REACHING ALL CHILDREN IN THE CLASSROOM:

AN OVERVIEW OF DIFFERENTIATION STRATEGIES FOR ADVANCE LEARNERS

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Differentiation: Introduction

That students differ may be inconvenient, but it is inescapable. Adapting to that diversity is the inevitable price of productivity, high standards, and fairness to the students.

~Theodore Sizer

What is Differentiation?

- Adapting the curriculum to meet the unique needs of learners by making modifications in complexity, depth, and pacing.

Teachers can Differentiate the:

CONTENT:
Knowledge, skills and attitudes we want children to learn; differentiating content requires that students are pre-tested so the teacher can identify the students who do not require direct instruction

PROCESS:
Varying learning activities / strategies to provide appropriate methods for students to explore the concepts; important to give students alternative paths to manipulate the ideas embedded within the concept (different grouping methods, graphic organizers, maps, diagrams, or charts)

PRODUCT:
Varying the complexity of the product that students create to demonstrate mastery of the concepts; students below grade level may have different performance expectations than students above grade level (ie. more complex or more advanced thinking~ Bloom's Taxonomy)

According to Students':

READINESS/ DEVELOPMENTAL:
Some students are ready for different concepts, skills, or strategies; others may lack the foundation needed to progress to further levels

INTEREST:
Student interest inventories provide information to plan different activities that respond to individual student's interest

LEARNING STYLE
Individual student preference for where, when or how students obtain and process information (visual, auditory, kinesthetic; multiple intelligences; environment, social organization, physical circumstance, emotional climate, psychological climate)

ALL DIFFERENTIATION BEGINS WITH PRE-ASSESSMENT

- Textbook Pretest
- Student/Teacher Conference - as short as a 5 minute talk
- K-N-W Chart - What do I Know, Need to know & Want to know
- Journal - Write what you know about...
- List - If I say ... What does it make you think of?
- Concept Map...
- Student Reflection

~You can't figure out what to teach 'em if you don't know 'em!

Jot down some ideas for "pre-learning assessment" for your unit.

I’ve mapped out the concepts I’ve already grasped to save you time.

Tiered Activities

Tiered Instruction features:

- ✓ Whole group introduction and initial instruction
- ✓ Identification of developmental differences
- ✓ Ladder Analogy (bottom – up; challenge/complexity)
- ✓ Increase or Decrease the:
  - ✓ Abstraction/Challenge Levels (ie. application, analysis & synthesis)
  - ✓ Extent of Support
  - ✓ Complexity of:
    - ✓ outcomes
    - ✓ resources (reading levels, types of text [on-line, magazine, etc…], based on prior-knowledge levels)
    - ✓ processes (way in which students obtain information)
    - ✓ products (M.I. products)

Tiered Assignment~ Middle School Unit: Dinosaurs

Objective: In their study of dinosaurs, the students will be able to research and identify various theories of dinosaur extinction.

Task 1 - After researching and identifying various theories of dinosaur extinction, students will be able to create their own theory and draw a picture or diagram illustrating that theory.

Task 2 - After researching and identifying various theories of dinosaur extinction, students will be able to create a visual representation of their theory (i.e. diorama, timeline, or three dimensional model).

Task 3 - After researching and identifying various theories of dinosaur extinction, students will be able to create a visual representation of their theory and defend their theory during a class debate.

Learning Menus

Empowering students through **CHOICE** while ensuring adherence to important LEARNING **GOALS**

What are Learning Menus?

- Learning menus out line a variety of instructional options target toward important learning goals.
- Students are able to select the choices which most appeal to them.
- The teacher directs the menu process, but the student is given control over his/her choice of options, order of completion, etc

Kinds of Menus

MENU Main Dishes, Side dishes, and desserts

AGENDA: Imperatives, negotiables, and options

Think-Tac- Toe: Complete one, a row, column or diagonal line of activities

All three options can be differentiated according to interest, learning profiles, or readiness. SEE YOUR HANDOUTS FOR EXAMPLES

STRATEGY

THE CURRICULUM DIFFERENTIATION CHART

CURRICULUM DIFFERENTIATION CHART

The curriculum differentiation chart is a way to plan curriculum for all of your students at the same time, in the same place,- literally on the same sheet of paper

It includes your description of different learning tasks for auditory, visual, and tactile kinesthetic learners, plus your extension activities for gifted learners (fast learners high achievers)

Curriculum differentiation chart- unit Nutrition

Unit:_____

Key Concept	Auditory	Visual	Tactile/ Kinesthetic	Extension
#1				
#2				
#3				
#4				
#5				

