

*Training for the Georgia Performance Standards
Day 1: Standards-Based Education and GPS*

***Content Facilitator's Guide
Mathematics
Grades K-2***

We will lead the nation in improving student achievement.

Use of This Guide

This training program was developed by the Georgia Department of Education as part of a series of professional opportunities to help teachers increase student achievement through the use of the Georgia Performance Standards.

The module materials, including a Content Facilitator's Guide, Participant's Guide, PowerPoint Presentation, and supplementary materials, are available to designated trainers throughout the state of Georgia who have successfully completed a Train-the-Trainer course offered through the Georgia Department of Education.

Materials (guides, presentations, etc.) will be available electronically on <http://www.georgiastandards.org> under the training tab after all trainings of Day 1 have occurred. Consult the trainer for availability.

For more information on this or other GPS training, contact Gerald Boyd at gboyd@doe.k12.ga.us

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Overview

<p>Module Rationale</p>	<p>“Georgia will lead the nation in improving student achievement.” This is the goal, and promise, behind the Georgia Performance Standards (GPS). The purpose of this training is two-fold.</p> <p>The first purpose is to <u>introduce participants to the applicable standards</u>. For 2005-2006, these include:</p> <ol style="list-style-type: none"> 1. K-2 Math 2. 7 Math 3. 3-5 Science <p>Everyone is eager to find out what content has been added, dropped, and/or moved, whether performance demands have been changed, and how the GPS curriculum relates to state-wide testing. These concerns and questions are addressed in this training. After day one, participants should have a good general idea of the standards; the standards will be explored in more depth in subsequent training days.</p> <p>The second purpose is to use the <u>standards-based education approach</u> and to assist teachers in understanding this “unit design” approach to develop assessments and instruction in support of the curriculum standards. A portion of the day one training emphasizes the model itself, what it is, why it is important, and how it can be used so that the GPS have a profound impact at the classroom level. Subsequent days of the training will address elements of the unit design model (curriculum mapping, assessment, and instruction).</p> <p>Although there is not enough time in one day of training to address either of these two purposes in great depth, participants will get a chance to “dig into” the standards, so that they can begin to see how the big ideas apply to specific parts of the GPS.</p>
<p>Module Description</p>	<p>This module includes an instructor-led one-day session and field assignment. This follow up serves as a bridge to day two of training. Class presentations, discussions, and activities contain both general principles (concepts that extend across the curriculum) and specific applications (standards that are the focus of the module). For this reason, there are variations on the module corresponding to the subject areas/grade levels listed above.</p>

<p>Module Goal</p>	<p>Demonstrate a deep understanding of the Georgia Performance Standards and the standards-based education approach, through thoughtful curriculum planning, development of formative and summative assessments, and the design of instruction matched to the standards and research-based best practices for enrichment and extension through collaboration and teamwork.</p> <p>Key words from the goal:</p> <ul style="list-style-type: none"> ➤ Deep understanding ➤ Georgia Performance Standards (GPS) ➤ Curriculum Mapping ➤ Assessments/Instruction ➤ Enrichment and Extensions ➤ Teamwork <p>Note that the goal will not be reached by day one of training alone. It will take preparation, eight days of classroom instruction, and follow-up to master this goal. Various days of training will deal with different components of the goal, such as curriculum mapping, assessment, and instruction.</p>
<p>Module One Objectives</p>	<p>By the end of day one of training, participants will be able to:</p> <ol style="list-style-type: none"> 1. Describe the benefits of the GPS. 2. Describe the various phases of the GPS rollout plan. 3. Define terms related to the GPS. 4. Identify four parts of each standard. 5. Describe the backward design process used in standards-based teaching and learning. 6. Identify key components of the applicable standards (for example, 1st grade mathematics).

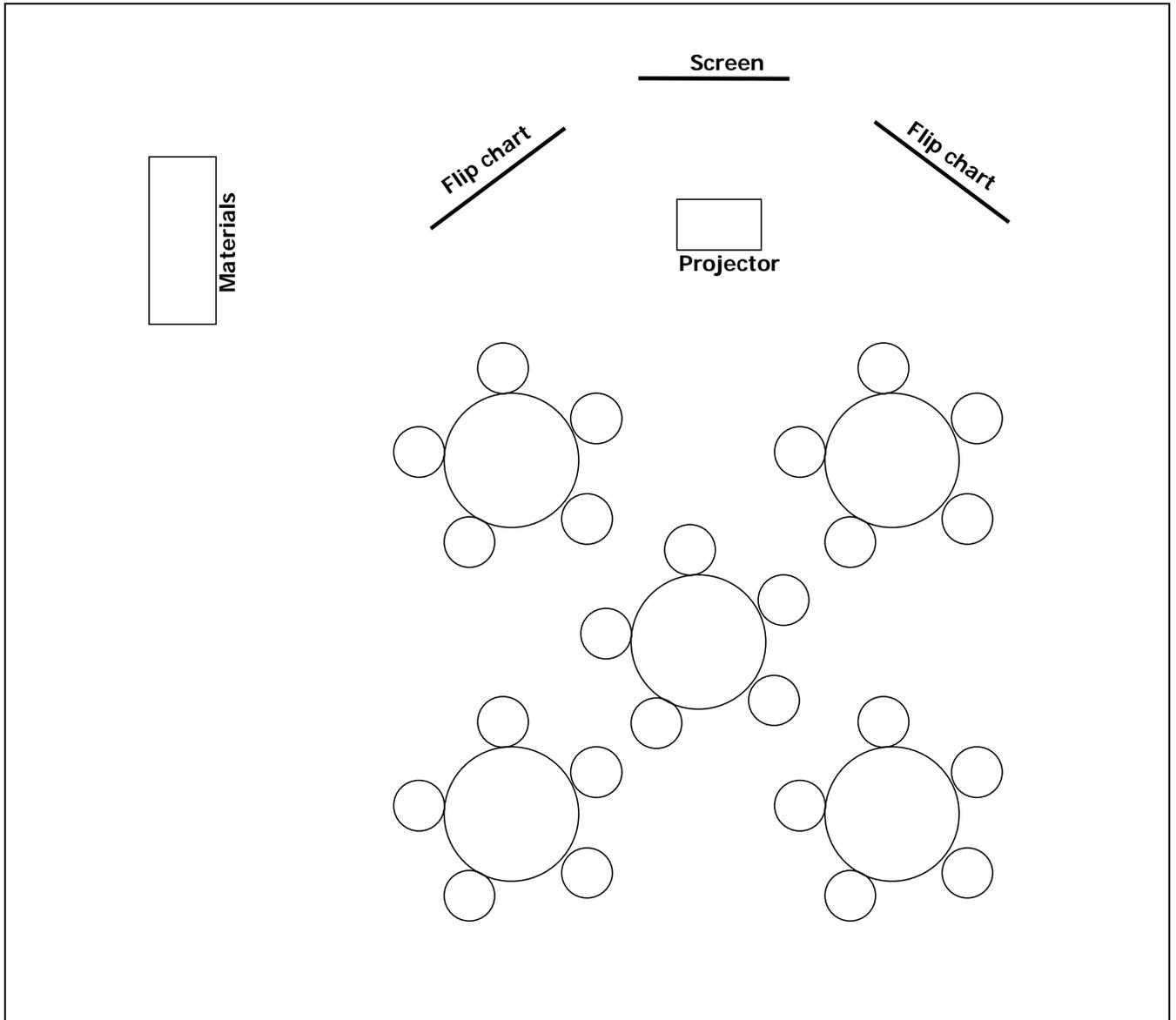
Leader Roles and Responsibilities	This workshop will require of you a different set of skills than most other instructor-led training programs. There is less presentation and lecture; instead, you will have to use demonstration, questioning, and facilitation skills. This guide includes the basic questions you should ask the participants, but throughout the workshop, you will have to add additional probing questions to get the participants to question their assumptions and continue to refine their understanding of what standards-based teaching is and how it can make a difference.
Target Population	<p>The target populations for this training are teachers of Kindergarten, 1st, 2nd and 7th grade mathematics; and teachers of 3rd, 4th, and 5th grade science. This includes teachers of this content in special education, gifted, and supplemental/alternative positions who need to be knowledgeable of the general curriculum in order to provide accommodations, modifications, and/or support so that students with special needs have access to, and progress in, that curriculum. Teachers will be trained locally, in groups corresponding to the following modules:</p> <ol style="list-style-type: none">1. K-2 Mathematics2. 7 Mathematics3. 3, 4, 5 Science

