

Georgia Numeracy Project Overview

GaDOE Mathematics Team

Georgia Numeracy Project Numeracy Intervention Resource



Enter Here



Parallel Resources

Georgia Early
Numeracy Project

K - 7 Resource

8 - HS Resource

Georgia Secondary
Numeracy Project

What is the Georgia Numeracy Project?

The Georgia Numeracy Project is a free, optional, evidence-based resource for schools and districts to use to help students build a solid foundation in numeracy and address algebra readiness.





GEORGIA NUMERACY PROJECT OVERVIEW

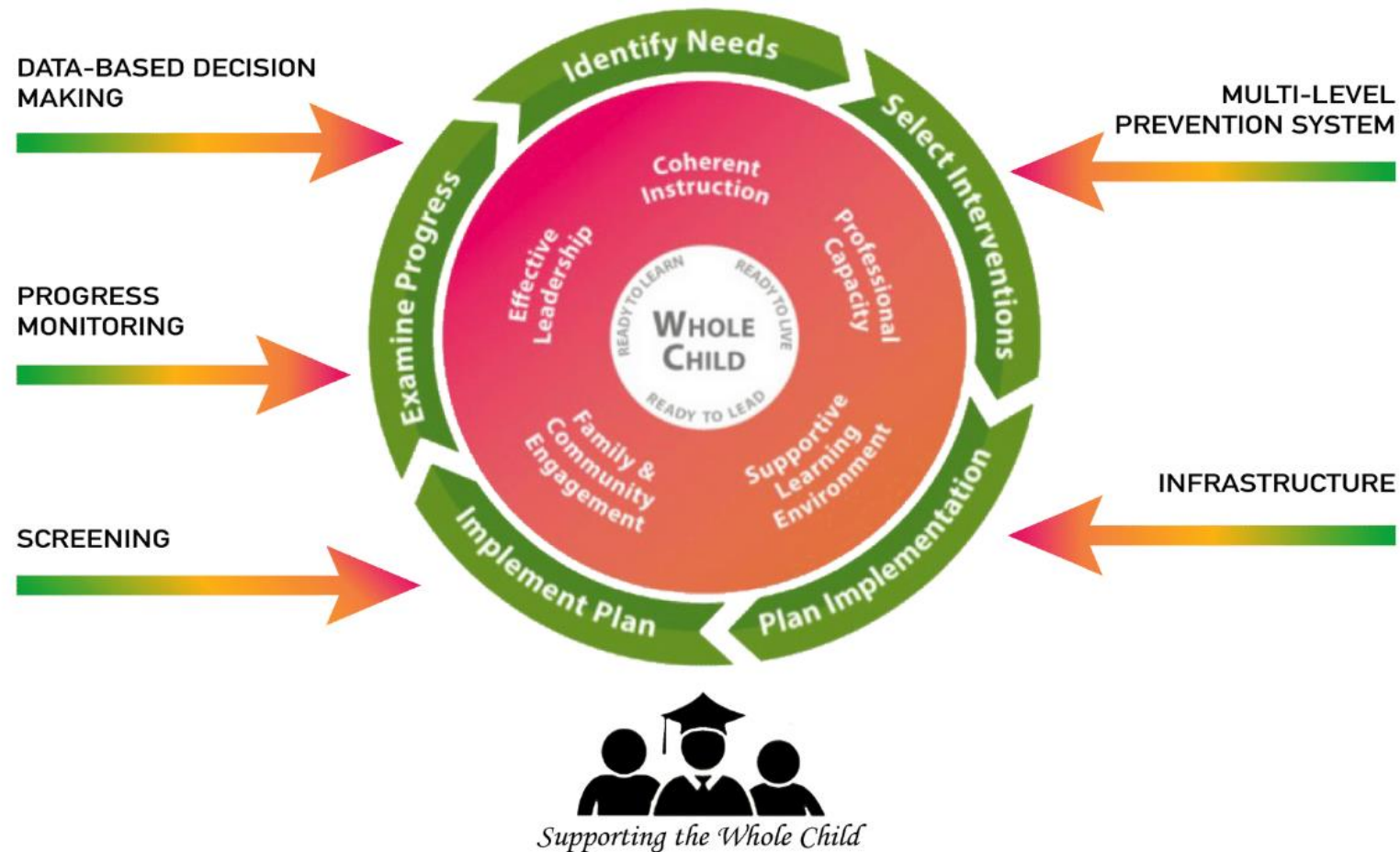
Numeracy Project

- The Georgia Numeracy Project is focused on developing students' understanding of numbers, and their ability to use numbers to solve problems. Students may solve number problems by counting, adding, subtracting, multiplying, dividing, or any combinations of these operations. Students should develop strategies that support their use of these operations in real-world and mathematical problems.

