

Women in STEM: Fixing the Pipeline

According to the U.S. Census, only 27% of STEM occupations are currently held by women. While this is a significant increase from the 8% figure in 1970, we need to understand why this percentage is not higher today. Factors and real data contributing to the low percentage of women in STEM will be explored through a “leaky pipeline” model with students proposing solution to fix the leaks across all stages of development.

Essential Question: Why do women stray from higher education in STEM and careers in STEM?

Recommended Course: Introductory Statistics

Time to complete activity: Flexible; 65-105 minutes

Resources needed: Prepared PowerPoint slides and prepared Excel spreadsheets

Learning Objectives:

- Identify factors that contribute to low representation of women in STEM
- Strengthen skills of obtaining descriptive statistics from spreadsheets
- Strengthen skills of running and interpreting a hypothesis test in Excel
- Strengthen skills of running and interpreting a regression in Excel
- Use data to guide policy and impactful conversations

Instructions:

1) (15-20 minutes) Use the PowerPoint slides #1-5 to introduce the problem and engage in a class brainstorm generating possible reasons why women might stray from higher ed in STEM and STEM careers.

Note: This can be done in small groups and share out to the whole class.

2) (5 minutes) Use the PowerPoint slides #6-8 to introduce the idea of the “leaky pipeline” through the laundry example to motivate the end product of the obstacles to women in STEM at various places in the school/career timeline.

3) (30-60 minutes) First, have students explore the data in the Excel spreadsheets in small groups to find anything that surprises them (and why). Then, students collaborate to answer the questions in the Excel tabs to obtain further practice with Excel skills and key course concepts, as well as obtaining information to guide their conversations.

Note: This time is flexible depending on how much you want students to complete outside of class time.

4) (15-20 minutes) Use the PowerPoint slides #9-10 to engage students in small group and whole class discussions about possible initiatives to fix the leak of women in STEM along the timeline. Students will also complete their own versions of the leaky pipeline in the final Excel tab, where each stage includes possible reasons for the leak, additional questions and data they would like to explore, and possible solutions/initiatives to fix the leak.

Note: Be sure to validate all students’ perspectives and experiences, particularly those of women in STEM majors.