Fostering a Growth Mindset for All Students

Meet Mrs. Stevens

Algebra 2 and AP Computer Science Teacher at Lincoln County High School in Stanford, KY

2014 Kentucky High School Teacher of the Year

NATIONAL BOARD CERTIFIED TEACHER

2018 Fellow
1. Establish the growth mindset culture on Day 1
2. Provide growth mindset opportunities through engaging Activities
3. Promote growth mindset through Standards based grading (SBG)
4. Model a growth mindset
I want the very first day of school to establish that they are here to **think and discuss**, not to sit and listen to me talk.

Alice Keeler
Establish the growth mindset culture on Day 1
“In 5 Years”
Establish the growth mindset culture on Day 1

I plan to be in college getting an electrical engineering degree.

I plan to be pursuing a career in Early Childhood Education.

I want to be studying to be a RN at UMK.

I will be working as a radiologist after graduating college.

I plan to be working as a welder.

I want a good working job and develop my skills in photography.
To empower students to problem solve, persevere, and collaborate to reach their goals.
IN 5 YEARS...

IDENTIFY HOW YOU WILL PROBLEM SOLVE IN YOUR 5 YEAR PLAN

IDENTIFY HOW YOU WILL PERSEVERE IN YOUR 5 YEAR PLAN

IDENTIFY HOW YOU WILL COLLABORATE IN YOUR 5 YEAR PLAN
IN 5 YEARS...

OUR GOALS FOR THE YEAR
× PROBLEM SOLVE
× PERSEVERE
× COLLABORATE

APRIL 9, 2018

5 YEARS

52 MONTHS
1,584 DAYS
38,016 HOURS
2,280,960 MINUTES
Establish the growth mindset culture on Day 1

✗ I want more “student talk” than “teacher talk.”

✗ The classroom expectation is that students will:
  ○ problem solve
  ○ persevere
  ○ collaborate
When mathematics is taught as an open and creative subject, all about connections, learning, and growth, and mistakes are encouraged, incredible things happen.

Jo Boaler
Where the magic happens

your comfort zone
Visible Random Grouping

Impact of visibly random grouping

- “...found that when teachers created truly random groups everyday... publicly, visibly, in front of students, there were profound changes in the effectiveness of group work.” (Zager, 2017)
- Students trust that groups are temporary and random.

Flippity
- Random Grouping
- Demo
If $h(t) = t^2 + 2$, find $h(-4)$

If $g(a) = a^2 + a$, find $g(-8)$

If $f(x) = x^2 - 3$, find $f(-10)$
Card #1
Identify
1. Concave Up or Concave Down
2. Vertex
3. Maximum or Minimum
4. Axis of Symmetry
5. Zeros
6. Y-Intercept

Card #3
1. Sketch \( y = x^2 + 10x + 24 \)
2. Concave Up or Concave Down
3. Vertex
4. Maximum or Minimum
5. Axis of Symmetry
6. Zeros

Card #6
1. Draw a parabola that is concave up, no real zeros, and an axis of symmetry at \( x = 3 \).
2. Draw a quadratic that has a vertex at \((-4,3)\) and 2 real zeros.
3. Draw a parabola that has a minimum, axis of symmetry at \( x = -1 \), and one real zero.
4. Draw a quadratic that has a vertex at \((5, -1)\) and 2 real zeros.

(Texas and Jones, 2013)
Desmos Polygraph
Match the equation.

Which color graph matches the equation 
\[ y = (x - 4)^2 - 3 \] Why?
I wish these Desmos buttons existed in the real world.
Desmos Art Project
"ONE GOOD THING ABOUT MUSIC. WHEN IT HITS YOU, YOU FEEL NO PAIN." - B.M

Desmos Art Project
Scenario
At Yeti, we make several different types and sizes of coolers. Two of our most popular designs are the Roadie 20 (a hard-sided cooler) and the Hopper 20 (a soft-sided cooler). Both coolers are produced in sets of 100 items and are designed to hold 20 lbs of ice. As product engineers, our goal is to decide how many of each cooler we should produce a week to maximize profit.
<table>
<thead>
<tr>
<th>Class Organization</th>
<th>Instruction</th>
<th>Creating and Sharing</th>
<th>Assessment</th>
<th>Skills Practice</th>
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<tbody>
<tr>
<td>Google Classroom</td>
<td>Desmos</td>
<td>Google Slides</td>
<td>Quizlet Live!</td>
<td>Albert</td>
</tr>
<tr>
<td>Remind</td>
<td>EdPuzzle</td>
<td>Padlet</td>
<td>Kahoot!</td>
<td>ALEKS</td>
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<td>Google Sites</td>
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<td>Quizizz</td>
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<td>Google Forms</td>
<td></td>
</tr>
<tr>
<td>Flippity</td>
<td></td>
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</tbody>
</table>

**Digital Toolbox**
Quizlet Live

- Flashcards for students to study using a variety of exercises during class or at home
- Quizlet Live
  - Vocabulary Builder
  - Group Competition
  - Live Random Grouping
Quizlet Live

Quizlet Live Relay → Individual Accountability
Mrs. Stevens,

“The best teachers are those who show you where to look, but don’t tell you what to see.” Thank you so much for challenging me this school year both in class and on the

What did you learn from this project?

