



SEEDS OF CHANGE

THE HANDBOOK

INTRODUCTION: WHY WE DO THIS

“WE AIM TO PROVIDE YOUNG WOMEN AND GIRLS WITH A FOUNDATION OF FRAMEWORKS, KNOWLEDGE, AND SKILLS SO THEY WILL BE PREPARED WHEN THEY ENCOUNTER GENDER DYNAMICS. WE WANT THEM TO HAVE THE TOOLS TO RECOGNIZE AND HANDLE THOSE SITUATIONS AND PEER NETWORKS TO DRAW ON FOR SUPPORT

- *Sara Jordan-Bloch, program founder and the Center's Director of Leadership Research and Programs*

The Seeds of Change initiative provides innovative training and support to young women in STEM as they transition through high school and college to successful technology careers. Made possible by a three-year \$1.5M gift from information technology leader VMware, the program addresses the glaring underrepresentation of women in computer science and engineering.

While women earn more than 50% of undergraduate degrees, they represent only 18% of computer science graduates. Moreover, among those women who earn degrees in technology-related fields, as many

as 40% eventually leave these areas for other occupations. As a result, only 26% of computing jobs are held by women. In engineering jobs, women account for only 12%.

Women's underrepresentation in these and other STEM fields is rooted, researchers say, in persistent stereotypes and unconscious gender bias. These forces influence women at multiple junctures in their academic and career journeys. Early on, girls receive less early encouragement than boys to pursue STEM studies. Later, those women who persevere in technology fields report feeling a lack of support and encouragement, particularly in terms of leadership opportunities.



Women comprise more than 20% of engineering school graduates, yet only 11% of practicing engineers are women



74% of STEM workers are male.
Only 26% are female.



Of 100 female bachelor students, 12 graduate with a STEM major but only 3 continue to work in STEM fields 10 years after graduation.

Source: Million Women Mentors



HOW WE DO IT

2.

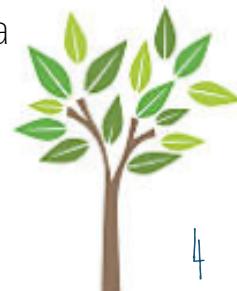
Seeds of Change partners Stanford undergraduates in technology disciplines with high school students interested in advancing the participation of women and girls in STEM, and provides an integrated curriculum of mentoring, training and skills development. The program's goal is to establish and retain young women in technology fields, and create future women STEM leaders.

Seeds of Change will launch in September 2017 with 20 Stanford undergraduates and 80-100 students in grades 9 through 12. After a pilot phase, the Center plans to expand the program nationally. Technical skills and knowledge – while critically important – are not enough. Seeds of Change provides innovative training and support to young women as they transition through high school and college to successful careers.

SEEDS OF CHANGE LEADERS PARTICIPATE IN LEADERSHIP TRAINING AND SKILLS DEVELOPMENT, THEN IMPART WHAT THEY HAVE LEARNED TO AREA YOUTH INTERESTED IN THE WORLD OF STEM.
LEADERS WILL:

1. Participate in a Stanford-designed leadership training course that builds competence, resilience and leadership strategies.
2. Join the Seeds of Change initiative as a paid employee and mentor high school students.
3. Impact the pipeline of women in STEM by training and becoming the industry's future innovators, inspirers, and influencers.

By planting a foundation of frameworks, knowledge, and skills, participants will grow to not only recognize the dynamics of gender, but they will learn how to successfully navigate environments so impacted by them.



THIS IS ACHIEVED BY EMPLOYING THREE CORE STRATEGIES: RESEARCH-BASED EDUCATION, A TRAIN-THE-TRAINER MODEL, AND COHORT-BASED LEARNING

1. RESEARCH BASED EDUCATION

SEEDS OF CHANGE IS FIRMLY GROUNDED IN RESEARCH

The Seeds of Change curriculum is grounded in academic research about how to effectively advance women's leadership and increases women's participation. This curriculum is brought to life in a series of animated videos designed by our researchers and curriculum designers, and put into action with the use of discussion guides and exercises to promote skills development.

2. TRAIN-THE-TRAINER MODEL

SEEDS OF CHANGE TRAINS STANFORD STEM UNDERGRADS WHO THEN IMPART THAT TRAINING TO GROUPS OF HIGH SCHOOL STUDENTS.

In their roles as Leaders, the undergrads deepen their own knowledge and understanding of the core content, empowering their leadership in and beyond their role in Seeds of Change. For the high schoolers, learning from students just a few steps ahead of them provides access to relatable and attainable mentoring relationships

3. COHORT-BASED LEARNING

THE GROUP IS A CRITICAL MECHANISM FOR LEARNING

By hearing about and sharing experiences, participants gain insight into their own circumstances and experience diverse leadership models. This approach breaks feelings of isolation and provides support and encouragement.



OUR INSPIRATION: WOMEN IN STEM



ADA LOVELACE

(1815-1852) British. Considered the computer programmer for developing algorithms for proposed mechanical computers of the 19th century.

MARIE CURIE

(1867-1934) Polish. Only person to win the Nobel Prize in two different sciences: Physics and Chemistry. She carried out pioneering research on radioactivity



GRACE HOPPER

American computer scientist and Navy rear admiral. She invented compilers for computer programming languages.



KATHERINE JOHNSON

American mathematician who worked at NASA calculating the trajectory of spacecraft in the 1950s and 1960s.



MARYAM MIRZAKHANI

(1977-2017) Iranian mathematician at Stanford University. Winner of the Fields Medal, the most prestigious prize in mathematics.

KOMAL DADLANI

Chilean biochemist who founded Lab4u, a science education company that uses smartphone apps as portable laboratories for physics, chemistry, and biology.



...AND MANY MORE!

HELP US INSPIRE THE NEXT GENERATION OF WOMEN STEM LEADERS

To learn more about Seeds of Change visit

WOMENSLEADERSHIP.STANFORD.EDU/SEEDSOFCHANGE

Seeds of Change is made possible by the generous support
of VMware

Stanford

**Center for the Advancement
of Women's Leadership**
Clayman Institute for Gender Research