Georgia's System of Continuous Improvement



Alignment to Essential Components of Georgia's Tiered System of Supports for Students



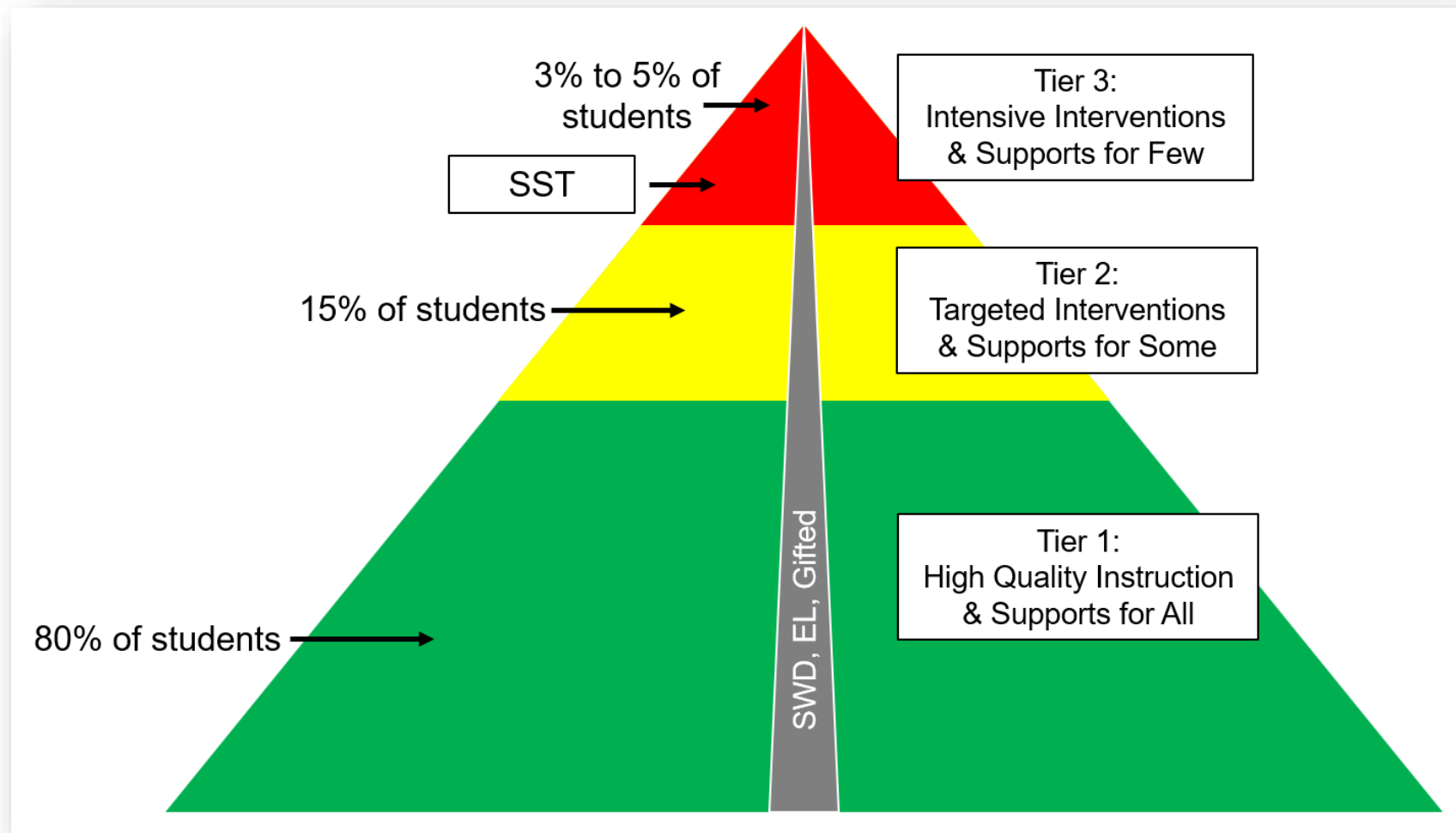
Georgia Numeracy Project and MTSS

- The Georgia Numeracy Project can be used as a resource for MTSS, including Georgia's Multi-Tiered System of Supports
- The Georgia Numeracy Project integrates assessment and intervention within a school-wide, multi-level prevention system to maximize student achievement and increase student learning in the area of numeracy.

What do you notice?
What do you wonder?



Services Provided to Students





GEORGIA NUMERACY PROJECT, AN EVIDENCE-BASED INTERVENTION

Research to Support Georgia Numeracy Project

Assisting Students Struggling with Mathematics: Response to Intervention (Rtl) for Elementary and Middle Schools (2009)

The Institute of Education Sciences (IES)
National Center for Education Evaluation and Regional Assistance

<https://ies.ed.gov/ncee/wwc/PracticeGuide/2>

Numeracy Project Evidence-Base

	Included in design of Georgia Numeracy Project	Strong Evidence	Moderate Evidence	Minimal Evidence
1. Screen all students to identify those at risk for potential mathematics difficulties and provide interventions to students identified as at risk.	√		◆	
2. Instructional materials for students receiving interventions should focus intensely on in-depth treatment of whole numbers in kindergarten through grade 5 and on rational numbers in grades 4 through 8.	√			◆
3. Instruction during the intervention should be explicit and systematic.	√	◆		
4. Interventions should include instruction on solving word problems that is based on common underlying structures.	√	◆		
5. Intervention materials should include opportunities for students to work with visual representations of mathematical ideas and interventionists should be proficient in the use of visual representations of mathematical ideas	√		◆	
6. Interventions at all grade levels should devote about 10 minutes in each session to build fluent retrieval of basic arithmetic facts.	√		◆	
7. Monitor the progress of students receiving supplemental instruction and other students who are at risk.	√			◆
8. Include motivational strategies in tier 2 and tier 3 interventions				◆

More Details

- The Numeracy Project is a 4-Part Process:
 - Part 1: Interview-based Numeracy Assessment (GloSS or Diagnostic Interview)
 - Part 2: Numeracy Assessment (IKAN or Written Assessment)

 - Part 3: Numeracy Intervention Instrument
 - Part 4: Intervention Activities
- This process lends itself to customizing the intervention based on each student's needs.
- Not all students will need intensive intervention outlined in Part 3 or Part 4.
- The intervention activities in Part 4 may also be used to support Tier I and Tier II small group instruction, as needed.



