

Leadership Conference
"Leading Change—The Common Core Initiative"
Sponsored by: Arkansas Education Administrators Association
October 3-4, 2011

Lesson Design with Differentiation in Mind: Achieving Academic Success in Content, Process, and Product



Presenter: Sarah Armstrong, Ed.D.
Leading and Learning Solutions
Email: sarah@leadingandlearningsolutions.com
Website: www.leadingandlearningsolutions.com

Why Differentiate?

Because the learning experience in the classroom does not meet the needs of every child—especially Title I students.

Because students possess a wide range of interests and background knowledge

Because we underestimate talents and gifts of young people particularly when their gifts do not fit into the box called "School."

Why differentiated instruction?

"There is nothing so unequal as treating unequals equally"

Carol Tomlinson

Carol Ann Tomlinson acknowledges the challenge:

"When someone suggests that we move toward more flexible instruction, the response is often driven by uncertainty. Common responses are *"I don't have time to do all those extra things"* and *"I don't even know where to start."*

"Few people suggest that it is easy to change habits, but many people demonstrate the possibility of doing so, one step at a time."



It requires **persistent intent** for teachers to break old teaching habits and replace them with routines that are flexible enough to support the success of many kinds of learners."

What Do You Think?

Directions: Read the statements below and mark whether you *think* they are true or false.

True	False	Statement
T	F	1. In order for differentiation to be successful, students must always work in groups at their achievement levels.
T	F	2. Scaffolding means providing support at the student's level of need in order for him or her to progress toward new understanding.
T	F	3. Higher-level, complex thinking can be built into every tier of instruction.
T	F	4. Leveled textbooks and leveled resource materials should be used by teachers to tier instruction.
T	F	5. Assessment of student progress should be made weekly.

Differentiation means teachers....

design instruction for all learners;

take into account achievement levels, experiences and interest of students;

engage learners in activities that stimulate thinking and help them make connections to prior knowledge;

and, assess students daily using a variety of assessment tools.



4 key targets to help you meet the needs of struggling learners



→ Assess to know your learners

2. Design brain-compatible lessons based on assessments
3. Incorporate differentiation strategies based on content, product, and process
4. Involve students as partners in learning

1

Know your learners: Assess and Scaffold to meet Students' Needs

- Focus on assessment for learning
- Use a range of assessments
- Build in self-assessment by students
- Track results
- Provide rich, authentic feedback

10 Tiered Instruction Targets



	I'm there!	I'm making good progress.	I'm trying to move in that direction.
1. I identify the essential understandings that I want students to know.			
2. If you asked the students in my class, they would be able to tell you the goals of what I am teaching.	←		
3. I pre-assess my students to determine strengths and needs.	←		
4. I plan the final assessment before designing the instruction.			
5. I use assessment to help determine student groupings.			
6. I arrange my groups flexibly; they may vary daily.	←		
7. I design interesting and relevant lessons to hook and engage the learner.	←		
8. I create tasks with difficulty and skill levels that are slightly above students' levels.			
9. I begin by first determining on-level tasks that meet the essential understandings, and then I scaffold up or down for students as needed.			
10. I adjust the complexity, support, pace, materials, and/or directions to meet the needs of learners.	←		

p. 13

Assessment 101

Know Instructional Reading Levels

Regardless of how students are assessed, having a fix on the level at which a student reads text independently, as well as his or her instructional reading level will allow you to secure the materials necessary to differentiate instruction for your particular group.

Text Complexity Grade Bands and Associated Lexile Ranges

Text Complexity Grade Band in the Standards	Old Lexile Ranges	Lexile Ranges Aligned to CCR expectations
K-1	N/A	N/A
2-3	450-725	450-790
4-5	645-845	770-980
6-8	860-1010	955-1155
9-10	960-1115	1080-1305
11-CCR	1070-1220	1215-1355

Lexile Literature

- 1500 - On Ancient Medicine
- 1400 - The Scarlet Letter
- 1300 - Brown vs. Board of Ed.
- 1200 - War and Peace
- 1100 - Pride and Prejudice
- 1000 - Black Beauty
- 900 - Tom Swift in the Land of Wonders
- 800 - The Adventures of Pinocchio
- 700 - Bunnicula: A Rabbit Tale of Mystery
- 600 - A Baby Sister for Frances
- 500 - The Magic School Bus Inside the Earth
- 400 - Frog and Toad are Friends
- 300 - Clifford's Manners

