

SummerMath Workshops 2007

Workshop Set #1: July 2 – July 13:

Design Your Own Board Game -- Are you bored with the games that you play? This is an opportunity to invent your own game and make the rules. Determine if you use strategy or chance to win - or a combination of the two. Choose your own setting - maybe a reality game like Survivor, or maybe a crime investigation, or maybe how to win or spend a million dollars, or even a trip around the world. The possibilities are endless. Participants will work in small groups to invent a new game, design the board, and create the rules.

Digital Photography-- Have you ever had trouble telling a story through written language? Learn to take a photograph like a professional and tell your story! This is an introduction to the basic principles of photography through digital imagery. The course involves working with computers in the “the digital darkroom”, but the digital camera is your optimal tool. You will learn basic modes of Adobe Photoshop and effective concepts in visual storytelling. In this workshop we will view other artists and their approaches to the art world. You will also have the opportunity to create images through four fun and fulfilling projects. So come and show us your story!

Geometry and Islamic Art -- Most people don't know that algebra and algorithm are terms that came into English and other European languages from Arabic. In fact, Arab and Muslim mathematicians contributed greatly to the early development of mathematics as we understand it today. Many basic principles of mathematics are expressed in the arts and architecture of the Islamic world. In this workshop we will explore major Islamic monuments such as the Alhambra in Spain and the Taj Mahal in India, and examine patterns that are used in Islamic art and architecture elsewhere to learn about numbers, shapes, and the nature of space, and their relationship to constructions of beauty.

Workshop Set #2: July 16-27:

Architecture & Math - Design your own dream house! Explore architectural design and mathematics by working on a series of sketch problems and building a cardboard, three-dimensional, scale model of your own design. You'll experience first-hand how math is used in almost everything an architect does --- from thinking about human proportions and designing floor plans to planning room dimensions. Aspects of the natural surroundings will also be discussed and incorporated into the design process. Problem solving will involve both individual and small group work.

Robotics: Engineering Design Using LegoLogo - What do modern factories and hospitals have in common? They both often use computerized hands to perform delicate precision operations. Take this workshop to be part of an engineering design team - no prior experience necessary! Using standard Lego building

blocks, gears, and motors, you will design and build a car. You will also write a computer program to control the car and enable it to respond to sensory data, such as light, solid objects, and sounds. Your team will perform tests on the car, collect data, and compare your results to those of other teams. In the second week of the workshop, you will design, build, and test a machine to do some job that you choose.

Unit Origami: Folding in Geometry - Whether you are a folding fanatic or a folding klutz, you can find a place for yourself in this workshop. By folding beautiful paper squares into three-dimensional shapes, such as boxes, geometric objects (e.g., tetrahedrons, cubes, octahedrons), and sculptures, you will

- improve your ability to visualize mathematical objects
- explore geometric properties of objects
- experiment with shape and color
- make something beautiful to take home
- improve your self-confidence

You may use our origami paper or bring your own magazines, wrapping paper or other paper products to cut and use for your projects.