



# High Impact Strategies for Sustaining Girls' Academic Interest, College and Career Pursuits in Mathematics

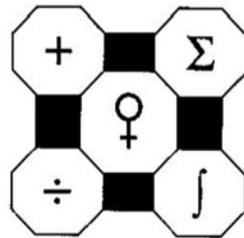
## (An Asset-Based, Whole Child Approach)

**Lorraine Howard, President, Women and Mathematics Education(WME)**

**July 16, 2020**

# Women and Mathematics Education

[www.womenandmath.org](http://www.womenandmath.org)



**WME's MISSION:** To advocate for equity and high-quality teaching and learning of mathematics for all students, especially related to girls, women and URMS.

*Girls + Math = POWER!*

**Partner Affiliate of:**



# Part I

## Women and Mathematics Education

sponsored

100 Days of PD webinars

June 16, 2020

## Identity, Agency, and Positioning

Why they matter in mathematics



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University of Nevada, Reno



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Nevada Dept. of Education

# How are you feeling?

Livid	Panicked	Frustrated	Shocked	Stunned	Energised	Thrilled	Ecstatic	Euphoric	Exhilarated
Enraged	Terrified	Peeved	Worried	Annoyed	Positive	Connected	Joyful	Enthusiastic	Elated
Irate	Frightened	Angry	Nervous	Concerned	Glad	Inspired	Happy	Motivated	Excited
Furious	Anxious	Agitated	Unsure	Excluded	Amused	Focused	Cheerful	Proud	Surprised
Disgusted	Scared	Troubled	Restless	Uneasy	Satisfied	Pleased	Hopeful	Optimistic	Lively
Apprehensive	Ashamed	Guilty	Deflated	Complacent	Easy-going	Safe	Chilled	Respected	Blessed
Sullen	Glum	Disheartened	Discouraged	Bored	Relaxed	Secure	Content	Thankful	Fulfilled
Exhausted	Fatigued	Sad	Miserable	Pessimistic	Thoughtful	Composed	Calm	Grateful	Tranquil
Alienated	Depressed	Disappointed	Tired	Confused	Mellow	Peaceful	Balanced	At Ease	Collected
Despair	Inconsolable	Anguished	Hopeless	Lonely	Listless	Sleepy	Restful	Comfy	Serene

# Where are we headed?

## Our goal--



- ▶ Address the need for accelerating the science of human development into the teaching and learning of mathematics, especially as related to girls;
- ▶ Identity the Whole Child Approach and associated SEL competencies, their effective teaching and learning strategies and best practices for engaging and transforming girls' sustaining approach in learning mathematics; and
- ▶ Enhance your personal/professional ONE THING Action Plan!!!!

**ACTION  
PLAN**

**6shniy**

In the chat share:

What picture(s) come to mind when you think of:

**A STUDENT THRIVING ACADEMICALLY?**

**6shniy**



In the chat share:

What picture(s) come to mind  
when you think of:

**A STUDENT THRIVING PHYSICALLY?**

In the chat share:

What picture(s) come to mind  
when you think of:

**A STUDENT THRIVING in their  
MENTAL HEALTH and WELLNESS?**

Depression

Concentration Stress

Anger Loneliness

Sadness Studying Anxiety

Identity Motivation Drugs

Alcohol Assault Worry

Abuse Family Rejection

Sexuality Relationships

Overload

In a Pew Research Center Survey of U.S. Teens ages 13 to 17, 96% named depression and anxiety as a problem among their peers. 70% of them name it as a major problem.

# Systemic Social and Emotional Learning

SEL can be more than just a 30-minute lesson. A systemic approach to SEL intentionally cultivates a caring, participatory, and equitable learning environment and evidence-based practices that actively involve all students in their social, emotional, and academic growth. **This approach infuses social and emotional learning into every part of students' daily lives**—across all of their classrooms, during all times of the school day, and when they are in their homes and communities.



Which of these skills need to be taught?

► Five top skills to have a successful future:

Parents

1. Mental health
2. Reading
3. Listening Skills  
Mindset
4. Strong relationships  
Relationships
5. Math

Teachers

- Reading
- Perseverance
- Growth
- Strong
- Mental Health

► The majority of parents (67%) and teachers (75%) believe that teachers are responsible for imparting more than academic knowledge, like how to build healthy relationships.

