



SM<sup>c</sup> curriculum

improving math.



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**A supplemental math curriculum series based on the Common Core State Standards for Grades 3, 4 and 5.**



**OPERATIONS**



**FRACTIONS**



**GEOMETRY**



**OPERATIONS**



**FRACTIONS**



**GEOMETRY**



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**FRACTIONS**



**GEOMETRY**

# About the Program

The Digging into Math ©2014 Program is a supplemental math curriculum based on the Common Core State Standards (CCSS) for Grades 3, 4 and 5. The program consists of 9 standards-based units. Each unit contains 7 to 14 lessons that specifically address targets related to clusters in the CCSS with a focus on the critical/major topics at each grade.

The Digging into Math Program can be used in a variety of ways in the classroom.

## Elementary Classrooms

- Supplement current curriculum to support grade-level Common Core State Standards.
- Use as a Tier 2 intervention for struggling students.
- Use as a school-wide Title I intervention program.
- Help teachers better grasp their grade-level math standards with a emphasis on the priority clusters.

## Middle School Special Education Classrooms

- Use as an assessment of students' abilities in pre-requisite standards.
- Use for individualized instruction based on student need.
- Accelerate the students through previous grade-level standards.

**Find sample lessons and assessments at**  
**[www.DiggingIntoMath.com](http://www.DiggingIntoMath.com)**

## What is in each unit?

### For Students

- 7 to 14 lessons based on specific clusters of the Common Core State Standards.
- **Practice** problems for each lesson
- **Skill Checks** for each lesson containing selected response and constructed response items
- **End of unit assessments**
  - **Selected Response**
  - **Constructed Response**
  - **Extended Response Tasks**
- **Glossary**



## What is in each unit?

### For Teachers

- **Common Core State Standards (CCSS) Alignment**
- **Learning Progressions**
- **Tips for “Incorporating the CCSS Mathematical Practices”**
- **Teaching Tips**
- **Communication Prompts**
- **Answer Keys**
- **Clear Learning Targets to be used with Students**

# Student Lesson Highlights



**Word Wall** – When vocabulary is introduced in a unit it will appear on a small brick wall at the beginning of the lesson next to the Target Box. The word will be defined within the lesson.



**Target Box**– The learning target addressed in the lesson is written in a Target Box at the beginning. The Skill Check for each lesson assesses the target.



**"You Try" Pencil** - Throughout the lesson, students will be asked to participate by trying problems. This guided practice gives students some experience with the content in the lesson before completing the Practice or Skill Check components of the lesson.



**Vocabulary** – When vocabulary words are introduced in a unit and are listed on the Word Wall for a lesson, they are highlighted and typed in bold red font within the lesson. Vocabulary words are defined when they appear in the lesson as well as in the unit glossary.

## Guided and Independent Practice

Each lesson is designed to guide students through a concept based on a grade-level Common Core State Standard(s). The lessons have built-in practice throughout the lesson as well as independent "Practice" problems at the end of each lesson. Each lesson and Practice set spans Levels 1 through 3 on Webb's Depth of Knowledge chart. This includes items that address procedural skill and recall, problem solving as well as justifying and/or critiquing solutions.

# Sample Pages from Student Lesson

## Measurements and Line Plots

### Lesson 8

**VOCABULARY**

quarter of an inch

Line plot

**TARGET**

Learn measures objects to nearest quarter of an inch.

I can display measurements using a line plot.

In Lesson 7, you learned to measure objects to the nearest half-inch. In lesson you will measure objects to the nearest quarter of an inch. A quarter inch is one-fourth of an inch. Look at the enlarged inch below to see one of an inch.

Two-quarters of an inch is the same as one-half-inch.

To measure an object or line to the nearest quarter of an inch:

- Line up the left-hand side of the object with 0 on the ruler.
- Record the largest whole number that the object reaches.
- Determine which mark the end of the object is nearest to  $\frac{1}{4}$ ,  $\frac{2}{4}$ , or  $\frac{3}{4}$  of an inch. If it is closest to a quarter-inch mark, record the fraction whole number to make the measurement a mixed number.

The largest whole number that the object reaches is 1. The  $\frac{3}{4}$ -inch mark is the nearest measurement.

48 Measurements and Line Plots

Greg measured 11 objects to the nearest half-inch. He listed the measurements below. Create a line plot to display all the measurements.

