

| Name             | City                 | Role                                                                   | Comment                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
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| Shana Ward       | Rapid City           | K-12 Math Educator                                                     | <p>Equations and Inequalities<br/>8.A.1 Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solution.</p> <p>Maybe reword "give examples" ..... to IDENTIFY or make it like 8.A.6 KNOW THAT... :</p> <p>8.A.6 Know that a system of two linear equations can have one solution, infinitely many solutions, or no solution.</p> <p>Will they actually have to "give examples" .... make up there own equations on an assessment? Or will they just identify equations that are of one solution, no solution, infinite solutions.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Karla Dieterle   | Rapid City           | K-12 Math Educator, Parent/Guardian                                    | <p>A2.QF.1 Solve quadratic equations with complex number solutions.</p> <p>I have issues with this standard. Why are we only focusing only complex numbers (imaginary numbers)? Shouldn't we also solve quadratics involve in real life. I know you have it in Algebra 1 but I have been teaching for 19 years and I can tell you the students still need to learn how to solve quadratics with real numbers as it is on ACT test and college entrance exams. If they only see it in Algebra 1 you are setting the students up for failure. Are you guys even thinking about the students?</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| Karla Dieterle   | Rapid City           | K-12 Math Educator, Parent/Guardian                                    | <p>I noticed there is no 4th year math section. What about the schools that offer 4th year classes to prepare students for college? Why again are you setting the students up for failure by not preparing them for college? You need to think about all students not just the ones not going to college. We have always had 4th year math standards, why all of a sudden are you not looking at 4th year math standards. You never addressed that in your changes.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Sharon Vestal    | Brookings            | Higher Education Professional                                          | <p>I noticed that the 8 Standards for Mathematical Practice were completely removed from the proposed math standards. These are a roadmap for high-quality math instruction, so it upsets me that these were removed. In the list of changes, it says that they are woven throughout the standards, but I don't really see that. Would the board consider adding in some practice standards? The recently adopted Computer Science standards have practices listed, and the Science standards list science and engineering practices. It would be beneficial for some best practices to be included in the proposed math standards.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Kevin Smith      | Brookings            | Higher Education Professional                                          | <p>My main concern is not having the Standards for Mathematical Practice listed. I worked with preservice teachers and the MP standards are a critical part of learning to be a good math teacher. They serve as a reminder for the habits that we should be working to instill in our students across all grade levels. I like that you've thought about how to embed them in the content standards, but I think you should also have them listed separately with an explanation about what they are.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Cindy Kroon      | Hartford             | K-12 Math Educator, Grandparent                                        | <p>I am concerned about the impact of the changes on school curriculum. Publishers write for large markets, and concentrate on covering the Common Core standards because that is their largest market. The current SD standards were originally adopted and updated with this in mind.</p> <p>Where will we find curriculum that matches the new standards? The SD market is much too small for any publisher to be interested in writing to our custom standards. If adopted, these standards will require SD teachers to basically write their own textbooks adapted to these non-standard standards. SD teachers do not have time to do such extensive curriculum adaptation and supplementation in addition to their already heavy workloads.</p>                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Jessica Klimisch | Vermillion           | Higher Education Professional, K-8 Math Preservice Teachers Instructor | <p>Standard 2.N.3 includes two separate skills - being able to count by 2s to 50 AND identifying whether the number is odd or even. It may be beneficial to separate these into two separate standards.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                |
| Shana Ward       | Rapid City           | K-12 Math Educator                                                     | <p>8.A.3 Analyze and solve one-variable linear inequalities with rational coefficients.</p> <p>This standard is new to 8th grade. Concern: text books that have been adopted do not have this standard aligned with 8th grade and do not include it. It is a high school standard for Algebra 1. Why add a standard? It is already difficult enough to cover all the standards.</p> <p>8.A.4 Understand a system of linear equations to be a set of two or more equations.<br/>8.A.5 Know that the solution to a system of two linear equations is an ordered pair that makes both the equations true.<br/>8.A.6 Know that a system of two linear equations can have one solution, infinitely many solutions, or no solution.<br/>8.A.7 Solve real-world and mathematical problems involving leading to two linear equations in one and/or two variables.</p> <p>Are 8th graders not required to solve a system of linear equations? But only to look at a system and understand if there is one, none, or infinite solutions from a graph or from equations?</p>                                                                                                          |
| Kelly Coates     | Rapid City/Box Elder | K-12 Math Educator                                                     | <p>Positives: More concise and LOVE that the HS standards are more in line with traditional classes as opposed to the more varied old set (building functions, seeing structure, ect.)</p> <p>Dislike: Trying to integrate the mathematical practices was only partially successful. The previous format of those was very clear, much to students' benefit in my opinion. I think we lose something worthwhile by cutting/changing those mathematical practices.</p> <p>Other notes: I know there was a lot of public backlash over the Common Core standards of two rounds of updates ago. I understand partially drifting from those for the sake of public sentiment, but going to a SD exclusive set of standards also makes it more difficult to find curriculum materials from national publishers in direct line with SD standards. We are still mostly in line with national traditions, but it seems unlikely that many publishers will create materials directly in line with our new standards. That creates more work for cross referencing/supplementing for busy teachers. Not sure what I would propose as a fix for that, but thought it was of note.</p> |
| Nicole Swanson   | Brookings            | K-12 Math Educator, Student                                            | <p>The 7th grade mathematical standards are missing a lot in the algebra section. I am concerned by the lack of standards on solving equations. Where did these go? Students need to have a grasp of how to solve equations if they are going to move onto the algebra standards that are given them in the 8th grade content. Also do 7th graders need to be able to solve equations from word problems or why isn't this included in the standards.</p> <p>Overall, I missed some of the examples and clarifications that the old standards have. The new ones are shorter to read but not as clear due to this.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                     |