**Wait a minute!!!  
You're telling me I have to  
teach SEL and Whole Child  
concepts too?**

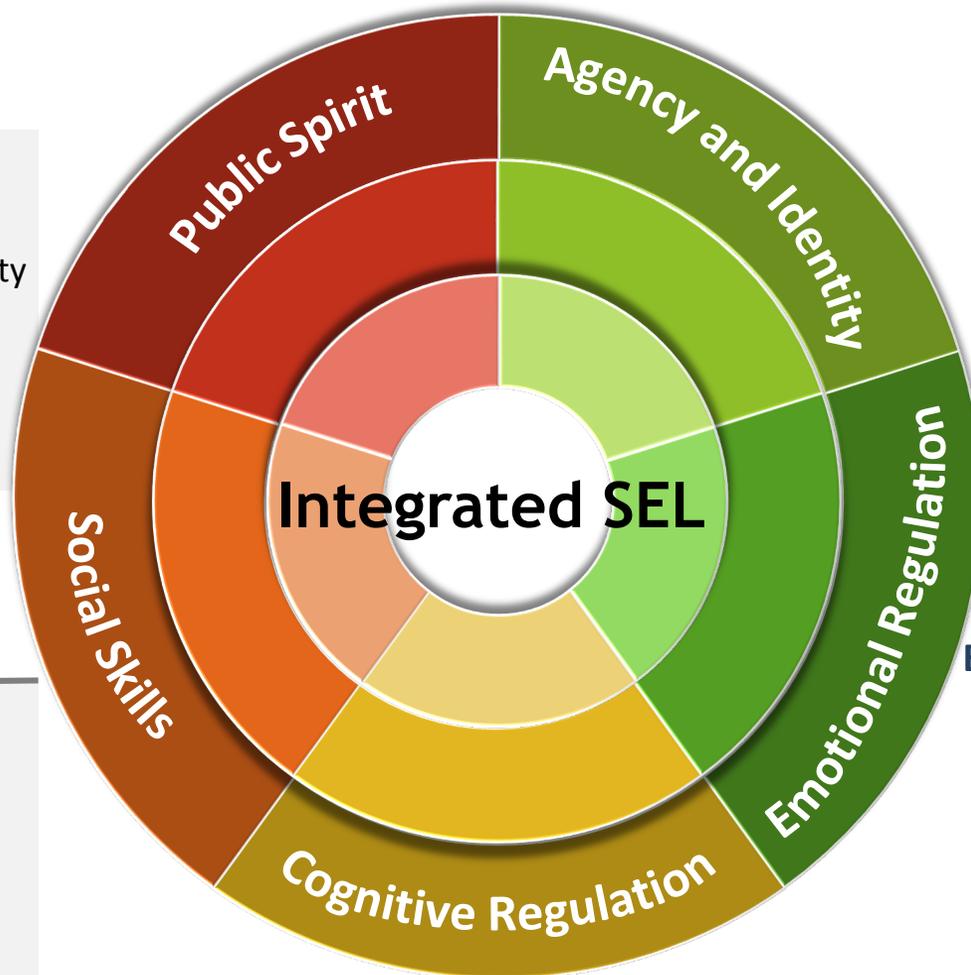
**You're kidding, right?**

## **PUBLIC SPIRIT**

Respect for others  
Courage  
Ethical responsibility  
Civic responsibility  
Social justice  
Service learning  
Leadership

## **SOCIAL SKILLS AND RELATIONSHIPS**

Build relationships  
Repair relationships  
Communication  
Empathy  
Prosocial skills  
Sharing  
Teamwork



## **COGNITIVE REGULATION**

Metacognition	Help-seeking
Attention	Decision-making
Goal setting	Organizational skills
Recognizing and resolving problems	

## **AGENCY AND IDENTITY**

Recognize strengths  
Self-confidence  
Self-efficacy  
Perseverance and grit  
Growth mindset  
Resiliency

## **EMOTIONAL REGULATION**

Identify emotions  
Accurate self-perception  
Impulse control  
Delayed gratification  
Stress management  
Coping

## SEL: What Does the Research Say?



- Students with SEL training scored **13 points higher** academically than their peers 3.5 years later.
- Had **6 percent better** high school graduation rates; and
- Could even reap lifelong **monetary benefits** for their healthy adult lifestyle

