**3-5 Mathematics Survey**

1. What math curriculum are you currently using this school year? *(Please check ALL that apply.)*

❒ Everyday Mathematics/Everyday Learning McGraw-Hill

❒ Math Connects/Glencoe McGraw-Hill

❒ Math Expressions/Houghton Mifflin Harcourt

❒ GO Math!/Houghton Mifflin Harcourt

❒ Harcourt Math or HPS Math/Houghton Mifflin Harcourt

❒ enVisionMATH /Scott Foresman-Pearson

❒ Math in Focus or Singapore Math/Great Source HMH

❒ Other *(please specify)* \_\_\_\_\_\_\_\_\_\_\_­­\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

1. In the last 12 months, how much training, professional development, or professional learning about the Common Core State Standards have you participated in in total?

|  |  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- | --- |
|  | ½ day | 1 day (1-4 hours) | 2 days (5-8 hours) | 3 days (9-16 hours) | 4-5 days  | >5 days |
| General training on the Common Core State Standards |  |  |  |  |  |  |
|  | ½ day | 1 day (1-4 hours) | 2 days (5-8 hours) | 3 days (9-16 hours) | 4-5 days  | >5 days |
| Content-specific training on the Common Core State Standards for Mathematics |  |  |  |  |  |  |

1. How familiar are you with the Common Core State Standards for the grade(s) / subject(s) you teach?

🔿 Very unfamiliar

🔿 Somewhat unfamiliar

🔿 Somewhat familiar

🔿 Very familiar

The next section is designed to provide a collective snapshot of the current Common Core Mathematics knowledge and practice in your local setting. In order to gather the most accurate information, please do not guess on the items, and answer as candidly as possible. Remember that many items have no correct or incorrect answers.

Not all content in a given grade is emphasized equally in the Common Core State Standards. Some clusters require greater emphasis than others based on the depth of the ideas, the time that they take to master, and/or their importance to future mathematics or the demands of college and career readiness. This content is referred to as “major work.” The Common Core encourages the emphasis of major work in each grade, rather than trying to cover all of the standards equally.

1. Which of the following belong to the Major Work of the grade selected for this survey? Determine the major work for the grade level you teach, as well as for the grade below and above. *(Please check ALL that apply.)*

a. 2nd grade

❒ a) Identify line of symmetry in two dimensional figures

❒ b) Understand the place value

❒ c) Apply and extend previous understandings of multiplication and division to multiply and divide fractions

❒ d) Represent and solve problems involving addition and subtraction

❒ e) I don’t know.

b. 3rd grade

❒ a) Multiply and divide within 100

❒ b) Identify the measures of central tendency and distribution

❒ c) Develop understanding of fractions as numbers

❒ d) Understand meaning of addition and subtraction

❒ e) I don’t know.

c. 4th grade

❒ a) Examine transformations on the coordinate plane

❒ b) Generalize place value understanding for multi-digit whole numbers

❒ c) Extend understanding of fraction equivalence and ordering

❒ d) Create and extend patterns and sequences

❒ e) I don’t know.

d. 5th grade

❒ a) Apply and extend previous understandings of multiplication and division to multiply and divide fractions

❒ b) Understand the place value system

❒ c) Understand and calculate probability of single events

❒ d) Identify line of symmetry in two dimensional figures

❒ e) I don’t know.

e. 6th grade

❒ a) Understand ratio concepts and use ratio reasoning to solve problems

❒ b) Identify the measures of central tendency and distribution

❒ c) Identify and utilize rules of divisibility

❒ d) Apply and extend previous understandings of arithmetic to algebraic expressions

❒ e) I don’t know.

