

Hello,

I am so excited that you are downloading and trying out the new version of the Math Running Record. I have spent several years developing and piloting Math Running Records around the country. Today, people around the world are using them! I want to encourage everyone to read the book! You can get it online in several places. Routledge the publisher even has a 20% discount code!

Book Discount Code: IRK69

<https://www.routledge.com/Math-Running-Records-in-Action-A-Framework-for-Assessing-Basic-Fact-Fluency/Newton/p/book/9781138927643>

john.defalco@taylorandfrancis.com (for larger quantities contact)

It is important to read the book to understand the framework of fluency and the reasoning and research behind Math Running Records. Fluency is a 4-legged stool, including accuracy, flexibility, efficiency and automaticity. Math Running Records helps you to figure out where your students are in terms of learning the basic facts (0-20 for addition and subtraction and 0 - 100 for multiplication and division). It tells you what strategies they know, what strategies they are struggling with and most importantly where to begin instruction. It also tells you what to do once you get the information. Creating activities for purposeful practice in each student's zone of proximal development is extremely important.

I have updated the first version of the Math Running Record based on the input of many different educators. Terri Ruyter, Janice Riggs, Christine Mulgrave King, and Alison Mello have helped me so much during the early pilots and the thinking along the way. Ann Elise Record has done a tremendous amount of work thinking about how to add different parts to the Math Running Record, especially the additions to Part 2, where we now very clearly record whether the student does not have the strategy, is emerging (meaning they are getting it but haven't mastered it) or yes they understand that strategy. I am very thankful and grateful that Ann Elise Record has spent endless hours with me thinking about the additions to Part 2. I have also added a section which is to be filled out at the end where everything is summarized. Again, Ann Elise Record helped to put this together.

I want to especially thank Ann Elise for starting a Math Running Records Facebook page, whose community just keeps growing! She is doing great work with videos and helping to organize games and activities that the community is contributing.

(<https://www.facebook.com/search/top/?q=math%20running%20records>) and also there is a padlet! (https://padlet.com/annelise_record17/vtqkwjgjo4zy)

I do *Professional Development on Math Running Records* at schools around the country and at seminars and conferences. Contact us today about coming to your school! We can do district and school level teacher workshops, grade level trainings, train the trainer and more! Here is information to contact me with any questions, comments or suggestions. I will skype in for 45 minutes to any group that is doing a book study on Math Running Records, for free. This offer applies to any of my books.

Phone Number	Website	Email
347- 688-4927	https://www.mathrunningrecords.com	drnicki7@gmail.com

I am also an avid pinner with several math fluency boards: <https://www.pinterest.com/drnicki7/>

Blogger: <https://guidedmath.wordpress.com/>

Youtuber: Nicki Newton Twitter: @drnickimath

We have a Math Running Records Course Online!:

<https://drnickinewton.thinkific.com/courses/math-running-records-in-action> and over 20 other courses as well! For Credit and non-credit: <https://www.drnickinewton.com/classes/>

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Happy Mathing,
Dr. Nicki

Instructions (PLEASE READ BEFORE ADMINISTERING-This is a quick guide).[It is highly recommended to read the book and watch the videos before you start].

When administering part 1 these are the important things:

- 1. Be sure to tell the students that you might not do all the problems. This lowers the anxiety for students who feel bad if they don't get to finish the test.**
- 2. Remember, you are not trying to give the whole test. The point of the assessment is to find out where students are doing well and where they are stuck. You stop when they start struggling. So for instance, if a student misses a problem but self-corrects and they self-correct by counting on their fingers, code it and stop if you feel like that is where they struggle. When they miss a problem, that should raise a question. Was it a silly error, or did they really not know the problem? If they miss the next problem stop the test. If they don't miss the next problem keep going, and at the end if you feel like it was a silly error, go back and ask that question again. If students get a problem correct, but they are using an inefficient strategy (such as counting all or counting on) stop. This lets you know that this is where students need to work towards fluency.**
- 3. When students get stuck, be sure to ASK them what they do when they get stuck. How do they solve the problem? If they say they solve it with pencil and paper, give it to them. If**

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they say they use counters, give it to them. If they can't do it, just move on. **BE SURE** to ask students if there is any other problems on the page that they can solve. Sometimes, students know random facts.

4. Remember that you are giving a Math Running Record to find the instructional starting point. You are looking to see where students are struggling. Maybe they got the problems correct, but they are *counting all* or *counting back* to figure out facts within 10. You then know, that they need more efficient strategies. You should start with counting back by 1,2, and 3. Or maybe students did really well and then they started finger counting when they got to subtracting half facts. This should alert you to explore more about half facts. You will then go to Part 2 and ask questions up to that point. You will see exactly what students are doing and be able to decide on the instructional strategy to work with from that point.