ADMINISTRATION PROTOCOL

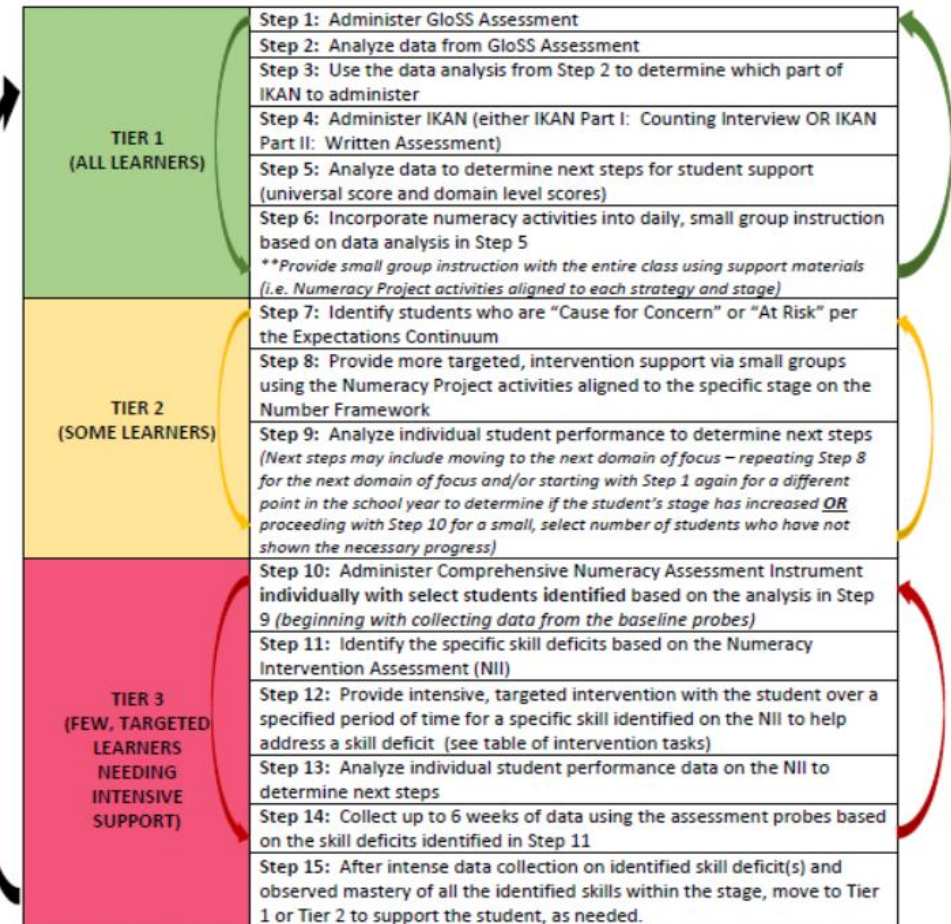
Georgia Numeracy Project Administration Instructions



GEORGIA NUMERACY PROJECT

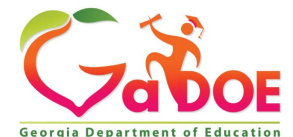
Steps to Administer Numeracy Intervention Tool

This is an OPTIONAL, free Intervention Tool to support mathematics learners.