Blooms Taxonomy

Bloom's Taxonomy Action Verbs

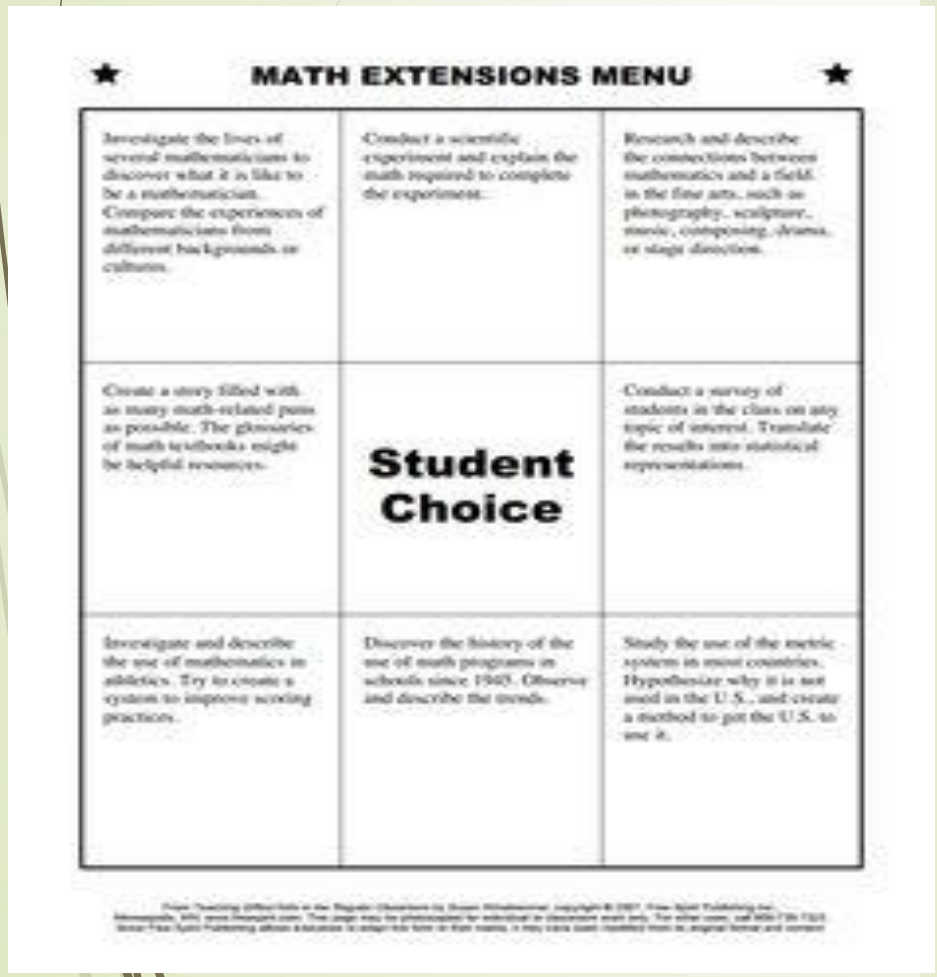
Level	Definition	Sample verbs					Sample behaviors
KNOWLEDGE	Student recalls or recognizes information, ideas, and principles in the approximate form in which they were learned.	arrange define describe duplicate	identify label list match	memorize name order outline	recognize relate recall repeat	reproduce select state	The student will define the 6 levels of Bloom's taxonomy of the cognitive domain.
COMPREHENSION	Student translates, comprehends, or interprets information based on prior learning.	explain summarize paraphrase describe illustrate classify	convert defend describe discuss distinguish estimate explain	express extend generalized give example(s) identify indicate	infer locate paraphrase predict Recognize	rewrite review select summarize translate	The student will explain the purpose of Bloom's taxonomy of the cognitive domain.
APPLICATION	Student selects, transfers, and uses data and principles to complete a problem or task with a minimum of direction.	use compute solve demonstrate apply construct	apply change choose compute demonstrate discover dramatize	employ illustrate interpret manipulate modify operate	practice predict prepare produce relate schedule	show sketch solve use write	The student will write an instructional objective for each level of Bloom's taxonomy.
ANALYSIS	Student distinguishes, classifies, and relates the assumptions, hypotheses, evidence, or structure of a statement or question	analyze categorize compare contrast separate apply	change discover choose compute demonstrate dramatize	employ illustrate interpret manipulate modify operate	practice predict prepare produce relate schedule	show sketch solve use write	The student will compare and contrast the cognitive and affective domains.
SYNTHESIS	Student originates, integrates, and combines ideas into a product, plan or proposal that is new to him or her.	create design hypothesize invent develop arrange assemble	categorize collect combine comply compose construct create	design develop devise explain formulate generate plan	prepare rearrange reconstruct relate reorganize revise	rewrite set up summarize synthesize tell write	The student will design a classification scheme for writing educational objectives that combines the cognitive, affective, and psychomotor domains.
EVALUATION	Student appraises, assesses, or critiques on a basis of specific standards and criteria.	Judge Recommend Critique Justify Appraise Argue	Assess Attach Choose Compare Conclude Contrast	Defend Describe Discriminate Estimate Evaluate Explain	Judge Justify Interpret Relate Predict	Rate Select Summarize Support Value	The student will judge the effectiveness of writing objectives using Bloom's taxonomy.

