

## **Visual Algebra** with **Henri Picciotto**, creator of the **Lab Gear** **Monday-Thursday, August 6-9**

In this four-day workshop, Henri will present a wealth of visual approaches to the teaching of **algebra in grades 7-11**, including:

- Lab Gear manipulatives for basic symbol manipulation
- geoboard lattices for slope and radicals
- a powerful parallel axes representation for functions
- intelligent use of technology
- three distinct visual paths to the quadratic formula

Participants will learn techniques that will allow them to serve the whole range of students better by offering:

- greater access, because of addressing multiple intelligences
- greater challenge, because of expecting multi-dimensional understanding
- greater variety, because of using manipulative and electronic tools

## **No Limits!** with **Henri Picciotto** and **Rachel Chou** **Wednesday-Friday August 1-3**

This three-day workshop is designed for high school mathematics teachers who want to make **Algebra 2, Trigonometry, and Precalculus** more accessible, richer, and more fun. A frequent challenge in teaching upper level high school classes is the limited pedagogical range of most textbooks and curricula. This is particularly harmful to the students who find symbol manipulation difficult, but it is also cheating our stronger students of the multi-faceted understanding that would serve them best. To address this, Henri and Rachel will present a number of activities to complement the corresponding lessons in any textbook, whether traditional or contemporary. The lessons involve the intelligent use of electronic tools (particularly GeoGebra,) hands-on activities with concrete materials, creative alternate representations, and problem solving throughout.

Iterating functions as a gateway to sequences, series, and chaos. Concrete introductions to exponential, logarithmic, and inverse variation functions. Thoughtful approach to graphing: domain and range analysis, transformations. Trigonometry: student discovery of all the basics and the elementary identities. Function diagrams to visualize rate of change, inverse functions, composition. A kinesthetic and visual introduction to complex numbers and matrices. Geometry of the conic sections (2D, 3D).

**Both workshops will be offered at the Menlo School in Silicon Valley**  
*Participants will get a 20% discount on Didax materials.*

### **More information**

<http://www.MathEducationPage.org/summer>