



Numbersville, USA

The place where STEM/STEAM meets
Guided Math



Kathy Spruiell, Ed. S.
Norton Elementary School
Gwinnett County Public Schools





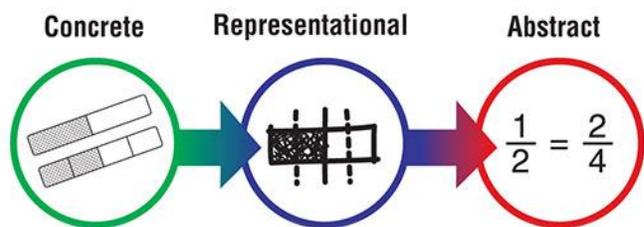
Let's set the NORMS

- Parking Lot
- Attention Signal
- Materials, Copies, PPT, etc...
- Over 21 Rule
- Anything Else???
- 770-842-5200
- Mathkathy.spruiell@gmail.com





What is Guided Math Workshop



Guided Math

Workshop Model

- Mini-lesson
 - Guided Groups
- Independent Work
- Sharing

Guided Reading

I Do



We Do



You Do It Together



You Do It Alone





What is Guided Math Workshop

Rotation Schedule	Centers/ Games	Independent Practice	Small Guided Groups
Rotation #1	MG3/MG4	MG5/MG6	MG1/MG2
Rotation #2	MG5/MG6	MG1/MG2	MG3/MG4
Rotation #3	MG1/MG2	MG3/MG4	MG5/MG6





GMW Components

- What? Standards
- 2. Who? Students
- 3. Assessment
- 4. Centers/Games
- 5. Independent Practice
- 6. Small Guided Groups
- 7. Learning Environment
- 8. Supporting Elements
- 9. What will you implement?

Find out more about
Guided Math at
Session #147 – Friday
9:30 – 11:30 AM





Why Numbers Alive?

- <http://www.numbersalive.org/>
- Dr. Rebecca Klemm
- Research-based
- Math Anxiety Connection
- You don't have to use plush numbers
- Just make numbers friendly. 😊





Know your Students' Strengths and Areas of Growth

Created by Eddy Spruill

Learning Styles Profile Grades K—5

Name _____

Directions: Shade in the boxes that describe you and the things you like. Shade in your top 15 boxes.

****Three or more choices in a category indicate a preference for that learning style.

SPORTS	Building Blocks	Singing	Playing Music	Working with Others	Helping Others
Watching	Dancing	Making Artwork	Performing	Going places with Others	Talking with Others
Looking at Pictures	Looking at Things	Examining	Painting	Listening to iPod	Playing with Others
Walking Alone	Sitting Alone	Using Electronic to Learn	Swimming	Using Computers	Listening to Music
Reading Alone	Working Alone	Asking questions Alone—No Help	Drawing pictures to show what was	Chalking	Working with Tools

