Differentiating Instruction with Middle School Students

Amy Hackenberg, ahackenb@indiana.edu
Mark Creager, macreage@indiana.edu
Robin Jones, robijone@indiana.edu
Ayfer Eker, ayeker@indiana.edu
Ryan Timmons, rtimmons@indiana.edu
Patti Walsh: pwalsh@mccsc.edu
Marie Johannisson: mjohanni@mccsc.edu

Lower Prep Strategies

- Small group check-in and instruction (rotate who is in the small groups—should not always be the students who struggle or who are seen to struggle)
- Open Questions (see next page); however, these may also be higher prep
- Choice Questions (see next page); however, developing a rationale for number choices may not be low-prep
- Number Talks (Humphreys & Parker, 2015)
- Student-teacher goal-setting
- Varied supplemental materials
- Giving variable amounts of time for tasks, assessment
- Check-ins: Fist to 5, thumbs up/down/in the middle, 4 highlighter colors on assignments for "no clue" to "understand like a teacher", exit cards
- Mini-workshops (if you see more than 4 or 5 students with the same misconception as they're working, stop the class, gather them in a dedicated spot and teach a mini-lesson to clear up the concept)
- Homework checkers (groups of 4 check homework, mark problems based on agreement or disagreement, explain any misconceptions they have cleared up, staple all 4 papers together and turn in. Students who did not complete homework sit apart from the checkers and complete it. Teacher grades one paper at random from the group)
- Personalizing problems (can spark interest, conversation)
- Giving different homework options
- Varied pacing with anchor options (anchor activities are specific activities to do when finished with assigned work)
- Flexible seating
- Options for modes of expression
- Varied scaffolding on the same organizer (provide a single organizer document to all students, but fill out different information for different students)
- Let's Make a Deal projects (students can propose alteration of parts of a larger project, getting teacher's approval before following altered plan)
- Think-Pair-Share by readiness, interest, learning profile (students work alone, then share ideas with one person, then share out to a larger group)
- Bell work can be differentiated and can be graded together—formative assessment where students get to participate in grading and evaluating and advising
- Having students explain thinking, compare responses
- Provide solutions to check work at different places in the room and then can see who is checking and what they are having difficulty with
- **What else?**

Many of the ideas on the above list are from Carol Tomlinson, *How to differentiate instruction in mixed-ability classrooms* p. 34. Some come from the brainstorming of the Teacher Study Group in July 2015.

Higher Prep Strategies

Open-ended problems and requests for two solutions

- Problems that invite multiple solution pathways
- Problems students can solve in multiple ways
- Can have a single answer
- Put constraints on the problems so that they are problematic/get at concepts not just procedures
- Example: If I can exchange 3 euros for $4, how many euros can I exchange for $28? Give two different ways to find your solution but do not set up a proportion and "cross-multiply."

Open Questions (Small & Lin, 2010)

- Questions or problems for which a variety of responses are possible, including more basic responses and more complex ones (Small & Lin, p. 7).
- Typically have many answers
- Can spark good mathematical discussions, in part because many students can contribute.
- Example: You describe a situation with the expression 5x. What might the situation be (Small & Lin, p. 23)?

Choice Questions and Parallel Tasks (Small & Lin, 2010)

- Questions in which the teacher provides choices and students choose
- Limit the number of choices (3 options for numbers in Choice Questions, 2 options for Parallel Tasks)
- Let students choose, but can make recommendations after they have worked on their choice
- Example of a Choice Question: Sara bought a sweater on sale. It originally cost ($75.50, $80, $92.75). It had been marked down (10%, 15%, 22%). What was the sale price? Draw a picture to determine your answer and explain your solution.

Tiered Instruction

- Different activities tailored to different ways/levels of thinking in a heterogeneous classroom
- Teacher assigns students to activities—so here the teacher makes choices about what students will work on (in contrast with Choice Questions and Parallel Tasks)
- Activities should be focused on the same big ideas or key concepts

Learning Contracts

- An agreement between teacher and student
- Grants students certain freedoms and choices about how to complete a task (Tomlinson, p. 106)
- Includes specific expectations for students

Resources:

Humphreys, C., & Parker, R. (2015). *Making number talks matter: Developing mathematical practices and deepening understanding, grades 4-10*. Portland, ME: Stenhouse Publishers.

Laud, L. (2011). *Using formative assessment to differentiate mathematics instruction, grades 4-10: Seven practices to maximize learning*. Thousand Oaks, CA, and Reston, VA: Corwin and NCTM.

Small, M., & Lin, A. (2010). *More good questions: Great ways to differentiate secondary mathematics instruction*. New York and Reston, VA: Teachers College Press and the National Council of Teachers of Mathematics.

Tomlinson, C. A. (2005). *How to differentiate instruction in mixed-ability classrooms* (2nd ed.). Upper Saddle River, NJ: Pearson.

Carol Tomlinson's website: http://www.caroltomlinson.com/