5. After you find the point of instruction, you want to set up a series of experiences for students to work with that strategy. You should make exact notes of what students say when they get something incorrect so you can analyze the error pattern. You want students to work through concrete, pictorial and abstract activities. This is the key part. The Math Running Record is the assessment that tells you where to start. You must do the work based on the information you get from the assessment. The Record alone is just the indicator of where to do the work.

In summation, Part 1 is a general overview. It allows you to see what students are doing, how they approach the math and what they are doing when they get stuck. Part 2 is the deeper dive. It allows you to ask questions and listen to what students are saying they are doing and what they are actually doing. It allows you to see what strategies students are using. It allows you to listen to what they are saying. It allows you to look for patterns in their mathematical behaviors. What errors are students making? What misunderstandings and misconceptions do students hold? Where are there inconsistencies in student thinking? Part 2 allows you to think about and write about what students are doing. Part 3 gives you a small peak into a student's mathematical disposition. We know from the research that the student's mathematical disposition impacts how they feel about math and how they participate as a mathematician.

A Word about Coding

Coding has been a part of the research on mathematical fluency for a long time. Codes help us to describe what students are doing. Use the codes that are listed. Do not change them. You need consistency across your school and district with the codes. These codes are built based on the historical codes, however adapted to meet the framework for the Math Running Record. Here is a brief explanation of the codes:

Part 1: In part 1 you are looking at the 4 aspects of fluency: flexibility, efficiency, accuracy and automaticity. So, the first codes give you a general overview of how students are approaching number combinations. You are only getting a preliminary look at how students are approaching problems in part 1. You can go back after you finish part 1 and ask any questions about it that you have. For example, you might ask a student: “I noticed that you were thinking in your head to do $8 - 3$. Can you tell me what that sounded like? Say out loud how you did it.” Also, you might have noticed that students counted on their fingers, but you are not sure where they started from. You should definitely ask them, “I noticed that you counted on your fingers, which number did you start with?”

There are the codes:

Codes for Automaticity:

a – Automatic (within 3 seconds)

5s – A bit longer, it is used for students who do not know their facts automatically but only take a few seconds to retrieve facts

pth – Prolonged thinking time is for students who get stuck and/or take a really long time to answer. They might eventually give the correct answer or they might pass or give an incorrect answer. Also record if they say it automatically and it is incorrect.

Codes for Flexibility

These codes allow us to describe what students are doing. Remember that when students are stuck, they can ask for counters, number lines, or paper and pencil to do their work. This is completely acceptable because one of the goals of the Math Running Record is to determine whether or not students can solve the problem by any means.

ca - finger counted all (i.e. for $6 - 3$ student puts out 6 fingers then counts back 5-4-3)

fcB – finger counted back (i.e. for $9 - 2$ sounds like 9 then fingers for 8-7)

fcu – finger counted up (i.e. for $8 - 6$ sounds like 6 then fingers for 7-8)

cbh – counted back in head (i.e. for $9 - 2$ sounds like 8-7 usually with head bobbing)

cuh – counted up in head (i.e. for $8 - 6$ sounds like 7-8 usually with head bobbing)

urf – used related fact (add) (i.e. for $10 - 6$ sounds like 4 because I know $6 + 4 = 10$)

dk - didn't know

wo - wrong operation

sc - self-corrected

asc - attempted to self-correct (students tried to fix their thinking but are still incorrect)

- For both the automaticity and flexibility codes, you might take notes on these while doing part 2, especially if something stands out for you.

Codes for Efficiency

These codes help us to describe what types of strategies students are using.

- 0 – doesn't know
- 1 – counting strategies by ones or skip counting using fingers, drawings or manipulatives
- 2 - mental math/solving in head
- 3 - using known facts and strategies
- 4M - automatic recall from memory
- 4 – automatic recall and students have number sense

*In part 2 it can be helpful to write in any automaticity codes or efficiency codes that might stand out for you.

**The difference between 4M and 4 is that you have some students who can give you the answers to problems but everything is memorized and they have no number sense. You will only be able to figure this out when you get to Part 2 and start asking questions about strategies.