| Michael Amolins  | Harrisburg           | K-12 Administrator, K-12 Retired Teacher                               | <p>A quick guide to major instructional shifts would be extremely helpful for teachers as they review the proposed math standards. For example, shifting matrices into Algebra 2 when previously taught in "4th year math" at the high school level, the addition of measurement standards in middle school, etc. With respect to specific commentary at this time – there is no mention of long division in the standards until Algebra 2 (Standard A2.PR.11), where the standard states that a student should use long division to divide polynomials. It seems appropriate that students in upper elementary and middle school would first be required to learn long division at a foundational level prior to application in a complex calculation such as this.</p>                                                                                                                                                                                                                                                                                                                                                                                                   |

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| Shaun Groen      | Sioux Falls | K-12 Math Educator                                                 | <p>7.G.1, 7.G.2, &amp; 7.G.3 Circles have 3 standards now (originally only 1) - SA, V now only have 1 - Should a more detailed concept have more areas of measure?</p> <p>7.A.1 is the exact same as 6.A.10 - usually they change from grade to grade</p> <p>7.A.4 is the exact same as 6.A.11 - usually they change from grade to grade</p> <p>7.A.3 nothing about solving 2 step (or multistep) equations in 7th grade</p> <p>7.G.6 &amp; 7.RP.3 removed the word equation from the standard (in multiple examples)</p> <p>7.SP.1 box plots were only in 6th and Alg 1 and labeling quartiles and outliers is new to 7th grade</p> <p>7.G.3 there are two of these, the numbering is off</p> <p>7.SP.5 there is a type of median when should say median</p> <p>7.SP The new SP seems simpler to understand b/c more broken down.</p> <p>7.A.3 used the word "create" where everything else is write</p> <p>7.NS.A.2 (old standard reference) In the new standards, 7.A.2, does not use the words distributive property or combine like terms now, but they do in 6th and 8th grade.</p> <p>Describe, calculate, identify (academic language) is missing in current and more prevalent in new standards.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       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| Stephanie Higdon | Rapid City  | Concerned citizen/facilitator of K-12 STEM professional learning   | <p>I am concerned about many of the standards that have been proposed and the representation of the state of South Dakota in the development of these standards. In the past review over 40 school districts/community members/and/or professional entities were represented, including four high education institutions, and special education teachers. Additionally educators reviewed one grade level standard, in which they taught, or were considered an expert. In this review process there were 18 school districts/and/or professional entities (there are no community members listed, only one higher education institution and no special education teachers). In this recent review process, it is my understanding that educators reviewed grade level bands (K-2, 3-5, 6-8 and high school) in a very short time frame. The Department of Education website indicates there are 217 schools/districts in South Dakota, to include public, private, Tribal and SD special schools. Limiting the number of voices at the table to review these standards only limits opportunities for ALL students in South Dakota to become learners and doers of mathematics.</p> <p>I have talked to several educators who applied to be on this review board. They were told a small advisory board would give comments to the the standards, and be made aware when the standards would be reviewed. This did not happen. Not only were these educators also not made aware when the standards were reviewed, they were also only made aware the proposed standards were completed through a mass communication from the DOE one week after they were posted.</p> <p>To best serve all students in South Dakota, I recommend, that as changes and edits are made to the proposed standards throughout the hearings, more voices are invited to table. Discussions regarding these changes need to include those teaching in a variety of schools and who teach multiple levels of mathematics throughout South Dakota. Additionally more time needs to be provided to ensure the best changes are made for the students to learn mathematics at a deep level.</p> <p>Another recommendation would be to pause this process, and take the time to reevaluate the Department of Education practice to have small, select advisory boards review multiple grade level standards, in a very small amount of time, that impact all of the teachers and students across our state.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Stephanie Higdon | Rapid City  | Concerned citizen/Facilitator of K-12 STEM professional learning   | <p>I am concerned about the vertical alignment of standards from kindergarten through high school. In the 2017 adopted standards a standard with the numbering system K.G.A.1 or 8.G.A.1 the "G" indicates the same domain, Geometry. This is true kindergarten through high school.</p> <p>In the proposed standards the standard named K.A.1 in kindergarten indicates Arithmetic, whereas in grades 6-12 the "A" in 6.A.1 now indicates Algebra. The same is true for Fractions in grades 2-5 and Functions in grade 8 - high school. Additionally, I wonder why function types have been provided with their own domain, Linear, Exponential and Quadratic. All functions can be interpreted and evaluated similarly. Separating functions into types is disjointed, also taking away previous learning progressions.</p> <p>Vertical alignment of the standards from kindergarten through the high school is important for both teachers and students, so that they can see mathematical progression. Changing these letters causes for confusion and a break in progression.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Melanie Jacobson | Aberdeen    | K-12 Math Educator, Higher Education Professional, Parent/Guardian | <p>Good day! I teach high school and college level mathematics in South Dakota and have three children of my own in elementary school and younger. I write to you today with suggestions regarding the measurement and geometry domains of the proposed math standards for grades K-2:</p> <p>K.M.1 Students should not necessarily have to look at an object to describe its measurable traits (think of houses, buildings, and structures out of sight). Perhaps phrasing this standard as "Describe measurable traits of an object such as length, weight, or size." would be more direct.</p> <p>K.M.4 and K.M.5 These standards use "know" as the verb and seem vague/difficult to assess. It seems that kindergarten students are not expected to tell time (because that standard appears in later grades), but this standard begins with "knowing" about a clock. Perhaps these could be re-written to indicate that students can "Identify a clock as a tool that measures time of day," and "Identify a calendar as a tool that organizes days, weeks, months, and years," or "Identify a calendar as a tool that records days, weeks, months, and years."</p> <p>K.G.3 The phrase "in a variety of orientations" should not be parenthetical. Re-write this standard as "Identify and draw two-dimensional shapes (circles, triangles, squares, rectangles, rhombuses, and trapezoids) in a variety of orientations."