2 $\frac{1}{2}$  3 $\frac{1}{2}$  2 1 $\frac{1}{2}$  3 $\frac{1}{2}$  1

1 2 2 $\frac{1}{2}$  2 $\frac{1}{2}$  2 $\frac{1}{2}$

### Lengths of Objects in Inches

Start with the smallest measurement and go up by half-inch increments until you reach the largest measurement.

Measure the lengths of the seven lines below to the nearest quarter of an inch. Make a line plot to display the measurements.

Lengths of Lines in Inches

50 Measurements and Line Plots

**The lesson contains instruction and guided practice. A small pencil shows where students participate.**

**The Practice problems consist of 10 to 30 items ranging from Level 1 to 3 in Depth of Knowledge (DOK).**

Name: \_\_\_\_\_

**Practic**

- How many quarter-inches are in one inch? \_\_\_\_\_
- Find the length of each line to the nearest quarter of an inch.
 Length: \_\_\_\_\_
 Length: \_\_\_\_\_
- Find the length of each paperclip to the nearest quarter of an inch.
 Length: \_\_\_\_\_
 Length: \_\_\_\_\_
- Use a customary ruler to measure the length of each line to the nearest quarter of an inch. Write the measurement above each line. Label each measurement.

42 Lesson 8

Measurements and Line Plots 51

- A group of students measured each crayon in a box to the nearest half of an inch. They displayed their measurements on the line plot below. Use the line plot to answer the questions.
 

Lengths of Crayons in Inches

  - How many crayons were in the box? \_\_\_\_\_  
How do you know?
  - Were there any crayons that were 3 inches long? \_\_\_\_\_  
How do you know?
  - How many crayons were less than 3 inches long? \_\_\_\_\_
- Kyra measured 9 objects to the nearest quarter of an inch. She listed the measurements below. Create a line plot to display all the measurements.
 

2 2 $\frac{1}{2}$  1 $\frac{1}{2}$  1 $\frac{1}{2}$  2 $\frac{1}{2}$

1 $\frac{1}{2}$  2 2 $\frac{1}{2}$  2 $\frac{1}{2}$

Lengths of Objects in Inches

52 Measurements and Line Plots

- Owen and Elise measured the pen below. Owen said the pen was about 3 $\frac{1}{2}$  inches long. Elise said the pen was about 3 $\frac{1}{4}$  inches long.
 

Whose measurement is correct? Explain your reasoning.
- Measure the lengths of the lines below to the nearest quarter of an inch. Make a line plot to display the measurements.
 

Lengths of Lines in Inches
- How can you verify that you included all the line segments on your line plot in #8?

42 Lesson 8

Measurements and Line Plots 53

**The Digging into Math Program consists of 9 units (3 per grade) addressing the Common Core State Standards for Mathematics (CCSSM) for Grades 3, 4 and 5. Each unit contains lessons that specifically address both the content standards and the standards for mathematical practice.**

## Stage A - Grade 3

	Unit	Common Core State Standard Domains and Clusters	
<b>Grade 3</b>	<b>Unit A1 Digging into Operations</b>	<b>OA</b>	<ul style="list-style-type: none"> <li>• Represent and solve problems involving multiplication and division.</li> <li>• Understand properties of multiplication and the relationship between multiplication and division.</li> <li>• Multiply and divide within 100.</li> <li>• Solve problems involving the four operations, and identify and explain patterns in arithmetic.</li> </ul>
		<b>NBT</b>	<ul style="list-style-type: none"> <li>• Use place value understanding and properties of operations to perform multi-digit arithmetic.</li> </ul>
		<b>MD</b>	<ul style="list-style-type: none"> <li>• Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.</li> <li>• Represent and interpret data.</li> </ul>
	<b>Unit A2 Digging into Fractions</b>	<b>NF</b>	<ul style="list-style-type: none"> <li>• Develop understanding of fractions as numbers.</li> </ul>
		<b>MD</b>	<ul style="list-style-type: none"> <li>• Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.</li> <li>• Represent and interpret data.</li> </ul>
	<b>Unit A3 Digging into Geometry</b>	<b>MD</b>	<ul style="list-style-type: none"> <li>• Geometric measurement: understand concepts of area and relate area to multiplication and to addition.</li> <li>• Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish linear and area measurements.</li> </ul>
		<b>G</b>	<ul style="list-style-type: none"> <li>• Reason with shapes and their attributes.</li> </ul>

