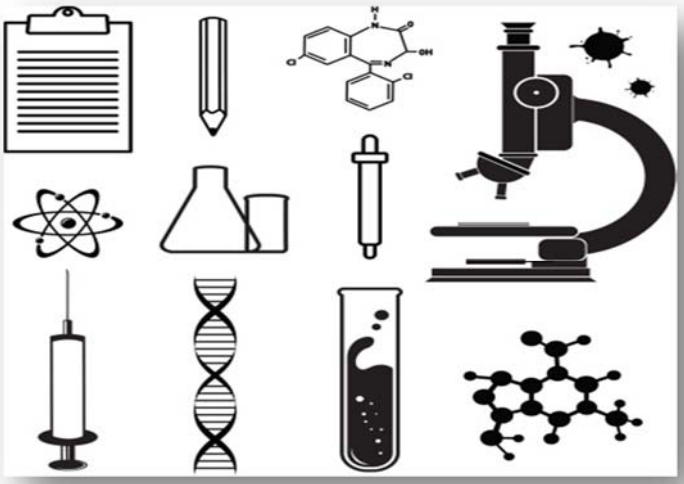
Rethink Literacy! 2.0



Incorporating Literacy Instruction in the Middle School Science Classroom

6th–8th Grade Teachers

MISSISSIPPI DEPARTMENT OF EDUCATION

Ensuring a bright future for every child

Rethink Literacy: 2.0
Literacy Instruction Across the Content Areas for 6th-8th Grades
Session Agenda

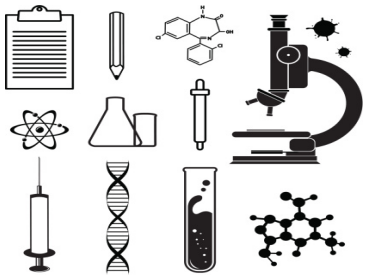
Morning Break is scheduled from 10:15-10:25 | Lunch on your own will be from 12:25-1:25

Concurrent Sessions	
ELA	**8:15-10:15** Session 1: Self-study Guide for Implementing Literacy Interventions (REL-SE)
	10:25-12:25 Session 2: Differentiated Instruction
	1:30-3:30 Session 3: Content-Driven Strategies for ELA: Fluency, Vocabulary, and Comprehension
Math	**8:15-10:15** Session 1: Differentiated Instruction
	10:25-12:25 Session 2: Self-study Guide for Implementing Literacy Interventions (REL-SE)
	1:30-3:30 Session 3: Content-Driven Strategies for Math: Fluency, Vocabulary, and Comprehension
Science	**8:15-10:15** Session 1: Differentiated Instruction
	10:25-12:25 Session 2: Content-Driven Strategies for Science: Fluency, Vocabulary, and Comprehension
	1:30-3:30 Session 3: Self-study Guide for Implementing Literacy Interventions (REL-SE)

INCORPORATING LITERACY INSTRUCTION

IN A MIDDLE SCHOOL SCIENCE CLASSROOM

Rethink Literacy 2.0



MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

Division of Literacy
Office of Elementary Education and Reading
601-359-2586

Mississippi Department of Education

VISION

To create a world-class educational system that gives students the knowledge and skills to be successful in college and the workforce, and to flourish as parents and citizens

MISSION

To provide leadership through the development of policy and accountability systems so that all students are prepared to compete in the global community

State Board of Education Goals FIVE-YEAR STRATEGIC PLAN FOR 2016-2020

1. All Students Proficient and Showing Growth in All Assessed Areas
2. Every Student Graduates from High School and is Ready for College and Career
3. Every Child Has Access to a High-Quality Early Childhood Program
4. Every School Has Effective Teachers and Leaders
5. Every Community Effectively Uses a World-Class Data System to Improve Student Outcomes
6. Every School and District is Rated “C” or Higher

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

3

Session Norms

- Please silence cell phones
- Refrain from texting.
- Actively participate in discussions and activities.
- Refrain from sidebar conversations.

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

4

Session Objectives

The objectives of the session are to:

- explore the research and benefits of integrating literacy instruction into science instruction.
- share strategies for improving science instruction by incorporating vocabulary, fluency, and comprehension strategies.
- review and discuss ways to introduce new strategies to students.

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

5

Ice Breaker

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

6

Rationale

As science teachers, we understand that our students need time, practice, and lots of encouragement in order to learn how to read and write well. Learning how to read and write in science is an important part of scientific literacy, and it can help students understand and retain key science content (NSTA, 2008; NRC 1996; Saul 2004; Shanahan 2004).

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

7

Rationale

For students to come to understand science, they must be able to explain their thinking and develop arguments for their findings. In order to become lifelong learners who are capable of reading and writing about scientific issues, making educated decisions and participating in a democratic society, students must be able to read and understand the writing of others, evaluate its worth, and share the results of their own research and experience through writing (NSTA, 2008).

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

8

Think Tank

In what ways are my students expected to demonstrate literacy?

How can the inclusion of literacy strategies increase the efficacy of my students' science content and process knowledge?

What is scientific literacy?

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

9

Anticipation Guide

Anticipation Guide

Before Agree	Before Disagree	Statement/Question and Evidence	After Agree	After Disagree
		1. The five components for reading are phonemic awareness, phonics, fluency, vocabulary, and comprehension. **Evidence:**		
		2. Cooperative learning instruction has been used successfully to teach comprehension strategies in content-area subjects. **Evidence:**		
		3. Fluent reading sounds good but has little effect on reading comprehension. **Evidence:**		
		4. Instruction at all grade levels can benefit from showing students how reading is a process of making sense out of text, or constructing meaning. **Evidence:**		
		5. Teaching specific words before reading help both vocabulary learning and reading comprehension. **Evidence:**		
		6. Multiple-strategy instruction teaches students how to use strategies flexibly as they are needed to assist their comprehension. **Evidence:**		
		7. Teachers can help students develop word consciousness. **Evidence:**		

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

10

Anticipation Guides

Why use anticipation guides?

- Anticipation guides stimulate students' interest in a topic and set a purpose for reading.
- They teach students to make predictions, anticipate the text, and verify their predictions.
- They connect new information to prior knowledge and build curiosity about a new topic.