</p> <p>1.M.2 This standard would be more clear and concise if it used the word "length." Re-write this standard as "Measure length of an object by lining up same-size units with no gaps or overlaps and counting the number of units."</p> <p>1.G.1 This standard was more clear in the previous standards. "Distinguish" is a more measurable verb than "understand," and examples of defining and non-defining attributes are helpful. Re-write this standard as "Distinguish between defining attributes (such as triangles are three-sided) and non-defining attributes (such as color, orientation, or size)."</p> <p>1.G.3 This standard needs to define which regular and irregular two-dimensional shapes are appropriate for this grade. In mathematics, a regular pentagon is different than an irregular pentagon, but I sense this is not the intent of the standard in grade 1. Perhaps phrasing this standard as "Compose and identify two-dimensional shapes including triangles, squares, rectangles, rhombuses, trapezoids, circles, half-circles, and quarter-circles" would be more precise.</p> <p>1.G.4 This standard needs to be re-written or eliminated. As a high school geometry teacher, I don't know why students in grade 1 need a standard that is specific to the description of a trapezoid and not other two-dimensional shapes such as rectangles. If South Dakota keeps this standard, then please use the correct terminology and define a trapezoid as having four sides with one pair of parallel sides. "Sides that go in the same direction" does not mean parallel. "Sides that go in the same direction" could be taken to mean lines that would eventually meet at a common point. If students are not ready to learn about parallel sides, then please eliminate this standard.</p> <p>1.G.5 This standard could use a better verb than "understand." Perhaps we want students in grade 1 to be able to "Identify right rectangular prisms (three-dimensional solids with rectangular faces)."</p> <p>1.G.6 This standard should read, "Partition circles and rectangles into two and four equal parts and describe the parts using the words halves and fourths."</p> <p>2.G.1 This standard is too generic. I do not know what students can do after reading the text of this standard, nor how I would assess if a student has met the standard. Perhaps phrasing this standard as "Recognize, identify, and describe attributes (such as number of angles and number of sides) of polygons including triangles, quadrilaterals, pentagons, hexagons, and octagons."</p> <p>2.G.2 This standard has some redundancy. It could be more clear and concise if it was written as, "Describe the differences between quadrilaterals (including squares, rectangles, rhombuses, and trapezoids) using attributes (such as congruent sides, parallel sides, and right angles)."</p> <p>2.G.3 This is a duplicate of standard 1.G.3 except 1.G.3 expects students in grade 1 to "compose and identify" while students in grade 2 are only expected to "identify." See my comments on 1.G.3 and then determine which grade level is most appropriate for this standard.</p> <p>2.M.3 This standard needs to be revised so that it is consistent and coordinates with the other measurement standards 2.M.2, 2.M.5, and 2.M.6. 2.M.3 should be re-written to include units of measure instead of tools. 2.M.3 should state, "Measure the length of objects using inches, feet, and yards."</p> <p>Please consider my suggestions and revise these proposed standards before approving them. Thank you for your consideration of my ideas and your work on this project.</p> |

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| Erin Lehmann     | Rapid City | Higher Education Professional, Parent/Guardian, Consultant         | <p>I have significant concerns about the current draft and its potential impact on teaching and learning in our state.</p> <p>The proposed standards eliminate explicit references to the Standards for Mathematical Practice, claiming they are "embedded." Yet nowhere in the document are practices such as perseverance in solving problems, constructing arguments, critiquing reasoning, or attending to precision identified or described. These practices are essential to developing mathematical thinking, not optional add-ons. Removing them reduces mathematics to procedural tasks rather than conceptual understanding and problem solving. If they are truly embedded, they should be clearly visible and referenced, not implied.</p> <p>Many of the standards rely primarily on procedural verbs like "solve," "add," "identify," or "compare," with no expectation for students to explain, justify, model, reason, or communicate mathematical ideas. This lowers instructional expectations and encourages shallow learning. Rigor requires a balance of procedural fluency, conceptual understanding, and application; a balance missing from the current draft. Key ideas (like fractions, ratio reasoning, functions) are fragmented or mis-sequenced. This contradicts research on learning progressions critical to math understanding.</p> <p>Also, many standards are so broad they cannot be assessed. For example, "Add and subtract fractions" – but no conditions, no complexity, no expectations. When compared to the previous standards, "Add and subtract fractions with unlike denominators by replacing given fractions with equivalent fractions..." This gives clarity and rigor. By doing this, SD wording lowers expectations statewide. Where is the cognitive rigor? These standards lack verbs and expectations of conceptual understanding. There are only "do-level" verbs. This will promote rote learning and reduce math to procedural skills. Big ideas are not referenced: equality as balance, structure of number systems, and function relationships. Without explicit connections, learning stays isolated and superficial.</p> <p>All of this will make it nearly impossible for school districts to adopt curriculum because publishers do not align to these stripped-down standards.</p> <p>For these reasons, I respectfully request that the Board revise the standards to restore cognitive rigor, align with best practices and research from NCTM, NCSM, NAEP, and ACT to prepare South Dakota students for future success.</p> <p>South Dakota students deserve mathematics standards that prepare them to think, reason, and thrive, not just compute.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Michelle Azar    | Huron      | K-12 Math Educator, Parent/Guardian                                | <p>I believe that 5.A.4 - 5.A.7 should be "to the thousandths place" not "to the hundredths place" for adding, subtracting, multiplying, and dividing. I make it a big deal how they get to have the awesome responsibility of knowing one new place in 5th grade for standard form, word form, and expanded form as well as for ordering and comparing, so it seems anticlimactic to only have to operate to the hundredths place.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Melanie Jacobson | Aberdeen   | K-12 Math Educator, Higher Education Professional, Parent/Guardian | <p>Good day! I teach high school and college level mathematics in South Dakota and have three children of my own in elementary school and younger. I write to you today with suggestions regarding the measurement and geometry domains of the proposed math standards for grades 3-5:</p> <p>As a matter of consistency and to help with vertical alignment, I notice the Grade 3 standards on area and perimeter (3.M.1 – 3.M.10) are listed in the measurement domain whereas the comparable Grade 5 standards on volume are listed in the geometry domain (5.G.1 – 5.G.8). I feel proposed standards 3.M.1 – 3.M.10 would be more accurately classified as Geometry standards instead of Measurement standards. It would help with vertical alignment to consistently place these area, perimeter and volume standards in the same domain, regardless of grade level.</p> <p>3.M.4 Remove the word "lengths" from this standard. Units of length are one-dimensional such as cm, inches, feet, and meters. Units of area are two-dimensional such as square cm, square inches, square feet, and square meters. Standard 3.M.4 should read, "Measure areas in square units," and length should not be used as a description of units of area.