

Hearts

Grade 1

Lesson 115

Relevant Chapters in the *Digi-Block Comprehensive Teacher's Guide*:

Book I: Unit 1-2, Counting the Blocks, pp.15 - 17

Unit 1-4, Using Number Lines, pp.21-22

Unit 2-4, Relating Single Blocks to Packed Blocks, pp.43-46

Book II: Unit 2-6, Comparing Two-Digit Numbers, p.46

Lesson Overview

Students are presented with a Venn diagram. They pose questions about the sets of objects and use blocks to solve the questions by counting and comparing sets of objects.

Objectives

- To quantify objects on a page
- To compare two quantities
- To find the difference between two quantities
- To enhance spatial awareness
- To analyze what is being asked when presented with a problem
- To develop a strategy to solve the problem
- To extend previous knowledge/experience to a new situation

Materials

Each student or group of students needs:

- 50 single blocks and 10 small holders

- 1-2 number lines (0-100)
- 1 blank sheet of paper
- A copy of the "Hearts" Venn diagram (Tape together the two sheets to create one diagram with two overlapping hearts.)

Class Introduction

(10 minutes)

Pass out the "Hearts" Venn diagram. Ask students to describe the hearts in the diagram. Point out and discuss the following:

- There are two overlapping hearts: one large and one small.
- There are a lot of tiny red hearts.
- Some of the tiny hearts are in the large heart.
- Some of the tiny hearts are in the small heart.
- The middle part where the two hearts overlap is called the "intersection."
- Some of the tiny hearts are in both the big heart and the small heart; they are in the middle or the "intersection."

Ask students to think of questions that 'the teacher' might ask. Relate their questions to problems that can be solved. Write these questions on a large piece of chart paper or on the board.

Here are some examples of questions that are appropriate for this activity:

- How many tiny hearts are in the large heart? (31)
- How many tiny hearts are in the small heart? (24)
- How many hearts are there altogether? (46 tiny hearts, 48 hearts including the two that overlap)
- How many hearts are in the intersection? (9)
- Are there more/fewer tiny hearts in the large heart or in the small heart?
- How many more tiny hearts are in the large heart than in the small heart? (7)
- How many fewer tiny hearts are in the small heart than the large heart? (7)
- If each tiny heart were replaced by ten tiny hearts, how many tiny hearts would there be altogether? (460)

Pick the problems from the list that are most appropriate for your students.

Activity

(20 - 30 minutes)

Explain the activity:

- Students work on one question at a time.
- They may use blocks and number lines to help them find solutions to the problems. (To count with the blocks, students may place one block on each pictured object and then count the blocks. They can also place the blocks on a number line and/or pack to find the number.)
- They justify their answer with the teacher before undertaking another problem.
- They work their way through the set of questions in the time allotted.
- They record their work on a blank sheet of paper.

Have students work individually, in pairs, or in small groups. Make blocks and number lines accessible.

Closure

(10 minutes)

Allow students to share their answers and the methods they used to determine them. Make sure that each student or group of students meets with success in terms of solving at least the initial problem chosen. If time is an issue in terms of getting to all the problems, facilitate a discussion that allows the students to describe how they would approach the remaining problems.

Assessment

As the students are working, observe the following:

- Do they easily identify the intersection?
- Do they pose appropriate questions for the diagram?
- Do they understand and follow directions?
- Do they take initiative to work independently?
- Are they resourceful in their thinking?
- Do they look to the teacher for help?
- Do they place blocks on the hearts and count the blocks?

- Do they use the number line appropriately?
- Do they pack the blocks to determine a quantity?
- Do they combine blocks to find a total?
- Do students record their work accurately?
- Do they see why they cannot simply add the number of hearts in the large heart to the number of hearts in the small heart in order to determine the total number of hearts?

Extensions

- Have students stamp or draw their own sets of objects on a page or in a blank Venn diagram made with two overlapping circles. They can exchange their drawings with a partner and pose questions to solve with each other. Have students use the blocks to help them count the drawn or stamped images.
- Create a class Venn diagram in the gym or on the playground. Use sidewalk chalk to draw two large overlapping circles. Have students stand in the appropriate sections of the circles. (For example, have all the students wearing jeans stand in one circle. Have all the students wearing a t-shirt stand in the other circle. Have all the students wearing both jeans and a t-shirt stand in the middle.) A class recorder can keep track of the number of students in each part of the circle. Recreate the Venn diagram on the blackboard or have students build it on their own using blocks on paper with a copy of two overlapping circles. Ask students to pose questions about their physical arrangement. Have students use blocks to solve questions that are posed.