Module Preparation	<p>Preparation is critical to a successful training session. Listed below are some tips that will help you prepare for your session.</p> <ol style="list-style-type: none">1. Participate in a Train-the-Trainer session.2. Gather all the required articles, texts, and other materials listed in the "Module Materials" list on page 10. A set of books was provided to each school, as listed on pages 58-60. Become very familiar with these materials.3. Ensure that school administrators understand the preparation and follow-up requirements of the course and that the GPS curriculum changes have evolved from a very open public process that included public input from responses sought by the DOE.4. Identify a date, times, and location for this training. This may vary from one setting to the next, as you work with local schools and districts to arrange a customized delivery schedule. Prepare a handout with this information and photocopy it for the participants. You can use the agenda on page 11 to guide you.5. Determine how course follow-up will be handled. It is very important that professional development be an on-going, job-embedded process, with the training sessions being part of a cohesive plan to help teachers increase skills and knowledge. Here are some questions you must answer before conducting the workshop:<ul style="list-style-type: none">➤ Will there be any <u>follow-up conference calls</u> or a <u>list-serve</u> to discuss progress and provide an information-sharing and networking forum? If so, who will lead them? When? How?➤ How will we ensure that participants complete the follow-up assignments? Who will follow up with reminders? How will we make sure this effort is supported locally?➤ Will there be grade level meetings? Department meetings?6. Ensure that you have all materials.
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**Module
Preparation,
continued**

7. Gather information about your training site:
 - Mailing address, contact person with phone number (Participant materials need to be shipped to a specific location and person.)
 - Size of room and space to work in small groups
 - Audio visual equipment
 - Projection system for Power Point Presentation
 - Computer
 - Two Flipcharts with Pads
 - Colored Markers
 - Tape
 - Table and chairs: One table for leader (in front), one for materials, enough tables for the number of participants to sit in groups of about four
 - Wall space for your posters and flipcharts
 - Determine plans and payment for refreshments as desired/needed.
 - Review the graphic of the ideal site setup on the following page.
 - Set up your training room the night before the training.
 - Test all equipment and make sure you have all of your materials organized for efficient distribution.
8. Go through the entire Content Facilitator's Guide.
 - Prepare an agenda.
 - Use margins to note key points you plan to emphasize.
 - Walk through all activities.
 - Prepare any flipcharts.
 - Make sure your materials are organized according to when you will need them.
 - Make any adjustments that are needed to the activities, room layout, audio-visuals, etc., based on the number of participants.

Recommended Training Setup



<p>Module Materials for Day One of Training</p>	<p>Content Facilitator's Kit Contents:</p> <ul style="list-style-type: none"> ➤ Content Facilitator's Guide (one for each leader) ➤ Hard Copy of the Power Point Presentation (one per participant) ➤ Participant's Guide (one per participant) <p>Equipment Needed:</p> <ul style="list-style-type: none"> ➤ Projection System for Power Point Presentation ➤ Computer <p>Other Materials Needed:</p> <ul style="list-style-type: none"> ➤ Two Flipcharts with Pads ➤ Colored Markers ➤ Tape ➤ Name Tags ➤ Index Cards for Participants' Contact Information ➤ Tagboard Cut for Name Cards ➤ Drawing Paper ➤ Four-Color Tiles ➤ Number Cubes <p>Extra Copies of Handouts:</p> <ul style="list-style-type: none"> ➤ Grids ➤ Identifying Desired Results of a Standard ➤ Learning Journal
<p>Module Sequence</p>	<p><u>Introduction</u></p> <ul style="list-style-type: none"> ➤ Welcome ➤ Overview of the Training ➤ What We Know/What You Want to Know <p><u>Overview of the Standards</u></p> <ul style="list-style-type: none"> ➤ Strengths of GPS ➤ Content-Specific Information ➤ Implementation Timeline <p><u>Standards-Based Teaching and Learning</u></p> <ul style="list-style-type: none"> ➤ Unit Design ➤ Using the Model ➤ Culminating Activity <p><u>Putting It All Together</u></p> <p><u>Summary and Field Assignments</u></p> <ul style="list-style-type: none"> ➤ Redelivery Action Plan ➤ Field Assignment ➤ Reflection

Agenda

This is a one-day workshop, with approximately seven hours of instructional time.

Introduction.....	1 hour
Welcome (15 minutes)	
Overview of the Training (30 minutes)	
What We know/What You Want to Know (15 minutes)	
Overview of the Standards.....	2 hours
Strength of the GPS (15 minutes)	
Content-Specific Information (1 hour, 30 minutes)	
Implementation Timeline (15 minutes)	
Standards-Based Teaching and Learning.....	2 hours, 15 minutes
Unit Design (15 minutes)	
Using the Model (1 hour, 30 minutes)	
Culminating Activity (30 minutes)	
Putting It All Together.....	1 hour, 15 minutes
Summary and Field Assignments.....	30 minutes
Redelivery Action Plan (10 minutes)	
Field Assignment (10 minutes)	
Reflection (10 minutes)	

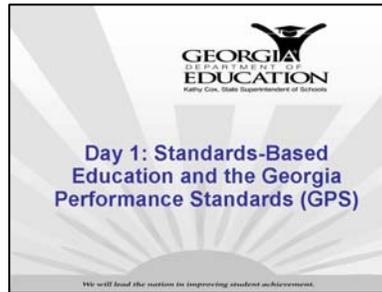
Introduction

Time	1 hour
Overview	After briefly getting to know each other and attending to housekeeping details, the participants complete an open-ended problem to learn the rationale for standards-based education which leads directly into a discussion of the goals for the training. Participants share “what they know” and “what they want to know” about Georgia Performance Standards and their implementation.
Objectives	➤ N/A
Activities	<ul style="list-style-type: none"> ➤ Welcome (15 minutes) ➤ Overview of the Training (30 minutes) ➤ What Do We Know/What Do You Want to Know (15 minutes)
Materials	<ul style="list-style-type: none"> ➤ Participant's Guide ➤ Chart Paper ➤ Markers ➤ Index Cards ➤ Tagboard Cut for Name Cards ➤ Drawing Paper ➤ Four-Color Tiles

Welcome

Slide 1 PG, page 1

Show the title slide.



Introduce yourself and briefly describe your background.

Slide 2 Tagboard Cut for Name Cards Markers Index Cards

Show "Getting Acquainted".



We need to get to know each other since we will be working together for several days over the course of the year. Please take a piece of tagboard and some markers and make a tent type name tag. On one side write what you prefer to be called and on the other side be creative. Write an "equation" that describes some aspect of yourself.

Show them your example.

Ask participants to *briefly* introduce themselves, with just name and position. They may share their "equation" if they feel comfortable.

Have them fill out an index card with their name and contact information. Explain that you will use the information to send them materials and set up a dialogue with the group.

Slide 3

You may wish to share your contact information with them at this time.

**Slide 4**
Flipchart
Markers

Show "Group Norms and Housekeeping".

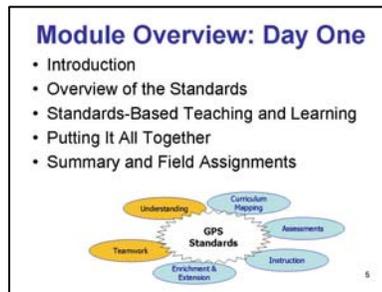


Ask participants if they would like to add to or change the group norms. Record any needed changes on a flipchart. Then, ask participants to agree to these norms.

Go over housekeeping rules (phone, breaks, etc.) as appropriate to your schedule and location. The Parking Lot allows participants to put up sticky notes of questions, concerns, suggestions, and typos. Periodically collect those and address any issues during the day.

Slide 5
PG, page 4

Show "Module Overview: Day One".