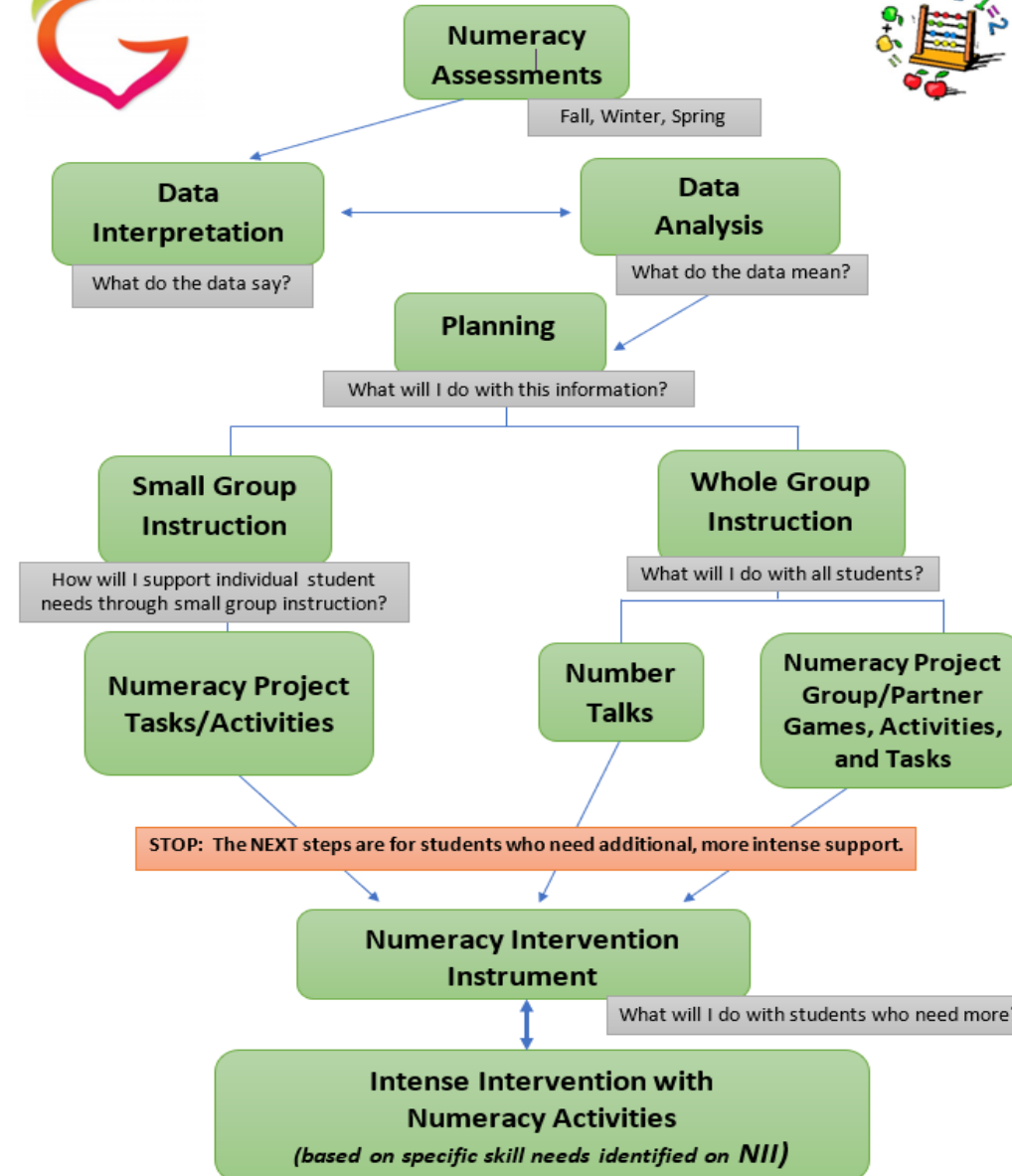
SPECIAL NOTE: There should be a cycle of support within each tier. The overall goal is to help fill gaps in student understanding and numeracy development so that they adequately access the regular curriculum without deficits. Students should be able to move out of Tier 3 back to Tier 2 and Tier 1 at any point after receiving the necessary intervention.