</p> <p>3.M.5 It seems this standard was shortened for clarity, but to me some of the meaning was lost. What corresponding operation is this standard referring to? This standard could be re-written to directly refer to the corresponding operation as multiplication like this: "Find the area of rectangles by tiling and relate area to the multiplication of side lengths."</p> <p>4.M.1 This standard has an unusual use of the word "from." Perhaps it would be more clear to say, "Measure length, weight, mass, and capacity using U.S. customary and metric systems of measurement."</p> <p>4.G.1 and 4.G.2 are both about the measurement of angles and in my opinion could be more clearly separated into measurement and classification. For instance, 4.G.1 could focus on angle measurement by stating, "Measure angles in degrees using a protractor and understand a degree as <math>\frac{1}{360}</math> of a circle." Then 4.G.2. could focus on angle classification by stating, "Classify angles as right, acute, obtuse, or straight. Draw right, acute, obtuse, and straight angles."</p> <p>4.G.3 Remove the word "angles" from this standard. Angles cannot be equilateral or scalene. These classifications are reserved for triangles. This standard could be written as: "Identify, describe, and draw equilateral, isosceles, scalene, right, acute, and obtuse triangles." This standard would fit in better if it was re-numbered to be near standard 4.G.8 in the "shapes" category.</p> <p>4.G.5 This standard is well written, although perhaps it should be listed first, before the angle measurement standard. It would make more sense to me to have 4.G.1 define an angle, then 4.G.2 measure an angle, and finally 4.G.3 classify an angle.</p> <p>5.G.2 This standard needs the variable n as it was written in the previous standards. This standard should read, "Understand an object has a volume of n cubic units if it can be filled with n unit cubes without gaps or overlaps."</p> <p>5.G.4 is a generic category standard and 5.G.5 – 5.G.8 are sub-standards that fall under the category of relating volume to operations of multiplication and addition. Because 5.G.5 – 5.G.8 are the specific ways we expect students to relate volume to operations of multiplication and addition, I suggest omitting 5.G.4. It is redundant and achieved by the other standards.</p> <p>The first 5.G.11 is a duplicate of 4.G.3 and is better written than 4.G.3. I have suggestions for improving 4.G.3 above, although upon reflection I believe it may be better to omit 4.G.3 entirely and leave this standard to Grade 5. That way, students develop the concept of angle classification in Grade 4 and review angle classification as they learn to classify triangles by angle measure in Grade 5.</p> <p>There are two standards numbered 5.G.11.</p> <p>5.G.14 This standard has a typo. In both instances, the standard needs to refer to "an ordered pair" instead of "the order pair." The correct terminology is "ordered pair." Please consider my suggestions and revise these proposed standards before approving them. Thank you for your consideration of my ideas and your work on this project.</p> |
| Becky Larson     | Mitchell   | K-12 Math Educator                                                 | <p>After reading through the proposed standards, I like the changes. I especially like the simplicity and directness of the language. The standards written this way make sense to me, which will assist in having a better understanding of what is expected in my teaching and in my students' learning.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Kenedy Koepsell  | Mitchell   | K-12 Math Educator                                                 | <p>As a first year teacher I do not have much input on these changes. I have only worked with the original standards for a few weeks, so I do not have much to reference as of now. I did look through the 7th grade standards changes since that is what I currently teach and I think the changes align well and are effective as compared to some of the old standards. Thank you!</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |
| lee white        | mittchell  | K-12 Math Educator                                                 | <p>Look good to me.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Jennifer Weber   | Yankton    | Higher Education Professional                                      | <p>It seems to me the loss of the standards for mathematical practice contribute to the fact that the lack of precision of language could be a problem. For example, "numbers within ten" or "go the same direction (parallel)" are not precise and while it might give a language for teachers to use when communicating with parents, I don't believe it captures the absolutes and truth that math should provide.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                             |

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| Sharon Vestal    | Brookings | President, South Dakota Council of Teachers of Mathematics         | With the huge amount of data that is generated all the time in all areas of our lives, I feel like there needs to be more included in the domain(s) of Data Analysis, Statistics, and Probability. Some of the data standards are still in K - 5, but they are under Measurement and I think that Data Analysis and Statistics deserves its own domain. This is particularly important as we prepare our students for future careers, some of which don't even exist yet. Here is a recent article about the importance of Data Literacy in high school, <a href="https://www.the74million.org/article/is-calculus-overrated-some-reasons-to-rethink-how-schools-offer-advanced-math/">https://www.the74million.org/article/is-calculus-overrated-some-reasons-to-rethink-how-schools-offer-advanced-math/</a> and here is a link to statistics standards guidelines from the American Statistical Association, <a href="https://www.amstat.org/education/guidelines-for-assessment-and-instruction-in-statistics-education-(gaise)-reports">https://www.amstat.org/education/guidelines-for-assessment-and-instruction-in-statistics-education-(gaise)-reports</a> . Some of this information should be included in the new standards.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Sharon Vestal    | Brookings | President, SDCTM                                                   | In the proposed standards you say that they are vertically aligned, but the domains are confusing. For example, in grades K - 5, A represents Arithmetic, but in grades 6 - 8, A represents Algebra, and there is no A in grades 9 - 12, where there are two algebra classes. In grades K - 5, F stands for Fractions, but in 6 - 8 and 9 - 12 F stands for functions. Why can't we just keep the same domains that we had previously. There are so many domains in 9 - 12 and it is confusing.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                    |
| Keri Tisher      | Watertown | K-12 Math Educator                                                 | I am a first grade teacher and I appreciate the change in standards to make them easier to understand. I have looked through the proposed standards and I am comfortable with all of the standards that are proposed with the exception of two.<br><br>1.A.5 Add a two digit and one digit number (with or without regrouping) using multiple strategies that reflect an understanding of place value.<br><br>1.A.6 Subtract a two digit and one digit number (with or without borrowing) using multiple strategies that reflect an understanding of place value.<br><br>We have been introducing regrouping and borrowing at the end of first grade which I think is beneficial and good to introduce to first graders. However, having regrouping and borrowing as part of the standard it requires that all my first graders can master these skills. I do not feel that developmentally an average first grader is ready to master this skill. My higher level students may be able to do this but not all my first graders.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
