

MATHEMATICS

Draft Assessment Blueprint Survey 2019



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Regional Comprehensive Center for the
Kentucky Department of Education

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Draft Mathematics Assessment Blueprint: Data Report

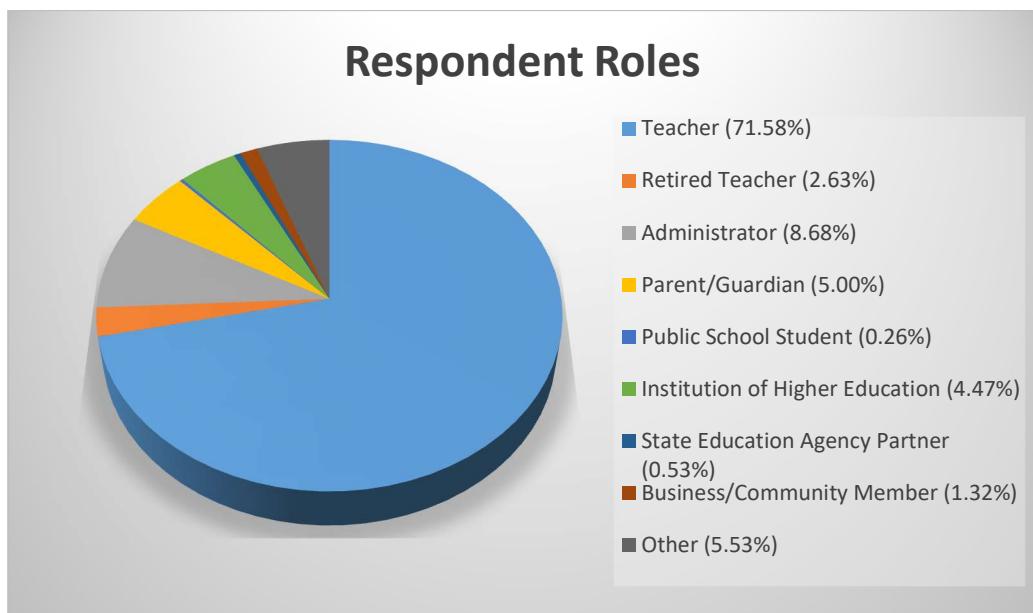
June 2019



Technical Assistance Summary

The staff of the Kentucky Department of Education's (KDE) Office of Standards, assessment, and Accountability requested assistance from the Appalachia Regional Comprehensive Center (ARCC) as an objective, external partner with KDE in the standards and assessment review process. This data report is from the second public comment survey on the mathematics assessment blueprint. The survey was open for public comment in May – June 2019. During that time, the ARCC at ICF served as the third-party entity to solicit public comments. The ARCC is responsible for analyzing and summarizing the data for KDE and the Commissioner of Education. A total of 380 respondents began the survey, and approximately 41% (~157) completed it.

Respondent Roles



Teachers, Retired Teachers, and Administrators

Respondent Role	Grade Level*	Priority Status	Experience
Teachers	Pre-Kindergarten (0.39%) Kindergarten (4.69%) Grade 1 (7.03%) Grade 2 (4.69%) Grade 3 (11.72%) Grade 4 (12.50%) Grade 5 (11.33%) Grade 6 (15.63%) Grade 7 (16.02%) Grade 8 (19.53%) Grade 9 (20.31%) Grade 10 (25.00%)	Yes (26.95%) No (73.05%)	0 – 5 years (21.48%) 6 – 10 years (22.66%) 11 – 15 years (19.92%) 16 – 20 years (16.80%) 21 – 25 years (8.98%) 26 – 30 years (8.59%) More than 30 years (1.56%)

	Grade 11 (28.13%) Grade 12 (28.13%) Other (4.30%)		
Retired Teachers	Pre-Kindergarten (0.00%) Kindergarten (12.50%) Grade 1 (12.50%) Grade 2 (12.50%) Grade 3 (12.50%) Grade 4 (12.50%) Grade 5 (37.50%) Grade 6 (50.00%) Grade 7 (12.50%) Grade 8 (37.50%) Grade 9 (37.50%) Grade 10 (50.00%) Grade 11 (37.50%) Grade 12 (37.50%) Other (12.50%)	N/A	0 – 5 years (0.00%) 6 – 10 years (0.00%) 11 – 15 years (0.00%) 16 – 20 years (0.00 %) 21 – 25 years (25.00%) 26 – 30 years (12.50%) More than 30 years (62.50%)
Administrator	District Admin (51.61%) High School (HS) Principal (0.00%) Middle School (MS) Principal (9.68%) Elementary School (ES) Principal (9.68%) Assistant Principal HS (3.23%) Assistant Principal MS (9.68%) Assistant Principal ES (12.90%) Other (12.90%)	Yes (19.35%) No (67.74%) N/A (12.90%)	0 – 5 years (51.61%) 6 – 10 years (22.58%) 11 – 15 years (9.68%) 16 – 20 years (9.68%) 21 – 25 years (6.45%) 26 – 30 years (0.00%) More than 30 years (0.00%)

*Note: Teachers, retired teachers, and administrators had the option to select multiple grade levels; therefore, percentages do not sum to 100%. Additionally, all percentages may not sum to 100 due to rounding.

Parents/Guardians, Students, IHE, SEA Staff, and Business/Community Members

Respondent Role	Question	Response
Parent/Guardian	What grade level(s) are your children in? (Select all that apply.)	Pre-Kindergarten (16.67%) Kindergarten (5.56%) Grade 1 (5.56%) Grade 2 (0.00%) Grade 3 (11.11%) Grade 4 (16.67%) Grade 5 (22.22%) Grade 6 (11.11%) Grade 7 (11.11%) Grade 8 (11.11%) Grade 9 (11.11%) Grade 10 (5.56%) Grade 11 (16.67%) Grade 12 (16.67%)
Public School Student	What is your grade level?	Grade 11 (100.00%)
Institution of Higher Education	Select the option that best describes your position.	2-year institution (5.88%) 4-year institution (94.12%) Technical college (0.00%) Other (0.00%)
State Education Agency	Please describe your role as a member of the SEA.	Education recovery (1), cooperative director (1)

Business or Community Member	Please describe your role.	Chef (2), teacher (1)
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County Information

- 33 counties had a 0.00% participation rate
- 3 counties had a participation rate greater than or equal to 5% (Jefferson, Kenton, and Shelby)

Participation Information

Q16: Did you participate in any of the previous standards review surveys for mathematics?

- Yes – 39.53%
- No – 60.47%
- Of the 182 “no” responses, most respondents indicated they were unaware of any previous surveys related to the Kentucky Academic Standards.

Q17: How did you find out about this survey opportunity?

- KDE Website – 9.63%
- Professional Organization – 7.31%
- Email Invitation – 52.16%
- Press Release: Newspaper – 5.65%
- Public Service Announcement – 2.33%
- Other – 22.92%
 - DAC webinar and emails, GRREC, email from administrator, standards training, Facebook, associate superintendent, Kentucky Standards Advocates, social media, instructional coach, Committee for Mathematics Achievement, local news, congressman, university administrator, commissioner’s Tuesday message, math consultant, twitter, KY Teacher newsletter, title I coordinator, KSBA, chief academic officer, KTIK

Q18: Why did you choose to participate in this survey? (Select responses shown below.)

- The assessment design process is important—we should use as many people’s expertise as possible in crafting the blueprints for these assessments.
- Would like my voice included. If not included, have no right to oppose!
- Assessment will drive instructional decisions and professional development for teachers.
- I want the standards and testing system to be achievable for all students.
- I have been teaching middle school math for 20 years and have been through several different drafts of standards from core content to common core. I would just like to give my input.
- I am a member of the CMA. We are committed to mathematics achievement at all levels of learning. CME is a body legislated to provide advice on mathematics achievement to state decision makers.
- Math is a major area for improvement for my district and I want to stay abreast of any and all changes/improvements being made.
- It is important that our assessment blueprint is modeled after the major works of the grade. It should assess essential standards more than non-essential standards.
- If we don’t take the opportunity to give feedback, we surrender our right to impact the outcome.
- I want to know that what my students will be tested over matches what they are to be learning.

Blueprint Percentage Ratings and Comments: Grades 3-5

Note: Percentages may not sum to 100 due to rounding. All comments appear exactly as they were submitted by respondents. No edits were made.

Grades 3-5: Subdomain Category Label Ratings

Subdomain	Okay “as is”	Needs Revision
Operations and Algebraic Thinking	90.74% (147)	9.26% (15)
Number and Operations in Base Ten	91.98% (149)	8.02% (13)
Number and Operations – Fractions	89.51% (145)	10.49% (17)
Measurement and Data	95.06% (154)	4.94% (8)
Geometry	95.06% (154)	4.94% (8)

Grades 3-5: Subdomain Category Label Comments

Subdomain	Comments
Operations and Algebraic Thinking	<ul style="list-style-type: none"> • Reasonable • Should this just be called “Algebraic Thinking”? Operations would be involved anyway. • Within the topic of Algebraic Thinking it is unclear if that involves ratio and proportional setups that contain variables. If these are included then the title description needs changed to make this more clear. • I do not teach 3-5 but it looks ok to me • These domains represent the standards we teach. • Those should be two separate domains. • Students are familiar with the domain headings • Represents domains of knowledge for that age • It appeared to cover every concept • It is not clear. Does this mean Algebraic Operations and Algebraic Thinking? Or, does it mean some other type of Operations and Algebraic Thinking? Change the name to be Algebraic Operations and Thinking. • All learning is under this. • Essential foundation for all mathematics. Must continue to include the properties of operations and concept of equality. • Needs to be more specific, what are the students expected to know and do? • Important to start algebraic thinking early • Vague and sounds intimidating • Grades 3-5 should focus heavily on Number and Operations most specifically should master basic operations with multiplication by 4th and no later than the end of 5th. • Fill in learning gaps • The tests need to focus on OUR focus standards. • The tests need to focus on our focus standards. • This is one of the standard domains for these grades. • They are an over of the content to be taught • I like that this keeps common core language, which teachers are used to • Domain labels are clear and concise • “Thinking” is too vague, clarify

	<ul style="list-style-type: none"> • Our students need to completely master addition, subtraction, multiplication, and division, of all integers by the end of 5th grade. By extending that to algebraic thinking, we are going above what the average brain can comprehend at that age. • These labels align with the Domains of the standards. • There is considerable overlap between this and Number and Operations in Base Ten. Should some of the standards be rearranged or should the domain titles be changed? Subdomain C doesn't seem to fit here. • This clearly describes what students will be working on. • Aligns with domains in the standards. • This is how our unit plans are categorized • All topics taught in these grade levels can be placed in one or more of the domains listed. • Terms could be more student friendly • Operations and Algebraic Thinking is a label that accurately describes the clusters and standards under that domain. • None
Number and Operations in Base Ten	<ul style="list-style-type: none"> • Reasonable • "Operations in Base Ten"; only leave Number in the title if students aren't practicing algebraic thinking • These domains represent the standards we teach. • Students are familiar with the domain headings • I not sure if this label needs revision or not, however I would like to have seen examples of problems under this label to know if it is okay or needs revision. • Important • It is aligned by need more vocabulary. • All learning falls under this • Essential foundation for all mathematics. Understanding the system of tens is key to number sense. • More explanation needed • Is there a need for "base ten"? would they be working in any other base system in third through fifth grade? • Needed foundation • Call it what it is: whole number arithmetic • Assuming the domains are weighted, Number and Operations would have the highest weight • Fill in learning gaps • The tests need to focus on OUR focus standards. • The tests need to focus on our focus standards. • This is one of the standard domains for these grades • Multiplication and division with decimals needs to be moved to 6th grade. Since we do not focus on traditional algorithms for multiplication and division in 5th grade, the standards should focus on only whole number multiplication and division. • Emphasis on base ten • I'm not sure we need to specify "Base Ten" unless the students are doing operations in binary or some other system. • These labels align with the Domains of the standards. • This clearly describes what students will be doing. • Aligns with domains in the standards. • Number and Operations in Base Ten is a label that accurately describes the clusters and standards in that domain.

	<ul style="list-style-type: none"> • Numbers and Operations in Base Ten
Number and Operations – Fractions	<ul style="list-style-type: none"> • Reasonable • “Operations in Fractions”; only leave Number in the title if students aren’t practicing algebraic thinking • Why can’t it just be called “Fractions”? • Working with fractions is an important skills • Different from other Number and Operations • These domains represent the standards we teach. • Students are familiar with the domain headings • Fractions are not covered enough in previous and present grade levels nor is it tested enough. • Essential foundation for all mathematics. Development of conceptual thinking within the strand needs updating. • I feel that this needs to be more specific and give more examples of how to implement hands on activities. • Understanding operations with fractions is still important • Call it what it is: arithmetic of fractions • Third graders are not yet fluent in multiplication. Therefore, grasping equivalent fractions is extremely challenging. • Same as above • Fill in learning gaps • The tests need to focus on OUR focus standards. • The tests need to focus on our focus standards. • Higher expectations • This is one of the standard domains for these grades • Needs to start earlier • Emphasizes fractions • These labels align with the Domains of the standards. • Some concepts are not developmentally appropriate. • I said OK. But I am not sure how fractions are taught. Understanding fractions conceptually rather than or in addition to algorithmically is important for this age group. • This should match whatever language is used in middle grades. • Aligns with domains in the standards. • Students should not use calculators AT ALL. • Numbers and Operations – Fractions
Measurement and Data	<ul style="list-style-type: none"> • Reasonable • Okay, since they both involve quantity • These domains represent the standards we teach. • Again, two separate domains • Students are familiar with the domain headings • Need more every day practice • All learning is under this. • Important foundational understandings. • Needs to be more specific • I feel that this does not go into detail enough with metrics. We need to allow for more rigor with application for this process. • Necessary for everyday life • Fill in learning gaps • The tests need to focus on OUR focus standards. • The tests need to focus on our focus standards. • This is one of the standard domains for these grades • Clear

	<ul style="list-style-type: none"> • These labels align with the Domains of the standards. • This clearly describes what is to be worked on. • Aligns with domains in the standards. • Measurement and Data is a label that accurately describes the clusters and standards in that domain.
Geometry	<ul style="list-style-type: none"> • Reasonable • Good • Transformation needs algebraic expression on reference sheet • These domains represent the standards we teach. • Students are familiar with the domain headings • The fractional pieces with volume is not real world. • All learning falls under that. • Important foundational understandings. • Basic concepts are important • What type of geometry? Plane, spatial? • Fill in learning gaps • The tests need to focus on OUR focus standards. • The tests need to focus on our focus standards. This is one of the standard domains for these grades • Clear • Clarify, type of geometry • These labels align with the Domains of the standards. • This clearly describes what students are working on. • Aligns with domains in the standards. • Geometry is a label that accurately describes the clusters and standards in that domain.

