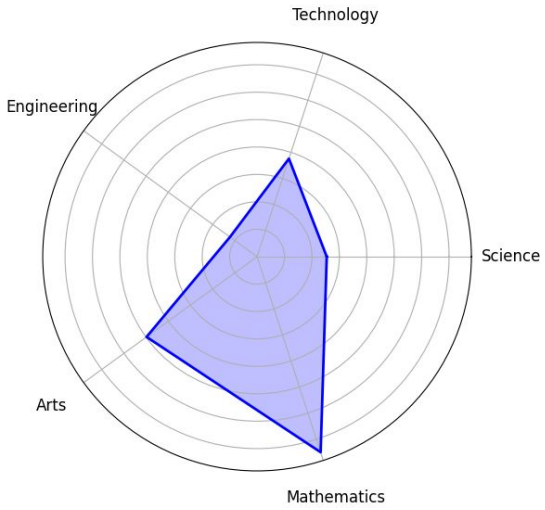
Curricular




# MATH IN MOTION – GRAPHING REAL - LIFE COST

| Duration | Age | Difficulty |
|---|---|---|
| 45 min | 15-16 | Medium |
| #MathInMotion#GraphYourStory#WomenInMath | | |

## DESCRIPTION

In this engaging STEAM activity, students analyze real-world internet data plans using algebra, technology, storytelling, and cultural insight.
Students work in rotating teams to calculate linear pricing, visualize graphs, and create interactive, inclusive posters. The session connects mathematical reasoning with real-world affordability and gender equity, drawing inspiration from global data inequalities and historical contributions of women in mathematics.

## KEY COMPETENCES (EU)

- Mathematical and digital literacy
- Creativity and cultural awareness
- Social and civic engagement
- Gender equality awareness

## ACTIVITY OBJECTIVES

**Students will:**

- **Apply linear equations to model financial decisions.**
- **Visualize cost comparisons through hand-drawn or digital graphs.**
- **Analyze economic inequalities in internet access globally.**
- **Reflect on gender roles in math through creative tributes.**
- **Express solutions through storytelling, sketching, and structured argumentation.**
- **Propose refinements based on peer feedback.**

Funded by the European Union

## MATERIALS

- Printed pricing scenario
- Feedback rubrics
- Visual guide: women in math timeline
- Optional: World internet pricing data by region
- Calculators
- Colored pencils
- Notebooks
- Optional: graphing paper or access to google sheets/desmos/geogebra
- Maryam Mirzakhani bio PDF
- "Math and me" template

- Provided by students.
- Provided by the teacher/institution
- Downloadable Elements

## PREVIOUS PREPARATION

Begin this part of the lesson by watching a brief 2-minute video clip highlighting the life and accomplishments of Maryam Mirzakhani, the first woman—and the first Iranian—to ever win the prestigious Fields Medal in mathematics. After viewing the video, lead a short class discussion about her legacy, focusing on how her perseverance, creativity, and groundbreaking work in mathematics continue to inspire people around the world, especially young women in STEAM (Science, Technology, Engineering, Arts, and Math). Following the discussion, organize students into small teams and assign rotating roles within each group to ensure active engagement and collaboration. These roles include: **Analyst** (who interprets data or content), **Graph Designer** (who creates visual representations of the team's ideas), and **Storyteller** (who explains the concepts or narrates the team's process and findings).

# CONTEXTUALIZATION AND ADAPTATION

What's the best internet deal for your data habits? Let's find out using math and creativity! students will use critical thinking and graphing skills to determine which of two internet data plans is the best deal based on how much data a person uses. They'll also get the chance to flex their creativity by visualizing and presenting their findings in fun, eye-catching ways.

