Sporting Some Fun With Ten Frames

Using Ten Frames to Develop an Understanding of Numbers

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Grade Level	1st – Preschool Grade	**Time Frame**	40-minute sessions
Subject	Mathematics	**Duration**	3-4 class periods
Course	Elementary Mathematics		

Essential Question

How can numbers help us in everyday life?

Summary

In this lesson, students use ten frames to help them develop an understanding of numbers. This lesson starts with a Think and Read story called "Let's Play Soccer." The story is designed to capture students' interest in counting and solving age-appropriate real-world problems. Multiple games using mini ten-frame cards gives students extra practice at varying levels. The lesson closes with another short story and an opportunity for students to be creative by drawing and writing about numbers. This lesson is accompanied by a Parent Guide for at-home use.

Snapshot

Engage

Students listen to the short story, "Let's Play Soccer." Students then draw a picture of the story and write a number sentence to show how they think Larkin and Jamar solved the ball problem.

Explore

During this activity, make sure students understand what a ten-frame is and how to use one. Students then explore by using an actual ten-frame and counters to solve the problems in the handout called "Make Ten With the Coach."

Explain

Students listen to a children's book such as *Ten Flashing Fireflies* by Philemon Sturges or *Ten for Me* by Barbara Mariconda. Together have the class create a "Ways to Make Ten" chart. Students then work in pairs to play ten-frame games.

Extend

After reviewing the original story, "Let's Play Soccer," students listen to a new story, "Sparky Comes to Play." Students write and draw their own story ending and then practice writing number sentences that are combinations for the number ten.

Evaluate

The assessment can be done as a whole class, in small groups, or individually. Using a ten-frame shown or drawn on the board, the students are asked to reason and explain their thinking to a variety of ten frame questions.

Standards

Oklahoma Academic Standards for Mathematics (Grade 1)

1.N.2.1: Represent and solve real-world and mathematical problems using addition and subtraction up to ten.

Oklahoma Academic Standards for Mathematics (Grade 1)

K.N.1.2: Recognize that a number can be used to represent how many objects are in a set up to 10.
K.N.1.4: Recognize without counting (subitize) the quantity of a small group of objects in organized and random arrangements up to 10.
K.N.2: Develop conceptual fluency with addition and subtraction (up to 10) using objects and pictures.
K.N.2.1: Compose and decompose numbers up to 10 with objects and pictures.

Oklahoma Academic Standards for Mathematics (Grade 1)

PK.N.3.1: Compare two sets of 1-5 objects using comparative language such as same, more, or fewer.

Attachments

- Double Ten-Frame-Sporting Some Fun.docx
- Double Ten-Frame-Sporting Some Fun.pdf
- Let's Play Soccer-Activity Sheet-Sporting Some Fun.docx
- Let's Play Soccer-Activity Sheet-Sporting Some Fun.pdf
- Make Ten with the Coach-Sporting Some Fun.docx
- Make Ten with the Coach-Sporting Some Fun.pdf
- More Fun with Ten Frames-Sporting Some Fun.docx
- More Fun with Ten Frames-Sporting Some Fun.pdf
- More Ways to Make Ten-Sporting Some Fun.docx
- More Ways to Make Ten-Sporting Some Fun.pdf
- Parent Guide and At-Home Version—Sporting Some Fun With Ten Frames.pdf
- Sparky Comes to Play-Sporting Some Fun.docx
- Sparky Comes to Play-Sporting Some Fun.pdf
- Ten Frame Game Cards-Sporting Some Fun.docx
- Ten Frame Game Cards-Sporting Some Fun.pdf
- Ways to Make Ten-Sporting Some Fun.docx
- Ways to Make Ten-Sporting Some Fun.pdf

Materials

- Let's Play Soccer (story and activity sheet attached)
- Sparky Comes to Play (story and activity sheet attached)
- Double Ten-Frame for each student (attached): *Print and cut out the attached ten-frame sheet or make your own on a plain piece of paper*
- Ten-Frame Game Cards (attached)*: Cut the cards out on the dotted lines or make your own on index cards or paper rectangles*
- More Fun With Ten Frames Game Sheet (attached)
- Make Ten With the Coach (attached)
- Ways to Make Ten (attached)
- More Ways to Make Ten (attached)
- Counters: *You can use cereal, buttons, dried beans, coins, raisins, etc.*
- Paper and pencil
- Crayons or markers for drawing

Engage

The story, "Let's Play Soccer," introduces a math problem that happens during soccer practice. Prior to reading the story, ask students what kind of games or sports they like to play or what they play at recess. Then read the story, "Let's Play Soccer," aloud to students.