## SEL: What Does the Research Say?



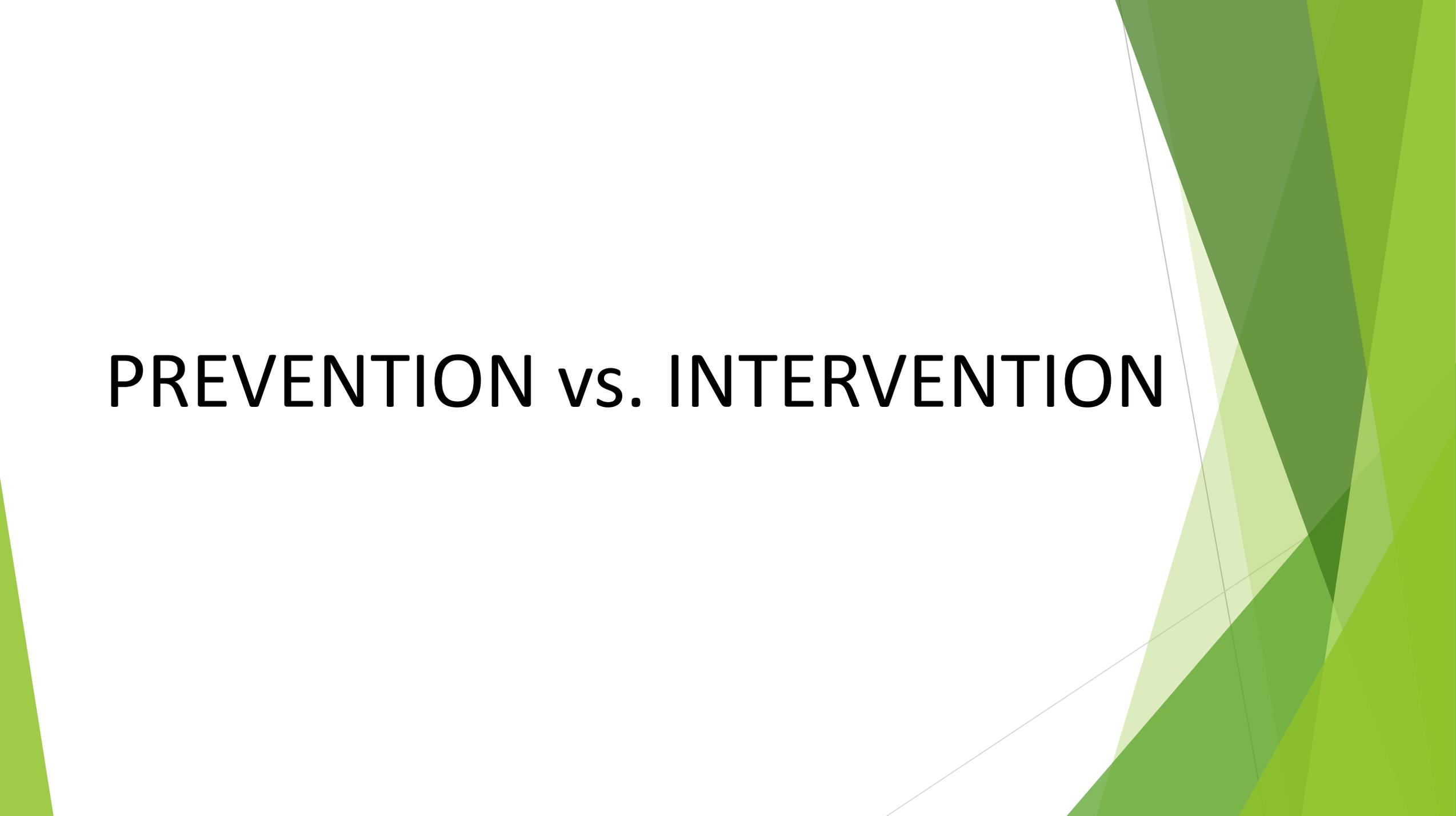
- **Improved Behavior**

Studies show decreased dropout rates, school and classroom behavior issues, drug use, teen pregnancy, mental health problems, and criminal behavior.

