Differentiated Instruction in Your Math Classroom: Making It Work!

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Session objectives:

• Articulate and discuss key elements in a teacher’s planning for differentiation over time.

• Analyze and pose solutions to problems and issues inherent in differentiated classrooms.

• Reflect on your own growth in addressing academic diversity in the classroom.

• Discuss how children learn differently.
Overview of Session:

• What is Differentiation?

• Classroom Practices Inventory

• Identify challenges confronted by teachers in a differentiated classroom

• Experience a math lesson that demonstrates the concept of differentiation

• Discuss ideas for effective differentiation
Think/Pair/Share

Write a word or phrase that describes the concept of differentiation.
Research says…

Teachers successful with differentiation see the whole learner and emphasize the student’s strengths rather than accentuating labels, deficits, or differences.

Differentiation requires use of multiple and alternative forms of assessment at all stages of student learning in order to uncover and address a full range of learning needs and strengths.

A central goal of differentiation is successful student achievement of meaningful and powerful ideas, information, and skills- not reduction in standards, watered-down curriculum, or busy work.

What Brain Research Tells Us

- LEV VYGOTSKY: Zone of Proximal Development- His theory defines the Zone of Proximal Development (ZPD) as the difference between what students can do independently and what they can do with adult assistance (1978). The Zone of Actual Development is the area at which students can work independently with no help. He argues that the ZPD is where real learning takes place. He argues that pretesting is critical in order to place students in the ZPD.

- ERIC JENSEN: The Effect of Challenge on the Brain- In his book, Teaching With the Brain in Mind (1998), he cites other researchers who identify the effects of research on the brain. Bob Jacobs found that the brains of graduate students formed up to 40% more connections in their brains than high school dropouts, and the graduates who had challenging activities formed up to 25% more connections than the control group. William Greenough’s research determined that challenge and feedback to be the two critical ingredients for maximizing brain growth. Jensen argues that the brain is ready for problem solving at age one or two and is fully developed by the age of eleven to thirteen. He argues that brain growth occurs as a result of the engagement in problem solving and is not dependent on arriving at an answer.

- ROBERT STERNBERG: Successful Intelligence (1996) - His theory of human cognition is triarchic. It is composed of three skill areas: analytical (linear thinkers with school smarts), creative (innovative who think outside of the box), and practical (street smart who put things in a context). He argues that people who are successful develop a full range of intellectual skills, rather than just relying on what some call “inert” smarts that schools so value. He argues that to be successful, it is essential that students are taught in their primary area of strength while learning skills in tier weaker areas as well.

- HOWARD GARDNER: Multiple Intelligences- Gardner identified eight intelligences that address the scope of human potential: linguistic (effective use of oral and written language), logical-mathematical (effective use of numbers), visual-spatial (seeing the world through a spatial lens), bodily-kinesthetic (using the body to understand and express ideas), musical (understanding and communicating musically), interpersonal (communicating with and understanding others), intrapersonal (assessing one’s own feelings and thinking), and the naturalist (comprehending the natural world).

Common threads:
- Appropriate levels of challenge for all learners
- Enrichment in some way for all learners
- Choices, enhancing student involvement

Differentiated Instruction: Making it Work by Patti Drapeau (2004) Scholastic Resources
Carousel walk around

Participants should list one key challenge related to the element, or category that is generally important in differentiated classrooms. Repeat this process five times.

Participants will complete the matrix based on what is shared with the whole group.
Reflection

After experiencing the math lesson, share one idea with your group that you will apply in your teaching and explain how you would use it.