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Common Core Georgia Performance Standards First Grade

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Thank you for being here today.



You will need the following materials during today's broadcast:

- First Grade handouts/resource packet
- Large index cards, tape, markers
- Note-taking materials

(This session is being recorded, and all materials, including the powerpoint, are available for download)



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Activate your brain



92107

7

8

26

1

- My dog's weight
- Age of my youngest child
- A zip code
- Number of cups of coffee each day
- Number of cousins

Number sense builds on students' natural insights and convinces them that mathematics makes sense, that it is not just a collection of rules to be applied.

Hilde Howden, 1989



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Why Common Core Standards?



- Preparation: The standards are college- and career-ready. They will help prepare students with the knowledge and skills they need to succeed in education and training after high school.
- Competition: The standards are internationally benchmarked. Common standards will help ensure our students are globally competitive.
- Equity: Expectations are consistent for all – and not dependent on a student’s zip code.



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Why Common Core Standards?



- **Clarity:** The standards are focused, coherent, and clear. Clearer standards help students (and parents and teachers) understand what is expected of them.
- **Collaboration:** The standards create a foundation to work collaboratively across states and districts, pooling resources and expertise, to create curricular tools, professional development, common assessments and other materials.



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Common Core State Standards



Building on the strength of current state standards, the CCSS are designed to be:

- Focused, coherent, clear and rigorous
- Internationally benchmarked
- Anchored in college and career readiness
- Evidence and research based



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Common Core State Standards in Mathematics



K 1 2 3 4 5 6 7 8 9 - 12

Measurement and Data

Counting
and
Cardinality

Number and Operations
Fractions

Number and Operations in Base Ten

Operations and Algebraic Thinking

Geometry

Statistics and
Probability

Ratios &
Proportional
Relationships

F

The Number
System

Expressions and
Equations

Statistics and
Probability

Functions

Number and
Quantity

Algebra

Geometry

Modeling



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Standards for Mathematical Practice



1. Make sense of problems and persevere in solving them.
6. Attend to precision.

2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others

4. Model with mathematics.
5. Use appropriate tools strategically.

7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

Reasoning and explaining

Modeling and using tools

Seeing structure and generalizing



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(McCallum, 2011)

Geometry

Domain

- Reason with shapes and their attributes.

Standards
CLUSTER Heading

Standards



MCC1.G.1- Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.

MCC1.G.2- Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.



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While the standards focus on what is most essential, they do not describe all that can or should be taught. A great deal is left to the discretion of teachers and curriculum developers. The aim of the standards is to articulate the fundamentals, not to set out an exhaustive list or a set of restrictions that limits what can be taught beyond what is specified.



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corestandards.org



So what's a First Grade teacher to do?



- Read your grade level standards. Use the CCGPS Teaching Guide found on georgiastandards.org and in Learning Village.
- Discuss the standards with your colleagues.



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First Grade Curriculum Map



Common Core Georgia Performance Standards: Curriculum Map

Unit 1	Unit 2	Unit 3	Unit 4	Unit 5	Unit 6	Unit 7
Creating Routines Using Data	Developing Base Ten Number Sense	Understanding Shapes and Fractions	Sorting, Comparing and Ordering	Understanding Place Value	Operations and Algebraic Thinking	Show What We Know
MCC1.NBT.1 MCC1.MD.4	MCC1.NBT.1 MCC1.MD.4	MCC1.G.1 MCC1.G.2 MCC1.G.3 MCC1.MD.4	MCC1.MD.1 MCC1.MD.2 MCC1.MD.3 MCC1.MD.4	MCC1.NBT.2 MCC1.NBT.3 MCC1.NBT.4 MCC1.NBT.5 MCC1.NBT.6 MCC1.MD.4	MCC1.OA.1 MCC1.OA.2 MCC1.OA.3 MCC1.OA.4 MCC1.OA.5 MCC1.OA.6 MCC1.OA.7 MCC1.OA.8 MCC1.MD.4	ALL

These units were written to build upon concepts from prior units, so later units contain tasks that depend upon the concepts addressed in earlier units.
All units will include the Mathematical Practices and indicate skills to maintain.



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First Grade Overview



Unit 1: Creating Routines Using Data

MCC1.NBT.1

MCC1.MD.4

Number and Operations in Base Ten

- Extend the counting sequence.
- Understand place value.
- Use place value understanding and properties of operations to add and subtract.

Measurement & Data

- Represent and interpret data.