# Leadership Challenges of Restorative Practices

<b>Traditional Discipline</b>	<b>Restorative Practices</b>
<i>School and rules</i> violated	<i>People and relationships</i> violated
Justice focuses on <i>establishing guilt</i>	Justice identifies <i>needs and obligations</i>
Accountability = punishment	Accountability = understanding impact, repairing harm
Justice directed at offender, while victim is ignored	Offender, victim and school all have direct roles in justice process
Rules and intent outweigh whether outcome is positive/negative	Offender is responsible for harmful behavior, repairing harm and working toward positive outcome
No opportunity for remorse or amends	Opportunity given for amends and expression of remorse

# PREVENTION vs. INTERVENTION

The background features abstract, overlapping geometric shapes in various shades of green, ranging from light lime to dark forest green. These shapes are primarily located on the right side of the frame, creating a modern, layered effect. The text is centered horizontally and vertically on a white background.

# Creating Environments for Learning

SEL is a deeply ingrained part of the way students and adults interact both in the classroom and out of it, and helps provide children with equitable, supportive, and welcoming learning environments.

## PUBLIC SPIRIT

Respect for others  
Courage  
Ethical responsibility  
Civic responsibility  
Social justice  
Service learning  
Leadership

## SOCIAL SKILLS AND RELATIONSHIPS

Build relationships  
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## COGNITIVE REGULATION

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## AGENCY AND IDENTITY

Recognize strengths  
**ASSET vs. DEFICIT**  
Self-confidence  
Self-efficacy  
Perseverance and grit  
Growth mindset  
Resiliency

## EMOTIONAL REGULATION

Identify emotions  
Accurate self-perception  
Impulse control  
Delayed gratification  
Stress management  
Coping

# STRATEGIES

The background features abstract, overlapping geometric shapes in various shades of green, ranging from light lime to dark forest green. These shapes are primarily located on the right side of the frame, creating a dynamic, layered effect. The rest of the background is plain white.

Only 52% of  
students believe  
their teachers know  
their name.