As the graphic shows, successful implementation of the new standards requires work in assessment, instruction, etc. Today, we'll be laying the foundation for all these other activities as we focus on building a team understanding of the standards and standards-based education.

Day 2 will focus on Assessment.

We will work together on Days 3 and 4 to plan instruction and design units.

In the year of actual classroom instruction of the Georgia Performance Standards, Days 5-7 will focus on how instruction fits with student work, enrichment and extension of instruction, and mapping how the year of instruction flows.

The Georgia Performance Standards have been developed by teaching professionals from all over Georgia and the nation. They provide the expectations in mathematics. Implementing the GPS is now our task.

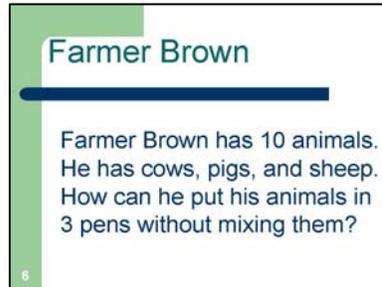
Trainer's Note: This is the time for inclusions—words or gestures should be employed to indicate very clearly that "our" means all of us in the training room.

Overview of the Training

Slide 6

Drawing Paper
Markers
Four-Color Tiles

Show "Farmer Brown".



Distribute drawing paper, markers, and four-color tiles to each group. Have the participants fold the paper into thirds and use different color tiles to represent each type of animal. Allow time for them to solve the problem with the manipulatives first, then tell them to record their answers on the drawing paper. Circulate around the room, observing them as you would students. Encourage them to use pictures, words, and symbols to show what they know.

After they've finished discuss the implications this type of problem has for teaching and learning.

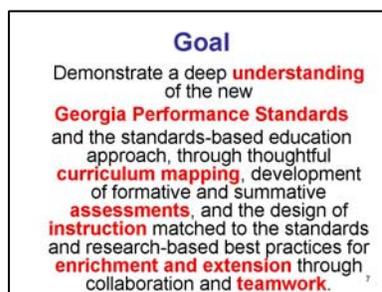
If Kindergarteners solved this same problem, what could you tell from their work about their mathematical learning?

Have participants brainstorm ideas. List generalized topics on the flipchart as they.

Slide 7

PG, page 5

Show "Goal".



This problem illustrates the goal for this training. Notice the highlighted words are the same as the ones on our flipchart.

Slide 8

Show enlarged graphic from Overview slide.



Does this look familiar? This is a larger version of the chart from our Overview. The key words are the same as in the goal. This goal cannot be mastered in one day. It requires on-going, job-embedded professional development. It will take all of us working together to fully implement the GPS and reach this goal. We'll be working toward this goal over seven days of training. We must practice, reflect, collaborate, and receive feedback as we learn.

Therefore, there will be follow-up assignments after each day of training. These are suggested activities that will help you work independently and with others in your school and district to apply what you've learned.

Slide 9

Show "Days of Training".



Here is the overall schedule of the training.

What Do We Know and What Do You Want to Know

Because we have only one day together at this time, it might be helpful to talk about some ways that we can all work together.

Our goal today and in the remaining training sessions is to work through a step-by-step process we can use both to make sense out of the GPS and to use these standards to plan curriculum units, strategies, and lessons that facilitate student improvement. To do this I need to get a sense of what you know and what you want to know.

In just a moment we are going to play a game called Four Corners. You will decide which corner of the room fits you best based on the categories on the next slide.

Slide 10

Show "Four Corners, Part 1".

Four Corners, Part 1

Choose a corner based on your confidence in understanding the GPS for K-2 Mathematics:

- Needs Rethinking
- In Development
- Quality
- Exceptional



10

Think about how well you understand the GPS for K-2 Mathematics.

If you are confident enough to redeliver this before this presentation then your understanding is Exceptional and you will go to this corner (point to one of the corners). On the other hand, if you think your ability is in the Needs Rethinking category you will go to the opposite corner (point to the corner to the left of the one you showed first). The other two corners are for those who have a minimal knowledge, In Development, and a basic understanding, Quality. (Point to the appropriate corners each time. Repeat as necessary.)

Tell the participants that they will now go to their corners. Emphasize that you are doing this to understand your audience. Tell them to turn to the front once they've met the people in their corner.

Distribute drawing paper and markers to each corner.

Slide 11

Drawing Paper
Markers
Tape

Get their attention and show "Four Corners, Part 2".

Four Corners, Part 2

What made you choose your corner?

Discuss what you know and
what you want to know.

Be prepared to share with the group.

11

Work with the people who are "in your corner" to answer the question on the slide. Record your answers on the drawing paper using one piece for what you know and the other for what you want to know.....as it relates to the K-2 Mathematics GPS.

Designate a "What We Know" side of the room and a "What You Want to Know" side and ask groups to post their lists in the proper places using tape.

Briefly note any patterns that you see and/or any items that may be listed on both sides of the room, then tell participants that we will get back to these lists throughout the day.

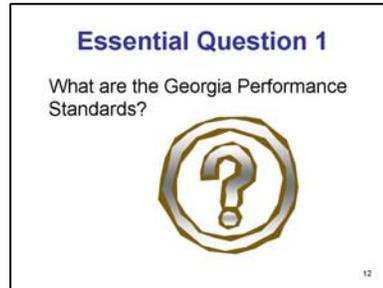
Let's move to the next section of training, *Overview of Standards*, and make sure that we all have a shared understanding of the GPS standards in mathematics.

Overview of the Standards

Time	2 hours
Overview	In this section, the trainer leads participants through an in-depth examination of the individual K-2 mathematics standards. Specific myths, or misconceptions, regarding the K -2 mathematics standards will be addressed throughout this section of the training. The strengths of the GPS will be emphasized. Participants are also introduced to the parts of a performance standard, instructional strategies, and key features of the strands and standards. Participants view the implementation plan for the GPS.
Objectives	<ul style="list-style-type: none"> ➤ Describe the benefits of the GPS. ➤ Define terms related to the GPS. ➤ Identify four parts of each standard. ➤ Describe the various phases of the GPS rollout plan.
Activities	<ul style="list-style-type: none"> ➤ Strengths of the GPS (15 minutes) ➤ Content-Specific Information (1 hour, 30 minutes) ➤ Implementation Timeline (15 minutes)
Materials	<ul style="list-style-type: none"> ➤ Participant's Guide ➤ Chart Paper ➤ Markers ➤ Drawing Paper ➤ Extra Copies of Grids ➤ Number Cubes ➤ Four-Color Tiles

Strengths of the GPS

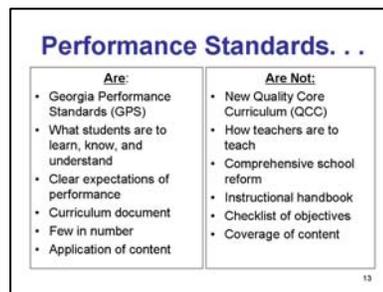
Slide 12 Show "Essential Question 1".



We are going to explore this question first.

What are the K-2 Mathematics Standards?

Slide 13 Show "Performance Standards...".



Standards apply to every student. GPS is curriculum for ALL students.

It is NOT:

- An instructional handbook
- Restrictive
- Prescriptive
- How to teach, what methods to use, what strategies to implement

It IS telling teachers what students should know and be able to do.

Slide 14

Show "Strengths of the GPS".



With the Georgia Performance Standards, we are creating a ladder style curriculum that expects mastery of topics - as opposed to our current spiral curriculum, which contains constant review.

The QCC had many topics at each grade; each topic is addressed in less depth. The GPS have fewer topics, allowing each topic to be explored in greater depth.

Consistency within and across grade levels.

Assessment (CRCT) will be aligned with the curriculum (GPS).

Content-Specific Information

Slide 15
PG, page 6

Show "K-2 Mathematics at a Glance".