Grade 3: Blueprint Percentage Ratings

Subdomain	Percentage Should be Lower	Percentage is "Just Right"	Percentage Should be Higher
Operations and Algebraic Thinking	26.92% (35)	63.85% (83)	9.23% (12)
Number and Operations in Base Ten	6.92% (9)	64.62% (84)	28.46% (37)
Number and Operations – Fractions	13.64% (18)	73.48% (97)	12.88% (17)
Measurement and Data	27.48% (36)	69.47% (91)	3.05% (4)
Geometry	10.77% (14)	73.85% (96)	15.38% (20)

Grade 3: Blueprint Percentage Comments

Subdomain	
Operations and Algebraic Thinking	<ul style="list-style-type: none"> • That should be 20-25 • I feel that the percentages should be distributed equally among the sub domains especially since in K-2 Algebraic thinking is incorporated but students are still developing their understanding of algebraic topics. • 20% • This is the foundational knowledge for going on. Include Grade 2 • Number is the priority in K-3 • Would like to see this around 30-35. • The tested percentage is lower. There are no critical areas listed in this domain. • All of the domains should be represented equally. • 3rd grade is primarily multiplication/division fluency • Algebraic thinking is the key to almost all mathematical success. • Cognitive development to understand abstract concepts • Need the foundation • The reasoning and operations in grades 1-3 is (or should be) more than 1/3 of the emphasis and therefore should be 1/3 (at least) of the assessment. • Abstract thinking at this age level is limited • This is still a foundational grade and the main focus should still be on basic number operations. • Focus more on the number sense. • The students need to work more on number and operations in base 10. • Number and operations in base 10 is more important. • All percentages should be divided equally. 20% each. • In 3rd grade, students should be learning basic operations of addition, subtraction, multiplication, and division as their primary focus • Weights should be equal. • All areas should be equal. • This is important as students move through the grades, but I think that much of it can be worked in through other standards.

	<ul style="list-style-type: none"> • This is such a huge concept in 3rd grade and more questions should be used for this domain. • Aligns with the identified critical instructional areas in the standards overview. • 20% • Algebraic thinking at this stage should be lower than operations in base 10 to show mastery. Algebraic thinking is a newer concept to this grade than operations in base 10. • About 25% is a good target range for Operations and Algebraic Thinking • 20
Number and Operations in Base Ten	<ul style="list-style-type: none"> • That should be 25-30 • 20% • Maybe just a little higher • Number is the priority in K-3, and place value is a mega-concept • This is another area students get more instruction while in 3rd grade. • Middle school students don't have a clear conceptual understanding • Need a strong foundation • Understanding number and operations is a large part of being able to correctly think in an algebraic way. The percentage should be the same as operations and algebraic thinking. • This could be 'just right' if it is also assessing grade 2 understandings. • Early elementary is weighted heavily in base 10 and understanding the number system and should be assessed at a higher percentage • Basic number operations should be the main focus. Other areas are directly affected by the level to which students can do and understand these foundational topics. • Kids need a deeper understanding of number sense • I think they need more work in this area to be successful. Math is a building block!! • At this age, students should still be focused on understanding whole numbers more than fractions. • Understanding our base ten system is essential to having number sense. • All percentages should be divided equally. 20% each. • These operations should be the primary focus in elementary school to provide a strong mathematical foundation • Weights should be equal. • This Domain is covered for 3 grades heavily and should have the highest weight on the 3rd grade test. • This is where students are solidifying their understanding of basic math concepts and should be assessed more. • Number and Operations in Base Ten is not listed as a critical instructional area in the standards overview. The percentage of the assessment for this area should be lower. • 30 • This should be higher than Algebraic Thinking because they have done it more and should have it mastered at a larger rate than algebraic thinking. • Since there are no critical areas listed in Number and Operations in Base Ten for 3rd grade, then the % of questions from that subdomain should be less than 20-25%. Additionally, there are only three NBT standards listed in 3rd grade. These are important standards, however, they are not listed as critical per KAS for Math doc for grade 3. So maybe about 105 • 20 • 25-30% This is where most of the work should be for a third grader

Number and Operations – Fractions	<ul style="list-style-type: none"> • That should be 25-30 • 20% • Stronger base in fractions needed for success in higher grades • Here it is just the beginning concept of fractions. Just a little lower. • If grade 3 only, just right, if K-3, this percent is too high • Recommend to be 15-20. • If this is grade 3 only, then this is about right but if this is assessing K-3 the percent is too high. • Fractions seem to be an area that is more challenging for 3rd graders, especially since there isn't a fraction standard in 2nd grade. • Complicated concept for that age • Fractions is an important domain that research shows to be a major indicator for success in college. Increasing the percentage to fractions with a deeper learning component may increase student's ability to do well in fractions. • Need more understanding at this level • At this age, students should still be focused on understanding whole numbers more than fractions. • All percentages should be divided equally. 20% each. • Weights should be equal. • Understanding of fractions is fundamental to success in math throughout the years. • This is a new concept for students so the number of questions is perfect! • Aligns with the identified critical instructional areas in the standards overview. • 30 • There are several standards related to the critical areas in the Number and Operations subdomain. The % of questions from this subdomain should be at least same as % questions from Operations and Algebraic Thinking subdomain. 25% • 20 • 15-20%
Measurement and Data	<ul style="list-style-type: none"> • Good, focus in middle school • 20% • This is too high for this grade. The focus of grade 3 is number. • This is way too high for the importance of this topic overall in K-3 or even just grade 3. • I would decrease this to 10-15. • This can be learned adequately with less time. • Good start for intermediate • This is a high level thinking for grade 3. Less emphasis until later grades. • While there are more standards in measurement and data than in geometry, I think that the percentages for the two should be similar. This would need to be lowered in order to raise the percentage number in numbers and operations in base ten. • Most of these standards are worded in ways where the students are to actually measure or create a graph. Fewer items, perhaps open ended may be needed. • Introduction of topics here is sufficient. Focus should still be on basic number operations and skills. • The students need more time to master metrics. This is the first time that they have been introduced to it.

	<ul style="list-style-type: none"> • Not as big of an emphasis later on • Harder topic needs less but better developed • All percentages should be divided equally. 20% each. • Weights should be equal. • You can take some of the weight from this domain and add into Number and operations in Base Ten • The percentage is fine as long as the assessment focuses on the numbers important part of the domain. Data shouldn't be more than 1, maybe 2, questions. • Students don't spend as much learning time on these skills in 3rd grade so the questions shouldn't be as heavily weighted. • Aligns with the identified critical instructional areas in the standards overview. • 10 • Measurement and data can be incorporated more alongside other strands. i.e. finding areas perimeter in OAThinking and measurement within Fractions. • Area in the Measurement and Data subdomain is considered a critical area so about 20% should be a target. • 20
Geometry	<ul style="list-style-type: none"> • Good, stronger focus in middle and high school • The percentages should be distributed equally among the subdomains. • 20% • This domain is highly represented on KPREP. • Geometry is typically a weak area in middle school. A stronger emphasis in elementary might help with that deficit. • Fun start • Geometric foundation is important at a low grade level. • In order to increase the percentage for fractions, you will need to decrease a percentage for another domain. Geometry is important b but the major clusters in this grade level do not reside in geometry. • There's a huge emphasis for this later on, so the more background knowledge on it, the better. • This is a less essential life skill. • All percentages should be divided equally. 20% each. • 2 of the focus areas for 3rd grade are on geometry concepts so the percent should weigh heavier. • All areas should be the same. • Students don't spend a majority of the year on these skills so the percentage of questions should be lower. • Aligns with the identified critical instructional areas in the standards overview. • Would like a higher focus on geometry and spatial reasoning • 20 • No more than 10%

Grade 3: Overall POSITIVE and CRITICAL Feedback

Grade 3: Please provide any additional POSITIVE feedback you have here.

- Nice balance and alignment with Common Core
- The standards as is (that were changed for CC) have worked to ensure students are ready for the next level. Teachers are familiar with “what is next”.
- Loved seeing the emphasis on Number and Operations skills. Good balance.
- Percentages look good
- I’m glad to see that measurement and data, and geometry at being taught at this grade level.
- I appreciate the diversity of topics covered.
- I do appreciate that testing will now be on a computer and not paper/pencil. I feel KPREP was more of an assessment testing if students know how to take a test, not on their knowledge. It was very frustrating, as a teacher, to not be able to correct students if they are writing answers in the incorrect spot or misunderstanding to put answers on the answer sheet also. Students, especially in the first year being tested, are more nervous and teachers should be allowed to catch students putting answers in incorrect places.
- Looks sufficient.
- I agree with the increase in the percentage in OA domain.
- Operations and algebraic thinking, Number and Operations in Base Ten, and Number and Operations – Fractions are given priority in grades 3-5 and should continue to be given such priority.
- In general, the percentages seem to align with the time devoted to the work.
- I think this looks fine. I’m not as familiar with this grade level.
- Focus in lower grades should be on number sense.
- I like that fractions has similar percentages as base ten and algebraic thinking. On past tests it seemed to have a higher percentage than the others.
- None
- Operations should be the highest because problem solving is a real world skill that should be a focus.
- Great collaboration building curriculum maps as an elementary team
- Algebra, Geometry good focus early
- I think our standards look pretty good.
- The standards emphasize the appropriate concepts for the most part.
- I like that there is an equal emphasis on measure and data as the operations.
- I like the choice of making geometry a smaller percentage since those are not focus standards for 3rd grade.
- For the most part, the percentages align with the critical areas outlined in the grade level overview.
- I agree with the percentages because this lets the teachers know where they should spend the majority of their time. Operations and Algebraic Thinking should be the majority of percentage points, due to the number of standards in this domain that must be taught.
- Seems as though the targets are correct.
- While it is understood that all standards are to be taught, if the KAS for math document states instructional time in grade 3 should focus on four critical areas, then the % of problems assessed from a particular subdomain should reflect % of critical area related to that subdomain.
- I am a strong believer that operations and algebraic thinking should hold more percentage than the other topics.
- You cover the bases –

Grade 3: Please provide any additional CRITICAL feedback you have here.

- None

- Are the original percentages the way they are due to critical areas standards being within those specific domains? If so, keep the original percentages; if not, why can't they all be of equal parts?
- A stronger knowledge based in fraction would ensure all students are ready for the next level.
- Under operations, we want to be sure that the questions are addressing the topics in grades K – 3, and not just grade 3.
- This seems to focus only on Grade 3, but it is critically important that schools get data on what children know through the end of Grade 3 (strands will be the same, but topics will be quite different). Please clarify the scope of the Grade 3 assessment. It seems like the committee decided on percents based on how many bulleted items there were, rather than consider the importance of the ideas
- It is critically important to assess students on what they know from grades K-2. Please detail what the scope of the exam is. Are all four basic operations included in the Grade 3.
- This should include data from the students through grade 3 assessment not just the topics in grade three.
- We do not need to place a lot of emphasis on Algebraic Thinking at this level.
- The standards need to be accessible in the survey
- There could be an over emphasis on algebra. Math is more than just algebra, although it is fundamental at this grade.
- If tests are going to be computerized, there should be a way for students to mark questions as one they may want to go back and double check before the final submission.
- n/a
- All areas should be worth the same amount. Geometry being worth less explains why it tends to be at the end in textbooks and is often lightly touched upon.
- Children need a good foundation in the base ten number system.
- My concern is the total of the upper range is 120%. When designing an assessment, this is not so much of a concern, as items can be adjusted to fall within range. If, however, these same ranges are used to determine the amount of instructional time, I fear one or more subdomains could be shortchanged.
- It is not clear if the grade 3 test assesses what is learned to date, or what is learned in grade 3. This will be critical.
- The use of calculators at this level need to be greatly de-emphasized. Students need to build foundational understanding of number operations prior to the use of calculators for more application based problems.
- We continue to cover many topics at each grade level rather than going into depth.
- There is so much to teach with fractions and the students mix up what to do. It's too much for them developmentally
- I think too much emphasis is placed on fractions in grades 3-5.
- Number idea of fractions and basic arithmetic.
- Less on "base ten" more on actual calculation
- I am not sure why the standards are not already deconstructed. Also social promotion has gone way to far.
- Be careful about emphasizing algebraic concepts too early, as they are very abstract, and 3rd grade students are still very much in concrete stage of development.
- I think heavily assessing students on Operations/algebraic thinking and Base ten skills is crucial because those are essential skills that will be used in their everyday life.

- Number and Operations in Base Ten is not listed as a critical instructional area in the standards overview. The percentage of the assessment for this area should be lower to encourage the alignment of instructional time with the critical areas.
- Students need more number skills, thus the reason I feel like the percents should be more heavily weighted in that direction.
- The most important thing to teach through third grade is number sense. If they have number sense, algebraic thinking, data analysis and geometry will be much easier to teach in upper grades.
- Seems there might be a disconnect if instructional time is to be focused on certain critical areas, and the # of assessment questions in each subdomain does not reflect this focus. We definitely want to avoid dividing % equally among the subdomains.
- Instead of giving a range of percentages, I feel there should be a definite percentage.
- Teachers in 3rd grade need to be trained to teach math. Most of the issues I have seen and experienced, are with teachers who did not like or do well in math being charged with making a major impression on students approach to learning mathematics. This could be a special subject area teacher teaching this rather than a general teacher teaching this subject.

Grade 4: Blueprint Percentage Ratings

Subdomain	Percentage Should be Lower	Percentage is "Just Right"	Percentage Should be Higher
Operations and Algebraic Thinking	14.41% (16)	77.48% (86)	8.11% (9)
Number and Operations in Base Ten	5.45% (6)	79.09% (87)	15.45% (17)
Number and Operations – Fractions	7.27% (8)	75.45% (83)	17.27% (19)
Measurement and Data	23.42% (26)	74.77% (83)	1.80% (2)
Geometry	9.01% (10)	76.58% (85)	14.41% (16)

Grade 4: Blueprint Percentage Comments

Subdomain	
Operations and Algebraic Thinking	<ul style="list-style-type: none"> • 20-25 • 20 • The more algebra the better. • Though these percentages may be slightly increased over third grade, the primary focus should still be on the development of number concepts and operations. • Not sure why Operations is in this title. • More emphasis should be put on whole numbers, less on fractions. • All percentages should be divided equally. 20% each. • This domain should increase from grade 3 through grade 5. • Operations and algebraic thinking is such a critical skill and should be assessed more. • Does not align with critical focus areas in standards doc. • We were surprised that none of the five standards listed under Operations and Algebraic Thinking domain were part of the critical areas in grade 4. The % of questions from Operations and Algebraic Thinking should be lower than the suggested target % range since Operations and Algebraic Thinking is not listed on KAS for Math doc as being a critical area in grade 4. • 20
Number and Operations in Base Ten	<ul style="list-style-type: none"> • 25-30 • 20 • Our students have a lack of understanding of base ten systems. This is evident in our K-PREP data. We need more focus on student understanding of base ten number systems in order to make sense of numbers. • Number properties and operations should still be the primary focus at this level. • More emphasis should be put on whole numbers, less on fractions. • These operations on the basis for skills necessary for math throughout the real world • All percentages should be divided equally. 20% each. • Base ten is an essential skill and should be assessed more!

	<ul style="list-style-type: none"> Aligns with critical focus area in standards doc. At least 30% of questions should be from Number and Operations since Number and Operations in Base Ten is one of the three critical areas. 20
Number and Operations – Fractions	<ul style="list-style-type: none"> 25-30 20 This is a HUGE idea in Grade 4 25-30 here, big idea at this grade level This is the Major topic in grade 4 and the assessment should reflect that. Even if there aren't many bullets in the standard overview, there is a LOT of instructional time here. Fractions are critical for success in high school and college. We need to increase the percentage of the domain that has such a critical impact on college success. At least on the upper end. The fraction concepts in grade 4 are 'big ideas' in grade 4 and absolutely necessary for the years to come. More emphasis should be put on whole numbers, less on fractions. All percentages should be divided equally. 20% each. A lot of time is spent in 4th grade on fractions so this amount is just right! Aligns with critical focus areas in standards doc. 20
Measurement and Data	<ul style="list-style-type: none"> Focus in middle school 20 Not a big idea in grade 4, though there are several bullets 5-15 would be more appropriate This is too high for grade 4. The focus should be on fractions and multi-digit operations in grade 4. This is not a big idea at this grade. Again, the weight of this category may increase slightly over third grade, the main focus should be number concepts and operations. Harder concept needs less percentage but better developed All percentages should be divided equally. 20% each. Much time isn't spent on this skill so the assessment percentages should be lower. Does not align with critical focus areas in standards doc. Although there are seven standards in the Measurement and Data domain, none are listed as a critical area for 4th grade. So possibly 15-20% at most 20
Geometry	<ul style="list-style-type: none"> Focus more in middle and high schools I think there needs to be equal distribution of the subdomains especially since 7th grade standards are dependent upon students learning Geometric concepts in 4th grade. 20 Big geometry year even though it is just one bullet – it is the first time students go deep into geometry concepts 20-25 would be more appropriate Even though there is only one bullet, it is a HUGE bullet and has many parts. All of the domains should be represented equally.