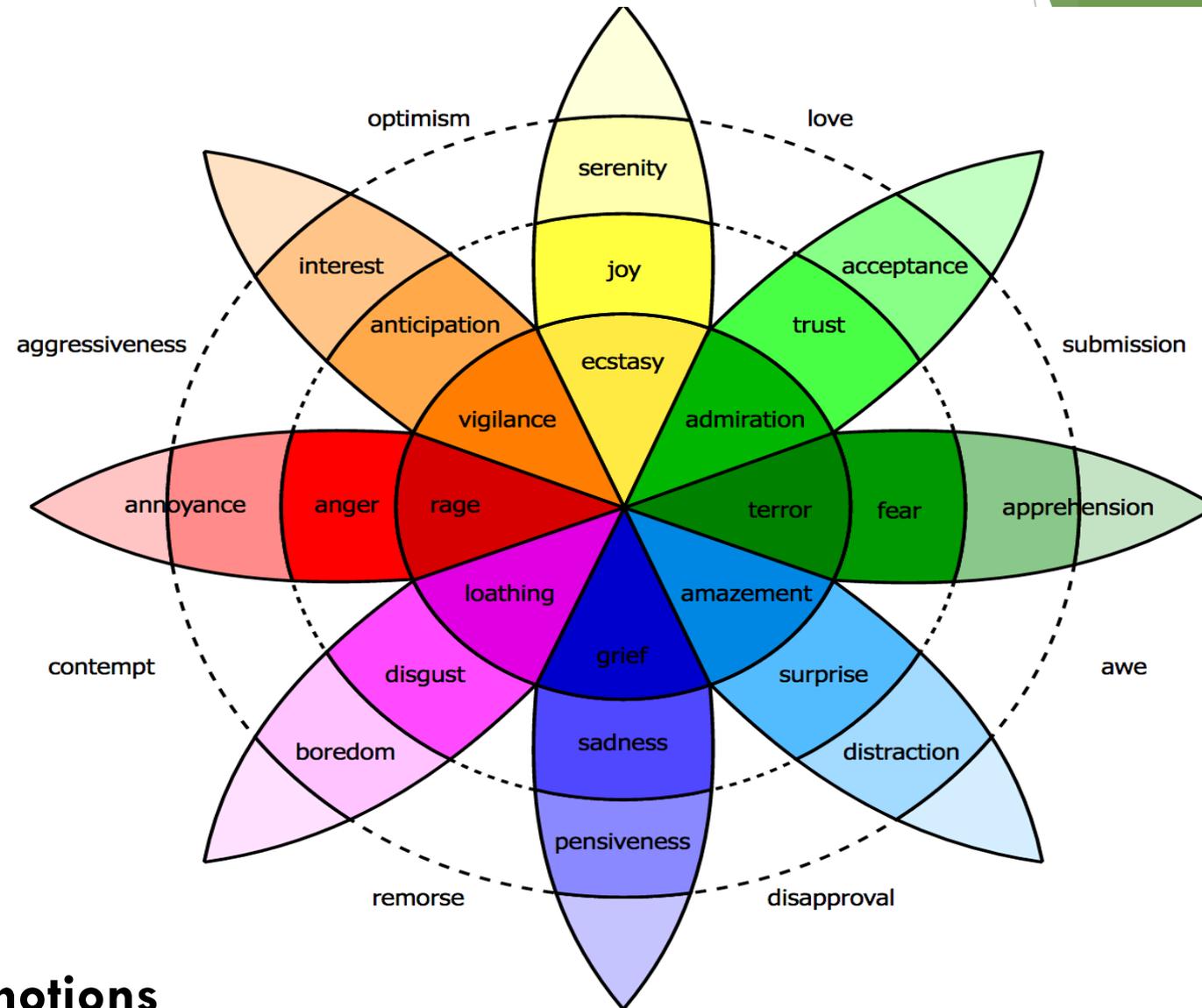


# OUR CLASSROOM PROMISES

- 1 We will make choices that help us do our best learning!
- 2 We will be kind and take care of each other!
- 3 We will do our best and keep trying, even when things get tough!



Help students identify and label emotions.



**Pultchik's Wheel of Emotions**

# Conduct emotional check-ins to build students' ability to accurately predict and label emotions.

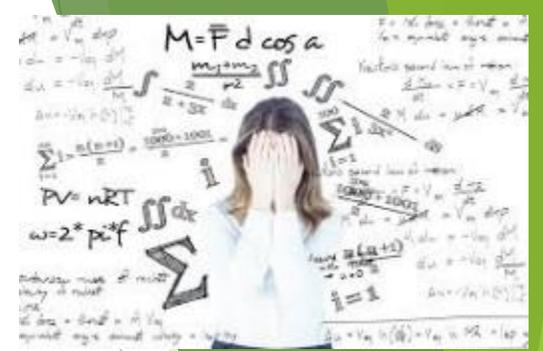
1. How do you feel at the start of the school day?
2. What emotions do you feel throughout the day while learning?
3. Do you feel differently when walking in the hallway, sitting in the lunchroom, or at recess or passing period?
4. How do you feel at the end of the school day?

Brackett and Frank (2017)



# Overcoming Mathematics Anxiety

- ▶ **Do math every day.** Schedule quality study time throughout the week and stick to your schedule.
- ▶ **Study smart.** Read the information on study skills, time management, note-taking and textbook-reading on this website or in one of the math study skills books.
- ▶ **Attend class.** You will see examples that are not in the textbook. You are responsible for all information and concepts presented in class, whether you are present or not.
- ▶ **Get organized!** You need to keep good class notes. You need to keep a good math notebook with lists of vocabulary, properties, formulas, theorems and procedures. Most anxiety is caused by disorganization.
- ▶ **Continually test yourself.** Be aware of what you know and of what you don't know
- ▶ **Replace negative self-talk with positive self-talk.** Be mindful of what you are saying to yourself. Develop positive affirmations such as "I will succeed in this course!" or "I love math!" to counteract any negative feelings you may have about your abilities or about math itself.
- ▶ **Utilize all your resources.** Internet, textbook, friends, study groups, your instructor, the internet....all are available to help you succeed.



Adapted from [http://missioncollege.org/depts/math/resources/math\\_anxiety.html](http://missioncollege.org/depts/math/resources/math_anxiety.html)

# Managing My Emotions Wheel

I feel

sad



I need

To use  
positive  
self-talk





How was my  
behavior today?

Was I on task the whole time?



Did I respect my classmates?



Did I respect my teacher?



Did I try my best on my work?



How was my  
behavior today?

Was I on task the whole time?



Did I respect my classmates?



Did I respect my teacher?



Did I try my best on my work?