	Kindergarten	First Grade	Second Grade
Numbers and Operations	<ul style="list-style-type: none"> Counting, Comparing, Estimating, Money Modeling Addition and Subtraction 	<ul style="list-style-type: none"> Counting, Comparing, Estimating, Money Place Value Addition and Subtraction, Inverse Relationships Number Theory, Division, Patterns 	<ul style="list-style-type: none"> New Place to 4 Digits, Money Multi-Digit Addition and Subtraction Concepts of Multiplication Comparing Fractions
Measurement	<ul style="list-style-type: none"> Classification Calendar Time, Ordering Events, Telling Time 	<ul style="list-style-type: none"> Comparing and Ordering Length, Weight, Capacity Telling Time, Using a Calendar, Sequencing 	<ul style="list-style-type: none"> Equality and Inequality Measuring, Estimating, Converting Length Telling Time
Geometry	<ul style="list-style-type: none"> Identifying, Classifying, Comparing 2-D and 3-D Shapes Fractional Relationships, Fractions 	<ul style="list-style-type: none"> 2-D and 3-D Classifications Shape Reasoning Classification of Shapes Creating Tables and Graphs 	<ul style="list-style-type: none"> Measuring and Comparing Perimeters Classification of 2-D and 3-D Shapes 2-D and 3-D Spatial Reasoning Creating and Interpreting Tables and Graphs
Data Analysis and Probability Skills	<ul style="list-style-type: none"> Comparing, Collecting Data, Making Graphs Problem Solving, Arguments, Language of Mathematics, Reasoning, Communication 	<ul style="list-style-type: none"> Problem Solving, Arguments, Language of Mathematics, Reasoning, Communication 	<ul style="list-style-type: none"> Problem Solving, Arguments, Language of Mathematics, Reasoning, Communication

When you look at the topics it is easy to see that we are concentrating on less material, giving the teacher time to go deeper into the concepts. For example, there is no mention of fractions in Kindergarten. There is, however, a greater emphasis on Geometry.

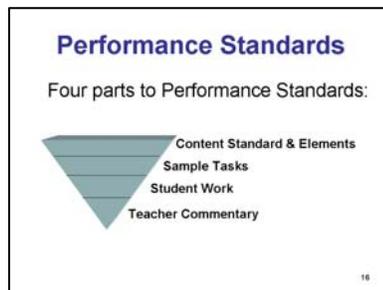
Lead a brief discussion of other topics, how few there are at each grade level, and how much deeper the students are expected to understand them.

PG, pages 7 - 19

Refer them to the section in their Participant's Guide behind this chart. There they can find the K-2 Mathematics GPS in its entirety.

Slide 16

Show "Performance Standards".



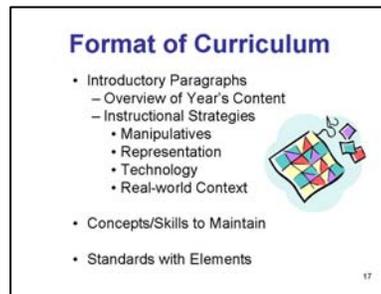
- **Performance Standards:** Performance standards define specific expectations of what students should know and be able to do and how well students must perform to achieve or exceed the standard. Georgia's performance standards are composed of four components: content standards, tasks, student work, and teacher commentary.

**Slide 16,
continued**

- **Content Standards:** Standards state the purpose and direction the content is to take, and are followed by elements. Standards define what students are expected to know, understand, and be able to do.
- **Elements:** identify specific learning goals in conjunction with the standard; establish the level of rigor at each grade level as well as the scope of work grade by grade in the context of the standard.
- *Note: The following components require Georgia teacher input. Collection of these will be an ongoing process. Your help is needed!*
- **Student Tasks:** keyed to relevant standards; provide a sample performance that demonstrates what students should know and be able to do during or by the end of the school year; can serve as activities that will help students achieve the learning goals of the standard or can be used to assess student learning (many serve both purposes). **NOTE:** Although the GPS will include tasks, teachers may develop their own tasks. These are **sample** tasks; will show the rigor of an assignment that a teacher should be giving in order to assess student's achievement of the standard. Published tasks are **not** required –they are illustrative.
- **Student Work:** specify what it takes to meet the standard and to enable both teachers and students to see what meeting the standard “looks like.” **NOTE:** Samples are not perfect. Some pieces may not meet **all** of the elements of the standard, but it will meet the requirements for the part/s (elements) that you (the teacher) have been teaching.
- **Teacher Commentary:** opens communication between students and the classroom teacher as well as within a faculty in order to ensure consistency within assessment and expectations; shows students why they did or did not meet a standard and enables them to take ownership of their own learning. For example, it might say, “This piece of work meets the standard . . .” and explain specifically how it meets (or does not meet) it.

Slide 17

Show "Format of Curriculum".

**PG, pages 7 – 19**

Refer participants to their copies of the GPS in their Participant's Guide and ask them to locate each part labeled on the slide.

Go through each part and explain the importance of grade level appropriateness of the mathematics standards and how they are delivered to students. Conceptual teaching must be stressed!

Let's look at a few examples of conceptual instructional strategies that are consistent with the GPS format.

Slide 18

Show "Race to 100".



This is a game that supports standard M1N1. Look in your GPS for grade one and read what the standard and elements require students to understand and be able to do.

Discuss briefly.

The game is played using Base-Ten Pieces. Each player has a flat or mat (10 by 10 square), several rods or strips (a 10 by 1 rectangle), and several units (1 by 1 squares).

**Slide 18,
continued**
Extra Copies of
Grids
Number Cubes

You take turns rolling the number cube and placing the designated number of small squares on the larger square. Sometimes you will need to trade squares for rectangles. The winner is the first person to cover their large square completely.

After students have played the game using the manipulatives, they then move to the pictorial stage and play with grids, coloring in the number of squares per roll. Let's play the game for a few minutes. Here are extra grids you can keep the clean copies in your Participant's Guide.

PG, page 20

Distribute extra copies of the grids and number cubes. Allow them time to play the game as you circulate and discuss the rules with individual groups.

Explain the variations of the game:

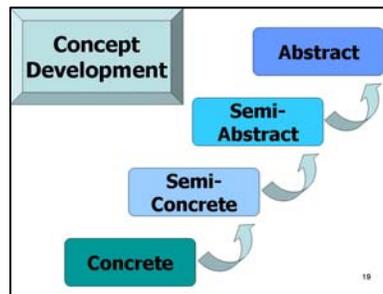
Starting with the entire grid and taking squares and rectangles away, the first one to zero wins.

Using the calculator to add to or subtract from 100.

Using money to get to one dollar or to get to zero cents.

Slide 19

Show "Concept Development".

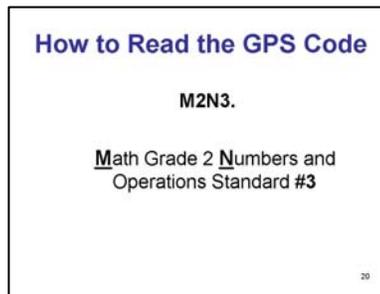


We all know that young children must start with hands-on materials at the concrete level in order to develop conceptual understanding so they can operate with numbers and symbols at the abstract level. We need to take a few minutes to discuss what it takes to help students develop this higher order thinking so they will be able to perform at the level the GPS requires.

Consider the example we just experienced. Concrete—Base-Ten Pieces, Semi-Concrete—Grids, Semi-Abstract—Money, Abstract--Calculator.

Now that we've looked at the depth of understanding required and the necessity for varied instructional strategies, let's look at the logistics of the standards themselves.

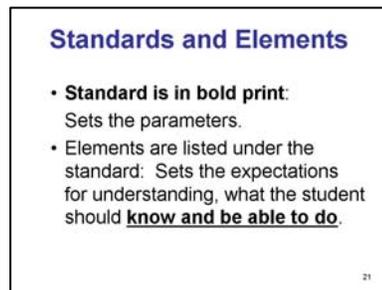
Slide 20 Show "How to Read the GPS Code".



Explain the coding and ask participants to interpret several examples.

***Trainer's Note:** This has been a source of confusion. Make sure participants are comfortable with the code.*

Slide 21 Show "Standards and Elements".

