

# Operation *SMART*<sup>®</sup>

- **Game theory:** Girls explore the rich theories of how games are played and analyzed, strategies for winning, and how to develop their own board strategy game. Games that are investigated include: chess, go, sprouts, checkers, and hexy.
- **Computer science:** Here girls are exposed to the inner workings of the personal computer. They are shown how to take a computer apart, taught binary code, input/output theory, and the various women through out history that have made contributions to the field.
- **Astronomy:** In conjunction with Project ASTRO from the Astronomical Society of the Pacific, girls learn through hands-on activities about: The earth and it rotation around the sun, comets, our solar system, constellations, planets, stars, etc. In addition women astronomers from the University of California Berkeley, volunteer to come and lead special astronomy activities with the girls.
- **Engineering:** In the engineering curriculum, girls learn about the bridges of the bay area, how they are constructed, the various types, the materials used, and how they are constructed so as to withstand earthquakes. The girls are then challenged to build their own bridge out of Popsicle sticks and glue to see whose can withstand the most load bearing force and even an earthquake.
- **Kitchen Chemistry:** Kitchen chemistry uses everyday-at-home “chemicals” such as: iodine, rice, crackers, flour, vinegar, salt, water, glue, Borax (laundry detergent), etc. to show the girls the four physical changes that take place during a chemical reaction (temperature change, formation of a precipitate, color change, and gas release).
- **Eco Girls:** Eco Girls, an ecology and environmental engineering program, invites girls to explore their local environment, learn about and identify local environmental challenges, and envision and implement solutions. This is done through field trips, science experiments, Internet research, and career panels.
- **Exercise Science:** In this unit girls explore the science of human movement. Girls engage in interactive experiments and activities in order to learn about nutrition and sports and the science behind it.