

St. Mildred's Women Advancing Technology (SWAT) has embraced the philosophy of FIRST from the outset. The themes of collective problem-solving, relevant learning and community partnerships are ones which are a part of our everyday life at St. Mildred's, and which have naturally extended to the FIRST experience.

Our FIRST History:

Year 1: SMLS joined FIRST robotics in 2002. At that time, we had a very grassroots organization of 18 very driven and resolved girls. Mildred I was built without a shop or formal tech programme, and represented courage, daring and determination. This determination was recognized when we were awarded the Team Spirit Award at the Regional Championship in Mississauga. From the beginning, the focus has been on risk-taking, problem-solving and collaborative work.

Year 2: In 2003, our team grew to 28 students who decided that a robot needed to be more than a box on wheels; Mildred II's design improved to the point that we were chosen as an alliance partner at the Regional Championship in Mississauga. SWAT then showed her off to local high schools, and gave FIRST a face in the local community. In addition to raising public awareness about FIRST and its aims, this endeavour helped promote rookie teams in these other schools. The focus of the team expanded to include more emphasis on community liaison, and we were invited to present Mildred II at the Professional Engineers of Ontario's Engineering Week events.

Year 3: This year, we have 40 girls from across all grades, in student-initiated teams such as Construction, Programming, Publicity, Fund-raising, Media, and First Lego League. Mildred III is well underway, and promises to follow in the proud heritage of her predecessors – this time with an infrared sensor. In addition to mentoring four rookie teams, we are involved in a number of community outreach programs (see "Reaching Out").

The Approach:

There is a real collaborative approach to problem-solving at SMLS. The entire robotics experience is comprised of key process teams, each with its own student leader: Publicity (we have actively promoted FIRST in the local media), Finance, Media, Design and Construction, Programming and First Lego League. No matter what a student's strengths or academic inclinations, there is a place for her in robotics.

The atmosphere at all meetings and competitions is lighthearted and fun. This lack of formulaic structure has ensured that meaningful learning has occurred; we are part of an atmosphere that allows mistakes to be made, and even

embraced. In this way, our design has improved, while the focus has remained on the process rather than the product.

This atmosphere has greatly helped to dispel the traditionally intimidating aura that engineering has held for girls. FIRST has developed in them the confidence to approach difficulties in an open-minded and truly fearless manner. Through community outreach and (this year) mentoring experiences, both the wider community and the girls themselves now see SWAT members as 'experts' in design and construction. In 2003, 25% of St. Mildred's graduating class went on to university level science, technology and engineering programs, at a time when the national average for females is 17%. Conversation with many of these recent graduates reveals that FIRST was the 'hook' which interested them in the profession.

Coming Together:

At St. Mildred's, a large number of partnerships have been formed, as communities outside the walls of the school have become an integral part of the educational experience (in often unpredicted ways).

FIRST grads:

Mashaël Yazdane, a FIRST graduate and engineering science student at the University of Waterloo, has been a mentor SWAT.

Teachers:

The multidisciplinary approach to FIRST is reflected in its staff advisors, who range from Philosophy and English to Chemistry and Mathematics teachers. This overlap of disciplines demonstrates the flexible boundaries of learning – an English major does not confine herself to books, but can explain how a wing nut works.

In 2003, the Ontario College of Teachers, in recognizing the impact of the process on the profession, approved Professional Learning Plan credit to teachers involved in the FIRST experience.

MD Robotics:

In addition to fully enjoying their contact with kids, our engineers report feeling keener on their profession as a result of making an impact on the lives of up-and-comers.

Parents:

One of the truly delightful and unexpected impacts that FIRST has made has been in the area of father-daughter dynamics. Many of our girls have reported seeing and respecting a new side of their fathers, while the fathers have gained a whole new perspective through interaction with their daughters and their daughters' friends.

Reaching Out:

St. Mildred's has also celebrated its growth and success by giving back to the wider community through a variety of forums:

Workshops:

The SWAT Team, together with its mentors and parents, has delivered a series of workshops for students and mentors. These workshops occurred over a 4 week period this year and were supported by information handouts and Powerpoint presentations.

Visits:

Mildred II and the SWAT team have travelled extensively during the last year:

- Oakville Trafalgar SS and Woodlands SS last year, in an effort to promote teams in these schools.
- The Yves Landry Award Gala for corporate and education leaders in Ontario
- The Hamilton-Wentworth Robotics Fair – an all-day event involving middle school students from the region

In addition to raising public awareness about FIRST and giving the organization a human face, these visits provided the basis for our support as mentors to 4 rookie teams this year.

FIRST Lego League:

In addition to promoting the team in our own junior school, SWAT and the SMLS staff have mentored three Lego League teams this year, providing mentoring and training workshops. We have hosted our own FLL tournament, with 7 participating teams, and judges as diverse as local and

MD Robotics engineers, a FIRST grad currently in her second year of engineering at the University of Waterloo, teachers at SMLS, and parents within the immediate community.