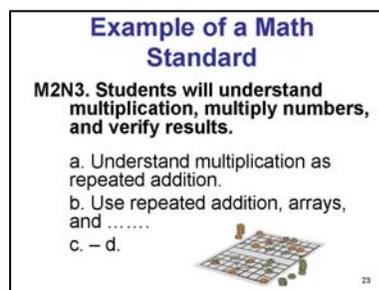


Mathematics standards are assessed at the element level. This may be different from the ELA training. The bold overall standard is for K-12 mathematics and gives the teacher general information about the concept, but does not give the teacher parameters of the specific grade level.

Since elements define standards, they are not stand-alones. They can be combined in the unit design.

Elements are not discreet skills to be learned.

Slide 22 Show "Example of a Math Standard".



**Slide 22,
continued**

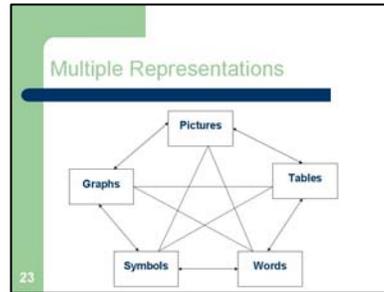
Ask participants to identify standard and element, and to describe the differences between them.

This is an example of a second grade content standard. Let's look at some tasks that illustrate this standard and its elements.

Slide 23

Four-Color Tiles
Extra Copies
of Grids
Drawing Paper

Show "Multiple Representations".



Have participants use their four-color tiles, the extra grids, and/or paper to demonstrate the following situations. After they complete each task, have them identify the part of the star the activity represents.

You want to plant a garden that is 3 feet by 4 feet.

Participants might use grid paper to draw a picture.

You and 3 friends each get 4 cookies.

Participants might use the four-color tiles to show the collections that match the words.

What is 4 times 3? What is 3 times 4?

This is something you might "memorize"....or use a multiplication chart to help you.

There are 4 chickens; each one is sitting on 3 eggs.

You could use a number sentence with symbols to show this:

$$3 + 3 + 3 + 3 = 12$$

Explain how graphing could be used if you considered a t-chart with inputs and outputs then used a graph to show the relationship.

Implementation Timeline

Refer participants to “What We Know” and “What We Want to Know” flipcharts on the walls.

Ask participants to revise the charts as needed, based on the discussions and activities so far.

Slide 24 PG, page 21

Show “Phase-in Plan”.

GPS Phase-in Plan

Grade	Math Training	Math Teaching
K	05-06	06-07
1	05-06	06-07
2	05-06	06-07
3	06-07	07-08
4	06-07	07-08
5	06-07	07-08
6	04-05	05-06
7	03-06	06-07
8	06-07	07-08

24

This is a 2-year phase-in plan.

The 1st year includes content-specific training, professional learning, familiarity with the standards and standards-based education

During the 2nd year we begin to teach with the GPS; students are assessed on GPS (CRCT).

Slide 25

Show “Test Alignment”.

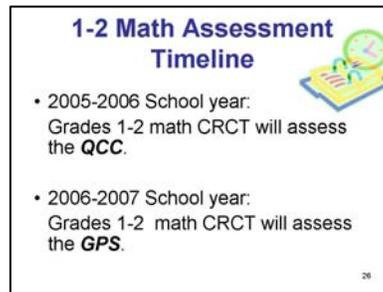
Test Alignment

Criterion-Referenced Competency Tests (CRCT) Test alignment is completed during Year II implementation for each content area and grade level.

25

The testing components are being phased in during the second year of implementation for each content area and grade level.

Slide 26 Show "1-2 Math Assessment Timeline".



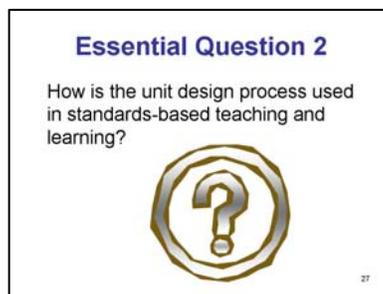
1-2 Math Assessment Timeline

- 2005-2006 School year:
Grades 1-2 math CRCT will assess the **QCC**.
- 2006-2007 School year:
Grades 1-2 math CRCT will assess the **GPS**.

26

This slide explains the CRCT schedule for the change from QCC to GPS.

Slide 27 Show "Essential Question 2".



Essential Question 2

How is the unit design process used in standards-based teaching and learning?



27

In the next section of the training, we are going to focus on a process—and a way of thinking—that will help us use these standards to make a difference in our teaching practice.

Standards Based Teaching and Learning

Time	2 hours, 15 minutes
Overview	In this section, participants will learn about standards based teaching and learning. The trainer will lead participants through the process of identifying desired results of a standard, taking time to make sure the participants understand how and why to complete each step.
Objectives	<ul style="list-style-type: none"> ➤ Describe standards based teaching and learning. ➤ Define and describe the rationale for identifying big ideas, enduring understandings, essential questions, and skills and knowledge for a standard.
Activities	<ul style="list-style-type: none"> ➤ Unit Design (15 minutes) ➤ Using the Model (1 hour, 30 minutes) ➤ Culminating Activity (30 minutes)
Materials	<ul style="list-style-type: none"> ➤ Participant's Guide ➤ Chart Paper ➤ Markers ➤ Extra Copies of Identifying Desired Results of a Standard ➤ Four-Color Tiles

Unit Design

Slides 28 and 29 Show "Standards-Based Education" slides.

Standards-Based Education

- Focus is on student learning.
- Expectations are the same for all students.
- Essential questions set the stage for learning.
- Supporting skills and knowledge are emphasized.

28

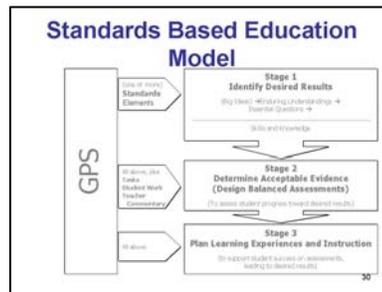
Standards-Based Education, cont.

- Assessments are used to guide and modify instruction.
- Instructional strategies enable students to meet the standard.
- Effectiveness of instruction is based on students' meeting the standard.
- Teachers work on building enduring understandings.

29

Go over the key points on these slides.

Slide 30 Show "Standards Based Education Model".
 PG, page 22



This graphic provides a model of Standards Based Education.

We are going to take one standard and walk through the process of SBE, then I am going to give you time to work in groups to complete the same process.

In addition to providing you with a model, I am also going to provide you with some tips and tools that will help you through the process.

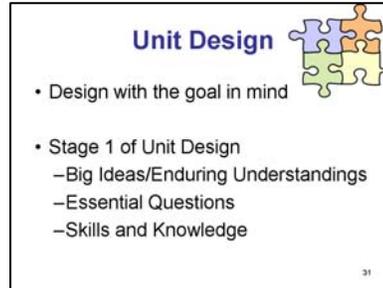
In the next section, you are going to get a chance to work more with these concepts and tools, as you work in small groups to apply them to a select standard. But before we do that, let's go back to our flipcharts and see if we have clarified other points or need to add to either list.

Give participants a chance to point out things they have learned and points that they understand at a different level.

Using the Model

Slide 31
PG, page 23

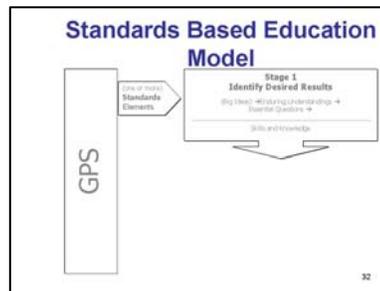
Show "Unit Design".



Together, we will take one standard and completely analyze it, helping you get a deeper understanding of how each of the elements in this process (big ideas, enduring understandings, essential questions, and skills and knowledge) will help you design better instruction—that will help students master the standards.

Slide 32
Extra Copies of
Identifying
Desired
Results of a
Standard

This is Stage One of Standards-Based Instruction.



Distribute extra copies of Identifying Desired Results of a Standard.

A sample blank template is in the Participant's Guide on page 23. You may use that one or one of your own design when we analyze our standard.

Slide 32,
continued

The first thing we will do is identify big ideas.

Why are “big ideas” not included in the design template, but are a necessary step in unit design?

