



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

# ***Participant's Guide Science***

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## *Use of This Guide*

The module materials, including a Leader'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.

## *Agenda*

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

Introduction .....	30 minutes
Overview of Standards .....	2 hours, 30 minutes
Standards-Based Teaching and Learning .....	1 hour, 50 minutes
Putting It All Together .....	1 hour, 40 minutes
Summary and Follow Up Assignments .....	30 minutes

## *Module Goal*

Demonstrate a deep understanding of the new 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. This shall be measured by student performance on progress monitoring and standardized criterion-referenced tests.

Key words from the goal:

- Deep understanding
- Georgia Performance Standards (GPS)
- Standards-based education
- Research-based best practices

Note that the goal will not be reached by day one of training alone. It will take preparation, follow up, and eight days of classroom instruction to master this goal. Various days of training will deal with different components of the goal, such as curriculum planning, assessment, and instruction.

## *Module Objectives*

By the end of day one of training, participants will be able to:

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, K-3 ELA).

## *Common Misconceptions*

The CRCT and the EOCT will continue with QCC objectives even when we change to Georgia Performance Standards. The test won't match.

The students will have to make all of the charts, graphs, and tables. We can't use the ones from other resources because of the Characteristics of Science.

We are no longer teaching specific units.

The curriculum is the instruction model.

We need to teach a unit on the Characteristics of Science (Processes and skills) before we teach the science content.

The textbooks don't match the Georgia Performance Standards.

The Georgia Performance Standards are the same as the QCC just repackaged.

We left out the good stuff/ my favorite unit.

The Georgia Performance Standards are not as specific. (For example classification; mirrors)  
We cannot teach the human body in Biology...ever.

We have to prioritize/interpret the Georgia Performance Standards.

We teach only the standards and elements, not what we used to teach.

It is prescriptive and restrictive.

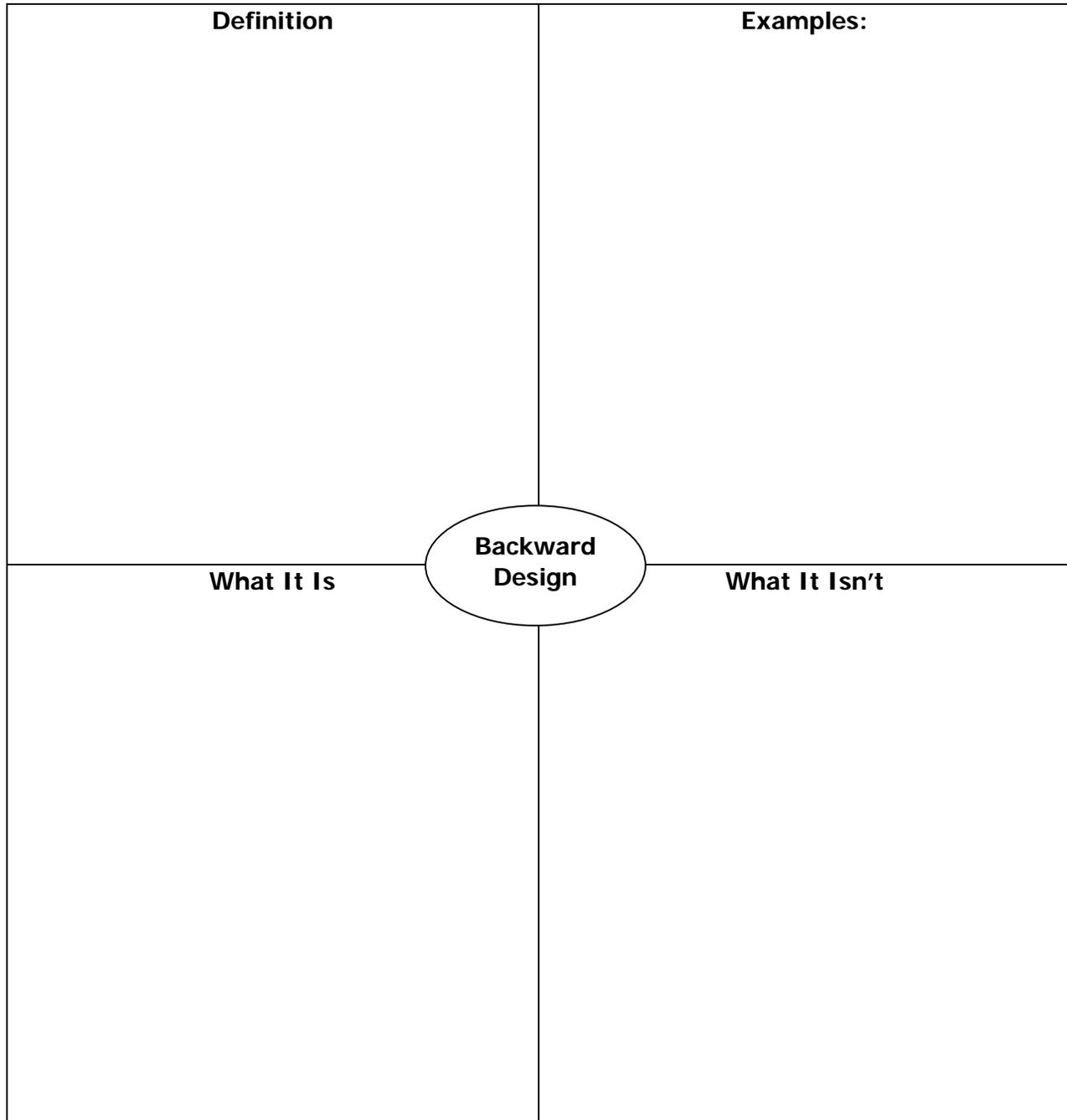
Everyone must teach the same tasks and they will be tested.

