

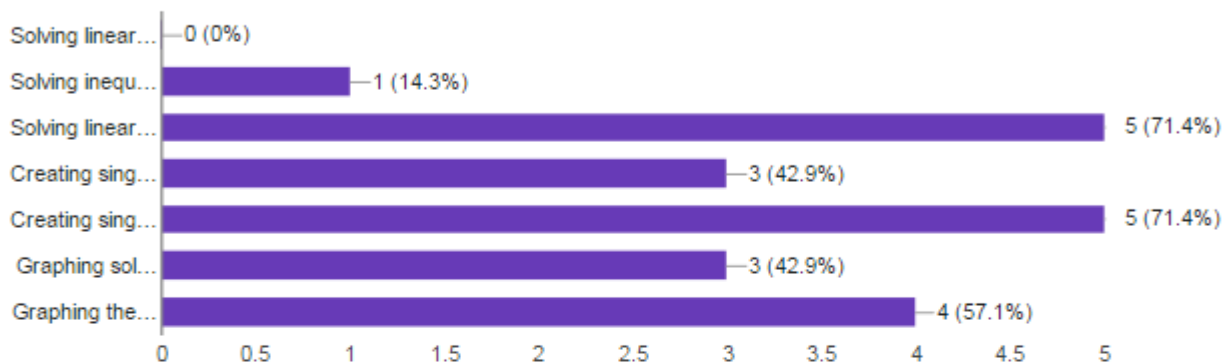
Are We Teaching the Right Math in the Right Way?

Algebra 1 Email PD Session 1a – Teacher Responses

Unpacking the Standards

Out of the list of math topics below, which three do you typically find to be the most challenging for your students?

(7 responses)



Explain why you believe students struggle with the first of the three boxes you checked.

(7 responses)

Students freeze up when asked to do algebra independently of arithmetic.

My students struggle with abstract thinking. Linear equations with coefficients represented by letters overwhelm them.

They are uncomfortable when the equations look different than normal.

My students hate word problems, so they just stress whenever they see a problem where they have to make an equation.

Sometimes the students get confused as to when to flip the inequality.
Sometimes they get confused w/the union and intersection w/compound inequalities.

Letters scare them.

They immediately get frustrated whenever they see two or more variables in a problem. They cannot translate that in real-world situations.

Explain why you believe students struggle with the second of the three boxes you checked.

(7 responses)

Independent thought is a struggle. Students want math to be algorithmic.

My students often rush through their work. They tend to get easily frustrated, so they give up when the problem is too long.

I believe a lot of the struggle is with math "language." They don't know what "at most" looks like in a symbol. They need more practice with the word problems than just repeated problem solving.

My students hate word problems, so they just stress whenever they see a problem where they have to make an equation.

Shading the solutions confuses them.

Students are never sure which inequality sign to use.

They are not very confident in setting up equations themselves.

Explain why you believe students struggle with the third of the three boxes you checked.

(7 responses)

Independent thought is a struggle. Students want math to be algorithmic.

My students understand the graphing procedures for linear inequalities, but sometimes make careless errors.

I think students struggle with inequalities because they don't understand which is less than vs greater than because they think in terms of which side is the alligator eating.

For the graphing, my students struggled with which side to shade.

Shading the solution sets confuses them.

Inequalities in general confuse them. When you add a second variable they are really confused.

Graphing is already difficult for them, plus if you deal with system of inequalities, that is making it more complicated for them.

In reference to one or more of the three topics you checked, describe an ineffective teaching strategy often used in classrooms.

(7 responses)

Repeated on-the-board demonstrations of writing your own equations or inequalities. Students need to do this themselves, not just watch someone else do it.

Simply working example problems using the same steps as linear equations with one variable does not help students solve linear equations with variable coefficients.

Again with inequalities, we don't teach them less than or greater as younger students. We teacher the sign is eating the bigger number. I feel like we dumb things down and it ends up hurting them in the future.

Usually showing just a cheat sheet of each example can be ineffective for future teaching, but with the graphing I had to make a cheat sheet for the students to memorize since they were not getting it.

Sorry, but I cannot think of an ineffective teaching strategy. I do know that this skill cannot be rushed. It will take at least a couple of days for them to fully grasp what is happening.

Teaching Tricks

Just teaching them without connecting it to a previous math lesson or not connecting it to a real-world situation.

Now, describe an effective teaching strategy to address the same topic(s) as the previous question.

(7 responses)

Requiring students to work together in groups to write their own equations to model different situations.

I have found that split page notes with examples of equations with only one variable on one side and literal equations on the other helps my students understand the similarities between the two types of problems.

I believe we should teach students to read an inequality statement from left to right just like they teach students to read left to right.

With inequalities, just saying great than is shade above and less than is shade below is usually my easiest way to teach the students. I also used plugging in a point to the equation to show where to shade.

Students should be instructed to use a table to identify the correct solution. I usually encourage them to use the origin or a ordered pair that has a one in it to find the correct area to shade. It is also helpful if students use colored pencils to help them to identify to solution set to a system of inequalities.

Teach them why.

One thing I did that really worked is by comparing and contrasting linear and literal equations.I made them solve a linear equation and then replace those numbers with letters.It worked and made them understand that they both follow the same process.

Louisiana Standard A.CED.1: Create equations and inequalities in one variable and use them to solve problems. Include equations arising from linear, quadratic, and exponential functions.

Give one example of a math problem that would measure a student's conceptual understanding of A.CED.1.

(7 responses)

Asking a student what kind of equation would be appropriate to model a given situation.

What value of x satisfies the equation $x/2+3/4=7/4$?

The sum of two numbers is 47. If you know the smaller number is 19, write an equation to find the larger number.

The pressure of a scuba tank should be within 500 pounds per square inch (psi) of 2500 psi. Write the range of optimum pressures.