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First Grade Overview

Unit 2: Developing Base Ten Number Sense

- **MCC1.NBT.1**
 - **MCC1.MD.4**
- Number and Operations in Base Ten**
- Extend the counting sequence.
 - Understand place value.
 - Use place value understanding and properties of operations to add and subtract.

Measurement & Data

- Represent and interpret data.



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First Grade Overview



Unit 3: Understanding Shapes and Fractions

MCC1.G.1

MCC1.G.2

MCC1.G.3

MCC1.MD.4

Geometry

- Reason with shapes and their attributes.

Measurement & Data

- Measure lengths indirectly and by iterating unit lengths.
- Represent and interpret data.



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First Grade Overview



Unit 4: Sorting, Comparing, and Ordering

MCC1.MD.1

MCC1.MD.2

MCC1.MD.3

MCC1.MD.4

Measurement & Data

- Measure lengths indirectly and by iterating unit lengths.
- Tell and write time
- Represent and interpret data.



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First Grade Overview



Unit 5: Understanding Place Value

MCC1.NBT.2

MCC1.NBT.3

MCC1.NBT.4

MCC1.NBT.5

MCC1.NBT.6

MCC1.MD.4

Number and Operations in Base Ten

- Extend the counting sequence
- Understand place value
- Use place value understanding and properties of operations to add and subtract.

Measurement and Data

- Represent and interpret data.



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First Grade Overview



Unit 6: Operations and Algebraic Thinking

MCC1.OA.1

Operations & Algebraic Thinking

MCC1.OA.2

- Represent and solve problems involving addition and subtraction.

MCC1.OA.3

- Understand and apply properties of operations and the relationship between addition and subtraction.

MCC1.OA.4

- Add and subtract within 20.

MCC1.OA.5

- Work with addition and subtraction equations.

MCC1.OA.6

MCC1.OA.7

Measurement and Data

MCC1.OA.8

- Represent and interpret data.

MCC1.MD.4



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First Grade Overview



Unit 7: Show What You Know



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What's Different in First Grade



Operations and Algebraic Thinking

- Compose/decompose numbers to 20
- Use of algebraic expressions
- Application of properties of operations
- Understand =

Number and Operations in Base Ten

- Fluently add and subtract within 10
- Understand and use $<$, $>$, $=$
- Determine unknowns
- Count to 120
- Subtract multiples of 10



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What's Different in First Grade



Measurement and Data

- Iteration of units
- Indirect comparison

Geometry

- Defining attributes
- Compose new from composite.



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Common Misconceptions



Operations and Algebraic Thinking

- Equal sign
- Key words
- Properties misuse
- Zero and negative numbers
- Regrouping
- Skipping the development of mental images

Number and Operations in Base Ten

- Unitizing- failing to see ten things as one ten
- Greater than, less than



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Common Misconceptions



Measurement

- markings vs space

Geometry

- Size of shares/number of shares
- Connecting orientation to shape



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Applications
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Focus



The student...

- spends more time thinking and working on priority concepts.
- is able to understand concepts and their connections to processes (algorithms).



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Focus



The teacher...

- builds knowledge, fluency, and understanding of why and how certain mathematics concepts are done.
- thinks about how the concepts connect to one another.
- pays more attention to priority content and invests the appropriate time for all students to learn before moving onto the next topic.



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Grade	Priorities in Support of Rich Instruction and Expectations of Fluency and Conceptual Understanding
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K–2	Addition and subtraction, measurement using whole number quantities
3-5	Multiplication and division of whole numbers and fractions
6	Ratios and proportional reasoning; early expressions and equations
7	Ratios and proportional reasoning; arithmetic of rational numbers
8	Linear algebra
9-12	Modeling





Critical Areas



In First Grade, instructional time should focus on **four critical areas**:

- Developing understanding of addition, subtraction, and strategies for addition and subtraction within 20
- Developing understanding of whole number relationships and place value, including grouping tens and ones
- Developing understanding of linear measurement and measuring lengths as iterating length units
- Reasoning about attributes of, and composing and decomposing geometric shapes.



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Priorities in First Grade



- Understanding of, and strategy development for, addition and subtraction
- Place value understanding
- Reasoning with shapes



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Sample high leverage task



Numbers to 20 on the rekenrek

- Let's make 16 on the rekenrek. Show as many ways as you can to make 16. Share what you see.
- Why is this important?



