes red. ASK: How many do we color now? (2) Have another volunteer color the remaining two boxes blue. Repeat with 1 + 4 and 5 + 0.

(MP.4, MP.5) Using a five-frame to answer unknown addend questions. SAY: I can use my five-frame to help answer questions about choosing five things. SAY: I want to buy some red apples and some green apples. I want five apples in all. ASK: How many red apples should I buy? (accept any answer from 1 to 4, for example, 2) How many boxes should I color to show two red apples? (2) Color two boxes red. SAY: I am buying five apples in all. Two are red. The rest are green. ASK: How many boxes should I color green to show the green apples? (3 or the rest) SAY: All the other apples are green. There are three green apples. Color the rest of the boxes green. Write “2 + 3” below the five-frame.

SAY: Let’s choose a different number of red apples. Repeat the above with a new starting number.
Activity
(MP.2, MP.5) Show the addition. In advance, prepare addition cards using BLM Game Cards. Put a set of cards in each work center. Give each student two different colored pencils and BLM Five-Frames (with the answer, 5, filled in by you). Alternatively, use egg cartons to make five-frames by cutting rows of five cups from each carton. Give each student this five-frame along with either 5 two-sided counters, 5 large beans painted on one side, or 5 each of two colors of blocks. Have students choose a card from the pile and model the addition shown using the five-frame.

(end of activity)

Activity Centers
NOTE: You may wish to laminate BLM Making 5 or place it in a protective plastic cover so that it can be wiped clean and re-used.

(MP.2, MP.5) 1. Five Counters (see unit introduction, p. J-3)

(MP.2, MP.5) 2. Bowling
Type: Individual or pairs, active
Objective: To write the addition modeled by five bowling pins (some upright, some knocked over)
Preparation: Set up a bowling lane using plastic pins or empty plastic water bottles per student or per student pair. Provide a soft ball and BLM Making 5. Since students may knock over either all or none of the pins, make sure they can use a five-frame to model “0 + 5” or “5 + 0” before they do the activity.
Instructions: Set up five pins. Have students roll the ball once and then use the BLM to write the addition for how many pins were knocked down and how many stayed upright.

(MP.2, MP.5) 3. Five Counters (see unit introduction, p. J-3)
Variation: Students play in pairs using fingers. Player 1 holds up a number of fingers on one hand. Player 2 counts how many fingers are up and how many fingers are down and writes the addition on the BLM. Players change roles.

Extensions
(MP.1, MP.7) 1. Provide students with 5 two-sided counters and BLM Making 5. Challenge students to find all the ways to make 5.
Answers: 5 = 5 + 0, 5 = 4 + 1, 5 = 3 + 2, 5 = 2 + 3, 5 = 1 + 4, 5 = 0 + 5

Individual or small group follow-up: If students struggle, encourage them to start with the counters all showing the same color. Students write the expression for the first equation (5 = 5 + 0) and then turn over counters one at a time and write the expression for each combination.

(MP.1, MP.7) 2. Give students a five-frame from BLM Five-Frames (or a five-frame made from an egg carton) and two colors of counters, say red and yellow. Have students fill the five-frame
so that there are more red than yellow counters. Then have students find all the ways to fill the five-frame so that there are more red than yellow counters. Students can either record their work on BLM Making 5 or use the paper five-frame as the recording.

**Answers:** 3 red, 2 yellow; 4 red, 1 yellow; 5 red, 0 yellow

**NOTE:** Extension 3 is best suited for very advanced students.

3. a) Give students five counters and have them find all the ways to make 5 by adding three numbers. Have students start without zero, then include zero. Provide blank paper for them to record their work.

b) Have students make 5 by adding 4 numbers, with no zero.

**Answers:**

a) without zero: \(1 + 1 + 3, 1 + 2 + 2\) (and any rearrangements of these numbers);

with zero: \(0 + 0 + 5, 0 + 1 + 4, 0 + 2 + 3\) (and any rearrangements of these numbers)

b) \(1 + 1 + 1 + 2\) (and any rearrangements of these numbers)

**MP.2, MP.6** 4. Mary has 2 toy cars and 3 toy trucks. She has 5 toy cars and trucks in all.

a) Have students write an addition to show Mary’s toy cars and trucks using the plus sign and the equal sign.

b) Have students use this example to explain to a partner what the plus sign (+) and the equal sign (=) mean.

**Answer:** a) \(2 + 3 = 5\)

**Sample answer:** b) The “+” sign means plus. It means you are adding two numbers together, to find out how many in all. When I wrote \(2 + 3\), I meant 2 toy cars plus 3 toy trucks. That makes 5 toy cars and trucks. The “=” sign means the same number. Two plus three is the same number as five.
Adding Stories (2)

___ + ___ = ___

___ + ___ = ___

___ + ___ = ___
Adding Stories (3)

__________  +  ___________

__________

__________  +  ___________

__________

= ____________

__________

__________  +  ___________

__________

__________

= ____________

__________

__________  +  ___________

__________

__________

= ____________

__________
Adding Stories (4)

\[
\begin{align*}
\text{---------} & + \text{---------} \\
\end{align*}
\]
\[
= \text{--------- pets}
\]

\[
\begin{align*}
\text{---------} & + \text{---------} \\
\end{align*}
\]
\[
= \text{--------- bugs}
\]

\[
\begin{align*}
\text{---------} & + \text{---------} \\
\end{align*}
\]
\[
= \text{--------- children}
\]
Adding with Objects (I)
Adding with Objects (2)
Pictures with Shapes

Blackline Master — Operations and Algebraic Thinking — Teacher Resource for Kindergarten
Five-Frames

\[
\begin{array}{c}
| & | & | & | & | \\
\hline
\hline
+ \quad + \quad = \\
\hline
| & | & | & | \\
\hline
\hline
\end{array}
\]

\[
\begin{array}{c}
| & | & | & | & | \\
\hline
\hline
+ \quad + \quad = \\
\hline
| & | & | & | \\
\hline
\hline
\end{array}
\]

\[
\begin{array}{c}
| & | & | & | & | \\
\hline
\hline
+ \quad + \quad = \\
\hline
| & | & | & | \\
\hline
\hline
\end{array}
\]
Number Cards 0 to 5

2 5
0 3
- 4
Animal Cards (I)

- Frog
- Hamster
- Monkey
- Mouse
- Greyhound
- Cat
- Tiger
- Lion
- Elephant
Animal Cards (2)

1. Zebra
2. Giraffe
3. Polar bear
4. Fish
5. Cow
6. Horse
7. Beaver
8. Rabbit
9. Snake
I Have _____, Who Has _____?
Addition Story Blanks

1. ___________ + ___________ = ___________

2. ___________ + ___________ = ___________

3. ___________ + ___________ = ___________
Pets (I)

- Three dogs
- Five fish
- Four kittens
- Two cats
Making 5

5 = __________ + __________

5 = __________ + __________

5 = __________ + __________

5 = __________ + __________

5 = __________ + __________

5 = __________ + __________

5 = __________ + __________

5 = __________ + __________