

Assessing & Developing Math Concepts



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Kathy Richardson is the author and developer of the Assessing Math Concepts (AMC) series of assessments and the Developing Number Concepts (DNC) series for Kindergarten through Second Grade Mathematics. Kathy, Program Director for Math Perspectives, is one of the most respected early childhood mathematics educators. Kathy answers questions from teachers across the country who are using AMC and DNC.

If you have questions for Kathy, please send them to Math Perspectives at info@mathperspectives.com.

AMC INSTRUCTIONAL LEVELS

Q I was looking for a key that would refresh my memory on what the "A" and the "P" and the "N" stand for on the individual student reports. Is this information available somewhere that I could print out? Thanks so much.

A If you go online to assessingmathconcepts.com, you will see a list of selections in the left margin of the home page. One of the items is Assessing Math Concepts Instructional Levels. You will get an overview of what the letters stand for and then a detailed description of what they mean for each assessment. Let me know if you have any further questions.
~ Kathy

HIDING ASSESSMENT

Q What is the rationale for doing both pages of the Hiding Assessment? Some 1st grade teachers want to only do the back page and then do the front page for those students that had trouble with the back page. Thank you.

A We want children to know the parts of numbers and to be able to use this information to take numbers apart and put them together in a variety of situations. Sometimes children learn "number bonds" or pairs of numbers essentially by rote. For example, when working with parts of 7, they learn if the teacher says 3, they say 4 and so on. But, when asked to think about something like the number of library books left when they have 7 and return 3, they likely won't automatically think in terms of number pairs and use this information to automatically say that 4 are left. Or later,

they may need to complete a ten by adding 3 out of 7 and then not use what they know about number bonds to solve the problem. In other words, Page 1 assess the essential understandings we want children to have (knowing parts of numbers so well that when given one part they know what part is missing) and Page 2 checks to see if they also know the parts of numbers when no models are present. Let me know if you have any other questions. ~ Kathy

HIDING ASSESSMENT WITHOUT COUNTERS

Q I am finishing up with the Hiding Assessment with my first graders. I was trained that when you begin the without counters part, you begin at the highest number they got an A on WITH counters. So if a child got an A for 4,5,6 and a P for 7, I would begin with the number 6 for WITHOUT counters? Do I need to begin at 4?

Also if a child receives an A for all numbers up to 10, do I need to begin at 4 for WITHOUT numbers? My district's math specialist is saying we need to do this and I don't think it makes sense and is a waste of time. It's so laborious to go from 4 to 10 for these children. Thanks in advance.

A I wrote the assessments to help teachers provide appropriate instruction for their students. This mean when you find the largest number the child knows without counting (A), and the smallest number they got a P on, you know the appropriate instructional range. You get additional information about the strength of the knowledge of parts, if you assess the numbers the child has an A on with Part 2 as well. Sometimes, those at the district level use the assessment for different purposes and require some additional information for reporting purposes. That has to be a district decision.

However, for instructional purposes, I do not think it is necessary for teachers to assess every child with every number and I would never want a child to sit through assessments on numbers from 4 to 10 at one sitting. If you have no information about a child, I suggest you start with 5 and depending on what the child does, I would go on to larger numbers or back to smaller numbers. We are looking for the largest number the child knows quickly without counting for both Parts 1 and 2, and the numbers where they need practice. Sometimes a child will have an A on 5, a P on 6, and an I on 5. That information is clear and the assessment should go quickly. However, sometimes, you find a child can get an A on 5, and then will get Ps for several larger numbers. We recommend when you have 2 Ps in a row, you can stop assessing because you know what the child needs to work on. If I reassess a child after instruction, I would start with the lowest number they had a P on or sometimes just to confirm

I might start with the largest number they got an A on. This is because sometimes children get so focused on what they are working on, they forget what they used to know. If I am assessing a child for the first time that I believe know parts for larger numbers, I would start with 6 or 7. If I find out, they weren't as strong as I thought, I can always go down to smaller numbers.

Part 2 (without counters) is harder for most first graders than Part 1 (with counters), so typically I suggest you start with the lowest number they got an A on. But if you have a child who knows from 4 to 10, and hasn't been previously assessed on Part 2, I would probably start with 8 and see what happens.

If you are gathering information for instruction, then it makes sense to be flexible. Some children will be strong with counters but not when there are no counters. I would assess more numbers with that child. Another child may just know all the parts of numbers to 10 with or without counters so I would not need to assess every number.