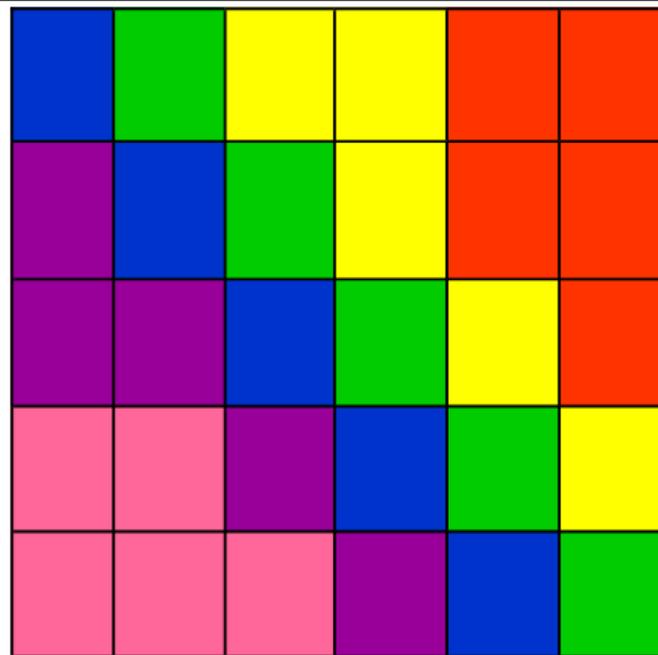
Created by Eddy Spruill

Learning Styles Profile Grades K—2

Individual—Alone ■ Visual—Seeing ■

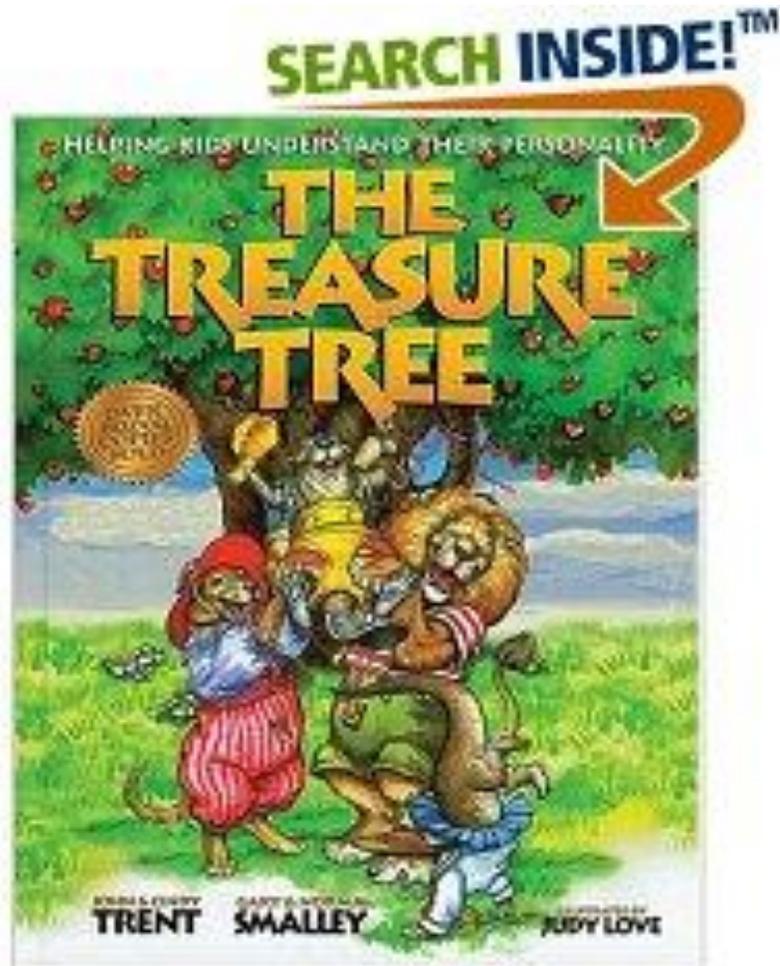
Kinesthetic - Movement ■ Tactile—Touching ■

Auditory—Hearing ■ Group—Together ■





Know your Students' Strengths and Areas of Growth



Our Personality Types: How we like to work with others...

Gold— In charge	Blue— Sensitive	Green— Organized	Orange— Spontaneous
			
Alexis Daniel Roddur Timothy	Carlos Andrea Brayer Dayanna Daniela Ivonne Christopher Yohanna Abraham Aracely Jacqueline Johana Leslie Cesia Karina Chloe	Fernando Diego	Trystien Maria M. Maria V. Sharai