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

11

RESEARCH AND THE FIVE COMPONENTS OF READING

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

12

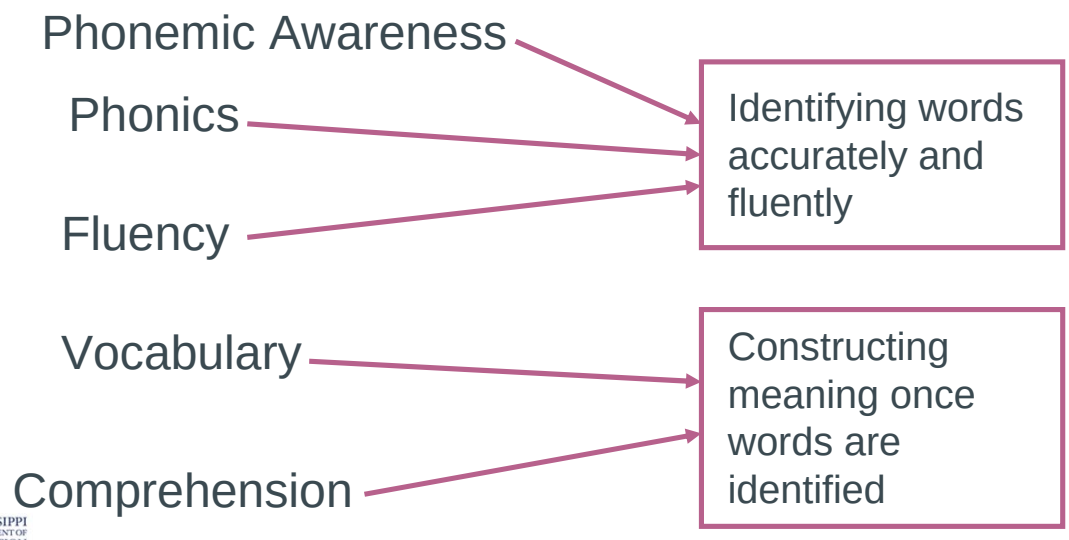
Research

- If teachers use literacy in the content area strategies **15-20 minutes a couple of times each week**, students increase reading levels and significantly improve performance on content area standardized testing.
- Studies have shown that reading and science education **develop** similar types of skills, such as **problem solving and sequencing** (Armbruster 1992).
- Furthermore, Armbruster found "the study of science helps **develop language and reading skills** and **strengthens the logical processes** necessary for effective content reading."
- Romance and Vitale (1992) showed that combining the time allotted for science and reading significantly **raised student achievement in science versus teaching the subjects separately**.

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

13

Five Components of Reading



MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

14

VOCABULARY

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

15

What is Vocabulary?

The words students must know to communicate and to understand a text. Students' knowledge of and memory for word meanings. Two types of vocabulary:

Receptive Vocabulary

- words we understand when read or are spoken to us.

Expressive Vocabulary

- words we know well enough to use in speaking and writing.
- focus on vocabulary prior to reading.

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

16

Teaching Vocabulary

When it comes to teaching vocabulary, we must remember that there are 3 Tiers of words that students will encounter and that will need instructional attention.

1. Basic Words
2. High Frequency
3. Words Limited to Specific Domains

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

17

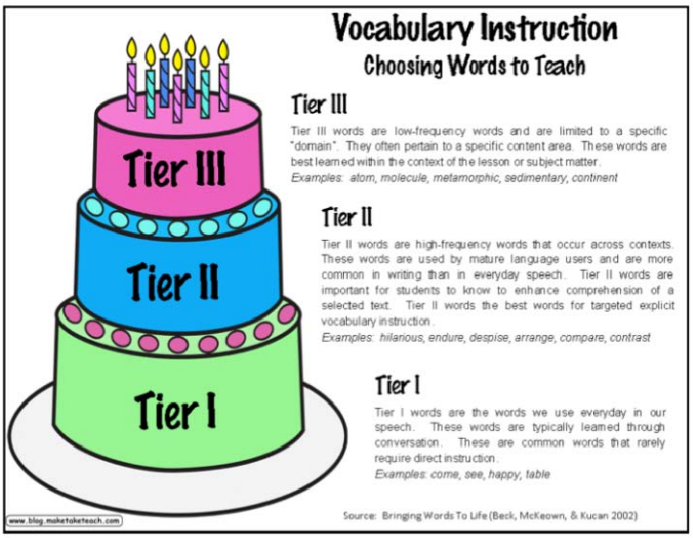
Three Tiers of Vocabulary Instruction

- **Tier I**: consists of the most basic words that rarely require instructional attention to their meanings in school (e.g. clock, baby, happy, walk, etc.)
- **Tier II**: consists of words that are of high frequency for mature language users and are found across a variety of domains (e.g. coincidence, absurd, industrious, fortunate, etc.)
- **Tier III:** consists of words whose frequency of use is quite low and often limited to specific subjects or domains (e.g. isotope, peninsula, refinery, microscopic, etc.)

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

18

Tiers of Vocabulary



MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

19

Vocabulary

Morphology for Content-Specific Vocabulary

- Morphology is the field of study dedicated to morphemes.
- Morphemes are the smallest meaningful part of a word.
- Morphemes include:
  - Root or base words
  - Greek or Latin roots
  - Affixes (prefixes and suffixes)

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

20

Vocabulary

Word part/ Morpheme	Meaning	Science word (Examples)
Amphi-	On both sides, of both kinds	Amphibian, amphibious
Muta-	Change	Mutation, mutate, mutated gene
-Plasm-	Molded form	Cytoplasm, protoplasm
-Ped-	Foot	Pedal, bipedal, pedestrian
Carna- -Vore	Meat Eating	Carnivorous, carnal Carnivore, herbivore

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

Source-Essentials of Biology, Building a Science Vocabulary

21

How well do you know your morphemes?

Word	# of Morphemes	Morphemes	Constructed Meaning
1. biology	2	Bio, logy	Study of life
2. endocytosis			
3. gametocyte			
4. bicycle			
5. biochemist			
6. subcutaneous			
7. trachea			
8. autobiography			

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

22

Direct Vocabulary Instruction

When selecting words from your chosen text to teach, take the following things into consideration:

1. The number of words you want to teach in conjunction with any given text or lesson.
2. Consider which words would be most useful in helping students understand the text being read.

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

23

Ten Important Words Strategy

The Ten Important Word strategy helps builds students' awareness of the vocabulary words that they will come across in the science text.

- Identify important words essential to understanding the text.
- The words are then gathered, sorted and graphed.
- Discuss each word. Afterwards, have students include some of the words in a written summary of the text.

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

24

Ten Important Words Science Text Passage

Elements & Macromolecules in Organisms

Most common elements in living things are carbon, hydrogen, nitrogen, and oxygen. These four elements constitute about 95% of your body weight. All compounds can be classified in two broad categories --- organic and inorganic compounds. Organic compounds are made primarily of carbon. Carbon has four outer electrons and can form four bonds. Carbon can form single bonds with another atom and also bond to other carbon molecules forming double, triple, or quadruple bonds. Organic compounds also contain hydrogen. Since hydrogen has only one electron, it can form only single bonds.

Each small organic molecule can be a unit of a large organic molecule called a macromolecule. There are four classes of macromolecules (polysaccharides or carbohydrates, triglycerides or lipids, polypeptides or proteins, and nucleic acids such as DNA & RNA). Carbohydrates and lipids are made of only carbon, hydrogen, and oxygen (CHO). Proteins are made of carbon, hydrogen, oxygen, and nitrogen (CHON). Nucleic acids such as DNA and RNA contain carbon, hydrogen, oxygen, nitrogen, and phosphorus (CHON P).

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

25

Vocabulary Strategy: Knowledge Rating

The Knowledge Rating strategy can be used to assess students prior knowledge. It is an informal student assessment.

- Students will check the column that best describes their knowledge of the words
- For each marked “I know it!”, the student can write a short definition

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

26

Vocabulary Knowledge Rating

Vocabulary Word	I Know It!	Think I Know it	I've heard it or seen it….	No clue	Definition
Atom					
Compound					
Element					
Macromolecule					
Amino acid					
Carbohydrate					
Organic compound					

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

27

Indirect Vocabulary Instruction

- Read Alouds
- Independent Reading
- Oral Language

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

28

Vocabulary in the Classroom: Independent Reading

Encourage independent reading

- Provide a well-stocked classroom library with a variety of genres, levels, and sources.
- Provide time daily in your classroom schedule for independent reading.