Text Illustrating the Complexity, Quality, and Range of Student Reading K-5

Grade(s)	Literature: Stories, Drama, Poetry	Informational Texts: Literary Nonfiction and Historical, Scientific, and Technical Texts
K *	<ul style="list-style-type: none"> • <i>Over in the Meadow</i> by John Langstaff (traditional) (c1800) • <i>A Boy, a Dog, and a Frog</i> by Mercer Mayer (1967) • <i>Pancakes for Breakfast</i> by Tamie DePaola (1978) • <i>A Story, A Story</i> by Gill E. Haley (1970) • <i>Kitten's First Full Moon</i> by Kevin Henkes (2004) 	<ul style="list-style-type: none"> • <i>My Five Senses</i> by Alki (1962) • <i>Truck</i> by Donald Crews (1980) • <i>I Read Signs</i> by Tana Hoban (1987) • <i>What Do You Do With a Tail Like This?</i> by Steve Jenkins and Robin Page (2003) • <i>Amazing Whales!</i> by Sarah L. Thomson (2005)
1 *	<ul style="list-style-type: none"> • <i>Mix a Pancake</i> by Christina G. Rossetti (1893) • <i>Mr. Popper's Penguins</i> by Richard Atwater (1938) • <i>Little Bear</i> by Else Holmøkelund Minarik, illustrated by Maurice Sendak (1957) • <i>Frog and Toad Together</i> by Arnold Lobel (1971) • <i>Hi! Fly Guy</i> by Tedd Arnold (2006) 	<ul style="list-style-type: none"> • <i>A Tree Is a Plant</i> by Clyde Robert Bulla, illustrated by Stacy Schuett (1960) • <i>Starfish</i> by Edith Thacher Hurd (1962) • <i>Follow the Water from Brook to Ocean</i> by Arthur Dorros (1991) • <i>From Seed to Pumpkin</i> by Wendy Pfeffer, illustrated by James Graham Hale (2004) • <i>How People Learned to Fly</i> by Fran Hodgkins and True Kelley (2007)

*Children at the kindergarten and grade 1 levels should be expected to read texts independently that have been specifically written to correlate to their reading level and their word knowledge. Many of the titles listed above are meant to supplement carefully structured independent reading with books to read along with a teacher or that are read aloud to students to build knowledge and cultivate a joy in reading.

Grade 2 students: Key Ideas and Details

1. Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in a text.
2. Recount stories, including fables and folktales from diverse cultures, and determine their central message, lesson, or moral.
3. Describe how characters in a story respond to major events and challenges.

Grade 5 students: Key Ideas and Details

1. Quote accurately from a text when explaining what the text says explicitly and when drawing inferences from the text.
2. Determine a theme of a story, drama, or poem from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text.
3. Compare and contrast two or more characters, settings, or events in a story or drama, drawing on specific details in the text (e.g., how characters interact).

Grade 8 students: Key Ideas and Details

1. Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.
2. Determine a theme or central idea of a text and analyze its development over the course of the text, including its relationship to the characters, setting, and plot; provide an objective.
3. Analyze how particular lines of dialogue or incidents in a story or drama propel the action, reveal aspects of a character, or provoke a decision.

Reading Framework for NAEP 2009

Grade	Literary	Informational
4	50%	50%
8	45%	55%
12	30%	70%




Use non-fiction and fiction resources at a range of reading levels in all grades and across all content areas





4 key targets to help you meet the needs of struggling learners



1. Assess to know your learners
2. Design brain-compatible lessons based on assessments
3. Incorporate differentiation strategies based on content, product, and process
4. Involve students as partners in learning

2 Design differentiated lessons with the brain in mind



- Do the work **“up front”**
- Activate prior knowledge
- Plan for “attention state” adjustments
- Design for rigorous engagement
- Provide rich, authentic feedback

Engaging learners with...

Brain-Compatible

Lesson Design

Brain-compatible lesson design provides answers to questions:

•How do I differentiate lessons?

•How do I get students to remember what I've taught?

•How do I keep students engaged in rigorous and relevant activities?

•How can I stretch their thinking?

•How can I get my squirrely students to pay attention?





But first...

A biology moment...