| Megan            | Box Elder | Instructional coach                                                | -What happened to the "by memory within 20" standard in mathematical fluency in 2nd grade 2.M.4? We want to keep vertical alignment coordinated as K and 1st have solid pre-requisites. We'd like to keep within 20 with automaticity (memory) there in 2nd grade.<br>-Check the standards about 2.N.5 and 2.N.6 -should it state to 1,000 vs. to 100 per our current mathematical standards and proposed includes 1st grade to 100.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
| Kate DeVelder    | Box Elder | K-12 Math Educator                                                 | -What happened to the "by memory within 20" standard in mathematical fluency?<br>-should 2.N.6 say within 1000, as currently the first grade standard that is similar says to 100, if the 1st grade standard says to 100 to be vertically aligned 2nd grade should be to 1000                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
| Meggie Bennett   | Box Elder | K-12 Math Educator                                                 | What happened to the "by memory within 20" standard in mathematical fluency standards that spiral from K-2?<br>Check 2.N.6 should it say to 1,000 not 100?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Courtney         | Box Elder | K-12 Math Educator                                                 | What happened to the "by memory within 20" standard in mathematical fluency? We would like it added back in as 1st grade has a standard of memory within 10. This would help with vertical alignment. Also, is 2.N.5 supposed to be within 1000? It is currently written within 100, but 1st grade's standard is within 100, so it would make sense vertically for 2nd grade to work within 1,000.                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Melanie Jacobson | Aberdeen  | K-12 Math Educator, Higher Education Professional, Parent/Guardian | Hello again! I teach high school and college level mathematics in South Dakota and have three children of my own in elementary school and younger. I write to you today with suggestions regarding the geometry and statistics and probability domains of the proposed math standards for grades 6-8:<br>6.G.2 needs to be corrected. The word "tiling" should be changed to "filling" or "packing." This standard is for finding volume, and volume is three-dimensional. The proposed standard erroneously uses the word "tiling" which describes two-dimensional area.<br>6.SP.1 and 6.SP.2 are too generic to be helpful. Standard 6.SP.1 is a definition of statistics. Do we really need a standard for the definition of statistics? Standard 6.SP.2 would be clearer if it used "data sets" instead of just "data."<br>6.SP.8 seems strange to me. I wonder why students need to pick one measure of variation as "more appropriate" than another. Both range and IQR can contribute to a more complete understanding of the variation in a data set, so I don't feel students need to pick one as better than the other. Instead, they should understand the advantages and disadvantages of each measure of variation. I also dislike the use of the word "shape" in this standard. Perhaps it would be clearer to say, "shape of the data distribution."<br>The 7th Grade Geometry standards are mis-numbered with two standards listed as 7.G.3.<br>8.G.9 The "(proportional)" parenthetical seems out of place. Similar figures have proportional side lengths, so it seems that is referring to the part of the standard that describes "different sizes." Regardless, perhaps this standard could be rewritten with more precise language that describes similar figures as having congruent angle measures and proportional side lengths.<br>Please consider my suggestions and revise these proposed standards before approving them. Thank you for your consideration of my ideas and your work on this project. |
| Allison Schmitz  | Aberdeen  | K-12 Math Educator, Parent/Guardian                                | Standard 1.G.4 changes the definition of trapezoid to "at least" 1 parallel side instead of our current definition of "exactly." I understand that both definitions are widely used, but this is a major change and will change how middle and high school teachers teach quadrilateral properties and proofs. Additionally, in our current standards, it isn't taught until 5th grade. Why the 4 year difference?                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Allison Schmitz  | Aberdeen  | K-12 Math Educator, Parent/Guardian                                | These new standards are being labeled as helping parents help kids with math. Supposedly we are "bringing back the standard algorithms." They were never taken away! Current standard 4.NBT.4 says students will be able to fluently add, subtract, and multiply using the standard algorithm. Division with different strategies is mentioned in 5th grades, but by seventh grade there is no question that students are expected to use long division (6.NS.1 "standard algorithm" AND 7.NS.2 "long division") However, the proposed standards do not mention the standard algorithms even once. A document search shows that the words "algorithm" or "long division" never show up in the document. If the new standards bring back the standard algorithms why does it only ever say "various methods?" Where is the list of methods teachers are required to teach? If it isn't in the standards, it isn't required!                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                         |
| Allison Schmitz  | Aberdeen  | K-12 Math Educator, Parent/Guardian                                | Our current standards have a list of helpful terms on the summary for each grade level. If we are working on defining fluency for each grade level, I would like to see a list of terms and/or notation that each grade level should be able to use fluently. I understand why we want to simplify the language of the standards, but the language of math isn't going to change. The new SS standards have standards that state a list of items students should be able to map and a list of people/events/etc. That students should know. I would like something similar for math<br>For example 4.G.1-3 and 5-8 4.A.10, 4.F.11, 4.M.1 are all about terms that 4th graders should be able to define. A similar list could be made for formulas, properties, and/or algorithms that should be memorized. If we are trying to make standards that are easier to understand, I think having a list of these things instead of multiple standards would make implementing much easier. After the standards are adopted, a supplement could be made with the official definitions similar to what the Virginia DOE has available <a href="https://www.doe.virginia.gov/teaching-learning-assessment/k-12-standards-instruction/mathematics/instructional-resources/mathematics-vocabulary-word-wall-cards">https://www.doe.virginia.gov/teaching-learning-assessment/k-12-standards-instruction/mathematics/instructional-resources/mathematics-vocabulary-word-wall-cards</a>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                       |

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| Allison Schmitz | Aberdeen  | K-12 Math Educator, Parent/Guardian             | <p>There seems to be some content/rigor missing in the new standards:<br/> Comparing new 8.F.2 comparing proportional relationships to current 8.F.2 comparing two functions- we are no longer going to compare anything other than proportional relationships.<br/> Comparing new 8.F.9 understand a line to have the equation <math>y=mx+b</math> to current 8.F.3 defining <math>y=mx+b</math> AND 8.F.4 construct a function- we are no longer asking 8th graders to write equations for lines.<br/> Also a change in wording was made that made functions less clear instead of more clear. Comparing new 8.F.4 functions are an EQUATION OR RULE to current 8.F.4 functions are a RULE- why did we add the word equation? Students have a hard enough time understanding that relations don't have to have equations to be functions. It should say "Functions are a RELATION where each input has exactly one output" as that is the official definition.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                 |