(They are just a way to get to enduring understandings, which are on the template; big ideas are an intermediate step.)

PG, page 24

Refer participants to Participant's Guide, page 24.

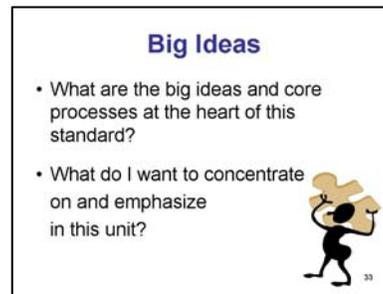
This page describes what we mean by a “big idea.”

(Ask participants to take a moment to skim the content of the page.)

Big ideas are embedded in the standards and they address the standard, but they transcend any single standard.

Slide 33
PG, page 24

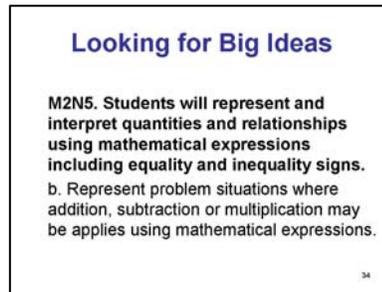
Show “Big Ideas”.



When you think about big ideas, the question you should ask yourself is, “What are the big ideas and core processes at the heart of this standard? What do I want to concentrate on and emphasize in this unit?”

Slide 34

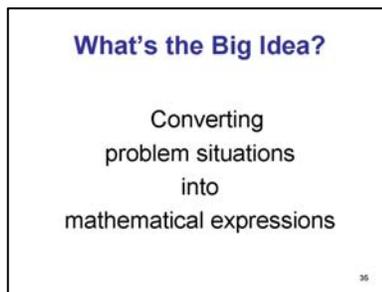
Show "Looking for Big Ideas".



Here is an example of a Standard and element. (I left out element "a" because of space.) Notice that second grade mathematics standard M2N5 contains several key nouns. All of those can be big ideas that get to the understanding of the concept.

Slide 35

Show "What's the Big Idea?".



Discuss how this could be a synopsis of the important ideas from the given standard.

You can choose more than one big idea, or one specific one. Think of it as the bulletin board or unit title.

You can find more information about big ideas and examples of big ideas in the workbook. The handout is on page 69.

Slide 36

Show “Enduring Understandings: Digging Deeper”.

**Enduring Understandings:
Digging Deeper**

- **Needs Rethinking.** “Students will be able to write number sentences to match word problems.”
- **In Development.** “Students will explain how to write number sentences to match word problems.”
- **Exceptional.** “Students will understand how to use pictures, words, and symbols interchangeably to represent problem situations.”

36

Big ideas lead to enduring understandings, declarations of what we want students to understand as a result of participating in this unit. This can be tricky. Poorly defined enduring understandings are not much better than having none at all. Let’s look at an example:

Vague statements, such as the first one, do not clarify what the students should understand about the topic.

The middle statement is better in that it narrows the focus of the topic, but it still does not specify exactly what insights the students need for understanding.

The last proposition is best because it is an important generalization and it provides a focus to the study—a sharper target for teaching and assessing.

Why are “enduring understandings” part of the unit design process?

They help teachers have shared understanding of the standard, to promote vertical and horizontal articulation.

It is important for students know *why* facts are important; to get the kids to think beyond [facts] to the bigger, more transferable understandings (avoiding the “mile wide, inch deep” approach).

It is a tool for teachers to help focus students on deeper understanding (e.g., if you are very clear in your own head about the enduring understandings that you hope students will achieve, then you will be better able to communicate that focus to students.

They help build conceptual structures in students’ brains that help them make sense of new, related knowledge.

PG, page 25

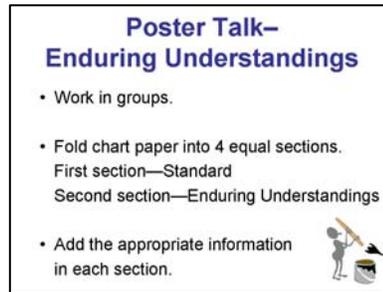
Refer participants to *An Enduring Understanding* on page 25 in the Participant's Guide

Divide participants into grade level groups. Have each grade level group(s) choose a standard and element to analyze. Further divide the participants into the groups who chose similar standards.

Slide 37

Chart Paper
Markers

Show "Poster Talk—Enduring Understandings".



Explain the activity:

Give each group a piece of chart paper and markers. Have them write the standard and element at the top of the chart paper. Then have them decide on the big ideas of that standard and element. They should take the big ideas and develop their enduring understandings. These should be written next on the chart, under the standard and element.

Conduct a whole group discussion about insights and their thinking concerning big ideas and enduring understandings.

How could this thinking process, and the resulting enduring understandings, help you develop better assessments and instruction?

Developing Essential Questions

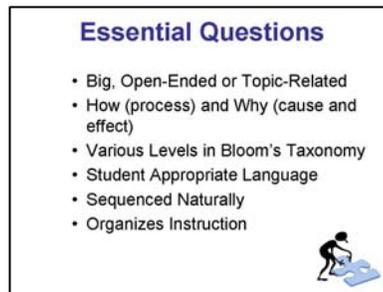
Once you have the big ideas and enduring understandings identified, you can reframe them as essential questions. This page shows an organizer you can use to do this work, but it is really a process of thinking through, "How can I translate these big ideas and enduring understandings into thought-provoking engaging questions for the students?"

There are many types of questions. Questioning is a strong tool for teachers. For this workshop, we will discuss essential questions, unit questions, key questions, daily questions, lesson questions, and diagnostic/formative questions.

Recognize that all of these types of questions are valuable for teaching. Do not allow the definition of what is essential and what is not essential hinder your progress.

Slide 38
PG, page 26

Show "Essential Questions".



What are essential questions, and why are they important?

Suggested points to bring out include:

When knowledge is developed in the first place, it is often because of someone pondering and exploring a question. What makes a great story? Why were these artifacts found in this location? How might it feel if your home and land were destroyed by people in your country? Can everything be quantified? In what way is the human body a system? Many great theorists, inventors, writers, etc. started with questions such as these.

These "essential questions" not only lead to the development of new knowledge, but they can also be used by students and teachers to guide inquiry into existing knowledge.

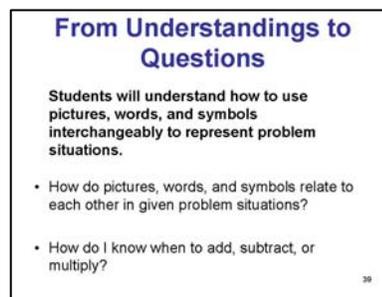
**Slide 38,
continued**

Such questions make a unit design more coherent, make a student's role more inquisitive, and help focus a teacher's priorities. An important learning principle is at work here—key ideas must be questioned, played with, and discovered to be useful and deeply understood.

As a practical matter, developing essential questions that are strongly rooted in the enduring understandings of the standard creates a guidepost for the development of assessments and instruction. Assessments should test whether students can answer the essential question, and instruction should help them explore the question. Thus, essential questions link teacher and student activities to the standard.

Slide 39

Show "From Understandings to Questions".



From Understandings to Questions

Students will understand how to use pictures, words, and symbols interchangeably to represent problem situations.

- How do pictures, words, and symbols relate to each other in given problem situations?
- How do I know when to add, subtract, or multiply?

39

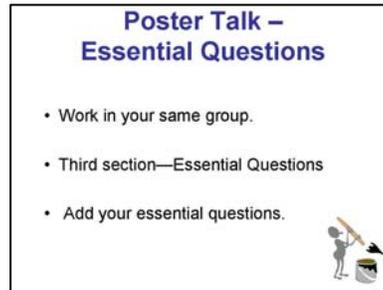
What might be some essential questions related to this standard and these big ideas and enduring understandings?

Let's practice with enduring understandings from the sample standard.

Do NOT analyze the element level in isolation without the overall bold standard. The standard is asking for modeling of the position. The element expects students to show evidence that they understand how to explain the phases using a model.

Slide 40
PG, page 26

Show "Poster Talk—Essential Questions".