Environment Changes the Brain



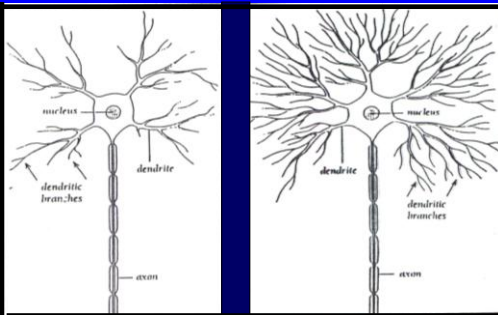
Enriched environments

- increased cell weight
- increased growth of synapses



Impoverished environments

- decrease in cell weight,
- possible loss of cells,
- diminished growth in synapses



Experience sculpts the brain.

- Between the second month in utero and the age of two, each neuron in the cortex forms an average of 1.8 synapses per second.



- Which synapses remain, and which are pruned, depends on whether or not they carry any traffic. If not used, then like bus routes that attract no customers, they go out of business.

Neurons that fire together, wire together."

LTP Long Term Potentiation— the process of connections in the brain becoming more permanent (learning.)

The more permanent the connection, the greater the myelination.

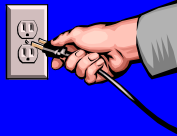
The second time a synapse fires, it takes less neurotransmitter (and so on...)

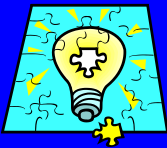
Our brains myelinate from back to front and inside to outside (according to how we survive.)



No connections....no Meaning

The brain is continuously trying to make sense out of the world, attempting to determine what is meaningful in what it experiences.





Every encounter with something new requires the brain to fit the new information into an existing memory category, or network of neurons.

If it can't, the information will have no meaning.

Effective instruction requires teachers to...

- Find the experiences students have had and hook new learning to them or...



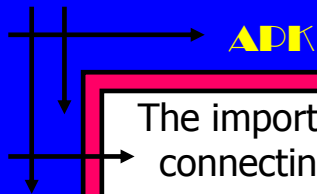
- Create the experiences with students

2

Design differentiated lessons with the brain in mind



- Do the work “up front”
- Activate prior knowledge
- Plan for “attention state” adjustments
- Design for rigorous engagement
- Provide rich, authentic feedback



ADK

The importance of connecting new content to prior knowledge cannot be over-emphasized!!!!

Activating Prior Knowledge

APK

Is essential for memory and learning...and **thinking!**

SCENARIO 1 & 2

Do we know "it" when we see it?!

(page 39)

Consider these two approaches to activating prior knowledge in fifth grade social studies classes and think about which one builds more connections:

Scenario 1

Teacher: "Today we will be starting a unit on the conditions in the states following the Civil War. It was a period of time referred to as Reconstruction. What do you think of when you hear the word Reconstruction?"

Max: "It must mean that something was torn down because it has to be constructed again."

Teacher: "Thank you, Max. Who has another thought?"

Sophie: "When a tree fell on our house in the storm, we had to reconstruct the garage roof."

Teacher: "Good connection. Can someone else give me an idea?"

Reggie: "When things are broken, like my little brother breaks my toys, I try to put them back together. Isn't that reconstruction?"

Teacher: "All these ideas tell us something about Reconstruction. Turn to page 128 in your book and let's get some more information."

Scenario 2

Teacher: "I want to show you several photographs from cities and towns that were taken during and right after the Civil War. While I do that I want you to write down descriptive words or phrases that come to mind when you see the pictures."

Teacher: "Now, I want you to share these words with one or two people next to you and see if you can add new ones to your own list."

Teacher: "Tell me some of the words and I will write them on the chart paper?"

Students: "destruction, ruin, bombed out, death, abandoned, lonely, hungry, poor, wounded, broken, destroyed, help, sad, homeless, hopeful, lost, start over"

Teacher: "So...here's my question. Why is the period right after the civil war referred to as "Reconstruction"? Using what you know and additional information you might have gathered from the pictures, talk to your neighbor(s) and come up with as many areas as you can that you think needed "reconstructing?"

(Students list areas and support responses.)

Teacher: "Here's a follow-up question. Have there been times in your lives when a period of "reconstruction" has existed either personally or in our country or world?"