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

29

Vocabulary in the Classroom: Oral Language in Action

Speed Date

- Arrange chairs in two rows of chairs facing each other.
- Sit in chair with selected term on folded piece of paper.
- When given word to begin, the people on the right side will talk for 30 seconds to the person on the left about selected term (person on left cannot speak).
- After time is up, the roles reverse.
- After that 30 seconds is up, people on designated side move to their left one chair.
- Complete the process until everyone on the left is back to their original spot.

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

30

BREAK

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

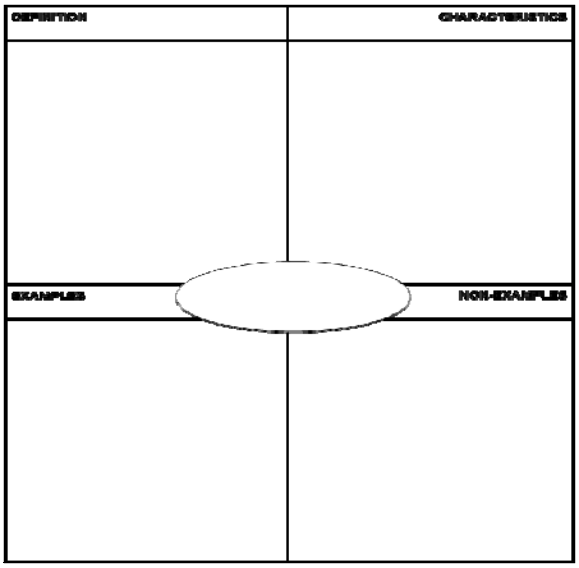
31

TEACHING VOCABULARY STRATEGIES

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

32

Frayer Model



MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

33

Foldable

Foldables can be used to:

- Define words
- Diagram
- Compare and Contrast
- Illustrate
- Sequence

Resource-Dinah Zike's Foldables (Macmillian/McGraw-Hill)

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

34

Vocabulary Note-taking Guide

This strategy can be used to have students keep track of new, important vocabulary words. The teacher will instruct the students to:

- write the word/term,
- indicate the word's part of speech,
- write definition, and
- provide an example or sentence to show that they have learned the new word.

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

35

Vocabulary Note-taking Guide

Word (Part of Speech)	Definition	Example/Sentence
Energy (noun)	The ability to do work	Potential energy, kinetic energy The amount of energy an object has depends on its speed and mass.

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

36

Keyword Method

Keyword Method

Vocabulary Word: _____

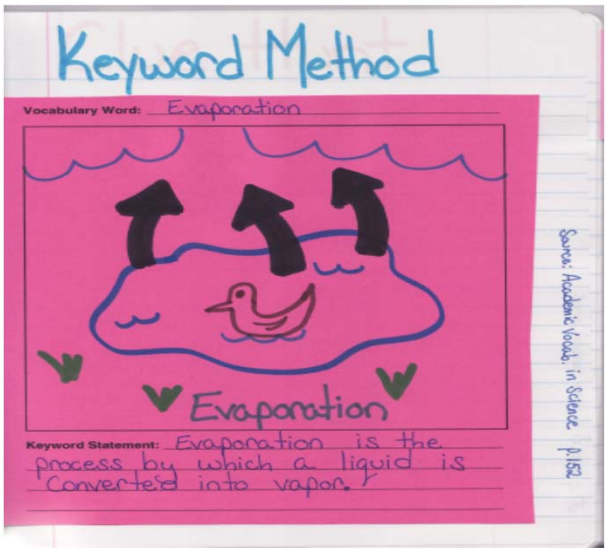
Keyword Statement:

_____

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

37

Keyword Method Example



Compiled by Sally Creel, K-5 Science Supervisor, Cobb County Schools (Source: Academic Vocabulary in Science pg. 152)

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

38

Keyword Method Activity

Directions:

- Choose a vocabulary word from your specific content.
- Complete the Keyword Method organizer.
- Share with your table group.

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

39

Semantic Map

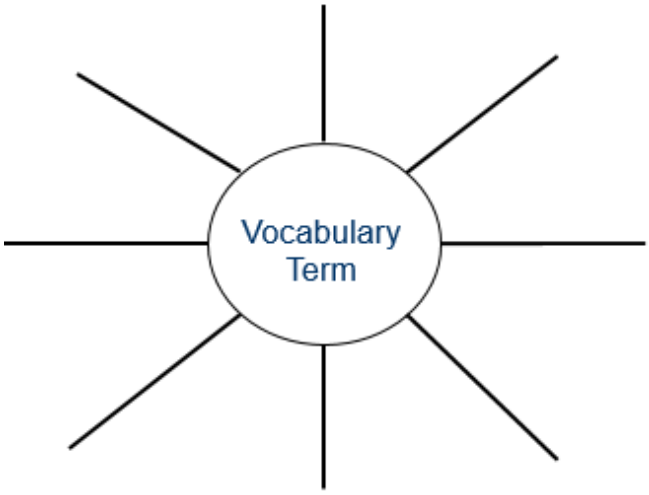
A Semantic Map is a graphic organizer helps students visually organize and graphically show the relationship between one piece of information to another.

When using it for vocabulary, students place the target word in the center. Then, have the students give synonyms, common contexts, descriptors, multiple meanings, personal associations, examples of the word, and its word structure.

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

40

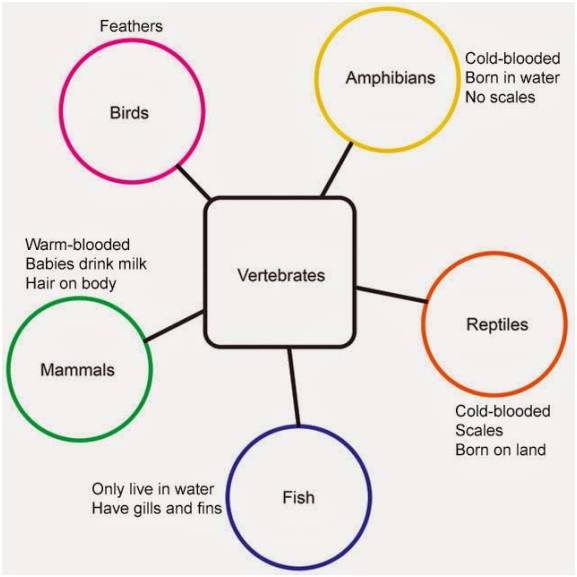
Semantic Map



MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

41

Semantic Map Using Examples



MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

42

Carousel Strategy

Carousel is an activity in which students rotate like a carousel around the classroom and complete various tasks related to a familiar vocabulary word. The is strategy gives students an opportunity to:

- work in cooperative groups,
- discuss and use science vocabulary in a variety of ways, and
- communicate their understanding of the word done both orally and in writing.

