Eureka Math Parent Guide

A GUIDE TO SUPPORT PARENTS AS THEY WORK WITH THEIR STUDENTS IN MATH.

GRADE FOCUS

Second Grade mathematics is about (1) extending students' understanding of base-ten notation; (2) building fluency with addition and subtraction; (3) using standard units of measure; and (4) describing and analyzing shapes.

- Module 1: Sums and Differences to 20
- Module 2: Addition and Subtraction of Length Units
- Module 3: Place Value, Counting, and Comparison of Numbers to 1000
- Module 4: Addition and Subtraction Within 200 with Word Problems to 100
- Module 5: Addition and Subtraction Within 1000 with Word Problems to 100
- » **Module 6: Foundations of Multiplication and Division**
- Module 7: Problem Solving with Length, Money, and Data
- Module 8: Time, Shapes, and Fractions as Equal Parts of Shapes

LET'S CHECK IT OUT!

MODULE 6 FOCUS

Module 6 lays the conceptual foundation for multiplication and division in Grade 3 and the idea that numbers other than 1, 10, and 100 can serve as units. Students learn to make equal groups, moving from concrete work with objects to more abstract pictorial representations. Finally, they learn about even and odd numbers.

MORE SPECIFICALLY, CHILDREN WILL LEARN HOW TO:

- Work with equal groups of objects to gain foundations for multiplication.
  - » 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 numbers.
  - » Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns.
- Reason with shapes and their attributes.
  - » Partition a rectangle into rows and columns of same-size squares and count to find the total number of them.

TOPIC OVERVIEW

Topics are the lessons within a module that help children master the skills above. Here are the lessons that will guide your child through Module 6:

- Topic A: Formation of Equal Groups
- Topic B: Arrays and Equal Groups
- Topic C: Rectangular Arrays as a Foundation for Multiplication and Division
- Topic D: The Meaning of Even and Odd Numbers

WORDS TO KNOW

- **Array**: arrangement of objects in rows and columns
- **Columns**: the vertical groups in a rectangular array
- **Even number**: a whole number whose last digit is 0, 2, 4, 6, or 8
- **Odd number**: a number that is not even
- **Repeated addition**: e.g., 2 + 2 + 2
- **Rows**: the horizontal groups in a rectangular array
- **Tessellation**: tiling of a plane using one or more geometric shapes with no overlaps and no gaps
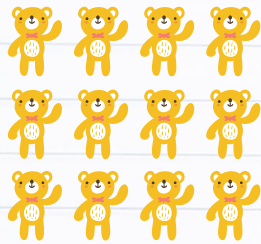- **Whole number**: e.g., 0, 1, 2, 3,...

SAMPLE PROBLEMS

SAMPLE 1

An array is an arrangement of objects organized into equal groups in rows and columns. Arrays help make counting easy. Students are reminded in this module that counting by equal groups is more efficient than counting objects one by one. This module focuses on establishing a strong connection between the array and repeated addition (e.g., 3 rows of 4 can be expressed as 4 + 4 + 4 = 12).

Beginning in kindergarten, arrays are used as students organize objects into groups to make 10. Now, in Grade 2, we introduce the idea that equal groups can be made of numbers other than 1, 10, or 100. In Module 6, students build arrays and then use them to write equations showing the repeated addition represented by the array. This lays important groundwork for understanding multiplication as repeated addition in Grade 3. As students progress through their elementary years, arrays will be frequently used to reinforce the relationship between multiplication and division.

Two different arrays of teddy bears:

Below, we see 3 rows with 4 in each row.   Below, we see 4 rows with three in each row.

Students will build these arrays and understand that both equal a total of 12 and why that is so.

SAMPLE 2:

Redraw the following sets of dots as columns of two or as two equal rows. (This problem shows how students will be learning about odd and even numbers in Module 6.)

There are _____ dots.   There are _____ dots.
Is _____ an even number? _____   Is _____ an even number? _____

HOW YOU CAN HELP AT HOME

- Using any number of small objects, challenge your child to sort them into equal groups. Have them practice sorting the same number of objects into different kinds of equal groups. For example, ask them to sort 12 items into 2 equal groups of 6, 6 equal groups of 2, 3 equal groups of 4, and 4 equal groups of 3.
- Practice skip-counting by 2s (i.e. 2, 4, 6, 8... and 1, 3, 5, 7, 9...). This will help as students work with odd and even numbers in this module.