Sarah Porcenaluk
Grades 3-5

Taught 3rd and 4th grade in Northern Virginia and Central Florida

Previous Instructional Math Coach

Currently in Ireland completing a PhD in Education, researching how to support teachers’ use of higher-level questioning in mathematics
Setting Up for Success

What is my hope for students in mathematics for the year?

What does that look like in the classroom?

How can I setup my year to ensure all the pieces are in place?
High-Level Instructional Practices

Provides guide for yearly success

Themes I begin the year with: *Growth Mindset, Discourse, Productive Struggle, Using Reasoning*
Growth Mindset

Student-made posters

Parent information sheet
(youcubed.org)

Activities to explain the science

Daily at start–weekly throughout the year
Brain Science Activity-Neuron Paths

Students choose a topic(s)

Two students stand beside one another

When a student says something they know about the topic, they give the two students a piece of string

Two students hold the string pieces between them
Additional Growth Mindset Resources

yucubed.org

http://learningandtheadolescentmind.org/resources_02_learning.html


TED Talks: Jim Patrick, Kenia Zuniga, Tony DeRose, Carson Byblow
Discourse

Safe place

Trust is critical

Aim to get students talking, listening, writing, and reading about mathematics right away
Math Journals

What are your experiences in mathematics class?

How do you feel when you do math?

Draw a picture of what you think of when someone says “math”.

Individual conferences
Using Reasoning

Use activities all students can access at start

Incorporate listening, speaking, writing, and reading

Can adjust warm-ups to be content specific later
Reasoning with Warm-ups

Which One Doesn’t Belong?

Which One Do You Want?

What Do You Notice? What Do You Wonder?
Productive Struggle

3-Act Tasks
Graham Fletcher, Dan Meyer

Journaling as reflection tool

Manipulatives

Will the punch mixture fit into the larger container?
Mario Valdez
Academic Coach
California
6-8
student voice vs math class
Building Community + Voice

- invite
- experience
- reflection
Invite

Student Interview

1. What does it mean to be a good student?
2. What does it mean to be a good partner/group member?
3. What does it mean to be a good teacher?
4. Tell me about your math experiences in the past?
Experience

Week of Inspirational Math(s)

Powerful Questions to develop a deep level of understanding

- How do you see that idea?
- Why does that answer make sense?
- Why does that method work?
- How is that method connected to others?
- How can that idea be represented in different ways?
- Can you prove it?
- Can you prove it visually?
- Can you justify your thinking?
- Can you predict what would happen if....?
- Did you make any interesting mistakes?

Developed by Jo Boaler/Youcubed.org and Tulare County Office of Education
Reflection

Did you share an idea in today’s lesson? Yes or No?

What is an idea you shared in today’s math lesson? If you did not share, what is something you wish you could have said?
Building Community + Voice

invite
experience
reflection
Mark Kreie
Brookings High School
Brookings, SD
Desmos Fellow
9-12 Resources

desmos.com
FREE online graphing calculator
FREE app that can be used offline
Use sliders for dynamic, interactive explorations.
Create & export customized graphs
9-12 Resources

teacher.desmos.com

Desmos Classroom

FREE activities

Create your own (Activity Builder)

Curriculum (6-8 & Alg 1)
   Preview available
Set up your class, access teacher dashboard
9-12 Resources

mathigon.org
FREE software
Polypad
Awesome digital tools, including algebra tiles
geogebra.org/geometry

FREE geometry software

FREE activities

Other FREE tools & classroom resources
Create & export customized graphs
GeoGebra for Teaching and Learning Math
Free digital tools for class activities, graphing, geometry, collaborative whiteboard and more

START CALCULATOR
CLASSROOM RESOURCES

Powerful Math Apps
- Calculator Suite
- 3D Calculator
- CAS Calculator
- Geometry

Ready for Tests
- Graphing Calculator
- Scientific Calculator
- GeoGebra Classic
- GeoGebra on Tests

More Great Apps
- Notes
- App Store
- Google Play
- App Downloads

geogebra.org
9-12 Classroom Tools

Document Camera

Connect to TV / Projector

Display student work

Model procedures (graphing calculator, geometric constructions, etc.)
Vertical Non-Permanent Surfaces

White boards for small group work
Patty Paper

Durable & transparent

Helpful when modeling transformations (algebra & geometry)
9-12 Tips

Stand & Talk

Sara Van Der Werf

Goal:
“Student say it before I say it.”

Notice & Wonder

Sara’s blog post
**WHAT DO YOU NOTICE? WHAT DO YOU WONDER?**

**MATH ~ LOVE**
Scale Factor = 2 : 3

\[ \triangle C'A'T' \sim \triangle CAT \]
Scale Factor = 2 : 1

\[ \triangle \text{_______} \sim \triangle \text{_______} \]
Scale Factor = ___ : ___
9-12 Tips

Reflections & Goals

Email to parent(s) & teacher

Reflect on previous learning & goals

Set new goals

Establish expectations early

Write an email to you parent(s) / guardian(s) and to me, your teacher.

Email outline:

Address your recipient(s).

In paragraph 1, discuss how Advanced Algebra II is going. Be sure to inform how you did on your first quiz.

In paragraph 2, you will write a goal for the next two weeks in your math class.

Insert a closer (i.e. Sincerely, Thank you, etc.)

Sign your name.
9-12 Tips

**Student Introduction Video**

Students record brief video
(Canvas, Flip, ...)

3 things I should know about them

2 questions they have for me

1 clear pronunciation of their full name
9-12 Tips

Student Introduction Video

Ask student for brief background of their math class experience

**Watch the videos as soon as possible
   – Take notes & write down their questions

** Learn names (& can always go back and re-watch)

Answer their questions in class
9-12 Tips

Birthday Selfie

Google Form to gather & organize birthdays

Make that day special

Share the celebration with parents via email
What are your favorite teaching tips or classroom must-haves?

Share in the Padlet!

bit.ly/3AH1dUn
BACK TO SCHOOL

nctm.org/backtoschool

Books
Webinars
Journal Articles
More
NEW MEMBER BENEFIT

Video Lessons
nctm.org/generation-genius

In partnership with
NCTM
CLASSROOM RESOURCES
GENERATION GENIUS
ALWAYS QUESTION. ALWAYS WONDER.
How can you use NCTM’s Classroom Resources to enhance your classroom?

Once a month, starting in mid October!

Grade band specific
Follow us on TikTok!
We'll be sharing a wide range of content including fun and educational videos on the platform.

Be sure to give us a follow at @nctm.math to stay up to date with us!
Don't miss out on the premier event of the year!

nctm.org/losangeles2022
Network, collaborate on new ideas, and learn from professionals across the country

Visit nctm.org/baltimore2022 to register.