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

43

Carousel Activity

Word: _____

Definition: Write a definition of the word.	**Sentence:** Write a sentence using the word.
Synonyms: Write synonyms of the word.	**Antonyms**: Write antonyms of the word.
Content: Create an example of where the word might be seen or heard.	
Picture: Draw a picture of the word.	**Graphic Organizer**: Develop a graphic organizer about the word.

Color code: definition-red; sentence-blue; synonyms-green; antonyms-purple; picture-brown; graphic

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

44

Carousel Strategy Activity

Directions:

- Working in table groups, complete one assigned task for the selected vocabulary words.
- Circulate the room and complete the task with each vocabulary word.
- Be sure to review other groups information about the word and record on note sheet.
- Each group will share what was written for each vocabulary word.

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

45

Science Taboo

This activity can be used to facilitate a student's review of science vocabulary words as well as to reinforce their memory for each science concept.

The objective of the activity is to encourage critical thinking.

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

46

Science Taboo

- ✓ Give each students a card. Holding the card vertically, students will draw a line across the top of the card.
- ✓ Have each student put a vocabulary word at the top of the card.
- ✓ Then have them to write five vocabulary words associated with the word on top.
- ✓ The purpose of this activity is for one student to get the rest of the class to guess the word on top without saying any of the words that are below the line. Those words are "taboo".
- ✓ Example:

Cell
Organelles Unit Eukaryote Prokaryote Cytoplasm

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

47

COMPREHENSION

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

48

Comprehension

The ability to understand and draw meaning from text.

Comprehension can be developed

- by teaching comprehension strategies.

Comprehension strategies can be taught

- through explicit instruction.
- through cooperative learning.
- by helping readers use strategies flexibly and in combination.

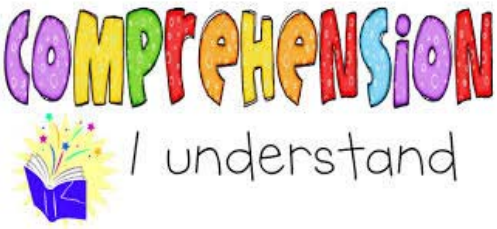
MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

49

Comprehension

The ability to **understand**, **remember**, and **communicate** with others about what has been read.

Comprehension is the goal of reading.



MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

50

Comprehension

Students need to learn:

- how to understand what they read (informational/explanatory texts), remember what they read, and communicate to others about what they read.
- how to relate their own knowledge or experiences to text.
- how to use comprehension strategies to improve their comprehension.

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

51

Comprehension

Teachers can:

- explicitly explain, model, and teach comprehension strategies, such as previewing and summarizing text.
- provide comprehension instruction before, during, and after reading informational / explanatory texts.
- promote thinking and extended discourse by asking questions .
- provide extended opportunities for English language learners to participate in all of the above.

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

52

Introducing New Strategies

- Describe the purpose of the strategy.
- Model strategy.
- Monitor and support students.

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

53

Common Comprehension Strategies

Comprehension can be developed by teaching comprehension strategies.

- Activating Prior Knowledge
- Anticipation Guide
- TextMasters
- Cloze Reading
- Double Entry Journals
- Reciprocal Teaching
- Concepts sorts
- Graphic Organizers

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

54

Turn and Talk

How are you currently teaching comprehension in your classroom?

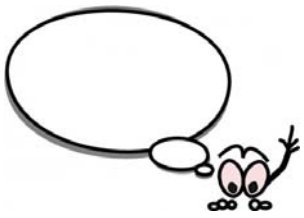
If you have used one of the strategies mentioned on the previous slide, provide a brief explanation and explain the advantages/disadvantages of using the strategy.

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

55

Comprehension Strategy: Activating Prior Knowledge

Activating Prior Knowledge is important because it helps students make connections to new information they will be learning. By tapping into what students already know, teachers can assist students with the learning process.



MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

56

Anticipation Guide

Anticipation Guide

Before Agree	Before Disagree	Statement/Question and Evidence	After Agree	After Disagree
		1. The five components for reading are phonemic awareness, phonics, fluency, vocabulary, and comprehension. **Evidence:**	X	
		2. Cooperative learning instruction has been used successfully to teach comprehension strategies in content-area subjects. **Evidence:**	X	
		3. Fluent reading sounds good but has little effect on reading comprehension. **Evidence:**		X
		4. Instruction at all grade levels can benefit from showing students how reading is a process of making sense out of text, or constructing meaning. **Evidence:**	X	
		5. Teaching specific words before reading help both vocabulary learning and reading comprehension. **Evidence:**	X	
		6. Multiple-strategy instruction teaches students how to use strategies flexibly as they are needed to assist their comprehension. **Evidence:**	X	
		7. Teachers can help students develop word consciousness. **Evidence:**	X	

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

57

Reflection

Squares with my belief of literacy instruction

Something I loved

3 points I want to remember

On a sticky note, respond to one of these prompts. Place it on the chart paper as you exit.

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

58

Sources

"Literacy Strategies: Cubing." *Literacy and Learning: Reading in the Content Areas.* Louisiana Public Broadcasting, Baton Rouge, LA. 26 June 06 http://www.litandlearn.lpb.org/strategies/strat_cubing.pdf

Tomlinson, Carol Ann, and Jay McTighe. *Integrating Differentiated Instruction and Understanding by Design: Connecting Content and Kids.* Alexandria, VA: ASCD, 2006

Witherell, Nancy L., and Mary C. McMackin. *Graphic Organizers and Activities for Differentiated Instruction in Reading.* New York: Scholastic, 2002.

Wormeli, Rick. *Fair Isn't Always Equal: Assessing & Grading in the Differentiated Classroom.* Portland, ME: Stenhouse, 2006.

Resources

Reading Rockets *"What is Differentiated Instruction?"*
http://www.readingrockets.org/article/what-differentiated-instruction
Strategies That Differentiate Instruction (Grades 4 and 5)
http://education.ky.gov/educational/diff/Documents/StrategiesThatDifferentiateInstruction4.12.pdf
Cooperative Learning Instructional Strategies
http://www.teach-nology.com/currenttrends/cooperative_learning/
6 Strategies for Differentiated Instruction in Project-Based Learning
https://www.edutopia.org/blog/differentiated-instruction-strategies-pbl-andrew-miller
Scholastic *"4 Proven Strategies for Differentiating Instruction"*
https://beta.scholastic.com/teachers/articles/teaching-content/4-proven-strategies-differentiating-instruction/

Resources

Florida Center for Reading Research Center Activities
http://www.fcrr.org/curriculum/SCAindex.shtm
"Collection of Ready-to-use Literacy Center Ideas for Grades 3-5"
http://www.franklinboe.org/cms/lib/NJ01000817/Centricity/Domain/39/A_collection_of_ready_to_use_Literacy_Centers_Grades_3-5.pdf
Cooperative Learning Activities and Strategies
http://www.colorincolorado.org/article/cooperative-learning-strategies

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

Dr. Kymyona Burk, State Literacy Director (K-12)
kymyona.burk@mdek12.org
LeighAnne Cheeseman, K-3 English Learner/Assistant State Literacy Coordinator
lcheeseman@mdek12.org
Jill Webb Hoda, K-3 Assistant State Literacy Coordinator
jhoda@mdek12.org
Casey Sullivan, K-3 Assistant State Literacy Coordinator
csullivan@mdek12.org
Kristen Wells, K-3 Assistant State Literacy Coordinator
kwells@mdek12.org