We need a state pacing guide.

**▀ Scaffolding**

<b>Topic</b>	<b>K-2</b>	<b>3-5</b>	<b>6-12</b>
Classification			
Energy			
Matter			
Other			

**Backward Design**



## *Benefits of SBE*

**Directions:** Imagine that you are back at your school, explaining to your colleagues how you are going to approach the new standards. You have decided to embrace a standards-based (backward design) process, but you are encountering objections.

1. Read the provocations below.
  2. If needed, add additional ones that you would expect to hear from your colleagues.
  3. Use your *Understanding by Design* book to try to find good answers to these provocations.
  4. With other members of your group, take turns role playing the SBE advocate and the resister. Practice using your knowledge of backward design to convince the resister of its value.
- 

Provocations:

"That means always using performance-based assessments. I still want to use traditional quizzes and tests."

"Teaching for understanding takes too much time. I can barely get through the textbook now."

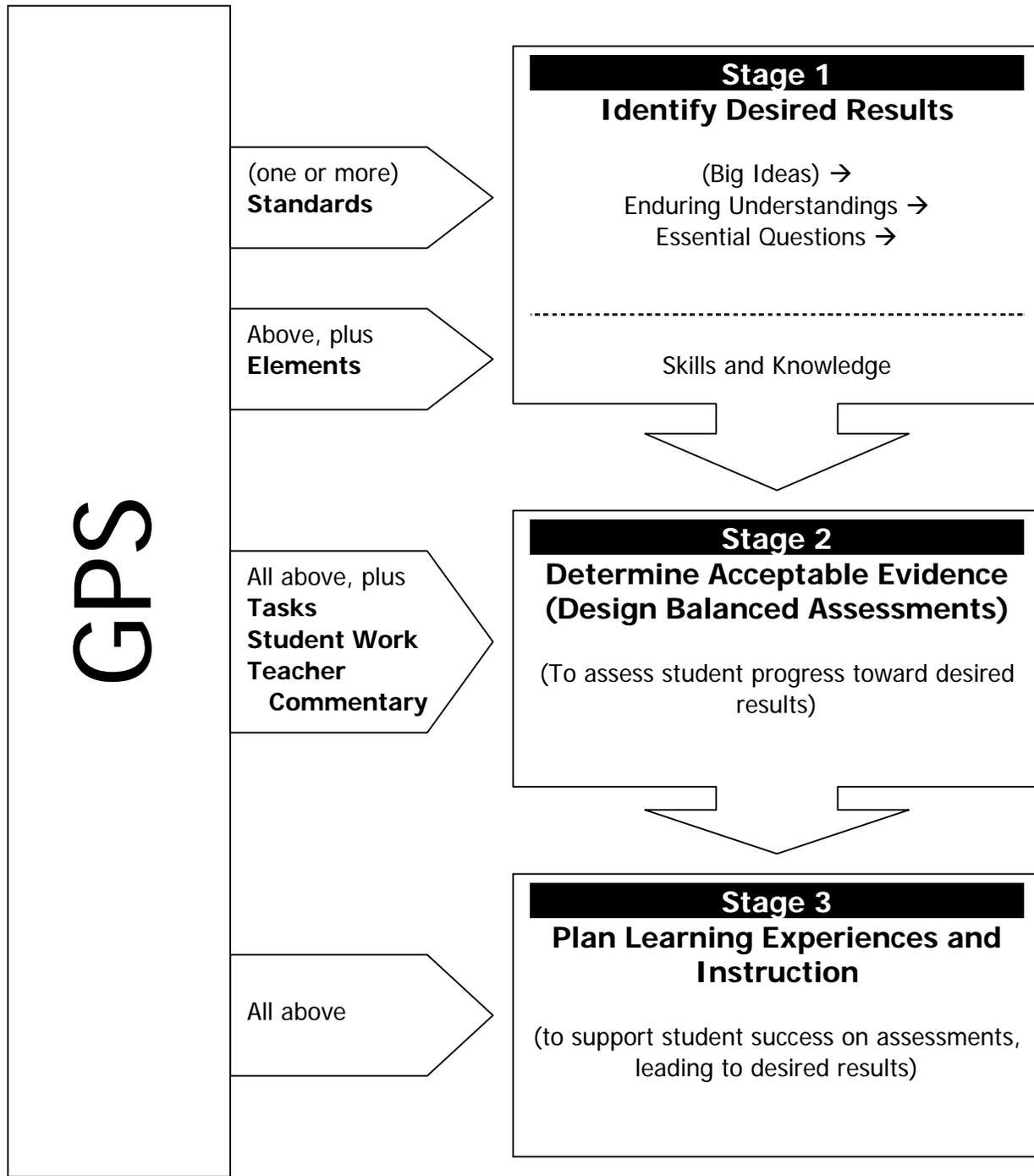
"I'm overwhelmed. How can I possibly teach to all the state content standards and our district curriculum objectives?"

