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W01: WHO'S MISSING ? 18 TIPS: A PRACTICAL GUIDE TO INCLUDING EVERYBODY IN SCIENCE, TECHNOLOGY, ENGINEERING AND MATHEMATICS

Time: 1.5 hours

Leader: Chips Klein

There is a wealth of literature about the under-representation of women in science, technology, engineering and mathematics (STEM). Attracting more women and girls requires changing their experiences with STEM far more generally and at an earlier age. When girls find that learning STEM is for everyone, that it can be fun and exciting and that it can help them be who they want to be in the world, then their attitudes change. The Women Inventors Project (WIP) has designed this workshop so that it can be used by all facilitators working in formal or informal education settings with girls and young women.

The Women Inventors Project has been offering training and education on innovation, creativity, invention and entrepreneurship for over ten years. In the process, WIP has gained an excellent understanding of what it takes to involve girls happily and actively in topics related to STEM.

This workshop is the result of two years of research, development and on site testing conducted in conjunction with YES (Youth in Science & Engineering) Camps across Canada, culminating in the guidebook, [Who's Missing ? 18 tips: A Practical Guide to Including Everybody in Science, Technology, Engineering and Mathematics.](#)

The workshop provides tried and true techniques for recruitment, designing inclusive programs and implementing STEM activities. More importantly, it challenges the workshop participant to take a closer look at the curriculum, practices and methodology to assess and recognize **Who's Missing?** from STEM programs.

OBJECTIVES:

To provide practical, easy-to-implement ideas, tips and activities to facilitate talking to, debriefing and encouraging young people, particularly girls, in the participation and involvement in STEM through experiential learning.

FORMAT:

The format is a combination of discussion, debate and interactive hands-on exercises.

CONTENT:

[Activity # 1 : Create a Scientist/Engineer.](#)

This activity is a non-threatening, effective way in which to address many different issues such as:

1. Dispelling the negative, stereotypical myth (often perpetuated by Hollywood, the media etc.) that scientists/engineers are men, "weird and geeky".
2. The encouragement of the participants to discover that scientists/engineers are "regular" people and that they have the capabilities to be scientists/engineers themselves.

3. The basic definitions and characteristics of scientists/engineers.
4. The encouragement of the participants to discover careers related to science/engineering.

Activity # 2 : Interactive Discussion Including Overhead Presentation.

A selected number of the actual tips from the guidebook's sections dealing with Recruitment, Designing Inclusive Programs and Implementing Activities are presented and discussed. These are used to illustrate various issues such as:

Gender inclusive language, Gender appropriate images, Demystifying STEM, Using a personal approach, Process and Products - Aesthetics and usefulness, Same gender activities, Female role models, Positive feedback - often and Competent conversation as well as many others.

Activity # 3 : Making Gak.

This "hands-on" activity offers the opportunity to discuss issues such as:

1. Science/engineering and chemistry are all around us and can be fun and playful.
2. The encouragement of the participants to use competent and technical language.
3. The introduction of chemical reactions (endothermic and exothermic) and the importance of chemistry in our everyday lives.

The materials for this workshop are readily available, inexpensive and non-toxic. If the practical tips presented in the workshop are used and implemented, the opportunity for girls to succeed in STEM will be provided.