DIFFERENTIATING INSTRUCTION

STRATEGIES FOR MEETING STUDENTS' INDIVIDUAL NEEDS

Rethink Literacy! 2.0

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

Division of Literacy
Office of Elementary Education and Reading
601-359-2586

Mississippi Department of Education

VISION

To create a world-class educational system that gives students the knowledge and skills to be successful in college and the workforce, and to flourish as parents and citizens

MISSION

To provide leadership through the development of policy and accountability systems so that all students are prepared to compete in the global community

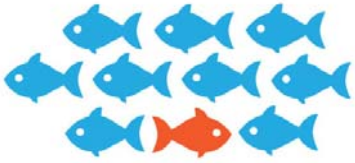
State Board of Education Goals FIVE-YEAR STRATEGIC PLAN FOR 2016-2020

1. All Students Proficient and Showing Growth in All Assessed Areas
2. Every Student Graduates from High School and is Ready for College and Career
3. Every Child Has Access to a High-Quality Early Childhood Program
4. Every School Has Effective Teachers and Leaders
5. Every Community Effectively Uses a World-Class Data System to Improve Student Outcomes
6. Every School and District is Rated "C" or Higher

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

Session Norms

- Silence your cell phones
- Please check and/or reply to emails and texts during the scheduled breaks
- Be an active participant
- Do not hesitate to ask questions



MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

Session Goals

- Review the meaning of **Differentiated Instruction**
- Discuss how to **tier instruction for differentiation**
- Implement and practice **differentiated instructional strategies**

Opening Activity

Find others who have the same number as you. In your group, answer the following questions. *Be prepared to share out!*

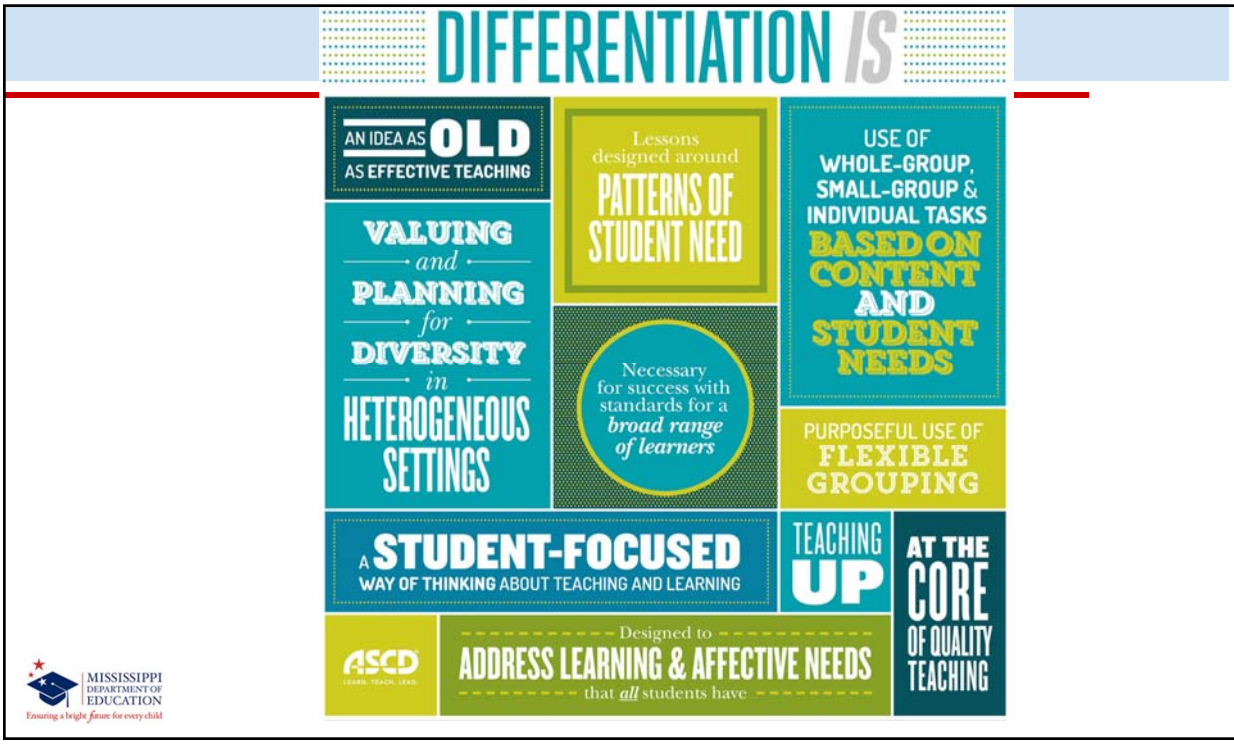
- What **IS** differentiated instruction? What **IS NOT** differentiated instruction?
- What differentiated instruction strategies have you seen used or have you used in your own classroom?
- Why might teachers be hesitant to include differentiated instruction in their classrooms?

WHAT IS DIFFERENTIATED INSTRUCTION?

Meeting Individual Needs

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

7



MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

8

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

9

What is Differentiated Instruction?

Differentiation means tailoring instruction to meet individual needs. Whether teachers differentiate content, process, products, or the learning environment, the use of ongoing assessment and flexible grouping makes this a successful approach to instruction.

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

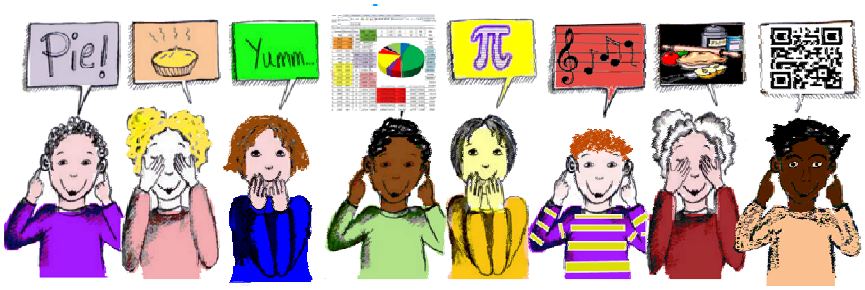
What is Differentiated Instruction?

