Differentiation Strategies for Math Instruction

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"Teachers are not dispensers of knowledge but organizers of learning opportunities" Tomlinson (1995). "When we teach the same thing to all kids at the same time, 1/3 already know it, 1/3 get it, and 1/3 never will, so 2/3 of the kids are wasting their time" Scott Willis (2006).

1) KWL Charts: For each math unit or topic have class add to a large chart what they know and what they want to learn. As the unit/study progresses, add questions, knowledge, and learning. Make it a living tool. Students can maintain their own individual chart throughout the unit/topic.
2) Pair-Shares: Use 1-5 times a lesson. Ask a question or have students tell their partner what they are learning or thinking related to the math language content.
3) Sticky Notes in Individual Folders: Keep your clipboard with you during class discussions and take notes on individual students questions, comments, and understandings related to math practices. Choose 5-10 students a day. Focus on observing them throughout the period. Write down the date & time. Write down the strength or need. At the end of the day, put the stickies in the student folder. Use them for planning math instruction.
4) Journals/Learning Logs: Open-ended math writing journals (Notebook dedicated to journal; Student- and teacher-generated topics focused on ideas, thinking, questions about math; at least twice a week; could include drawings and sketches). Learning Logs (Daily. One for all units or unit-specific; Students write down what they did, learned, and plan to do next time). Review 6-10 journals a day so you keep tabs on all students' math understandings over time; Can comment/direct or not; Make assessment notes in their individual folders.
5) Checklists: A great way to use ongoing assessment. Flexible tool that can focus on whatever math or language skill or competency you want to observe and measure; Quick; Helps you redesign instruction.
6) Interviews: Invite parents/guardians to come before or after school to talk about how they use math at home and at work; Ask student to interview parents/guardians Send a tape recorder home with students; Ask about math thinking strengths and interests; Ask about family members who can speak/share in class about how they use math in their lives.
7) Interest Inventories: Find out what your students like and dislike in general and in math. What do they think they do well? What do they think they don't do well? Design teaching strategies and topics around interests, strengths and areas of need (GOOGLE: "student interest inventories" for broad topics of interest)
8) Orbital Studies: Focuses on a topic of student interest from the math common core curriculum. Student works on it from 3-6 weeks. Teachers help student come up with a clear question, plan for research, method of presentation, and criteria for quality. Students keep a work log and get teacher and peer feedback throughout. Examples: a collection of items that come in 1s, 2s, 3s, etc.; graphing the weather; a mural of mathematicians and their contributions; measuring plant growth; collecting shapes in our neighborhood; a comic book about ways to solve word problems; a short film on how to use geometry in real life; research on female scientists and the math they utilize etc.
9) Flexible Grouping: Purposeful reordering of students; Ensures that students change groups *often* so they work with peers with both similar and dissimilar academic readiness, interests, and learning styles. Students experience individual, pair, small group, and whole class configurations. The teacher thinks about the learning objectives, individual student strengths and needs and groups thoughtfully. The teacher observes and takes notes on how the groupings work and readjusts.
10) 5-1: When giving students information in a teacher-centered way, STOP every 5 minutes. Give the students 1 minute to process what they are learning with one of the following: a)Quick write on what you are learning; b)Pair-Share: Tell your partner one thing; c) Write down one question; d) A quick sketch (of a character, a setting, an item etc.); e) Fill in one thing on a KWL chart etc.; f) What do you think will happen next?
11) Concrete to Pictorial to Abstract: Move from concrete experiences to abstract…For example: Unifix cubes, to drawing squares to writing the number sentence; math manipulatives-->solving equations with pencil and paper
12) Personalized Agendas: A personalized list of math tasks that a particular student must finish in a specified time. Usually lasts 2-3 weeks. A certain time each period is "agenda time". Gives the teacher time to work with individuals or small groups.
13) For students who need to be challenged: Advanced learners spend their time grappling with important complexities rather than repeating work they already know. Assess students and eliminate work that has been mastered already. Give students individualized projects that challenge them. Draw upon student imagination and creativity Give choices for final products (e.g. artwork, report, book, share with a small group, model, short video, skit/play , Webquest etc.)

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14) For students who struggle: The teacher ensures that they focus on essential understandings and skills from the CCSS Critical Areas; they don't drown in a pool of disjointed facts Give students genuine and specific praise. Status Treatments (give publicly for the most impact).
15) Anchor Activity: Gives you time to pull aside students who need your focus and time. Should be quiet, independent, and predictable. The whole class works on the anchor activity while you pull aside a group who needs support. For example: journal writing, free writing, bell ringer.