

## Hillcrest High School

9924 Hillcrest Road

Dallas, TX 74230

Principal: Marti Crawford

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Hillcrest High School is an urban school serving a predominantly low-SES ethnic minority population. In 2004, the school was awarded a grant to structure small learning communities supported by freshman transition activities, academic teaming, teacher advisory systems, personalized academic plans, and parental involvement.

- ◆ High (9-12)
- ◆ 53% Hispanic
- ◆ 52% Female students
- ◆ 59% Free or Reduced-Price Lunch

The school has seen dramatic increases in recent years in the number of female students enrolling in physics pre-AP and AP classes that have led to the need to hire a second physics teacher. In addition, according to the Texas Education System's Academic Excellence Indicator System report, female students have had greater gains in science test scores than males from 2006 to 2007. In the tenth grade, the percentage of female students meeting TAKS science standards increased from 48% to 64% (a 33% gain), whereas the percentage of male students increased from 51% to 64% (a 25% gain). Larger gains were observed also in the eleventh grade, although there is still work to be done to close the gender gap. Between 2006 and 2007, the percentage of female students meeting TAKS science standards increased from 58% to 69% (a 19% gain), whereas the percentage of male students increased from 79% to 81% (a 3% gain).

To describe the type of efforts that led to those notable changes, this case study highlights the work of one physics teacher, Daniel Brown, who has been actively implementing strategies for gender equity in the classroom. Mr. Brown received his training from the Center for Gender Equity as part of a districtwide pilot program conducted by AP Strategies.

As part of implementing gender equity strategies in physics classes at Hillcrest High School, students learn about the need for those practices. For example, every year, Mr. Brown requests that students sit in gender-segregated groups for the first few months of the year. All students should be sitting in a group that is all male or all female. Explaining the reasoning behind this request makes the strategy even more effective. According to Mr. Brown, "If the groups are all girls, the girls are going to have to [lead lab experiments], and if the groups are all boys, they will have to take notes, even though they usually have the girls take notes... It also provides a safe haven where the girls are not threatened or they have to take the lab equipment away from the boys.

That doesn't happen. They can gain a lot of confidence in hands-on activities on their own with each other."

He observed gender differences in physics-related experiences that students have. For example, he notes: "Very often when I ask a question that is conceptually based, a young man will raise his hand and say 'Well, I did this on my skateboard the other day, so I know the answer is this,' and I don't get this [answer] as often from young women." Those gender differences translate in the classroom to differences in physical intuition, self-confidence, and willingness to engage in hands-on activities as part of building a machine or a model that demonstrates a physical law.

To build girls' self-confidence and dispel gender stereotypes and stereotypes about scientists, each year guest speakers are invited to talk about their jobs and answer students' questions. Girls have the opportunity to see how being a scientist can be cool and fun, and how young women can succeed in those fields. Further, communicating to students that they are capable, and praising them for taking on academic challenges is an essential part of physics lessons. All students are expected to take active part in all classroom discussions and lab activities throughout the school year.