# My Goal Contract

Name \_\_\_\_\_ Date \_\_\_\_\_

My goal: \_\_\_\_\_

To achieve my goal, I will \_\_\_\_\_

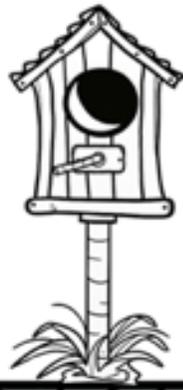
To help me achieve my goal, my teacher will \_\_\_\_\_

To help me achieve my goal, my parent(s) will \_\_\_\_\_

Student signature \_\_\_\_\_

Teacher signature \_\_\_\_\_

Parent signature \_\_\_\_\_



# My Goal Contract

Name \_\_\_\_\_ Date \_\_\_\_\_

My goal: \_\_\_\_\_

To achieve my goal, I will \_\_\_\_\_

To help me achieve my goal, my teacher will \_\_\_\_\_

To help me achieve my goal, my parent(s) will \_\_\_\_\_

Student signature \_\_\_\_\_

Teacher signature \_\_\_\_\_

Parent signature \_\_\_\_\_





How have you helped students identify  
and regulate emotions?  
What are you doing differently for  
distance learning?

**Learning:** an active process in which students construct new ideas or concepts based on their current knowledge.

Relationship

# Build relationships with 2 x 10's

2 minutes a day

10 days in a row

Talk about anything EXCEPT school  
or work



Ginsberg, M. & Wlodkowski, R. (2004) Creating Highly  
Motivating Classrooms



**Every** student deserves a  
*great* teacher  
not by chance, but by **design**.

Empathetic Feedback is



GREAT

Growth-oriented

Real

Empathetic

Ask

Timely



GREAT!

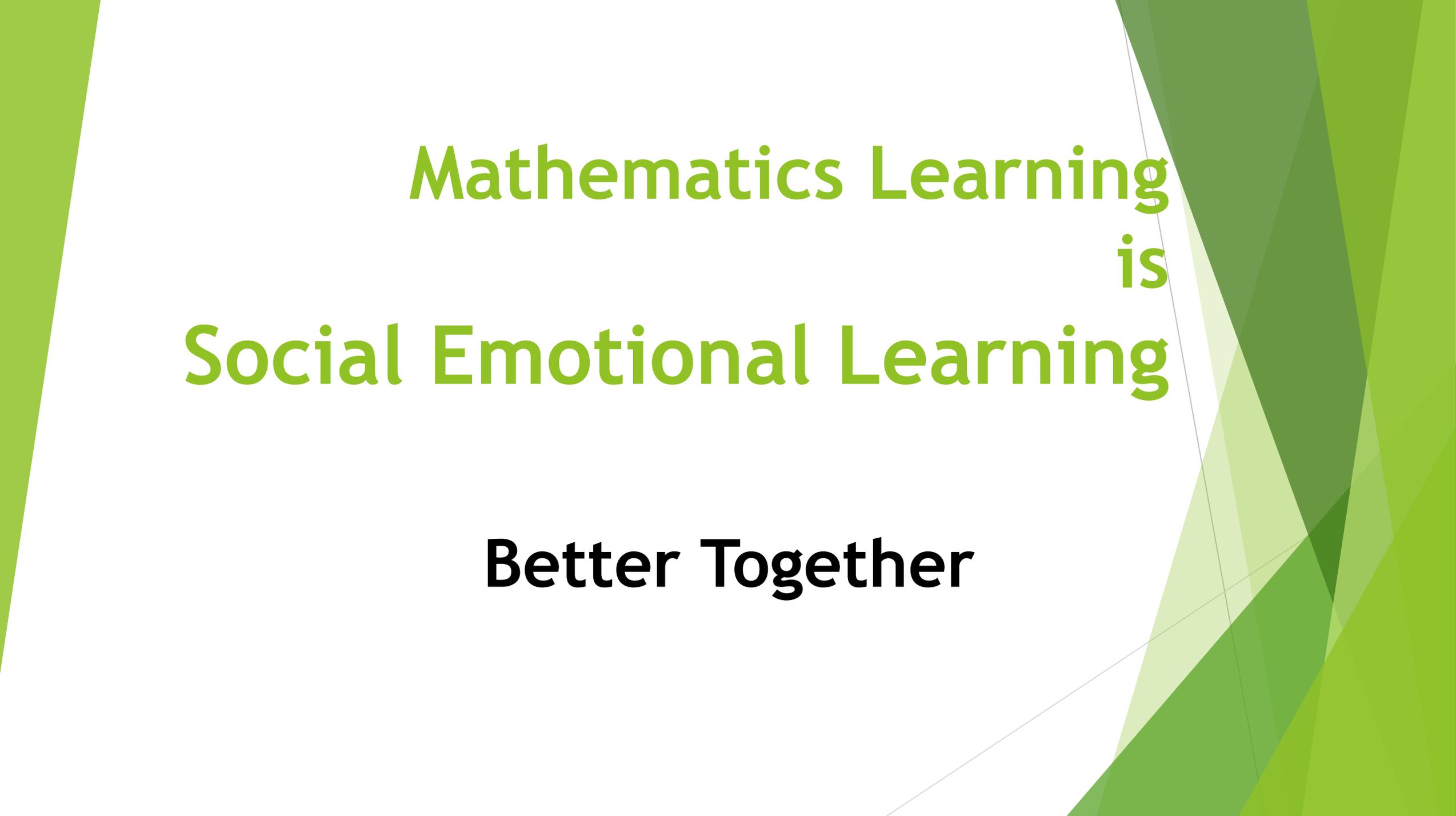
# Some Components of Empathetic Feedback

