

## Questions

### *Questions for your child's teacher:*

- ◆ What books or book will my child use in math?
- ◆ How often will my child have homework?
- ◆ What can you do to provide intervention or acceleration for my child?
- ◆ How can I get detailed updates on my child progress?
- ◆ Do you have a syllabus that shows what my child will be doing throughout the year?
- ◆ What math resources are available outside the classroom?

## Activities for Home

### *What can I do to help my child*

- ◆ Calculate the cost of a discounted clothing item.
- ◆ Discuss careers with your child that utilize math.
- ◆ Utilize schools and community resources to help your child complete math homework assignments.
- ◆ Establish a daily homework and study schedule.
- ◆ Visit the library and check out books on code breakers, activities that will reinforce your child's analytical math skills.

### **A Message from the CMSD**

#### **~School Parent Organization~**

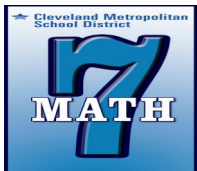
Dear Families,

This information was created by CMSD families for CMSD families. It is intended to create home and school partnerships to enhance the academic skills of all 7<sup>th</sup> grade students.

NOTES:

★ Cleveland Metropolitan  
School District

**7**  
**MATH**



# What should my seventh grader learn about Math?

## Number, Number Sense and Operations

- ◆ Use scientific notation to express large numbers and numbers less than one.
- ◆ Identify groups of numbers that other numbers fit into.
- ◆ Apply rules that must be followed when working with different families of numbers to perform the four operations: addition, subtraction, multiplication, and division. Use greater than (>), less than (<), or equal to (=) to put in order by smallest to largest.
- ◆ Addition and multiplication gets bigger subtraction and division create smaller numbers.
- ◆ Explain, by steps or in writing, how to estimate or solve a problem.
- ◆ The number you multiply limits itself to get a perfect square. On the decimal number you multiply by itself to get a nonperfect square.
- ◆ Explain, by steps or in writing, how to estimate or solve a problem using different kinds of numbers.
- ◆ Find the square root of perfect squares, and approximate the square root of non-perfect squares.
- ◆ Estimate, compute and solve problems involving scientific notation, square roots and numbers with integer exponents.

## Measurement

- ◆ Solve increasingly complex nonroutine measurement problems and check for reasonableness of results.
- ◆ Use formulas to find surface area and volume for specific three dimensional objects accurate to a specific level of precision.

- ◆ Use simpler methods to solve more complicated problems.
- ◆ Using similar shapes find the size of objects that cannot be measured directly.
- ◆ Approximate the length, degree measure, or area to the nearest whole unit.
- ◆ Explain the steps of how to solve problems involving numbers, money, time, and temperature.

## Geometry and Spatial Sense

- ◆ Explain the different characteristics of shapes.
- ◆ Describe and show that similar is the same shape, that congruent is the same slope and same size. Use examples of figures to explain these concepts.
- ◆ Defining the relationship agrees with when lines intersect.
- ◆ Plotting slopes or a graph to find the characteristics of the slopes.
- ◆ Using rulers, compasses, or computers to show models of flat shapes and slopes that can be seen from different points of view.
- ◆ Moving shapes on a grid and being able to being able to predict the new location by ordered pairs.
- ◆ Using a grid to infer characteristics of two and three dimensional objects.
- ◆ To have evidence to prove the correctness of an opinion which was formed.
- ◆ Using Pythagorean Theorem,  $A^2+B^2=C^2$

## Patterns, Functions and Algebra

- ◆ Describe patterns and sequences to show a future outcome in general (e.g. Buying 2 for...)
- ◆ Show how functions can be graphed as straight lines, using tables, graphs, or equations, because they have their own pattern.

- ◆ Read and interpret math problems in written or verbal form.
- ◆ Use Algebra symbols.
- ◆ Analyze and compare functions and their graphs using attributes, such as rates of change, intercepts and zeros.
- ◆ Solve and graph linear equations and inequalities.
- ◆ Solve systems of linear equations involving two variables graphically and symbolically.
- ◆ Show using math tools (i.e. graphs) and solve math problems with Direct Variation- two variable amounts are related proportionally by a number that doesn't change but stays the same and Indirect Variation- a relationship when one number increases as the other number decreases.
- ◆ Explain and read rules form graphs into numbers.

## Data Analysis and Probability

- ◆ Make and be able to read and use the different types of graphs and statistical measure to describe data (e.g. Give example...)
- ◆ Be able to define mean median, mode and show your understanding by selecting which of the three is a better measurement when given a problem.
- ◆ Identify and use the central measures of center and spread (e.g. mean, quartile). Be able to use these to help you make conclusions about data.
- ◆ Test to see if claims and predictions of a math problem give the desired result by checking for correct data collection and analysis.
- ◆ Make a convincing argument based on analysis of data and ready graphs.
- ◆ Describe sampling methods (how objects are selected for a study) know the differences and know its appropriate use.
- ◆ Use counting technique Permutation- count number by the ways things can be arranged in order and Combination- how many things are arranged not concerned with order.

- ◆ Create way to test your theory and probability (chance of flipping a coin and getting heads or tails) and take notes and effectively communicate results.
- ◆ Find the probability of two or more events either independently- each other, or simple dependent events.
- ◆ Use theoretical probability and experimental probability to make informed statement. Example: He always scores a B on his test. On his next test, he'll probably score a B.

## Mathematical Processes

- ◆ Use what information is given and use it to make a main equation using manipulatives or paper and pencil.
- ◆ Use math in other subjects and in everyday life.
- ◆ Point out and use connections between equal representations and relate steps for a math concept (e.g. zero of a function).
- ◆ Use reasoning and skills to come up with a valid reason a problem or math hypothesis is correct or show how it cannot ever be correct: when doing math solutions or algorithms. Example:  $A^2 + B^2 = C^2$ , and test logical opinions of a math problem.
- ◆ Use math language, symbols, and tools correctly when... -You organize e.g. use a table to list numbers. -To record and abbreviate using scientific notation. -To communicate- use math vocabulary when speaking and writing using correct operation sign.
- ◆ Use math language proficiently along with symbols to show ideas and when working out a problem.
- ◆ Explain math so that a younger student can learn and understand it..
- ◆ Find math information correctly and speak and write ideas: how you do math answers in a complete and easy to understand manner.