The Story: "Let's Play Soccer"

Jamar and Larkin were getting ready to meet their coach for the first time. The coach was going to help them learn to play soccer. When the boys arrived at practice, their coach had a giant bag of balls. There were at least 20 balls in the bag. The coach asked Jamar to take 10 of the soccer balls over to the field. But Jamar could only carry 7 soccer balls in his soccer bag. Jamar yelled for help, "Hey Larkin, come and help me carry the balls." The two kids took the balls out to the field. How many balls did Larkin need to carry to make sure the coach had 10?

After reading the story, have the students draw a picture of the story and write a number sentence to show how they think Larkin and Jamar solved the ball problem.

Sometimes the words *"Number sentence is used instead of equation."* They are the same thing. Use the terminology that is used at your school. You may want to have students use a ten-frame and counters with this story problem.

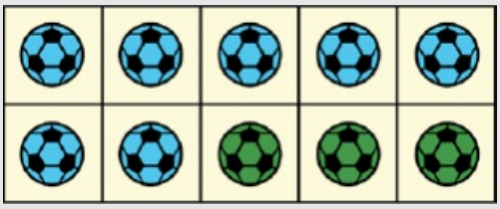
Vocabulary to introduce while reading and working with this lesson*: coach, soccer, soccer practice, ten-frame, counters, number sentence, problem, solved.*

Explore

Teacher's Note: Ensuring Student Understanding

During the first part of the Explore section, make sure students understand what a ten-frame is and how to use one. If you have very young children who are working on the numbers 0-5, just cut the ten-frame horizontally and use it as a "five-frame."

The example below shows what the ten-frame would look like for the initial problem in the story, "Let's Play Soccer," followed by the number sentence that describes it.



Number sentence: 7 + 3 =10

Students do not need to draw the ten-frame because they are using an actual ten-frame and counters. They will need to write the correlating number sentence.

Give students the following instructions:

- Only one counter is permitted in each section of the ten-frame.
- Always fill the top row first, starting on the left.
- When the top row is full, place counters in the bottom row, also from left to right.
- This will help students understand that a full row equals five. When the ten-frame is full, they will automatically know there are ten items present.

Have students work on the problems presented in the handout titled **"Make Ten With the Coach."** Ask student to place counters on their ten-frame to show how many balls were initially in the problem and then how many are needed to make ten.

Make Ten With the Coach

The handout includes the following problems:

1. The coach brings 6 basketballs. How many should you bring to make 10 ?
2. I have 4 baseballs. The coach needs to bring_____.
3. The coach buys 8 soccer balls. I will buy_____.
4. I took 5 golf balls to the playground. The coach brought _____.
5. I have 8 footballs. The coach will bring_____.
6. Jamar had 9 softballs. Larkin needs to bring_____.
7. The coach has 10 baseballs. Larkin needs to bring_____.
8. Create additional problems using student names and/or have students create problems for the class to solve.

Thinking questions to ask students as they work on the problems:

- *What can you tell me about the way the number looks on your ten-frame?*
- *How does knowing you have a full row help you find how many you still need?*

Explain

Teacher's Note: Book Recommendations

Read a children's book such as *Ten Flashing Fireflies* by Philemon Sturges or *Ten for Me* by Barbara Mariconda. Additional examples of books you can use for "making ten" are listed below:

- *Ten Friends* by Bruce Goldstone
- *Ten Black Dots* by Donald Crews
- *What's New at the Zoo?* by Suzanne Slade
- *12 Ways to Get to 11* by Eve Merriam
- *How Many Legs?* by Kes Gray and Jim Field

While reading the book the first time, ask students to notice the number combinations for the number 10.

During a second reading of the book, fill in the **"Ways to Make Ten"** chart. If you choose not to use a book, use the solutions from "**Make Ten With the Coach**" to help students complete the chart. Record the combinations in the order in which the children and the book suggests them. The order is not important at this time.