- This is one of the three big ideas of grade 4 – just because the list of standards is short doesn't mean the relative time (and assessment) should be short.
- All percentages should be divided equally. 20% each.
- Should all be weighted the same.
- There are several important geometry standards in 4th grade.
- Geometry isn't focused on as much as it needs to be so the percentages should be lower.
- Does not align with critical focus areas in standards doc.
- Although geometry is a critical area in grade 4, there are only three geometry standards. Therefore, about 15% is a good target range.
- 20

Grade 4: Overall POSITIVE and CRITICAL Feedback

Grade 4: Please provide any additional POSITIVE feedback you have here.

- Target percentage is commensurate with needed knowledge for higher levels.
- Good balance on Number and Operations
- Good diversity of topics.
- Sufficient
- Operations and algebraic thinking, Number and Operations in Base Ten, and Number and Operations – Fractions are given priority in grades 3-5 and should continue to be given such priority.
- Areas of assessment are more balanced
- Looks fine. Again, not familiar with this grade level.
- Problem solving is an essential skill to the real world and needs to be higher.
- Emphasis seems to be in the proper places.
- I like there is an equal emphasis on measurement and data as the operations.

Grade 4: Please provide any additional CRITICAL feedback you have here.

- Are the original percentages the way they are due to critical areas standards being within those specific domains? If so, keep the original percentages; if not, why can't they all be of equal parts?
- If anything, a more critical level for fractions.
- Like grade 3, focus on the magnitude of ideas, not the number of bullets. The previous standards provide a good description of big ideas of each grade (and since the topics are so similar those big ideas still fit).
- There needs to be a much bigger emphasis on Geometry at the fourth grade level. It seems that percentages are based more on number in bullet-ed list instead of depth of concept. This grade builds the foundation for all geometry concepts to come.
- These percentages seem to align with the number of bullets in the standards rather than the relative importance of each of the strands in the standards.
- The importance of a subdomain, and the amount of instructional time devoted to that subdomain is not proportional to the number of bullets under that subdomain in the overview.
- n/a
- Please review the green standards and assess the domains that more essential standards reside. If we follow the "Where to focus" document to help teachers make sense, assessment needs to be aligned.
- All areas should be of equal value so that all are taught with equal intensity.
- My concern is the total of the upper range is 125%. When designing an assessment, this is not so much of a concern, as items can be adjusted to fall within range. If, however, these same ranges are used to determine the amount of instructional time, I fear one or more subdomains could be shortchanged.
- Not just for this grade, but every grade, look to see if the assessment percentages 'fit' with the Big Ideas in the overview (in the CCSS these were ignored, but there is now an opportunity to have these big ideas actually be the big ideas of the grade (and if the assessments are focused on them, they won't be).
- Again, the use of calculators should be greatly de-emphasized.
- Focus!
- Fractions are too difficult from them developmentally and they struggle understanding it in an abstract form. It needs to be worth less.
- Probability should be introduced at fourth or fifth grade instead of it appearing in 7th grade and never taught again. The content is only in 7th grade.

- It seems outside of the geometry subdomain the others were divided equally. Grade 4 sets the foundation for success with fractions. Having a conceptual understanding of fractions is key for success in Alg I. success in Alg. I is key to post secondary. Maybe operations/algebraic thinking needs to be increased slightly as well.
- The measurement and data can be worked into questions for the other domains much of the time. Once again, fractions should take center stage.
- KPrep is often geometry heavy and that is not a true representation of essential 4th grade standards. A lot of 4th grade is spent multiplying and dividing not on shapes. Please focus the assessment on what are essential life skills found in the standards.
- Percentages should shift from grade level to grade level to reflect the critical instructional areas described within the standards overview. Teachers need to have the ability and confidence to emphasize the critical areas in instruction identified in the standards doc without fear that large portions of the assessment will be on topics which were not denoted as critical. The percentages included here could yield an assessment that has 75% of the questions coming from areas not designated as critical areas for instructional time.
- See previous comment
- Same as for 3rd grade

Grade 5: Blueprint Percentage Ratings

Subdomain	Percentage Should be Lower	Percentage is "Just Right"	Percentage Should be Higher
Operations and Algebraic Thinking	9.17% (10)	81.65% (89)	9.17% (10)
Number and Operations in Base Ten	14.95% (16)	72.90% (78)	12.15% (13)
Number and Operations – Fractions	4.59% (5)	81.65% (89)	13.76% (15)
Measurement and Data	11.01% (12)	79.82% (87)	9.17% (10)
Geometry	12.61% (14)	75.68% (84)	11.71% (13)

Grade 5: Blueprint Percentage Comments

Subdomain	
Operations and Algebraic Thinking	<ul style="list-style-type: none"> • Leads into a transitional year • 20 • Could be a little lower to make room for more in decimal • Not big ideas housed in this category • This domain involves developing critical thinking skills that are vital to these students when they become sixth graders. Do not lower this percentage. • The ideas in this subdomain are relatively trivial (notation and simple patterns) and should only be about 10% • This category prepares them for future concepts. • All percentages should be divided equally. 20% each. • This domain should increase from 3rd grade to 5th grade • Aligns with critical focus areas in standards doc. • There are only three Operations and Algebraic Thinking standards in 5th grade. Very few of these standards are listed as part of the critical area for 5th grade. • 20
Number and Operations in Base Ten	<ul style="list-style-type: none"> • Leads into a transitional year • 20 • Decimal arithmetic is crucial here. • Big idea – decimals – this is a huge area for grade 5 • More emphasis on working with decimals and two digit division • This should already be a skill developed in grades 3-4 • Decimals and operations are big ideas in this grade, and the decimal content is critical. • All percentages should be divided equally. 20% each. • This domain can decrease from 3rd grade to 5th grade. • Aligns with critical focus areas in standards doc. • 15 • At least 25-30% of questions should be from Number and Operations in Base Ten, especially when considering the critical area #2 listed in the KAS for Math doc. For grade 5.

	<ul style="list-style-type: none"> • 20
Number and Operations – Fractions	<ul style="list-style-type: none"> • Leads into a transitional year • 20 • Please never lower this percentage. As a middle school teacher, there are many times that I see sixth grade students struggle with the concept of working with fractions. It's harder for them to conceptualize. This percentage is good. • The fractions domain is critical in the success of students in high school and college. We need our teachers to focus on critical areas for growth in our community. • At least on the high end of the range given or a little higher...very important ideas. • Critical and vital that students have a thorough knowledge of fractions prior to entering 6th grade!!!! • All percentages should be divided equally. 20% each. • Aligns with critical focus areas in standards doc. • At least 25-30% of questions should be from Number and Operations – Fractions domain based on bulleted list under critical area 1 on Grade 5 overview page of KAS for Math doc. • 20
Measurement and Data	<ul style="list-style-type: none"> • Leads into a transitional year • Students need more practice applying measurement and data to real life concepts. • 20 • Students need a stronger knowledge of visual differences between measurement units. • All of the domains should be represented equally. • A big idea in this grade and a lot of content. • Narrow the range • Measurement and data is more important than geometry. • All percentages should be divided equally. 20% each. • All areas should have equal weight. • Aligns with critical focus areas in standards doc. • One of the critical areas in 5th grade focuses on volume which is part of the Measurement and Data domain. At most, 20% of questions should be from Measurement and Data domain. • 20
Geometry	<ul style="list-style-type: none"> • Leads into a transitional year • This needs to be higher for the same reason given from 4th grade. Geometric concepts build from year to year and should be equal. • 20 • Just a little lower for more space on number and operations. • Not as big a priority in Grade 5 • Geometry is a higher percentage of the KPREP. • All of the domains should be represented equally. • Not much here, and not listed as 'big ideas'. • Narrow the range • Measurement and data is more important than geometry. • All percentages should be divided equally. 20% each. • All areas should have equal weight. • Aligns with critical focus areas in standards doc. • 25-30

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| | <ul style="list-style-type: none">• At this point students should have geometry mastered more than previous years so the percentage should be closer to that of operations and algebraic thinking.• 10-15% should be target. Only 4 geometry standards in grade 5. None of the geometry standards are connected to critical area for grade 5.• 20 |
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Grade 5: Overall POSITIVE and CRITICAL Feedback

Grade 5: Please provide any additional POSITIVE feedback you have here.

- Overall these percentages look good.
- Sufficient
- Operations and algebraic thinking, Number and Operations in Base Ten, and Number and Operations – Fractions are given priority in grades 3-5 and should continue to be given such priority.
- View grade 5 as bringing all topics together that were taught separately but in depth during grades 3 and 4.
- Emphasis seems to be about right.
- I like there is an equal emphasis on domains.
- Categories look good
- Good adjustment on the percent of time spent learning in each subdomain

Grade 5: Please provide any additional CRITICAL feedback you have here.

- Are the original percentages the way they are due to critical areas standards being within those specific domains? If so, keep the original percentages; if not, why can't they all be of equal parts?
- Again, don't look at the number of bullets, but the importance of the ideas.
- I am not a fifth grade teacher. With that being said I am not sure of whether or not the percentage is accurate for numbers and operations in base ten. I'm not sure of all this domain includes.
- n/a
- By fifth grade, there needs to be more emphasis on fractions. Too many students come to the university and do not understand fractions.
- All areas should be of equal value so that they will be taught with the same intensity.
- My concern is the total of the upper range is 125%. When designing an assessment, this is not so much of a concern, as items can be adjusted to fall within range. If, however, these same ranges are used to determine the amount of instructional time, I fear one or more subdomains could be shortchanged.
- Focus on transition to middle school!
- The K-prep test should cover the focus standards.
- Probability needs to be spread out just like all other sub domains
- If we are testing students in 3rd, 4th, and 5th grade, students are being tested too much. Younger students should be tested less, and older students should take the bulk of the testing.
- Geometry should be stressed more at this level.
- The Grade 5 overview page of the KAS for Math has Operations and Algebraic Thinking domains listed in both critical area #1 and #2. However, there are very few Operations and Algebraic Thinking standards that align to the description of these two critical areas. Geometry domain is listed in critical area #3 for grade 5, however, based on the bulleted list under critical area #3, there are no geometry standards that align to the description of critical area #3.
- Same as 3 grade comments for critical feedback

Blueprint Percentage Ratings and Comments: Grades 6-8

Note: Percentages may not sum to 100 due to rounding. All comments appear exactly as they were submitted by respondents. No edits were made.

Grades 6-8: Subdomain Category Label Ratings

Subdomain	Okay “as is”	Needs Revision
Ratios and Proportional Relationships	94.59% (140)	5.41% (8)
The Number System	93.92% (139)	6.08% (9)
Expressions and Equations	95.27% (141)	4.73% (7)
Geometry	95.27% (141)	4.73% (7)
Statistics and Probability	92.62% (138)	7.38% (11)

Grades 6-8: Subdomain Category Label Comments

Subdomain	Comments
Ratios and Proportional Relationships	<ul style="list-style-type: none"> • Reasonable • Good connection • These domain labels are great for the middle school students they apply to. • These domains represents the standards we teach. • Divided detailed • Add Percents • Essential for many applications • Not very descriptive • I felt as though the questions used an excessive amount of fractions and decimals in the question and required multiple steps to solve, even the multiple choice problems. Multiple choice problems should truly assess only that standard and should require no more than two steps since there is no opportunity for the student to explain their thinking. • The majority of our curriculum is based on Ratios and Proportional Reasoning. The percentage needs to be higher in this area. • Ratios and Proportional Reasoning. The standards focus on student reasoning and using that reasoning to make sense of a relationship. • This is one of the standard domains for these grades • Clearly stated • These labels align with the Domains of the standards. • Labels are accurate and depict material covered within that domain. • Even if I don't teach middle grades I know what would be covered here. • Aligns with domains in the standards. • Ratios and Proportional Relationships is a label that accurately describes the clusters and standards in that domain.
The Number System	<ul style="list-style-type: none"> • Reasonable • Inclusive overview • Needs more concrete understanding of present concepts • These domain labels are great for the middle school students they apply to. • These domains represent the standards we teach.

	<ul style="list-style-type: none"> • Aligned well • What does this define? What number system? This is not specific nor descriptive. • Needed foundation • It seems a little vague to me but I have not taught 6th grade. Perhaps it would make more sense to me if I had. • There are many, which number system? Mathematics is an exact science, be precise. Model what we want our students to learn. • This is one of the standard domains for these grades • How is this different than 8th grade “The Number System? Thinking of non education people... • These labels align with the Domains of the standards. • Labels are accurate and depict material covered within that domain. • I’m not certain what all is included in this especially if I have never taught middle grades math. • Aligns with domains in the standards. • The exact number system needs to be specified. It should say The REAL Number System unless they are also going to be responsible for complex and imaginary numbers. • The Number System is a label that accurately describes the clusters and standards in that domain.
Expressions and Equations	<ul style="list-style-type: none"> • Reasonable • Maybe add “Algebraic” at beginning to make connection between elementary and middle school • These domain labels are great for the middle school students they apply to. • These domains represent the standards we teach. • Too broad • What type of expressions? This is not specific nor definitive. • Essential algebra skill for application • Same as proportional relationships, should include less fractions and decimals in the multiple choice questions that are non-calculator so that the standard you are assessing is the only standard present in the problem. • This is one of the standard domains for these grades • What specifically in Expressions and Equations! • At grade 7 students aren’t developmentally ready for the abstract idea of solving a two-step equation with the distributive property. • These labels align with the Domains of the standards. • Labels are accurate and depict material covered within that domain. • I clearly know what will be taught. • Aligns with the domains in the standards. • Expressions and Equations is a label that accurately describes the clusters and standards in that domain.
Geometry	<ul style="list-style-type: none"> • Reasonable • Inclusive overview • These domain labels are great for the middle school students they apply to. • These domains represent the standards we teach. • Needs broken down in smaller subdomains • Not sure of the topics at this level, but basic concepts important for applications • What type? Is this a respect of grades 3 to 5, building on it?

