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Differentiating Instruction through Math Stations and Literacy Centers

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A Teacher's Guide to Differentiating Instruction in Grades 1-3:

Math Stations and Literacy Centers

Differentiating instruction based on students' readiness, interests, and learning profiles is essential for creating effective and meaningful learning activities. Identifying these characteristics allows teachers to meet students' needs and engage them in learning. By differentiating instruction, educators target specific students' strengths and challenges in developing lessons to support their understanding of content. Two useful strategies for differentiating math and literacy instruction include stations and centers. In stations and centers, students work on specific skills catered to their educational needs while rotating activities in flexible groups. This guide supports teachers in identifying strategies and understanding the benefits of differentiating math and literacy instruction through stations and centers.

I. Differentiating Instruction: Readiness, Interests, and Learning Profiles

- A. Readiness: Vary instructional strategies and materials through graphic organizers, quality criteria, compacting, tiered assessments and scaffolding, homework, small groups, texts, and supplementary materials
- B. Interests: Differentiate through interest areas and modes of expression.
 - 1. Interests within Content Areas: literacy genres, science topics, fine arts modalities, classifications of people, styles of music, etc.
 - 2. Modes of Expression: oral, written, design, artistic, abstract, community service, etc.
- C. Learning Profile: Vary teacher presentation, modes of expression, and formatting of activities.

1. Teacher Presentation: auditory, visual, kinesthetic, whole-to-part, and part-to-whole.
2. Student Expression: Gardner's 8-9 or Sternberg's 3 intelligences.
3. Formats: work choice arrangements, flexible environment, complex instruction, multiple mode of assessment, graphic organizers, and entry points.

II. Stations

- A. Stations are various spots in the classroom where students work on various tasks at the same time. They can be used with all ages and subjects, frequently or occasionally, through formal or informal contexts. Stations can be distinguished by signs, colors, or symbols to help students identify different areas to move to. In addition to student choice in moving stations, teachers can also ask groups to move to particular parts of the room for instruction.
- B. Differentiation Basics: While the class is working through stations, students are assigned different tasks. Teachers utilize flexible grouping in that not all students visit each station all of the time. In addition, assignments at stations can vary based on the specific students rotating there. Stations balance teacher choice and student choice in rotations and assignments.
 1. WHAT: Content and Process
 2. HOW: Homogenous or Heterogeneous Readiness Flexible Groups. Integrate interests and learning profiles into station tasks.
 3. WHY: Essential understandings & skills are more accessible when presented at students' readiness levels. Teachers can utilize flexible grouping and plan 2-4 different tasks going on in the classroom at one time.

C. Setting Up Stations

1. In order to identify students' readiness, interests, and learning profiles, conduct preassessments in a specific content area.
2. Review baseline data from preassessments to determine students' needs and appropriate activities for their instruction.
3. Determine the number and categories of stations (see examples below).
4. Create a system for rotating students through the stations and flexible groups based on data from preassessments. Groups can be heterogenous or homogenous in student characteristics.
5. Develop specific learning activities for each station and relate to students' individual needs. Students within the same station can be completing tasks based on their own interests, readiness, or learning profiles.
6. Determine the time period for students' rotations through station activities. Students can be assigned to specific stations for multiple days or asked to rotate through all within a 1-2 week period.
7. Create assessments and record-keeping forms to track data on student learning.
8. Display a visual guide to stations in the classroom and generate a plan for explaining expectations to students.

D. Examples of Stations in Grades 1-3 Mathematics Instruction

1. Example 1: 3 Stations
 - a. Work with Teacher: At this station, a group of students engages in interactive lessons with the teacher geared to their specific needs. Example tools and activities includes dry erase boards, math journals, smart board, and manipulatives.

When beginning stations, teachers should start with a **low readiness** group so students learn mathematical concepts before completing independent work.

- b. Math Games: During Math Games, students play content area games with a partner or small group. In addition to games, students can also complete math projects or investigations spanning multiple days. At this station, students of **medium readiness** levels should begin because these activities review either part of a new math lesson or a previous concept of study.
- c. Independent Practice: In this station, students work independently at their desks on pages in their math journals or teacher-created worksheets. When implementing this station, students at **high readiness** levels should begin because they can complete activities without much teacher instruction.

2. Example 2: 5 Stations

- a. The Teaching Station: Students receive direct instruction from the teacher on content concepts, guided practice, or review activities.
- b. Proof Place: Students work individually or with a partner on math problems while creating visual and text-based explanations of their work.
- c. Practice Plaza: Students review challenging concepts and check their own work with a calculator or answer key. Students complete a self-evaluation and turn in their work.
- d. The Shop: Students apply mathematical concepts through completing tasks at a shop. A sample shop owner leaves challenges for students to complete. Students leave notes for the shop owner explaining problems, solutions, and strategies for avoiding similar issues in the future.