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Another High Leverage Task



Wheel Shop

The Wheel shop sells bicycles and go-carts. Each bicycle has only one seat, and each go-cart has only one seat. There are a total of 7 seats and 18 wheels in the shop. How many are bicycles and how many are go-carts?

Use pictures, words, and numbers to show your math thinking.



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What is no longer in First Grade ?



Where is

- money?
- determining nearest 10?
- height, weight, capacity?
- partitioning 100 objects?
- odd/even?
- tally marks?

What about Calendar Time?



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Coherence



The student...

- builds on knowledge from year to year, in a coherent learning progression.



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Coherence

The teacher.....

- connects mathematical ideas across grade levels.
- thinks deeply about what is being focused on.
- thinks about the way those ideas connect to how they were taught the year before and the years after.



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Sample Coherence Task



- Silly Symbols



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What do First Grade students bring? What are they connecting to later?



From K-

- Fluent addition and subtraction to 5.
- Foundational place value understanding.
- Foundational ideas about shape and position in space.
- Ability to compare and categorize.
- Understanding of quantities to 20.

Later-

- Understanding quantity and number, addition and subtraction.
- Foundational place value understanding.
- Understanding of defining attributes about shape, composition of shape.
- Foundation of fractional relationships.
- Continuation of fluency.



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Again, where is it all going?



- Understanding quantity and number, addition and subtraction.
- Foundational place value understanding.
- Understanding of defining attributes about shape, composition of shape.
- Foundation of fractional relationships.
- Continued fluency and algebraic thinking.



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Fluency

The student...

- spends time practicing skills with intensity and frequency.



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Fluency



The teacher...

- pushes students to know basic skills at a greater level of fluency based on understanding.
- focuses on the listed fluencies by grade level.



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Grade	Required Fluency
K	Add/subtract within 5
1	Add/subtract within 10
2	Add/subtract within 20 & Add/subtract within 100 (pencil and paper)
3	Multiply/divide within 100 & Add/subtract within 1000
4	Add/subtract within 1,000,000
5	Multi-digit multiplication
6	Multi-digit division & Multi-digit decimal operations
7	Solve $px + q = r$, $p(x + q) = r$
8	Solve simple 2×2 systems by inspection
9-12	Algebraic manipulation in which to understand structure. Writing a rule to represent a relationship between two quantities. Seeing mathematics as a tool to model real-world situations. Understanding quantities and their relationships.

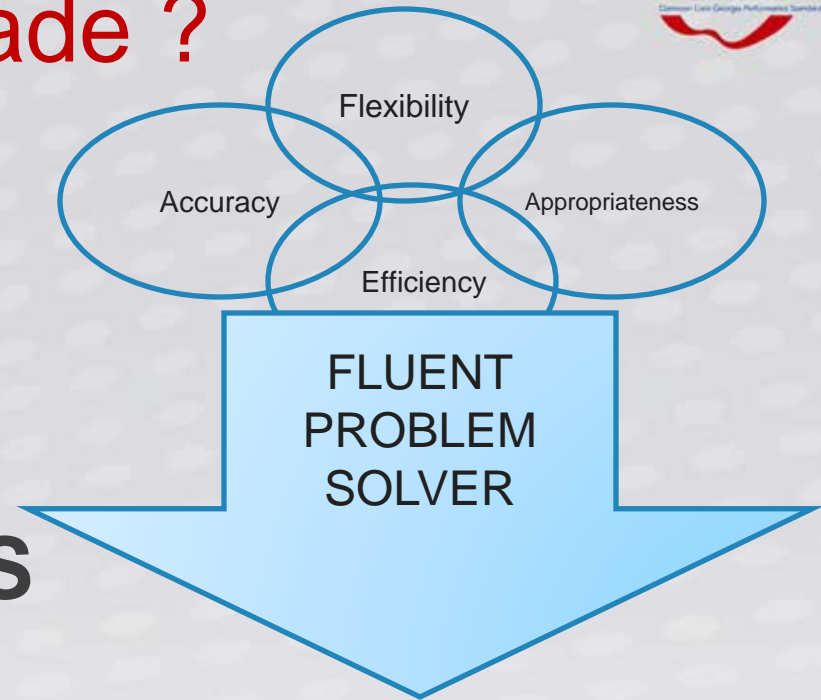


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What does Fluency Look Like in First Grade ?



- **FLEXIBILITY**
- **ACCURACY**
- **EFFICIENCY**
- **APPROPRIATENESS**



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What does Fluency Look Like in First Grade ?