	<ul style="list-style-type: none"> • This is one of the standard domains for these grades • What specific geometry topics? • Covers too broad of concepts. Too many ideas to teach to fidelity and reach ALL students. • Clarification, type of geometry • These labels align with the Domains of the standards • Labels are accurate and depict material covered within that domain. • I clearly know what will be taught • Aligns with domains in the standards. • Geometry is a label that accurately describes the clusters and standards in that domain.
Statistics and Probability	<ul style="list-style-type: none"> • Reasonable • Good connection • Two way tables • These domain labels are great for the middle school students they apply to • Some of the standards seem to be introduced too early especially 7th grade. • These domains represent the standards we teach. • Aligned well • Good place to start with definitions and descriptive statistics and basic probability concepts • This is the last unit of the year and it is not comprised of essential standards but was still the largest portion of the test, this is often the material that has to be rushed or, if a teacher has to come in midyear, it is the material that gets skipped over altogether because it is nonessential. Nonessential standards should not be large portions of the assessment. Either this standard becomes an essential standard and the curriculum map changes or it should comprise less of the test. • Many of the Statistics and Probability standards are not essential standards and should not be weighted as heavily. Truly, Random Sampling is the only thing they should be assessed on. • This is one of the standard domains for these grades • Probability introduction. Needs to be taught before seventh grade. • Concerning what topics? • Too much going on in this standard strand. Needs to be focused on basic probability and compound probability. The statistics portion contains too many ideas that kids have no way to relate to (using mean absolute deviation to describe data). • 6th grade stays more in the domain of statistics only. • These labels align with the Domains of the standards • Labels are accurate and depict material covered within that domain. • I clearly know what will be taught. • Aligns with domains in the standards. • Statistics and Probability is a label that accurately describes the clusters and standards in that domain. • Probability and Statistics (usually written this way)

Grade 6: Blueprint Percentage Ratings

Subdomain	Percentage Should be Lower	Percentage is "Just Right"	Percentage Should be Higher
Ratios and Proportional Relationships	4.04% (4)	63.64% (63)	32.32% (32)
The Number System	18.56% (18)	75.26% (73)	6.19% (6)
Expressions and Equations	6.19% (6)	88.66% (86)	5.15% (5)
Geometry	6.19% (6)	70.10% (68)	23.71% (23)
Statistics and Probability	32.99% (32)	64.95% (63)	2.06% (2)

Grade 6: Blueprint Percentage Comments

Subdomain	
Ratios and Proportional Relationships	<ul style="list-style-type: none"> • Transitional year, so students learning information in a new way. • Ratios and Proportions is a HUGE underlying topic and should be given a higher percentage. If a student truly understands applications of ratios and proportions, the concept is applicable to so many mathematical concepts including calculus. • 20 • This is a crucial topic for going on with understanding. • New topic, extremely important • One of the biggest ideas at this grade level. Very deep concept. • Maybe this should be 20-25% • This is the foundation for real world mathematics • This is one of the 4 big ideas of grade 6 and one of the biggest ideas in all of math – it should be 25-30% • Students should be working to improve and increase proportional reasoning. A lower percentage on assessments leads one to believe the area to have less importance especially if these percentages are published for parents • This is a strong essential standard • Achievethewcore.org, Dana Center, and other research states that Ratios and Proportions are a major work of the grade. This should have the largest percentages of any category in our standards. • I would suggest a 20-25% as this is a conceptual category that is a critical area for middle school math • 6th grade's critical area is ratio and proportional relationships. This domain should carry as much weight as the number system, expressions/equations, and statistics. • Statistic and Probability Domain can decrease and this domain can increase • Ratios and Proportional Thinking are critical foundational pieces for later algebraic thinking. More emphasis should be placed here. • A significant part of our school year / curriculum revolves around ratios and proportional reasoning – the percentages should reflect the percentage of time spent on it, roughly.

	<ul style="list-style-type: none"> • This is a critical skill for life outside of school • Ratio and proportions are essential standards as they build from 6th to 7th to 8th. A lot of time is spent developing those skills and conceptual understanding. If it's worth less, it will be taught less... • I spent a huge part of the 6th grade math days teaching students about ratios because I thought it was that vital to understand and there was only one question related to that...so sad! • Does not align with critical focus areas in standards doc • 20 • Ratios and Proportions are a key component of the classes these kids will be in in the future. I feel they need higher percentages.
The Number System	<ul style="list-style-type: none"> • Transitional year, so students learning information in a new way. • 20 • Must make more room for the proportions. • Not as much here in grade 6. • Need to place less emphasis on this –it is more division and negative numbers • What number system? Title is not descriptive • This could be on the lower end (20-25), though there are many big ideas here. • Achievethecore.org, Dana Center and other research states that the number system is an additional cluster. Students should have fluency in these standards and should be about 20%. • To provide equivalence among the critical area domains this percentage should be lowered to about 22. This domain should carry as much weight as the ratio and proportional relationships, expressions/equations, and statistics. • Decrease in favor of geometry • I fear teachers will drill and “kill” students if this is one of the highest percentages. • This is nice to know • Aligns with critical focus areas in standards doc. • 20 • I feel the number system should have a slightly smaller percentage similar to that of the ratios and proportions.
Expressions and Equations	<ul style="list-style-type: none"> • Transitional year, so students learning information in a new way. • 20 • Of what? Title is not descriptive. • Achievethecore.org, Dana Center and other research shows that expressions and equations are a major work of the grade. • To provide equivalence among the critical area domains this percentage should be lowered to about 22. This domain should carry as much weight as the ratio and proportional relationships, number system, and statistics. • Aligns with critical focus areas in standards doc. • 20
Geometry	<ul style="list-style-type: none"> • Transitional year, so students learning information in a new way. • Geometric concepts are important for building understanding. Percentages should be equal. • 20 • The new topics of surface area is big, just a little higher. • First time to explore surface area and volume in depth • 15-20 with focus on surface area and volume in-depth.

	<ul style="list-style-type: none"> • This should be 15-20% • I believe this percentage should be 15-20. I realize this is a slight change, but I believe it would be for the better. Surface area can give some students a difficult time, therefore I believe the percentage should be equal to that of ratios and proportions. • I would like to see geometry between 15-20 • Lots of students lack basic Geometry skills when coming to the middle school • Based on the number of standards under this domain, I think it is reasonable • Students are continuing to build on previous learning and following grade progression more emphasis should be given to geometry • Achievethcore.org, Dana Center, and other research shows that geometry is a supporting standard and should not be a focus of assessments. • This is the grade level where students use area and volume formulas which is an important concept to begin developing and continue using in 7th and 8th grade. I don't feel that would be reasonably assessed at such a low percentage. • While this isn't a critical area the supporting standards for this domain fall within the number system. • Geometry has so many real world applications and is very important to higher mathematics. • Geometry should have an equal focus. Students who do not have a strong foundation in geometry struggle in high school. Too many teachers are not getting to geometry and stats. • Should be more like 20% • Should not be a major focus...therefore shouldn't be a hugely tested area. • Aligns with critical focus areas in standards doc. • Geometry is very important in modeling and should be represented with a higher percent. • 20
Statistics and Probability	<ul style="list-style-type: none"> • Transitional year, so students learning information in a new way. • 20 • I would like to see Statistics between 15-20 • Least practical of the categories; Mean Absolute Deviation, box and whiskers/box plot are never used in the lives of 99% of adults. • I think this domain should be the lowest. There are quite a few standards under this domain but Kentucky high school requirements require Algebra and Geometry for high school graduation. • The only reference to data in 5th grade is line plot which is continued from 4th. Suddenly in 6th students are given 5 standards with multiple sections and are expected to master with no prior knowledge except for line plot. It is not fair to students to heavily weight their assessments when they've only been given limited time to learn completely new material. • High percentage on probability • Not as many essential standards. • Achievethcore.org, Dana Center, and other research states that statistics and probability are supporting standards and not major work of the grade. If we use this percentage we are going against every experts statements and research findings of statistics and probability.

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| | <ul style="list-style-type: none">• I would suggest a 15-20% as students are just beginning to develop conceptual understanding of this domain• There is no probability in 6th grade. I don't feel that high of a percent of the test should be just on statistics questions.• To provide equivalence among the critical area domains this percentage should be lowered to about 22. This domain should carry as much weight as the ratio and proportional relationships, expressions/equations, and the number system.• Ratios and Proportional Relationships should increase the Statistics and Probability can decrease.• Stats is never taught well in the sense that it is always shoved at the end of the year, never enough time spent on it. It doesn't seem to be a priority, time-wise so the percentages should reflect that.• Same as above with ratio. Status is important---but taught really only in 6th grade. None of those standards are crucial to understanding math in upper grades.• Does not align with critical focus areas in standards doc.• 20• I feel the statistics and probability should have a level equivalent to the geometry. |
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Grade 6: Overall POSITIVE and CRITICAL Feedback

Grade 6: Please provide any additional POSITIVE feedback you have here.

- I am glad to see that Number System and Expressions and Equations have a high percentage compared to the rest. These definitely include more topics to cover than Geometry and Ratios/Proportions.
- Sufficient
- I think the percentages are divided well based on number standards under each domain. Statistics and Probability is the only domain that I question.
- Expressions and Equations are right on!
- Emphasis seems to be in the correct subdomains
- Many expression, Algebraic problems can be solved using ratios and proportions. This is an important domain that should be deeper than indicated from domain importance on assessment percentages.
- I like that there is greater focus in the major work of the grade level.
- Great job

Grade 6: Please provide any additional CRITICAL feedback you have here.

- Are the original percentages the way they are due to critical areas standards being within those specific domains? If so, keep the original percentages; if not, why can't they all be of equal parts?
- Place a bigger emphasis on Ratios and Proportions.
- I believe the percentage for geometry should be raised just a little to account for the surface area portion of the domain.
- n/a
- when revision occurs again, I think the probability and statistics domain standards need to be decreased and geometry standards increased. In my opinion, statistics standards are way to detailed and in-depth for 6th grade students.
- All areas should have equal value so they will be taught with equal intensity.
- Statistics should be at a higher grade level
- As before, focus go in depth, then provide connections and reviews
- The K-Prep Test should cover the focus standards.
- What research (not other states opinions or opinions of individuals) is being used to design the blueprint? Acheivethecore.org, Dana Center, and all the research and experts I have read state that Ratio and Proportional Reasoning are a major work of the grade and Statistics and Probability is a supporting cluster. Very little time should be spent on Statistics and Probability while a majority of the time should be spent on Ratios and Proportions.
- Probability needs to be in other grades as well. It is a sub domain that is only taught in seventh grade. Seventh grade has a lot of content and is hard to get everything covered. It would help if this was introduced in 4th and fifth more extensively in 6 and 7th.
- Before the breakdown was even across the domains. I feel that it should remain fairly even because then that places and emphasis that all the standards are equally as important as the others. If there is a significant difference I could see educators focusing on the standards that are tested and therefore creating future gaps. I also feel when the data is released that the students scores should have a breakdown of domain so that students can see what areas they were successful in and what areas they need to grow in. it also helps the teachers and schools address domain content issues to ensure success for all students. Also, why does 6th grade not get a math reference sheet?
- I'm not a fan of the change in percentages. The weights are inconsistent with the critical areas of the standards being taught.
- Please take Mean Absolute Deviation OUT! It is not a 6th grade content, and it is irrelevant to most real-world content, irrelevant to next year's content.

- Neither of those ranges add up to 100% if you are looking at the upper range and lower...teachers will take this as the law so if it says spend less time on ratio...they will which will then hurt 7/8 grade scores. 7th grade is already overloaded with standards.
- Statistics and probability should be less than geometry. Change the percentages to where geometry is more than statistics and probability.
- Geometry seems to be a lower percent in every grade but yet there is an entire course in high school dedicated to it.
- Although “surface area” is listed in the Geometry cluster and in the description of critical area #4, there are no standards (or clarifications) that specifically support finding surface area. Nets have been moved to 7th grade. Therefore, we think surface area should not be assessed in 6th grade.

Grade 7: Blueprint Percentage Ratings

Subdomain	Percentage Should be Lower	Percentage is "Just Right"	Percentage Should be Higher
Ratios and Proportional Relationships	5.83% (6)	90.29% (93)	3.88% (4)
The Number System	3.85% (4)	72.12% (75)	24.04% (25)
Expressions and Equations	2.94% (3)	57.84% (59)	39.22% (40)
Geometry	14.71% (15)	82.35% (84)	2.94% (3)
Statistics and Probability	40.20% (41)	59.80% (61)	0.00% (0)

Grade 7: Blueprint Percentage Comments

Subdomain	
Ratios and Proportional Relationships	<ul style="list-style-type: none"> • Students will practice now through high school. • 20 • This is probably the most important topic in middle school math, but students get to high school and have no idea what it means to be proportional. • Expressions and equations are critical for future concepts. • This is the base of all other units for the rest of the year, realistically students see it the most so it should be the thing that is assessed the most. • This is the last time students experience ratios and proportions. It is a major work of the grade according to achievethecore.org, Dana Center, and other research. • The seventh grade ratios and proportional relationships domain provides a good foundation for the 8th grade work using slope. • Many concepts that are built into 7th grade all directly related to proportionality and proportional relationships. Therefore, my belief is to spend a lot of time and focus on that topic to better support other topics. • 20
The Number System	<ul style="list-style-type: none"> • Important, but percentage is good. • Understanding this sub domain is critical to numerical thinking. Should be equal! • 20 • Higher if the focus is really on fluency as this is a majorly important knowledge base for all that comes after. • This is the culmination of all things rational with the need for fluency in converting from decimals to fractions to percents. • Should be 20-25 • Lowering this would free up space for proportional relationships • Basic numbers must still be a large focus here • Title is not descriptive. • Students need more time with integer operations. Other than absolute value students have no frame of reference for integer operations. More

	<p>specifically the rules in order to solve the operations correctly. Rational number operations are touchy as well. Students in grade 6 are just introduced to fraction division, and now we expect them to do that same process with positives and negatives.</p> <ul style="list-style-type: none"> • This is the prime grade level for actually using integers and rational numbers to solve problems. This is essential for building skills for Algebra. • Rational numbers? That's a major idea in 7th grade... • Why is the number system so low in 7th grade?? • 20
Expressions and Equations	<ul style="list-style-type: none"> • 25-30; important for algebra in middle and high school • Algebraic concepts are an important part of understanding and should be equal. • 20 • Linear equations are new and important! • 20-25 helps build foundation for high school content. Building algebraic fluency is key to high school and college success. • 20-25% • This is the most crucial topic in 7th grade. • Should be 20-25 • Provide more time to hone the fundamentals of algebra before high school or possibly 8th grade algebra I. • Expressions and Equations should be increased as middle school math is designed to prepare students for high school algebra. • Title is not descriptive • This category is the basis for future math concepts and classes. • This is the standard that is used the most in 8th grade and throughout high school; it is the longest unit in the IM curriculum and is the other thing that students are most familiarized with. It makes sense for the assessment that the state and district are using to reflect the curriculum we are adopting. Students should be able to demonstrate the knowledge that they have focused the most on throughout the school year on the majority of the test. • Students should be able to demonstrate how to solve equations and it should be highly assessed. • This is the foundation for Algebra 1 and 8th grade. The Dana Center, achievethecore.org, and other research states that it is a major work of the grade. • Working with variables in combine and expand, writing two-step equations and inequalities. These are essential skills for Algebra. • This is a very important foundational piece for later work in algebra. • Seems too low for 7th grade. Much of teachers time is spent teaching expressions and equations for only a small amount of that to be included in assessments. • Same...getting ready to move to 8th grade need to have strong foundation of EE for algebra 1 • Why is this so low??? • 20 • Expressions and Equations are a huge chunk of the 8th grade content. I feel these should hold a higher percentage.
Geometry	<ul style="list-style-type: none"> • Even though it's specific shapes and formulas, it preps them for 8th and 10th, since there may be little geometry in 9th. • 20 • Should be 15-20

	<ul style="list-style-type: none"> • This topic is very broad and needs to be more focused. • This is a supporting cluster and should not be assessed as heavily. Achievethecore.org, Dana Center, and other research state this. • Too broad a range of content to cover in the amount of allotted time. Focus on area of circles and circumference, area of composite figures, basic angle relationships. • 25-30% • 20
Statistics and Probability	<ul style="list-style-type: none"> • 15-20 • Should be equal for all sub domains. • 20 • While a big idea, it isn't 30% of the Grade 7 year, more like 15% at best • 20-25 • 20-25% • Not a lot lower, but statistics is not as important as the expressions and equations. • Should be 15-20 • Impractical and does not help prepare students for high school courses • Again, I feel these standards need to be revised. In my opinion, they need to be lessened. • This is a NON-ESSENTIAL standard. It does not make sense for the material that students cover the least to be the content that they are tested on the most. • The standards in this category are not essential standards. • Statistics and probability are not a major focus of middle school standards. The Dana Center, achievethecore.org, and other research shows that it is not a major work of the grade. • I feel that middle school is preparing more for algebra therefore the statistics and probability should be a smaller percentage and expressions and equations should be higher. Many of the topics in probability and statistics are developmentally difficult for this age group to grasp. • Too broad a range of content to cover in the amount of allotted time. Students have no frame of reference for using statistical analysis such as mean absolute deviation. It is just another arbitrary skill they must know and then never talk about it again. Focus on basic probability and compound probability games. • Up to 30% of the content to me means that I should spend 30% of my year teaching statistics and probability. While these skills are important I don't feel their weight should be heavier than the other domains. • 20-25% target range • 20 • I don't feel this category should carry this much weight. I think the statistics should be 15-20%.