Let me know if you or the math specialist have any further questions. I will be happy to help if I can. ~ *Kathy*

DEMO/LIVE MODE

Q I was trying to give the Hiding Assessment on my iPad today, and when I click "start assessment" and select the assessment, my teacher names don't pop up. It says student A, student B, etc. When I do this on the computer, everything is fine. The teacher name pops up, I click on it, then we select the student we wish to assess. Do you know anything about this, or has anyone else seen the same thing? Just curious.

Thanks for all you do. I absolutely love using the online platform for these assessments. You've made it as easy as possible, and we all thank you!

A I think you are in demo mode on your iPad. To switch the AMC Anywhere application into "live" mode simply click on the "gear" icon located on the left panel of the assessment tool and then change the Application Mode from "Demo Mode" to "Live Mode." ~ *Kathy*

CHANGING NUMBERS

Q Need clarification on Changing Numbers directions. Here's what is quoted on the AMC website: "Method for Changing: Students who can successfully change the number will do so in a variety of ways. They will

add on (or remove) the correct group. Some students change it by counting on (or counting back). If the student guesses an amount to add and checks and guesses again until they arrive at the number asked for, "Adds some, checks and fixes." Some students will need to count all, and adds on by ones (or removes extras).

You will "Adds group" if a student adds on a group and then checks to make sure they are correct, finds a mistake, and fixes it."

So if a student adds 5 counters when asked to change from 6 to 10, but then checks to make sure and fixes the mistake - you select "Adds correct group"? In the above quoted directions it just says "Adds group" - so I'm assuming that this is a misprint. I would disagree that you should select that one. In the book *Assessing Math Concepts 2012* edition by K. Richardson (blue spiral book), "Adds Correct Group" is described as: "Gets the correct number of objects and adds them to the pile."

Please clarify your descriptors. It doesn't make sense that a child who doesn't really know with confidence (such as a student that has to recount to make sure and fix his mistake) is "awarded" the same level as a student who confidently just adds the correct group the 1st time.

A Thank you for your thoughtful questions. I hope you will continue to ask when questions come up.

I hope I can clarify the thinking behind Changing Numbers. In the description of indicators you quoted, I was trying to distinguish between the child who just guesses and adds an unknown amount to the pile and then counts and adds or takes off counters until reaching the right number from someone who thinks they know how many but realizes they made a mistake." Adds some, checks and fixes" is describing more of a random approach to changing a number.

However, to really answer your question, we need to clarify what information Changing Numbers is intended to reveal. What does it mean to be "Ready to Apply" as far as this concept is concerned? Changing Numbers is not intended to assess children' knowledge of number combinations or particular relationships between numbers. Rather it is intended to uncover whether the student understands that numbers are parts of other numbers. It helps us determine whether a child is at the Count and Land stage of thinking about numbers (that is, thinks of numbers as 1 and another 1 and another 1) or understands that we can change one quantity to another quantity by adding some on or taking some off of a number. It is true that a child who knows they need 4 more to change 6 to 10 knows more than the child who believes 5

is the answer - but when trying it out, realizes he needs 4. But as far the level of thinking the child has reached, they both know how to change the number. The only way to indicate the difference between the students is to either make a note or when selecting responses for the next question, select "Says the number, but cheunderstand that numbers can be changed by adding on a group and all three cks." In terms of arriving at "Ready to Apply", the children who add on the right group, the children who add on what they think is the right group and correct their mistake, and the child who counts on and is aware of the number they added and can say that number all have shown they responses are considered to have shown that the children have reached the Critical Learning Phase being assessed.

I had lots of discussions with colleagues as we tried to grapple with what it meant to be Ready to Apply" and what we were trying find out with this assessment, and the consen-

sus was it was the insight on how numbers work and not an assessment of knowledge of parts of numbers.

We wouldn't have needed the discussions we had if it was an obvious decision, as your question highlights. I would have preferred more options for student responses to have a way of at least showing the differences in response, but I was advised that too many responses made if too difficult for teachers to glance at them and pick the one most appropriate.

As you know, trying to get the information we are seeking about children's understanding of numbers has many gray areas. That is why I think the focus needs to be on the information teachers can get from the assessments rather than on whether they are at an A, a P or an I.

Let me know if you have questions about what I wrote and I will attempt to do what I can to be clearer. ~ Kathy

If you're using Assessing Math Concepts and have a question regarding any of the nine assessments, we'd love to hear from you. Please email us your question to info@mathperspectives.com.



If you are using the paper Student Interview forms and would like to receive information on the Web-based version or professional development, please contact us at info@mathperspectives.com.

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