Developing Foundational Numeracy in Mathematics

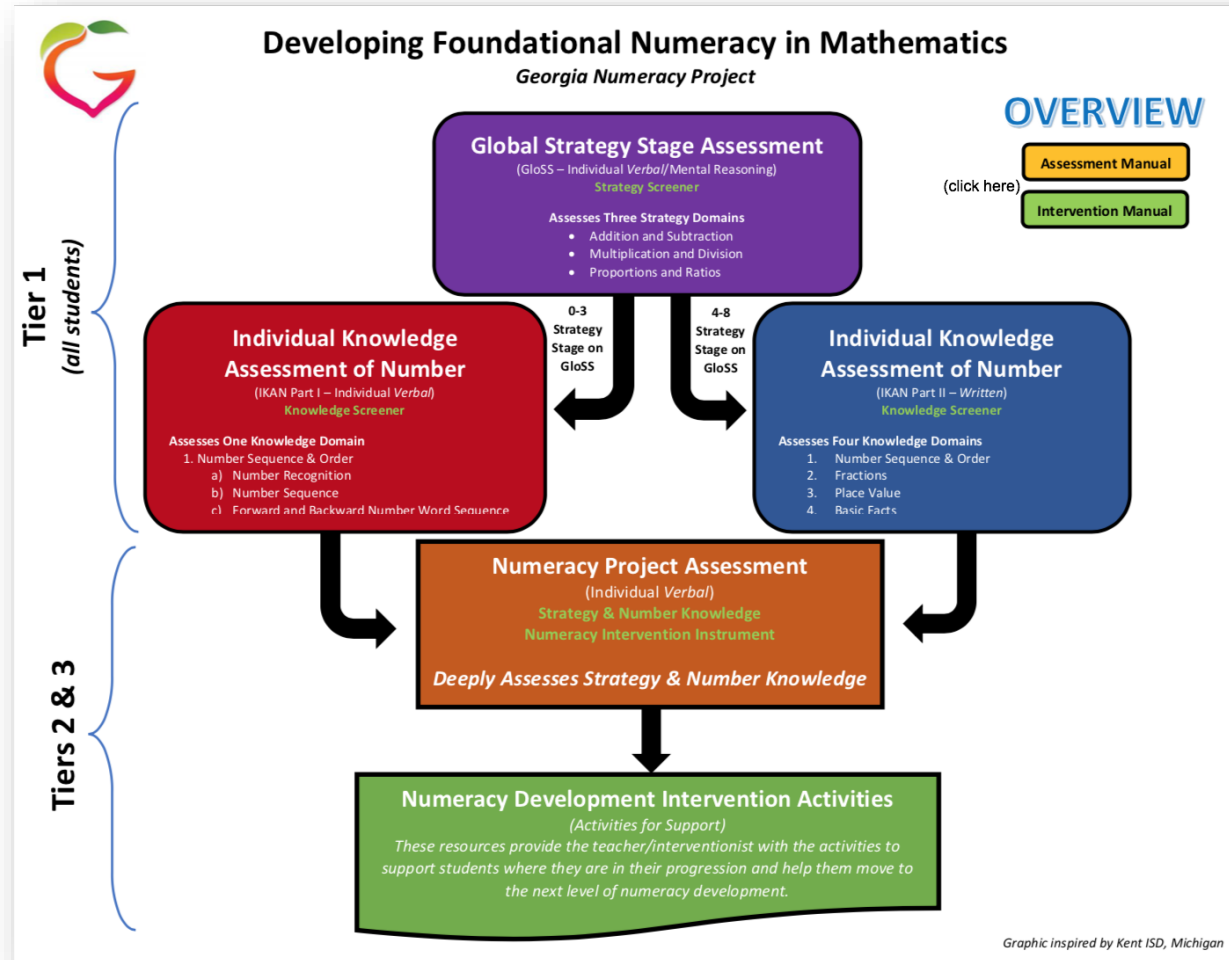




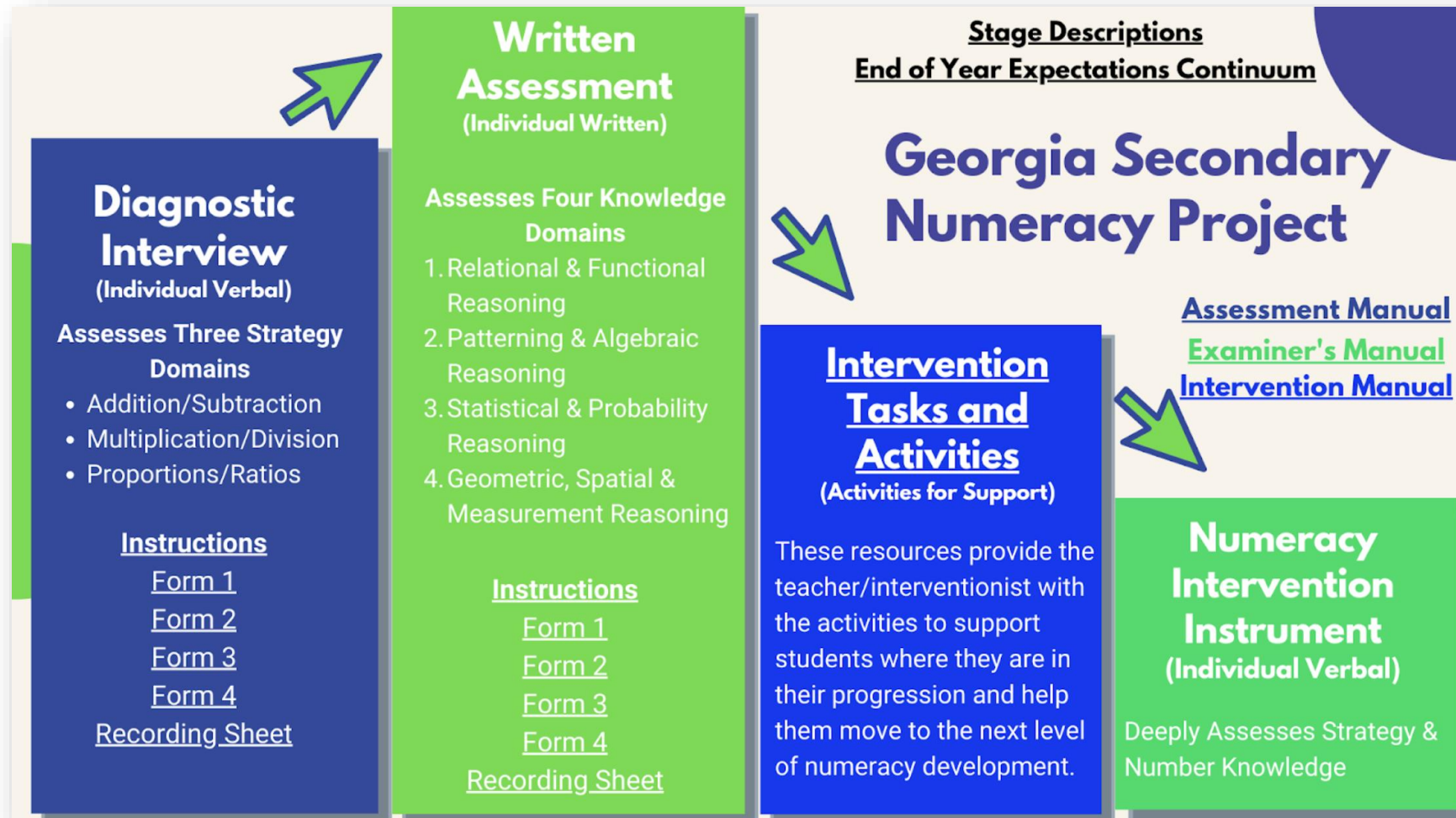
GEORGIA NUMERACY PROJECT



Georgia Early Numeracy Project



Georgia Secondary Numeracy Project



Numeracy Stages

Early Numeracy Project

- Stage 0 - Emergent
- Stage 1 - One to One Counting
- Stage 2 - Count from One on Materials
- Stage 3 - Count from One by Imaging
- Stage 4 - Advanced Counting
- Stage 5 - Early Additive Part-Whole
- Stage 6 - Advanced Additive Part-Whole
- Stage 7 - Advanced Multiplicative Part-Whole
- Stage 8 - Advanced Proportional Part-Whole