Grade 7: Overall POSITIVE and CRITICAL Feedback

Grade 7: Please provide any additional POSITIVE feedback you have here.

- I agree with these percentages considering what is involved in each domain.
- Sufficient
- Clarification of some standards was needed. I still think the number of standards could be decreased in 7th grade.
- The percentages are not equivalent.
- Proportional relationships does a good job of preparing students for the major strand of slope in 8th grade.
- 7th grade percentages indicate the importance of ratios and proportions. This could be emphasized for two consecutive years to assure deeper comprehension of the domain.
- This comment is neither positive or negative, just a noticing which is applicable to all grade level question about the blueprint % The KAS for Math doc refers to Operations and Algebraic Thinking, Statistics and Probability, Geometry, etc. as domains. However, this survey is referring these as subdomains. Therefore, both domain and subdomain has been used interchangeably in my responses. As I'm working with teachers, I'm wondering which term is correct? Should I use – domain or subdomain?

Grade 7: Please provide any additional CRITICAL feedback you have here.

- Are the original percentages the way they are due to critical areas standards being within those specific domains? If so, keep the original percentages; if not, why can't they all be of equal parts?
- In my experience, students need more practical understanding of operations with fractions.
- More emphasis on expressions and equations as these are foundation for all high school content. Less emphasis on Statistics and Probability as it is more about inferences and sampling.
- I believe these percentages are accurate concerning our current standards. However, I believe there needs to be a revision in the standards that allows for more focus on Expressions and Equations because of the vital role it plays in the students' eighth grade year.
- n/a
- More majors seem to want students to know how to solve equations compared to knowing statistics. In seventh grade, solving equations should be a higher priority.
- There are way too many critical area standards in 7th grade. Statistics and probability standards need to be decreased.
- Each area should be of equal value so they are taught with equal intensity.
- There seems to be a lot of emphasis on statistics which on one hand is good because it's a required for many disciplines in college, but don't lose the algebra skills which are also important for many career paths.
- See grade 6
- The way the test is formatted is awful. Students were unable to determine which answer choices went with which letter on multiple questions, this does not give an accurate assessment on what students have mastered throughout the school year. Including multiple choice questions after the short answers without giving any indication that those questions are present is also not effective assessment design; students are in 7th grade and should be tricked by the formatting of a test. Non-essential standards should not take up the bulk of the test, this is common sense. Standards that are the most essential for the next grade level should have the highest percentages on the assessment because that is what educators have spent the year preparing them for. When you comprise a test that way you encourage people to teach to the test rather than to actually provide effective education for their students. The test should reflect the curriculum map and that is not what happened in the slightest on this test, as someone who came in mid year and had to make decisions on what was essential for my students to

learn I used the ESSENTIAL standards on the curriculum map and effectively taught each of them being under the impression that the NON-ESSENTIAL standards would be a minimal part of KPREP but that was not the case.

- What research is being used to make these decisions? All research and math experts I have read state that ratios and proportions are a major work of the grade and should be assessed heavily. Statistics and Probability are not a major work of the grade. We are going against all math experts and research if we use these percentages.
- I feel that 7th grade should focus on rational number operations and expressions and equations. The next step is algebra and they need a solid foundation.
- There is too much content in seventh grade and it is difficult to get everything covered let alone mastered by students. In our district everyone want to leave 7th grade and go to 8th or 6th.
- There is too much content to cover in the school year. We aren't able to go to the depth of understanding that our students could reach because of the sheer quantity of standards expected to be covered at the depth they are intended to be covered. Again, we are digging five miles wide and one inch deep. We are failing our students. We need more real-world math embedded within our standards.
- Before the breakdown was even across the domains. I feel that it should remain fairly even because then that places and emphasis that all the standards are equally as important as the others. If there is a significant difference I could see educators focusing on the standards that are tested and therefore creating future gaps. I also feel when the data is released that the students scores should have a breakdown of domain so that students can see what areas they were successful in and what areas they need to grow in. It also helps the teachers and schools address domain content issues to ensure success for all students.
- Even though I marked "just right", I feel this could be equally weighted.
- Integer operations and expressions and equations are as fundamental to future math courses as ratios and proportions.
- Focus on the major work of the grade: ratio, integers/rational numbers and pre algebra
- Statistics and Probability is not the most critical focus area as students are preparing for Algebra. This large of an emphasis is also not reflected in the college readiness standards that students are working toward.
- Although there are eight standards listed under Statistics and Probability domain, SP.0-SP.7, very few of these standards address the description in the critical area. There are more standards in Statistics and Probability domain than any of the other domains so I'm wondering if that might be reason the target % is higher for Stat. and Prob. than any of the other domains. So, I'm wondering if there are more Stat. and Prob. standards, and higher target % range, then what might be reason there are not more Stat. and Prob. standards as part of the critical area for 7th grade?
- Please ensure the math practices are embedded in instruction. When assessments ask our kids to do more our schools ask our kids to do more. Please make sure assessments do more than require procedural knowledge.

Grade 8: Subdomain Category Label Ratings

Subdomain	Okay “as is”	Needs Revision
Expressions and Equations	96.45% (136)	3.55% (5)
Functions	95.74% (135)	4.26% (6)
The Number System	94.33% (133)	5.67% (8)
Geometry	95.74% (135)	4.26% (6)
Statistics and Probability	92.14% (129)	7.86% (11)

Grade 8: Subdomain Category Label Comments

Subdomain	Comments
Expressions and Equations	<ul style="list-style-type: none"> • Reasonable • Maybe add “Algebraic” at beginning to make connection between elementary and middle school and continuity • These domain labels work great for the eighth grade overview. • These domains represent the standards we teach. • Algebraic Expressions and Equations • Standards address these topics • How does this differ from grades 6-7. Also, expressions of what? What type of equations? This is not a definitive title. • Essential for applications later • This is one of the standard domains for this grade • See above • These labels align with the Domains of the standards. • I clearly know what will be taught. • Aligns with domains in the standards. • Expressions and Equations is a label that accurately describes the clusters and standards in that domain.
Functions	<ul style="list-style-type: none"> • Reasonable • Maybe add “Linear” at beginning to make connection to linear equations from the other domain label • These domain labels work great for the eighth grade overview. These domain labels work great for the eighth grade overview. • These domains represent the standards we teach. • Standards address this topic • What type of functions? This title does not define anything. • Good time to introduce the definition • This is one of the standard domains for this grade • Specific functions for grade level • These labels align with the Domains of the standards. • I clearly know what will be covered even though I’ve never taught 8th grade. • Aligns with domains in the standards.

	<ul style="list-style-type: none"> • Functions is a label that accurately describes the clusters and standards in that domain.
The Number System	<ul style="list-style-type: none"> • Reasonable • Inclusive overview • These domain labels work great for the eighth grade overview. These domain labels work great for the eighth grade overview. • These domains represent the standards we teach. • Needs differentiation from 7th grade • Standards address this topic • What type of system? In grades 3-5 you define it as base 10. This title is not specific nor definitive. • Not clear what is covered at each grade level • How is this different from grades 6-7? Be precise. • This is one of the standard domains for this grade • See above • These labels align with the Domains of the standards. • This title is pretty vague. 6th and 7th have this same domain and it seems pretty vague. • Aligns with domains in the standards. • Should be the Real Number System to specify which number system they will be accountable for. • Although the Number System is a very broad and general term, it does describe the clusters and standards within the domain.
Geometry	<ul style="list-style-type: none"> • Reasonable • Inclusive overview • These domain labels work great for the eighth grade overview. • These domains represent the standards we teach. • Needs differentiation from 7th grade • Not clear what is covered at each grade level • See previous comments on geometry • Students should not be assessed on surface area. • This is one of the standard domains for this grade • See above • Clarification, type of geometry • These labels align with the Domains of the standards. • I clearly know what will be covered. • Aligns with domains in the standards. • The clusters and standards in this domain are mainly geometry, therefore the Geometry label is appropriate.
Statistics and Probability	<ul style="list-style-type: none"> • Reasonable • It should probably be just “Statistics” since the only topic covered is scatter plots and there is no probability • These domain labels work great for the eighth grade overview. • These domains represent the standards we teach. • Needs differentiation from 7th grade • Okay as is but could just be Statistics in 8th grade because there are really no standards addressing probability • Not clear what is covered at each grade level • What is different from previous grades? • FAR TOO MANY QUESTIONS for minimal standards • I don’t feel this is an important concept for 8th graders to focus on. I think more attention should be focused on equations, functions and graphing.

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| | <ul style="list-style-type: none">• The only thing that should be assess are scatter plots.• This is one of the standard domains for this grade• See above• These labels align with the Domains of the standards.• I clearly know what will be covered and taught.• Aligns with domains in the standards.• Statistics and Probability is a label that accurately describes the clusters and standards in this domain.• Probability and Statistics (usually written this way) |
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Grade 8: Blueprint Percentage Ratings

Subdomain	Percentage Should be Lower	Percentage is "Just Right"	Percentage Should be Higher
Expressions and Equations	5.05% (5)	90.91% (90)	4.04% (4)
Functions	13.00% (13)	84.00% (84)	3.00% (3)
The Number System	6.00% (6)	79.00% (79)	15.00% (15)
Geometry	13.13% (13)	84.85% (84)	2.02% (2)
Statistics and Probability	3.00% (3)	87.00% (87)	10.00% (10)

Grade 8: Blueprint Percentage Comments

Subdomain	Comments
Expressions and Equations	<ul style="list-style-type: none"> • This gets students ready for algebra in high school • 20 • To help students become as best prepared for high school as possible I believe this percentage needs to be raised by about five percent on each end of its range. There is a lot of material to cover in this domain that is vital for the students to grasp as they enter Algebra 1 as freshmen. • Of what? Title is not descriptive. • Looking at what is essential for students entering algebra 1 the following year, expressions and equations is the most essential and should have higher percentage of time spent on this domain • Should be in the 20-25% range. • Aligns with focus areas in standards doc. • 20
Functions	<ul style="list-style-type: none"> • Gets students ready for high school algebra, as well as link to geometry. • 20 • Understanding of functions if difficult for many • Of what? Title is not descriptive. • As 8th graders, students just need to identify a function and have the understanding of linear and non linear functions • Harder concept needs less percentage but better developed • There is a major overlap with EE and Functions. The slope and linear equations work from both domains should receive the greatest percentage of focus in those particular categories. • Should be in the 20-25% range • Aligns with focus areas in standards doc. • 20
The Number System	<ul style="list-style-type: none"> • Important to keep practicing, but keep low percentage • Should be equal among all sub domains. • 20 • Just a little lower; irrational numbers are also addressed with Pythagorean Theorem • 5-10

	<ul style="list-style-type: none"> • This is introduction to irrational numbers which will also be visited in the Geometry strand by the Pythagorean Theorem. • Not much here in terms of big ideas or difficult concepts • This is the last chance students have to secure their number sense. • More focus on basic skills • It depends on what number system. Title is not descriptive. • This should be highest or one of highest percentages • Aligns with focus areas in standards doc. • No more than 10%; only two standards; neither standard addressed in description of critical area #1 (although overview has number system domain listed in critical area) • 20
Geometry	<ul style="list-style-type: none"> • Important, since students may not have much geometry in 9th grade • 20 • It is not essential for students to know the geometry for algebra 1 and the geometry standards in the 9th grade are taught in high school geometry. Being aware of the concepts is important, but not essential • Aligns with focus areas in standards doc. • 20
Statistics and Probability	<ul style="list-style-type: none"> • Important to keep practicing, but keep low percentage • 20 • Just a big higher. • 15-20 with the connect between connecting functions and the transition to bivariate data. • Stats is important and rigorous at Grade 8 • In my professional opinion this domain can be taught in one to one and half weeks. I suggest lower it by five percent on both ends of its range. • This domain does not assist in understanding of any other domain, nor does it provide a foundation for any high school course that all students are required to take. • There are minimal standards on statistics and probability in 8th grade • Statistics content should be heavier since it is a critical life skill for all college majors and most jobs now. • Aligns with focus areas in standards doc. • 20 • 20-30%

Grade 8: Overall POSITIVE and CRITICAL Feedback

Grade 8: Please provide any additional POSITIVE feedback you have here.

- I really like and agree with the percentages for: Number System Geometry Functions
- Algebra needs to be included
- Sufficient
- I think the percentages are comparable to the amount of standards and content in each domain. Number system and Statistics and Probability have the least amount of standards and content so they should be a lower percentage of the test.
- These percentages match what research states should be assessed heavily in grade 8.
- The goal of 8th grade math is to prepare students for Algebra. I feel the domains with the higher pertage have more standards to cover under them as well which makes sense that there should be a high percent.
- Standards seem to be fairly assessed.
- 8th grade seems to be evenly balanced with regards to what standards are priority.

Grade 8: Please provide any additional CRITICAL feedback you have here.

- Are the original percentages the way they are due to critical areas standards being within those specific domains? If so, keep the original percentages; if not, why can't they all be of equal parts?
- Without a stronger knowledge of approximating rational numbers, more complex understandings cannot be attained.
- In my prior experience, students who had a good grasp on functions and graphing were able to better comprehend details of working with bivariate data.
- I really believe Expressions and Equations needs to be raised by five percent while the Statistics and Probability is lowered by five percent.
- By grade 8, I see an absence of diversity now. No set theory or analysis. No proofs or logic. It would be nice to show students that math is more than these subdomains.
- N/A
- I am not sure why statistics and probability is not listed as a critical area in the standards explations. If it is to be tested, then should it be a critical area.
- Each area should be of equal value so they are taught with equal intensity.
- None at this time because this grade level actually follows what research and experts state as the major work of the grade.
- As stated before, I just want to make sure that educators don't teach something just because it will have a lower percent of questions on the test.
- Once again, testing students and 3rd-8th grade, and only testing high school students as juniors is the reverse of what it should be. We test elementary and middle grades students too much! Testing has its appropriate place; which should be in high school where students are more developmentally able to handle it. Asking elementary and middle school kids to sit still hours at a time to test is unreasonable.
- Please make sure our assessments balance the mix of math instruction we want to see in our classrooms: procedures, conceptual, and application. It would be great if like the proposed social studies and the current science that we make a point to have inquiry skills embedded.
- Not all schools and/or systems have the ability to introduce Geometry to students at the 8th grade level in a meaningful way...the most basic parts of geometry used with algebra concepts is acceptable, however, and towards that end, it is my opinion that the % of geometry should be lowered and a proportionally higher % of skills should be based on number systems...

Blueprint Percentage Ratings and Comments: Grade 10

Note: Percentages may not sum to 100 due to rounding. All comments appear exactly as they were submitted by respondents. No edits were made.

