



The Math Benchmark Assessment system is designed to support students and teachers as they strive to develop deep understanding of the most crucial math concepts at each grade. Below you will find procedures for math teachers K – 8 to use in:

- ❖ Administering the Math Benchmark Assessments
- ❖ Looking at Student Work
- ❖ Scoring the Assessments
- ❖ Reassessing
- ❖ Reporting
- ❖ Archiving Student Work: The Math Folders

## **Administering the Math Benchmark Assessments**

Teachers determine when to assess students using the math benchmark assessments. Typically this is done immediately following the teaching of the content involved, which may be during or at the end of a unit of study, and assessment should be ongoing throughout the year. If the assessment consists of multiple tasks, not all parts of the benchmark assessment need to be administered at the same time. Student stamina for high-quality work should be considered when scheduling assessments, and breaking up the tasks over a couple of sessions may be appropriate. In the same vein, not all students need to be assessed simultaneously. If teachers perceive that some students are ready to demonstrate proficiency and others need additional instruction first, then it is appropriate to differentiate the timing of assessment to meet these needs.

Students are entitled to all of the testing accommodations dictated by IEP or 504 plans. For students not on these plans, typical classroom accommodations may be provided in order to ensure students can show what they truly understand. This includes rereading a task to a child, scribing for a child (particularly a young student), or testing in a quieter location. All accommodations should be noted on the assessment.

During the assessment, all students should have access to all manipulatives or tools typically available during learning, with the sole exception of a calculator on operations focused benchmarks. Manipulatives and tools may include unifix cubes, base ten blocks, rulers, sticky notes, counters, hundreds grids, number lines, everyday objects in the classroom to model problems (i.e. pencils for a problem about pencils), pattern blocks, etc. This also includes access to shared tools, such as posted number lines or hundreds charts, or other reference charts, and means students would need the freedom to move within the classroom to touch or examine these tools.

Scratch paper is not appropriate, as ALL work is valuable and should be included as part of the evidence of student thinking. If students need additional space to work, provide them with additional paper and



be sure to attach this paper to the assessment when completed so that it can be examined when looking at the student work.

## Looking at Student Work

Teams should gather during time set aside for collaborative examination of math benchmark assessments – Wednesday PD time, Consult, or other planning time – to look at the student work generated by the math benchmark assessments. With a facilitator, teams will move through the following process collaboratively:

1. **Unpack the Assessment Tasks:** Make an exhaustive list of all of the skills, conceptual understandings, and potential misunderstanding the assessment tasks could reveal.
2. **Create a Checklist:** Use the Mastery At-a-Glance form to create a checklist of the most crucial skills, conceptual understandings, and misconceptions identified by the group when unpacking the assessment. Determine a coding system and record it on the page. You will likely need a symbol for evidence (Yes), some evidence (Sort of/Approximating), and no evidence (No).
3. **Tune by Looking at Student Work Together:** Select 2 – 5 pieces of diverse student work and look at these samples together, asking what evidence the group can see of each of the skills, conceptual understandings, and misconceptions on the checklist. Be sure the group agrees on whether evidence is present, the student is approximating and needs some additional instruction or time, or there is no evidence. It may also be useful to the team to discuss what evidence could look like on the tasks: How could the child demonstrate understanding? What could it look/sound like? As you look at each piece, also consider the score you would assign the work. See specific directions for scoring below. When the group feels that there is general agreement, teachers can proceed to their own work.
4. **Look at Your Own Student Work:** For each student, examine the work in the same way the group did, completing the Mastery At-a-Glance checklist as you go, including the score. Make notes of anything that would be useful in planning follow-up with the child in the notes column. As puzzling student work arises, share the work with the team and collaboratively determine what the evidence shows.
5. **Look for Trends:** Look down the columns of the Mastery At-a-Glance for areas where additional instruction is needed to move students toward proficiency. Where do most students need instruction? What small group trends can you see? In what areas have most students demonstrated understanding? Are there any individuals who need intensive support? Record the trends you detect on the Analyzing Student Work to Inform Instruction organizer, with whole group trends on one side and small group trends (including individuals who need a



specialized response) on the other. For all small group trends, be sure to include the names of students who need this targeted instruction based on the data.