| Allison Schmitz | Aberdeen  | K-12 Math Educator, Parent/Guardian             | <p>I don't understand the new naming system and why it's better than the old system. It seems the same to me other than we changed all the letters. 8.A.1 is 8th grade Algebra in both. I see that we regrouped things, so new letters were needed, but I'm not sure how to do any vertical alignment because the grade levels change domains. For example- algebra 1 has EF for exponential functions but Algebra 2 has EL because it includes logarithms. It should still vertically align though so why cant we call it EL for both?<br/> Same with RT and TG- trig is trig.<br/> Why is there no MF for middle school? Do we not have anything to be fluent in?<br/> In elementary, there are data standards but they are under M- measurement. Shouldn't we have SP in elementary for data? Even if we aren't teaching full statistics and probability those are what the data standards align with.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                        |
| Sharon Vestal   | Brookings | South Dakota Council of Teachers of Mathematics | <p>The following current standards seem to be missing from the proposed high school geometry standards or modified so they are not as rigorous. Many of these focused on proofs, which is essential in building critical thinkers.</p> <p>"G.CO.3: Given a rectangle, parallelogram, trapezoid, or regular polygon, describe the rotations and/or reflections that map the figure onto itself."</p> <p>"G.CO.C.10: Prove theorems about triangles." Proposed standards just say "apply theorems about triangles" and left out the word prove.</p> <p>"G.CO.C.11: Prove theorems about parallelograms." Proposed standards say "apply theorems about quadrilaterals."</p> <p>"G.CO.D.13: Construct an equilateral triangle, a square, and a regular hexagon."</p> <p>"G.SRT.A: Understand similarity in terms of similarity transformations.<br/> 1.Verify experimentally and apply the properties of dilations as determined by a center and scale factor.<br/> 3.Use the properties of similarity transformations to establish similarity theorems. Theorems must include AA, SAS, and SSS."</p> <p>"G.SRT.B.4: Prove theorems about triangles involving similarity. Theorems must include but not limited to: a line parallel to one side of a triangle divides the other two proportionally, and its converse; the Pythagorean Theorem proved using triangle similarity."</p> <p>"G.GPE.A.1: Derive the equation of a circle of given center and radius using the Pythagorean Theorem; complete the square to find the center and radius of a circle given by an equation."</p> <p>"G.GPE.B.4: Use coordinates to prove geometric relationships algebraically. For example, determine whether a figure defined by four given points in the coordinate plane is a rectangle,..."</p> <p>"G.GMD.A.1: Give an informal argument for the formulas for the volume of a cylinder, pyramid, sphere, and cone. Use dissection arguments, and informal limit arguments."</p> <p>"S.CPA.4: Construct and interpret two-way frequency tables of data. Use the two-way table as a sample space to decide if events are independent and to approximate conditional probabilities..."</p> <p>"S.CPA.5: Recognize and explain the concepts of conditional probability and independence in everyday language and situations."</p> |
| Kevin Smith     | Brookings | Higher Education Professional                   | <p>I did a deep dive analysis of 4th grade using ChatGPT. You might want to utilize AI to help do some of the analysis as well. It uncovered some important things to consider. Here are a few things to look at:</p> <p>Depth vs Breadth<br/> If the proposed standards include every topic under measurement, geometry, data, arithmetic, fractions, decimals, etc., there is a risk of breadth overwhelming depth (i.e., many topics but less time per topic). This doesn't necessarily mean they are misaligned, but they may not reflect the "fewer, deeper" guiding idea fully.</p> <p>Conceptual Understanding<br/> Some of the proposed standards use simplified language which may reduce explicit mention of estimating, understanding why algorithms work, or exploring multiple representations. If key phrases like "explain why" or "make sense of" are missing, the conceptual depth could lag.</p> <p>- Using simplified language is fine if it is mathematically correct.<br/> - I want to make sure we're emphasizing conceptual understanding in addition to procedural fluency.<br/> - Let's be careful not to add more standards because things need to be "covered". Students need depth on topics to truly retain the info and be able to apply it in other situations.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |

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| Stephanie Lettau | Sioux Falls | K-12 Math Educator     | <p>First off, I am very disappointed in the standards committee. I'm not sure why we chose to go with a smaller standards writing committee that did not include any of the teachers from the bigger east side schools. I know it was certainly not for a lack of applicants. It is alarming that there were only three high school math teachers, and we don't even know what content areas they teach.</p> <p>In regards to the standards, they lack rigor. I do not feel these standards are any more challenging than our current ones. Additionally, in an attempt to clarify standards, they just became less clear. There is additionally wording that does not add to the standard such as Geometry standards G.RT.3. Also, we took what was one standard and made it into 5+ (see Geometry standards G.GF.1 through G.GF.7). If we are truly trying to improve our standards because we think our students need to be doing better, then let's make sure our standards reflect that. These standards do not scream excellence. They read mediocre and "good enough." Arkansas has test scores that are decreasing yearly...I'm not sure why that should make us adopt their standards.</p> <p>We have exceptional educators in the state of South Dakota, and we should use them. Incorporate more people than just those who won't push back or will agree with whatever is said. If we truly want to improve the mathematical understanding of our students in the state, we have to make sure our standards support that. These standards are just another list.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                            |
| Emily Harms      | Sioux Falls | K-12 Math Educator     | <p>The proposed rewrite of the South Dakota math standards raises serious concerns about clarity, rigor, and preparation for higher-level math. One glaring issue is the inconsistent use of domain codes—such as "F" representing Fractions in K–5 but Functions in middle and high school—which makes cross-grade referencing and curriculum mapping confusing for teachers and districts. The draft also drastically reduces the document from roughly 91 pages to 43, consolidating many items under the guise of "streamlining," which leaves educators questioning which standards were removed or weakened. Additionally, the proposed rewrite reduces the contributors list from over two and a half pages to about half a page, with fewer than half representing actual classroom teachers. Feedback from high school teachers, particularly from the state's largest district, Sioux Falls, suggests the committee may not be representative of the majority of South Dakota educators, and the standards do not reflect the variety of courses taught or the needs of schools.</p> <p>A major concern is the omission of 4th-year or advanced high school standards. The current standards explicitly include a 4th-year section with (+) standards for topics like limits, polar coordinates, conics, and permutations/combinations, as well as accelerated Precalculus content, providing essential preparation for STEM majors and Opportunity and Build Dakota scholarships. The proposed rewrite removes these entirely, leaving districts to handle advanced courses locally and offering no accelerated Precalculus standards, which constitutes a substantive loss of statewide guidance.