"Every year, parents and students are thrilled with the unit we do on jungle animals. I'm not giving it up just because there's no standard related to it. I know what keeps my kids interested in learning."

"If you develop your assessments first, then all you're doing is teaching to the test, and valuable learning gets lost."

"That might work for (name another grade level or subject matter), but not for us."

## GPS and the Backward Design Process



## Follow Up Assignment:

**Directions:** Please complete this assignment before your next class. Bring all your products to class. You will be building on this work in the next workshop.

Complete your action plan. You should have at least one standard analyzed (Stage 1 in *Understanding by Design*). This means identifying:

- **Big ideas**
- **Understandings**
- **Essential questions**
- **Skills and knowledge**

You may use one of the templates in *Understanding by Design: Professional Development Workbook*, such as the one on page 122 or 125, or you may create your own format, as long as it includes the categories above.

Choose one standard from the list below that is most applicable to you.

➤ **Middle School Earth Science:**

**S6E3**—Students will recognize the significant role of water in earth processes.

- a. Explain that a large portion of the Earth's surface is water, consisting of oceans, rivers, lakes, underground water, and ice.
- b. Describe the composition, location, and subsurface topography of the world's oceans.
- c. Explain the causes of waves, currents, and tides.

➤ **Middle School Life Science:**

**S7L4**—Students will examine the dependence of organisms on one another and their environments.

- a. Demonstrate in a food web that matter is transferred from one organism to another and can recycle between organisms and their environments.
- b. Explain in a food web that sunlight is the source of energy and that this energy moves from organism to organism.
- c. Recognize that changes in environmental conditions can affect the survival of both individuals and entire species.
- d. Categorize relationships between organisms that are competitive or mutually beneficial.
- e. Describe the characteristics of Earth's major terrestrial biomes (i.e. tropical rain forest, savannah, temperate, desert, taiga, tundra, and mountain) and aquatic communities (i.e. freshwater, estuaries, and marine).

➤ **High School Life Science:**

**SB3**—Students will derive the relationship between single-celled and multi-celled organisms and the increasing complexity of systems.

- a. Relate the complexity and organization of organisms to their ability for obtaining, transforming, transporting, releasing, and eliminating the matter and energy used to sustain the organism.
- b. Examine the evolutionary basis of modern classification systems. (six kingdoms)

➤ **High School Physical Science:**

**SPS9**—Students will investigate the properties of waves.

- a. Recognize that all waves transfer energy.
- b. Relate frequency and wavelength to the energy of different types of electromagnetic waves and mechanical waves.
- c. Compare and contrast the characteristics of electromagnetic and mechanical (sound) waves.
- d. Investigate the phenomena of reflection, refraction, interference, and diffraction.
- e. Relate the speed of sound to different mediums.
- f. Explain the Doppler Effect in terms of everyday interactions.

