



## Unit Plan

### 2.8 Equal Groups

Chester / Littleville Elementary / Grade 2 / Mathematics

[↑](#) Week 33 - Week 36 | 4 Curriculum Developers | Last Updated: Apr 20, 2023 by Hyjek, Linda[Style Guide](#)

### What is the purpose of the unit? What are the major take-aways?

#### Standards

**MA: Mathematics (2017)****MA: Grade 2****Operations & Algebraic Thinking****2.OA Add and subtract within 20.**

- 2. Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two single-digit numbers and related differences. [Show Details](#)

**2.OA Work with equal groups of objects to gain foundations for multiplication.**

- 3. Determine whether a group of objects (up to 20) has an odd or even number of members, e.g., by pairing objects or counting them by 2s; write an equation to express an even number as a sum of two equal addends.
- 4. Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.

**Number & Operations in Base Ten****2.NBT Understand place value.**

- 2. Count within 1000; skip-count by 5s, 10s, and 100s. Identify patterns in skip counting starting at any number.

**2.NBT Use place value understanding and properties of operations to add and subtract.**

- 8. Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100–900.
- 7. Add and subtract within 1000, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method. Understand that in adding or subtracting three-digit numbers, one adds or subtracts hundreds and hundreds, tens and tens, ones and ones; and sometimes it is necessary to compose or decompose tens or hundreds.

**Geometry****2.G Reason with shapes and their attributes.**

- 2. Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.

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#### Enduring Understandings

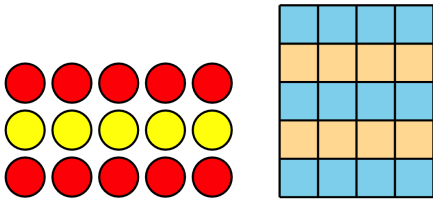
- Determine whether a group of objects (up to 20) has an odd or even number of members.
- Write an equation to express an even number as a sum of two equal addends.

#### Essential Questions

- Find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns using addition.
- Partition rectangles into rows and columns of equal-size squares, and count to find the total number of squares.
- Represent the total number of objects in an array as a sum of equal addends.

## Content

In this unit, students develop an understanding of equal groups, building on their experiences with skip-counting and with finding the sums of equal addends. The work here serves as the foundation for multiplication and division in grade 3 and beyond. Students begin by analyzing even and odd numbers of objects. They learn that any even number can be split into 2 equal groups or into groups of 2, with no objects left over. Students use visual patterns to identify whether numbers of objects are even or odd. Next, students learn about rectangular arrays. They describe arrays using mathematical terms (rows and columns). Students see the total number of objects as a sum of the objects in each row and as a sum of the objects in each column, which they express by writing equations with equal addends. They also recognize that there are many ways of seeing the equal groups in an array.



Later, students transition from working with arrays containing discrete objects to equal-size squares within a rectangle. They build rectangular arrays using inch tiles and partition rectangles into rows and columns of equal-size squares. The work here sets the stage for the concept of area in grade 3.

Throughout the unit

Throughout this unit, students are supported with instructional routines to develop an understanding of equal groups. Number Talk routines in the first section allow students an opportunity to continue to develop fluency within 20, as they connect even and odd numbers to facts with 2 equal addends (doubles) and facts with addends that have a difference of 1.

The True or False routines in Section B support students as they write equations to represent the amount of objects in an array. Students recognize that an array can be represented by different expressions, depending on whether you are counting the number in each row, or in each column.

Here is a sampling of the warm-up routines in this unit.

lesson 4	lesson 6	lesson 13
Number Talk	Number Talk	True or False
$6+66+6$	$2+2+22+2+2$	$2+2+2+2=4+42+2+2=4+4$
$7+77+7$	$2+2+2+22+2+2+2$	$2+2+2=3+32+2+2=3+3$
$7+87+8$	$2+2+2+2+22+2+2+2+2$	$2+2+2+2+2=5+5$
$8+98+9$		

## Skills

### Section A Goals

- Determine whether a group of objects (up to 20) has an odd or even number of members.
- Write an equation to express an even number as a sum of two equal addends.

