



## Q & A

### *How do math and science become tangible?*

Maria Montessori believed in order to “develop an understanding in mathematics (and science), education must continue to connect the hand and the mind.” So Montessori education contains a wealth of sensorial materials that systematically build upon each other. In the primary years your children begin with sensorial materials which are composed of sets of ten to provide an indirect exposure to the basis of the decimal system, demonstrate volume and size (the tower of cubes, the cylinder blocks, the broad stair), and show the concept of length (the rod series). As they progress through the materials, they develop a strong base for geometry through explorations of geometric figures such as polygons, geometric solids and constructive triangles. Utilizing the bead chains they learn the concepts of counting, squaring, cubing, and skip counting. Exposure to science begins with simple practical experiments such as magnets and materials involving parts of planets, animals and their typical habitats, as well as various land formations.

At the elementary level your children become “reasoning explorers.” The teacher facilitates their questioning, experimentation and discovery of the concepts of mass, volume, polarization, etc. The effects temperature, water, and light have on living things is a natural extension of their initial exposure to plants and animals. Your children will be progressing towards the reasoning behind algebraic and geometric equations. Not only will transitional materials, i.e. bead frames, division racks and tubes, follow them to the elementary classroom, but they will begin to use some of the materials in more complex ways. For example, they will use divided squares to prove that the square of the hypotenuse equals the sum of the squares of the two sides of a right-angled triangle. By using the material, they discover the Pythagorean Theorem ( $a^2 + b^2 = c^2$ ). What a wonderful way to learn abstract concepts through concrete examples which utilize your children’s hands and minds!