Grade 10: Subdomain Category Label Ratings

Subdomain	Okay “as is”	Needs Revision
Algebra	94.81% (146)	5.19% (8)
Functions	95.45% (147)	4.55% (7)
Number and Quantity	92.16% (141)	7.84% (12)
Geometry	93.51% (144)	6.49% (10)
Statistics and Probability	90.20% (138)	9.80% (15)

Grade 10: Subdomain Category Label Comments

Subdomain	Comments
Algebra	<ul style="list-style-type: none"> • Reasonable • Inclusive overview • These domains represent the standards we teach. • Too broad • This is a hard concept for students and we need to make more concrete connections to other math functions in order to prepare them for more advanced math in college. • Absolutely – we still need algebra skills • With NCLB there is no way to ensure that students are coming to high school with the necessary tools needed to be successful in high school. Their social promotion is a potential problem to the individual student and their class mates. There may be too many items moved down, for students to develop a complete understanding of what should be understood. • These labels align with the Conceptual Categories of the standards. • I clearly know what will be taught. • Content is okay but a lot of content to cover in one school year to make sure students have mastered it • Aligns with domains in the standards. • Algebra is an overly broad term that encompasses a lot of skill sets...a better group of labels would specify the learning targets better...e.g. “Expressions” or “Inequalities” • The standards in this domain focus on Algebra. • This topic is too general. It needs to be slightly more specific
Functions	<ul style="list-style-type: none"> • Reasonable • At this point students should know that function are specified equations • These domains represent the standards we teach. • Needs differentiation from 8th grade • What type of functions. This title is not definitive nor descriptive. • Needed for higher level mathematics • What is added to what was covered in previous grades under this label? • These labels align with the Conceptual Categories of the standards. • I clearly know what will be taught.

	<ul style="list-style-type: none"> • Too high level for Algebra 1 concepts. • Aligns with domains in the standards. • Some content seems more Algebra 2 than Algebra 1 • The standards in this domain focus on Functions.
Number and Quantity	<ul style="list-style-type: none"> • Reasonable • Not sure what should be revised about it, but it seems so vague. • I don't feel like this title gives a good overarching idea of all the topics within the domain itself. • These domains represent the standards we teach. • Not clear – does this refer to numeracy? • Number and Quantity of what? This title is not descriptive. • Not sure what this entails here • Needs clarification. Is it Number Sense, Arithmetic, or what exactly? • What does that mean? • These labels align with the Conceptual Categories of the standards. • I clearly know what will be covered. • Aligns with domains in the standards. • Too vague • The standards in this domain focus on Number and Quantity. • Numbers and Quantities
Geometry	<ul style="list-style-type: none"> • Reasonable • Inclusive overview • These domains represent the standards we teach. • Needs differentiation from 8th grade • Require using definitions and theorems for proofs • See previous comments on this topic • See above • Clarification, type of geometry • Geometry has ballooned! It is difficult to cut out material and add more material to it. This could be a potential issue. • These labels align with the Conceptual Categories of the standards. • This is very clear. • Too many topics to be covered in one school year • Aligns with domains in the standards. • Same as Algebra above...better labels would specify specific learning targets... • The standards in this domain focus on Geometry.
Statistics and Probability	<ul style="list-style-type: none"> • Reasonable • Inclusive overview • Too much content • These domains represent the standards we teach. • Needs differentiation from 8th grade • In my district, these standards have been designated for the Algebra 2 course, which would mean that students in grade 10 will not have had exposure to these standards prior to taking this assessment. • Keep expanding their knowledge – required for many college majors • See previous comments on this topic • Remove probability if these standards are aligned to Algebra 2 as most students do not complete algebra 2 by 10th grade on a traditional high school math pathway • See above • This is a large chunk of material that is potentially new. It could be overwhelming. If you look at the potential amount of theorems and

	<p>rules that simply come with stats and probability, students may find a hard time.</p> <ul style="list-style-type: none">• These labels align with the Conceptual Categories of the standards.• I clearly know what will be taught.• Way too high level for Algebra 1• Aligns with domains in the standards.• Depends on the level of mastery needed. 10th grade stats would be very different than grade 11.• Mostly okay as is, however, there are a lot of statistical models and clarification (e.g., “central tendencies” or “range and standard deviation”) should be used...• The standards in this domain focus on statistics and probability.• Probability and Statistics (usually written this way)
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Grade 10: Blueprint Percentage Ratings

Subdomain	Percentage Should be Lower	Percentage is "Just Right"	Percentage Should be Higher
Algebra	0.95% (1)	71.43% (75)	27.62% (29)
Functions	7.62% (8)	80.95% (85)	11.43% (12)
Number and Quantity	3.81% (4)	82.86% (87)	13.33% (14)
Geometry	16.19% (17)	77.14% (81)	6.67% (7)
Statistics and Probability	35.51% (38)	60.75% (65)	3.74% (4)

Grade 10: Blueprint Percentage Comments

Subdomain	
Algebra	<ul style="list-style-type: none"> • Suggest making all strands 20%, giving equal weight • I'm not sure, so I'll say that each domain has the correct percentage. • 20 • Just a bit higher. • I think that there should be more Algebra concepts assessed as students in grade 10 will have completed their Algebra 1 course. Students should be held accountable for the learning and standards covered during this course. • Most 10th graders are in Geometry. They have completed Algebra 1, and so I believe the test should have a higher level of this content. • 25-30 • Since the primary purpose of our high school math education is to prepare students for college mathematics which is algebra based. • I would suggest a 20-25% • Because the statistics and probability needs to come way down • By tenth grade year, students are expected to demonstrate mastery of algebraic concepts because they have taken algebra in the previous year, while extending their algebraic reasoning in geometry. • By 10th grade, students are expected to demonstrate mastery of algebra concepts because they have taken algebra in the previous year, while extending their algebraic reasoning in geometry. • Students are expected to demonstrate mastery of Algebra because Geometry is the application of algebraic reasoning. • Students have had time to demonstrate mastery of skill based to more application and contextual demonstration by 10th grade. Geometry is also an extension of algebraic though • 25-30% based on number of Algebra standards that will be taught in Algebra I and Geometry (per HS Math Matrix) • Using the information provided by ACT (which is the only true accountability test that has been consistently given), Algebra should be (using the released information from CT and correct conversion) 20-25%

	<ul style="list-style-type: none"> I believe so much of our course work from 8-10 is focused on developing algebra skills that a larger emphasis should be placed on Algebra than Prob & Statistics. I feel this should be 20-25%. Algebra is the major chunk of information that is covered in high school.
Functions	<ul style="list-style-type: none"> I'm not sure, so I'll say that each domain has the correct percentage. 20 Students do not specialize in functions until junior year. A lot of this content goes beyond 'foundational' skills. Many students are not introduced to function notation until Algebra 2. Most 10th graders have not taken Algebra 2 yet. See Algebra answer above. I would suggest a 20-25% 20-25% based on the number of Functions standards that will be part of Algebra I curriculum (per HS Math Matrix) Using the information provided by ACT (which is the only true accountability test that has been consistently given), Functions should be (using the released information from ACT and correct conversion) 20-25%.
Number and Quantity	<ul style="list-style-type: none"> I'm not sure, so I'll say that each domain has the correct percentage. Should be same as Algebra and Functions. 20 This should include "review" topics. Usually these topics are taught later in high school. So, this is about right, for a grade 11 or 12 assessment but will be problematic perhaps at end of grade 10. Sophomores take geometry. This area was tested in 8th grade before specialization of courses began. It does not need to be further assessed. There are very few non-STEM standards in this domain. Most students do not learn about complex numbers or matrices until algebra 2, so these standards would not be tested. Students have not been asked to work with numbers since elementary school, and thus I believe this area should be reflective of that work. This concept is practiced in both Algebra 1 and Geometry and should carry more weight. This should be one of highest percentages About 10% based on standards from Number and Quantity Conceptual category that will be part of Algebra I and Geometry curriculum (per HS Math Matrix) Using the information provided by ACT (which is the only true accountability test that has been consistently given), Number and Quantity should be (using the released information from ACT and correct conversion) 12-17%. Basic skills are fundamental to all mathematics understanding...better emphasis here can pay dividends down the road I feel this should be around 20% because without the number and quantity the students cannot understand the algebra.
Geometry	<ul style="list-style-type: none"> Geometry should get the most since it is the main math taught for this grade level. Should be same as other sub domains. 20 Sophomores typically take geometry. Most adults will use geometry in everyday life more than any other high school math topic.

	<ul style="list-style-type: none"> I think this percentage needs to be more balanced with amount of algebra topics assessed. Additionally, depending on the testing window for this assessment some students will not have completed the entire geometry course by the testing date. Students in 10th grade are currently enrolled in Geometry. Test needs to be mostly Geometry and Algebra 1. Seems like Stats is more important overall than geometry, so would like to see the percentages go in that direction. Domains should all have approximately equal weight Should not be more than number and quantity 30-35% based on number of Geometry standards that will be aligned to the Geometry course (per HS Math Matrix) This class is not offered until the Junior year at our school. All areas should be equal as not dictate the order of classes being offered Using the information provided by ACT (which is the only true accountability test that has been consistently given), Geometry should be (using the released information from ACT and correct conversion) 20-25%. Depending on when the testing is, some students may not have seen all content Our district does not teach Geometry until 11th grade because of ACT
Statistics and Probability	<ul style="list-style-type: none"> I'm not sure, so I'll say that each domain has the correct percentage. 20 This is too high for the end of 10th grade, since it was fully addressed in the middle grades. This may be a little high when most of the strand is going to be covered after 10th grade in high school. Ditto comment above—a lot of stats is taught later in high school (some in Algebra I, but not all the standards). How do you re-enforce what was taught in prior grades and cover new content? Concerned this topic will be left out of most curricula. Wasted time. These skills are more real-life related and enhance critical thinking skills. Most college degrees (both 2 and 4 year) require the skills from statistics and data analysis. Most of this occurs beyond grade 10 in the updated standards In my district, these standards have been allocated to the Algebra 2 course, which will not have been taken until grade 11. Thus, the students will not have had any exposure to these standards prior to taking the assessment. Many students have not taken statistics course. This standard has been moved to Algebra 2, and thus it makes little sense to have it heavily tested on a 10th grade exam when Algebra 2 is a 11th grade course. Seems like Stats is more important overall than geometry, so would like to see the percentages go in that direction. I'm concerned about the possibility of a 10th grade test being almost a fourth stats and probability, since my understanding of our current/soon to be new curriculum maps don't reflect ¼ of the time being spent on these concepts. I worry it will lead to teaching to the test, rather than the standards designated by the courses. If I have that wrong, however, I'm ok with the percent. 10-15 At the 10th grade students need more time with algebra.

- Algebra 1 and Geometry have many concepts to cover. Statistics and probability are not taught with enough depth to justify such a large percentage of questions.
- 10th grade students have had little to zero exposure to statistics and probability.
- There are only a few statistics and probability standards. Not enough to account for such a portion of the 10th grade test. Most of the material they would need, or could even possibly be tested on would have to come from middle school. In relation to the standards there is an unjustifiable correspondence to the number of questions recommended.
- There are only a few statistics and probability standards in the algebra and geometry course standards. Not enough to justify a 18-23% accountability of the 10 grade test.
- The 10th grade students have been exposed to very few standards in the Algebra and Geometry course standards
- there are only a few probability and statistics standards in the 9th and 10th grade and should result in a lower percentage
- statistics does not make up proportionally this much of the courses students have by 10th grade.
- About 10% based on number of Stats and Prob standards that will be taught in Algebra I and Geometry courses (per HS Math Matrix)
- In the KDE published Standards by Course Matrix for 2019-20 and Beyond assigns only 3 Statistics and Probability standards to be addressed in Algebra I and none in geometry. Many students will take this assessment before they have any other math courses.
- Using the information provided by ACT (which is the only true accountability test that has been consistently given), Statistics and Probability should be (using the released information from ACT and correct conversion) 13-20%.
- Should be way less than the algebra and geometry
- Probability & Statistics is a unit of study each year. The majority of the remaining course work revolves around Algebra & Geometry. Statistics should have less weight than Algebra.
- Based on the HS Math Matrix, there are only 3 Statistics and Probability standards that will be taught in Algebra1 & Geometry. I think they should be assessed, but not as high as algebra and functions and not higher than number and quantity.
- Too high a % for basic statistical measures...some of these skills should be reserved to more advanced statistical courses...
- I feel probability and statistics should be around 15% as it is covered in all grades middle through high.

Grade 10: Overall POSITIVE and CRITICAL Feedback

Grade 10: Please provide any additional POSITIVE feedback you have here.

- This is a big project and I am overall pleased. I did wonder if this final assessment addressed only high school or some review.
- Overall percentages look good for end of high school
- How will the assessment team going to balance the content with Algebra 1 and Geometry? Where will the emphasis in Statistics and Probability be taught?
- These seems good assuming the students are taking Geometry as sophomores.
- Sufficient
- I hope we can make changes to ensure the test assesses what students have actually learned and worked with mathematically.
- Glad to see the emphasis on geometry. I hope there are some type of proofs in there. Taking what you know to draw conclusions is an essential critical thinking skills.
- Balanced percentages
- I agree that geometry should contain that highest percent range as most students are enrolled in that course in 10th grade.
- I am gracious that we have been asked to provide feedback about these standards.
- Thank you asking for feedback. It is nice to have this opportunity.
- Thank you for asking for teacher feedback – especially since it has such a high accountability for our schools.
- It was nice to have an opportunity to provide feedback on the assessment since it effects all schools accountability
- Algebra, Functions, and Number & Quantity should comprise of between 45-50% of assessment and Geometry and Statistics & Probability should comprise 50-55%.
- I really like that number is lower and the others are pretty close to equal.
- I like the heavier weighting of Geometry. It is the 10th grade course.
- Those are strange ranges, but strangely agreeable.

Grade 10: Please provide any additional CRITICAL feedback you have here.

- Are the original percentages the way they are due to critical areas standards being within those specific domains? If so, keep the original percentages; if not, why can't they all be of equal parts?
- Why does K-Prep stop at grade 10? If it because the assessment in grade 11 is by ACT, that is probably ok.
- Why is this the last time that the students will be assessed at the end of the course?
- So many issues with testing only half way through high school...how will you determine which half of the standards are being assessed? Why is this in Grade 10 and not in Grade 11? With it being so early, what will be the accountability for the final two years of high school? How will the assessment team determine what subset of the standards should be learned half-way through high school?
- Is the reason that this blueprint stops at grade 10 because accountability with ACT picks up for 11th and 12th grades? With the broad number of topics to be addressed, there is a strong likelihood that many of the topics won't be taught in the two academic years. How to we be sure the topics from prior years are re-enforced?
- IF the students in the high school are not taking geometry as sophomores then the geometry percentage needs to be lowered and the algebra needs raised.
- I still think algebra is over emphasized. There is so much more to math than algebra.
- Make the assessed skills more real-life relevant.

- The titles for many of your subdomains are non-descriptive. I cannot evaluate, if I don't know what you are talking about. For example – Functions. Functions of what? Algebraic functions? Statistical functions? What?
- We are testing students in areas they have not learned. This makes no sense.
- All areas should be of equal value so each is taught with equal intensity.
- Why are these percentages not in increments of 5 such as 20-25%?
- I don't feel qualified to answer questions for grade 9.
- The way geometry is taught now, without axioms and proofs, you may as well leave it out.
- Probability is not taught until ALGEBRA 2 11th grade
- I wonder whether probability will be a component of the assessment? If those standards are aligned to algebra 2, I don't think it is fair to hold every 10th grader accountable on the summative assessment for 10th grade.
- The field tests the last 2 years have been unrealistic and have not reflected what the students have been exposed to at that point. Not all 10th grade students take the required courses in the same sequence and therefore may find themselves at a disadvantage to their peers through no fault of their own. Kentucky does not have a common curriculum or sequence in its math courses. Testing all 10th graders with a common assessment makes the assumption that they have all had the same curriculum. This is precisely why the End of Course assessments were developed and were much more effective. A blanket assessment for all 10th grade math students is not reflective of their current knowledge.
- This is a lofty goal, but it seems as if there are some smoke and mirrors in play to fool the general public about what is actually going to happen. Seeing the proposals, and seeing the blueprint in the background. Some of the things that are said, vs what are seen do not align.
- It seems that using similarity to prove relationships in geometric figures is a standard but using congruence to prove relationships in geometric figures is left out. Is it implied anywhere else in the standards that congruence will be included as part of a standard that would be tested on the grade 10 test?
- Students in high school should be tested more than middle and elementary students rather than less.
- I don't understand why this is separated as "grade 10." At high school the standards are not broken into grade levels.
- Geometry being the highest level here is unfair to schools who do not offer Geo as a sophomore class. Also no one content strand is more important than the other. It is a blend of topics.
- Many students will have only had Algebra I and Geometry by the time they take this test. The KDE published standards by course matrix for 2019-20 and beyond only assigns three Statistics and Probability Standards to Algebra I and none to geometry. Three standards should NOT be weighted 18-23% of the assessment.
- The ranges are still pretty wide. I think they should be narrowed a bit. Algebra should be weighted like geometry.
- Make sure to stress the need for students to show procedural, conceptual and application of math.