At its most basic level, differentiation consists of the efforts of teachers to respond to variance among learners in the classroom. *Whenever a teacher reaches out to an individual or small group to vary his or her teaching in order to create the best learning experience possible, that teacher is differentiating instruction.*

Differentiating the Content

Teachers can differentiate at least four classroom elements based on student readiness, interest, or learning profile:

1) Content – what the student needs to learn or how the student will get access to the information



Differentiating the Content

Examples of differentiating content include the following:

- Providing students with choices in order to add depth to learning;
- Provide students with additional resources that match their levels of understanding
- Pre-assess student skills and understandings, then match with appropriate activities
- Present essential facts and skills

Differentiating the Process

Teachers can differentiate at least four classroom elements based on student readiness, interest, or learning profile:

2) Process – activities in which the student en order to make sense of or master the content

Differentiating the Process

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

15

Differentiating the Process

Examples of differentiating processes or activities include the following:

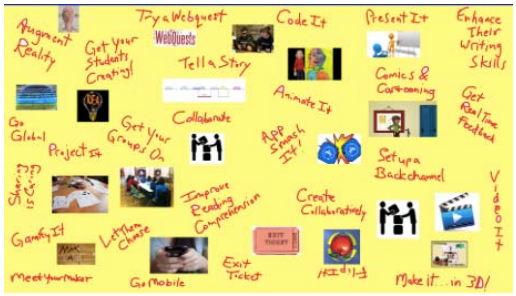
- Using tiered activities through which all learners work with the same important understandings and skills, but proceed with different levels of support, challenge, or complexity;
- Developing personal agendas (task lists written by the teacher and containing both in-common work for the whole class and work that addresses individual needs of learners) to be completed either during specified agenda time or as students complete other work early;
- Develop activities that reflect student learning styles and preferences

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

Differentiating the Products

Teachers can differentiate at least four classroom elements based on student readiness, interest, or learning profile:

3) Products – culminating projects that ask the student to rehearse, apply, and extend what he or she has learned in a unit



Differentiating the Products

Examples of differentiating products include the following:

- Giving students options of how to express required learning (e.g., write a report, take a test, create a brochure, write a speech, produce a skit);
- Using rubrics that match and extend students' varied skills levels;
- Allowing students to work alone or in small groups on their products; and
- Encouraging students to create their own product assignments as long as the assignments contain required elements.

Differentiating the Learning Environments

Teachers can differentiate at least four classroom elements based on student readiness, interest, or learning profile:

4) Learning Environment – the way the classroom works and feels

Differentiating the Learning Environments

Examples of differentiating learning environments include the following:

- Ensuring there are places in the room to work quietly and without distraction, as well as places that invite student collaboration;
- Providing materials that reflect a variety of cultures and home settings;
- Setting clear guidelines for independent work that matches individual needs;
- Developing routines that allow students to get help when teachers are busy with other students and cannot help them immediately; and
- Helping students understand that some learners need to move around to learn, while others do better sitting quietly

Differentiated Instruction Table Activity

As a table, **choose one of the following classroom elements**.
Discuss how you would differentiate instruction in that area.
Be ready to share!

1) Content – what the student needs to learn or how the student will get access to the information
2) Process – activities in which the student engages in order to make sense of or master the content
3) Products – culminating projects that ask the student to rehearse, apply, and extend what he or she has learned in a unit
4) Learning Environment – the way the classroom works and feels

UTILIZING COMMON ASSESSMENT DATA TO PLAN

TIERED INSTRUCTION

Step 1: Record Results by Standard

Following a common assessment, use the test blueprint to record student results by standard assessed to provide a clear picture of student understanding.

Analyzing Individual Student Common Assessment Data
ELA 2nd 9 Weeks

- Use the Objective Level Report and write in the standards assessed on the 2nd 9 weeks CA.
1. List your students' names for your homeroom.
2. Look at their objective report and write the percentage for each standard
3. For each standard, highlight 60% and above green and below 60% pink.

Student Names/Overall Total						Language Total								Lit Total									Info Total

A Note on Scaffolding Instruction

By identifying standards students struggled with, teachers can use the scaffolding document to understand where students might have gaps or be ready for more advanced content, allowing them to better plan tiered instruction.

Using the Scaffolding Document….

1. Locate the 2 weakest standards from Common Assessment that you chose above.

2. Identify the gaps…..Look at the evidence column on the SD for that standard. Which piece of evidence did the students not master?
   Standard _____
   _____
   Standard_____
   _____

3. Next steps/Strategies- What are our next steps to ensure these standards are mastered and the gaps are closed?

_____
_____
_____
_____
_____

Step 2: Group Students for Tiered Instruction

Using data from the previous chart, identify students who scored below 60% for each standard and record their names. This creates a grouping system to assist in planning tiered tasks and small group intervention support.

Students below 60% Standard_____	Students below 60% Standard_____	Students below 60% Standard_____	Students below 60% Standard_____	Students below 60% Standard_____	Students below 60% Standard_____	Students below 60% Standard_____	Students below 60% Standard_____	Students below 60% Standard_____
Students below 60% Standard_____	Students below 60% Standard_____	Students below 60% Standard_____	Students below 60% Standard_____	Students below 60% Standard_____	Students below 60% Standard_____	Students below 60% Standard_____	Students below 60% Standard_____	Students below 60% Standard_____

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

What is tiered instruction?

Tiered instruction is making slight adjustments within the same lesson to meet student needs. This includes, but is not limited to:

- Level of complexity
- Amount of structure
- Time allowed
- Number of steps required for completion
- Form of expression (letter, essay, report, research paper, short story, speech)
- Pacing of the assignment
- Materials provided
- Level of independence required

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

Planning a Tiered Instruction Lesson

Step 1:
Identify the key concepts, skills, and essential understandings all students need to achieve.

Step 2:
Identify how to cluster groups/activities. There can be multiple levels of tiers, but the number of levels need to be consistent with the tier groups students are currently in.

Planning a Tiered Instruction Lesson

Step 3:
Select the elements to tier.

- Tier by **challenge level** using Bloom's Taxonomy
- Tier by **complexity** by addressing the needs of students at all levels, introductory to advanced
- Tier by **resources** by choosing materials at various reading levels and content complexities
- Tier by **outcomes** by having students use the same materials to develop various end products
- Tier by **process** by having students come to the same end product in their own different ways
- Tier by **product** by grouping students by intelligences or learning styles followed by assignments which fit their preferences

Planning a Tiered Instruction Lesson

Step 4:
Create your on-level tier.

Step 5:
Design a similar task for struggling learners where adjustments are based on student readiness.

Step 6:
If needed, develop a third, more advanced activity for learners who have already mastered the basic standard or competency. This task needs to require more higher-level thinking than the on-level task. Remember that the advanced tier should not be more repetitions or longer assignments of the same on-level task.

DIFFERENTIATED INSTRUCTION ACTIVITIES

Differentiated Instruction Strategies - MENU

Menus

1. Identify the most important element of the lesson or unit
2. Develop a required assignment or project that covers the minimum understanding all students are expected to achieve
3. Create negotiables that expand upon the “main dish” (required assignment) which require students to synthesize, analyze, or evaluate.
4. Create a final optional section for enrichment. This section can be used for extra credit.

Differentiated Instruction Strategies - MENU

Menus

	Overview
Appetizers (Negotiables)	- A list of assignments or projects where students need to synthesize, analyze, or evaluate (Choose 1)
The Main Dish (Imperatives)	- The assignment or project everyone must complete
Side Dishes (Imperatives)	- A list of assignments or projects where students need to synthesize, analyze, or evaluate (Choose 2)
Desserts (Extension Options)	- Optional (but irresistible!) high-interest and challenging assignments or projects (Choose 1)

Differentiated Instructional Strategies - MENU

Main Dish	Side Dish	Dessert
You must complete all items to earn a C.	You must complete one to earn a B. You must complete two to earn an A.	Complete one for an A.
- Select a chemical problem in the environment and define and describe the difficulties it presents - Complete a map showing where this problem exists, who/what is affected, and the degree of impact - Develop a talking paper describing the present and future solutions, as well as your recommendations.	- Determine the approximate costs of the problem of one badly affected region and develop a graphic showing total costs and cost make-up - Develop a timeline of the evolution of the problem over the last 100 years, including significant dates and factors contributing to the change. Project the timeline into the future based on your understanding of current trends.	- Create a Gary Larson-type cartoon or editorial cartoon that makes a commentary on the problem. - Develop a filmed 60-second public service announcement to raise audience awareness of the problem and introduce positive actions citizens might take to improve the future prognosis.

