COMMON CORE STANDARDS ADDRESSED IN THIS RESOURCE

4.OA.4 - 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. Activity pages: 23, 24

4.NF.2 - Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as 1/2. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols >, =, or <, and justify the conclusions, e.g., by using a visual fraction model. Activity page: 27

4.NF.6 - Use decimal notation for fractions with denominators 10 or 100. Activity page: 30

5.OA.1 - Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols. Activity pages: 2, 3, 4, 10

5.NF.1 - Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. Activity page: 33

5.NF.4 - Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. Activity page: 34

6.RP.1 - Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. Activity page: 38

6.RP.3 - Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams, double number line diagrams, or equations. Activity pages: 11, 31, 32

6.NS.1 - 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. Activity page: 35

6.NS.4 - Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1–100 with a common factor as a multiple of a sum of two whole numbers with no common factor. Activity pages: 25, 26

6.NS.5 - Understand that positive and negative numbers are used together to describe quantities having opposite directions or values (e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge); use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation. Activity pages: 43, 57, 58

6.EE.1 - Write and evaluate numerical expressions involving whole-number exponents. Activity pages: 8, 12

6.EE.2 - Write, read, and evaluate expressions in which letters stand for numbers. Activity pages: 5, 13, 15, 18

6.EE.3 - Apply the properties of operations to generate equivalent expressions. Activity page: 41

6.EE.6 - 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. Activity page: 16

6.EE.7 - Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p, q and x are all nonnegative rational numbers. Activity page: 51, 53, 54

6.EE.8 - Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams. Activity page: 19

7.NS.1 - 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. Activity pages: 44, 45, 46

7.NS.2 - Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers. Activity pages: 29, 47, 48, 49

7.NS.3 - Solve real-world and mathematical problems involving the four operations with rational numbers. Activity page: 50

7.EE.3 - 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. Activity page: 17

7.EE.4 - Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities. Activity pages: 20, 36, 39, 40

8.EE.1 - Know and apply the properties of integer exponents to generate equivalent numerical expressions. Activity page: 37

8.EE.2 - Use square root and cube root symbols to represent solutions to equations of the form $x^2 = p$ and $x^3 = p$, where p is a positive rational number. Evaluate square roots of small perfect squares and cube roots of small perfect cubes. Know that $\sqrt{2}$ is irrational. Activity page: 21

8.EE.3 - Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other. Activity page: 14

8.F.3 - Interpret the equation $y = mx + b$ as defining a linear function, whose graph is a straight line; give examples of functions that are not linear. Activity page: 55, 59

Reading Mathematics

The prefix *milli* means million.

WRONG / RIGHT

The prefix *milli* means $\dfrac{1}{1000}$

millimeter = $\dfrac{1}{1000}$ of a meter

Remember

Undertanding symbols and metric measures is necessary in reading and understanding mathematics.

Find the symbol, unit of measurement, or prefix that matches each expression. Shade the answers to find a very common mathematics symbol.

