



## Presentation

FULL DETAILS AND TRANSCRIPT

### Sparking Girls Interest in Math and Science

November 2007

Topic: Encouraging Girls in Math and Science  
Practice: Sparking Curiosity

#### Highlights

- Continually creating experiences that spark short-term situational interest in math and science can eventually lead to a long-term interest.
- The more interested students are in a subject, the more engaged they will become in their assignments, and the more likely they are to seek learning opportunities outside the classroom.
- Experiences can involve putting the material into a meaningful and relevant context, explaining why a concept is important in the real world, and using hands-on projects.
- Talking about career opportunities in math and science can develop student interest, as can sharing examples of women working in male-dominated professions.

## Full Transcript

### Slide #1

Welcome to the overview on sparking girls' interest in math and science.

### Slide #2

Lisa's bored in her physics class. Even though she's getting a good grade, she hates memorizing all the detailed science facts, facts that seem disconnected from her real life and her favorite hobby—drawing.

Her teacher, Mr. Diaz, can tell that Lisa doesn't like science and that other girls in his class feel the same way. He's tried telling them how important it is, but he just can't seem to get through to them. The boys, on the other hand, love his class!

Mr. Diaz is experiencing a common problem faced by many teachers and students; boys consistently show greater interest in math and science than girls. As a result, boys take more math and science in high school and college, and they're more likely to engage in scientific, technical, and mechanical activities on their own time. As a result, women are underrepresented in careers that heavily rely on math and science, such as engineering, computer science, and scientific research.

### Slide #3

So how can we reverse this trend and get more girls interested in math and science? It starts by sparking their curiosity... First, let's understand the basic components of academic interest and why it's important.

### Slide #4

It's helpful to think about interest as a continuum. On one end is “situational interest”—the interest a person has in the current task they're doing. On the other end is “long-term interest,” which is their interest in subjects, courses, and career choices over time.

Situational interest is a temporary feeling of curiosity. It arises spontaneously in response to specific learning experiences and can fluctuate greatly from day to day. Long-term interest is a stable preference for activities in a particular field. It extends beyond the moment and is important to a person throughout their life.

People typically develop situational interest first. They find a particular activity or lesson interesting, but their interest in math or science as a whole may be minimal or fluctuate over time. However, as more and more experiences spark situational interest, it can evolve into a long-term personal interest.

## Slide #5

The key to cultivating students' long term interest in math and science is to develop engaging educational activities that spark and build upon their situational interest. The more frequent and positive these activities are, the more likely it is that students will develop long-term interest in these areas.

## Slide #6

But how does interest affect achievement?

Research shows that providing students with engaging and fun activities as part of regular instruction leads to improved math skills and test scores. The more interested students are in a subject, the more involved they become in their assignments—putting greater effort into their studies and engaging in deeper levels of thinking.

And as interest moves from situational to long-term, students actively seek opportunities to learn more outside the classroom—from books, games, media, and after-school clubs. In particular, girls with higher levels of interest in math and science are more likely to take on additional challenges, such as elective courses, in order to satisfy their curiosity.

## Slide #7

What kinds of activities are most likely to spark interest?

Teachers can make math or science more interesting by putting the material into a meaningful and relevant context—going beyond traditional instruction to make the learning process more interactive and engaging. For example, teachers can help students explore how math and science relate to real world topics, like protecting the environment, driving safely, and inventing new entertainment devices.

## Slide #8

Also, students often find lessons more meaningful if they know why it's important: How do scientists use this knowledge in the real world? How are these concepts used every day by various professionals? How does this knowledge improve the quality of our lives?

Students also need to personally connect with the topic. This can be as simple as using students' names in word problems or having students come up with their own examples of how concepts apply to their specific hobbies and interests.

## Slide #9

Lastly, teachers should use hands-on projects to go beyond traditional textbook and teacher-directed instruction.

Projects can be especially engaging if they:

- use technology such as computer simulations, lab equipment, and hands-on materials
- stimulate the imagination
- allow students a choice of projects that relate to their personal hobbies or strengths
- encourage group work where students can build on each other's strengths and interests
- and give students access to a wide variety of additional resources. The more books, websites, videos, and other resources you provide, the more likely a student will discover something of interest.

But remember that projects, however fun they may be, need to relate closely to the learning objectives of the class.

## Slide #10

Going beyond traditional instruction requires resources and support that may not be available in every school. Teachers should take advantage of professional development events and resources provided by university outreach programs, professional organizations, and regional resource centers that specialize in math and science. Some are even geared specifically to girls.

Also, be sure to promote special after-school and summer programs, as well as regional and national math-science competitions.

## Slide #11

A powerful way to develop student interest in math and science is to talk about career opportunities in the classroom. Sometimes this is as simple as helping students see the direct link between classroom activities and specific careers.

Teachers can also share examples of women working in male-dominated professions and hold discussions that challenge students' perceptions about careers that are "for men" versus careers that are "for women." Once students have identified careers that interest them, teachers can help them find information about those careers by providing online resources and connecting them with role models or mentors.

Slide #12

So can this make a difference?

Absolutely.

Sparking girls' interest in science and math is key to their academic success as well as their career aspirations in the scientific, technical, and engineering fields.

As surprising as it may seem, these small changes can make a big difference in a student's eagerness to learn and develop long-term interests that can last lifetime.

Slide #13

To learn more about ways to spark students' curiosity in math and science, please explore the additional resources on the [Doing What Works](#) website.