Add and Subtract within 5

MCC1.OA.6- Add and subtract within 20, demonstrating fluency for addition and subtraction within 10. USE STRATEGIES...

Build fluency using:

- dot plates
- ten frames
- Rekenrek
- meaningful tasks



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Deep Understanding



The student...

- shows mastery of material at a deep level in numerous ways.
- uses mathematical practices to demonstrate understanding of different material and concepts.



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Deep Understanding



The teacher...

- asks self what mastery/proficiency really looks like and means.
- plans for progressions of levels of understanding.
- spends the time necessary to gain the depth of the understanding.
- becomes flexible and comfortable in own depth of content knowledge.



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Bunch of Bananas



Monkeys like to eat an even number of bananas for lunch and each monkey must receive the same number of bananas. They never eat more than 5 bananas because their bellies are too small. The zoo keeper needs to figure out how to share the basket of bananas between the monkeys for lunch.

Show different ways the zoo keeper can share the bananas with 8 monkeys. Use pictures, words, and numbers to prove your math thinking.



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Task Structure

- Pre-Assessment/Opening
- Collaborative activity
- Whole-class discussion
- Return to the pre-assessment/opening and bring it all back to the standards



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Application



The student...

- applies mathematics in other content areas and situations.
- chooses the right mathematics concept to solve a problem when not necessarily prompted to do so.



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Application



The teacher...

- contextualizes mathematics.
- creates real world experiences in which students use what they know, and in which they are not necessarily prompted to apply mathematics.



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Mathematizing First Grade



What does it mean to apply mathematics in First Grade ?

- Attendance
- Lunch count
- Snack preparation
- Counting, measuring, sorting, classifying, describing everything!



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What does this mean in terms of assessment?



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Balanced Approach



The student...

- practices mathematics skills to achieve fluency.
- practices math concepts to ensure application in novel situations.



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Balanced Approach



The teacher...

- finds the balance between understanding and practice.
- normalizes the productive struggle.
- ritualizes skills practice.



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What does balance mean in First Grade ?



- What's the Value of Your Name?



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How could we launch this task?



- Diagnostic- look for potential misconceptions
- 0-99 chart
- Number lines
- Unitizing with manipulatives



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0 - 99

idem  mile

0	1	2	3	4	5	6	7	8	9
10	11	12	13	14	15	16	17	18	19
20	21	22	23	24	25	26	27	28	29
30	31	32	33	34	35	36	37	38	39
40	41	42	43	44	45	46	47	48	49
50	51	52	53	54	55	56	57	58	59
60	61	62	63	64	65	66	67	68	69
70	71	72	73	74	75	76	77	78	79
80	81	82	83	84	85	86	87	88	89
90	91	92	93	94	95	96	97	98	99

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CCGPS Suggestions:



1. Read the CCGPS. The Teaching Guide for next year, curriculum maps and the standards can be found in Learning Village, on the math program page, and on Georgiastandards.org.
2. View the Fall 2011 Grade Level Webinars if you haven't already seen them.
3. Review this broadcast with your team to identify key areas of focus.



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CCGPS Suggestions:



4. Participate in the unit-by-unit webinars beginning in May.

First Grade Unit 1- 3:15, May 2, 2012.

5. Structure time for grade level/content areas to use framework units as a guide for planning.

6. Plan to get together with your colleagues at the end of each CCGPS unit to analyze student work samples and compare how student learning and performance look.



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First Grade Support:



Now-

- Fall 2011 Grade Level Webinars
- Teaching Guide
- Curriculum map
- Standards document

Coming soon-

- Frameworks units- posting in April, 2012
- Unit-by-unit webinars:

First Grade Unit 1, 3:15 pm, May 2, 2012



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Takeaways?

3 Things-

1. What's new?
2. What's different?
3. What resources and support are available for CCGPS mathematics?



Food for Thought



“The resources we need in order to grow as teachers are abundant within the community of colleagues. Good talk about good teaching is what we need...”

Parker Palmer
Courage to Teach



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THANK YOU

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Thank you for participating in this CCGPS Professional Learning Session. We value your feedback. Please go to the following website, take the anonymous feedback survey, and complete the participation log to receive a certificate of participation:



<http://survey.sedl.org/efm/wsb.dll/s/1g10a>

If you have questions, feel free to contact any of the English/Language Arts or Mathematics staff at the following email addresses:

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