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<http://mapps.math.arizona.edu/>

Math for Parents Mini-Courses

Data for Parents. This course engages the participants in activities related to the collection and representation of data. Participants collect data by conducting surveys. They create visual representations of data through tables, bar graphs, circle graphs, stem-and-leaf plots, histograms, and box-and-whisker plots. They discover how to interpret these representations and how to make a good survey. Through hands-on activities, they experience the mean and median of a set of data. Using measures and representations of data, participants learn how to compare sets of data. Parents learn how data can be used in the real world and how they can be misused.

Thinking About Fractions, Decimals, and Percents. In this course, participants explore the properties of fractions, decimals, and percents using a variety of hands-on materials, such as Cuisenaire® rods, pattern blocks, color tiles, and tangrams. Participants discover how to compare such quantities, how to add and subtract them, and how to use them in realistic settings. They learn how fractions, decimals, and percents are related and how they are used in everyday life.

Thinking In Patterns. This course gets participants exploring basic concepts of algebra. Initially, participants look for relationships and patterns in objects and numbers. Participants then use tables to record relationships and describe them in words. Eventually, they use formal mathematical notation to express number relationships. They become familiar with variables, equations, and graphs and how they are used to describe and understand these relationships. (In one activity, the whole class forms a “living graph.”) They use graphing calculators to make the process of creating graphs more manageable and the Calculator Based Laboratory (CBL) to make them “come alive”.

Thinking About Numbers. This course is about whole numbers. Participants explore different methods for adding, multiplying, and dividing whole numbers, where the methods came from and why they work. To do this, they use a variety of hands-on materials: Cuisenaire® rods, counters, money, place value blocks, and counting boards. Participants also learn about factors, divisors, multiples, and primes, and use these concepts to discover interesting facts about whole numbers. They also learn exponential and scientific notation and use them to understand large and small numbers, and make estimations. During the course, participants exercise their number knowledge by playing number games and learning number tricks.

Geometry for Parents. This course gives participants experience with the geometry of the schools. They discover and explore geometrical concepts using a variety of hands-on materials and activities. Examples of materials and concepts are:

- Pattern blocks --- comparing angles.
- Paper folding --- area, parallel lines, symmetry, angles, and congruency.
- Geoboards --- areas of triangles, squares, parallelograms and the Pythagorean Theorem.
- Cylinders, cubes, cones --- to discover volume formulas.

During the course, participants construct a “walk-in size” icosahedron using dowels and plastic connectors; they create origami shapes that illustrate geometric ideas. A primary goal of the course is to enable participants to help their children learn geometry by understanding better exactly how children learn geometry.