</p> <p>The draft overuses vague verbs such as understand and know, which reduces cognitive demand and clarity, making it difficult for teachers to design assessments that encourage critical thinking. For example, 8th-grade standard 8.G.1 says "Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems," which implies memorization rather than conceptual understanding. Similarly, 7.G.2 states "Understand pi to be the proportional relationship between the circumference and diameter of a circle," instead of encouraging students to analyze and apply the proportional relationships of pi in problem solving. Overall, the proposed standards do not require students to think deeply or engage in higher-level reasoning.</p> <p>Other issues include the removal of real-world applications in 6th-grade geometry, the loss of definitions for mathematical fluency, and the elimination of examples that help elementary teachers know exactly what to teach. Teachers have also flagged potential problems aligning textbooks and other instructional materials with the new structure, which could have both budgetary and classroom impacts. Without an unpacked standards document like the current version and a glossary of key terms to clarify vague language, implementation will likely be inconsistent and confusing. The 8 Mathematical Practices, which are critical for guiding instruction and developing student reasoning, are also missing from the draft.</p> <p>Despite these concerns, some positive aspects of the proposed rewrite include the clearer naming of standards and improved organization, which makes the document easier to navigate. However, without restoring rigor, explicit examples, higher-order verbs, 4th-year and accelerated standards, and representative teacher input, the rewrite sacrifices clarity, coherence, and student learning opportunities for brevity, putting South Dakota students and teachers at a disadvantage.</p> |
| Heidi Dykstra    | Sioux Falls | K-12 Math Educator     | <p>As a high school teacher, I am concerned about the broad and fragmented approach to mathematics in the proposed standards. Mathematics is a beautiful and interconnected discipline, and students gain the most understanding when it is presented as a cohesive whole rather than in isolated, choppy sections. The proposed standards treat topics as basic, separate units, which misses the opportunity to show students the patterns, connections, and relationships that exist across different areas of math. This fragmented approach risks diminishing both student engagement and deeper conceptual understanding.</p> <p>I am also concerned about the lack of precise terminology and vocabulary in the proposed South Dakota mathematics standards. Clear and accurate mathematical language is essential for students to develop a deep understanding and to communicate their reasoning effectively. Without consistent use of correct terms, students may develop misconceptions or struggle to connect concepts across different areas of mathematics.</p> <p>The proposed standards also need to include clear expectations for a high school 4th course. All students should be held to high standards, and the current draft sends the message that advanced math in a fourth year of high school is unnecessary. Students are capable of meeting rigorous expectations, and it is our responsibility to prepare them fully for college and future careers. Including standards for the 4th course would ensure students have the opportunity to develop higher-level thinking, problem-solving skills, and a deeper understanding of mathematics before graduation.</p> <p>The proposed mathematics standards need to be re-written to present mathematics as a unified, coherent discipline rather than a series of choppy, disconnected topics. The writing committee should ensure that correct terminology and precise vocabulary are consistently used throughout—from kindergarten standards all the way through high school 4th course standards. In the current draft, the mathematical practice of communicating ideas using accurate language has been largely lost. It feels as though the standards were written to appease non-mathematical adults, which has resulted in many key concepts being underdeveloped or missing entirely.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                              |
| Alison Bowers    | Chamberlain | K-12 Non-Math Educator | <p>As a science teacher, it is incredibly helpful that the SD Science Standards are "NGSS-alike." I can review curriculum, resources, and lesson plans from a variety of sources and know that they are aligned to my content area standards. This saves an enormous amount of time for teachers AND allows us to access free, high-quality resources that we may have to use to supplement existing curriculum or lack of curriculum. As the sole science teacher in a small district, this is critical for me. I am concerned that the proposed standards will be unique enough that schools will struggle to find curriculum and resources (which many schools are already struggling with re: the new social studies standards). I'm also concerned that many of these standards could use an "unpacking." Is the DOE going to bring together a workgroup to do such work? This is another super helpful resource that NGSS already has for our NGSS-alike science standards. Finally, I'm concerned that these standards focus on the use of mathematical algorithms, rather than developing students' actual number sense and mathematical reasoning. My students' base math skills impact their success in high school science classes.</p>                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                          |

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| Amy Schander     | Yankton    | K-12 Math Educator, Parent/Guardian | <p>So far, I have reviewed the Algebra I standards and have found multiple examples where changes in wording have made the standards difficult to understand and/or mathematically incorrect. Here are a couple of examples:</p> <p>#1<br/>Current Standard:<br/>Identify the effect on the graph of <math>f(x)</math> (linear, exponential, quadratic) replaced with <math>f(x) + k</math>, <math>kf(x)</math>, <math>f(kx)</math>, and <math>f(x + k)</math> for specific values of <math>k</math> (both positive and negative); find the value of <math>k</math> given the graphs. Experiment with contrasting cases and illustrate an explanation of the effects on the graph using technology.</p> <p>Proposed:<br/>Graph and generalize the effect of transformations on linear, absolute value, and quadratic functions including stretches, compressions, vertical, and horizontal, with and without technology.</p> <p>The current standard clearly describes the depth to which transformations should be taught: vertical/horizontal translations, vertical/horizontal reflections, and vertical/horizontal stretches/compressions. The proposed standard ambiguously says "vertical and horizontal". I'm not sure what this means. Is it referring to stretches/compressions only since they are mentioned previously in the standards? I couldn't find another standard that mentions transformations.</p> <p>#2<br/>Current Standard:<br/>Summarize categorical data for two categories in two-way frequency tables. Interpret relative frequencies in the context of the data (including joint, marginal, and conditional relative frequencies). Recognize possible associations and trends in the data.</p> <p>Proposed<br/>Summarize data from two categorical variables in a frequency table; interpret relative frequencies in the context of the data, recognizing data trends and associations.</p> <p>The proposed standard changes "two-way frequency tables" into "frequency table." A frequency table and a two-way frequency table are two different things. Two-way frequency tables are used for two categories, while frequency tables are used for one category. It is unclear if the proposed standard is trying to change this to "one categorical variable in a frequency table" or if it should be "two categorical variables in a two-way frequency table."</p> |
