In grade 5, instructional time should focus on three critical areas:

1. Developing fluency with addition and subtraction of fractions, and developing understanding of the multiplication of fractions and of division of fractions in limited cases (unit fractions divided by whole numbers and whole numbers divided by unit fractions) (NF)

2. Extending division to 2-digit divisors, integrating decimal fractions into the place value system and developing understanding of operations with decimals to hundredths, and developing fluency with whole number and decimal operations (NBT)

3. Developing understanding of volume (MD)

Mathematics

In a 5th 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

Operations and Algebraic Thinking (OA)

• Using parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols
• Generating two numerical patterns using two given rules, forming coordinate pairs and graphing them on the coordinate plane

Number and Operations in Base Ten (NBT)

• Understanding the place value system by determining how powers of 10 correspond to digit positions in whole and decimal numbers
• Reading, writing, and comparing decimals to thousandths and round to any place
• Fluently multiplying multi-digit whole numbers using the standard algorithm
• Illustrating and explaining division of multi-digit, whole number calculations by using equations, rectangular arrays, and/or area models
• Adding, subtracting, multiplying, and dividing decimals to hundredths using concrete models or drawings and place value or operations strategies

Number and Operations—Fractions (NF)

• Adding and subtracting fractions with unlike denominators (including mixed numbers) using an equivalent fractions strategy
• Solving word problems involving addition and subtraction of fractions (part/whole or set), using benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers
• Problem solving with fractions, using visual fraction models and equations to find area, resize (scaling), and solve other real world problems.

Measurement and Data (MD)

• Converting among different-sized standard measurement units within a given measurement system and using these conversions in solving multi-step, real-world problems.
• Making a line plot (dot plot) to display a data set of measurements in fractions of a unit and using fraction operations to problem solve with the data
• Recognizing volume as an attribute of solid figures that is measured in cubic units and determining volume by counting unit cubes or applying the volume formula to right rectangular prisms
• Relating volume to the operations of multiplication and addition, solving real-world and mathematical problems involving volume

Geometry (G)

• Representing real-world and mathematical problems by graphing points in the first quadrant of the coordinate plane
• Classifying 2-dimensional figures in a hierarchy based on properties

NOTES
Mathematics What to Look For

The example below features three Indicators from the CT Common Core of Teaching. 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 5th-grade math classroom.

### Domain 1
**Classroom Environment, Student Engagement and Commitment to Learning**

<table>
<thead>
<tr>
<th>What is the teacher doing?</th>
<th>What are the students doing?</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Communicating both the language and content objectives for students and why they are important</td>
<td>• Applying mathematical strategies and concepts when engaging with meaningful real-world problems</td>
</tr>
<tr>
<td>• Creating culturally responsive lessons that engage and sustain student attention</td>
<td>• Using mathematical language precisely to convey meaning and understanding of concepts</td>
</tr>
<tr>
<td>• Establishing classroom routines that support students to communicate their thinking</td>
<td>• Evaluating different representations of a problem and different solution pathways</td>
</tr>
<tr>
<td>• Representing and relating solution methods orally, visually, and with concrete objects</td>
<td>• Representing problems and solution methods using visual models (manipulatives or drawings) or number sentences</td>
</tr>
</tbody>
</table>

### Domain 2
**Planning for Active Learning**

<table>
<thead>
<tr>
<th>What is the teacher doing?</th>
<th>What are the students doing?</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Creating a culture of being careful and precise when communicating mathematical ideas</td>
<td>• Showing persistence and focus in working together toward a shared goal</td>
</tr>
<tr>
<td>• Encouraging students to interpret structures and formulate conjectures about mathematical situations</td>
<td>• Drawing explicitly upon content they have learned in class in conversations with peers</td>
</tr>
<tr>
<td>• Providing students with opportunities to evaluate different approaches to a problem</td>
<td>• Interpreting structures and formulating conjectures about mathematical situations</td>
</tr>
</tbody>
</table>

### Domain 3
**Instruction for Active Learning**

<table>
<thead>
<tr>
<th>What is the teacher doing?</th>
<th>What are the students doing?</th>
</tr>
</thead>
<tbody>
<tr>
<td>• Providing actionable feedback to students about their problem solving processes</td>
<td>• Engaging in challenging learning tasks regardless of learning needs (e.g., linguistic background, disability, academic gifts)</td>
</tr>
<tr>
<td>• Using multiple formative approaches to assess student learning (e.g., student discourse, completion of class work)</td>
<td>• Using concrete objects, diagrams, and expressions to explore mathematical concepts and relationship</td>
</tr>
<tr>
<td>• Providing exemplars that convey mathematical reasoning and understanding (both teacher and student generated)</td>
<td>• Using exemplars to inform their work</td>
</tr>
</tbody>
</table>

*This document is based on the CT Core Standards Classroom “Look Fors” and the MA Curriculum Observation Guide.