Reference: http://chiron.valdosta.edu/whuitt/col/cogsys/bloom.html

STRATEGY

Choice Menus

What is Think-Tac-Toe



★ **MATH EXTENSIONS MENU** ★

Investigate the lives of several mathematicians to discover what it is like to be a mathematician. Compare the experiences of mathematicians from different backgrounds or cultures.	Conduct a scientific experiment and explain the math required to complete the experiment.	Research and describe the connections between mathematics and a field in the fine arts, such as photography, sculpture, music, composing, drama, or stage direction.
Create a story filled with as many math-related puns as possible. The glossaries of math textbooks might be helpful resources.	**Student Choice**	Conduct a survey of students in the class on any topic of interest. Translate the results into statistical representations.
Investigate and describe the use of mathematics in athletics. Try to create a system to improve scoring practices.	Discover the history of the use of math programs in schools since 1960. Observe and describe the trends.	Study the use of the metric system in most countries. Hypothesize why it is not used in the U.S., and create a method to get the U.S. to use it.

A simple way to give students alternative ways of exploring key ideas or showing mastery of content

Designed to help students think about a topic from different angles

Gives students choice thus increasing motivation

Students pick one or complete a row, column or diagonal line- you decide

MENU CONTRACT

"Probability" **Due:** _____

All items in the main dish and the specified number of side dishes must be complete by the due date. You may select among the side dishes and you may decide to do some of the desserts items, as well.

Main Dishes (complete all)

1. Complete the "meteorology simulation" on p. 88-89 of your textbook.
2. Create a list of 10 pairs of events. 5 pairs should contain events that are *dependent*; 5 pairs should contain events that are *independent*. Explain each classification.
3. Complete the "frequency table" assignment on p. 506-507 of your textbook.
4. Examine the attached list of functions and determine which functions represent probability distributions.

Side Dishes (Select 2)

1. Work with a partner to analyze the game of "Primarily Odd." See your teacher for game cubes and further instructions.
2. Design a "game spinner" that has this probability distribution: P(red) =0.1; P(green) = 0.2; P(blue) = 0.3; P(yellow) = 0.4.
3. Suppose a dart lands on a dartboard made up of four concentric circles. For the center of the board (the "bull's eye"), r=1.5; the remaining rings have widths of 1.5. Use your understanding of area and probability to determine the probability of 1) hitting a "bull's eye" and 2) landing in the outermost ring.

Desserts (Select 1)

1. Figure the probability of "Murphy's Law" and make a case for whether or not it should indeed be a "law."
2. Use a frequency table to chart the colors that your classmates wear for a week. Then, use probability to predict how many students will wear a certain color on a given day.

Menu Planner

Main dishes, side dishes and desserts

Alli tems in main dish and specified number of main dishes must be completed by due date. You may select among the side disses and yo may decide some of the dessert items, as well

AGEND
A

Imperatives, Negotiables, and options

Science Agenda on Chemical Problems in the Environment

IMPERATIVES **(You *must* do each of these...)**

1. Select a chemical problem in the environment and
   - Define and describe the difficulties is presents
   - Be sure to discuss why, where, and to whom/what

   Your choices are:
   - Global warming/Greenhouse effect
   - Ozone depletion
   - Acid Rain
   - Air Pollution
   - Water Pollution (including thermal pollution and land/ground pollution)

2. Complete a map showing where the problem exists, what/who is affected by it, and the degree of impact

3. Develop a talking paper that describes present and future solutions, as well as your recommendations.

NEGOTIABLES **(You *must* do at least one of these...)**

1. Determine the approximate costs of the problem of one badly affected region and develop a graphic that shows total costs and what makes the costs (for example: Health costs, clean-up costs, lost revenues from land, etc.)

2. Develop a timeline of the evolution of the problem over the last 100 years, including significant dates, and factors that contributed to the change. Take the timeline into the future based on your current understanding of trends associated with the problem.

