



Welcome fellow Recovering Traditionalists to Episode 62. Today I am talking about The 80/20 Rule Applied to Teaching Math.

Welcome to Build Math Minds the podcast, where fidelity to your students is greater than fidelity to your textbook. I'm your host, Christina Tondevold, the recovering traditionalist and BuildMathMinds.com Founder, where my mission is to change the way we teach elementary math to our kiddos. Are you ready to start building math minds and not just creating calculators? Let's get started.

This week over on my vlog TheRecoveringTraditionalist.com, I talked about [Teaching After The Coronavirus Shutdown](#). Specifically, how to plan for what to teach next year knowing that your students may not have gotten a quarter of the instruction they would have gotten in the grade before yours.

I shared about the document created by Achieve The Core that details out the Major Work of each grade level. The [Focus by Grade Level document](#) (or what was originally called the Content Emphases) shows the standard clusters that basically carry more weight in each grade.

In the Math Shifts at a Glance document it states:

“The Common Core and other college- and career-ready (CCR) standards call for a greater focus in mathematics. Rather than racing to cover topics in a mile-wide, inch-deep curriculum, CCR standards require us to significantly narrow and deepen the way time and energy are spent in the math classroom. We focus deeply on the Major Work of each grade so that students can gain strong foundations: solid conceptual understanding, a high degree of procedural skill and fluency, and the ability to apply the math they know to solve problems inside and outside the math classroom.”*

The idea is that we shouldn't be trying to cover all the content but instead spending the majority of our time focusing on the Major concepts and helping kids build their conceptual understanding and procedural fluency of those.

This is not a new idea but it is one that is even more valuable as you start to think about planning out the content you are going to teach next year.

At the bottom of each page of the Focus by Grade Level document, in very tiny print, it states:

“At least 65% and up to approximately 85% of class time, with Grades K–2 nearer the upper end of that range, should be devoted to the major work of the grade.”

That statement reminded me of the 80/20 rule, also known as the Pareto Principle. It's the idea that 80% of the effects come from 20% of the causes.

This has been shown in lots of situations, but here are just a few.

In the 1800s Vilfredo noticed that 80% of his peas came from 20% of the pea pods. Microsoft has seen the principle hold true today, as they say that 80% of the tech issues can be solved by fixing 20% of the bugs.

I believe that the same holds true for our learning of mathematics. We spend a lot of time trying to cover ALL the concepts when really 20% of them are what impact 80% of our math understanding.

So go download the Focus by Grade Level document to see what the Major Work in your grade level is. The Major work is NOT just 20%, but I bet you can pick out the 20% that impacts 80% of your students' understanding. That 20% is where you need to spend the majority of your time this next year.

Let's take a look at just one example. I've pulled up the 3rd grade Focus and I'll put a picture of it for you on the show notes at buildmathminds.com/62. There is a box on the page that shows the Highlights of Major Work in Grades K-8. In 3rd-5th the highlight says "multiplication and division of whole numbers and fractions-concepts, skills, and problem solving."

Students should spend the large majority² of their time on the major work of the grade (■). Supporting work (□) and, where appropriate, additional work (○) can engage students in the major work of the grade.^{2,3}

MAJOR, SUPPORTING, AND ADDITIONAL CLUSTERS FOR GRADE 3

Emphases are given at the cluster level. Refer to the Common Core State Standards for Mathematics for the specific standards that fall within each cluster.

Key: ■ Major Clusters □ Supporting Clusters ○ Additional Clusters

- 3.OA.A ■ Represent and solve problems involving multiplication and division.
- 3.OA.B ■ Understand properties of multiplication and the relationship between multiplication and division.
- 3.OA.C ■ Multiply and divide within 100.
- 3.OA.D ■ Solve problems involving the four operations, and identify and explain patterns in arithmetic.
- 3.NBT.A ○ Use place value understanding and properties of operations to perform multi-digit arithmetic.
- 3.NF.A ■ Develop understanding of fractions as numbers.
- 3.MD.A ■ Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.
- 3.MD.B □ Represent and interpret data.
- 3.MD.C ■ Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
- 3.MD.D ○ Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.
- 3.G.A □ Reason with shapes and their attributes.

HIGHLIGHTS OF MAJOR WORK IN GRADES K-8

K-2	Addition and subtraction – concepts, skills, and problem solving; place value
3-5	Multiplication and division of whole numbers and fractions – concepts, skills, and problem solving
6	Ratios and proportional relationships; early expressions and equations
7	Ratios and proportional relationships; arithmetic of rational numbers
8	Linear algebra and linear functions

REQUIRED FLUENCIES FOR GRADE 3

3.OA.C.7	Single-digit products and quotients (Products from memory by end of Grade 3)
3.NBT.A.2	Add/subtract within 1000

So that is the main thing we should be helping students understand during 3rd-5th grade, but each grade has lots of other standards. As you are looking at your standards, I want you to think about whether or not it helps support your students in understanding the major work. It's not to say that the other stuff isn't important but next year especially, you are going to have to make some tough decisions about what you spend your time on during math.

In this example from 3rd grade one of the standard clusters is about getting kids to "Reason with shapes and their attributes." Again, it's wonderful if we can help kids understand that a square is a rectangle but not all rectangles are squares (which is part of that standard) but is that part of the 20% that is helping students develop the major mathematical work that impacts 80% of their math understanding?? No.

Next year, you will have to make some hard decisions about what content you delve into during math time and I want to encourage you to use these Focus by Grade Level documents to help you make those decisions. Also be thinking about the 80/20 rule: is this part of the 20% that is going to impact 80% of their math understanding.

If yes, you've got to make sure you spend a lot of time in that area. It's not to say that you don't spend time in the other areas. But if it's part of that 20% it has to be part of what you focus on next year.

As always I'll link to everything over on the show notes at buildmathminds.com/62

Stay safe and stay mentally healthy.

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