## Stage B - Grade 4

		<b>Unit</b>	<b>Common Core State Standard Domains and Clusters</b>
<b>Grade 4</b>	<b>Unit B1 Digging into Operations</b>	<b>OA</b>	<ul style="list-style-type: none"> <li>• Use the four operations with whole numbers to solve problems.</li> <li>• Gain familiarity with factors and multiples.</li> <li>• Generate and analyze patterns.</li> </ul>
		<b>NBT</b>	<ul style="list-style-type: none"> <li>• Generalize place value understanding for multi-digit whole numbers.</li> <li>• Use place value understanding and properties of operations to perform multi-digit arithmetic.</li> </ul>
		<b>MD</b>	<ul style="list-style-type: none"> <li>• Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.</li> </ul>
	<b>Unit B2 Digging into Fractions</b>	<b>NF</b>	<ul style="list-style-type: none"> <li>• Extend understanding of fraction equivalence and ordering.</li> <li>• Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.</li> <li>• Understand decimal notation for fractions, and compare decimal fractions.</li> </ul>
		<b>MD</b>	<ul style="list-style-type: none"> <li>• Represent and interpret data.</li> </ul>
		<b>MD</b>	<ul style="list-style-type: none"> <li>• Geometric measurement: understand concepts of angle and measure angles.</li> </ul>
	<b>Unit B3 Digging into Geometry</b>	<b>G</b>	<ul style="list-style-type: none"> <li>• Draw and identify lines and angles, and classify shapes by properties of their lines and angles.</li> </ul>

## Stage C - Grade 5

		<b>Unit</b>	<b>Common Core State Standard Domains and Clusters</b>	
<b>Grade 5</b>	<b>Unit C1</b> <b>Digging into Operations</b>	<b>OA</b>	<ul style="list-style-type: none"> <li>• Write and interpret numerical expressions.</li> <li>• Analyze patterns and relationships.</li> </ul>	
		<b>NBT</b>	<ul style="list-style-type: none"> <li>• Understand the place value system.</li> <li>• Perform operations with multi-digit whole numbers and with decimals to hundredths.</li> </ul>	
		<b>MD</b>	<ul style="list-style-type: none"> <li>• Convert like measurement units within a given measurement system.</li> </ul>	
		<b>G</b>	<ul style="list-style-type: none"> <li>• Graph points on the coordinate plane to solve real-world and mathematical problems.</li> </ul>	
	<b>Unit C2</b> <b>Digging into Fractions</b>	<b>NF</b>	<ul style="list-style-type: none"> <li>• Use equivalent fractions as a strategy to add and subtract fractions.</li> <li>• Apply and extend previous understandings of multiplication and division to multiply and divide fractions.</li> </ul>	
		<b>MD</b>	<ul style="list-style-type: none"> <li>• Represent and interpret data.</li> </ul>	
	<b>Unit C3</b> <b>Digging into Geometry</b>	<b>MD</b>	<ul style="list-style-type: none"> <li>• Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.</li> </ul>	
		<b>G</b>	<ul style="list-style-type: none"> <li>• Classify two-dimensional figures into categories based on their properties.</li> </ul>	



# Summative & Formative Assessments

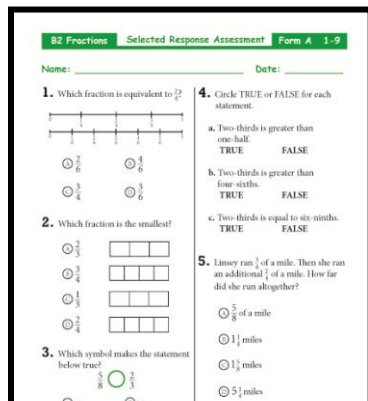
The Digging into Math program includes both formative and summative assessments as well as extended response tasks.

## End of Book Assessments (Summative)

At the end of each unit, there are two types of unit assessments that test all targets from the unit. Some units have two assessments due to the length of the unit and the number of standards learned. Each assessment has two forms (A and B) and teachers can determine if the assessments should be given together or separately. On each assessment the problems are given in the order of the lessons in the unit. These tests include:

### Selected Response Assessment

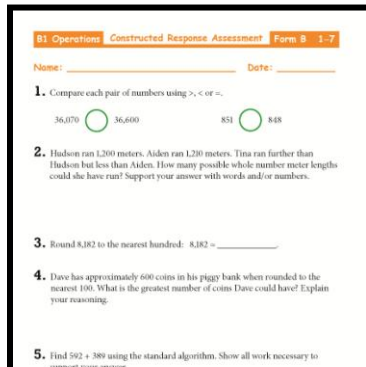
The selected response assessments include one to two questions per lesson that the test addresses. Test items include traditional multiple choice, true/false or yes/no and multiple choice items with more than one correct answer. This test can be used as a pre-assessment prior to the beginning of the unit or set of lessons.



**The Selected Response Assessments (2 forms) include True/False and multiple choice with 1 one or more correct answers.**

### Constructed Response Assessment

The constructed response assessments provide students an opportunity to show their comprehension of the learning targets without answer choices given. Test items include Depth of Knowledge (DOK) Level 3 items where students solve problems, explain their reasoning or explain the error in another student's work.



**The Constructed Response Assessments (2 forms) include procedural skill, problem solving and communicating reasoning items.**

## Tasks (Formative or Summative)

There are two tasks in each unit, one appropriate to use after a lesson near the middle of the unit and one appropriate to use after a lesson near the end of the unit. Each high-cognitive task identifies the lesson after which it can be used. In addition to addressing several content standards, they are designed to promote student learning of the standards for mathematical practice and encourage students to communicate their reasoning. These can be used as classroom activities for students to productively struggle as they integrate concepts and show multiple strategies to complete a problem, or when a problem has multiple answers. They can also be used as a formative assessment.

A3 – Geometry Task  
*Use after Lesson 3*

KYLIE'S WALK

Name \_\_\_\_\_ Date \_\_\_\_\_

Kylie took a walk around her neighborhood. The path she walked formed a rectangle. She walked a total of 40 blocks. One side of the rectangle she walked had a length of 15 blocks.








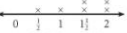

1. Sketch a picture of Kylie's walk and label the length of each side of the rectangular path. Show all work necessary to justify your answer.
2. Kylie left home at 2:38 p.m. She walked for a total of 42 minutes until arriving back home. At what time did Kylie finish her walk? Use numbers, words and/or pictures to explain how you know your answer is correct.

**The Tasks are extended response problem solving items. There are two tasks per unit.**

## Skill Checks (Formative)

A Skill Check is provided for each lesson. It consists of three selected response items and three constructed response items that assess student learning of the lesson target. The Skill Check is a formative assessment tool that can be used to gauge student understanding of the concepts and skills in the lesson. Each Skill Check includes questions ranging from DOK Level 1 to DOK Level 3.

Name: \_\_\_\_\_ Skill Check A.2.8

1. What is the length of the line to the nearest half-inch?  
  
 1 inch     1 1/2 inches  
 1 1/4 inches     2 inches
2. Which of the following lines are approximately three-fourths of an inch long? Select all that apply.  
   
   
   
   
   
 
3. How many objects were measured to make the line plot below?  
  
Lengths of Objects in Inches  
 4     5
4. What is the length of the line below to the nearest quarter of an inch?  
Length: \_\_\_\_\_  
Use the lines below for #5-6.  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_
5. Complete the line plot displaying the measurements of the lines given above to the nearest half-inch.  
  
Lengths of Lines in Inches
6. Suppose a line measuring 2 inches was added to the set of lines above. How would the line plot above need to be changed?

**The Skill Checks are formative assessments, one per lesson, each with 3 selected response items and 3 constructed response items.**

# Preview, Pricing and Order Information



## Preview:

View samples of student lessons and assessments by grade-level at [www.DiggingIntoMath.com](http://www.DiggingIntoMath.com)

## What is Included in a Site License?

- CD which includes all Student Editions and Teacher Guides for the 9 Digging into Math units. One CD per teacher.
- Permission to make unlimited copies of materials.

## Site License Pricing:

- Upgrade for schools currently holding a ©2011 Digging into Math site license.  
Price: \$600 per school
- New ©2014 Digging into Math site license.  
Price: \$1,500 per school

## Additional Items Available for Purchase:

- Grade-level spiral bound copies of Teacher Guides.  
Price: \$49.99 each
- Color Student Workbooks of Individual Units  
Price: \$2.29 per workbook

## Ordering Information:

Order online or download an order form spreadsheet at [www.DiggingIntoMath.com](http://www.DiggingIntoMath.com)

## Questions? Please Contact...



SMc Curriculum  
ATTN: Shannon McCaw  
12755 NE Richlands Lane  
Newberg OR 97132  
Phone: 503-550-4298  
Toll-free: 800-708-5259  
Fax: 866-689-8716  
Email: [mccaws@SMcCurriculum.com](mailto:mccaws@SMcCurriculum.com)

**SMc Curriculum  
12755 NE Richlands Lane  
Newberg OR 97132**

**[www.DiggingIntoMath.com](http://www.DiggingIntoMath.com)**