- ▶ Tell them one thing that they did well
- ▶ Use “micro-feedback” (start/stop/continue)
- ▶ Include “we” statements (we can work on ....)
- ▶ Thank the person
- ▶ Obtain feedback on the feedback



# Discussion Questions

How can you integrate empathetic feedback in your work?

The background features abstract, overlapping green geometric shapes in various shades, creating a dynamic and modern aesthetic. The shapes are primarily triangles and polygons, some semi-transparent, layered to create depth. The colors range from light lime green to dark forest green.

**Mathematics Learning  
is  
Social Emotional Learning**

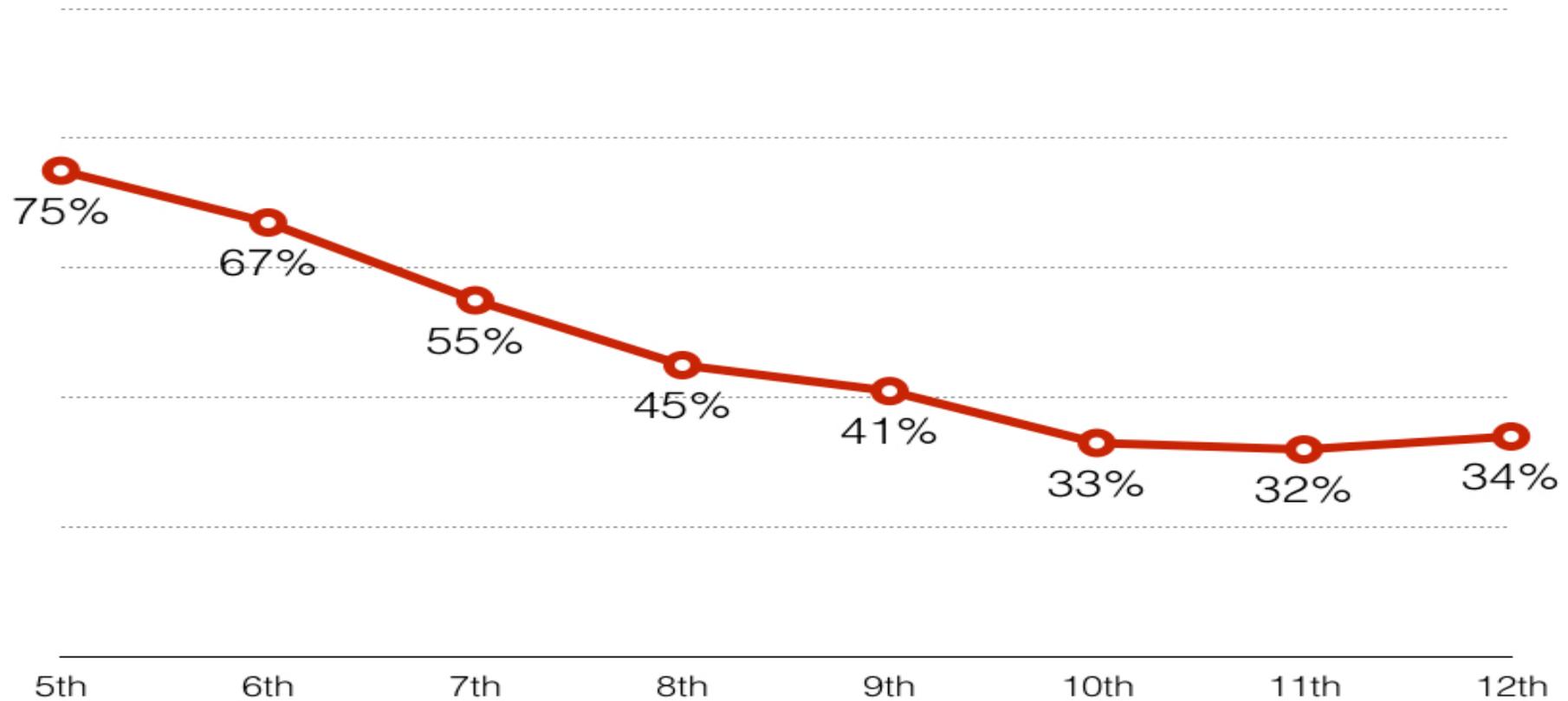
**Better Together**

## How math is taught matters

Messages, myths, and stereotypes compounded by dry & abstract way math is traditionally taught

- Girls need to **understand “why”** in addition to **“how”**
- Girls have a greater desire for understanding than boys, and higher levels of anxiety when they do not achieve it
- Girls succeed with hands-on experience, such as
  - Project – Based, Active Learning,
  - Real-life, authentic applications, and
  - Opportunities for team, collaborative work

## Percentage of Students Engaged in School, By Grade (n = 928,888)



Gallup. (2016). *Gallup student poll. Engaged today - Ready for tomorrow. Fall 2015 survey results*. Washington, DC: Author.

# What is PBL? ( Authentic Learning Experience)

Project Based Learning (PBL) is a teaching method in which students learn by actively engaging in **real-world** and **personally** meaningful projects.

- **AUTHENTIC**
- **RELEVANT**
- **CONNECTED**

# Gold Standard PBL

## Seven Essential Project Design Elements



# REIMAGINING YOUR LEARNING

We all know education is about learning, right? And “school” has been an official space for learning (i.e. government-funded) since the 1920s. But, what if “school” as we know it didn’t exist?

-----

