



**CUSHING COMMUNITY SCHOOL  
FAMILY MATH NIGHT  
OCTOBER 19, 2017**

## **Numbers & Operations**

The activities in this area address a category of math learning called “Number & Operations.” In kindergarten a primary goal for students is that they represent and compare whole numbers, with a focus on counting. Starting in grade 1 students come to understand numbers as combinations of 10s and 1s, eventually developing a sense of larger bundles of 10s (100s, 1000s, etc.) Starting in third grade students begin to explore much smaller numbers using base 10 (decimals -- tenths, hundredths, etc.)

- What Do You Notice? Chart
- Fishing for Fractions
- Yahtzee
- Greg Tang Math Games
- Make 10 chart
- Estimation Jar

## **Operations & Algebraic Thinking**

In Kindergarten students begin adding and subtracting with objects, fingers, images and drawings, working with numbers through 10. In first and second grade students build on this foundation to fluently add and subtract numbers through 20 and represent these operations as equations. As these skills are built, students are also applying concepts about base 10 (from “Numbers & Operations”) to rename (trade or borrow) so they can accurately add & subtract both larger numbers and decimals. In grades 3-5 students extend this to build an understanding of multiplication and division, developing deeper understanding of patterns and relationships.

- Connect Four with Subtraction
- In and Out of the Cup

## Measurement & Data

These activities relate to an area of learning called “Measurement and Data.” Starting in Kindergarten students explore features of objects that can be compared and used to sort (such as size and color.) In grade 1 and beyond students build on these experiences as they use standard units of measurement (inches, centimeters) to describe differences and learn about time and money. In grades 3-5 students learn about geometric measurement (including perimeter, area, angles, and volume.) Throughout the elementary grade levels students also generate and record data in both math and science, using many kinds of charts and graphs.

- Paper Chain Math Challenge
- Candy Sorting
- Time To Scoot

## Geometry

In kindergarten students begin describing their environment in terms of shapes and words about position (e.g., above, below.) They also begin describing, comparing, and creating shapes. Students continue this exploration in grades 1-3 as they describe shapes in more complex ways using math vocabulary, and explore ways to take them apart or build more complex shapes through combinations. In grades 4-5 the study of geometry expands to include classifying shapes using lines and angles and use of the coordinate plane, a concept that many students first encounter when playing the game “Battleship” with families!

- Playdoh and Toothpick Challenges
- Linking Legos

## Engineering

Starting in Kindergarten, students develop engineering skills by finding possible solutions to problems. In grades 1 and 2 they also develop skills by testing and comparing solutions. Beebots and other coding activities are fun ways to engage students in this kind of problem-solving (e.g., finding a path) and comparing solutions (e.g., finding the shortest or longest path). Students in grades 3-5 work to plan solutions to larger problems, analyzing data to support their comparisons, and increasingly revise and optimize solutions to find the best one. This development of design thinking is an essential component of the science & engineering standards.

- BeeBots
- Handout -- Computer Programming Apps