Weak APK	With Regard to	Strong APK
Director—didactic teaching; teacher as expert	Teacher Role	Facilitator—coaching responses through questions
A few students—typically the first to raise hands	Number of Students Responding	All students
Knowledge, comprehension (Bloom)	Levels of Thinking	Application, Analysis, Evaluation, Synthesis (Bloom)
Scatter questioning—asks the whole class and takes a few responses.	Modalities Used	Uses visual prompts, journal self-reflection, partner interaction
A small number of students engage by answering teacher's question	Student Engagement	All students engaged using multi modalities and peer interaction

Teacher Self-Checklist for Differentiation of Content	Notes to Self
What is the content that I am to teach for this lesson or unit?	
What does the learning target tell me that students need to know and be able to do?	
Which information is most essential to the learner?	
What are the big ideas of this lesson or unit?	
What are the key vocabulary terms that students must learn?	}
Are the vocabulary terms part of each student's existing background knowledge or will I need to build this understanding for all or a portion of the class?	
If a portion, which students will need to have additional support to acquire content vocabulary?	
How will I determine what my students know already so I can build upon (scaffold) their learning?	
Can related content be brought in to expand thinking and provide enrichment for students who move ahead quickly?	p. 54

Reconstruction Era

The teacher scaffolds tasks based on prior knowledge task..

Group 1	Group 2	Group 3
<ul style="list-style-type: none"> Simple descriptive words Limited connections to why it was called reconstruction—rebuilding buildings, cities only Struggled with any connection of reconstruction to today's world 	<ul style="list-style-type: none"> Appropriately descriptive Good connections of concrete, tangible evidence, but didn't extend beyond the physically reconstructing. Had parallel ideas of reconstruction of cities in Iraq and after Katrina 	<ul style="list-style-type: none"> Insightful words Connections extended to social, emotional needs pertaining to reconstruction Discussed reconstruction of families after crisis, reconstruction politically with new president—more depth to thinking.
<p style="text-align: center;">Group 1</p> <p>Marcus Clay Shannon Miguel Eric Kala</p>	<p style="text-align: center;">Group 2</p> <p>Austin William Dwayne Beverly Justine Sam</p>	<p style="text-align: center;">Group 3</p> <p>Raymond Almad Deandra Nicole Hannah Mark</p> <p style="text-align: center;">Ginny Anne Pedro Lakeisha Denny</p> <p style="text-align: center;">Antonio Jamal</p>

2

Design differentiated lessons with the brain in mind



- Do the work “up front”
- Activate prior knowledge
- Plan for “attention state” adjustments
- Design for rigorous engagement
- Provide rich, authentic feedback

Engaging Learners

OPTIMAL USE OF TIME



**IT'S ALL IN THE DESIGN—
LESSON DESIGN THAT IS!**

How long do students stay focused in the same “attention state?”

The age of the learner plus or minus two minutes.



Young learners: 5-10 minutes

Adolescents: 15-20 minutes

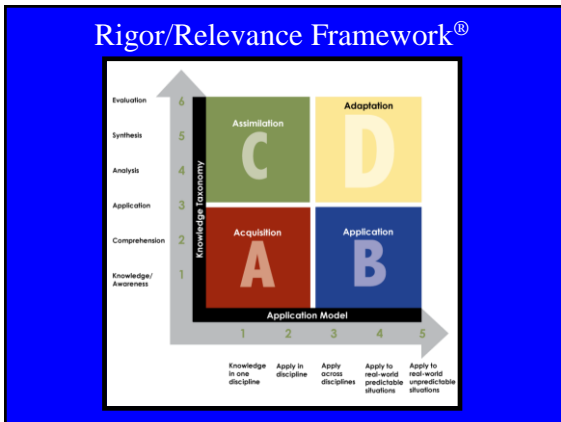
Adults: about 20-25

Attention State	Time	Transition During Lesson
Listener	8 minutes	The teacher uses a powerpoint presentation to explain important content from the lesson. The students are listening to the lecture. No note-taking is required.
Reflector and Note-taker	4-5 minutes	The teacher tells students to write down key points they can recall from the mini-lecture in their journals.
Collaborator	3 minutes	The teacher asks students to talk to their partners and see if they recalled similar or different information.
Summarizer Designer/ Artist	7-10 minutes	The teacher combines two sets of partners for a group of four students. She gives each group a piece of chart paper and markers. She asks students to restate the information using pictures and images only.
Observer or Presenter	3 minutes	Each group has a three minute presentation to the class.