**Watch video 📽️ - "From Food to Fuel: Your Metabolism at Work"**

Maryam Mirzakhani


**Classroom activity 💡**

**A.** Students are introduced to two pricing plans for mobile data: 1. Plan A: Base price of $10 per month plus $3 for every GB of data used 2. Plan B: Base price of $20 per month plus $1.50 for every GB of data used *Ask students to think about: Which one seems better at first glance?*
**B.** Students will create a table of values for each plan, showing how much the total monthly cost would be for data usage ranging from 0 to 10 GB.
**C.** Using graph paper or a digital tool (like Desmos or Google Sheets), students will plot the cost of each plan on a graph. The x-axis will represent the amount of data used (0–10 GB), and the y-axis will represent the total cost. Have them use different colors or styles for each plan's line.
**D.** Encourage students to turn their graph into an infographic or mini-poster with:
- A creative title
- A brief written explanation of their conclusion

**Note for the teacher 📝**

Encourage students to explore their expressive side while reinforcing graphing skills. Support teams in keeping roles inclusive and rotated, and ensure everyone has a voice during presentations. Feel free to adapt the dramatization level based on class dynamics—humor and storytelling can greatly boost engagement! Students can compare mobile internet pricing in their country vs. low-income regions using real datasets (e.g., Alliance for Affordable Internet).

## ACTIVITY

**1.** Start your poster or slide by placing the two graphs you created earlier—Plan A and Plan B—next to each other for easy comparison.

- Make sure each graph is labeled clearly.
- Use different colors or styles to represent each plan.
- Add a simple title like “Which Data Plan Works Best?” or “Data Dollars: Plan A vs. Plan B.”

**2.** Bring the math to life with a short, creative story that shows how someone might use this information to make a real decision. You could title it something like:

- “Helping My Friend Pick a Plan”
- “Which Plan Should Grandma Get?”
- “Why I Switched to Plan B”

This should be 2–4 sentences, written like a mini comic or scene. For example:
“My friend Maya just got her first phone and asked me for advice. She only uses about 2 GB of data per month, so I told her Plan A would save her money. We even graphed it out together!”

**3.** To connect math to history, identity, and inspiration, include a small tribute to a female mathematician. This could be one of the following:

- A hand-drawn sketch (stick figure style is totally fine!) of the mathematician
- A famous quote by or about her
- A symbolic drawing that represents her work (like fractals for Maryam Mirzakhani or graphs for Katherine Johnson)

**4.** Design for Inclusion & Accessibility Sketch infographic with:

- Title
- Graphs
- Story
- Tribute corner: "Women in Math"
- Optional: Emoji-coded reflection on equity (e.g., 🤔 for difficult decision)

# CONCLUSION AND SHARING

**A.** After students or teams have created their graph posters or digital slides, it's time to share their work with the class. This part turns the classroom into a mini math exhibit.

**Option 1: Gallery Walk**

- Have each team hang their poster on the wall or display it on desks.
- Students walk around the room, rotating from one display to the next, reading the graphs, stories, and quotes.

*Encourage them to jot down notes or answer quick reflection questions as they go.*

**Option 2: Quick Group Share**

- Each team presents their slide or poster to the class in 1–2 minutes.
- They explain their graph comparison, summarize their story, and highlight their tribute to a female mathematician.

**B.** After everyone has shared, give students a few minutes to reflect and respond to two peer feedback questions:

🧠 "Which story was the most creative or memorable?" (Think: Did it feel real? Was it funny, emotional, or clever?)

📊"Which plan would YOU choose if you used 10 GB of data per month? Why?" (Encourages critical math thinking and decision-making.)

Students revise their posters after peer feedback, refining graph clarity and messaging for inclusivity.

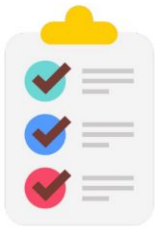
**C.** If your school allows for it—and you want to showcase your students' brilliance—consider sharing some of the posters or slides on a classroom board, blog, or social media using hashtags like:

- **#MathInMotion** – for projects that show math in real-world action
- **#GraphYourStory** – highlighting the creative storytelling around data
- **#WomenInMath** – honoring the female mathematicians who inspire us

Don't forget to take a photo of your experience and share it with us!

LinkedIn Instagram X

## BIBLIOGRAPHY AND REFERENCES




- Desmos Graphing Calculator
- Alliance for Affordable Internet
- Math is Fun