I learned that being creative is hard and that there is an equation for everything you want to do. I also learned that math can be really fun and that you are always learning new things.
Provide growth mindset opportunities through engaging Activities

How am I promoting the “four Cs”?

- Creativity
- Communication
- Collaboration
- Critical Thinking
Allowing a kid to retake an assessment says to the kid you believe in them and their ability to do better. It says your learning is my goal.

Dr. Justin Tarte
**Promote growth mindset through Standards based grading (SBG)**

Standards are awarded points on a 0–4 scale according to their mastery of the standard.

<table>
<thead>
<tr>
<th>Score</th>
<th>Description</th>
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</thead>
<tbody>
<tr>
<td>4</td>
<td>Mastery of Standard</td>
</tr>
<tr>
<td>3</td>
<td>Approaching Mastery</td>
</tr>
<tr>
<td>2</td>
<td>Partial Mastery</td>
</tr>
<tr>
<td>1</td>
<td>Attempt at Mastery</td>
</tr>
<tr>
<td>0</td>
<td>No evidence</td>
</tr>
</tbody>
</table>
Promote growth mindset through Standards based grading (SBG)

If students fail to demonstrate mastery, opportunities are provided to retake the assessment after completing remediation work for the standard.
## Promote growth mindset through Standards based grading (SBG)

### Sequences and Series

<table>
<thead>
<tr>
<th>Sequences and Series</th>
<th>LC Score</th>
<th>Feedback</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.01LC I can find the nth term of an arithmetic sequence</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>1.02LC I can find the position of a given term of an arithmetic sequence</td>
<td>3</td>
<td>Almost There</td>
</tr>
<tr>
<td>1.03LC I can find the nth term of a geometric sequence</td>
<td>2</td>
<td>Retake Soon</td>
</tr>
<tr>
<td>1.04LC I can find the position of a given term of a geometric sequence</td>
<td>1</td>
<td>Make plans to retake ASAP</td>
</tr>
<tr>
<td>1.05LC I can find the sum of a finite arithmetic series</td>
<td>3</td>
<td>Almost There</td>
</tr>
<tr>
<td>1.06LC I can find the sum of a finite geometric series</td>
<td>4</td>
<td>4</td>
</tr>
<tr>
<td>1.07LC I can use sigma notation to express sums</td>
<td>2</td>
<td>Retake Soon</td>
</tr>
<tr>
<td>1.08LC I can use sequences and series to solve real-world problems</td>
<td>1</td>
<td>Make plans to retake ASAP</td>
</tr>
</tbody>
</table>
Benefits of SBG

❌ Answers the questions
  ○ Where am I?
  ○ Where am I going?
  ○ How do I close the gap?

❌ Retakes: There is always an opportunity to master content.
Benefits of SBG

✖ SBG shifts the mindset from earning a grade to mastering content.

✖ Grade is solely determined by mastery of content.
Barriers of SBG

✖ You must communicate the system to all stakeholders.
  ○ “Students won’t do homework.”
  ○ “Does not prepare students for college.”

✖ It is time consuming to create retakes.
Promote growth mindset through Standards based grading (SBG)

- By allowing retakes,
  - Students are encouraged to persevere.
  - Students see mistakes as learning opportunities.
  - All students have the chance to succeed.
I'm happy that I'm embarrassed.
The reality is that if I'm embarrassed about how I used to teach, it probably means that I've improved.

Robert Kaplinsky
Model a Growth Mindset

✗ National Board Certification
  ○ Intentional Planning
  ○ Daily Reflection
Model a Growth Mindset

✗ Be Innovative

○ “Students take risks, when they see teachers take risks.” – Brad Currie
○ Incorporate Technology
○ Lessons are going to flop.
○ Students are going to be students.
Welcome Feedback

#ObserveMe

Please come in and #ObserveMe.
I would appreciate feedback on my goals:

- Engaging students in the learning process
- Providing opportunities for perseverance and critical thinking
- Generating more “student talk” and less “teacher talk”

Send feedback to joanna.stevens@lincoln.kyschools.us or use the form available via the QR code or the form available at http://bit.ly/2cqDO0y

(Kaplinsky, 2016)
A key to growing as a teacher is to keep mainly with teachers who uplift you, whose presence inspire you, and whose dedication drives you.

Robert John Meehan
Find your tribe.

✗ Surround yourself with teachers who make you better.
  ○ A teaching buddy
  ○ Twitter

LET’S DO LUNCH
Model a Growth Mindset

✖ Share your learning journey with your students. Be honest.
✖ Be innovative. Take risks.
✖ Welcome feedback from all stakeholders.
✖ Find your tribe.
Always be a student first. You are the chief learner in your class. Never stop researching. Never stop growing.

Adrienne Quinn
Fostering a Growth Mindset for All Students

1. Establish the growth mindset culture on Day 1
2. Provide growth mindset opportunities through engaging Activities
3. Promote growth mindset through Standards based grading (SBG)
4. Model a growth mindset
In 5 Years (Presentation) (bubbles)

ABC Sum Race (Function Composition)

Colored Card Activity (Parabola Characteristics)

Desmos
  ○ Ready-Made Lessons or Create Your Own With Activity Builder (sample)
  ○ Art Project Rubric and Lesson

Digital Toolbox

Standards Based Grading
  ○ Student Data Sheet

#ObserveMe