3

MENU Activity

Work with your table group to create menu items based on an upcoming unit to complete the template:

Main Dish	Side Dish	Dessert
You must complete all items to earn a C.	You must complete one to earn a B. You must complete two to earn an A.	Complete one for an A.

Differentiated Instructional Strategy - CUBING

Group Discussion and Cooperative Learning Strategies:

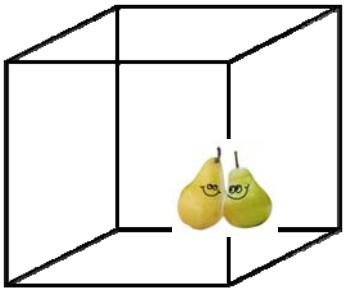
Think-Pair-Share

- What is the benefit of the Menu?
- What additional planning does the classroom teacher need to do to begin using the Menu?
- How do you expect to see students respond to the Menu?

Differentiated Instructional Strategy - CUBING

Cubing

- Introduce by applying to a familiar object, such as a candy.
- Have students work in groups or pairs.

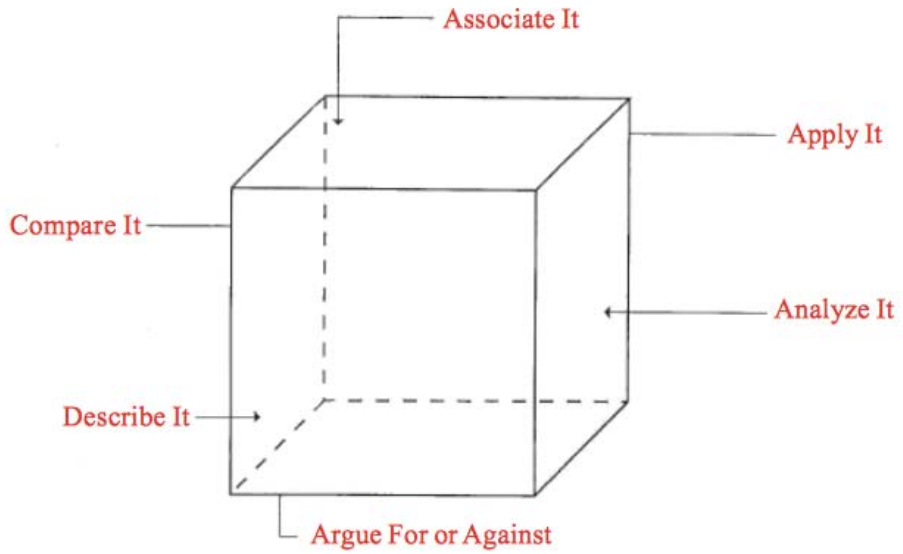


Differentiated Instructional Strategy - CUBING

Cubing

- **Describe It** – What does it look like?
- **Compare It** – Compared to something else, what is it similar to or different from?
- **Associate It** – What do you associate it with? What does it make you think of?
- **Analyze It** – What are its parts? How is it made?
- **Apply It** – What can you do with it? How can you use it?
- **Argue For or Against It** – Present an argument. Give students 10 minutes to build a mini-presentation and share out.

Differentiated Instructional Strategy - CUBING

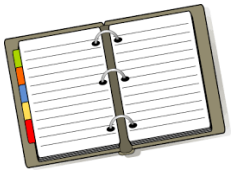


Differentiated Instructional Strategy Cubing Activity

CHOOSE ONE OBJECT:

Describe It – What does it look like?
Compare It – Compared to something else, what is it similar to or different from?
Associate It – What do you associate it with? What does it make you think of?
Analyze It – What are its parts? How is it made?
Apply It – What can you do with it? How can you use it?
Argue For or Against It – Present an argument.






MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

39

Table Talk Activity

Group Discussion and Cooperative Learning Strategies:

Numbered Heads Together

- What planning needs to be done by the teacher prior to using the cube strategy?
- How can the cube be used across content areas to differentiate instruction?
- How could the cube be used for both group and independent work?

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

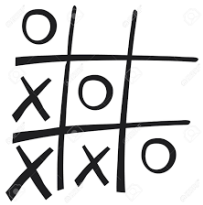
Office of Elementary Education and Reading

40

Differentiated Instructional Strategy – Tic Tac Toe

Tic-Tac-Toe

- Identify the instructional focus of a unit of study
- Use assessment data and student profiles to determine student readiness, learning styles, and interests
- Design nine different tasks
- Arrange the tasks on a choice board
- Select one task required for all students and place it at the center



- Students complete three tasks, one of which must be the task in the middle square, completing a Tic-Tac-Toe row

Differentiated Instructional Strategy – Tic Tac Toe

Tic-Tac-Toe Adaptations

- Allow students to complete any three tasks, even if they don't make a Tic-Tac-Toe
- Assign students tasks based on their readiness, or create different choice boards based on readiness
- Create choice board options based on learning styles or learning preferences (Example: a choice board could include three kinesthetic tasks, three auditory tasks, and three visual tasks)

Differentiated Instructional Strategy – Tic Tac Toe

Tic-Tac-Toe Example

Interpersonal Task	Kinesthetic Task	Naturalist Task
Logical Task	Student Choice	Intrapersonal Task
Interpersonal Verbal Task	Musical Task	Verbal Task

Rick Wormeli

Differentiated Instructional Strategy – Tic Tac Toe

Create an informative brochure on the Scientific Method, including a description of each step. Include pictures.	Create a poster on why the Scientific Method is important. Include information, pictures, and demonstrations explaining how we use the Scientific Method daily.	Write a letter to your teacher describing the types of activities and experiments you would like to do using the Scientific Method this year in class.
Write a song about the Scientific Method, creating motions to go with each step. Perform your song.	**Unit Test**	Design a comic strip showing the steps of the Scientific Method
Choose a science topic to turn into a research project. Use the steps of the Scientific Method to plan out your research proposal.	Read 11 Experiments that Failed. Make an illustrated list of the conclusions the main character drew from her experiments.	Imagine how a mad scientist would try and take over the world. Then, use the Scientific Method to make a plan to save the world.

Tic Tac Toe Activity

Work with your table group to develop a Tic-Tac-Toe board based on an upcoming unit. Record on the chart paper. Be prepared to share out!

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

Table Talk Activity

Group Discussion and Cooperative Learning Strategies:

Tea Party

- What is your previous interaction with “Tic-Tac-Toe” in the classroom?
- How can Tic-Tac-Toe be used as a differentiated instruction tool?
- How do you see yourself using this strategy in your classroom?

