Mathematical Understanding Scale
Grades K-2

Note: The descriptors for each level identify many of the key indicators that a student is developing mathematical understanding. Judgments about student placement on a level are to be based on overall attainment, not on a point-by-point check off.

Level 1	Level 2	Level 3	Level 4	Level 5
Beginning to accurately count objects to determine how many. With support, can read, write, and interpret numerals using objects.	Can accurately count at least 30 objects and writes the corresponding numeral. Describes an arrangement of objects as a single number and as a composite of smaller numbers. Beginning to interpret and solve addition and subtraction situations using models and counting.	Counts up to 100 objects and writes the number. Beginning to use groupings and skip counting (e.g., 2s, 5s, 10s) to count objects and to understand that a number can be represented in multiple ways. Beginning to represent addition and subtraction situations using number sentences. Knows some of the addition and subtraction facts and uses them to figure out unknown facts and to solve problems.	Knows most basic facts and uses them to solve addition and subtraction problems. Beginning to use place value and decomposition of two digit numbers to solve multi-digit addition and subtraction problems. Can model simple multiplication and division situations and represent them with number sentences.	Uses place value and decomposes two and three-digit numbers flexibly to solve addition and subtraction problems. Knows many multiplication facts and uses them to solve problems involving multiplication and division. Understands and uses common fractions to represent parts of a whole and of a set.
Beginning to extend repeating patterns using attributes such as color, shape, size, etc.	Creates, extends and describes repeating patterns (using objects, motions, etc.) and represents the same pattern in a variety of ways.	Creates, extends, and describes growing patterns (e.g., geometric designs, multiple countings of an attribute—legs on 1, 2, 3, ... spiders) in terms of their numerical sequence.	Beginning to recognize the same growing numerical patterns in a variety of situations and to identify simple "rules" to describe the patterns (e.g., 2 more, counting by 5s).	Creates, extends, and describes numerical patterns that emerge from a variety of situations, and verbally identifies a "rule" to describe simple patterns.

GRADES K-2 (Continued)

Level 1	Level 2	Level 3	Level 4	Level 5
Sorts objects by easily identifiable attributes. Finds objects or geometric figures with a specific attribute (e.g., things that roll). Tells whether an object is longer or shorter than another.	Sorts a variety of objects by geometric attributes (e.g., shape, number of sides, number of corners, etc.). Compares the length of two objects fairly close in length by aligning them at one end.	Describes a two or three dimensional object in terms of its geometric attributes so that the object is identifiable by others. Measures the length of an object by lining up multiples of a nonstandard unit.	Identifies and classifies polygons using simple attributes (e.g., number of straight sides/corners, closed figures, etc.). Beginning to accurately measure the length of objects by selecting appropriate units and/or measuring tools, and by iterating (repeating) units.	Beginning to sort and classify a set of triangles or a set of quadrilaterals into subsets using distinguishing attributes (e.g., right angle, variation of angles, parallel lines, etc.). Visualizes and describes how two dimensional figures can be combined or subdivided into other figures. Measures the length of objects using standard units and tools (e.g., inches, cm, feet, rulers.)
Makes a correct statement describing the information displayed in a graph of a class survey.	Poses questions that can be answered with two responses (e.g., yes/no, apples/ oranges), records individual data on a group graph, and makes statements about the results.	Poses a simple question, collects data from classmates, and with support, organizes, displays, and describes the results.	Conducts a simple survey, keeping track of who/what has been counted, organizes and displays the data in a way that is easy for classmates to interpret.	Poses a simple question, gathers data, organizes and represents the data in an appropriate way (e.g., table, bar graph), and writes state-ments about the results. Inter-prets and makes valid statements about data in graphs made by others.