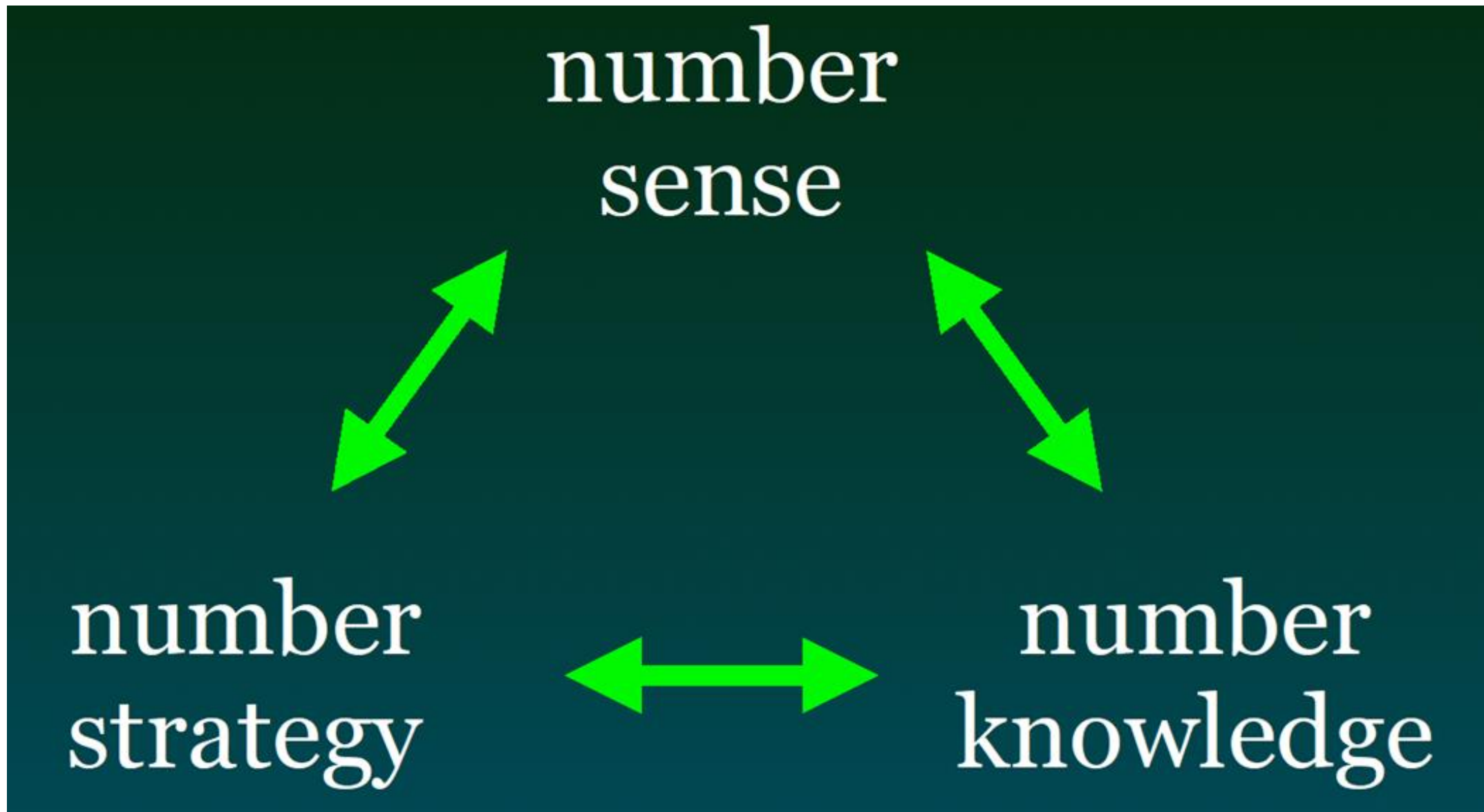
Numerical Reasoning Stages

Secondary Numeracy Project

- Stage 5 - Early Additive Part-Whole
- Stage 6 - Advanced Additive Part-Whole
- Stage 7 - Advanced Multiplicative Part-Whole
- Stage 8 - Advanced Proportional Part-Whole
- Stage 9 – Relational and Early Functional Part-whole
- Stage 10 – Advanced Functional Part-Whole

Learning through memorization

Learning from memory





Implementing Tiered Interventions

Evidence-based Resource

- Instruction during the intervention should be explicit and systematic.
- Instruction is based on the Numeracy Intervention Activities that align with the Strategy Stages and the specific skills within the Numeracy Intervention Instrument.

Evidence-based Resource

- Instructional materials for students receiving interventions through the Georgia Numeracy Project focus intensely on in-depth treatment of whole numbers in Kindergarten through Grade 5 and on rational numbers in Grades 4 through high school.
- Intervention activities included in the Georgia Numeracy Project include instruction on solving word problems that is based on the underlying structure of building foundational numeracy and algebra readiness.

Evidence-based Resource

- Intervention materials provided to teachers through the Georgia Numeracy Project include opportunities for students to work with visual representations of mathematical ideas.
- Interventionists are provided with explicit instructions on how to use visual representations of mathematical ideas as it relates to activities presented.