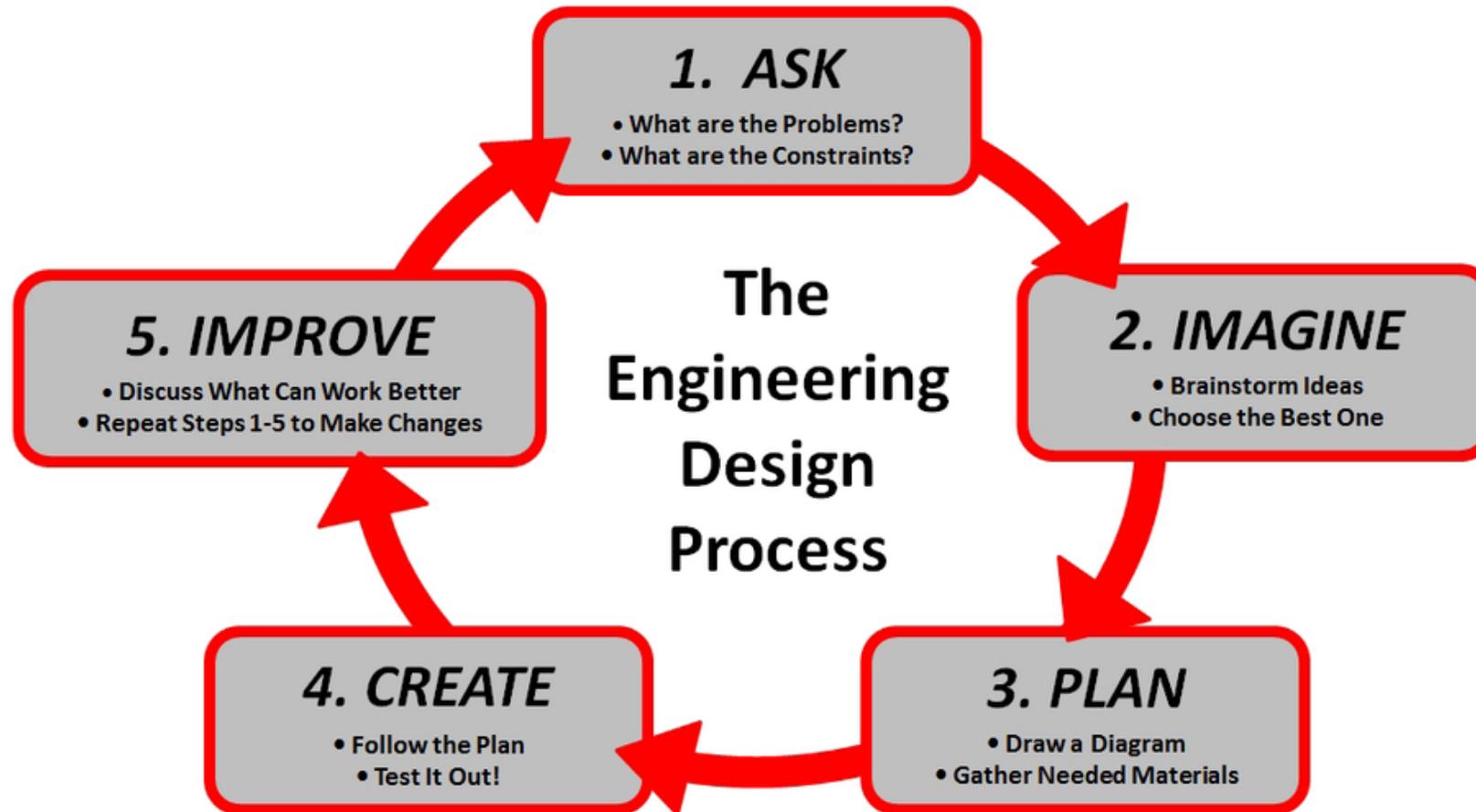
Develop Your Teams

- Use Student Strengths and Areas of growth
- Offer team building
- Foster a culture of “Growth Mindset”
- Teach students how to lead and inquire
- Use protocols to form the number groups for the PBL





