

## **MATHEMATICS: GRADE 1**

In Grade 1, instructional time should focus on four critical areas: 1) developing understanding of addition, subtraction, and strategies for addition and subtraction within 20; 2) developing understanding of whole number relationships and place value, including groupings in tens and ones; 3) developing understanding of linear measurement and measuring lengths as iterating length units; and 4) reasoning about attributes of, and composing and decomposing geometric shapes.

### **1. Developing Understanding of Addition, Subtraction and Strategies for Addition and Subtraction within 20**

Students develop strategies for adding and subtracting whole numbers based on their prior work with small numbers. They use a variety of models, including discrete objects and length-based models (e.g. cubes connected to form lengths), to model add-to, take-from, put-together, take-apart, and compare situations to develop meaning for the operations of addition and subtraction, and to develop strategies to solve arithmetic problems with these operations. Students understand connections between counting and addition and subtraction (e.g. adding two is the same as counting two). They use properties of addition to add whole numbers and to create and use increasingly sophisticated strategies based on these properties (e.g. “making tens”) to solve addition and subtraction problems within 20. By comparing a variety of solution strategies, children build their understanding of the relationship between addition and subtraction.

### **2. Developing Understanding of Whole Number Relationships and Place Value, Including Groupings in Tens and Ones**

Students develop, discuss, and use efficient, accurate, and generalizable methods to add within 100 and subtract multiples of 10. They compare whole numbers (at least to 100) to develop understanding of and solve problems involving their relative sizes. They think of whole numbers between 10 and 100 in terms of tens and ones (especially recognizing the numbers 11 to 19 as composed of a ten and some ones). Through activities that build number sense, they understand the order of the counting numbers and their relative magnitude.

### **3. Developing Understanding of Linear Measurement and Measuring Lengths as Iterating Length Units**

Students develop an understanding of the meaning and processes of measurement, including underlying concepts such as iterating (the mental activity of building up the length of an object with equal-sized units) and the transitivity principle for indirect measurement.

### **4. Reasoning About Attributes of, and Composing and Decomposing Geometric Shapes**

Students compose and decompose plane or solid figures (e.g., put two triangles together to make a quadrilateral) and build understanding of part-whole relationships as well as the properties of the original and composite shapes. As they combine

shapes, they recognize them from different perspectives and orientations, describe their geometric attributes, and determine how they are alike and different, to develop the background for measurement and for initial understandings of properties such as congruence and symmetry.

Source: [corestandards.org](http://corestandards.org)

## Illinois Learning Standards: Grade 1 Overview

<b>Operations and Algebraic Thinking</b> <ul style="list-style-type: none"><li>● Represent and solve problems involving addition and subtraction.</li><li>● Understand and apply properties of operations and the relationship between addition and subtraction.</li><li>● Add and subtract within 20.</li><li>● Work with addition and subtraction equations.</li></ul>
<b>Number and Operations in Base Ten</b> <ul style="list-style-type: none"><li>● Extend the counting sequence.</li><li>● Understand place value.</li><li>● Use place value understanding and properties of operations to add and subtract.</li></ul>
<b>Measurement and Data</b> <ul style="list-style-type: none"><li>● Measure lengths indirectly and by iterating length units</li><li>● Tell and write time</li><li>● Represent and interpret data</li></ul>
<b>Geometry</b> <ul style="list-style-type: none"><li>● Reason with shapes and their attributes</li></ul>

Source: Corestandards.org

## Investigations in Number, Data, and Space 3

### Scope and Sequence: Grade 1

<b>Unit 1</b>	<b>Building Numbers and Solving Story Problems</b> Addition, Subtraction, and the Number System 1
<b>Unit 2</b>	<b>Comparing and Combining Shapes</b> 2-D Geometry
<b>Unit 3</b>	<b>How Many of Each? How Many of All?</b> Addition, Subtraction, and the Number System 2
<b>Unit 4</b>	<b>Fish Lengths and Fraction Rugs</b> Measurement and Fractions
<b>Unit 5</b>	<b>Number Games and Crayon Problems</b> Addition, Subtraction, and the Number System 3
<b>Unit 6</b>	<b>Would You Rather Be An Eagle or A Whale?</b> Modeling with Data
<b>Unit 7</b>	<b>How Many Tens? How Many Ones?</b>

	Addition, Subtraction, and the Number System 4
<b>Unit 8</b>	<b>Blocks and Buildings</b> 3-D Geometry

Source: Investigations in Number, Data, and Space 3 (TERC, 2017)