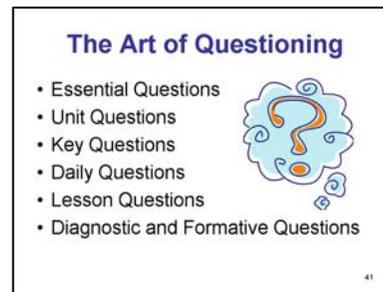


Give small groups time to get their chart and organize their ideas about essential questions. Have them add their essential questions to their chart under the standard and enduring understandings.

When groups have finished, volunteers will share their work. A brief discussion will follow.

Slide 41

Show "The Art of Questioning".



Discuss the difference between an over-reaching essential question and other types. Questioning should permeate the teaching and learning environment at all levels.

PG, page 22

Refer participants to the diagram *GPS and the Unit Design Process* in the Participant's Guide.

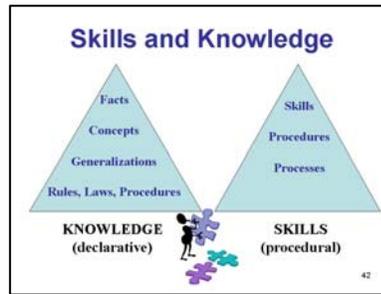
You can see that we have been working on Stage 1, *Identify Desired Results*. What information from the GPS have we used so far to identify big ideas, enduring understandings, and essential questions? (The standards and elements)

What additional information do we need to identify skills and knowledge? (What a student should know and be able to do to reach the understandings)

Why do we look at skills and knowledge only after identifying big ideas, enduring understandings, and essential questions?

Slide 42

Show "Skills and Knowledge".



Ask participants to define the difference between skills and knowledge. (In a nutshell, knowledge is something you can say; a skill is something you can do.)

PG, page 27

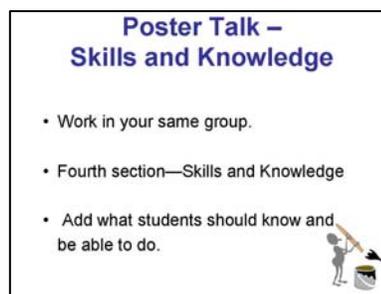
Refer participants to *Skills and Knowledge* in the Participant's Guide.

Let's look at the information in your Participant's Guide.

Facilitate participants in identifying the strongest essential skill and knowledge statements on the gallery standard, and in improving the statements so that they cover a wide range of *necessary* skills and knowledge using verbs similar to the ones in the Participant's Guide.

Slide 43

Show "What Students Should Know and Be Able to Do".



Give small groups time to get their chart and organize their ideas about skills and knowledge. Have them add what students need to know and be able to do on their charts.

When groups have finished, volunteers will share their work. A brief discussion will follow.

How could good skills and knowledge statements help you to better choose instructional materials and strategies?

**Slide 43,
continued**

The standards—not the textbook—drive the curriculum. Standards and elements come first, then the resources.

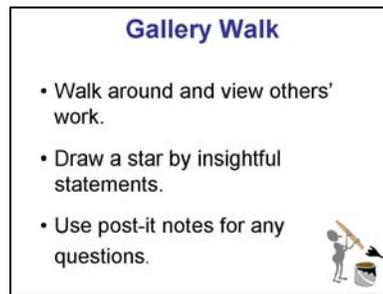
Connecting the resources, such as textbooks, to the standards helps determine the requisite knowledge and skills to mesh the resources and materials with the standards.

Identify the elements of the standard that will provide the measurable performance criteria for the critical component of the standard.

Now that you have an understanding of Stage One of the Unit Design process, we are going to move on to State Two for an overview of designing balanced assessments. Remember that Day 2 of training will focus on designing balanced assessments.

**Slide 44
Tape**

Show "Gallery Walk".



Give each group tape to post their charts.

After the charts are posted, conduct a Gallery Walk so they can view others' work.

Ask participants to use post-it notes for questions and comments and to put stars by insightful ideas.

Conduct a whole group discussion about how they identified the desired results of their standard.

Culminating Activity

Refer participants to “What We Know” and “What We Want to Know” flipcharts on the walls.

Ask participants to revise the charts as needed, based on the discussions and activities so far.

Slide 45

Drawing Paper
Four-Color Tiles
Extra Copies of
Grids

Show “Legs, Legs Everywhere”.



Participants will solve the open-ended problem to reinforce the concepts that were covered in this section.

Now that we have spent time analyzing some of the K-2 mathematics standards, let's use some of the strategies we discussed to complete a culminating task.

You may use drawing paper, four-color tiles, grids, or any other resources at your tables.

Circulate as the groups work on the task. Gather ideas for the whole group discussion that will follow.

After everyone has finished, have volunteers share their work. Discuss how this task relates to the learning for this section.

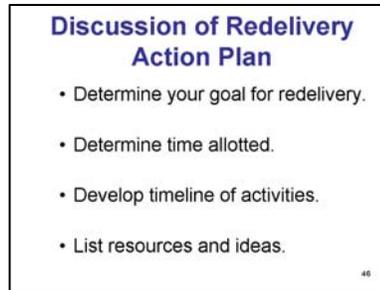
Summary and Field Assignments

Time	30 minutes
Overview	Participants are given time to develop a redelivery action plan. At a minimum, they should determine the time and place of the first meeting and how to work together to complete the assignment. There is also a follow-up assignment to analyze several standards. Finally, they will complete a reflection about their day and the learning they experienced.
Objectives	<ul style="list-style-type: none"> ➤ Demonstrate how to lead the Professional Development process in a school.
Activities	<ul style="list-style-type: none"> ➤ Redelivery Action Plan (10 minutes) ➤ Field Assignment (10 minutes) ➤ Reflection (10 minutes)
Materials	<ul style="list-style-type: none"> ➤ Content Facilitator's Guide ➤ Participant's Guide ➤ Notepaper ➤ Extra Copies of Learning Journal

Redelivery Plan

Slide 46
PG, page 28

Show "Discussion of Redelivery Action Plan".



Now is the time when we put it all together and you have time to personalize this plan for your educational setting. I will review with you the tools you have to redeliver day one of the training then you will have time to work in your groups and develop your own action plan. Of course, I will be available to answer questions and help in any way I can.

On page 28 of your Participant's Guide is a chart that might be helpful as you plan. The guiding questions at the top are useful as you frame your thinking.

The most important resource you have is your Content Facilitator's Guide. Let's take a look at that now and review some of the important pages.

Take time to share helpful pages in the Content Facilitator's Guide, especially the notes in the Overview section. Be sure to point out the Resources, Glossary, and Selected Terms/Symbols (also in the Participant's Guide).

Slide 47

Show standards website.



Participants should understand how to find the training materials necessary for redelivery by using the GADOE website.

**Slide 47,
continued**

**Training Materials (Guides, Power Points, etc.) are found here after all training sessions are completed.
Frequently Asked Questions (FAQs)**

List of standards for applicable content area and grade level

Slide 48

Show "Days of Training".

Days of Training

- Implementation Year One
 - Day One: Standards-based Education
 - Day Two: Assessment
 - Day Three: Instruction
 - Day Four: Unit Design
- Implementation Year Two
 - Day Five: Differentiation
 - Day Six: Examining Student Work
 - Day Seven: Putting It All Together



48

Remind participants about the next days of the training so they will know how day one fits into the overall plan.

Allow them time to work on their plan as you circulate and answer questions.

Have them share their plans with the group.

Field Assignment

As I said earlier, it *does* take some work to adopt a new set of standards. It is much more than just trying to find the right standards to “attach” to lesson plans that you already have. If it were, there wouldn't be much point, would there?

The reason that this course is divided into seven days of training over two years is to give you a chance to apply what you've learned as you go, so that you are truly ready to complete a meaningful implementation of the standards—one that will boost student achievement. It's been done in other states and other countries, and we will do it even better here.

Slide 49
PG, page 29

Show “Field Assignment”.

Field Assignment

- Redeliver Day 1: How to Identify Desired Results of a Standard.
- Day 2 will focus on determining acceptable evidence.
- Use the standard you chose today. Make a list of ways to assess a student's understanding of those big ideas, enduring understandings, and essential questions.
- What evidence is necessary? How good is good enough?

