



STANDARDS FOR MATHEMATICAL PRACTICE

The following practices allow students to become successful in learning mathematics.

WHEN WORKING A MATH PROBLEM...

1. Ask: "What is the best way to solve the problems?", "Does this make sense?", and "Can I solve the problem in a different way?"
2. Represent: real world problems using numbers and variables and create coherent representations of the problem at hand, make sense of problems - considering the units involved, and attending to the meaning of the quantities.
3. Evaluate and explain thinking (either verbally or in writing) as well as the thinking of others using mathematical words and ideas. Asking questions like "How did you get that?", "Why is that true?" and "Does that always work?"
4. Show different ways to solve a problem. Check their answer to see if it makes sense. Look at models and choose which models are most useful to solve problems.
5. Consider available tools, including estimation and technology, to solve a problem and decide which are most helpful.
6. Solve problems accurately and efficiently and use mathematical vocabulary to explain their thinking
7. Use equations with variables and understand geometric properties. Use drawings, diagrams, models, tables, lists or graphs and rules to explain their thinking.
8. Use reasoning to understand how algorithms work and make generalizations about mathematical patterns as they solve problems.

SUGGESTIONS FOR PARENTS



- ★ Always talk about math in a positive way. Instilling a positive can-do attitude is one of the best things you can do to help your student be successful in math. Encourage them to always try their hardest and understand that mistakes are important to the process of learning mathematics.
- ★ You don't have to be a math expert to help with your child's math homework— It is not your job to solve the problem but to help them have the confidence to use what they know to solve it.
- ★ Check in on them occasionally and when they get stuck ask questions like:
 - How is this problem different than the others you have been doing?
 - What is this problem asking you to find?

Other suggestions for helping your student at home can be found at:

http://www.pta.org/common_core_state_standards.asp
http://www.pta.org/common_core_state_standards.asp

<http://www.scoe.org/pub/htdocs/math-parent.html>



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THE COMMON CORE STATE STANDARDS FOR MATHEMATICS

6th GRADE



The skills and understanding that you will gain during sixth grade are among the most important foundations for college and career readiness.

These include working with ratios and rates and working with variables and variable expressions -- the building blocks of algebra.

Many of this year's topics will remain a major emphasis throughout the middle school years and into high school and beyond.

Sixth graders begin to explore and use technology to help them make meaning of and demonstrate their understanding of mathematics. This includes calculators, as well as other types of technology.



RATIOS AND PROPORTIONAL RELATIONSHIPS

Sixth grade students understand ratio concepts and use ratio thinking to solve problems. Ratios arise in situations in which two (or more) quantities are related. You will draw deeply on what you have learned about measurement in earlier grades to compare rates and develop proportional reasoning skills.

Examples:



I can solve problems like these:

- ★ “The ratio of wings to beaks in the bird house at the zoo was 2:1 because for every 2 wings there was 1 beak”.
- ★ “For every vote Candidate A received candidate C received nearly three votes.”

THE NUMBER SYSTEM

Sixth grade students extend and apply their previous understanding of multiplication and division to divide fractions; compute fluently with multi-digit numbers; find common factors and multiples and extend their understanding of whole numbers, simple fractions and decimals to the system of rational numbers (integers, both positive and negative; absolute values, and graph numbers in all four quadrants of a coordinate plane).

EXAMPLE:

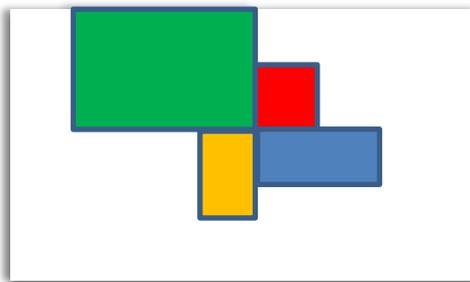
- ★ I can solve a problem like: “One serving of rice is $\frac{2}{3}$ of a cup. I ate 1 cup of rice. How many servings of rice did I eat?”

GEOMETRY

Sixth grade students apply what they have learned about area, surface area, and volume to solve real world problems.

EXAMPLE:

- ★ I can break down special quadrilaterals or polygons into rectangles, triangles or other shapes and use what is known about their area, surface area, and/or volume to solve real-world and mathematical problems.



EXPRESSIONS AND EQUATIONS

Sixth grade students begin to use the understanding of the properties of operations (addition, subtraction, multiplication, and division) with whole numbers, fractions, and decimals) to work with algebraic expressions and equations involving variables in more complex ways.

You will also reason about and solve one variable equations and inequalities and represent and analyze relationships between variables.

EXAMPLES:

- ★ I can write the calculations such as “subtract y from 5” as $5 - y$.

- ★ I can write an algebraic expression that summarizes a calculation that could be carried out repeatedly with different numbers.

For example:

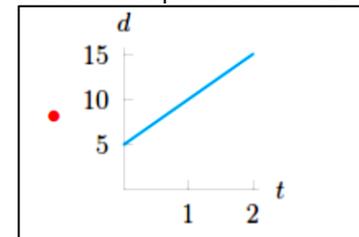
p =price c =change from \$10.00

expression $10 - p$ and

extend it to an equation such as $C = 10 - p$

Price of Book (\$)	5.00	6.49	7.15
Change from \$10	10-5.00	10-6.49	10-7.15

- ★ I can analyze the relationship between variables, using graphs and tables and relating these to an equation such as $D=5t$.



STATISTICS AND PROBABILITY

Sixth grade students use what they have learned about data and measurement in the earlier grades to formalize their understanding of the use of data and statistics and begin to communicate this understanding with sophisticated data displays and descriptions.

EXAMPLES:

- ★ I can formulate questions that can be answered with data.
- ★ I can design and use a plan to collect relevant data analyzing the data with appropriate methods.