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

Differentiated Instructional Strategy - TECH

Technology Benefits

- Multimedia reaches multiple senses
- Multimedia projects validate self-expression
- Technology gives a sense of ownership to the user
- Multimedia creates an active rather than passive atmosphere for learning
- Technology fosters communication among students, as well as between students and teachers

Table Talk Activity

Technology Activity

- Discuss technology resources you currently use in your classroom or school.
- Record the resources on the anchor chart paper.
- Be prepared to share a brief synopsis of your favorite technology tool and how it benefits differentiated instruction.

In Closing, WHY Differentiated Instruction?

Gina Biancarosa and Catherine Snow (2004), authors of Reading Next, point to a statistic that should cause all middle grade, middle school, and high school educators to rethink their instructional practices. They note:

"A full **70 percent of U.S. middle and high school students require differentiated instruction**, which is instruction targeted to their individual strengths and weaknesses."

Exit Ticket

- List **THREE** things you remember from this session.
- Share **TWO** examples of something you would like to try.
- Write down **ONE** question on a post-it note that you would have like more information on.

Sources

"Literacy Strategies: Cubing." *Literacy and Learning: Reading in the Content Areas.* Louisiana Public Broadcasting, Baton Rouge, LA. 26 June 06 http://www.litandlearn.lpb.org/strategies/strat_cubing.pdf

Tomlinson, Carol Ann. *The Differentiated Classroom: Responding to the Needs of All Learners.* Alexandria, VA: ASCD, 1999.

Tomlinson, Carol Ann, and Jay McTighe. *Integrating Differentiated Instruction and Understanding by Design: Connecting Content and Kids.* Alexandria, VA: ASCD, 2006

Witherell, Nancy L., and Mary C. McMackin. *Graphic Organizers and Activities for Differentiated Instruction in Reading.* New York: Scholastic, 2002.

Wormeli, Rick. *Fair Isn't Always Equal: Assessing & Grading in the Differentiated Classroom.* Portland, ME: Stenhouse, 2006.

Resources

Reading Rockets *"What is Differentiated Instruction?"*
http://www.readingrockets.org/article/what-differentiated-instruction
Strategies That Differentiate Instruction (Grades 4 and 5)
http://education.ky.gov/educational/diff/Documents/StrategiesThatDifferentiateInstruction4.12.pdf
Cooperative Learning Instructional Strategies
http://www.teach-nology.com/currenttrends/cooperative_learning/
6 Strategies for Differentiated Instruction in Project-Based Learning
https://www.edutopia.org/blog/differentiated-instruction-strategies-pbl-andrew-miller
Scholastic *"4 Proven Strategies for Differentiating Instruction"*
https://beta.scholastic.com/teachers/articles/teaching-content/4-proven-strategies-differentiating-instruction/

Resources

Florida Center for Reading Research Center Activities
http://www.fcrr.org/curriculum/SCAindex.shtm
"Collection of Ready-to-use Literacy Center Ideas for Grades 3-5"
http://www.franklinboe.org/cms/lib/NJ01000817/Centricity/Domain/39/A_collection_of_ready_to_use_Literacy_Centers_Grades_3-5.pdf
Cooperative Learning Activities and Strategies
http://www.colorincolorado.org/article/cooperative-learning-strategies

MISSISSIPPI DEPARTMENT OF EDUCATION
Ensuring a bright future for every child

Dr. Kymyona Burk, State Literacy Director (K-12)
kymyona.burk@mdek12.org
LeighAnne Cheeseman, K-3 English Learner/Assistant State Literacy Coordinator
lcheeseman@mdek12.org
Jill Webb Hoda, K-3 Assistant State Literacy Coordinator
jhoda@mdek12.org
Casey Sullivan, K-3 Assistant State Literacy Coordinator
csullivan@mdek12.org
Kristen Wells, K-3 Assistant State Literacy Coordinator
kwells@mdek12.org

Analyzing Common Assessment Data

Using the Objective report….

1. Put a Star beside the standards that have been taught this 9 weeks.
2. Out of the standards taught, highlight 60% and above green and anything below pink.
3. What are the 2 weakest standards that you highlighted pink?

Standard 1

_____

Standard 2

_____

Using a hard copy of the Common Assessment….

1. Locate the questions that assessed the weakest standard on the Common Assessment.
2. Complete the section below about each question.

Question #_____ Standard_____	Question #_____ Standard_____	Question #_____ Standard_____	Question #_____ Standard_____
1. What is the question asking the students to do? (verb)_____ _____ _____ _____ _____ _____	1. What is the question asking the students to do? (verb)_____ _____ _____ _____ _____ _____	1. What is the question asking the students to do? (verb)_____ _____ _____ _____ _____ _____	1. What is the question asking the students to do? (verb)_____ _____ _____ _____ _____ _____
2.What format is used to assess the standard? • MC • Part A and B • Fill in the Blank • Graphic Organizer • Select more than one answer • Drag and Drop	2. What format is used to assess the standard? • MC • Part A and B • Fill in the Blank • Graphic Organizer • Select more than one answer • Drag and Drop	2. What format is used to assess the standard? • MC • Part A and B • Fill in the Blank • Graphic Organizer • Select more than one answer • Drag and Drop	2. What format is used to assess the standard? • MC • Part A and B • Fill in the Blank • Graphic Organizer • Select more than one answer • Drag and Drop

Using the Scaffolding Document….

1. Locate the 2 weakest standards from Common Assessment that you chose above.

2. Identify the gaps…..Look at the evidence column on the SD for that standard. Which piece of evidence did the students not master?

   Standard _____

   _____

   Standard_____

   _____

3. Next steps/Strategies- What are our next steps to ensure these standards are mastered and the gaps are closed?

_____

_____

_____

_____

_____

Analyzing Individual Student Common Assessment Data

* Use the Objective Level Report and write in the standards assessed on the Common Assessment.

1. List your students' names for your homeroom.
2. Look at their objective report and write the percentage for each standard
3. For each standard, highlight 60% and above green and below 60% pink.

Student Names/Overall Total						Language Total									Lit Total										Info Total

Use for Small Group Purposes

Students below 60% Standard_____ _	Students below 60% Standard_____ _	Students below 60% Standard_____ _	Students below 60% Standard_____ _	Students below 60% Standard_____ _	Students below 60% Standard_____ _	Students below 60% Standard_____ _	Students below 60% Standard_____ _	Students below 60% Standard_____ _
Students below 60% Standard_____ _	Students below 60% Standard_____ _	Students below 60% Standard_____ _	Students below 60% Standard_____ _	Students below 60% Standard_____ _	Students below 60% Standard_____ _	Students below 60% Standard_____ _	Students below 60% Standard_____ _	Students below 60% Standard_____ _

Students below 60% Standard_____ _	Students below 60% Standard_____ _	Students below 60% Standard_____ _	Students below 60% Standard_____ _	Students below 60% Standard_____ _	Students below 60% Standard_____ _	Students below 60% Standard_____ _	Students below 60% Standard_____ _	Students below 60% Standard_____ _
Students below 60% Standard_____ _	Students below 60% Standard_____ _	Students below 60% Standard_____ _	Students below 60% Standard_____ _	Students below 60% Standard_____ _	Students below 60% Standard_____ _	Students below 60% Standard_____ _	Students below 60% Standard_____ _	Students below 60% Standard_____ _