Engineering Design Process





PBL – Getting Started with an Idea

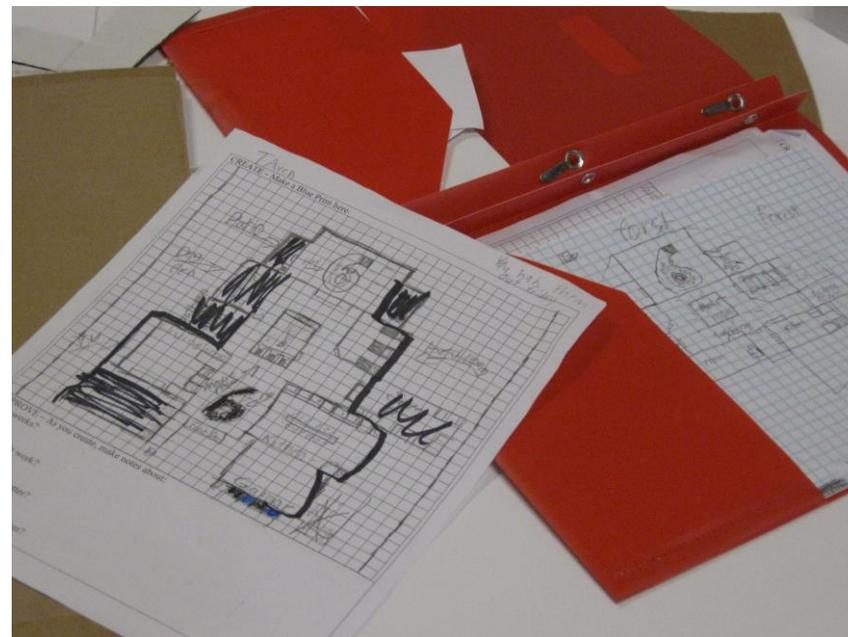
- How do you currently **facilitate learning** of this content?
- How do you **monitor student learning** when you currently teach this content? (formative assessments)
- What should students **know and be able to do** at the end of the PBL unit?
- NUMBERSVILLE, USA
- **IDEA - Use your learning about area and perimeter, design and build a house and yard for your number**





What ***authentic product*** could your students create to emulate the real world work of these professionals that is age appropriate and aligned to math standards?

- Area
- Perimeter
- Computation
- Geometry
- Force, Gravity
- Planning and blueprints
- Math modeling





What driving question could we pose to guide the learning?

- **How can you use your learning about area and perimeter, design and build a house and yard for your number?**





How can we launch the PBL unit to hook and engage student interest?

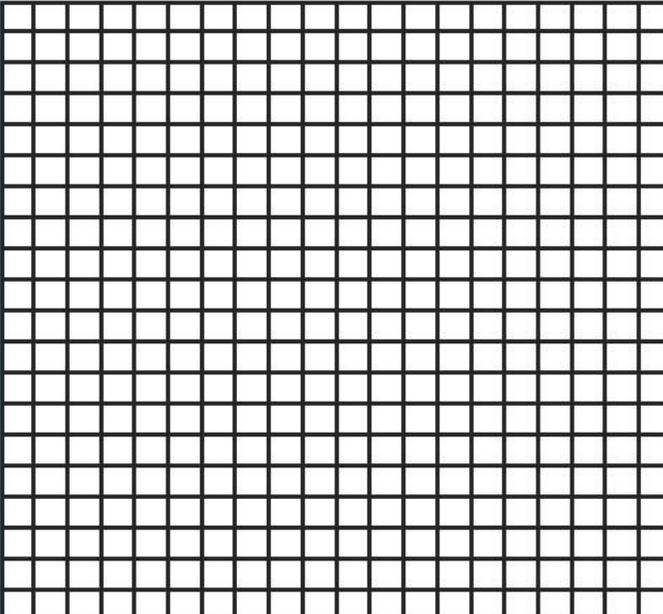
- What comes in 2, 3, 4, 5, 6, 7, 8, 9?
- Brainstorm with your table group





How and when will we engage students in reflection on the process (learning) and product?

Name _____ Date _____	
Numbersville, USA Number House STEAM/PBL Build Planning Sheet Begin planning the house and yard you will build for your number. Completely fill in all the boxes for your design process before beginning construction.	
ASK— What is your number? _____ What does your number look like? What will it wear? Describe the number's family and pets.	ASK—What is the purpose of your project? What are you designing? (list everything you will include)
IMAGINE—List all the materials you need:	IMAGINE—List all your brainstorm ideas:
PLAN—List the steps you will take to build your project: 1. _____ 2. _____ 3. _____ 4. _____ 5. _____	PLAN—What are the dimensions of your number's house? How many rooms? What is in each room? What are the dimensions of the yard? What are special objects in the yard? Anything else?

