

K-2 Developmental Math Assessment

Directions for Administration: This assessment is meant to be administered by the teacher with an individual student. Gather the needed materials then move through the sample tasks in order. This tool is meant to be used for assessment, not to teach during the assessment. Tasks increase in difficulty and complexity, therefore the teacher should use discretion to continue with the assessment, or with any particular section, to avoid student frustration. The teacher should take notes on what the student does with each given task. The more detailed the notes, the better the RTI team can diagnose the student's needs and intervention. It is also helpful to highlight particular tasks that were difficult for the student or when the student hesitates or gives an incorrect answer. After administration, cross-check these tasks with the Math RTI Guidance Tool for specific areas for intervention and instruction.

Who should be administered this assessment? The tasks in this assessment are drawn from the CCGPS for grades K-2nd. Therefore this assessment could be used with struggling 1st-3rd graders and for students in grades 4th-5th who become frustrated with tasks on the 3rd-4th grade DMA.

Materials Needed: paper, pencil, small dry erase board, dry erase marker, counters or small manipulatives, numeral cards from 0-20, base-ten blocks, number disks, 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: Rote Counting (These objectives do not require recognition of numerals. They are focused on the rote number sequence.) It may be helpful here to simply check the tasks that the student can do and place an "X" by the ones they cannot, then make note of what the student does if different from the task.

- ✓ 1. Sample Task: "Start counting at 1. I'll tell you when to stop." (Stop at 50) 49, 30 but then changed to 50
- X 2. Sample Task: "Start counting at 34. I'll tell you when to stop." (Stop at 70), 39, 50 - 70 seventeen | seventeen 2 . . .
- ✓ 3. Sample Task: "Count by 10's. I'll tell you when to stop." (Stop at 100)
- X 4. Sample Task: "Start counting at 90. I'll tell you when to stop." (Stop at 112) 91, 92 - 109 when I gave him 110 - he kept going
- X 5. Sample Task: "Start counting backwards from 89. I'll tell you when to stop." (Stop at 78) 88 - 81 -
- X 6. Sample Task: "Start counting at 198. I'll tell you when to stop." (Stop at 213) 198, 199
- X 7. Sample Task: "Count by 2's. I'll tell you when to stop." (Stop at 30) 2, 1, 3, 4, 5
- X 8. Sample Task: "Count by 5's. I'll tell you when to stop." (Stop at 110) 5, 10, 20, 30, 40, 50 . . . 100
- X 9. Sample Task: "Start at 90 and count by 5's. I'll tell you when to stop." (Stop at 125) 90, 91, 92 . . .
- X 10. Sample Task: "Start at 39 and count by 10's. I'll tell you when to stop." (Stop at 119) 39, 40 "there I did it"

Teacher Observation Notes:

he would mess up but go back and correct - "No wait . . ."

Additional Questions Asked:

Section II: Counting Objects and Writing Numbers

- ✓ 11. *Sample Task: Arrange a set of objects first in a line. Have the student count these. Observe their counting strategy and how they keep track of the objects. Arrange another set of objects in an array with rows and columns. Observe the count. Finally, arrange a set of objects in a circle or scattered formation. Observe the count. (Note: The goal here is to observe if the student has one-to-one correspondence skills or not)*

Teacher Observation Notes:

- touch and count to 8
- point and count
- point and count (went around circle and then in the middle)

Additional Questions Asked:

- ✓ 12. *Sample Task: Provide the student with a set of objects no greater than 20 (cubes, counters, etc.). "Count the objects and write how many on a piece of paper." (Note: If the student cannot write the number, but counts correctly, provide a set of numeral cards and see if they can select the number that matches their count.)*

Teacher Observation Notes:

counted twice to check his work!

Additional Questions Asked:

16

18

- ✓ 13. Sample Task: Give the student a numeral card no greater than 20 or write a number within 20 for the student. Have the student count out that number of objects to represent the given number.

Teacher Observation Notes:

answered 18 quickly - then started counting them out - arranged them in a circle so he could count

Additional Questions Asked:

easily - he had 16 - went back and got 2 more -

Section III: Place Value

14. Sample Task: "Write... (18, 25, 113, 307, 567)"

Teacher Observation Notes:

he wrote (18, 25, 1001, 3007, 50067)

Additional Questions Asked:

How do you know your answer is correct?

"because it has 6 and 7"

15. Sample Task: "Read these numbers... (14, 31, 89, and 209)" (Write these on a white board or piece of paper for the student).

Teacher Observation Notes:

↓
he said, (14, [✓]thirteen one, eighteen 9,
twenty-nine)

Additional Questions Asked:

16. Sample Task: Provide paper, pencil, and 23 counters for this task. "How many counters are here?" Point to the group of 23 counters. Observe the count and proceed regardless of errors or miscounts. "Can you write that for me?" Observe numeral formation and proceed regardless of errors. Point to the 3 or the digit in the ones place and say, "Can you show me with the counters what this part means?" Point to the 2 or the digit in the tens place. "Use the counters to show me what this part means." (If the student is successful with 23, then move onto this next question: "What would you need to be able to show me this?" Point to the number 123 written down.)