6. **Share Trends and Brainstorm Instructional Implications:** As a team, share and chart specific trends that you'd like the group's thinking on. Brainstorm potential instructional responses to this trend. If students are struggling with this idea, what do they need from us to move forward? What kinds of activities, coaching, models, or instruction will help students build on what they do understand?
7. **Finalize Your Plans to Address Student Needs:** Examine the trends specific to your students. From the brainstorm, select specific instructional interventions you will implement. If a trend is not one that was discussed by the group, then brainstorm yourself or with a teaching partner about what moves would support the development of understanding or skill. Under the "Implications for Instruction" heading, map out your plan to support students. Record under "Action Plan" when you plan to implement and who will be responsible. Some interventions may be whole group and ongoing, such as increasing modeling for math writing; indicate when you plan to start and that the work is ongoing.

## Scoring the Assessments

All assessments should receive a score on the Math Benchmark Assessment Holistic Rubric. The student's work on the entire assessment (all tasks) should be considered as a whole against the meaning of the benchmark. First determine if you believe the student's work demonstrates that they meet the benchmark. Is there evidence of proficiency? If so, the student will score a 3 or 4; if not the student will score a 1 or 2.

Then consider what you believe the next steps need to be for this student:

**Score 1:** Much instruction to build conceptual understanding from foundations – in many ways starting over.

**Score 2:** Targeted instruction to address specific gaps or key misunderstandings.

**Score 3:** Small instructional nudges to refine thinking or move toward efficiency

Math Benchmark Assessment  
Holistic Rubric

Score		To determine the most appropriate score, consider what the student needs next in this concept
Meeting the Benchmark	4	<b>Advanced Understanding</b> <i>Next Steps for the Student:</i> This student has full mastery and is ready to extend understanding to new concepts or move on.
	3	<b>Proficient</b> <i>Next Steps for the Student:</i> Small instructional nudges to refine thinking or move toward efficiency
Not Yet Meeting the Benchmark	2	<b>Developing Understanding</b> <i>Next Steps for the Student:</i> Targeted instruction to address specific gaps or key misunderstandings
	1	<b>Beginning Understanding</b> <i>Next Steps for the Student:</i> Much instruction to build conceptual understanding from foundations



# Math Benchmark Assessment Procedures



**Score 4:** This student has full mastery and is ready to extend understanding to new concepts or move on.

Record this score on the Mastery At-a-Glance checklist. This score will be reported internally on Data Roster and logged on the student's math folder. See "Reporting" below for procedures.

## Reassessing

For any student scoring a 1 or 2 on the assessment, instructional intervention and reassessment is needed. Students have their entire school year to demonstrate proficiency on the math benchmarks for their grade level. **Instructional interventions should take place as soon as possible** and support the development of conceptual understanding and communication of that understanding.

Students should be reassessed on a different, but similar task(s) to the original assessment. This may include changing details within the assessment, such as the numbers and context, to create a reassessment version. Reassessment should take place in a timely way. Students should be reassessed as soon as they are able to demonstrate proficiency; **reassessment should not be held until the end of the school year**. This defeats the purpose of responsive instruction.

## Reporting

Internal reporting is a critical part of the Math Benchmark Assessment process, so that teaching teams and school leaders have open communication about progress students are making toward proficiency on the math benchmarks. Reporting consists of three layers:

After the team has met to unpack the assessment, look at the work, and brainstorm instructional implications, please **photocopy and share with your principal and instructional coach**:

- **Mastery At-a-Glance checklist**
- **Analyzing Student Work to Inform Instruction planner**

Then, **go to the Data Roster** for the Math Benchmarks and **enter the score** each student received on the assessment. This should be an easy transfer from the Mastery At-a-Glance checklist.

As you reassess students, please return to the Data Roster and update the score. Please highlight the cell in yellow to indicate that it is a reassessment.

Finally, as students demonstrate proficiency, **record their scores (3 or 4) and archive their work in the Math Folders**, per the instructions below. While some teachers have held this step to the end of the school year, the filing piles up and can become overwhelming if done all at once. In addition, Inclusion

# Math Benchmark Assessment Procedures



teachers frequently use the math folders as evidence in their work with students. Maintaining a reasonably current folder will assist them in serving students.

## Archiving Student Work: The Math Folders

Math folders are currently set up with six sections for each child: Records; Number Sense and Operations; Patterns, Relationships, and Algebra; Geometry; Measurement; and Data Analysis and Probability. These math content categories correspond to the old math strands under NCTM and DC Standards. To file our new math benchmark assessments under the Common Core State Standards strands we will need to make some adjustments.

