**6-8 Mathematics Survey**

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

❒ Holt McDougal Mathematics/Holt McDougal-HMH

❒ Math Connects/Glencoe McGraw-Hill

❒ Connected Mathematics/Prentice Hall Pearson

❒ Prentice Hall Math/Prentice Hall Pearson

❒ College Preparatory Mathematics/CPM

❒ Algebra I/Prentice Hall Pearson

❒ Math in Focus or Singapore Math/Great Source HMH

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

2. 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 |  |  |  |  |  |  |
| Content-specific training on the Common Core State Standards for Mathematics |  |  |  |  |  |  |

3. 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. As a reminder, the results of this survey are confidential. 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.

4. 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.)*

1. 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.

1. 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. 7th grade

❒ a) Examine transformations on the coordinate plane

❒ b) Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers

❒ c) Use properties of operations to generate equivalent expressions

❒ d) Generate the prime factorization of numbers

❒ e) I don’t know.

1. 8th grade

❒ a) Represent and analyze quantitative relationships between dependent and independent variables

❒ b) Define, evaluate, and compare functions

❒ c) Understand and apply the Pythagorean Theorem

❒ d) Understand and calculate probability of single events

❒ e) I don’t know.

1. Typical 9th grade course (e.g., Algebra I)

❒ a) Quadratic inequalities

❒ b) Examine transformations on the coordinate plane

❒ c) Linear and quadratic functions

❒ d) Create equations to model situations

❒ e) I don’t know.

5. 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 the three aspects of rigor.

6. 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) Understand that rewriting an expression in different forms in a problem context can shed light on the problem and how the quantities in it are related. *For example, a + 0.05a = 1.05a means that “increase by*  *5%” is the same as “multiply by 1.05.”* |  |  |  |  |
| b) Solve real-world and mathematical problems by graphing points in all four  quadrants of the coordinate plane. Include use of coordinates and absolute  value to find distances between points with the same first coordinate or the  same second coordinate. |  |  |  |  |
| c) Use proportional relationships to solve multistep ratio and percent problems. *Examples: simple interest, tax, markups and markdowns, gratuities and* *commissions, fees, percent increase and decrease, percent error.* |  |  |  |  |
|  | Conceptual Understanding | Procedural Skill and Fluency | Application | I don’t know |
| d) Solve systems of two linear equations in two variables algebraically, and  estimate solutions by graphing the equations. Solve simple cases by inspection.  *For example, 3x + 2y = 5 and 3x + 2y = 6 have no solution because 3x + 2y cannot  simultaneously be 5 and 6.* |  |  |  |  |
| e) Fluently divide multi-digit numbers using the standard algorithm. |  |  |  |  |

7. 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. |  |  |  |  |  |
|  | Strongly Disagree | Somewhat Disagree | Somewhat Agree | Strongly Agree | Not Applicable |
| c) I try to incorporate real-world applications into every lesson that I teach. |  |  |  |  |  |
| d) I use the textbook to determine the order of the standards that I teach. |  |  |  |  |  |
| e) I use the wording of the standards to determine if procedural skills, conceptual understanding, and/or real-world applications are emphasized in my lessons. |  |  |  |  |  |
| f) I order lessons based on the order of the standards at my grade. |  |  |  |  |  |
| g) I spend less time in the classroom on additional/supporting standards. |  |  |  |  |  |
| h) I organize which standards to teach based on how they connect to one another within and across units. |  |  |  |  |  |
| i) I seek to balance my unit across procedural skills, conceptual knowledge and real-world applications. |  |  |  |  |  |
| j) I consider students’ prior knowledge when writing my lesson and learning objective. |  |  |  |  |  |
| k) 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.

Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.

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

🔿 a) Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. *For example, express the calculation “add 8 and 7, then multiply by 2” as 2 × (8 + 7). Recognize that 3 × (18932 + 921) is three times as large as 18932 + 921, without having to calculate the indicated sum or product.*

🔿 b) Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

🔿 c) Solve linear equations in one variable.

* + 1. Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form *x* = *a, a* = *a,* or *a* = *b* results (where *a* and *b* are different numbers).
    2. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.

🔿 d) Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.

🔿 e) I don’t know

9. Consider this standard.

Solve linear equations in one variable.

1. Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form *x* = *a, a* = *a,* or *a* = *b* results (where *a* and *b* are different numbers).
2. Solve linear equations with rational number coefficients, including equations whose solutions require expanding expressions using the distributive property and collecting like terms.

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

🔿 a) Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.

🔿 b) Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

🔿 c) Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.

🔿 d) Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. *For example, express the calculation “add 8 and 7, then multiply by 2” as 2 × (8 + 7). Recognize that 3 × (18932 + 921) is three times as large as 18932 + 921, without having to calculate the indicated sum or product.*

🔿 e) I don’t know

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

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

❒a) Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units. *For example, if a person walks ½ mile in each ¼ hour, compute the unit rate as the complex fraction ½ / ¼ miles per hour, equivalently 2 miles per hour.*

❒ b) Describe the two-dimensional figures that result from slicing three-dimensional figures, as in plane sections of right rectangular prisms and right rectangular pyramids.

❒ c) Solve problems involving scale drawings of geometric figures, including computing actual lengths and areas from a scale drawing and reproducing a scale drawing at a different scale.

❒ d) Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients.

