

## Differentiation Strategies in Math Classroom

### What is Differentiation?

**“Differentiation is simply a teacher attending to the learning needs of a particular student or small groups of students, rather than teaching a class as though all individuals in it were basically alike.”—Carol Ann Tomlinson (2000)**

### Strategies **Before** Learning

- Provide a **visual organizer** at the beginning of a unit to show not just the central concepts and kinds of problems that will be addressed, but the intriguing questions that will be explored as well (e.g., "When is a fraction superior to a percentage and vice versa?").
- **Make sure students can compute easily and well, but emphasize the use of mental math rather than either routine algorithms or calculators. (spend 10 minutes a day on mental math strategies)**
- **Pre-teach vocabulary terms.**

### Strategies **During** Lesson

- Use a variety of teaching strategies to present the same skills/concept
- Create stations with different leveled problems
- Use an explicit story problem format. Repeat this format for every story problem.
- Provide note outline for lesson.
- Emphasize the role of diagramming in interpreting and solving problems in mathematics.
- Use samples of high, medium, and low student problem-solving, and explanations of reasoning to provide a touchstone to help Mastery learners assess their progress.
- Model reasoning and explaining processes frequently.
- Provide visual organizers at the beginning of units to show the central concepts and kinds of problems that will be addressed.
- Use manipulatives
- Explicitly model for students how to observe and take notes on their problem-solving processes *while* they are doing math. (one-on-one or small group)
- Explicitly model and practice how to use notes taken during the problem-solving process to build specific explanations. (one-on-one or small group)
- Model Vocabulary terms. Represent the word in multiple ways (definition, picture/diagram, real-life situation).
- Discuss and compare computation and problem solving strategies.
- Continually provide opportunities for students to solve complex math problems through conversation and collaboration in small groups and learning partnerships.
- Provide opportunities for students to teach their new mathematical ideas to others.
- Model and practice a variety of ways of representing mathematical ideas and procedures visually and verbally.
- Use “prove-it” sessions to practice mental computation and problem solving strategies, and then explain the how and the why of the strategies students used to perform these operations.

### Strategies **After** Learning- Independent Work

- **Offer student several homework/assessment options.**
- Focus work in mathematics on solving a small number of complex problems rather than a larger number of simpler exercises.
- **Meet with student outside of class time. (Explicit and systematic instruction on modeling procedures and processes.)**
- **Provided individualized self-correcting opportunities (students have access to step-by-step process with answers.)**
- **Teach strategies for mental math facts- skip counting, finger counting, grouping (10 minutes daily)**