

3-5 Developmental Math Assessment

Who should be administered this assessment? The tasks in this assessment are drawn from the CCGPS for 3<sup>rd</sup>-4<sup>th</sup> grades. Therefore this assessment could be used with struggling 4<sup>th</sup> and 5<sup>th</sup> graders and on/above grade-level 3<sup>rd</sup> graders.

**Directions for Administration:** This assessment should be administered by the teacher with an individual student. Teachers should gather the needed materials and then move through the sample tasks in order, observing the student's strategies and attitudes toward specific tasks. This tool is meant to be used for assessment, so teachers should resist the urge to teach during the assessment. Tasks increase in difficulty and complexity. Therefore, the teacher should use judgment about how far to continue with the assessment, or with any particular section, to avoid student frustration. If even the beginning tasks in each section here are too difficult for the student, the K-2 DMA should be administered instead. The teacher should take notes about what the student does with each given task. The more detailed the notes, the better the RTI team can diagnose the student's immediate needs for intervention. It is also helpful to highlight particular tasks that were difficult for the student or when the student responded with "I don't know" or gives an incorrect answer. After administration cross-check these tasks with the Math RTI Guidance Tool for grades 3<sup>rd</sup>-4<sup>th</sup> in order to find specific areas for intervention and instruction.

**Materials Needed:** paper, pencil, small dry erase board, dry erase marker, counters or small manipulatives, base-ten blocks, number disks, fractional pieces, other materials that are commonly used by students in the math workshop (i.e. number lines, place value charts, etc.)

All materials and manipulatives that are available to the student in the regular classroom should be laid out and easy for the student to access throughout the administration of the assessment. Make the sure the student knows that they can use these as needed for any/all tasks. Make notes of when/how effectively the student uses these.

**Additional Questions:** It may be helpful to ask clarifying questions while or after a student has completed a task. Here are some suggestions that can help diagnose student thinking:

- |  |  |
|--|--|
| How do you know your answer is correct?          | What strategy did you use?                 |
| How did you think about the problem?             | Can you prove that your answer is correct? |
| Have you ever solved a problem like this before? |  |
| Why do you think that?                           |  |
| Why is that true?                                |  |
| How did you reach that conclusion?               |  |
| How does your answer make sense to you?          |  |
| Can you make a model to show that?               |  |

Section I: Place Value, Rou

1. Sample Task: "Make an X halfway between 0 and 100 on this number line. Write the number that is halfway between 0 and 100 below the X. Where would 23 go on this number line? What about 65?"

Teacher Observation Notes: ✓

0 100

Additional Questions Asked:

2. Sample Task: "What is 58 rounded to the nearest multiple of 10?"

Teacher Observation Notes: ✓

60

Additional Questions Asked:

3. Sample Task: "What is 436 rounded to the nearest 100? Can you show me how you know using a number line?"

Teacher Observation Notes: ✓

400

Additional Questions Asked:

4. Sample Task: "Write four thousand, six hundred ninety with numerals in standard form."

Teacher Observation Notes: ✓

Additional Questions Asked:

5. Sample Task: "How is the digit 2 in 528 similar to and different from the 2 in 582?"

Teacher Observation Notes:

That's in the 10's place & that's in

Additional Questions Asked:

the ones place  
That's 20 & that's 2

They're both 2's.

How are they similar?  
What does that mean?

6. Sample Task: "Can you compare 786 and 678 using the symbols >, <, or =?"

Teacher Observation Notes:

Additional Questions Asked:

7. Sample Task: "Your class is collecting bottled water for a service project. The goal is to collect 300 bottles of water. On the first day, Max brings in 3 packs with 6 bottles in each container. Sarah wheels in 6 packs with 6 bottles in each container. About how many bottles of water still need to be collected?"

Teacher Observation Notes:

"They have 54 bottles so far"

Additional Questions Asked:

What are you thinking?

$$\begin{array}{r} 3 \\ \times 6 \\ \hline 666666 \end{array}$$

Think I should add something to get to 300, or subtract something.

Section II: Addition & Subtraction

8. Sample Task: "There are 178 fourth graders and 225 fifth graders on the playground. How many students are on the playground?"