To remain on the cheer leading squad, Lakita must attend at least $3/5$ of the study table sessions offered. She attends 15 sessions. if Lakita met the requirements, what is the maximum number of study sessions?

Seven more than five times a number.

Solve for x if $x+10=19$.

Give one example of a math problem that would measure a student's procedural skill and fluency related to A.CED.1.

(7 responses)

Asking a student to write and solve an equation for that situation.

Which value of t is the solution to the equation $18=12-(t+3)$?

The larger of two numbers is 7 less than twice the smaller number. If the sum of the numbers is 47, find both numbers.

Water can be present in our atmosphere as a solid, liquid or gas. Water freezes at 32 F and vaporizes at 212 F. Write the range of the temperatures in which water is not a liquid . Graph the range. Write the absolute value inequality that describes this situation.

$4y + 9 > -3$

$5x - 3 < 12$

What would be your first step when solving the equation $x + 10 = 19$?

Give one example of a math problem that would measure a student's ability to apply standard A.CED.1 in a real-world situation.

(7 responses)

Any modeling question involving shopping, home improvement, or something relateable.

Lani has \$40 to spend on vacation. She wants to buy milkshakes for all her cousins at the fair, but wants to have at least \$15 left for the next day. Milkshakes are \$3 each.

Select the inequality that represents how many milkshakes Lani can buy that meets these conditions. The number of milkshakes is represented by m .

At the beginning of the school year you had 50 pencils. You gave 3 of those away to your best friend and triple that amount to your little brother, how many pencils do you have left? Create an equation to represent your situation and solve for the unknown.

Water can be present in our atmosphere as a solid, liquid or gas. Water freezes at 32 F and vaporizes at 212 F. Write the range of the temperatures in which water is not a liquid . Graph the range. Write the absolute value inequality that describes this situation.

Marilyn earns \$150 per month delivering newspapers plus \$7 an hour babysitting. If she wants to earn at Least \$300 this month, how many hours will she have to babysit?

500 students went on picnic trip. 10 students traveled in each car. Find out how many cars were used for the picnic trip?

Maya is twice as old as her brother.If the sum of their ages is 36, how old is the brother?

Louisiana Standard A.REI.3: Solve linear equations and inequalities in one variable, including equations with coefficients represented by letters.

Give one example of a math problem that would measure a student's procedural skill and fluency related to A.REI.3.

(7 responses)

Provide Physics formulas and ask students to solve for a specific variable.

Which of the following inequalities has 4 in its solution set?

$A=2\pi rh+2\pi r$ solve for h.

Solve: $3.6 < -4.5$

$/2k + 1/ > 7$

$2x - 9 = 19$ Explain using properties.

Which one is equivalent to $d=rt$? Check all that apply.

- a. $d=r/t$
- b. $r= d/t$
- c. $t= d/r$
- d. $r = dt$

Louisiana Standard A.REI.12 Graph the solutions to a linear inequality in two variables as a half-plane (excluding the boundary in the case of a strict inequality), and graph the solution set to a system of linear inequalities in two variables as the intersection of the corresponding half-planes.

What is the meaning of the term, "strict inequality"? (6 responses)

An inequality that does not include "or equal to."

an inequality that is less than or greater than; it cannot be equal to

When it can be greater than or less than.

An inequality w/ o equality conditions such as $<$ or $>$.

Use less than or greater than not less than or equal to or greater than or equal to.

It does not include the equal sign.It only uses greater than or less than symbol.

Give one example of a math problem that would measure a student's procedural skill and fluency related to A.REI.12.

(7 responses)

Graph the solution to the system: " $y < 4x$, $y > 3x - 2$ "

Which point is in the solution set for $y < x + 5$?

Would the origin be included in the solution area of the following system of inequalities. Show your work and all parts of the graph.

$$2x + y > 6$$

$$x + y < -2$$

Graph $3x - y < 2$

$$x + 5y < 10$$

Graph this inequality:

$$y \geq x + 8$$

Which point below will not be found when you graph the inequality $3x + y > 12$?

Additional Feedback

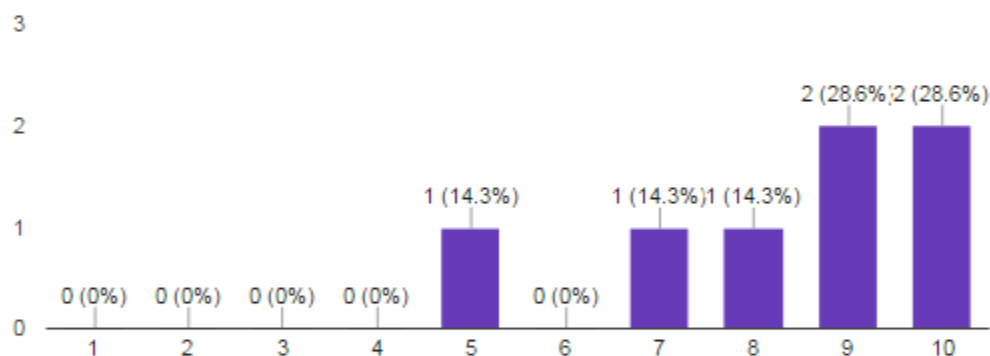
Please provide any other comments you have related to the standards addressed in this Google Form.

(2 responses)

Love this.

n/a

On the scale below, rate this professional development process? (7 responses)



Thank you for completing this task! You may use the space below to comment on your scale response in the prior question...

(4 responses)

This is a good way to get us to think about and engage standards in a way that doesn't feel like normal planning.

I like the way that this professional development is presented, but it is difficult to reply with examples that need graphs on this type of form.

It's hard to type some math symbols in Google Forms.

I love this.