Hanlon's Razor

Bill Hanlon

What works is work!

Sums to 18!
There's a better way!

What we teach students is important to increasing student achievement. Content matters. How we teach those concepts and skills is also important.

To increase student achievement students should not only be taught to study, but also how to study both effectively and efficiently. Most of us have come across people that possess the content knowledge in the areas assigned to teach but don't know how to deliver that information to students in an understandable manner.

When teaching the Rules of Divisibility, the order in which they are taught impacts not only student learning, but the time it takes to learn those rules. Effective teachers, rather than teaching those rules sequentially, will group those rules by strategies. That is, they will teach the rules for 2,5, and 10 together, then move on to rules for 3 and 9. That simple organization will help students study and learn those rules more efficiently.

The same can be said in memorizing 100 basic addition facts. Rather than just teaching the facts sequentially, they might be easier for students to learn and memorize if they were grouped by strategy.

Teaching the kids to add ones and twos by counting on, learning sums to ten, adding doubles, adding consecutive numbers by using the doubles plus one strategy, consecutive even or odd numbers by using doubles plus two, adding nine by decreasing the ones digit in the other addend, etc. That leaves a few facts that students just have to memorize with no strategy.

These strategies can be found on www.rpdp.net, link to Hanlon's Resources, Useful Resources, then click on Strategies. You will also notice that there are practice fact sheets in each operation that follow those strategies.

In addition, for instance, there are worksheets for adding zeros and ones, then worksheets for adding twos followed by review sheets for adding zeros, ones, and twos. Then there are worksheets for adding sums to ten, followed by review sheets of adding zeros, ones, twos, and sums to ten. This pattern of worksheets and review sheets follows through the rest of the strategies. Just download them.

You might also notice there is a booklet on long division on the same web page in the same folder. Using the Success on Success model, the examples and problems start off with two-digit trial divisors that work with no carrying. Followed by two-digit trial divisors that work with carrying. Followed by three-digit trial divisors that work with carrying, and finally to trial divisors that do not work with and without carrying. There is a lot going on when teaching long division. Memorizing the algorithm, dividing, determining where to place the digit in the quotient, multiplying diagonally, and where to write the products in the body of the division computation. Teaching long division as suggested creates success and builds confidence.

While you are on that webpage, please note there is a folder of word problems by grade, ten problems per week for the school year – grades three through eight.

For additional resources on concepts in basic math, algebra or geometry. Many of the proofs required of high school students are available online on that same page.

For non-traditional problem solving, go back to the rpdp.net homepage, link to math, then to Problem Solving. There are problems for grades 5 through 12.

On the homepage under Math, you will also find the practice tests and 10 practice questions for each specification for the end of semester exams in pre algebra, algebra, geometry and algebra 2 as well as high school proficiency exam preparation material.