Teacher Observation Notes:

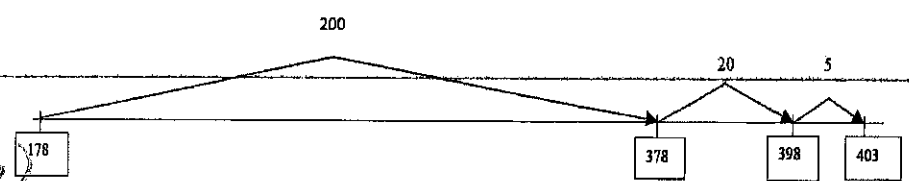
$$\begin{array}{r} 403 \\ + 178 \\ \hline \end{array}$$

Additional Questions Asked:

$$\begin{array}{r} + 225 \\ 403 \\ \hline \end{array}$$

$$\begin{array}{r} 300 \\ - 54 \\ \hline 246 \end{array}$$

9. Sample Task: "One of my students, Jose, solved the problem  $178 + 225$  this way. Is Jose correct? Can you explain the steps that Jose used to solve this problem?"



Teacher Observation Notes:

He started w/ 178 + added 398 + got 398. (Changed it & said he added

Additional Questions Asked:

"Where did he get the 200 to 178 etc... but credits 200? Tell me where he got the 200."

10. Sample Task: "Can you explain how this method for addition works? What are the steps? What is the answer?"

"I don't know."

(Got correct, but couldn't tell why)

Teacher Observation Notes:

You add 7 + 2 + gives you 9. Then 9 + 6 gives 15 put 5 + put the 1 on top of the 8 etc.

Additional Questions Asked:

Why 1 over the 8? Because you can't put 15 where the answer? Why? So I can get like what does that "1" stand for?

11. Sample Task: "Can you explain how this method for subtracting works? What are the steps? What is the answer?"

of one on top is bigger, you have to go to next place.

Teacher Observation Notes:

Had great difficulty w/ regrouping w/ subtraction

Additional Questions Asked:

Took him a while to think through it + solve. But he did so with... didn't and was even when I...

Section III: Multiplication & Division

12. Sample Task: Write the following problems on a white board or piece of paper:  $3 \times 2$ ,  $4 \times 4$ ,  $5 \times 6$ ,  $7 \times 8$ , and  $10 \times 4$ . "Solve the following multiplication problems. If you don't know them, leave them blank. You can use materials or drawings to help you if needed."

Teacher Observation Notes:  
 $3 \times 2 = 6$      $4 \times 4 = 16$   
 $5 \times 6 = 30$      $7 \times 8 = 56$   
 $10 \times 4 = 40$

Additional Questions Asked:  
 (Circled)  $7 \times 8 = 56$

13. Sample Task: "What is the product of  $6 \times 7$ ? How did you get your answer?"

Teacher Observation Notes:  
 $\begin{array}{r} 7 \\ \times 6 \\ \hline 42 \end{array}$     "Getting  $6 \times 5$  + that was 30, + then  $6 \times 6 = 36$ , then I did  $6 \times 6 + 36$  + added 7 to it."

Additional Questions Asked:  
 "How did you get your answer?" (Once he started explaining, he said he was wrong)

14. Sample Task: Provide the student with counters or small manipulatives. "Use these counters to build an array for  $8 \times 4$ . What is the product?"

Teacher Observation Notes:  
 $8 \times 4$   
 He got all the counters + built correctly (did 3 rows of 4)

Additional Questions Asked:  
 $32$

15. Sample Task: "Can you solve  $50 \times 4$ ? How do you know?"

Teacher Observation Notes:  
 $\begin{array}{r} 200 \\ \times 50 \\ \hline 200 \end{array}$     "4 x 0 = 0. Go over to the 5 + 5 x 0 = 20. Then for the 0, add the 0, 200."

Additional Questions Asked:  
 $200$

16. Sample Task: "How can you use  $7 \times 5 = 35$  to solve 35 divided by 7?"

Teacher Observation Notes:  
 Because  $7 \times 5$  is 35 + you doing  $35 \div 7 = 5$

Additional Questions Asked:  
 so that makes it 50 which  $5 \times 7 = 35$ .