Evidence-based Resource

- Interventions at all grade levels (i.e., the use of Number Talks and/or other intervention activities) should be implemented for at least 10 minutes (depending on the activity) in each session to build fluent retrieval of basic arithmetic facts.

Intervention Tasks/Activities

Early Numeracy Project

NUMERACY PROJECT TASKS AND ACTIVITIES

Stage Three

- The following list of activities is designed to be used for a student who scores at Stage Three on the Numeracy Assessment Universal Screener.
- Teachers and interventionists should choose activities in the areas in which the student was unable to demonstrate mastery of a particular skill in order to create an "Intervention Prescription".
- These resources can be found by clicking on the activity name below.

3:1 <i>Rote counting 0-50</i>	3:2 <i>Saying the forwards and backwards number word sequence in the range 0-50, starting and ending with any number</i>	3:3 <i>Numerical recognition 0-50</i>	3:4 <i>Number order: What comes before and after a given number in the range 0-50</i>	3:5 <i>Ordering the numbers in the range 0-50</i>	3:6 <i>Counting up to 50 objects by grouping the objects in tens</i>
<ul style="list-style-type: none"> ❖ Bead Counting ❖ Clapping from 0-50 ❖ Counting As We Go ❖ Outdoor Counting 0-50 ❖ Puppet Counting 0-50 	<ul style="list-style-type: none"> ❖ Backwards, Forwards, and In-Between ❖ Clapping Forwards and Backwards ❖ Walk the Bridge 	<ul style="list-style-type: none"> ❖ Arrow Cards ❖ Birthday Cakes ❖ Caterpillar Legs ❖ Creating Numbers ❖ Lucky Counting ❖ Number Line Flips 	<ul style="list-style-type: none"> ❖ Lily Pads ❖ Number Line Flips – Before and After ❖ Number Wheel 	<ul style="list-style-type: none"> ❖ Clothesline Cards ❖ Who is the Richest? ❖ Rocket-Where will I Fit? 	<ul style="list-style-type: none"> ❖ Bead Strings ❖ Tens and Ones with Ten-Frames ❖ Tens in Tens
3:7 <i>Comparing two numbers in the range 0-50 using number cards</i>	3:8 <i>Instantly recognizing patterns to 10, including doubles</i>	3:9 <i>Recalling facts within 5, and doubles to 10</i>	3:10 <i>Solving addition problems to 20 by counting all the objects in their head</i>	3:11 <i>Solving subtraction problems from 20 by counting all the objects in their head</i>	3:12 <i>Solving addition and subtraction problems with decade numbers by counting tens in their head</i>
<ul style="list-style-type: none"> ❖ Comparisons with Number Cards ❖ Ten-Frame Comparisons ❖ Ten-Frame War 	<ul style="list-style-type: none"> ❖ Both Hands ❖ Compatible Numbers to Ten ❖ Rekenrek Patterns to Ten ❖ Rekenrek Reinforcing Five/Ten Grouping 	<ul style="list-style-type: none"> ❖ Adding and Subtracting with Counters ❖ Adding and Subtracting on One Hand ❖ Bowl A Fact ❖ Making Tens 	<ul style="list-style-type: none"> ❖ Counters in a Row ❖ In and Out of the Cup - Addition ❖ Ten-Frame Addition 	<ul style="list-style-type: none"> ❖ Heads Up ❖ Ten-Frame Subtraction ❖ Visualizing - Imagining Many Hands ❖ What's Hidden? 	<ul style="list-style-type: none"> ❖ Adding and Subtracting Tens ❖ Tens Bingo ❖ Tens Disks

Secondary Numeracy Project

SECONDARY NUMERACY PROJECT TASKS AND ACTIVITIES

Stage Five

- The following list of activities is designed to be used for a student who scores within Stage Five on the Numeracy Assessment Universal Screener.
- Teachers and interventionists should choose activities in the areas in which the student was unable to demonstrate mastery of a particular skill in order to create an "Intervention Prescription".
- These resources can be found by clicking on the activity name below.

5:1 Use simple additive strategies with whole numbers and fractions.		5:2 Know forward and backward counting sequences with whole numbers to at least 1000.		5:3 Know the basic addition and subtraction facts.	
❖ Cookie Boxes ❖ Weights Big Teeth		❖ Crunch Machine Happy Hundreds		❖ Greedy Pig Number Cards	
5:4 Know how many ones, tens, and hundreds are in whole numbers to at least 1000.		5:5 Know simple fractions in everyday use.		5:6 Communicate and interpret simple additive strategies, using a variety of strategies.	
❖ Digit Time Place Value to Four Digits		❖ Hot Stuff ❖ Big Teeth Fair Shares		❖ What's My Number ❖ Crunch Machine It's Not Fair	
				❖ Partitions What's My Number?	
5:8 Find rules for the next step in a sequential pattern.		5:9 Create and use appropriate units and tools to measure length, area, volume and capacity, weight, angle, temperature, and time.		5:10 Partition and/or combine like measures and communicate them, using numbers and units.	
❖ Staircases A Long Dinner Table		❖ Weights ❖ Day Diary Big Teeth		❖ Scavenger Hunt ❖ Big Teeth Making Benchmarks	
				❖ Changing Shape Odd Solids	
5:12 ❖ Identify and describe the plane shapes found in objects.		5:13 ❖ Create and use simple maps to show position and direction.		5:14 Describe different views and pathways from locations on a map.	
❖ Odd Solids Post It		❖ Megamaze		❖ Where Am I? Maps	
				❖ Getting in Line Transforming Patterns	