| Stephanie Higdon | Rapid City | concerned citizen                   | <p>In previous comments and testimony it has been stated that there is a concern in the vertical alignment of the domains in the standards- and how a change in letters from Arithmetic to Algebra causes confusion, and loses the alignment between the standards from one grade to the next. I would like to argue that changing the letter system and keeping the standards as they are written will not rectify the loss of vertical alignment. For this comment, I would like to highlight the loss of alignment within algebraic thinking from K-12 in the proposed standards.</p> <p>In the current standards- as early as Kindergarten students are learning algebraic thinking and reasoning. On page 9 of the SD Math standards- there is a table that demonstrates three problem types that equate to algebra, result unknown, change unknown and start unknown. Additionally, this table provides clear examples of each- thinking at this level is not included in the proposed standards- rather students are expected to only represent addition and subtraction using an equation. There is no expectation for them to begin their algebraic understanding.</p> <p>This understanding misses the mark in the proposed 1st grade standards as well- taking out language about the location of the unknown. In the current standards it is stated clearly that students need to solve word problems with the unknown in "all positions" and represent this unknown in an equation using a symbol (<math>3+x=10</math> OR <math>x+3=10</math> OR <math>7+3=x</math>), clearly demonstrating algebraic thinking. The proposed standards it is not stated that this unknown amount could be in more than one position.</p> <p>This language of the unknown amount in all positions continues into 2nd grade in the current standards, but is again missing in the proposed standards.</p> <p>I propose that mathematics algebraic reasoning and thinking begin in Kindergarten, to demonstrate that students make meaning of parts unknown in this early grade, and that this learning builds up through the middle grades and into high school. In the proposed standards this is lost.</p> <p>This is only one example of how the vertical alignment of learning math has been lost in the proposed standards.</p>                                                                    |

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| Dr. Kiki Nelsen | Sioux Falls | K-12 Math Educator, Higher Education Professional, HS Math Instructional Coach | <p>Hello Council,</p> <p>As a High School Math Instructional Coach, I've reviewed the proposed math standards and compiled feedback from myself and other educators. Overall, our concerns fall into three main categories: the process used to develop the standards, the substance of the standards themselves (including clarity and rigor), and inconsistencies in the chosen organizational structure.</p> <p>Concerns Regarding the Development Process</p> <p>The process by which these standards were developed raises several significant questions that impact the perceived legitimacy and breadth of expertise involved:</p> <p>Limited Teacher Involvement: A core concern is the lack of broad teacher representation in the curriculum writing and review process. We must ask:</p> <ul style="list-style-type: none"> <li>* Why were more practicing classroom teachers not involved in the initial conversation and drafting?</li> <li>* How many qualified teachers applied but were not selected for the committee?</li> </ul> <p>Committee Demographics: Transparency regarding the makeup of the writing council is essential. We need to know the demographic breakdown of the individuals involved, including their geographic location (urban/rural), school size, and specific teaching area/grade level. A balanced representation is crucial for standards that must serve all students and districts in South Dakota.</p> <p>Source Selection Justification: Clarification is needed on the decision to examine specific states' standards and external organizations' work:</p> <ul style="list-style-type: none"> <li>* What was the rationale for the specific groupings of standards that were considered?</li> <li>* Given negative data regarding student outcomes, why were Arkansas's standards chosen for consideration?</li> <li>* Is there any incentivization or non-objective reason for the inclusion of work by the Hillsdale professor's Archimedes group?</li> </ul> <p>Critiques on the Clarity and Substance of the Standards</p> <p>The proposed standards present significant issues related to rigor, clarity, and completeness:</p> <p>Lack of Clarity and Rigor in Language</p> <p>Decreased Mathematical Precision: Attempts to simplify language have, in many cases, decreased proper mathematical language, which will harm students' long-term academic growth. Examples include:</p> <ul style="list-style-type: none"> <li>* Using non-academic terms like "unlike fractions" instead of "fractions with unlike denominators."</li> <li>* Describing parallel lines as "lines going the same direction."</li> <li>* We strongly recommend including a glossary of academic vocabulary within the document instead of removing essential terms.</li> </ul> <p>Overuse of "Understand": The term "understand" is vague and is often considered low on Bloom's Taxonomy. It does not clearly define what a student must do to demonstrate mastery.</p> <p>Recommendation: Standards should be written using action verbs that indicate application or demonstration of knowledge (e.g., "apply understanding by analyzing..." or "construct an argument to justify...").</p> <p>Incomplete Course Offerings</p> <p>Missing 4th-Year and Alternative Course Standards: Deleting 4th-year course standards (e.g., Pre-Calculus, Calculus, Statistics) is a significant oversight and, frankly, a cop-out. These courses are vital for college and career readiness. Ironically, most of the states' standards that were used in this revision have 4th year and even specific course standards beyond Algebra II themselves. The council should have added standards for alternative 3rd-year courses (like Technical Math or Quantitative Reasoning), similar to the models used by North Dakota and South Carolina. These courses are essential for students pursuing non-STEM or technical pathways.</p> <p>Inconsistency in Domain Coding</p> <p>A major structural issue that will cause confusion across grade bands is the inconsistency in domain codes used throughout the K-12 standards:</p> <p> A  Arithmetic or Algebra depending on the grade band.<br/>  F  Fractions or Functions depending on the grade band.<br/>  PR  Proportional Relationships (MS), Polynomial, Rational, and Other Functions and Equations (HS)</p> <p>These shifts in meaning are confusing and will hinder curriculum alignment efforts between elementary, middle, and high school teachers. Codes should remain consistent across all grade levels to represent the same mathematical domain (e.g., a "F" code should consistently indicate either Fractions or Functions, but not both).</p> <p>Models for Consideration</p> <p>I recommend revisiting models like North Dakota and South Carolina for structural improvements:</p> <p>North Dakota's standards include valuable features:</p> <ul style="list-style-type: none"> <li>* A page dedicated to how to read the document.</li> <li>* A dedicated column for clarification next to the standard itself.</li> <li>* The inclusion of (+) standards for advanced coursework.</li> </ul> <p>South Carolina's standards are notable for including a full suite of alternative/accelerated course standards, such as Compacted Math and Reasoning in Mathematics.</p> <p>I urge the Council to address these critical issues related to process, rigor, and clarity before the final adoption of the standards.</p> |
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