17. Sample Task: "Solve 24 divided by 6."

Teacher Observation Notes:  
 $24 \div 6 = 4$

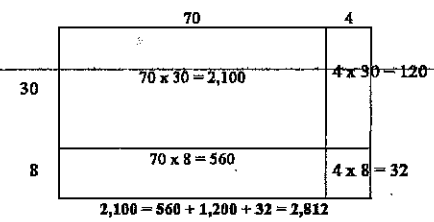
Additional Questions Asked:  
 How did you know? I did  $5 \times 4 = 20$  +  $4 \times 4$ , adding 4 to that 20 is 24.

18. Sample Task: "There are 25 dozen cookies in the bakery. How many cookies are in the bakery?" (Provide the information that a dozen is equal to 12, if needed.)

Teacher Observation Notes:  
 $\begin{array}{r} 25 \\ \times 12 \\ \hline 40 \end{array}$     (Knew  $25 \times 40$ , but multiplied wrong. He multiplied out digits but added the tens instead.)

Additional Questions Asked:  
 (None)

19. Sample Task: "One of my students solved  $74 \times 38$  using this drawing. Can you explain this area model to me and how it helped her get the right answer of 2,812?"



Teacher Observation Notes:  
 Not sure.

Additional Questions Asked:  
 (None)

20. Sample Task: "A 4<sup>th</sup> grade teacher bought 4 new pencil boxes. She has 260 pencils. She wants to put the pencils in the boxes so that each box has the same number of pencils. How many pencils will there be in each box?"

260  
+ 4  
= 30

Teacher Observation Notes:

$260 \div 4 = 256$

"All girls work"

Handwritten calculations and notes:  $260 \div 4 = 216$ ,  $260 - 4 = 256$ ,  $260 \div 4 = 216$ . Includes a long division problem:  $\begin{array}{r} 260 \\ 4 \overline{) 260} \\ \underline{8} \phantom{0} \\ 20 \phantom{0} \\ \underline{20} \phantom{0} \\ 0 \phantom{0} \end{array}$ . Notes: "he changed +16.0", "50 he changed +16.0".

Additional Questions Asked:

So there's 256 in each box? "Hang on, let me think."

Section IV: Fractions & Decimals

21. Sample Task: "Mary and Lacey decide to share a pizza. Mary ate  $\frac{3}{6}$  and Lacey ate  $\frac{2}{6}$  of the pizza. How much of the pizza did the girls eat together?"

Teacher Observation Notes:

Additional Questions:

Handwritten notes:  $\frac{3}{6} + \frac{2}{6} = \frac{5}{6}$ . "He said he added 9 + 8 got 17 + wrote like  $\frac{1}{4}$ ". "Dhar says over 260 it's not subtraction it has to be division". "50 he changed +16.0". "I got that from 2 + 6 in  $\frac{2}{6}$ ".

22. Sample Task: "Which is larger,  $\frac{1}{4}$  or  $\frac{1}{8}$ ?"

Teacher Observation Notes:

$\frac{1}{2}$  "It's  $\frac{1}{2}$  of a pie +  $\frac{1}{2}$  would be more of a slice."

Additional Questions:

Why? So you can visualize that it sounds like.

23. Sample Task: "True or False,  $\frac{2}{3} = \frac{4}{6}$  Explain your thinking."

Teacher Observation Notes:

False. Because  $\frac{1}{6}$  is bigger than  $\frac{2}{3}$ .

Additional Questions:

It's more pieces.

24. Sample Task: "Can you write  $\frac{3}{10}$  as a decimal? Draw a model to prove your thinking."

Teacher Observation Notes:

0.3

Don't know about model thing.

Additional Questions:

25. Sample Task: "Write  $\frac{45}{100}$  as a decimal."

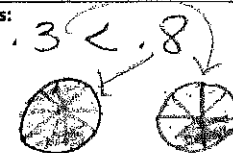
Teacher Observation Notes:

1004.5

Additional Questions:

26. Sample Task: "Draw a model to show why  $0.3 < 0.8$ ."

Teacher Observation Notes:



Additional Questions:

Next Steps: Cross-check this document with the Math RTI Guidance for grades 3-5, highlighting specific areas for intervention. Then you can access the Math RTI Online Notebook for specific interventions and progress monitoring at [www.hallco.org/portal/elem](http://www.hallco.org/portal/elem).