



# Middle School Girls Peer-Mentoring Girls in Mathematics

Critical-period for girls to achieve  
success in Math & STEM careers

<https://www.txgcp.org/texas-women-girls-in-stem-summit>

<https://www.txgcp.org/2019-summit-breakout-5>

TEXAS WOMEN AND GIRLS IN STEM SUMMIT  
PRIYA MALHOTRA  
PRESIDENT & FOUNDER, LASA RIM CLUB  
([HTTPS://LASARIMCLUB.WORDPRESS.COM/](https://lasarimclub.wordpress.com/))  
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# Background

- › Gender gap in STEM remains huge in the USA
- › However, gender-gap has no basis in science<sup>1</sup>
- › Paradoxically, countries with less gender-equality sometimes have more women in STEM<sup>2</sup>
  - STEM is path to freedom
- › Corporate support indicates STEM gender gap problem is *man-made*<sup>3</sup>
- › STEM barrier for girls starts in middle school<sup>4</sup>

1 <https://www.npr.org/sections/health-shots/2019/11/08/777187543/math-looks-the-same-in-the-brains-of-boys-and-girls-study-finds>

2 <https://www.theatlantic.com/science/archive/2018/02/the-more-gender-equality-the-fewer-women-in-stem/553592/>

3 <https://www.crn.com/news/data-center/michael-dell-dell-s-global-workforce-will-be-50-women-by-2030>

4 Hypothesis based on continued personal observations

# Challenges in Middle School

Environment changes ...

- › Uncertainty in new school
- › Start of subtle bullying
- › Increase in peer pressure (esp. against STEM)

While courses become more difficult ...

- › Step increase in STEM complexity

But guidance doesn't keep pace

- › Not enough parental *nudging*
- › Teachers let students become more independent

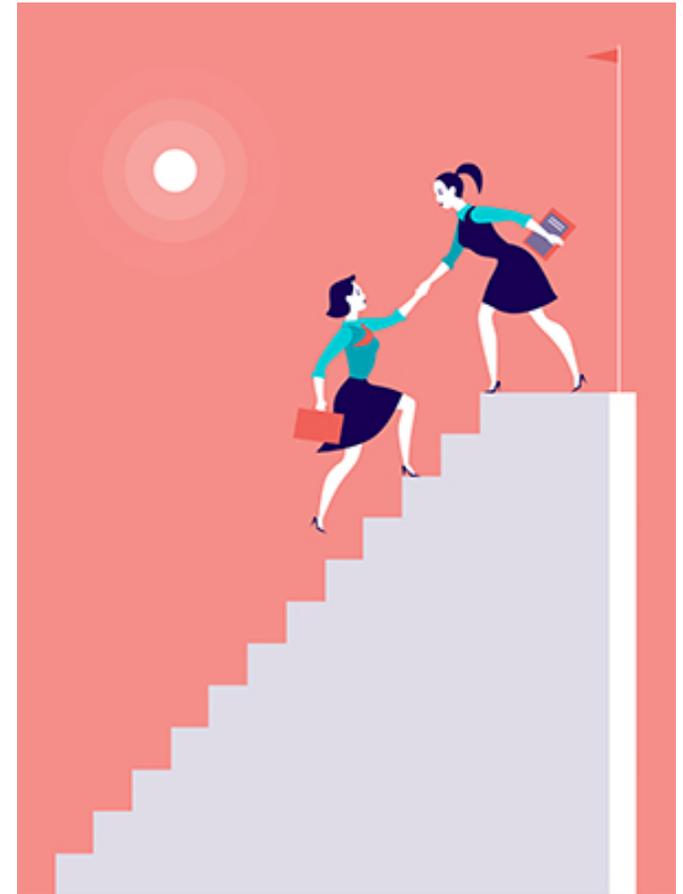
# Conventional Solutions Help but ...

- › STEM beyond school
  - Robotics
  - Coding
  - Science competitions
  - Bring your daughter to work
  - Girls-only clubs
  - Teacher-mentors
- › But a key piece is missing: Peer support

# How does it help everyone?

Peer mentors working with mentees helps increase confidence of both

- › Leadership skills for mentor
- › Quantitative skills for mentee with 1:1 help
- › And more time for teachers to focus on rest of the class



## Successful strategies

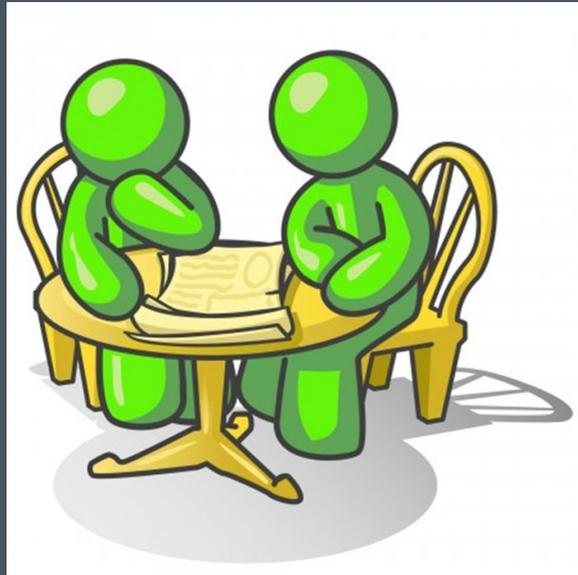
- › Cross peer-mentoring
  - Mentor-Mentee role depends on subject
- › Continually recognize both mentor and mentee
- › Track improvement over time
- › Organized approach that feels informal to students
- › Indirect math participation
  - Rubik's Cube, Puzzles, etc.
- › Start in middle school formative years
- › Make it fun!

**Thanks!**

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# PEER-MENTORING BUILDS CONTINUED INTEREST IN MATHEMATICS



- Peer-Mentoring is Leadership.
- Peer-Mentoring is self-evaluation.
- Peer- Mentoring is building empathy and understanding of peers
- Peer-Mentoring builds better communication and friendships.
- Peer-Mentoring builds stronger foundation in Mathematics

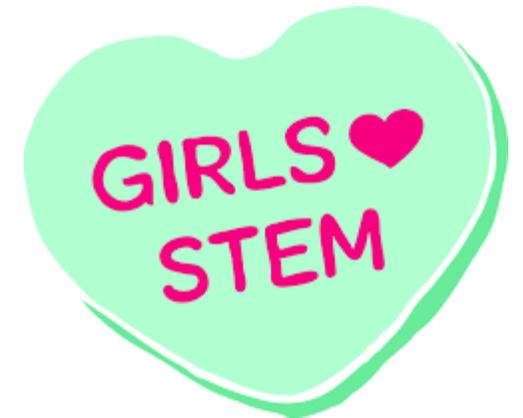
## GIRL MATH PRIDE

- Math is no longer a domain of boys.
- Girls mentoring girls will have a positive peer influence
- Girls need more encouragement because transition from Middle school to HS in math is the critical stage to overcome
- Women in STEM career gap narrows

## Let the numbers multiply:

Middle Schools should give recognition to:

- › Girls Math Clubs
- › Girls Robotics Teams
- › Girls Science Groups



# STEM career interest originates in Middle School

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## High School

- › Interest in math continues as peer-mentoring continues in high school.
- › Most STEM fields require Math
- › Half-Battle is won with Math as a strength
- › Explore new interests like computer science, engineering, & sciences

## College Major

- › STEM readiness starts in Middle school with success in Mathematics.
- › Math leads to a variety of career pathways
- › Girls can be *outstanding* in Engineering & Math, not standing out