

Ten Little Black Dots

Cool Tools to Solve Challenging Word Problems

Name: Leta Roberts – Hooker Elementary School

Grade Level: 2

Subject(s):

- Mathematics/Arithmetic
- Language Arts/Literature/Children's Literature

Topic: Students will discover the various ways they can combine two numbers to equal a sum of 10. Students will also identify patterns among the different sets of addends.

Objectives (P.A.S.S.):

Standard 2: Number Sense – The student will use numbers and number relationships to acquire basic facts.

2.2 – Reading and Writing Numbers

2.2.a – Link place value concepts to the reading and writing of numbers

2.2.b – Represent a number in a variety of ways

2.2.c – Write a number sentence to compare numbers less than 100

1. Students will be able to create and identify the different ways they can combine two numbers to equal a sum of 10.
2. Students will be able to identify patterns among the different sets of addends used to equal the sum of 10.

Introduction/Materials:

- Ten Black Dots by Donald Crews
- black and red construction paper
- scissors
- two circle templates for the dots and ladybugs (templates need to be created by the teacher; this [web site](#) has a helpful template)
- Ziploc plastic bags
- pencils
- recording sheets (need to be created by the teacher)

Instructional Process:

Getting Ready:

Ask students what number appears on the front cover of, Ten Black Dots , by Donald Crews

(10). Read the story to the class to familiarize them with the sequential pattern of the numbers 1 to 10. Tell the students about today's lesson, "What can we do with ten black dots (similar to the question asked in the beginning of the book) to find the different ways of combining two numbers to get the sum of 10?" Each group of students will receive one bag containing 10 black dots and two blank ladybugs. Students will place the black dots in different combinations onto the two blank ladybugs to collectively equal 10. Model by placing three dots on the first ladybug and seven dots on the second ladybug. For 15-20 minutes, the groups will work cooperatively to discover and record all the different ways of combining two numbers to get the sum of 10. Instruct the students to work in their usual groups of two. Remind students of the work rules (your classroom work rules) and the time allowed for the problem solving activity. After the activity, the groups will collect their materials and make two piles (one for the bag of dots and another for the blank ladybugs) and stack the piles on a designated desk.

Student Work:

Students are at tables communicating about the different combinations of two numbers needed to get the sum of 10. Students are using numerals to represent the different ways they have combined two numbers to equal 10 by recording each combination onto their recording papers. The teacher is moving around, asking questions, observing work, making suggestions, and guiding when needed. The groups will clean up their material according to the instructions.

Closure:

Students will bring their recording papers and gather in front of the chalkboard. Ask each group how many different ways they used two numbers to get the sum of 10. Record each new way on the chalkboard. Provide illustrations if most groups did not find that particular way of obtaining the sum of 10. The class will discuss the various ways each group used to get the sum of 10 and encourage the students to find patterns among their examples (i.e., 3 and 7, 7 and 3).

Assessment: Did students work cooperatively in their groups to identify, record, and communicate the various ways to use two numbers to equal the sum of 10? Collect students' recording papers.

Reflection:

The class discussed the various ways each group used to get the sum of 10 and encouraged the students to find patterns among their examples (i.e., 3 and 7, 7 and 3). This was a great activity for helping the kids discover fact families.