Subtraction Running Record Recording Sheet

Student: _____ Teacher: _____ Date: _____

Part 1: Initial Observations			
Teacher: We are now going to administer Part 1 of the Running Record. I am going to give you a sheet of paper with some problems. I want you to go from the top to the bottom and tell me just the answer. If you get stuck, you can stop and ask for what you need to help you. If you want to pass, you can. We might not do all of the problems. I will be taking notes so I remember what you did. Let's start.			
Part 1	Codes: What do you notice?	Initial Observations of Strategies	Data Code Names
2 - 0 a 5s pth	ca fcb fcu cbh cuh urf wo sc asc dk	0 1 2 3 4M 4	S0-----subtract 0
7 - 1 a 5s pth	ca fcb fcu cbh cuh urf wo sc asc dk	0 1 2 3 4M 4	S1-----subtract 1
9 - 9 a 5s pth	ca fcb fcu cbh cuh urf wo sc asc dk	0 1 2 3 4M 4	SD----subtract # from itself
5 - 4 a 5s pth	ca fcb fcu cbh cuh urf wo sc asc dk	0 1 2 3 4M 4	S5----subtract within and from 5
8 - 3 a 5s pth	ca fcb fcu cbh cuh urf wo sc asc dk	0 1 2 3 4M 4	Sw10—subtract within 10
10 - 2 a 5s pth	ca fcb fcu cbh cuh urf wo sc asc dk	0 1 2 3 4M 4	Sf10---subtract from 10
12 - 11 a 5s pth	ca fcb fcu cbh cuh urf wo sc asc dk	0 1 2 3 4M 4	SD1---subtract difference from 1
17 - 10 a 5s pth	ca fcb fcu cbh cuh urf wo sc asc dk	0 1 2 3 4M 4	S10---subtract 10 from teen
13 - 3 a 5s pth	ca fcb fcu cbh cuh urf wo sc asc dk	0 1 2 3 4M 4	S1T---subtract 1's from teen
14 - 7 a 5s pth	ca fcb fcu cbh cuh urf wo sc asc dk	0 1 2 3 4M 4	SHF---subtract half facts
15 - 9 a 5s pth	ca fcb fcu cbh cuh urf wo sc asc dk	0 1 2 3 4M 4	SB10—subtract bridge 10
20 - 8 a 5s pth	ca fcb fcu cbh cuh urf wo sc asc dk	0 1 2 3 4M 4	S20----subtract from 20
Codes a - automatic 5s - 5 seconds pth - prolonged thinking time	Types of Strategies ca - finger counted all fcb – finger counted back fcu – finger counted up cbh – counted back in head cuh - counted up in head urf – used related facts (add) wo – wrong operation sc – self -corrected asc – attempted to self- correct dk – didn't know	Strategy Levels 0 – doesn't know 1 – counting strategies by ones or skip counting using fingers, drawings or manipulatives 2 - mental math/solving in head 3- using known facts and strategies 4M - automatic recall from memory 4 – automatic recall and students have number sense	

Part 2: Flexibility/Efficiency			
Teacher: We are now going to administer Part 2 of the Running Record. In this part of the Running Record we are going to talk about what strategies you use when you are solving basic subtraction facts. I am going to tell you a problem and then ask you to tell me how you think about it. I am also going to ask you about some different types of facts. Take your time as you answer and tell me what you are thinking as you see and do the math. I am going to take notes so I can remember everything that happened during this Running Record.			
Subtract Zero 2 - 0	Subtract 1 7 - 1	Subtract # from itself 9 - 9	Subtraction w/in & from 5 5 - 4
What happens when you take zero from a number? ___ same # ___ other ___ can't articulate	What strategy do you use when you take 1 away from a number? ___ # before ___ other ___ can't articulate	What strategy do you use when you take a number away from itself? ___ difference is zero ___ other ___ can't articulate	How could you solve 3 - 2? ___ urf ___ other ___ can't articulate
What would be the answer to... 4 - 0 6 - 0 9 - 0	What would be the answer to... 3 - 1 10 - 1 15 - 1	What would be the answer to... 4 - 4 7 - 7 12 - 12	What would be the answer to... 4 - 2 5 - 3 5 - 1
Do they know this strategy? No/Emerging/Yes S0 Level 0 1 2 3 4M 4	Do they know this strategy? No/Emerging/Yes S1 Level 0 1 2 3 4M 4	Do they know this strategy? No/Emerging/Yes SD Level 0 1 2 3 4M 4	Do they know this strategy? No/Emerging/Yes S5 Level 0 1 2 3 4M 4
Subtraction w/in 10 8 - 3	Subtraction from 10 10 - 2	Difference of 1 or 2 12 - 11	Subtract 10 17 - 10
How could you solve 8 - 6 ___ urf ___ other ___ can't articulate	If your friend was stuck on 10 - 4, what would you tell her to do? ___ urf ___ other ___ can't articulate	How could you solve 7 - 6? ___ next to each other on # line ___ other ___ can't articulate	How do solve 18 - 10? ___ decomp 10 & 1's ___ other ___ can't articulate
How would you solve: 9 - 2 7 - 4 6 - 3	What do you do when you are taking a number away from 10? Like.... 10 - 6 10 - 3 10 - 8	If your friend was stuck on 9 - 8, what would you tell him to do? What about 15 - 13? What about 11 - 9?	What do you do when you take 10 from a teen number? Like.... 16 - 10 19 - 10 15-10
Do they know this strategy? No/Emerging/Yes Sw10 Level 0 1 2 3 4M 4	Do they know this strategy? No/Emerging/Yes Sf10 Level 0 1 2 3 4M 4	Do they know this strategy? No/Emerging/Yes SD1 Level 0 1 2 3 4M 4	Do they know this strategy? No/Emerging/Yes S10 Level 0 1 2 3 4M 4