The chart should look something like this when completed.

Ways to Make 10	
10 + 0	0 + 10
9 + 1	1 + 9
8 + 2	2 + 8
7 + 3	3 + 7
6 + 4	4 + 6
5 + 5	

When students are ready, they can build another chart for other numbers or complete the **"More Ways to Make Ten"** chart. This chart will include combinations such as 3+ 2+ 5 or 11-1 or 12-2.

More Fun With Ten Frames

Students will play the ten-frame games in pairs, so each pair of students will need a set of the small ten frame cards (included as an attachment). Cut them out on the dotted lines. Download the **More Fun With Ten Frames** game sheet.

The games are designed to add practice, increase fluency with recognizing numbers in a pattern, and give children time to think about number sequence. The games increase in difficulty so students can progress through the games as they develop a stronger sense of number. Using a Hundreds Chart while playing some of the games will help in developing a good sense of 10 within 100.

Extend

After reviewing the original story, "Let's Play Soccer," read the story "Sparky Comes to Play."

Students will write and draw their own story ending. You can use the attached hand-out or plain copy paper for these activities.

Possible New Endings

You might be surprised at what they will come up with! Some students might say the dog ate the ball, broke it, took off running down the street, pushed it into the neighbor's yard, became a great soccer dog, more dogs came to join, etc.

Once they have written their own story ending, pose the following question: What do you think would happen if we put 9 more soccer balls in the yard for Sparky to play with? Students respond by writing a number sentence to answer the question. Continue by asking students what they think would happen if they added 2 more balls, 6 more balls, 12 more balls, and so on. Allow students to use their ten-frames and draw and write about as many scenarios as they want.

Possible Answers

- When 9 balls were added, Sparky went nuts. There were 10 balls altogether, and he did not know which one to chase.
- When 9 balls were added, Sparky got scared and sat down and hid. There was 1 ball in the yard and 9 more = 10 balls in the yard.
- When 12 balls were added, that was two more than my ten-frame, so I had ten and then two more.

Evaluate

This assessment can be done as a whole class, in small groups, or individually.

Draw a ten-frame on the board.

Ask:

1. How many boxes are in the ten-frame? How did you figure it out?
2. How else could we figure out whether there are ten boxes in the ten-frame?
3. Why is a ten-frame called a ten-frame? Explain your thinking.

Next, show a ten-frame with five dots inside the ten-frame. Place only one dot in each box. Ask the following questions:

1. How many dots are in the ten-frame? How did you figure it out?
2. How many dots would we need to make ten? How do you know?
3. Repeat steps 1 and 2, changing the number of dots inside the ten-frame.

Teacher's Note: Extending the Evaluation Activity

Start with two ten-frames positioned one above the other. Then show or orally tell students a number sentence, such as 8 + 4. Have students cover each frame with counters to represent the problem. For example, for the problem 8+4, students cover 8 places on one frame and four on another. Then have students decide on a way to move the counters so that they can find the total without counting. Ask students to explain what they did and have them write their new number sentence. For example, 8+4 may become 10 +2 by moving two counters to the first ten-frame.

Resources

- Grandma "B" Reads With Me. (2016, June 26). Ten Flashing Fireflies by P Sturges [Video]. YouTube. https://youtu.be/aKvUvrw4lNE
- Kindergarten Storytime. (2020, April 17). Ten for Me by Barbara Mariconda with Miss Kish [Video]. YouTube. https://youtu.be/X2WRYvh9mfc
- Mariconda, B. (2011). *Ten for Me*. Sylvan Dell Publishing.
- Miss Pam Reads. (2018, February 1). Ten Black Dots [Video]. YouTube. https://www.youtube.com/watch?v=uPJEqUB2CxA
- Mr Little's Virtual Classroom. (2020, October 1). Mr Little's Stories - "How Many Legs?" by Kes Gray & Jim Field [Video]. https://www.youtube.com/watch?v=YXtUxRnykMk
- Sturges, P. (1995). *Ten Flashing Fireflies*. NorthSouth Books.
- Van de Walle, J. A. (2016). *Elementary and Middle School Mathematics: Teaching Developmentally.* Pearson Education Inc.