49

This field assignment asks you to analyze another standard, as we did in the previous activity.

Eventually, you will need to do this for all the standards in order to teach them, but only one is *required* for day two of training.

During day two of training, we will use the standard that you analyzed to begin to build a unit of study. Therefore, it is very important that each of us comes prepared for day two.

Make a list of ways to assess a student's understandings of those big ideas, understandings and essential questions.

Be ready to discuss: What evidence is necessary? How good is good enough?

Ask one or two participants to state their understanding of the field assignments.

Reflection

Refer participants to “What We Know” and “What We Want to Know” flipcharts on the walls.

Ask participants to revise the charts as needed, based on the discussions and activities so far.

Slide 50
PG, page 36
 Extra Copies of
 Learning
 Journal

Show “Ticket Out the Door”.

Ticket Out the Door 

Reflection:

- Important things I've learned or had reaffirmed...
- Today's experiences have left me feeling...
- Questions I want answered now...
- What I will do when I return to my workplace...

50

Direct participants to the last page in their Participant's Guide. Distribute extra copies of the Learning Journal so they may keep one for future copying.

Slide 51

Show contact information as they are filling out their reflection.



Georgia
 DEPARTMENT OF
 EDUCATION
Kathy Cox, State Superintendent of Schools

Lisa Bryan

1754 Twin Towers East, Atlanta, Georgia 30334
 Office phone: (404) 463-6924
 Office email: lbryan@doe.k12.ga.us

We will lead the nation in improving student achievement.

Assure the participants that you are there to help them.

Thank participants for their time and efforts and encourage them to make the most of the new GPS.

Resources

Each school received one copy of each book listed below at the beginning of the previous school year. This box of books was addressed to the principal of the school.

Hayes Jacobs, Heidi. *Mapping the Big Pictures: Integrating Curriculum and Assessment K-12*. Alexandria, VA: Association for Supervision and Curriculum Development. 1997.

Marzano, Robert J. *Transforming Classroom Grading*. Alexandria, VA: Association for Supervision and Curriculum Development. 2000.

Marzano, Robert J. *What Works in Schools: Translating Research into Action*. Alexandria, VA: Association for Supervision and Curriculum Development. 2003.

Marzano, Robert J., Debra Pickering, and Jay McTighe. *Assessing Student Outcomes: Performance Assessment Using the Dimensions of Learning Model*. Alexandria, VA: Association for Supervision and Curriculum Development. 1993.

Marzano, Robert J, Debra Pickering, and Jane E. Pollock. *Classroom Instruction That Works: Research-Based Strategies for Increasing Student Achievement*. Alexandria, VA: Association for Supervision and Curriculum Development. 2001.

Marzano, Robert J, Jana Marzano, & Debra Pickering. *Classroom Management That Works: Research-Based Strategies for Every Teacher*. Alexandria, VA: Association for Supervision and Curriculum Development. 2003.

Strong, Richard W., Harvey F. Silver, and Matthew J. Perini. *Teaching What Matters Most: Standards and Strategies for Raising Student Achievement*. Alexandria, VA: Association for Supervision and Curriculum Development. 2001.

Tomlinson, Carol Ann. *How to Differentiate Instruction in Mixed-Ability Classrooms, 2nd edition*. Alexandria, VA: Association for Supervision and Curriculum Development. 2001.

Wiggins, Grant and Jay McTighe. *Understanding by Design*. Alexandria, VA: Association for Supervision and Curriculum Development. 1998.

Wiggins, Grant and Jay McTighe. *Understanding by Design Study Guide*. Alexandria, VA: Association for Supervision and Curriculum Development. 2000.

Professional Organizations

National Council of Teachers of Mathematics—NCTM—<http://www.nctm.org>

Georgia Council of Teachers of Mathematics—GCTM—<http://www.gctm.org>

National Science Teachers Association-- NSTA—<http://www.nsta.org>

Georgia Science Teachers Association-- GSTA—<http://www.georgiascienceteacher.org>

Web Sites

Early Numeracy Research Project—<http://www.sofweb.vic.edu.au/eys/num/ENRP/wholeschdes/>

General Numeracy—<http://www.teachingideas.co.uk/maths/contents.htm>

This section contains number activities; shape, space and measurement activities; and data handling activities.

Illuminations—<http://illuminations.nctm.org/index.asp>

Intermath—www.intermath-uga.gatech.edu/

InterMath is a collaborative effort between The University of Georgia, CEISMC - Georgia Institute of Technology, and regional technology centers in the state of Georgia. Development of InterMath is funded by the National Science Foundation.

Math Forum—http://mathforum.org/library/resource_types/professional

This site provides a comprehensive list of professional organizations dealing with mathematics, along with Web sites and brief descriptions.

National Library of Virtual Manipulatives— <http://nlvm.usu.edu/en/nav/vlibrary.html>

Units (incorporating Learning Focused components). Connected Learning—<http://www.title3.org/>

BOCES is a cooperative service organization that helps school districts save money by pooling resources and sharing costs.

Mathematics/Numeracy Resources

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Glossary

CONTENT STANDARDS:	Content standards state the purpose and direction the content is to take, and are generally followed by elements. Content standards define what students are expected to know, understand, and be able to do.
CURRICULUM DOCUMENT:	The Georgia Performance Standards document is the curriculum document that contains all standards that should be learned by all students.
ELEMENTS:	Elements are part of the content standards that identify specific learning goals associated with the standard.
PERFORMANCE STANDARDS:	Performance standards define specific expectations of what students should know and be able to do and how well students must perform to achieve or exceed the standard. Georgia's performance standards are composed of four components: content standards, tasks, student work, and teacher commentary.
PROCESS STANDARDS:	Process standards define the means used to develop patterns of thought and behavior that lead to conceptual understanding.
STANDARD:	Something set up and established by authority as a rule for the measure of quantity, weight, extent, value, or quality.
STANDARDS-BASED EDUCATION:	In standards-based classrooms, standards are the starting point for classroom instruction that ensures high expectations for all students.
STRAND:	A strand is an organizing tool used to group standards by content. For example, the English language arts curriculum contains strands of reading, writing, listening, speaking, and viewing. K-5 science curriculum contains a life science strand, physical science strand, and an earth science strand.
STUDENT WORK:	Examples of successful student work are included to specify what it takes to meet the standard and to enable both teachers and students to see what meeting the standard "looks like."

TASKS:

Keyed to the relevant standards, tasks provide a sample performance that demonstrates to teachers what students should know and be able to do during or by the end of the course. Some tasks can serve as activities that will help students achieve the learning goals of the standard, while others can be used to assess student learning; many serve both purposes. Although the Georgia Performance Standards include tasks, teachers may develop their own tasks.

TEACHER COMMENTARY:

Teacher commentary is meant to open the pathways of communication between students and the classroom teacher as well as within faculty in order to ensure consistency within assessment and expectations. Commentary shows students why they did or did not meet a standard and enables them to take ownership of their own learning.

Selected Terms/Symbols

Bar Graph	A graph in which quantities are represented by bars.
Cone	A three-dimensional figure with a circular base and vertex.
Cylinder	A three-dimensional figure with two parallel and congruent curves (usually circles) as bases, which are joined by a curved surface.
Decompose	To break a number up into other numbers.
Geometric Figure	A shape formed by a combination of points, lines, curves, or surfaces.
Geometric Solid	A three- dimensional shape or object, such as a sphere or a cube.
Line Symmetry	A figure that can be folded along a line so that the two halves match exactly has line symmetry.
Multiple	The product of a whole number and any whole number. A multiple of 16 is 64 ($4 \times 16 = 64$).
Net	A two- dimensional shape that can be folded into a three- dimensional figure is a net of that figure.
Non-Routine Problem	A word problem that requires a variety of strategies in order to solve.
Pictograph	A graph that uses pictures or symbols to represent data.
Rotational Symmetry	A geometrical transformation in which a figure is moved rigidly around a fixed point. Some figures are unchanged by certain rotations.
Venn Diagram	A picture that illustrates the relationships between two or more sets.