1. right angle

2. absolute value of X

3. least common denominator

4. angle A

5. is parallel to

6. less than

7. pi

8. is approximately equal to

9. .3 repeats without end

10. kilogram
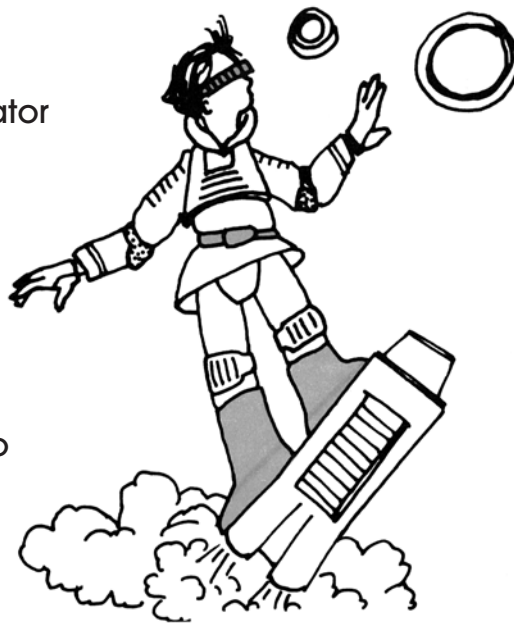
11. 5 factorial

12. centimeter

13. square root

14. segment AB

15. 1000

16. greatest common factor

17. forty-five degrees

18. is perpendicular to

19. and so on

20. ratio of 1 to 3

∆ABC	$\frac{2}{3}$ / mm	bh / =	cm / ⊥ / ...	LCD / KILO	1 : 3	√	⌐
< A	II	mph / $\overline{AB}$	cm² / πr² / L / π	|x|	⋟ / ∍ / ft.	milli	mg / 1 0 0
centi		.3̄				15 / m	km/n
m³		.1̄	≈ / mL	5! / <	2πr / in. / ∈	s / 7	$\overrightarrow{AB}$
oz.	.4̄	>	45° / GCF / kg / x/z	5	≅	m < A	

What is the symbol? _____

MP4041

Order of Operations

$$3 + 2 \cdot 7$$
$$5 \cdot 7$$
$$35$$

WRONG

RIGHT

$$3 + 2 \cdot 7 =$$
$$3 + 14 =$$
$$= 17$$

Multiplication **D**ivision **A**ddition **S**ubtraction

MY DEAR AUNT SALLY

Remember

Do multiplication and division from left to right first. Then do addition and subtraction from left to right.

Solve the problems and write the answers in the puzzle.

Across

1. $3 + 5 \times 4 =$
2. $8 \times 5 - 4 =$
3. $48 \div 2 + 4 =$
4. $3 + 4 - 6 + 2 \times 35 =$
5. $18 - 4 \times 2 =$
6. $80 \div 4 + 2 \times 2 - 2 =$
8. $16 - 3 \times 2 + 100 \times 4 =$
9. $200 + 10 \times 5 + 4 \times 2 =$
10. $6 \times 5 - 4 \times 2 + 3 \times 6 =$

Down

1. $1 + 4 \times 50 =$
2. $8 + 5 \times 2 + 4 \div 2 + 11 =$
3. $4 + 6 - 2 \div 2 + 17 =$
6. $10 - 3 + 8 - 3 + 8 \times 3 \div 3 =$
7. $3 + 9 \div 3 + 4 \times 2 - 1 =$
8. $24 \div 2 \times 4 \times 10 \div 1 =$
9. $18 - 3 \times 5 + 20 - 3 =$
10. $15 \times 2 + 8 \div 4 + 9 =$

Order of Operations Puzzle

WRONG

4 ☐ 3 ☐ 7 = 25

4 [x] 3 [+] 7 = 25

12 + 7 = 25

19 = 25

RIGHT

4 ☐ 3 ☐ 7 = 25

4 + 3 x 7 = 25

4 + 21 = 25

25 = 25

In these cross-number puzzles, the numbers have been provided, but the arithmetic operations are missing. Fill in the spaces with the appropriate operations, choosing from **+**, **−**, **x**, and **÷**. Follow the correct order of operations. Your results should check both horizontally and vertically.

A

4		8		2	=	20
4		4		4	=	4
7		4		2	=	1
=		=		=		=
8		8		10	=	6

B

5		4		2	=	18
4		2		1	=	9
5		3		2	=	4
=		=		=		=
25		5		1	=	6

Order of Operations Puzzle

3 + □ x □ = 13
3 + 10 x 3 = 13
3 + 30 = 13
33 = 13

WRONG   RIGHT

3 + □ x □ = 13
3 + 5 x 2 = 13
3 + 10 = 13
13 = 13

Here is another type of cross-number puzzle. The proper arithmetic signs have been provided, but certain numbers are missing. Following the correct order of operations, insert numbers in the spaces so that the solution will work both horizontally and vertically.

A

3	+	6	x		=	21
x						
	–		+		=	
–		+		+		+
	–		+		=	1
=		=		=		=
10	÷	2	+		=	15

B

2	x	8	÷		=	4
x		÷		x		+
	x		÷		=	16
÷		x		–		–
	x		+		=	
=		=		=		=
3	+	1	+		=	9