Making Ten with the Circus

Composing and Decomposing Numbers Up to Ten

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Grade Level	1st – Kindergarten Grade	**Time Frame**	2 class periods
Subject	Mathematics	**Duration**	120 minutes
Course	Elementary Mathematics, Oklahoma Young Scholars/Javits		

Essential Question

What are the different ways to make a number?

Summary

In this lesson, students will begin by discussing their knowledge of circuses and create a circus Anchor Chart. Students will make predictions about the animals they might see in the book "Animals on Board" by Stuart J. Murphy. The class will count and practice representing numbers using counters on a ten-frame tool together. While revisiting the book students will be introduced to the concept of composing and decomposing numbers as they show number sentences on ten-frames.

Snapshot

Engage

Students share what they know about the circus as a group. During this discussion, the class starts a circus chart by taping pictures, writing student ideas, or drawing items on the chart.

Explore

Students look at the cover of the book 'Animals on Board' by Stuart J. Murphy. Students then make predictions of animals they might see at this circus. Students listen to the story and count the animals on each page.

Explain

The ten-frame tool is introduced to students, and they practice representing numbers using counters. Next, the class rereads the book and students show their number sentences on their ten-frames as you revisit each page.

Extend

Students work in pairs and practice using their ten-frames by creating stories about circus animals as their partner places counters on the ten-frames. Students match ten-frames with number sentences at a center to give them more practice.

Evaluate

Using dry-erase boards or a ten-frame and counters, students write number sentences to demonstrate ways the animals could have arrived to match the total number of animals in the circus stories.

Standards

Oklahoma Academic Standards Mathematics (Kindergarten)

1.N.2.1: Represent and solve problems using addition and subtraction with sums and minuends of up to 10

Oklahoma Academic Standards Mathematics (Kindergarten)

K.N.1.6: Read, write, discuss, and represent whole numbers from 0 to at least 20. Representations may include numerals, pictures, real-object and pictographs, spoken words, and manipulatives.
K.N.2: Develop conceptual understanding with addition and subtraction (up to 10) using objects and pictures.
K.N.2.1: Compose and decompose numbers up to 10 using objects and pictures.

Attachments

- Animal Cutouts—Making Ten With the Circus.pdf
- Beginner Level Ten-Frame Circus Tents—Making Ten with the Circus.pdf
- Circus Number Sentences (Center Two)—Making Ten with the Circus.docx
- Circus Number Sentences (Center Two)—Making Ten with the Circus.pdf
- Circus Tent Story Mat (Black and White)—Making Ten with the Circus.docx
- Circus Tent Story Mat (Black and White)—Making Ten with the Circus.pdf
- Circus Tent Story Mat—Making Ten with the Circus.docx
- Circus Tent Story Mat—Making Ten with the Circus.pdf
- Double Ten-Frames—Making Ten with the Circus.docx
- Double Ten-Frames—Making Ten with the Circus.pdf
- Making Ten With The Circus.pptx
- Number Cards 1-20—Making Ten with the Circus.pdf
- Single Ten-Frame—Making Ten with the Circus.pdf
- TEN FRAME MATCHING (CENTER TWO) cut apart cards.pdf

Materials

- Ten-Frame matching handout (attached)
- Single Ten-Frame handout (attached)
- Double Ten-Frame handout (optional, attached)
- Circus Ten-Frames (Center Two) handout (attached)
- Circus Number Sentences (Center Two) handout (attached)
- Circus Animal Cut-outs for Math Stories (attached)
- Circus Tent Story Mat handout (attached; you can print in color or black and white)
- Number Cards 1-20 handout (attached; one set of numbers 1-10 per pair of students, number 11-20 optional)
- Beginner Level Ten-Frame Circus Tent handout (optional, attached)
- The book “Animals on Board” by Stuart J. Murphy
- Chart paper
- Two-color counters (10 per student)
- Whiteboard and markers

15 minutes

Engage

Start the lesson by asking students if they have been to a circus or seen one in books or videos. What do you see at a circus?

As students discuss a circus, draw or write their ideas down using the Anchor Chart instructional strategy.

Teacher's Note

Answers could include a circus tent, clowns, animals, acrobats, or other things they might see at a circus.

15 minutes

Explore

Teacher's Note:

This is the first reading of the book, so have some fun with it.

Show them the cover of the book “Animals on Board” by Stuart J. Murphy. Ask students if they notice any of the things they suggested that they could see at a circus. Then, have students predict what other animals besides the tigers they might see in the book.