1. Over the past school year, how frequently have you done the following?

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Almost never/Never | About once a month | Several times a month | About weekly | Several times a week |
| a) Discussed Common Core State Standards for Mathematics with teachers in other grades |  |  |  |  |  |
|  | Almost never/Never | About once a month | Several times a month | About weekly | Several times a week |
| b) Discussed Common Core State Standards for Mathematics with teachers in your own grade |  |  |  |  |  |
| c) Looked at student mathematical work with other teachers for the purposes of professional development |  |  |  |  |  |
| d) Received suggestions from colleagues for curricular materials aligned to the Common Core State Standards for Mathematics |  |  |  |  |  |

The Common Core State Standards balance three aspects of Rigor:

* **Conceptual understanding**: students know the meaning behind the math,
* **Procedural skill and fluency**: students can quickly and accurately perform operations, and
* **Application**: students apply their skills and knowledge in real world situations.

The next questions examine those aspects of Rigor.

1. Examine each Common Core State Standard below carefully and check which aspect(s) of rigor are being targeted.

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
|  | Conceptual Understanding | Procedural Skill and Fluency | Application | I don’t know |
| a) Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem. |  |  |  |  |
| b) Understand a fraction 1/*b* as the quantity formed by 1 part when a whole is partitioned into *b* equal parts; understand a fraction *a/b* as the quantity formed by a parts of size 1/*b*. |  |  |  |  |
| c) Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons. |  |  |  |  |
|  | Conceptual Understanding | Procedural Skill and Fluency | Application | I don’t know |
| d) Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.  |  |  |  |  |
| e) Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left. |  |  |  |  |

1. Please indicate the extent to which you agree or disagree with the following statements as they relate to your mathematics teaching this school year.

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|   | Strongly Disagree | Somewhat Disagree | Somewhat Agree | Strongly Agree  | Not Applicable |
| a) I choose which standards to teach based on the major work of the grade. |  |  |  |  |  |
| b) I try to incorporate conceptual understanding into every lesson that I teach. |  |  |  |  |  |
| c) I use the textbook to determine the order of the standards that I teach. |  |  |  |  |  |
| d) I use the wording of the standards to determine if procedural skills, conceptual understanding, and/or real-world applications are emphasized in my lessons. |  |  |  |  |  |
| e) I order lessons based on the order of the standards at my grade/course level. |  |  |  |  |  |
|  | Strongly Disagree | Somewhat Disagree | Somewhat Agree | Strongly Agree  | Not Applicable |
| f) I spend less time in the classroom on additional/supporting standards. |  |  |  |  |  |
| g) I organize which standards to teach based on how they connect to one another within and across units. |  |  |  |  |  |
| h) I seek to balance my unit across procedural skills, conceptual knowledge and real-world applications. |  |  |  |  |  |
| i) I consider students’ prior knowledge when writing my lesson and learning objective. |  |  |  |  |  |
| j) I try to give equal importance to all topics throughout the year. |  |  |  |  |  |

The CCSS emphasizes Coherence *across* grades through progressions of topics over multiple grade-levels.

8. Consider this standard.Understand a fraction as a number on the number line; represent fractions on a number line diagram.

* 1. Represent a fraction *1/b* on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into *b* equal parts. Recognize that each part has size *1/b* and that the endpoint of the part based at 0 locates the number *1/b* on the number line.
	2. Represent a fraction *a/b* on a number line diagram by marking off *a* lengths *1/b* from 0. Recognize that the resulting interval has size *a/b* and that its endpoint locates the number *a/b* on the number line.

This standard is preceded by which of the following standards? *(Select one.)*

🔿 a) Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, …, and represent whole-number sums and differences within 100 on a number line diagram.

🔿 b) Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.

* + 1. Understand a fraction *a/b* as a multiple of 1/*b*. For example, use a visual fraction model to represent 5/4 as the product of 5 x (1/4), recording the conclusion by the equation 5/4 = 5 x (1/4).
		2. Understand a multiple of *a/b* as a multiple of 1/*b*, and use this understanding to multiply a fraction by a whole number. For example, use a visual fraction model to express 3 x (2/5) as 6 x (1/5), recognizing this product as 6/5. (In general, *n* x (*a/b*) = (*n* x *a*)/*b*.)

