

My Daughter, The Physicist?

◆ *Cultivating your Daughter's Love of Math and Science* ◆



Help your daughter to look at her surroundings, to think about how bridges and skyscrapers are constructed or how rainbows are formed.

IF YOU ARE THE PARENT of an elementary or junior high school daughter who loves math and science, there is much you can do to encourage her to maintain an interest in these subjects. As children progress through school, it is natural for them to favor certain subjects over others; however, research has shown that boys maintain a greater interest in math and science than do girls.

Among high school students today, girls comprise only 30% of students in chemistry and 15% of students in physics. Though the gap in mathematics is closing, you may have heard about girls scoring less well on standardized tests of mathematics and taking fewer math courses than boys. You may wonder whether your daughter, who loves mathematics and science now, will lose her passion for them.

Why are girls discouraged from

these subjects? From the earliest years of school, many girls receive subtle messages from teachers and peers that math and science are boys' fields. How can you help your daughter sustain an interest in math and science?

Encourage Your Daughter in Math and Science At Home

- ◆ **Consider your own feelings about math and science.** Were these subjects easy for you or did you struggle with them? Even if these subjects were hard for you, do not impose your feelings on your daughter. Focus on *her* enthusiasm, interest, and talent.
- ◆ **Support your daughter's interest in math and science.** Keep expectations high. Children are natural scientists because of their inquisitiveness. Urge your daughter to look at her surroundings. Encourage her to think about how bridges and skyscrapers are constructed or how rainbows are formed.
- ◆ **Find a mentor,** whether another family member or an adult friend, with whom your daughter can "talk shop." Arrange for her to visit professional working environments such as a chemistry laboratory or an architecture firm.
- ◆ **Find projects that develop spatial reasoning and analytical skills.** Girls ten and older may enjoy tinkering with a chemistry

set or building a model robot from a kit. If you are a fix-it-yourselfer, ask your daughter if she would like to help with projects around the house. For younger children, there are many books of fun at-home science activities for parents and kids such as *Helping Your Child Learn Science*. This book can be ordered from the U.S. Department of Education at (202) 512-1800.

- ◆ **Involve her peers.** Find out which friends also enjoy math and science. Design a birthday party for your daughter with a science theme and invite her friends. Hold a star-gazing party at night. Go to the science museum. Organize a building project.

Math and Science At School

- ◆ **Ask her teachers for specific math and science projects.** Express interest in your daughter's progress. Find out what computer programs, materials, and equipment are available for her use and how often she uses them.
- ◆ **Discuss teaching styles with your daughter's teachers.** Are classes taught in a lecture-listen-imitate format? Cognitive psychology has shown that girls learn better in classrooms with small group discussion, dialogue, and individual student presentations. These methods can be applied to math and science learning. Teachers should use real-life examples and metaphors that are meaningful to girls.
- ◆ **Help your daughter interpret her success.** Make sure she knows that her willingness to work hard at these subjects will pay off. Encourage her to take mathematics and science classes and hold high expectations for her success.
- ◆ **Ask the school library to display famous female mathematicians and scientists.** It is critical that girls see themselves in these roles. Volunteer to take photographs of

girls peering through microscopes and handling test tubes during science classes and then suggest that the pictures be included in the display.

- ◆ **Ask if your daughter's school offers special math and science programs or workshops.** Some schools complement their curricula by hosting math and science programs sponsored by independent organizations such as the National Talent Network, Math-Counts, and the Junior Engineering Technical Society.

Math and Science in Your Community

- ◆ **Participate in your community organizations that sponsor programs in math and science.** Check with your local colleges; girls' organizations, such as the Girl Scouts; and museums. Some programs are national in scope. *Science by Mail* (800-729-3300) is a nationwide education outreach program sponsored by the Museum of Science in Boston.

Math and science can be gateway subjects for future career choices. Stand by your daughter as she comes to value their importance.

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