

A quick guide for observing classroom content and practice

In a **2nd grade math** class you should observe students engaged with at least one math standard and practice:

In grade 2, instructional time should focus on four critical areas:

1.

Extending understanding of base-ten notation (NB)

2.

Building fluency with addition and subtraction (OA, NBT)

3.

Using standard units of measure (MD)

4.

Describing and analyzing shapes (G)

Mathematical Practices

- Making sense of problems and persevering in solving them
- Reasoning abstractly and quantitatively
- Constructing viable arguments and critiquing the reasoning of others
- Modeling with mathematics
- Using appropriate tools strategically
- Attending to precision
- Looking for and making use of structure
- Looking for and expressing regularity in repeated reasoning

Content Standards

Operations and Algebraic Thinking (OA)

- Using addition and subtraction within 100 to solve one- and two-step word problems
- Changed to match the rigor of the standard
- Fluently adding and subtracting within 20 using mental strategies
- Working with equal groups of objects to gain foundations for multiplication (*sets* and *arrays*)
- Changed to match the rigor of the standard
- Updated to revised Framework language
- Included frequently used vocabulary words

Number and Operations in Base Ten (NBT)

- Comparing two 3-digit numbers using place value (*hundreds, tens, ones digits*) and symbols ($>$, $=$, $<$)
- Explaining why addition and subtraction strategies work, using place value and the properties of operations
- Adding and subtracting within 1000 using concrete models, drawings, place value, and/or properties of operations – updated to show grade level expectations

Measurement and Data

- Using appropriate tools when measuring and estimating lengths in *standard* and *metric* units
- Representing whole numbers as lengths on a number line, and representing whole-number sums and differences within 100 on a number line diagram
- Knowing the relationships of time, including *seconds, minutes, hours, days, weeks, months, and years*
- Solving word problems involving dollar bills and coins, using symbols appropriately
- Generating data by measuring lengths, then organizing and recording data on a line plot (*dot plot*)

Geometry

- Describing and draw shapes having specified *attributes (angles, faces)*
- Partitioning a rectangle into rows and columns of same-size squares and counting to find the total number of them (*arrays*)

NOTES

Mathematics What to Look For The example below features three Indicators from the [Standards of Effective Practice](#). These Indicators are just a sampling from the full set of Standards and were chosen because they create a sequence: the educator plans a lesson that sets clear and high **expectations**, the educator then delivers high quality instruction, and finally the educator uses a variety of **assessments** to see if students understand the material or if re-teaching is necessary. This example highlights teacher and student behaviors aligned to the three Indicators that you can expect to see in a rigorous 2nd grade math classroom.

Expectations (Standard II, Indicator D)	Plans and implements lessons that set clear and high expectations and also make knowledge accessible for all students.
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<p style="text-align: center;">What is the teacher doing?</p> <ul style="list-style-type: none"> • Modeling critical thinking strategies to help establish problem solving and processing expectations • Establishing classroom routines that support students to communicate their thinking • Representing and relating solution methods orally, visually, and with concrete objects 	<p style="text-align: center;">What are the students doing?</p> <ul style="list-style-type: none"> • Understanding what they will learn in a lesson • Persisting when engaging with mathematical tasks • Applying mathematical strategies and concepts when engaging with meaningful real-world problems • Using everyday and mathematical language to express their mathematical ideas
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Instruction (Standard II, Indicator A)	Uses instructional practices that reflect high expectations regarding content and quality of effort and work; engage all students; and are personalized to accommodate diverse learning styles, needs, interests, and levels of readiness.
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<p style="text-align: center;">What is the teacher doing?</p> <ul style="list-style-type: none"> • Explicitly teaching appropriate ways to use symbols • Providing students with opportunities to apply their learning and solve problems in collaboration with their peers • Providing opportunities and structures for students to communicate their mathematical ideas and thinking with each other 	<p style="text-align: center;">What are the students doing?</p> <ul style="list-style-type: none"> • Discussing with other students how multiple representations of numbers, operations and shapes relate to each other • Noticing patterns in the number system and geometric contexts • Explaining how multiple representations of numbers and/or operations relate to one another
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Assessment (Standard I, Indicator B)	Uses a variety of informal and formal methods of assessments to measure student learning, growth, and understanding to develop differentiated and enhanced learning experiences and improve future instruction.
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<p style="text-align: center;">What is the teacher doing?</p> <ul style="list-style-type: none"> • Providing actionable feedback to students about their problem solving processes • Conducting frequent checks for student understanding and adjusting instruction accordingly • Prompting students to explain their reasoning and listening to their responses to identify misconceptions 	<p style="text-align: center;">What are the students doing?</p> <ul style="list-style-type: none"> • Engaging in challenging learning tasks regardless of learning needs (e.g., linguistic background, disability, academic gifts) • Using concrete objects or pictures to explore mathematical concepts and relationships • Using exemplars to inform their work
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