## *Action Plan*

**Directions:** Complete the following chart to help shape your team's work before day two of training. You should analyze at least one standard in each strand, including big ideas, understandings, essential questions, skills and knowledge, and evidence. Here are some questions to consider:

- What do we need?
- What do we have?
- How can we obtain needed information or resources?
- What can we develop as a team?
- What is our plan for completing the work and learning together?

<b>GPS Standards we will tackle:</b>			
<b>Step/Activity</b>	<b>Who</b>	<b>By When</b>	<b>How</b>

## *Recommended Readings*

### **Books**

Dufour, R., & Eaker, R. (1998). *Professional Learning Communities at Work*. Bloomington, IN: National Educational Service.

The authors use Adlai Stevenson High School as the case study of how principals can create learning communities where student learning and achievement are center stage. The book lays out the school improvement process. There would be no failing schools if every school became a learning community modeled after DuFour's school. The book contains an extensive bibliography.

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

A step-by-step description of the process for creating and working with curriculum maps from data mapping are obvious for integrating curriculum. Through the development of curriculum maps, educators can see not only where subjects already come together but also any gaps that may be present.

Literacy Across the Curriculum: Setting and Implementing Goals for Grades Six through 12  
Southern Regional Education Board, 2004. Publication Orders Department, 592 10th St. N.W., Atlanta, GA 30318-5790, Fax: (404) 872-1477 (03V63, \$10 each/\$6.50 each for 10 or more.) <http://www.sreb.org/main/Publications/catalog/howtoorder.asp>.

This volume is essential for state, district and school leaders who plan to implement schoolwide literacy programs. It provides concrete, research-based steps not only to raise reading and writing achievement but also to help students learn more in every class by using literacy skills. The guide focuses on five literacy goals: reading 25 books across the curriculum; writing weekly in all classes; using reading and writing strategies; writing research papers; and taking rigorous language-arts classes.

Marzano, Robert J., Debra J. 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.

Using a meta-analysis of thousands of research studies, Marzano, et. al. clearly answer the question, "Which instructional techniques are *proven* to work?" They provide 13 proven strategies that all teachers can use and explain the research in a clear, practical manner.

Marzano, R., Norford, J., Paynter, D., Pickering, D., & Gaddy, B. (2001). *A Handbook for Classroom Instruction That Works*. Alexandria, VA: Association for Supervision and Curriculum Development.

A perfect resource for self-help or school study groups. This handbook makes it much easier to apply the teaching practices outlined in Classroom Instruction That Works. The authors guide the reader through the nine categories of instructional strategies that are most likely to maximize student achievement and provide everything needed to use the strategies quickly in classrooms. The book includes the following: exercises to check understanding; brief questionnaires to reflect on current beliefs and practices; tips and recommendation to implement the strategies; samples, worksheets and other tools to help plan classroom activities; and rubrics to assess the effectiveness of the strategy with students.

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

Marzano et. al. analyze research from more than 100 studies on classroom management to answer the questions, "How does classroom management affect student achievement? What techniques do teachers find most effective?" The authors provide action steps, along with real stories of teachers and students, to guide teachers in implementing the research findings.

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

Grading has the *potential* for being a valuable learning tool that helps both students and teachers clearly see how they can improve; however, this potential is seldom realized. In this book, Marzano presents viable alternatives to traditional assessment which are grounded in research and practical at the same time.

Strong, R., Silver, H., & Perini, M. *Teaching What Matters Most: Standards and Strategies for Raising Student Achievement*. Alexandria, VA: Association for Supervision and Curriculum Development. 2001.

A practical book about the responsibility educators have to teach what matters most. The authors include many examples of educators throughout the nation who have been successful in increasing student performance on state and national assessments. They also explore three changes that must take place to achieve this goal: responsible standards, responsible strategies, and responsible assessment practices.

Tomlinson, C. *The Differentiated Classroom: Responding to the Needs of All Learners*. Alexandria, VA: Association for Supervision and Curriculum Development. 1999.

A definition and description of elements of differentiated instruction. Tomlinson explains the importance of differentiated instruction within the classroom. The book also serves as an instructional guide for educational leaders and instructors as differentiated strategies are implemented.

Tomlinson, C. *How to Differentiate Instruction in Mixed-Ability Classrooms*. Alexandria, VA: Association for Supervision and Curriculum Development. 2001.

An excellent resource that includes concrete examples of instructional strategies matched to the readiness, interests, and talents of all students. Strategies include learning-centered, hands-on activities; contracts; and investigative projects. The author also offers lesson-planning strategies to provide scaffolding of the content, procedures used in learning, and products of learning.

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

This book explains the "backward design" process that is the backbone of standards-based education. The book explains both the underlying principles and the process teachers can use to put them into practice.

