

## Introduction to Place Value using Addition and Subtraction up to the Number 20

In this module we will extend our work with addition and subtraction to the numbers 1-20, and learn some new strategies along the way.

We are working hard and extending our skills!



## Key Words to Know

*Units we will use:*

**A ten:** (students will focus mainly on *one* ten during this module)

**Ones:** (these are individual units, ten of which become a ten)

*Mathematical words:*

*Add*

*Subtract*

*Equals*

**“Teen Numbers”:** e.g., 13, 15, 19, etc.

**Partners to 10:** two numbers that together make 10

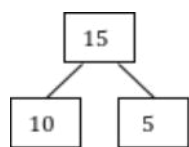
**5 groups:** representations of numbers that are lined up in groups of 5

**Number bonds:** a pictorial representation of how two or more smaller numbers can be combined to make a larger number

**Rekenrek:** see reverse

Think about this problem:

$$15 - 9 = ?$$



We can make a number bond showing that

$$15 = 10 + 5$$

Now, using the 10, we subtract 9:

$$10 - 9 = 1$$

We now have 1, but we need to add back our 5 from the number bond:

$$1 + 5 = 6$$

$$\text{SO... } 15 - 9 = 6!$$

## What Came Before this

**Module:** We worked with ways to make numbers up to 10, including simple addition and subtraction.

## What Comes After this

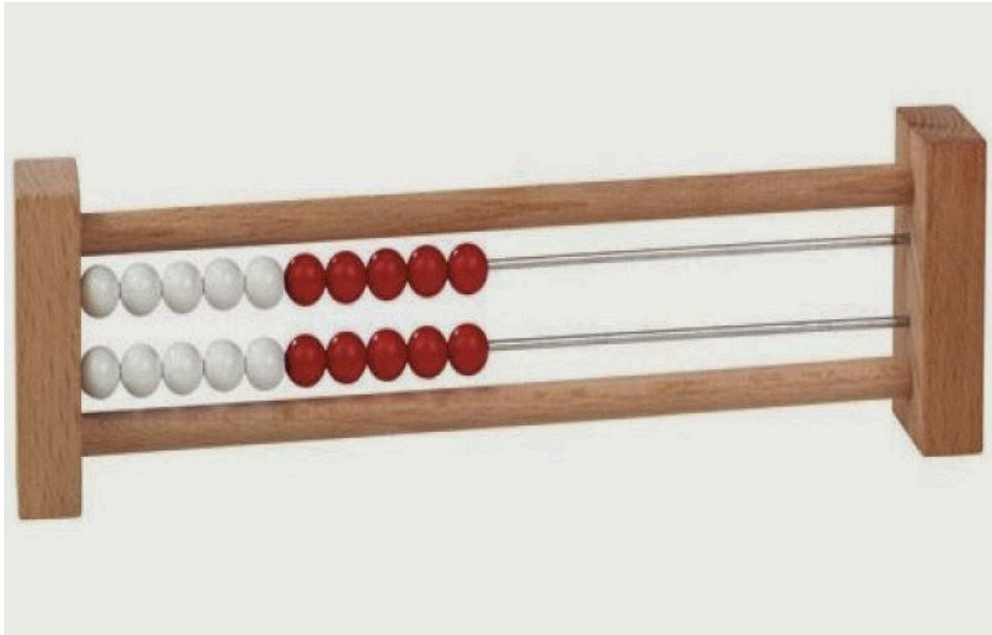
**Module:** We will continue to compare and order numbers, now expanding to topics in length measurement.

## + How you can help at home:

- Continue to practice finding partners for any given number, e.g., how can we make 8? 10?
- Talk about how we can find “tens” in other, larger numbers
- Make up and discuss short story problems that involve simple addition and subtraction

## Key Common Core Standards:

- **Represent and solve problems using addition and subtraction**
- **Understand and apply properties of operations and the relationship between addition and subtraction (e.g.  $3 + 2 = 2 + 3$ , and  $2 + 6 + 4 = 2 + 10$ )**
- **Add and subtract within 20**
- **Understand place value**



Spotlight on Math Models:

## Rekenrek

Students will use this tool to represent numbers in more and complex ways as they grow.

*A Story of Units* has several key mathematical “models” that will be used throughout a student’s elementary years.

The rekenrek is a kind of abacus that was developed in The Netherlands but has many variations in other world cultures. In *A Story of Units*, rekenreks are used starting in kindergarten first as models of numbers 1-5. Later, the white and red beads are used to illustrate numbers up to 10 and then 20.

There are a variety of skills that students can practice on the rekenrek, including simple counting, skip counting, and eventually beginning addition and subtraction concepts. In the beginning of first grade, we use the rekenreks to model decomposing and composing numbers as we both add and subtract.

### Sample Problem from Module 2:

#### Using the Rekenrek:

Students can easily see groups of both 5 and 10, and can move the beads to show their counting and thinking as they put numbers together and take them apart (compose and decompose numbers).

