

What Teachers Can Do to Encourage Girls in Math, Science, and Technology

- Start young. Yes, it is great to have the special activities for middle and high school girls, but many girls have opted out before this and won't be moved by these special resources.
- Get girls role models and mentors. Use anyone you can find. I have recruited people to help with my GEMS club from conversations at the Haircuttery, at the voting booth, and from the handbell choir.
- Provide multiple opportunities to "tinker" with materials. This needs to happen in all the grades, not just the math manipulatives in the early grades. Ask parents and community members to donate machines and wood scraps to provide a rich scrap box for building and assembling. And make sure the girls do as much of the work as the boys. Give points for creativity and design as well as technical prowess.
- Watch your pronouns. Is every generic thing or animal a "he"? Do unidentified people in stories automatically become boys/men?
- Watch what you read aloud. Do you choose books with male characters so that boys will be quiet? This is a major teaching opportunity—confront the issue head on and deal with it and then read books with equal numbers of female and male characters. (See resources.)
- Avoid or reword sports analogies. Or at least monitor how many you use. Pay attention in the math and science books—how many problems use sports as a way to demonstrate a story problem? If there are too many, have a session where you and the other teachers, or you and the kids rewrite them.
- Talk about those media messages. Point out to older children that you don't have to sell everything with sex. Point out when commercials are demeaning to a specific group. This all falls under Character Education—building respect for others.
- Talk about careers all the time. Relate what you are learning to how it could be used later in life. Make this a part of every math and science lesson. Let them hear the words "engineer," "scientist," and "researcher" every day of their school year.
- Develop those spatial/analytical skills whenever possible. Create opportunities to build and experiment with materials. Make up for the lost Barbie years.
- Build your content knowledge. If science and math are not your strengths, take classes or have a study group to build up your own confidence. Kids know when you aren't comfortable with a subject. Girls read this as "This is something girls don't learn well."

- Pay attention to what you do and say about math, science and computers. Your attitudes teach more than your words.
- Push the girls—challenge them to learn more. Let them know that hard work does pay off, and that each person can learn how to do the math and science. There is nothing magic about it, and there is no "math gene."
- Encourage discourse about math and science—write and talk about the process. Have them keep math and science journals where they write about how and what they learned.
- Get to the parents. Help them to realize that their daughters can shoot for the high-paying math, science, and technical careers. And even if you get resistance, push the parents to realize that the girls should take as much math and science as possible so that they will have options later in life as their interests change.
- Listen to the questions you ask. Listen to the praise you give. Use the checklist to assess yourself or have a friend keep track of the kinds of interactions you have with children.
- **Assume** the girls are interested.
- Let girls make big interesting mistakes.
- Expect them to succeed.
- Dispel the myths:
 - 'Girls are not good at math and science.'
 - 'Girls who are smart will not be popular with boys.'
 - 'Scientists and engineers are nerds/geeks/whatever the prevailing term is.'
 - 'Math and science as professions are not family-friendly.'
 - 'Math (science) is tedious.'
 - 'Science and math are only for the brilliant, extraordinary student.'
- Pay attention to and promote attendance at local events that encourage interest in math, science and technology. For instance, when the local science museum has a special event, organize a group to go. Promote the event in the newsletter, and post a signup sheet in your classroom. Invite girls to go. Be sure they have friends to go with them. Send home notices to the parents.