2

Design differentiated lessons with the brain in mind

- Do the work “up front”
- Activate prior knowledge
- Plan for “attention state” adjustments
- Design for rigorous engagement
- Provide rich, authentic feedback



Attribute Association

- List 10 attributes of an item, concept, artifact, etc.
- Write in order for the class to see or ask students to write them down in order from 1-10.
- Have sets of cards numbered 1-10. You will need one set per pair. (You can also use decks of cards pulling out ace to 10).
- Have each student select one card randomly. They are to look at the words that correspond with their numbers and come up with commonalities between the two words.
- Have them put those cards aside and pull two more out. Do this several times.
- Note: You may use fewer attributes, but will need to adjust the number of cards.

List words that might be used in a current events story about poverty in third world countries.

List terms or words that relate to plate tectonics.

List words that relate to Europe in World War II



Pick three numbers between 1 and 10 and write them down so that no one else can see them.



Glossary:

1. **arable**: refers to land that is able to be farmed.
2. **emigrate**: to leave one's country to live in another country.
3. **asylum**: a refuge or safe haven.
4. **illiterate**: unable to read.
5. **malnourished**: receiving less than the minimum amount of food.
6. **longevity**: endurance and long life.
7. **megacities**: cities with populations of ten million or more.
8. **migrate**: to move from one place to another.
9. **persecution**: causing people to suffer because of their beliefs or origin.
10. **status**: position or rank in relation to others.

4 key targets to help you meet the needs of struggling learners



1. Assess to know your learners
2. Design brain-compatible lessons based on assessments
3. Incorporate differentiation strategies based on content, product, and process
4. Involve students as partners in learning

3 Incorporate differentiation strategies based on content, product, and process.

- Use Teacher Self-Check Lists
- Use non-fiction and fiction resources at a range of reading levels in all grades and across all content areas
- Establish clear “look fors” and build in self-assessment on the part of students
- Allow for differentiated products

12

Questions to Prompt Decisions about Tiering by Process

How will I Engage Students?	Notes to Self
1. What information about my students have I learned from the preassessments?	Look at the readiness scaffold summary
2. What grouping arrangements are optimal at different stages of the lesson. (When do I use whole group, small group, partners, or individual tasks.)	8 min. whole group 5 min. individual 12 min. small group
3. What leveled books and resources do I have to support learning? Do I need to secure additional materials?	Newbridge readers, text, internet

p. 68

Establish clear "LOOK FORs"

Students perform at their highest levels when they are very clear about expectations. Criteria lists or "look fors" for class work and projects guide students and serve as tools for self-monitoring.













4 Involve Students as Partners in Learning

1. Work with students to ensure relevance of content
2. Survey interest areas
3. Complete "I Can" Self-Assessments
4. Journal about "What Works/What Doesn't" in class
5. Involve students in creating assessments/tests to be used for a grade

Student Writers Workshop Look Fors

Student's Writers Workshop Look Fors

I know my audience for writing.		
I write for different reasons.		
I talk to a friend or a teacher to help me with my ideas.		
I edit my writing to make it more readable.		
I use rich vocabulary when I write.		

Students work in pairs to identify ten key facts of the American revolution. As a group, the teacher and students compile the ten most important facts/concepts. These items are the Look Fors that must be evident in the project on the same time period.

Self- Assessment on the Build-It 3D Unit

Skills in Build It-3D	Very Confident	Somewhat Confident	Still Need Help
1. I can use a protractor.			
2. I can find the sum of angles of triangles and quadrilaterals.			
3. I can explain when and why shapes are congruent.			
4. I can sort triangles and quadrilaterals.			
5. I can name 2D figures from drawings.			

Getting there from here
through
Self-Assessment
by Teachers

10 Ways to Differentiate Instruction

Do I Differentiate using...	Always	Sometimes	Seldom	Never
1. ...assessment data				
a. interest surveys				
b. learning style inventories				
c. brain-compatibility indicators				
d. skill competency checklists				
e. pre- and post-test results				
2. ...the content level of the material				
a. different levels of textbooks				
b. different levels of resource materials				
c. textbooks on audio				
d. interactive, student-directed instruction				
e. first person accounts				
3. ...a variety of resources				
a. peer and volunteer resources				
b. library books and reference materials				
c. primary documents				
d. computers				
e. use of internet technologies				

Let's Revisit

4 key targets to help you meet the needs of struggling learners



1. Assess to know your learners
2. Design brain-compatible lessons based on assessments
3. Incorporate differentiation strategies based on content, product, and process
4. Involve students as partners in learning