Calculators

Calculators: Assessments at all grade levels will consist of 20-25% items that are Non-Calculator.

- The percentage is ***too low***: 18.24% (29)
- The percentage is ***just right***: 63.52% (101)
- The percentage is ***too high***: 18.24% (29)

Calculators: Please provide feedback if you selected “too low” or “too high” for the non-calculator percentage.

- I think it is a little high, since students are allowed to use calculators since 4th grade, I believe. At some points, it becomes a crutch. Also, in the real world and careers, people use calculators a great percentage of the time.
- This is difficult to answer since we don't know what the types of questions might be. There are many basic skills that should be done without the calculator, but there are too many different questions at different levels that need not be done by rote algorithm.
- The percentage depends on what type of question is going to be asked on the non-calculator and the calculator portions. In addition, I think the amount of non-calculator items should be larger to begin with and get smaller as the student progresses. In 3rd grade, the calculator should barely be used at all, for example.
- This question is difficult to answer because it is not clear what the non-calculator items would be – geometry? Computation? Problems that lend to mental math? Also, it seems like it should vary from each level, not be same across grade bands.
- My biggest concern is the types of questions that will be asked here. If they are content specific questions that do not require computations, that makes sense. I would like to see this be more focused on error analysis.
- This is a good percentage in my opinion. It allows for the students to really be forced to try and grasp the concept without dependency on a device.
- I feel that the non-calculator portion should be brief and only consist of basic number operations. In today's world of technology, students should not be limited to the use of technology throughout the assessment, other than to test basic number operations.
- I am concerned about our special needs population.
- The percentage is too high for high school assessments. Their focus is on specific content: Algebra or Geometry or Pre-Cal. They do not practice computation.
- Students lack numeracy skills. They do not understand how to estimate or how to combine numbers using mental math or how to use the associative, commutative, and distributive properties. An educated person should be able to do simple calculations without a calculator. This includes proficiency with fractions and decimals. I have high school students who can't work with percentages and ask where the percent key is on the calculator.
- Kids are electronically vested we need to not hold that against them
- We are too depending on the calculator. Make the test take longer if need be but reduce use of calculator.
- Don't let these kids become dependent on a calculator. Take them out of their hands!
- Students will and do use calculators each and every day. This is a skill they will use throughout their lives.
- In elementary schools, students should not need to use a calculator. By using calculators, students become dependent on them for the answer and they do not think the calculator is ever wrong. At a young age, students need to understand the concept of why the answer makes sense to the problem. In high school, yes students need to use a calculator more depending on the test and the kind of problems give.

- The problem I have with teaching math is that students cannot think. They cannot do simple math in their head. And, when they do use a calculator, they don't understand the concept behind the answer.
- The 10th grade test should not restrict calculator usage – just like the ACT does not.
- Children should be able to do math without relying on a calculator
- Most grades 3-5 work should and can be designed without the need for a calculator. Calculators will mask students' conceptual understandings. Having said this, it is important to examine students' ability to use a calculator effectively and efficiently, but this could be done with 10-15% of the assessment. Thus, grades 3-5 should be 85-90% Non-Calculator items.
- Having all grades with same percentages seems odd when Gr. 3-7 focus so heavily on number and after that the focus shifts.
- In the world we live in students need to be able to use a calculator correctly.
- At the high school level, the unfortunate reality is that ACT scores have potentially huge consequences for our students. While I believe that number sense is EXTREMELY important, and I certainly incorporate it in my class, I also feel I need to teach my students how to use every potentially helpful tool, in this case, a calculator, to maximize their potential for success on the ACT. I think the 10th grade test should reflect this reality.
- Are you testing a child's ability to manipulate the calculator or assessing for conceptual understanding?
- Grades 3-5 should have not more than 50% of the test calculator active.
- Students will always have a calculator with them with their phones so why not allow them to use a calculator on the assessments?
- Conceptual questions should be given that are not dependent on a student's ability with a calculator. For example, a student could be asked to select a correct expression (no computation) to represent a required probability or area.
- Students need to be familiar with basic integer, fractional and floating point arithmetic and have good number sense so we do not get nonsensical answers and they can estimate their answers to see when the calculator is "wrong."
- Dependence on a calculator hinders making sense of mathematics
- If we want all students to have a chance to be successful, we should allow calculator on all questions like the ACT does.
- I feel that we are in a day and age where you will almost always have a calculator with you. So by the time you hit 7 grade and higher focus should shift from the no calculator stuff.
- I agree that there should be non-calculator items. This is a shift for high school and I would like to see the percentage lowered to 15-20%. I would like to guarantee that every 10th grade student has no more than a fifth of their assessment as a non-calculator portion.
- While I think the percentage is okay, I think the uniformity of the calculator the kids are forced to use is absurd. We stress to the kids to get their own calculator that they are comfortable using and then provide them with an on-screen calculator that they have no clue how to use and get no training on.
- There will never be 20-25% of a person's life when they will not have access to a calculator. 15% would likely be more accurate. I know more factors play into "no calculator" than real life; however, I am thinking there is more reasoning to be measured than 75% of the test. It also depends on the grade level and the intent of the standards at the grade level. These are just thoughts.
- Colleges/Universities have accepted and adopted the new technologies for mathematical calculations. Unless you are testing knowledge of formula use or asking about reasoning. There's no reason to force a problem that can be solved with a calculator to be non-calculator. It's unnecessary.
- I selected just right because I feel in every domain there should be standards that you should be able to do without a calculator but there may also be some significance to looking at which

standards are tested in that section due to crucial standards such as operations with rational numbers...that needs to be tested without a calculator because it would be very easy to use a calculator to complete such operations.

- This is a test over 2 years of high school, with only 2 years remaining. If our students can't be expected to be proficient without a calculator around the time they can begin to drive, then there is a failure somewhere. If it is a failure on educators part. Resulting grades would allow us to see information and improve.
- Students have come to depend on calculators, especially in the upper grade levels. Student in elementary school should depend on calculators less, with the use of calculators increasing as students progress from middle to high school.
- I'm a firm believer that students need to have competency and a thorough understanding of the standards which means they aren't relying on the assistance of a calculator. As a teacher I don't bring in calculators until the skill is being mastered. Then the calculator is just a checking tool.
- Grades 3-5 should be much higher with percentage decreasing annually. Non-calculator should continue to decrease to the point where 8th grade and 10th grade has 0% questions that are Non-Calculator.
- For high school, skills with technology are very important. Number reasoning is also important, but the non-calculator portion should be smaller.
- I only think it is too high for higher grades. Technology is too accessible to think adults won't have calculators. Assessments at grades 8 and 10 should focus more on application. As students progress through middle school, the non-calculator percentage should decrease.
- Although I selected just right, I think it could be around a third of the test. Non-calculator items will give a true measure of conceptual understanding.
- Too high in my opinion, because people will ALWAYS have access to calculators in this day and age, via their cell phones. I used to be firmly in the no calculator zone, but as long as cell phones are here, then why do we waste so much time teaching students to do things by hand "using the algorithm"? I feel like we should be teaching number sense, and how to problem solve, rather than spend time making sure students can do math by hand.
- Really why the use or not the use of calculator that important. We should have questions that uses tools appropriate. We need thinkers not calculators.
- Non calculator should only be on those fluency standards in my opinion. We are in an age where people have calculators EVERYWHERE...
- There are very few situations when students don't have access to a calculator. Questions can be written in a different way to assess number sense or fluency.
- In the age of technology, will there ever be a time that calculators or a some program that can't be used for students to fine the answers.
- Grades 1-6 should not use calculators at all. Only higher grades should be allowed to use the calculators for data, probability and statistic and application problems. I see college students who cannot do simple arithmetic. Furthermore, the techniques of doing arithmetic without a calculator are important to the logic and mathematics.
- I believe they should be able to use a calculator on all portions. You and I in real life use a calculator.
- This percentage is reasonable to show that students know how to do the math.
- I think students should be able to use 21st century tools for any question. I think the questions can be written in ways where the calculator wouldn't be beneficial. However, I do not like portions of the test that are "non-calculator" where students do not have access to a calculator.
- AP Calculus is 60% no calculator and 40% with calculator and I feel this is a good split.
- Students need to be fluent with word problems and computation.
- Until about 8th grade, students should be able to do calculations without a calculator. At earlier grades we should be testing their number sense, and there is no need for a calculator to test that

- Non-calculator portions of the test should be 50%...this better allows for actual measure of a student's core math skill set without the influence of technology...
- There should be more work done without a calculator. Especially at the earlier grade levels.

Final Blueprint Questions: Ratings and Comments

Question: Please select the option that best represents your opinion of the complete blueprint.					
Question	Strongly Disagree	Disagree	Agree	Strongly Agree	N/A
The blueprint is easy to read.	0.00% (0)	1.32% (2)	51.32% (78)	47.37% (72)	0.00% (0)
The blueprint is easy to understand.	1.99% (3)	6.62% (10)	52.98% (80)	38.41% (58)	0.00% (0)
The blueprint will provide instructional guidance to teachers.	4.67% (7)	18.67% (28)	54.00% (81)	22.00% (33)	0.67% (1)
The blueprint is useful to non-educators.	9.33% (14)	32.00% (48)	46.00% (69)	10.67% (16)	2.00% (3)

Question: The blueprint serves as a road map for the creation of the end-of-year assessment. After students complete the assessment, all schools receive a report that shows how students performed on each subdomain. For example, schools would see if the students scored better on geometry or functions. Use this information to help rate the statements below.					
Question	Strongly Disagree	Disagree	Agree	Strongly Agree	N/A
The subdomains on the blueprint provide valuable information for schools to help inform the mathematics program, overall.	1.34% (2)	14.77% (22)	51.68% (77)	31.45% (47)	0.67% (1)
The subdomains provide enough detail to support improvement of a school's overall mathematics program.	13.42% (20)	46.31% (69)	30.87% (46)	9.40% (14)	0.00% (0)

Standards for Mathematical Practice: Select “agree” or “disagree” for the following statement: All test items are aligned to the Standards for Mathematical Practice.

- **Agree:** I agree. All items should be aligned to the Standards for Mathematical Practice. – 86.16% (137)
- **Disagree:** I disagree. All items should not be aligned to the Standards for Mathematical Practice. – 13.84% (22)
 - Most items should be aligned with the SMP.
 - I do agree with this statement, but here is my thoughts—what would the questions look like? Would they resemble science testing in the way that they changed some of the test question formats? If so, are we going to be able to “practice” like they did, then roll out of the official accountability test the following year? I know my standards didn’t change, but if you expect us to have these SMP’s to mastery too, please support us like you did with other content areas.
 - Yes, the math practices need to be assessed, but is it necessary to have all items “aligned” to these standards.
 - The Standards for Mathematical Practice MUST be included on most questions, but a few are a little difficult to attach to a Practice. I am not exactly sure what is meant by “aligned.”

- I absolutely AGREE that the Math Practices must be assessed, but put disagree for two reasons – “all items” – that might be too excessive. And, ‘aligned’ – what does this mean? Need to have a subset in each of the domains that include MP-focused items.
- I agree that the mathematics practices need to be assessed, but I have concerns about how this will be done. If the assessment are just focused on multiple choice questions, then I don’t feel that gauging some of the MP will be accomplished. There needs to be some questions that are like the old constructed response, where students are able to demonstrate proficiency.
- I feel the Standards for Mathematical Practice are ways to solve any of the problems within the domains listed. The test should be aligned to the academic standards the students are taught. The Practice Standards should be guidelines for solving all math problems that the students encounter.
- High School assessments should be reflective of the courses offered at those levels.
- The math practices are very important, but this would limit the type of questions asked. They are also somewhat ambiguous.
- All is rather inflexible. It would be fine if 95% were but some academic freedom existed to allow instructors to expose students to areas outside the curricula. Imagine a high school that offered symbolic logic, topology, or a class on proofs.
- I would have to disagree for now because I am unclear exactly what kind of problems are under one label. Also, calculators do not need to be in the lower levels as they are a distraction to learning the concept.
- If this is the direction that the state is going, then teachers need training on how to write those types of assessment questions and we need samples of questions. This has not been stressed since common core standards were adopted so I think that teachers need more information about this before test items are placed on the state test.
- It is too limiting. There are things that may be important to teach outside standards. Teachers should have some flexibility.
- Students should be challenged to think beyond just regurgitating what they learned.
- If every assessment item is aligned with standard(s) then it should also align to a math practice as every standard is aligned to at least one math practice
- This is a very vague understanding of the Standards for Mathematical Practice and what they should look like in any classroom setting.
- The standards for mathematical practice are about how we teach mostly rather than actual content we teach and test. The way you teach something is not always a way that you can test something.
- I believe the majority of items should be aligned to the math practices; however, some items will need to fall into the lower P-value range (for a good spread across the test of difficult levels) and may not necessarily need to be aligned to a math practices.
- These are practices for instruction, it is very difficult to ensure that particular practices would be used in assessment items. If there is any time limit, how could you align to “make sense of problems and persevere in solving them” for example.
- SMP are still not fully incorporated or documented in many lesson plans or released items from the state or other entities. Until there are true examples and multiple questions that mirror these concepts for teachers to use in their classrooms, these “Standards” are more like suggestions than they are used as necessities.
- The SMP’s aren’t something students should be assessed on. Good math teachers show their students the SMP’s over the course of the school year and they know how to apply them when they are assessed on a big test such as KPREP or the ACT.
- I believe we should exceed the standards as we continue to push our students. Exposing them to work above their level prepares them for that work when they reach their level. Expect more,

get more, High expectations, better results, low expectations, poor results. Attitudes and expectations of teachers while teaching is as important as student's expectations of themselves.

Most Useful: What is the most useful aspect of the suggested blueprint?

- It will be helpful to see which strands students in particular classrooms and schools are strengths and weaknesses to inform professional learning and instructional and curriculum decisions.
- The subdomains and suggested percentages are the most useful.
- The blue print will provide an insight to guide their instruction for math. Teachers will be able to see where improvements need to occur to aid in student understanding of math concepts.
- Its clarity and simplicity
- It's straightforward.
- For math-oriented people, it is very easy to sort through and understand
- It shows the progression of topics as the grade levels go up. It gives guidance to test writers and gives guidance about relative importance of topics to the teachers and schools.
- Balance across domains and the attempt to include Math Practices
- It was nice how it was organized by grade levels being tested.
- The opportunity to see which domain I should spend more time covering as an educator. The opportunity to see which domain my students struggled or thrived in when viewing the school report card.
- The percentage range of what information will be assessed on the test.
- Teachers can see the balance of content.
- Easy to read.
- That it's broken down into domains.
- User friendly; concise.
- Organized
- It is a good guide for pacing. The past few years, we have not been given any detailed feedback about areas for improvement so I hope that we get a more detailed report than we have had in the past.
- Percentages
- Targets for schools.
- Easy to read
- Clear and concise
- The importance of each section.
- Easy to read, gives basic information
- It's simple design.
- Getting sub-domain feedback.
- Percentages
- More detail would improve the blueprint
- Each subdomain is made up of multiple standards. Assessment results would be much more beneficial for future planning if individual standards were assessed rather than bu domain.
- Clear
- Percentages
- Knowing what percentage of the test will consist of each subdomain/ reviving info on student performance in each subdomain
- More detail of what each domain covers.
- It guides teachers in what needs to be covered.