Subtract 1's from teens 13 - 3	Half facts 14 - 7	Subtraction Bridge 10 15 - 9	Subtracting # from 20 20 - 8
<p>How do you solve 12 - 2?</p> <p>___ decomp ten & 1's ___ other ___ can't articulate</p> <p>What do you do when you take away the ones from a teen number like....?</p> <p>14 - 4 17 - 7 16 - 6</p> <p>Do they know this strategy?</p> <p>No/Emerging/Yes S1T Level 0 1 2 3 4M 4</p>	<p>How do you solve 12 - 6?</p> <p>___ urf ___ other ___ can't articulate</p> <p>If your friend had trouble solving 16 - 8, what would you tell him to do?</p> <p>What if they were stuck solving 18 - 9, what would you tell them to do?</p> <p>What about 20 - 10?</p> <p>Do they know this strategy?</p> <p>No/Emerging/Yes SHF Level 0 1 2 3 4M 4</p>	<p>What strategy could you use to solve 11 - 8?</p> <p>___ Bridge 10 ___ other ___ can't articulate</p> <p>If your friend had trouble solving 17 - 8, what would you tell him to do?</p> <p>13 - 7 14 - 8 12 - 5</p> <p>Do they know this strategy?</p> <p>No/Emerging/Yes SB10 Level 0 1 2 3 4M 4</p>	<p>What strategy could you use to solve 20 - 12?</p> <p>___ urf ___ other ___ can't articulate</p> <p>How would you solve:</p> <p>20 - 2 20 - 9 20 - 14</p> <p>Do they know this strategy?</p> <p>No/Emerging/Yes SB20 Level 0 1 2 3 4M 4</p>
<p>Subtraction flexibility</p> <p>Can you name 2 ways to think about subtracting</p> <p>15 - 8?</p> <p>**general flexibility question</p>	<p>Codes:</p> <p>0 - doesn't know</p> <p>1 - counting strategies on fingers or manipulatives</p> <p>2 mental math/solve in head</p> <p>3 -derived facts</p> <p>4M - automatic recall memorized</p> <p>4- automatic recall and students have number sense</p>		

Part 3 – Mathematical Disposition

Do you like math?

What do you find easy?

What do you find tricky?

What do you do when you get stuck?

Question Prompts:

That’s interesting/fascinating: tell me what you did.
That’s interesting/fascinating: tell me how you solved it.
That’s interesting/fascinating: tell me what you were thinking.
How did you solve this problem?
Can you tell me more about how you solve these types of problems?
What do you mean when you say _____? (i.e. ten friends/neighbor numbers etc.)

General Observations (to be filled out after the interview)

Instructional Response:

Fluency Focus areas (circle all that apply): flexibility efficiency accuracy automaticity

What subtraction strategy should the instruction focus on?

S0 S1 SD S5 Sw10 Sf10 SD1 S10 S1T SHF SB10 S20

For their current instructional level, what is the predominant way in which students are arriving at the answers? 0 1 2 3 4M 4

Overall, what is the way in which students calculated the answers?: 0 1 2 3 4M 4

Comments/Notes about gestures, behaviors, remarks:

*In most states k fluency is within 5 and 1st grade fluency is within 10 and 2nd grade within 20. However, some states k is within 10 and 1st and 2nd is within 20.

Student Page

$2 - 0$	$12 - 11$
$7 - 1$	$17 - 10$
$9 - 9$	$13 - 3$
$5 - 4$	$14 - 7$
$8 - 3$	$15 - 9$
$10 - 2$	$20 - 8$

These are cards for Part 2. You can either ask the questions just verbally or show the students the expressions on the cards.

$4 - 0$	$6 - 0$	$9 - 0$
$3 - 1$	$10 - 1$	$15 - 1$
$4 - 4$	$7 - 7$	$12 - 12$
$3 - 2$	$4 - 2$	$5 - 3$
$5 - 1$	$8 - 6$	$9 - 2$
$7 - 4$	$6 - 3$	$10 - 4$

$10 - 6$	$10 - 3$	$10 - 8$
$7 - 6$	$9 - 8$	$15 - 13$
$11 - 9$	$18 - 10$	$16 - 10$
$19 - 10$	$15 - 10$	$12 - 2$
$14 - 4$	$17 - 7$	$16 - 6$
$12 - 6$	$16 - 8$	$18 - 9$

$20 - 10$	$11 - 8$	$17 - 8$
$13 - 7$	$14 - 8$	$12 - 5$
$20 - 12$	$20 - 2$	$20 - 9$
$20 - 14$	$15 - 8$	