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

This companion book to *Understanding by Design* provides discussion questions, graphic organizers, and summaries to support faculty study groups that are exploring *Understanding by Design*.

Wiggins, Grant and Jay McTighe. *Understanding by Design Professional Development Workbook*. Alexandria, VA: Association for Supervision and Curriculum Development. 2004.

This companion book to *Understanding by Design* is chock-full of templates and examples to help teachers put the process into place.

## Professional Organizations

NCTE - <http://www.ncte.org/>  
GCTE - <http://www.gcte.org/>  
IRA - <http://www.reading.org/>  
GRA - <http://www.georgiareading.org/>  
NSTA—<http://www.nsta.org>  
GSTA—<http://www.georgiascienceteacher.org>  
ENC—<http://www.enc.org>

## Web Sites

Read-Write-Think. NCTE/IRA. <http://www.readwritethink.org/>.

This site contains lessons, web resources, standards, and student materials. It provides quality practices and resources in reading and language arts instruction.

Illinois School Improvement Division.  
[http://206.166.105.86/knowledge/standards\\_resources.asp](http://206.166.105.86/knowledge/standards_resources.asp).

This site provides Illinois Learning Standards Resources, including benchmark indicators, sample learning activities, and sample student work.

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.

## Special Education Resources

*Access, Participation, & Progress in the General K-12 Curriculum.* National Center on Accessing the General Curriculum (ncaog.org).

Approximately 70 general and special educators and parents attended the National Capacity Building Institute on Access, Participation, and Progress in the General Curriculum, held on July 10, in Arlington, VA. The article includes the proceedings from the Institute.

*Aligning Special Education with NCLB.* www.idonline.org.

The No Child Left Behind Act (NCLB) is a standards-based reform movement. This movement emphasizes standards and the alignment of curriculum and assessment to those standards. States established what is to be taught. The goal of standards is to increase academic achievement levels. A related goal is to close the achievement gap for students who have traditionally been at-risk for academic failure or lack of success. This group includes students with disabilities.

Thompson, S., Thurlow, M., Quenemoen, R.F., & Esler, A. (2001). *Addressing Standards And Assessments On State IEP Forms*, National Center on Educational Outcomes (NCEO Synthesis Report 38)

This article summarizes data on each State's use of standards in developing Individualized Education Programs (IEP) for students with disabilities. All fifty states were asked to send their IEP forms and to indicate whether the forms were required, recommended, or simply sample forms. Out of the 41 states with IEP forms, only 5 states specifically addressed the general curriculum on their forms. Recommendations for IEP forms that provide decision-making guidance involving access to the general curriculum are summarized.

*Writing Standards-based IEPs.* Colorado Department of Education. www.cde.org.

The Colorado Department of Education provides information for teachers on developing standards-driven IEPs. The summary includes a definition of standards-driven IEPs, characteristics of standards-driven IEPs, and a rationale for standards-driven IEPs.

## Resources for Differentiation

Association for Supervision and Curriculum Development. At work in the differentiated classroom. Alexandria, VA. Author. (video staff development set). 2001.

Chapman C. & Gregory, G. Differentiated instruction strategies for writing in the content areas. Thousand Oaks, CA: Corwin Press. 2003.

Coil, C. Standards-based activities and assessments for the differentiated classroom. Marion, IL: Pieces of Learning. 2004.

Tomlinson, C. Fulfilling the promise of the differentiated classroom: Strategies and tools for responsive teaching. Alexandria, VA: Association for Supervision and Curriculum Development. 2003.

Winebrenner, S. Teaching gifted kids in the regular classroom. Minneapolis, MN: Free Spirit. 1992.

## *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."

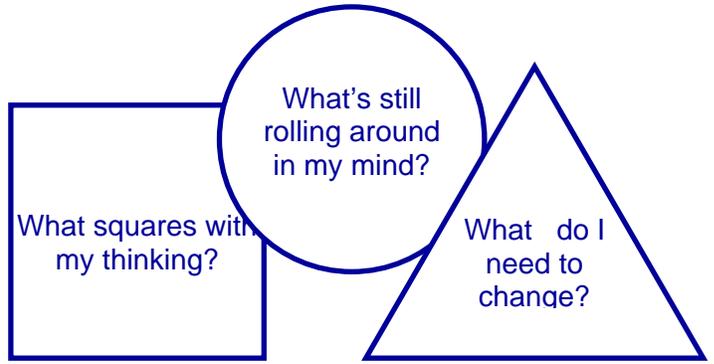
**TASKS:**

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.

**Learning Journal**



**Learning Journal**