What if you woke up each morning with the goal to “learn” by pursuing your interests, curiosities, and passions? What would your day look like? Ultimately, if you had primary ownership over the design of your education, what would learning look like for you?

Using your unbounded creativity, inventive imagination, and knowledge about yourself as a learner—and the genius that you are—this is your opportunity to share what the future of education could (and possibly should) be. Need a little inspiration to get started? Consider these questions:

- What are you curious to know more about?
- What interests and passions would you explore?
- Where would you explore them?
- Who would you interact and engage with?
- Who would you learn from?
- Who might you teach the knowledge and skills you’re learning about?
- When would learning occur?
- Through your explorations and learnings what impact/change do you want to see in your community, the world?

## ACTIVITY

### AN EXAMPLE OF AN AUTHENTIC PROJECT LEARNING EXPERIENCE

#### Upper Level Grades

Vital Question: How can we rebuild our country's infrastructure to handle a future worldwide crisis?

#### Elementary grade

Vital Question: How can we make sure our family/school/community is prepared for a disaster?

# Action Plan

- ▶ Who? **YOU**
- ▶ What? Effective Teaching Strategies
- ▶ When? Everyday, **ALL** the time
- ▶ How? Strategies shared here for starters



# **EXTENDED LEARNING ON EDMODO**

WME- High Impact Mathematics Teaching & Learning

**Strategies**

**AND**

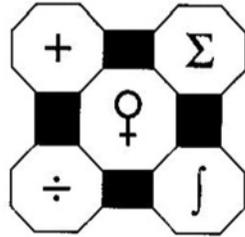
**PROJECT-BASED LEARNING PRIMER**



**[www.edmodo.com](http://www.edmodo.com)**

EDMODO CODE: **6shniy**





## CONTACT INFORMATION

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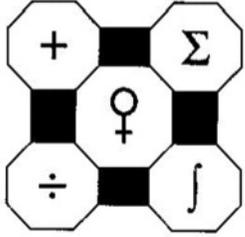
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Join Us in our Work!!!

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