- Easy to read!
- Knowing what the general topic expectations
- Narrowing the focus and expectations for students.
- Knowing up front what domains will be covered heaviest in the assessment.
- Knowing which areas a school performs the lowest in could be somewhat valuable.
- Framework of what items will be most heavily assessed
- The percentage of each domain.
- The ease of reading the blueprint is the most useful aspect.
- Helps teachers plan
- Knowing our schools' scores on the sub domains is very important, but we also need results prior to the beginning of the next school year.
- Most useful is the actual breakdown of the percentage of time spent on each subdomain
- Nothing – it is a 2 column table
- It should help with prioritizing time (pacing and planning). It is nice for teachers to know what to expect and be able to share that information with students as age-appropriate.
- To use as a very general guide of how much each “subdomain” will need to be covered. Seems that it is not intended to guide instruction.
- Percentage breakdown
- I love that more detailed feedback will be provided to the schools after testing.
- Easy to read and report on
- Seeing the percentages that go with each domain.
- The breakdown of categories
- Knowing the subdomains and the percentages of the test each displaced.
- Knowing the sub-domains and the weight
- Knowing subdomains and percentages
- Knowing the sub-domains and the percentages to provide better information to student about test and form my instruction/curriculum map timeline.
- Data, data, data... more numbers, brief and precise explanation of those numbers. No fluff.
- The most useful aspect is the percentage of questions.
- The blueprint gives teachers an idea about how much time to spend on the content areas.
- Being able to see the percentage weight of each domain.
- It helps teachers to understand how to use student data. In the past, these targets have not been clear.
- The subdomain scores for individual students, grade levels will provide schools with data that can assist them in having grade level Math curriculum maps aligned with the standards and mathematical practices (KAS). Focus standards from KAS should be emphasized on the assessment for each grade level.
- Percentages for each domain and knowing what percentage of the test will be non-calculator.
- As teachers design curriculum, the blueprint serves as a starting point when determining instructional pacing. When test data is released, if reported by domain, schools will know where to focus professional learning.
- It is good to have an idea of how much emphasis to put into different areas of curriculum.
- The percentages broken down by domain
- Relative performance by domain (within a school and across schools)
- Looks the same as before or other blueprints that have been developed
- Shows teachers where to target instruction/what standards need more attention than others.

- The percents of what is in each domain
- Based on the blueprint educators know where they need to spend their time
- That it tells what percentage of the test will be over that strand of mathematics.
- The layout in how the domains progress over grade levels.
- The general weighting of the domains is useful to the overall curricular design process...
- The focus on domains is more evenly distributed
- Comparing the percentages of subdomains by grade, side by side

Missing Feature: Is there a feature that is missing from the suggested blueprint? If so, what is it?

- If the subdomains are aligned to mathematical practices they should be on the sheet in some way.
- As stated before, the blue print should be divided among each domain equally. Otherwise, the topics that are considered a heavier weight will be given more class time while the topics that have a lower percentage will not be given the equal time for instruction. If this begins in 4th grade for geometry, that will have lasting impacts when students reach 7th grade! The same is true when the same students reach high school geometry.
- Sample assessment items for each subdomain
- It's hard to combine any number of some of those percentages to equal 100% What is missing –the non-calculator part? But that is considered content as well.
- I would like to see a calculator percent for each grade, not overall. There is nothing in the blueprint about the format of the questions. Will a certain percentage be open response? Will there be sample items for pd? Will...
- Useful data would give domain level results, but also topic (standards). In particular in elementary school in the number domains, schools need more specific data than at the domain level.
- Will assessments be multiple choice only or include some short answer and/or extended response? Will there be sample items available to train teachers in the new transition to this blueprint? To explain the depth of understanding within the skills/concepts.
- Are there open response items or will the assessments be multiple choice only? Will there be sample items that can be used for professional development?
- I feel that topics within the domain should be better categorized.
- Information about format (multiple choice, short answer, extended response)
- Perhaps a key or additional language to clarify for non educators and non mathematicians.
- n/a
- Detail of sub domains.
- I think under each label there need to be a % of the level of difficulty and examples of levels of difficulty that each assessment should include.
- I would like to see how students are assigned the scale score. I have never been told how a student earns the scale score. If a student is borderline apprentice to proficient, how much would the student need to increase to get to proficiency? If they are one point away, does that mean they were one question away from being proficient? More information about scoring, besides a rubric with 1 through 4, would be helpful.
- For it to really help us drive our instruction, I feel like it needs to be more specific on the types of questions they missed or did well on.
- Can the subdomains be broken down further? What topics are under Algebra? What topics are under geometry? This would give both teachers and students a better understanding of the assessment and their score.
- Under the domains give a few examples

- No
- Details on what the titles actually mean. For the non-educator.
- No
- Each of the subdomains should be a digital link to more information and examples at each grade level/band.
- Items that assess the mathematical practices. They will continue to be invisible even if the blueprint says the items represent the math practices.
- It would be nice if the blueprint identified the structure of the calculator verses non calculator sections.
- It would be helpful to have a definition and example of each category so that students and parents and teachers will know exactly what kind of math problems are being addressed.
- I'm not sure if the results will be detailed enough to provide feedback for changing the curriculum.
- Subtopics
- Though it would be difficult, it would be most useful to have a breakdown of performance on specific standards after the test is complete.
- It would be useful if teachers had examples of what their students were testing on.
- Not at all clear what the headings mean.
- Details
- There is definitely not enough detail to be useful to teachers. Teach your students "functions." Are you kidding me? Composition of functions? Domain? Range? Inverse functions? Numerically and graphically? What one school, district, teacher believes teaching "functions" is quite different from another.
- Yes! There should be details under each subdomain.
- More details of what is required in the subdomains. They are broad.
- It would be more beneficial to know how students/grade levels/schools perform on each standard within the domains to inform educators on strengths and weaknesses of their math instruction.
- Could be more detailed under each domain.
- I would like to see some possible subdomain breakdowns if not on the actual blueprint then at least of the reports schools and parents will receive for the students.
- Lacks specifics
- Subdomains
- Honestly, the content clusters should be labeled as domains and break each one down for percentages for larger clusters. Ex: Domain: Geometry 20-25 Overall Subdomain: Angle Relationships 15-20% of domain Areas & Circumference of Circles: 20-25% Etc.
- Small description for each topic.
- How will these be assessed? (constructed response/MC/etc)
- Make sure to provide more details under headings
- What are the KeY standards within the domains or key clusters where emphasis on assess will be?
- I don't think you can break down the blueprint sub-domains even farther into standards...possibly the domain statistics and probability for 7th grade since both are addressed in that grade level. I would like more feedback to students after the test so they can see which areas they did well in or not to self-improve. I also think that would be the details that would support the overall mathematics program in a school as asked in question 2 rating scale.
- The blueprint is not detailed enough to intervene with students or math programs based on the subdomains only. Reports on the cluster or standards would provide usable feedback.
- If reports could provide standard or cluster specific details it would help improve our teaching practice and program.

- No
- Reasoning as to why that percentage was chosen. To explain clearly there needs to be a description.
- Nothing. Good
- Teachers need to know exactly which skills students are expected to perform without a calculator. There isn't time to teach every skill both with and without a calculator at the high school level. We need to know which are most important to do "by hand".
- High school needs to be based on the EOC for each course.
- Perhaps more detail about each domain – what is included in each, what percentage focuses on each topic, etc.
- As with the last several years...there is not enough info to make instructional decisions from this data. Geometry can include many things...
- State information about performance by domain.
- Links to need examples, lessons, questions, etc.
- What standards are covered in each section and which standards out of all of them are tested. Also needs to be divided to show what will be test on the calculator and non calculator portion
- Would love to know how many questions would be from each subdomain
- Expected depth of knowledge of each strand for each child.
- There are too many domains for early grades, and too few for high school
- For non-educators a brief statement of what the domain entails may be helpful.
- Examples and sample questions that model each domain's expected outcomes would provide better guidance from teachers and much better clarification to non-educators.
- Each subdomain needs to be further broken down and a list of contents that fall under that domain should be listed.
- I would like to see more details of what each subdomain consist of. But this is a blueprint and is limited

Final Feedback: Please provide any additional feedback (positive or critical) for the review committees to consider when making decisions about the blueprint.

- The subdomains are very broad and general, but they are aligned with the CCSSM (which I think is good!).
- On the blueprint, as I have wondered from earlier in the questionnaire, is that are we supposed to focus on critical area standards, while the other standards are taught not as hard? If so, the percentages are great! If not, then why can't they be of equal parts on the test. Also, if we are supposed to do it the first way that I mentioned, why can't the writers put on each critical area, the standard(s) that they address. I feel like that is something that is missing.
- Often, non-math people have huge input in decision making. The review committee should include math oriented people who have been teaching and have the present-day experience of dealing with standards level.
- More detail would be nice about what is tested in each subdomain/domain.
- Clarify the Grade 3 focus. Use the term domain (not sub-domain). Provide more information on what will be assessed within the domains. There is no mention of the style of the questions – will there be open response? If not, how will MPs be assessed? Will there be sample items that can be used for professional development and to help teachers know what depth of understanding is expected?
- I would liked to have seen more detail under the "subdomain" levels (would like to have seen the word "domain". List of skills assessed within each domain.
- The only concern I have is the amount of material being tested on the high school test. As a whole, that is a lot of content to test. You are essentially testing high school students two years or more of content,

while grades 3-8 are tested only for one year at a time. Having taught these classes for many years, I am concerned that once again we will be teaching to a test instead of teaching students what they need to know to be successful outside of high school.

- Please do not teach to the assessment. Teach the concepts and the students will do well on the assessment.
- Teachers need specific breakdown of performance on specific skills, not overall performance on a domain.
- Sufficient
- There needs to be examples of each label provided of what can be included and what cannot be included under each label. I think the labels as is, are too vague because some school systems might provide algebra problems with no difficulty level while another school might provide problems with a high difficulty level.
- Please make sure the test writer follows this blueprint. Teachers are trusting this document and may base their pacing off of it so it needs to be accurate. So many times in the past, test writers do not follow state documents and just do whatever. This is not fair to the teachers and students.
- None
- The subdomains need to be broken down into more detail when the report is sent to the schools. For example: if a child scores low in geometry, what area of geometry are they struggling with (area, perimeter, angles, surface area....). There is not information for the schools to correct problems within a their math program.
- As instructional guidelines, it will be important to define the ranges more precisely as one or more sub-domains could be short-changed if the maximum end of range is used for other sub-domains.
- More clarity is needed on which items might be non-calculator items (and the results should share data in a way that can be disaggregated this way).
- For this to be effective to high school educators, I believe they should have, rather than the broad subdomain, specific standards that could potentially be assessed. When I was a middle school teacher, I knew, for each grade-level course, what specific standards were included in each subdomain. For high school, this varies by district and school. More detail would help high school teachers to better plan the specific standards addressed in each course.
- A rubric usually has more detail to provide understanding for the students.
- The blueprint has not been the issue. The questions on the test are posed in such a way that only the advanced students understand. Therefore, the middle to low level student only guesses, which is not a valid assessment of a student's ability. Also, each time revisions are made or testing companies change, teachers have to re-evaluate and re-prioritize. Stop making a goal that's constantly out of reach. By the time the new "standards" are implemented and teachers are familiar with what's expected, they change.
- Why do we keep reinventing things that others have discarded? We clearly "over assess" and each time only teachers have stakes in this. It is time that both students and parents are held accountable for learning! Let teachers be the professionals they are and trust their judgement, have students repeat a year if they did not do the work to learn the material.
- If you want a true reflection of growth, students should take the assessment at the beginning of the year and at the end of the year. That is the only way to see true growth. You can't compare each year because the standards are different. Also, having a timed test goes against research. It's causing unnecessary stress and anxiety. Finally, there were thirty five multiple choice questions, two short answers, and an erq for my students in ONE session. That's is way too many and several students cried because they were overwhelmed

- IC 10th graders may not have taken Geometry.
- The more feedback schools can have the better. The blueprint provides the road map but without the domain performance information, the information is useless. Sorry to be so blunt but that is the honest truth.
- I would like you to consider information from the Dana Center, achievethecore.org, and other research and experts on the major works of the grade. Our assessment should follow the major work of the grade.
- The more detailed the report can be to schools, the better they can make instructional adjustments and decisions.
- When test scores are released we need the domain breakdown of how students scored in each area. This was very useful when done years ago.
- The assessment needs to be a math test, not a reading test. Of course there are going to be word problems, but language should be simple so that students reading below grade level can still show their proficiency in math.
- At the school level, teachers are being asked to determine the essential standards for each grade level. I think it would be beneficial to have a conversation with teachers about the essential standards and compare their thoughts with the percentages of each sub-domain. It seems that there is a gap in what teachers are looking at when deciding what to teach and for how long and the make up of the blueprints.
- Be more specific. Include subdomains and links to standards. List the specific standards in each domain and subdomain.
- Schools need more detailed information about what standards/questions their students scored well or poorly on if KDE expects them to use data to inform next steps in their mathematics program. The subdomains are VERY broad.
- See answer to number 4
- Again, I just feel if we have identified standards that are important for students to learn we need to test those standards. If there are standards that the state determines are “nice to have students learn” then that also needs to be noted somewhere. I also want students to feel success so if there could be a score breakdown to students I think students could find some positives in their “score” even if the overall score wasn’t where the “state” deemed it to be.
- Thank you for the opportunity!
- More details are needed to define each category
- Testing should not be emphasized as much in the elementary grades.
- I do not feel that the percentage weights reflect the standards especially the critical areas that are being taught. I also disagree with making the majority of the test calculator dependent. Students need to have conceptual understanding to aide them when new tools are presented.
- Data from assessment must include a domain breakdown for each assessment (student, grade level, school, district).
- While we understand that all standards are to be taught, are schools supposed to use this blueprint when planning their overall mathematics program OR are schools supposed to focus their instructional time on the critical areas listed for each grade level? In many cases, the % listed on blueprint for subdomains at each grade level does not align to the % of standards in those subdomains that are connected to the critical area of that grade level.
- Because the blueprint and report will provide instructional guidance to schools and teachers, it is critical that the percentages reflect the priorities and alignment already published KDE documents. There are several areas where this is NOT the case. Most notably in 4th grade and 10th grade.

- I hope the blueprint accompanies some additional information.
- Teachers need to be provided with sample type problems so we know what students will be seeing on the test to help prepare them for the wording. Also a demo calculator needs to be offered so students can use those. Students are used to the calculators in the classroom. The calculator online is NOT the same as the one that was on the field test.
- In the reports back to schools, more detailed information information will be needed about strengths & weaknesses in each sub-domain.
- Sample questions (released items) would be wonderful 😊
- Links to the specific standards that apply to each domain at each educational level would be helpful in creating a more meaningful and useful document to both teachers and non-education individuals.
- Provide a challenging syllabus for the students and have a mathematics teacher teach the subject, not a general education teacher. We have to begin to think outside the box and not adhere to old practices.