- e. **Project Place:** Students work independently, in pairs, or small groups for long term projects created to solve real-world problems. Sample challenges include classroom issues, sports, literature, writing, or other content areas.

E. Implementing Stations into the Mathematics Block

1. Introduce whole-class warm up activity.
2. Review students' station assignments based on preassessment data.
3. Ask students to move to assigned stations. Example:
 - a. **Work with Teacher:** pull group for structured lesson on given concept.
 - b. **Math Games:** assign students to games reviewing concepts from warm up.
 - c. **Independent Practice:** ask students to complete journal pages or worksheets applying knowledge from warm up.
4. Call students back together for whole-class closure activity reviewing lesson concepts.

III. Centers

- A. Centers are distinct and separate areas in the classroom in which students rotate or visit to promote individual learning. Students do not need to move to all centers in order to achieve proficiency within a given topic or set of skills. Centers should focus on clearly defined learning goals, contain materials promoting individual student growth, address a wide range of interests, readiness levels, and learning profiles, and have clear directions.

Centers can be divided into two areas: Learning and Interest.

1. **Learning Centers:** contain collections of activities designed for students to learn, practice, or extend their knowledge, understanding, and content skills.
2. **Interest Centers:** motivate student's exploration of topics they are interested in.

B. Differentiation Basics: Centers are created to support students' readiness levels, interests, and learning profiles. Students are assigned to appropriate tasks within different centers to meet their individual needs. The materials and resources within specific centers are designed to provide appropriate scaffolding for the students at each center. Teachers can develop flexible groups to place students in centers rotations. In order to determine students' progress and needs, teachers conduct ongoing assessments & observations through differentiated centers.

1. WHAT: Content, Process, Product
2. HOW: Readiness-vary complexity of resources & tasks. Interests-include options for independent study. Learning Profile-work alone or with peers; include visual & auditory directions; supply resources for various strengths.
3. WHY: Differences in multi-age classrooms, readiness levels, interests, and learning profiles are supported through the use of multiple centers and activities. Centers support students' individual learning goals.

C. Setting Up Centers

1. In order to identify students' readiness levels, interests, and learning profiles, conduct preassessments in a content area.
2. Utilize baseline data from preassessments to determine students' needs and appropriate activities for their instruction.
3. Begin with one learning center in a target area and tie in curricular concepts.
4. Determine appropriate activities for completion at the center based on students' needs. Include activities for a variety of interests and learning profiles.
5. Create clear objectives, directions, and work samples and place at the center.

6. Develop assessments and record-keeping forms to track data on student learning.
7. Introduce center by discussing and modeling expectations for its use.
8. Watch center in action to determine what does and does not work.
9. Begin introducing new centers based on curricular concepts and student needs.
10. Create a system for rotating students through centers and flexible groups based on data from preassessments.
 - a. Students within the same station can be completing tasks based on their own interests, readiness, or learning profiles.
 - b. Determine times and usage based on content area blocks.
 - c. Display a visual guide to centers in the classroom and a plan for explaining expectations to students.

D. Examples of Centers in Grades 1-3 Literacy Instruction

1. Example 1: 3 Core Literacy Centers
 - a. Reading Comprehension: develop fluency in independent-level texts, increase reading rate, accuracy, use of expression, meaningful phrasing, repeated reading within collaborative, and self-monitoring formats.
 - b. Fluency: see Reading Comprehension.
 - c. Word Study: understand how words work through multisensory practice, transfer phonics skills to reading and spelling new single and multi-syllable words, achieve automaticity in recognizing and spelling high frequency words.
 - i. Within each center, vary activities based on three levels of challenge (beginner, intermediate, advanced).
2. Example 2: 5 Key Areas of Literacy

- a. Phonological Awareness: This center highlights skills in a progression of difficulty; working from Phoneme Matching, to Isolating, Blending, Segmenting, and Manipulating.
- b. Phonics: This center focuses on previously taught skills in increasing complexity; including Letter-Sound Correspondence, High Frequency Words, Variant Correspondences, Syllable Patterns, and Morpheme Structures.
- c. Fluency: In this center, students develop reading fluency skills in increasing difficulty levels; including Letter-Sound Correspondence, Word Parts, Words, Phrases, Chunked Text, and Connected Text.
- d. Vocabulary: This center helps students understand the meaning of words in context through activities focusing on Word Knowledge, Morphemic Elements, Word Meaning, Word Analysis, and Words in Context.
- e. Reading Comprehension: In this center, students develop their abilities to make meaning from text in the logical sequence of Narrative Text Structure, Expository Text Structure, Text Analysis, and Monitoring for Understanding.

IV. Assessment Methods

- A. Preassessments to attain baseline data and inform instruction.
- B. Weekly Rubrics
- C. Student Self-Assessments
- D. Student Work
- E. Observations
- F. Formal Assessments at the end of a unit.

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