DIFFERENTIATED INSTRUCTION:
IT’S NOT A RADICAL EXPECTATION...
IT’S THE REAL DEAL!

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Outcomes

During our time together today, our goals are to:

• define differentiation;

• explore how to utilize differentiated instruction to meet the needs diverse learners; and

• consider how differentiated instruction is the real deal.
What is differentiated instruction?
What is differentiated instruction?

Differentiated Instruction - Instruction designed to meet differing learners’ needs.
Considerations for Meeting Student Needs

• Digital age changing the way we think and teach
• Diversity in classroom composition
• National agenda - all students must meet standards
Do I have to differentiate in Math?

YES!

Important reasons to differentiate in Math:

• Higher demand for mathematical skills
• Gap in achievement
• Math phobia
• Focused and coherent curriculum
• Increased student expectations
What does differentiation look like?

View video clip here:
http://mathsolutions.wistia.com/projects/ba57hfixlq

• How is differentiated instruction a part of these classrooms?
• What surprises you? What is familiar to you?
Know Your Standards

• How do the concepts and skills I am teaching develop across grade levels?
• Am I using language that might cause misunderstandings later?
• Am I oversimplifying mathematical ideas?
Know Your Students

• Questionnaires
• Interviews
• Anecdotal Records
• Quick Assessments
• Open ended problems
Questionnaires

Who are you as a learner?
Interviews

View video clip here:
http://mathsolutions.wistia.com/projects/ba57hfixlq
Anecdotal Records

Renee- collaborated with partner - used appropriate math talk

Diane- used John’s strategy from yesterday’s lesson
Quick Assessments

Range Question

What are some fractions greater than ½ and less than ¾?

Exit Slip

3

Correct the Error

34 - 17 = 23

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Open ended problems

What do you know about 100?
Open-ended tasks provide teachers a way to assess accuracy, flexibility, and engagement in order to differentiate future tasks based on:

• **Content**—the material being presented;

• **Process**—the tasks students engage in and the strategies students use in order to make sense of or practice mathematics; and

• **Product**—the work completed by the student.
“We believe that getting to know each student is at the heart of differentiation.”
“Choosing mathematical tasks is one of the most important decisions that teachers can make. Although it is difficult for one task to be appropriate for all learners, most tasks can be transformed to be more inclusive, to allow a greater number of students access, and to provide additional students with possibilities for more expansive thinking.”

Zone of Proximal Development

That area that provides challenge, without going beyond the student’s comfort zone or edges, that is, without being too easy or too hard.

Original Task
- too simple, routine, or limited
- Appropriate level
- too difficult, or requires more preparation

Transformed Task
- too simple, routine, or limited
- Appropriate level
- Too difficult, or requires more preparation

Task is adapted
Transform Your Tasks

• Give students control over the difficulty level
• Open up problems
• Vary the challenge
Transform Your Tasks

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Students Provide the Numbers in the Problem

Nora had ____ stickers in her sticker book. There were ____ stickers on each page. Then, Nora’s uncle came to visit and gave her enough stickers to fill ___ pages in her book and add ___ stickers to the next page. Now, Nora has ____ stickers.
Students Choose Exercises to Complete

• Pick 5 examples that have a product that is less than 50 and tell how you know that will be so.
• Pick 1 example and find the product. Next create 4 different multiplication examples that will have the same product.
Transform Your Tasks

• Give students control over the difficulty level
• Open up problems
• Vary the challenge
What’s the Question?

Here are the answers: 42, 2, 294, 3 ½

Number Story:

Sabina and Mike ran each day this week. Each day Sabina ran 3 miles in 30 minutes. Mike ran 6 miles in 72 minutes every day.

What could be the questions?
42:

How many more minutes did Mike run than Sabina each day?

How many fewer minutes did Sabina run than Mike each day?

How many miles did Mike run this week?

At this rate, how many miles would Sabina run in two weeks?
2:
On average, how many more minutes does it take Mike to run a mile than Sabina?

On average, how many fewer minutes does it take Sabina to run a mile than Mike?
Student Responses

294:

How many more minutes did Mike run than Sabina this week?

How many fewer minutes did Sabina run than Mike this week?
3 ½:
How many hours did Sabina run this week?
Transform Your Tasks

• Give students control over the difficulty level
• Open up problems
• Vary the challenge
Tiered Tasks

Mystery Puzzles
Tiered Task

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Processing

• What stays the same between the tiers?
• What changes between the tiers?
• How do the tiers support the accessibility for different students?
• How do the tiers challenge students?
As we choose among modifications we must remember that all students deserve challenging thought–provoking problems and tasks. Too often, in the spirit of “helping” some students are provided with simplistic tasks or rules to follow that are not connected to conceptual understanding.

*Math For All: Differentiating Instruction* by Linda Dacey and Jayne Bamford Lynch. © 2007 by Math Solutions Publications
Differentiated Instruction - What should I keep in mind?

10. Identify where you already provide differentiation
9. Recognize where you are along the journey
8. Start small
7. Anticipate student support
6. Expect surprises
Differentiated Instruction - What should I keep in mind?

5. Let students help
4. Work with parents
3. Find sources of professional learning
2. Reflect on your journey
1. Keep the vision
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Who Are You as a Learner? Questionnaire

Distribute to students early during the school year. For younger children, ask the parent or guardian to complete this questionnaire at home, with the adult reading and recording the information given by the child.

Student name: ________________________________

Who Are You as a Learner?

1. If you could learn about anything at school, what would you choose?

2. What do you know a lot about?

3. How do you work best in school (check all that describe you)?
   ___ alone   ___ partner   ___ small group   ___ large group

4. Where do you like to work at school (check all that describe you)?
   ___ desk   ___ table   ___ hallway   ___ floor   ___ library area   ___ other

5. You learn best when your classroom is (check all that describe you)
   ___ quiet   ___ somewhat quiet   ___ somewhat noisy   ___ noisy

6. Do you like schoolwork to be (check all that describe you)
   ___ easy   ___ somewhat easy   ___ somewhat hard   ___ hard

7. What else helps you to learn?

8. What makes it hard for you to learn?
**Mystery Puzzles**

**RED**

\[ \nabla + \Diamond + \Diamond = 110 \]
\[ \Diamond + 30 = 35 \]
\[ \nabla = \underline{____} \]
\[ \Diamond = \underline{____} \]

Explain how you solved this problem.

**BLUE**

\[ \Diamond + \Diamond + \nabla + \nabla + \nabla = 236 \]
\[ \Diamond - \nabla = 88 \]
\[ \Diamond = \underline{____} \]
\[ \nabla = \underline{____} \]

Explain how you solved this problem.

**GREEN**

\[ \times + \times + \Lambda + \Lambda = 522 \]
\[ \times + \Lambda = 261 \]
\[ \times = \underline{____} \]
\[ \Lambda = \underline{____} \]

Explain how you solved this problem. Can you find more than two solutions? Prove it!