

A quick guide for observing classroom content and practice

In grade 6, instructional time should focus on four critical areas:

1.

Connecting ratio and rate to whole number multiplication and division, and using concepts of ratio and rate to solve problems (RP, NS)

2.

Completing understanding of division of fractions and extending the notion of number to the system of rational numbers, which includes negative numbers (NS)

3.

Writing, interpreting, and using expressions and equations (EE)

4.

Developing understanding of statistical thinking (SP)

In a 6th grade math class you should observe students engaged with at least one math content and practice standard:

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

Ratios and Proportional Relationships (RP)

- Understanding the concept of a *ratio* (*part:part*, *part:whole*) and rates (*unit rates*)
- Using ratio reasoning to convert measurements within and between measurement systems
- Using ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of *equivalent ratios*, *tape diagrams*, *double number line* diagrams, or *equations*

The Number System (NS)

- Applying and extending previous understandings of multiplication and division to divide fractions by fractions
- Computing fluently with multi-digit numbers and decimals, and finding common factors and multiples
- Applying and extending previous understandings of numbers to the system of rational numbers, including locations on the number line and *absolute value*
- Using *positive and negative numbers* (whole numbers, fractions, and decimals) to represent quantities in real-world contexts

Expressions and Equations (EE)

- Applying and extending previous understandings of arithmetic to *algebraic expressions*, such as properties of operations and equivalence
- Reasoning about and solving one-variable equations and *inequalities*
- Representing and analyzing quantitative relationships between *dependent* and *independent variables*

Geometry (G)

- Solving real-world and mathematical problems involving *area*, *surface area*, and *volume*

Statistics and Probability (SP)

- Developing understanding of statistical *variability*
- Summarizing and describing *distributions*

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 6th grade math classroom.

Expectations
(Standard II, Indicator E) Plans and implements lessons that set clear and high expectations and also make knowledge accessible for all students.

What is the teacher doing?

- Communicating a lesson's objectives and their connections to unit essential questions and goals.
- Creating culturally responsive lessons that engage and sustain student attention
- Focusing attention on mathematical language (e.g., linguistic complexity, conventions, and vocabulary)
- Establishing classroom routines that support students to defend their thinking

What are the students doing?

- Applying mathematical strategies and concepts when engaging with meaningful real-world problems
- Using mathematical language precisely to convey meaning and understanding of concepts
- Justifying a solution method and critiquing the reasoning of others
- Identifying important quantities in a given relationship and representing situations. (e.g. using diagrams, or formulas)

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.

What is the teacher doing?

- Creating a culture of being careful and precise when communicating mathematical ideas
- Sharing conflict resolution strategies for working together with students
- Highlighting when students draw explicitly upon quantitative reasoning during discussions with peers

What are the students doing?

- Using quantitative reasoning to communicate ideas to others
- Using equations and diagrams to represent patterns
- Evaluating the relative strengths and weaknesses of solution methods orally and in writing

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.

What is the teacher doing?

- Providing actionable feedback to students about their problem solving processes
- Using multiple formative approaches to assess students (e.g., mid-unit assessment, group work)
- Conducting frequent checks for student understanding and adjusting instruction accordingly

What are the students doing?

- Engaging in challenging learning tasks regardless of learning needs (e.g., linguistic background, disability, academic gifts)
- Using concrete objects, diagrams, and expressions to explore mathematical concepts and relationship
- Using exemplars to inform their work