Teacher Observation Notes:

I need to spread them out far away to
be able to count them -
Counted to 100 first
Counted to 90 - maybe I should stand them up -
he stood some up - some not - (counted standing
ones first)
finally got 21

Additional Questions Asked:

2 more — 21 — one counter = it makes 3

17. Sample Task: Have 12 manipulatives set out for the student, NOT arranged by tens and ones. DO NOT USE NUMBER DISKS. "Here are 12 teddy bears (fill in with whatever material you use, i.e. blocks, counters, etc.) For this number 12, do you have enough to make a ten? Would you have any leftover? If so, how many would be left over?" (If the student is successful with 12, then repeat the same task with the number 40 and record the results below.)

Teacher Observation Notes:

"no -- well, yes, yes, yes"
he counted out 10 - put them in a row, and told me he had 2 left over.

Additional Questions Asked:

40 - yes, I will find out -
he started putting them in lines of 10
then just counting and pushing altogether -

18. Sample Task: "What number would you write to show 14 tens and 2 ones?" "Can you show me that number with base-ten blocks?"
Can you show me the number with number disks?"

Teacher Observation Notes:

"Oh my favorite - when he saw base-ten blocks"
pulled out 3 ten rods and said - "there"

Additional Questions Asked:

Section IV: Comparing Numbers

19. *Sample Task:* Provide the student with two groups of objects (with neither group exceeding 10 objects). "Can you tell me about these groups? Which group is greater? Which group has less? Are they equal?" (This sentence frame may help: "Group A is _____ (greater than, less than, equal to) Group B.") Students may use matching strategies, counting strategies, or equal share to determine whether one group is greater than, less than, or equal to the number of objects in another group.

Teacher Observation Notes: this one has 5 bears - this one is more
this one has 3 bears this one is less

"I counted to find out"

Additional Questions Asked:
how did you know?

20. *Sample Task:* Compare 42 and 67 using the symbols $>$, $<$, or $=$.

$>$ $<$ $=$

Teacher Observation Notes:

42 $<$ 67

Additional Questions Asked:
why is that true? "my brain told me"
"greedy gator will eat the big #"

21. Sample Task: Can you explain why this is true?

$425 > 415$

Teacher Observation Notes:

$425 > 415$

Additional Questions Asked:

How can you prove that?

"because you drew
the alligator
that way"

22. Sample Task: Write $>$, $<$, or $=$ to make the sentence true:

12 tens and 4 ones _____ 124

$>$ $<$ $=$

Teacher Observation Notes:

12 tens and 4 ones _____ $\text{Ⓢ}124$

Additional Questions Asked:

he counted 12 and 4

16 $<$ 124

he even asked to use my fingers
because he needed more than 10

Addition/Subtraction

23. Sample Task: "Bobby Bear is missing 5 buttons on his jacket. How many ways can you use blue and red buttons to finish his jacket? Draw a picture of all your ideas."

Teacher Observation Notes:

Not sure he really understood - so I drew him some shirts and then he drew buttons -

"I just count together"

Additional Questions Asked:

24. Sample Task: "There was one bird on the tree. Some more came. There are now 4 birds on the tree. How many birds came? You can use these objects (counters, cubes, etc.) or draw a picture on this piece of paper."

Teacher Observation Notes:

he put 1 bird and 4 more -
now there are 5 -

Additional Questions Asked:

Have you ever solved a problem like this before? yes

25. Sample Task: "Three ducks were at the park. One duck was in the pond and the rest were on the grass. How many ducks were on the grass? You can use these objects (counters, cubes, etc.) or draw a picture on this piece of paper."

Teacher Observation Notes:

"it makes 4"
talked w/ him about it - but he still said
3 on the grass

Additional Questions Asked:

26. Sample Task: "A full case of juice boxes has 10 boxes. There are only 6 boxes in this case. How many juice boxes are missing?"

Teacher Observation Notes:

put 10 and 6 more "I need your fingers"
it's 16-

Additional Questions Asked:

Can you prove that your answer is correct?

27. *Sample Task: Jonah is trying to solve this problem: $8 + 7 = \underline{\hspace{1cm}}$. He says he can use $8 + 8$ to solve it quickly. Can you explain what strategy he might use?*

Teacher Observation Notes:

Additional Questions Asked:

28. *Sample Task: The teacher may orally call these out to students or write them down for the student to solve. This is a SAMPLE of the math facts for fluency that Kindergarten-2nd grade students should have entering into 3rd grade. However, if fact fluency is a suspected issue, the teacher should give a math probe specific to the grade level mastery deemed by CCGPS (i.e. fluency within 5 for Kindergarten); to better diagnose that specific skill.*

"Can you solve these?" $1 + 3 =$, $5 - 1 =$, $4 - 2 =$, $2 + 2 =$, $5 - 4 =$, $5 + 8 =$, $7 + 9 =$, $20 - 10 =$, $14 - 6 =$, $6 + 7 =$, $18 - 9 =$

"Can you explain how you solved _____?" (Choose a fact for the student to explain-it might be one they get wrong or right).

Teacher Observation Notes:

Additional Questions Asked:

29. Sample Task: $15 + 44 =$ _____ tens _____ ones

Teacher Observation Notes:

Additional Questions Asked:

30. Sample Task: "Can you find the difference? $100 - 10 =$ _____"

Teacher Observation Notes:

Additional Questions Asked:

31. *Sample Task: There are 37 students on the playground. A class of 23 more students come, how many children are on the playground now?*

Teacher Observation Notes:

Additional Questions Asked:

32. *Sample Task: Subtract 346 from 500. (If needed, write $500-346 =$ horizontally on paper or a white board)*

Teacher Observation Notes:

Additional Questions Asked: