

## Mathematics Public Feedback on the Draft Standards

### Standards for Mathematical Practice

	Comment	Row Number 10/04/16 file - Notes included in Introduction section or General Comments
1	I think that the progression of fluency was clarified, time progressions were needed, and money standards and progressions were needed. Students in third grade are coming to us deficient in money concepts-counting money, etc. I also really like how you made the mathematical practices understandable and they give teacher friendly explanations of each. Great! The only thing that I did not see was the chart at the end with all the types of word problems that can be developed at the grade levels	41
2	The primary grades especially continue with measurement instead of having it drop off completely and show up again in an older grade. As things progress in math, this just makes sense. I agree that it is good that mathematical practices continues.	188
3	I'm pleased that the integrity of the 2010 standards were kept in tact. I strongly agree with the new narrative definitions for the mathematical practice standards. These have revolutionized how students approach solving complex mathematical problems/situations. I don't object to time and money being added as standards. The "P" (plus) standards are an innovative addition that will benefit our advanced students.	207
4	The addition of the narratives for mathematical practices is helpful.	
5	The 2010 standards were much longer, but the inclusion of the examples and the aligning of the practices was very useful. It is very helpful when there is a question of what is being required by that standard. The 2016 standards are streamlined and would be easier for quick reference.	361

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6	The explanation of mathematical practices was necessary and helpful. The fluency progression is aligned nicely.	491
7	The standards are few but very deep. The document is not overwhelming until you begin to teach the math and realize how much Math knowledge the students have to have in order to learn the standards. This is what I mean when I say they are deep. I like the math practices because they remind teachers and student the importance of persevering, and accuracy in basic counting and writing numbers.	538
8	I'm only answering in regard to the K standards: There don't seem to be too many changes, but I do like that we are introducing decomposing numbers, more work on place value, and more algebraic thinking as these skills will all be built upon in subsequent grades. Also, there seems to be a big increase in the rigor of mathematical practices. I like that we are encouraging our students to think at DOK levels 3 and 4, as that is the foundation of a solid mathematics curriculum from K on up.	539
9	I like that the introduction explains the difference between curriculum, standards, and instruction. It also does a great job defining and developing the mathematical practices.	582
10	Again breaking down the defintions of the standards and curriculum is helpful. The precise definitions/narratives of the mathematical practices is helpful for teachers to have at a glance for improving instruction. The defintion of fluency is helpful.	583
11	The narratives developed for each of the eight mathematical practices are very helpful.	584

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12	The narratives that were added to explain mathematical practice are a significant improvement. This enables a new teacher to understand the skills they need to develop in their students.	585
13	The explanation of the mathematical practices is clear and developed. The explanation of fluency is a needed addition.	588
14	It is great that the standards, curriculum and instruction are defined and explained. Mathematical practices explanation is appreciated.	590
15	The explanation and definition of Curriculum, Instruction, and Standards is very helpful. The narratives developed about the 8 mathematical practices are helpful and clear.	591
16	Thank you for keeping the progression of standards and for keeping the mathematical practices. This is going to help keep our students at a competitive level with the other states.	623
17	The standards allow my children to be successful mathematicians who are able to think flexibly about numbers. They are able to utilize more mental strategies than with just traditional U.S. algorithms and I can see them using perseverance that they have not had in the past. The mathematical practices have helped my children develop grit.	632

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18	It is slightly better. It is more concise. Also, in 6th grade, 4 critical areas + Geometry has been increased to 5 critical areas, with Geometry included in those critical areas. Clarity across standards with is of benefit. Explanations of Standards of Mathematical Practice will give teachers a clearer understanding and more consistency for students around the state. The addition of real world examples is of benefit.	633
19	I love the changes that were made. The standards keep with the math progression and still incorporate the mathematical practices. Thank you for doing this! I also appreciate the more defined explanation of what fluency is.	645
20	I have reviewed the draft standards and support them for these three reasons. 1. The vertical and horizontal progressions stay true to the teaching and learning and understanding of mathematics. 2. The definition of fluency was much needed and appreciate how students can use methods and strategies as a vehicle to become fluent in mathematics not just a drill and kill model 3. Appreciate the narratives of the mathematical practices at each grade level.	681 - 5 times
21	The explanation of the mathematical practices is very explicit and straight forward for teachers. The clarification in the writing of the standards and removal of examples is also very clear. I like the change of verbage from "using" to "connecting" when discussing strategies. Some teachers were not seeing that students need to be shown the connection (parents too!). STRATEGIES need to be stressed (perhaps a list).. When the algorithm is to be introduced should be explicit.	698

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22	Mathematical Practices are explained in more detail very helpful!	704
23	I really like the explanations of the Mathematical Practices. Another section I appreciate as a parent trying to help my kids with their homework is the Common Problem Types/Examples. I also really like the Standards for Mathematical Content table. I do wonder if Modeling (currently only in high school) should not be brought down to 6-8th as well. When helping my boys recently I found myself emphasizing "an expression to represent" which is really a kind of model as are equations and graphs.	713
24	This glossary is woefully inadequate. An important mathematical practice is to use precision - not only in solving math problems accurately, but also in speaking about math. Neglecting to include a more comprehensive range of math vocabulary is a disservice to students and teachers alike. I realize that you have provided the caveat that this is an incomplete list. My suggestion is to fix the problem and make it more complete.	740
25	While the standards have been sorted into "grade level" "content areas", the scope of standard coverage for each "content area" is too comprehensive to support mastery of the standards in the context of mathematical practices to prepare students for college expectations. Higher order thinking can be achieved with fewer standards applied in more contexts using the mathematical practices. Please consider reducing the scope of the standards to 15 standards per "grade level" "content area".	797

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26	I think the introduction is thoughtful and well written. I think that Arizona can make the standards "their own" by defining the Mathematical Practices at each grade level better. Here is the opportunity to identify proudly what Arizona students can do at their age appropriate development.	866
27	I appreciate that it is simpler to read. With that said, we need the expanded version to be created as well. The old examples and explanations were great, informative, and important. Please provide them in an expanded document somewhere. I also would like the Mathematical Practices to be included again with each standard. That is very helpful and important. I also suggest that AZ determine priority standards to help focus teachers who work with students in poverty, ELL, and migrant kids.	866
28	I feel the section on what the standards were not, was very informative for those who do not have an education background.  I think it is important to include the mathematical practices section to the introduction.	885
29	The Introduction clearly explains what the standards are and more importantly what they are not. The more detailed explanations of the mathematical practices were lacking in previous Arizona standards documents. It also explains how to read the nomenclature. The fluency progression is helpful. (There is a typo on this table - 3 Grade 6, it should say multiply not multiple.) The notes on literacy, technology and modeling also provide more guidance in their utilization.	898

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30	Gives a good overview; show vertical progression of skills; explains what a standard is and what it is not; math practices are explained; explains the numbering system for the standards	997
31	2010 language removed that suggested "How" standards should be taught, I like that. 8 standards of mathematical practice "habits of mind" with narrative, even I had a shot at understanding some of that. Nice to see money standard added. I also like the section Technology Integration in Mathematics although I think it was pretty basic as most reference was to use of calculators. I wonder if the folks responsible for developing these standards reached out to small business in the state ?	1008
32	The standards are relatively the same as the previous Arizona College and Career Ready Standards. Some prescriptive examples have been taking out but "how to's" remain throughout the standards esp. with Tables used as guidelines in K-3. "Standards for Mathematical Practice" need to be removed throughout the standards and are developmentally inappropriate across K-12. There is no evidence that developmental child psychologists have reviewed this work. Where are their technical notes?	1025
33	I appreciate the mathematical practice explanations.	1057
34	The introduction displays a good progression of standards from K-12. In addition, it effectively makes connections between the standards, mathematical practices, and fluency	1061

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35	I do not see developmental appropriateness addressed anywhere, I saw 1 item citing using research (def of fluency). The standards are largely identical. I don't see an AZ solution to the concerns parents had. It is good Alg 1, 2, Geometry have separation, but virtually nothing changed in Geometry, K-3.	1098
36	The math practice are much more explicit with detailed explanations, much improved. I found the other changes to be relatively minor and not significant to change the meaning of most standards.	1100
37	I have personally presented pages 5 and 6 of the Standards for Mathematical Practice to many parents around our state. All parents have agreed that these 8 paragraphs are very difficult to understand and are rather convoluted. Also, there are quite a few developmentally inappropriate cognitive demands in this section for younger children (k-3) such as reasoning abstractly, algebraic thinking, critiquing peers, writing equations, and debating other students. Concrete thought is what is needed	1105