### Section B Goals

- Find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns using addition.
- Partition rectangles into rows and columns of equal-size squares, and count to find the total number of squares.
- Represent the total number of objects in an array as a sum of equal addends.

## How will you gauge student learning?

### Assessments

#### 2.8 Equal Groups End of Unit Assessment | Summative | Written Test

[Grade2-8-End-of-Unit-Assessment-assessment.pdf](#)

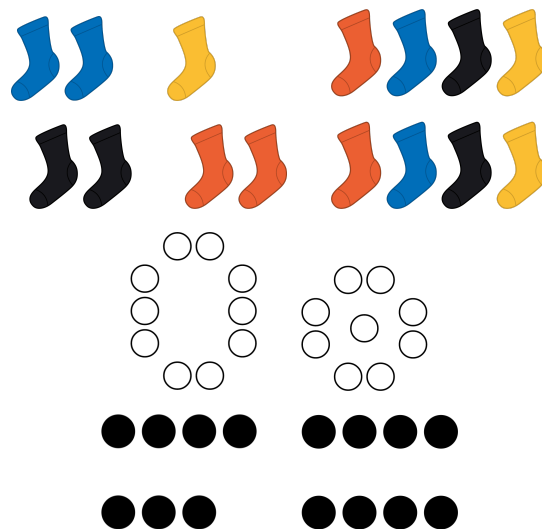
3 State Standards Assessed

## How will students learn?

### Learning Activities

#### Section A:

In this section, students learn about odd and even numbers, building on their experience with sharing objects with another person or with making pairs out of a set of objects. They begin by noticing that some groups of objects can be made into two equal groups without a “leftover” and other groups can be made into two equal groups with “1 leftover.” The same pattern can be seen when pairing objects. After learning the terms, students focus on explaining why a group has an even number or an odd number of members. They do so by showing whether the objects can be made into two equal groups or be paired without a leftover, or whether they can skip-count by 2 to count the entire collection.



The representations used here support students as they progress from explaining even and odd numbers informally to doing so more formally. They also pave the way for students to make sense of representations of multiplication in grade 3.

Early lessons encourage the teacher to record student thinking using diagrams of equal groups or by arranging objects in rows and columns. Both recording strategies help students see and count pairs of objects.

Students begin to see how objects arranged in rows and columns can show equal groups or pairs. They will learn more about this arrangement and the term “array” in the next section.

To focus the work on building a foundation for multiplication and division, counters or connecting cubes should be available to students throughout the section, including during cool-downs.

#### Section B:

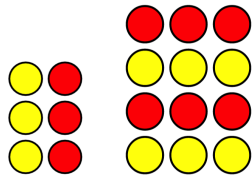
In this section, students learn that a rectangular array contains objects arranged into rows and columns, with the same number of objects in each row and the same in number in each column.

Using this structure, students can skip-count by the number in each row or in each column to find the total number of objects. They can also write equations with equal addends representing the number of objects in a row or a column.

Later in the section, students relate their work with arrays to the partitioning of shapes into equal parts.

*True or false? True or false?*

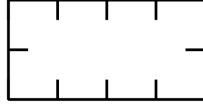
$$2+2+2=3+3 \quad 2+2=3+3 \quad 3+3+3=4+4 \quad 3+3+3=4+4$$



Students build rectangles by arranging square tiles into rows and columns, and then partition rectangles into rows and columns.

*Use 8 tiles to build a rectangle. Arrange them in 2 rows.*

*Partition this rectangle to match the rectangle you made.*



Rectangles in this section have up to 5 rows and 5 columns. Students are not expected to name the fractional units created by partitioning shapes. The focus is on using the structure of the rows and columns created by the partitions to count the total number of equal-size squares. This work serves as a foundation for students' future study of multiplication and area measurement.

Differentiated Instruction

Technology Integration

21st Century Skills

Positive Behavior

CASEL

Collaborative for Academic, Social, and Emotional Learning

Resources

Teacher Notes and Reflections

Math Unit Eight Adjustments/Notes 