The first section (on the inside front cover) holds the **Math Folder Checklists** for each grade the child has been at Capital City. Each year you will need to copy enough Math Folder Checklists for your grade for each of your students. Record the student's name, math teachers' name(s), and the school year at the top, and put the checklist in the front of the folder.

As the student demonstrates proficiency on each benchmark, **record the score** (3 or 4) and the **date** of assessment on the Checklist. You will also need to archive the assessment in the folder as evidence of proficiency. If the end of the year arrives and the student has been assessed and reassessed on a benchmark and has still not demonstrated proficiency (scored a 3 or 4), record the **last score** received by the student, the date of assessment, and file the corresponding work in the math folder. This will allow next year's teacher to see where students left off with understanding.

At the **end of the year**, enter the total number of benchmarks mastered (scored 3 or 4) and the percent mastered at the bottom of the checklist.

The **final assessment for each benchmark needs to be archived** in the math folder in the following way:

- Number Sense and Operations (section 2) – All assessments corresponding to the CCSS strands:
  - Counting and Cardinality
  - Operations and Algebraic Thinking
  - Number and Operations – Fractions

**Seventh Grade Math Benchmarks**

Student Name: \_\_\_\_\_  
 Teachers: \_\_\_\_\_ School Year: 20\_\_\_\_

Benchmark	Date Assessed	Score	Assessment Record
<b>Ratios and Proportions</b> Identify and describe the constant of proportionality and the, ratios, graphs, tables, diagrams, and verbal descriptions of proportional relationships. (7.RP.1) Solve Multi-Step Proportional Problems. Use ratios to solve problems. (7.RP.2)			
<b>Number Operations</b> Apply and extend previous understandings of operations to add, subtract, multiply, and divide with integers, rational numbers, and real numbers. (7.NS.1-3)			
<b>Patterns, Relationships, and Algebra</b> Solve Multi-Step Equations and Inequalities. Solve multi-step real-world and mathematical problems involving linear equations and inequalities in one variable, systems of equations and inequalities in one variable, and inequalities with absolute value in one variable. (7.EE.1-4) Writing & Solving Real-World Equations. Use equations to represent quantities in a real-world context, graph a real equation, and solve these equations by graphing. Identify the solutions, approximate solutions, and solutions in the form of $x + p = q$ and $ax + b = c$ , where $p, q, r, s,$ and $a$ are rational numbers. Solve equations of the form $ax + b = c$ and $mx + y = z$ , and solve systems of equations. Identify the solutions of the system of two linear equations in two variables. (7.EE.5-6)			
<b>Geometry</b> Solve Problems with Scale Drawings. Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale. (7.G.1) Solve Word-Problem Involving Area. Compute area of composite figures, including rectangles, triangles, and squares. Use $A = bh$ and $A = \frac{1}{2}bh$ to find the area of a triangle. (7.G.2) Solve Area, Volume, & Surface Area Problems. Solve real-world and mathematical problems involving area, surface area, and volume of two- and three-dimensional objects composed of shapes, including composite shapes, cubes, and right prisms. (7.G.3)			
<b>Statistics</b> Understand Sampling Variability. Understand that statistics can be used to gain information about a population by examining a sample of the population; generalizations about a population from a sample are made only when the sample is representative of the population. Understand that random sampling tends to produce unbiased numerical and categorical data for analysis. Use random sampling to draw inferences about a population; justify an inference. Use an attribute of the data to describe multiple categories. Use statistical thinking to solve problems involving the center of a distribution. (7.SP.1-4)			

Benchmarks Mastered: 9 / 10 = 90%





- **Number and Operations in Base Ten**
- **The Number System**
- **Patterns, Relationships, and Algebra (section 3)** – All assessments corresponding to the CCSS strands:
  - **Ratios and Proportional Relationships**
  - **Expressions and Equations**
  - **Functions**
- **Geometry (section 4)** – All assessments corresponding to the CCSS strands:
  - **Geometry**
- **Measurement (section 5)** – All assessments corresponding to the CCSS strands:
  - **Measurement and Data**
- **Data Analysis and Probability (section 6)** – All assessments corresponding to the CCSS strands:
  - **Statistics and Probability**