🔿c) Solve real world problems involving multiplication of fractions and mixed numbers,e.g., by using visual fraction models or equations to represent the problem.

🔿d) Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. For example, create a story context for (2/3) ÷ (3/4) and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that (2/3) ÷ (3/4) = 8/9 because 3/4 of 8/9 is 2/3. (In general, *(a*/*b)* ÷ *(c*/*d)* = *ad*/*bc*.)How much chocolate will each person get if 3 people share ½ lb. of chocolate equally? How many ¾ cup servings are in 2/3 cup of yogurt? How wide is a rectangular strip of land with length ¾ mi. and area ½ square mi.?

🔿e) I don’t know.

9. Consider this standard.
Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

This standard prepares students for which of the following standards? *(Select one.)*

🔿 a) Understand a fraction as a number on the number line; represent fractions on a number line diagram.

* + 1. Represent a fraction *1/b* on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into *b* equal parts. Recognize that each part has size *1/b* and that the endpoint of the part based at 0 locates the number *1/b* on the number line.
		2. Represent a fraction *a/b* on a number line diagram by marking off *a* lengths *1/b* from 0. Recognize that the resulting interval has size *a/b* and that its endpoint locates the number *a/b* on the number line.

🔿 b) Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.

* 1. *Understand a fraction a/b as a multiple of 1/b. For example, use a visual fraction model to represent 5/4 as the product of 5 x (1/4), recording the conclusion by the equation 5/4 = 5 x (1/4).*
	2. *Understand a multiple of a/b as a multiple of 1/b, and use this understanding to multiply a fraction by a whole number. For example, use a visual fraction model to express 3 x (2/5) as 6 x (1/5), recognizing this product as 6/5. (In general, n x (a/b) = (n x a)/b.)*

🔿 c) Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models and equations to represent the problem. For example, create a story context for (2/3) ÷ (3/4) and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that (2/3) ÷ (3/4) = 8/9 because 3/4 of 8/9 is 2/3. (In general, (a/b) ÷ (c/d) = ad/bc.) How much chocolate will each person get if 3 people share ½ lb. of chocolate equally? How many ¾ cup servings are in 2/3 cup of yogurt? How wide is a rectangular strip of land with length ¾ mi. and area ½ square mi.?

🔿 d) Represent whole numbers as lengths from 0 on a number line diagram with equally spaced points corresponding to the numbers 0, 1, 2, …, and represent whole-number sums and differences within 100 on a number line diagram.

🔿 e) I don’t know.

The CCSS also emphasizes Coherence *within* grades through explicit connections among topics within the grade.

1. From the list of six standards below, select *three* (in any order) that could be taught together in a coherent unit. Please ensure that you select three standards.

❒ a) Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. *For example, given the rule “Add 3” and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.*

❒ b) Make a line plot to display a data set of measurements in fractions of a unit (1/2, 1/4, 1/8). Solve problems involving addition and subtraction of fractions by using information presented in line plots. *For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection.*

❒ c) Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. *For example, express 3/10 as 30/100, and add 3/10 + 4/100 = 34/100.*

❒ d) Use place value understanding to round multi-digit whole numbers to any place.

❒ e) Understand a fraction *a/b* with *a* > 1 as a sum of fractions 1/*b*.

* 1. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.
	2. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. *Examples: 3/8 = 1/8 + 1/8 + 1/8; 3/8 = 1/8 + 2/8; 2 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8.*
	3. Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.
	4. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.

❒ f) Draw points, lines, line segments, rays, angles (right, acute, obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.

1. Please briefly explain below your reasoning for your selections.

Yesterday, Mr. Jones taught a math lesson to his 3rd grade class and he would like comments on a few elements of his lesson.

1. Mr. Jones wants to be sure his lesson plan was Common Core-aligned. This was the objective for his class: “*Understand multiplication as equal groups.”*

This objective is: *(Select one.)*

🔿 a) Supporting Work of 3rd grade

🔿 b) Major Work of 3rd grade

🔿 c) Not a 3rd grade objective

🔿 d) I don’t know.

