Lesson Title: Women in Mathematics

Subject: Mathematics
Grade Level(s): 5-8
Time: 1 Week

This lesson can be used paired with the STEM in 30 video, Fly Girls: Women in Aerospace

Universal Design for Learning:

Representation (Options for presenting content)

- Video clips
- Graphic Organizers

Engagement (Options for engaging student interest)

- Cooperative work group
- Partner work

Expression (Options for students to demonstrate learning)

- Written Response
- Model creation or construction

Objectives

Students will:

- Know the major mathematical accomplishments of the woman that they researched.
- Create a model of the work of their mathematician.

Standards

CCSS.MATH.CONTENT.HSG.MG.A.1. Use geometric shapes, their measures, and their properties to describe objects (e.g.., modeling a tree trunk or a human torso as a cylinder).

Materials

- Poster board
- Markers/ colored pencils
- Art supplies for models (eg: paint, paper, cardboard, clay, newspapers, etc.)
- Tape
- Glue
- Computer
- Printer

Methods

Guided Practice:

- This project is meant to teach students about the many contributions women have made to the field of mathematics.
- Students can choose a person from the list provided to become an expert on (or offer another option if the name they wanted does not appear). Try to avoid having multiple students researching the same person.
- Over a one week period, allow students to work in class on research and creation of their presentations.
- If possible, pair with a fine arts teacher and have students create their model as part of a project for art class.
- When the project is due, have students set up their posters like a science fair and allow other students to walk around and listen to the students present about their mathematician.

Resources

- This Topic Page on the National Air and Space Museum Website groups together resources highlighting Pioneering Women in Aerospace
- This Topic Page features article resources more generally highlighting the contributions and work of women
- Learn more about the Women of NASA on the NASA Website

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Women in Mathematics

Below you will find a list of just a few of the many women who have helped shape the field of mathematics all the way from ancient Egypt through today. Do some research on each to find out what they accomplished and then select one you are most interested in. (If there is someone else you want to do that is not on the list, just get her approved by your teacher first.)

Once you have selected a mathematician, you can begin researching their life and accomplishments more in depth. You will then create a poster on your mathematician that will be presented at an upcoming math fair. Your poster should include some photos of your mathematician and their work (if any exist), a description of where they are from, their education, their accomplishments in all fields, and what they are most known for in regard to mathematics. Be sure to keep track of your sources and include a works cited page.

In addition to that, you must create some sort of artistic representation of your mathematician or their work. This can be a drawing, painting, sculpture, etc.

- For example, if I were doing my project on the famous male mathematician, Pythagoras, I may decide I want to sculpt a right triangle. Alternatively, I could decide to make a collage from newspapers or magazines to write out his famous Pythagorean Theorem.

Hypatia
Mary Somerville
Emmy Noether
Sofia Kovalevskaya
Katherine Johnson
Maryam Mirzakhani
Mary Everest Boole
Cathleen Synge Morawetz
Daina Taimina
Haniza Sarmin
Hertha Ayrton
Alicia Boole Stott
Emilie Du Chatelet
Augusta Ada King-Noel
Mary Cartwright
Dorothy Johnson Vaughan
Mary Jackson
Maria Agnesi
Euphemia Haynes
Mileva Marić
Concha Gomez
Motoko Kotani
Annie Easley
Christine Ladd-Franklin
Sophie Germain
Florence Nightingale
Marjorie Lee Browne
Julia Robinson
Christine Darden
Shafi Goldwasser
Grace Hopper
Frances Kirwan
Ruth Gonzalez
Charlotte Froese Fischer
Ingrid Daubechie