❒ e) Recognize and represent proportional relationships between quantities.

i. Decide whether two quantities are in a proportional relationship, e.g., by testing for equivalent ratios in a table or graphing on a coordinate plane and observing whether the graph is a straight line through the origin.

ii. Identify the constant of proportionality (unit rate) in tables, graphs, equations, diagrams, and verbal descriptions of proportional relationships.

iii. Represent proportional relationships by equations. *For example, if total cost t is proportional to the number n of items purchased at a constant price p, the relationship between the total cost and the number of items can be expressed as t = pn*.

iv. Explain what a point (*x,y*) on the graph of a proportional relationship means in terms of the situation, with special attention to the points (0, 0) and (1, *r*) where *r* is the unit rate.

❒ f) Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.

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

Yesterday, Mr. Jones taught a math lesson to his 8th grade class and he would like comments on a few elements of his lesson.

12. Mr. Jones wants to be sure his lesson plan was Common Core-aligned. This was his objective for the class:

*“Students will sort and classify equations by carrying out algebraic manipulations and by substituting numbers into algebraic statements in order to test their validity in special cases.”*

This objective is: *(Select one.)*

🔿 a) Supporting Work of 8th grade

🔿 b) Major Work of 8th grade

🔿 c) Not an 8th grade objective

🔿 d) I don’t know.

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

🔿a) Present students with a situation that can be modeled with a linear equation, have them write and solve the equation.

🔿b) Give students a set of linear equations and have them identify whether they are always, sometimes, or never true.

🔿c) Investigate the graphs of systems of linear equations to determine whether they are intersecting, parallel, or overlapping.

🔿d) Determine the transformations that move one shape onto another on the coordinate plane.

🔿 e) I don’t know.

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

*Lesson*: Sorting and Classifying Equations Part 1

*Objective*:

**Students will sort and classify equations by carrying out algebraic manipulations and by substituting numbers into algebraic statements in order to test their validity in special cases.**

**Setup:**

Set up the task by telling students they are going to be put in groups and given a number of equations to sort into three categories:

1. One solution

2. No solution

3. Infinitely many solutions

While working on the group task, the team must reach a consensus for each equation. All team members must be prepared to justify and explain their solutions and teams must show all work.

**Activity:** Sort the class into teams of two or three and pass out materials to each team. Ask students to divide their large sheet into three columns and title the columns: One solution, No solution, Infinitely many solutions.

Students move through the list of equations, placing each one in the appropriate column. While students are working, walk around and listen to team conversations.

When all groups are finished, have a whole class discussion. Discuss strategies that students used to make decisions. Challenge students to use mathematics to prove where the equations belong.

14. 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.

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

❒ a) Understand that solutions to a system of two linear equations in two variables correspond to points of intersection of their graphs, because points of intersection satisfy both equations simultaneously.

❒ b) Give examples of linear equations in one variable with one solution, infinitely many solutions, or no solutions. Show which of these possibilities is the case by successively transforming the given equation into simpler forms, until an equivalent equation of the form *x* = *a*, *a* = *a*,or *a* = *b* results (where *a* and *b* are different numbers).

❒ c) Know and apply the properties of integer exponents to generate equivalent numerical expressions. *For example, 32 × 3–5 = 3–3 = 1/33 = 1/27.*

❒ d) Solve real-world and mathematical problems leading to two linear equations in two variables. *For example, given coordinates for two pairs of points, determine whether the line through the first pair of points intersects the line through the second pair.*

❒ e) None of the above.

❒ f) I don’t know.

16. Briefly, how would you improve upon the lesson plan to more thoroughly address this/these standard(s)?

17. Given the same lesson plan, which statement(s) below reflect(s) 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

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

🔿 a) Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units.

🔿 b) Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram.

🔿 c) Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies.

🔿 d) Convert a rational number to a decimal using long division; know that the decimal form of a rational number terminates in 0s or eventually repeats.)

🔿 e) None of the above.

🔿 f) I don’t know.

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

🔿 a) Derive the formula for the sum of a finite geometric series (when the common ratio is not 1), and use the formula to solve problems. *For example, calculate mortgage payments.*

🔿 b) Solve simple rational and radical equations in one variable, and give examples showing how extraneous solutions may arise.

🔿 c) Understand that polynomials for a system analogous to the integers, namely, they are closed under the operations of addition, subtraction, and multiplication; add, subtract, and multiply polynomials.

🔿 d) Explain each step in solving a simple equation as following from the equality of numbers asserted at the previous step, starting from the assumption that the original equation has a solution. Construct a viable argument to justify a solution method.

🔿 e) None of the above.

🔿 f) I don’t know.

20. 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 |  |  |  |  |  |
| 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 |  |  |  |  |  |
|  | Never | Rarely | Sometimes | Often | In all or most lessons |
| 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 |  |  |  |  |  |
| m) Provide feedback to help students revise initial work |  |  |  |  |  |

21. 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 –17.5.”

🔿 b) “No, the answer can’t be –12.5, because when you add, you keep the sign of the number that’s farther from 0.”

🔿 c) “Yep, I agree that the answer is 4.5.”

🔿 d) “I don’t think the answer is 4.5. I’m going to ask the teacher.”

🔿 e) I don’t know

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

🔿 a) Students completing a worksheet on dividing multi-digit numbers.

🔿 b) Students explaining the slope formula to each other.

🔿 c) Students redesigning the playground at school using scale drawings.

🔿 d) Students answering a set of routine word problems on linear relationships.

🔿 e) I don’t know

23. 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 |  |  |  |  |  |
|  | Almost never/Never | About once a month | Several times a month | About weekly | Several times a week |
| BetterLesson |  |  |  |  |  |
| Achieve the Core |  |  |  |  |  |
| Khan Academy |  |  |  |  |  |
| Pinterest |  |  |  |  |  |
| My state education agency website |  |  |  |  |  |
| My district education agency website |  |  |  |  |  |
| 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).