1. Which activity would be appropriate for this lesson objective? *(Select one.)*

🔿 a) Students work with counters to create equal groups and writing number sentences for their models

🔿 b) Students play a game for multiplication fact fluency

🔿 c) Students work with partners to write word problems for multi-digit multiplication

🔿 d) Students work with 3 digit numbers and base-10 blocks

🔿 e) I don’t know.

 Mr. Jones used the following lesson plan to meet his objective:

*Objective:*

**Understand multiplication as equal groups.**

Lesson plan:

* Seat students at tables with personal white boards and 12 counters each.
* Ask students to use their counters and make equal groups of two. Afterwards, ask students how many sets of two they have.
* Ask students to write a number sentence to show these groups on their personal white boards. Students may write an addition sentence (2 + 2 + 2 + 2 + 2 + 2 = 12) or a multiplication sentence (6 × 2 = 12).
* Write both equations on the board and have students investigate how the addition sentence is similar to the multiplication sentence. In the discussion, be sure to emphasize the meaning of the two factors in the multiplication sentence; 6 is the number of groups and 2 is the number of counters in each group.
* Ask students to turn and talk to their partner. Students should ask each other, “What part of the addition sentence represents the number of groups? What part represents how many are in each group?”
* Repeat the process with groups of three, four, and six, writing equations for each arrangement.
1. In the lesson plan above, which type(s) of student learning is/are addressed? *(Please check ALL that apply.)*

❒ a) Conceptual understanding is addressed.

❒ b) Procedural skill is addressed.

❒ c) Application is addressed.

❒ d) None of the above is addressed.

❒ e) I don’t know.

1. Which standard(s) is/are addressed in the lesson plan? *(Please check ALL that apply.)*

❒ a) Determine the unknown whole number in a multiplication or division equation relating three whole numbers. *For example, determine the unknown number that makes the equation true in each of the equations 8 × ? = 48, 5 = \_\_ ÷ 3, 6 × 6 = ?*

❒ b) Interpret products of whole numbers, e.g., interpret 5 × 7 as the total number of objects in 5 groups of 7 objects each. *For example, describe a context in which a total number of objects can be expressed as 5 × 7*.

❒ c) Fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that 8 × 5 = 40, one knows 40 ÷ 5 = 8) or properties of operations. By the end of Grade 3, know from memory all products of two one-digit numbers.

❒ d) Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. *For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends*.

❒ e) None of the above.

❒ f) I don’t know.

1. Briefly, how would you improve upon the lesson plan to more thoroughly address this/these standard(s)?
2. Given the same lesson plan, which statement(s) below reflect the lesson? *(Please check ALL that apply.)*

❒ a) The lesson asks students to attend to precision.

❒ b) The lesson asks students to reason abstractly and quantitatively.

❒ c) The lesson asks students to construct arguments and critique reasoning in others.

❒ d) The lesson requires students to model with mathematics.

❒ e) The lesson has students look for and express repeated reasoning.

❒ f) The lesson builds on previous knowledge.

❒ g) The lesson encourages students to use appropriate tools strategically.

❒ h) I don’t know.

1. Which prerequisite content will prepare students for this lesson? *(Select one.)*

🔿 a) Understand that the digits of a three-digit number represent amounts of hundreds, tens, and ones, e.g., 706 equals 7 hundreds, 0 tens, and 6 ones.

🔿 b) Fluently add and subtract within 20 using mental strategies. By end of Grade 2, know from memory all sums of two one-digit numbers.

🔿 c) Mentally add 10 or 100 to a given number 100–900, and mentally subtract 10 or 100 from a given number 100 900.

🔿 d) Use addition to find the total number of objects arranged in rectangular arrays with up to 5 rows and up to 5 columns; write an equation to express the total as a sum of equal addends.

🔿 e) None of the above.

🔿 f) I don’t know.