OPTIONS **(You may do one or more of these...)**

1. Create a Gary Larson-type cartoon or an editorial cartoon that makes a commentary on the problem.

2. Prepare a fictionalized account, but based on scientific fact, of a person who lives in a badly affected area. Your goal is to put a human face on the problem.

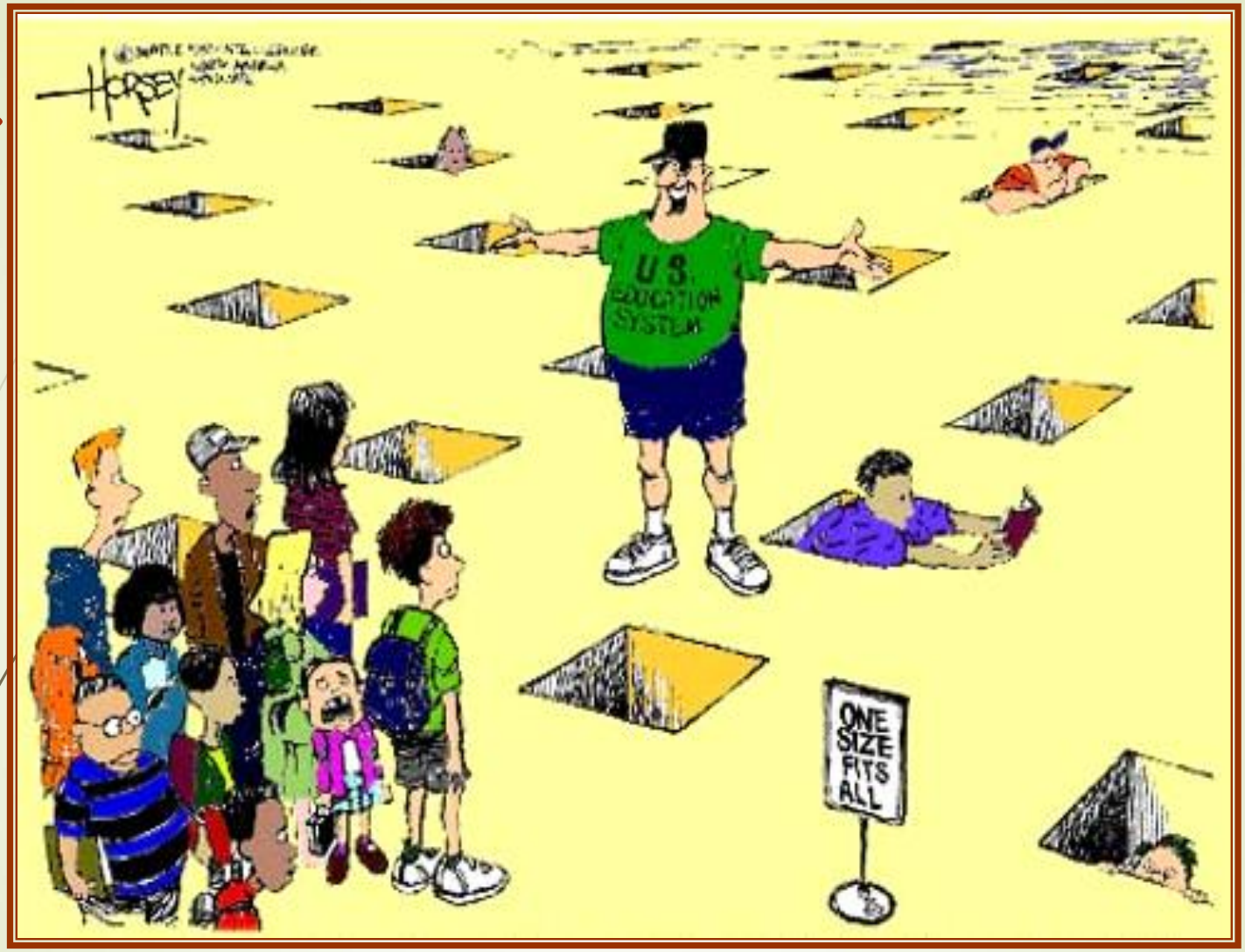
3. Develop a 60-second public service announcement (taped) to raise audience awareness of the problem and introduce positive actions citizens might take to improve the prognosis for the future.

Easiest to develop with a group

Use your team plan to develop strategies for all of your learners- keep track of what worked and what did not.

REMEMBER-you can differentiate at any step or at all steps in the lesson -process, product and content

Use Blooms taxonomy to guide your thinking



**“Summer’s over kids!
Now, all you round pegs get back into your square holes!”**

The biggest mistake we have made in past centuries in teaching has been to treat all children as if they were variants of the same individual and thus to feel justified in teaching them the same subjects in the same ways.

~Howard Gardner