Read “Animals on Board,” or if you like, play the linked audiobook. As you read the book, stop and pause on each page to count the animals on that page and have the students guess what might come next in the truck caravan.

Embedded video

https://youtube.com/watch?v=OYK5R_N1yDs

Continue asking the children to count and combine the number of animals on each page. Bring attention to how number sentences like “3+2=5” correspond with animals grouping up.

25 minutes

Explain

Tell students that just like circus performers work together to put on a show, numbers can work together too. Explain that today, we will learn how to make and take apart numbers using a special tool called a ten-frame.

Give each student a ten-frame. Give students either the attached **Single Ten-Frame** handout. Each student needs 10 two-color counters.

Show students how to place counters on a ten-frame to represent different numbers (e.g., four counters for the number 4).

Next, demonstrate how to change the arrangement of counters to show that there are different ways to make the same number (e.g., 2 + 2 = 4, 3 + 1 = 4).

After that, introduce the terms "compose" (putting together) and "decompose" (taking apart) numbers. Show students number cards 1-10 from the attached **Number Cards 1-20** handout. Use the number cards and a ten-frame to demonstrate composing numbers. For example, for the number 6, show the 4 number card and the 2 number card. Next, add four counters to represent the 4 number card and two counters to represent the 2 number card. Make sure to model multiple ways to compose the same number, like 4 + 2, 5 + 1, and 3 + 3 on the ten-frames.

Next, model decomposing numbers. For example, to decompose the number 5, we could break it into smaller parts of 4 and 1 or 3 and 2.

Let the students practice composing and decomposing numbers on their own or in pairs.

Once students have practiced enough, reread “Animals on Board” and have students show the numbers on their ten-frame as you revisit each page. Students should verbally say the number of sentences as they place counters on their ten-frame. Use the terms "compose" and "decompose" as you monitor students putting together and taking apart numbers.

20 minutes

Extend

Gather the students and review what they have learned about “composing” and “decomposing numbers.” Model or practice each of the following activities before pairing students and placing them in the following centers:

Center One: For this activity, students will work in pairs. Students will need one ten-frame, one set of 10 counters, pictures of circus animals, the attached **Circus Tent Story Mat**, one recording sheet, and number cards 1-10. For this station, student A will pick one number card and place that number of circus animals on the story mat. Student B will place counters on a ten-frame to match that story.

Teacher's Note: Center One Example

Student A picks the number seven. He places five tigers and two elephants on the mat. Student B places five counters and then two counters on a ten-frame and tells the story that five tigers came into the tent and were growling and next, two elephants came and joined them.

Have the students record their stories as number sentences on their recording sheets. Instruct students to switch roles. Let them practice until they have completed around 10 stories.

Center Two: Students will use the attached **Circus Number Sentences (Center Two)** and **Circus Ten-Frames (Center Two)** handouts to match number sentence cards with the matching circus ball ten-frames.

Center Three (optional): Another center could be created by having students use the attached **Beginner Level Ten-Frame Circus Tent** handout, using counters on ten-frames.

10 minutes

Evaluate

Assess student understanding of composing and decomposing numbers by using dry-erase boards or ten-frames. Create a quick story problem about a number of animals and have students write a number sentence to show different ways the animals might have arrived that matches your story.

Teacher's Note: Example

You tell the story “I saw 10 zebras sleeping at the circus.” The students would then show 5 and 5 or 6 and 4, or 3 and 7 on their ten-frames.

Below is a list of possible story problems:

- I saw seven tigers eating meat.
- I saw 10 elephants balancing balls with their trunks.
- I saw one acrobat swinging on a rope.
- I saw four clowns trip over their shoes.
- I saw eight seals dancing in a circle.
- I saw six horses prancing onto the stage.
- I saw five giraffes wearing fancy blankets.

Opportunities for Gifted Learners

You could still use the circus theme.

Option 1: Increase the range of numbers of animals or other items from 10 to 20. Students will need to use the attached **Double Ten-Frames** handout for this activity.

For Example:

- We noticed 15 clowns. Some had red hats, and some had yellow hats.
- I saw 18 tigers. Some had big feet, and some had tiny feet.

Option 2: Students could keep a record of all the possible combinations of clowns and tigers for a given number. Students could use their possible combinations to create stories to share with the class or make it into a book.

Resources

- Murphy, Stuart J., & Alley, R. W. (2006). *Animals on Board*. Childcraft Education Corps.
- K20 Center. (n.d.). Anchor charts. Strategy. https://learn.k20center.ou.edu/strategy/58.