Georgia Department of Education
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Individualized Focus

- Intensive interventions are more intensive than secondary interventions
- Adapted to address individual student needs in a number of ways:
 - Increased duration or frequency
 - Change in interventionist
 - Decreased groups size
 - Change in instructional delivery
 - Change in type of intervention

Tools Available to Support Intensive Interventions

- Skill-based interview assessments
- Progress monitoring tool
- Data table and graph



Numeracy Project Assessment
(Individual *Verbal*)

Strategy & Number Knowledge
Numeracy Intervention Instrument

Deeply Assesses Strategy & Number Knowledge

- Each of the Strategy and Knowledge Domains on the GloSS and IKAN

**Numeracy Project
Intervention Assessment**

Testimonials

I think the Georgia Numeracy Project is impressive and, I think, unparalleled in the U.S.

- Marilyn Burns

Author/Mathematics Leader

(After observing colleagues using the Georgia Numeracy Project) we debriefed and found out how beneficial it has been for their interventions, so we'd like to start this with our students. We are already looking for a class to get the training but would like to start assessing our students ASAP. We are printing what we can from your website- thank you!

- R. Sigmon

K-2 Intervention Teacher
Decatur, GA

Testimonials

We had a huge GA numeracy training probably seven years ago or so and had a huge turn out. The following year we had a lot of schools start the project with Janna and I going in to support. Harper Elementary School in Thomasville, Georgia continued with it and saw GREAT returns.

- **Amy Casper**

Mathematics Mentor

Southwest Georgia RESA

Calhoun County has worked on the Georgia Numeracy Project. They utilized their coaches to support the teachers in implementing the resource. Randolph Clay Middle School trained/beginning implementation during summer school to address specific gaps in learning in preparation for the new school year. Furlow Charter School trained their 4th and 5th grade teachers to use the resource. The Mathematics Interventionist at Dorothy Height uses the Georgia Numeracy Project to support students at the Tier II and Tier III levels.

- **Angie Brunson**

Mathematics Mentor

Chattahoochee-Flint RESA

Testimonials

Because the Numeracy Project is focused on developing students understanding of numbers and solving problems, students have been encouraged to think about building numbers in a variety of ways. I have been excited to use number strings and number talks resources to engage my students in deeper conversations about solving their problems.

- Robbi Brown

Rock Chapel Elementary
DeKalb County Schools District

The Georgia Numeracy Project helped me to build a culture of numeracy in my classroom by allowing my students to become more comfortable with sharing their ideas. Using the strategies and interventions, my students became more comfortable with not only sharing their math thoughts with me, but also with their classmates.

- Tiffani Casurra

Allgood Elementary School
DeKalb County Schools District

Testimonials

In our district, we have been using the Numeracy Project thanks to hearing about it from you all at NCSM in Oakland. We appreciate very much the work you all are doing and your willingness to share your efforts with all of us. We have sent many your way because of the difference it has made for us as well.

- M. Starr

K-4 Math Specialist
Bentonville Schools, AR

I am working with the interventionists in Danville, VA and we had great success with our students last year with the materials from the Georgia Numeracy Project.

- L. Williamson

Education Resource Group

Testimonials

The Georgia Numeracy Project helped me build a culture of numeracy in my classroom by boosting my students' confidence levels. I fostered a sense of community by having weekly numeracy data talks with the students and by making the interventions and into competitions. The students began to take pride and accountability in their learning and also started encouraging their classmates to "get on their level".

- **Corey Sapp**

Bethune Middle School
DeKalb County Schools District

In working on a crosswalk of the (Georgia) Numeracy Project with the GSE (and how its measured on GKIDS) and our current curriculum, I noticed our data from the Numeracy Project assessments strongly indicates that we need to revisit our classroom instruction. It made us revisit our Tier I instruction, as well as our infrastructure for providing interventions.

- **Connie Morris**

School Psychologist
Georgia School for the Deaf

State Mathematics Contact Information

YOUR GADOE MATHEMATICS TEAM IS HERE TO SERVE YOU!



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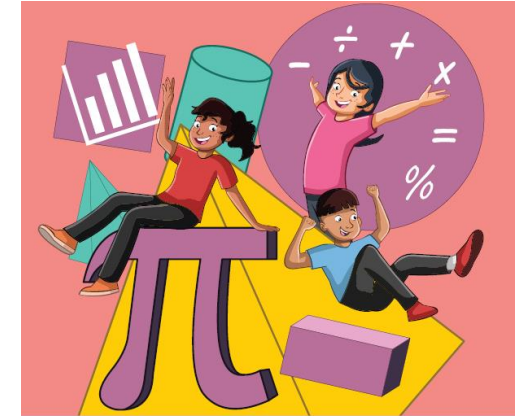
Important Websites

Georgia Mathematics Program Updates:
www.gadoe.org/mathematics

Professional Learning Communities:
<https://community.gadoe.org>

Curriculum Resources:
www.georgiastandards.org

Professional Learning Conferences:
www.gadoe.org/mathcon



Contact Information

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