1. This lesson most directly prepares students to learn which of the following standards? *(Select one.)*

🔿 a) Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.

🔿 b) Interpret a multiplication equation as a comparison, e.g., interpret 35 = 5 × 7 as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplication comparisons as multiplication equations.

🔿 c) Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

🔿 d) Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. *For example, recognize that 700 ÷ 70 = 10 by applying concepts of place value and division.*

🔿 e) None of the above.

🔿 f) I don’t know.

1. Thinking about the last complete unit that you taught, how often did you do the following?

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Never | Rarely | Sometimes | Often | In all or most lessons |
| a) Build on prior skills and knowledge when teaching new content |  |  |  |  |  |
| b) Ground procedures and formulas in conceptual understanding |  |  |  |  |  |
| c) Make the mathematics of the lesson explicit by using explanations, representations, and/or examples |  |  |  |  |  |
|  | Never | Rarely | Sometimes | Often | In all or most lessons |
| d) Use repeated practice to improve students' computational skills |  |  |  |  |  |
| e) Have students do work with and practice grade-level problems and exercises. |  |  |  |  |  |
| f) Emphasize one solution method to strengthen all students’ understanding of the content  |  |  |  |  |  |
| g) Have students choose and use appropriate tools when solving a problem |  |  |  |  |  |
| h) Check for understanding throughout the lesson using informal, but deliberate methods (such as questioning or assigning short problems) |  |  |  |  |  |
| i) Summarize the mathematics with references to student work to reinforce the focus of the lesson |  |  |  |  |  |
| j) Predominantly use questions and problems that are from the textbook |  |  |  |  |  |
| k) Review standards from previous grades |  |  |  |  |  |
| l) Ask students to explain and justify their work |  |  |  |  |  |
|  | Never | Rarely | Sometimes | Often | In all or most lessons |
| m) Provide feedback to help students revise initial work |  |  |  |  |  |

1. A teacher walking around the classroom overhears the comments below during student group work. Which comment shows students demonstrating the practice standard **’construct viable arguments and critique the reasoning of others’**? *(Select one.)*

🔿a) “That could be the answer, or the answer could be 40.”

🔿b) “No, the answer can’t be 27, because when you multiply two even numbers, the answer must be even.”

🔿c) “Yep, I agree that the answer is 32.”

🔿d) “I don’t think the answer is 32. I’m going to ask the teacher.”

🔿 e) I don’t know.

1. Which scenario shows students demonstrating the practice standard ‘**model with mathematics’**? *(Select one.)*

🔿a) Students completing a worksheet on adding and subtracting multi-digit numbers.

🔿b) Students explaining the relationship between multiplication and division.

🔿c) Students using past sales and inventory in order to predict future sales and calculate a budget for the school store.

🔿d) Students answering a set of routine word problems on right rectangular prisms.

🔿 e) I don’t know

1. In the last year, how frequently have you used the following websites for free resources and information about the Common Core State Standards?

|  |  |  |  |  |  |
| --- | --- | --- | --- | --- | --- |
|  | Almost never/Never | About once a month | Several times a month | About weekly | Several times a week |
| Teaching Channel |  |  |  |  |  |
| Teachers Pay Teachers |  |  |  |  |  |
| LearnZillion |  |  |  |  |  |
| Share My Lesson |  |  |  |  |  |
| BetterLesson |  |  |  |  |  |
| Achieve the Core |  |  |  |  |  |
| Khan Academy |  |  |  |  |  |
| Pinterest |  |  |  |  |  |
| My state education agency website |  |  |  |  |  |
| My district education agency website |  |  |  |  |  |
|  | Almost never/Never | About once a month | Several times a month | About weekly | Several times a week |
| Other state or district education agency website |  |  |  |  |  |
| Other *(please specify)* |  |  |  |  |  |

Thank you very much for the time and thought you have put into completing this survey.

For more information about the organization conducting this research,

Student Achievement Partners,

visit [www.achievethecore.org](http://www.achievethecore.org).