CREATE—Make a blue print here: 
IMPROVE—As you create, make notes about: What works? What doesn't work? What could work better? How can I modify my design?





How and when will students receive feedback from peers, teachers, and experts and use critique to make revisions to their work?

My Numbersville, USA, Final Project Details

Name _____ Date _____

Me	Photo of Final Project
My Number	

Describe the area and perimeter of your number's home and yard. Be sure to include the units of measure you used and why you chose to use them (Ex: feet vs. yards, meters, etc...) Show all your work and explain your math thinking. Use additional paper if needed and attach to the back of this page.

Describe any special creative features of your finished project you want to highlight and explain.

PROJECT RUBRIC

Student Name: _____

CATEGORY	4	3	2	1
Math Content - Accuracy X2	All math concepts in the project are accurate.	99-80% of the math concepts in the project is accurate.	79-70% of the math concepts in the project is accurate.	Less than 70% of the math concepts in the project is accurate.
Knowledge Gained X2 Engineering Design Process and Planning Organizer	Student can accurately answer all questions related to facts in the project and to technical processes used to create the project.	Student can accurately answer most questions related to facts in the project and to technical processes used to create the project.	Student can accurately answer many questions related to facts in the project and to technical processes used to create the project.	Student appears to have little knowledge about the facts or technical processes used in the project.
Numbersville News - Written Expression	Each piece of the project demonstrates precise written expression free of grammar, spelling, and usage errors.	Each piece of the project demonstrates precise written expression mostly free of grammar, spelling, and usage errors.	Each piece of the project demonstrates precise written expression somewhat free of grammar, spelling, and usage errors.	Each piece of the project demonstrates many errors in written expression including many errors in grammar, spelling, and usage.
Attractiveness, Organization, and Creativity	The work has exceptionally clever and attractive formatting, well-organized information and creative expression.	The work has satisfactory formatting, organized information, and creative expression.	The work has organized information and shows some creative thought.	The work's formatting and organization of material are confusing to the reader and lacks creative elements.

Scoring Guidelines

Points Earned	Grade Equivalent
24	100
23	97
22	93
21	90
20	97
19	83
18	80
17	79
16	77
15	75
14	74
13	72
12	70
11 and below	69





How many days are allotted for the timeline?

- We did this project in three weeks
- Use math rotations during GM for the planning and building
- Mix in “Launch” Days and “Reflection” Days
- Hone ideas in small groups





Students engage in the STEM/PBL Process





Students engage in the STEM/PBL Process





Students engage in the STEM/PBL Process





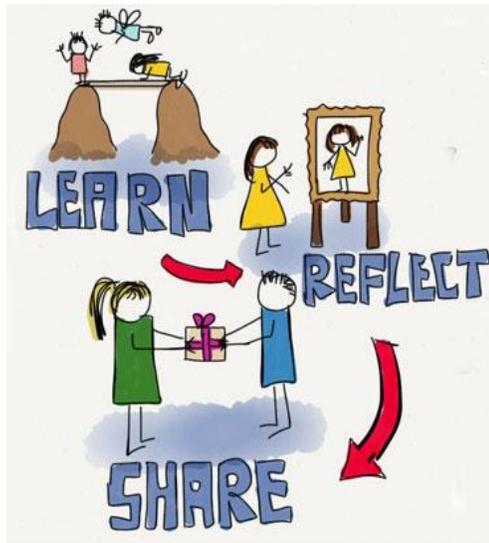
Students engage in the STEM/PBL Process





Reflections...Are there *changes, additions, or deletions* needed to the instructional activities?

- I learned a lot from this project
- What would you change
- Reflect and share





Contact Information

- For more information on this presentation, contact:
- Kathy Spruiell, Ed.S.
- Math Instructional Coach and Specialist
- Norton Elementary School
- 3059 Xavier Ray Court
- Snellville, GA 30039
- (770) 842-5200
- Mathkathy.spruiell@gmail.com
- www.mrsslpruiellatschool.weebly.com

