



All Kinds of Minds®

A NON-PROFIT INSTITUTE FOR THE UNDERSTANDING OF DIFFERENCES IN LEARNING

Schools Attuned® and Differentiated Instruction: A Powerful Learning Opportunity

Schools Attuned and *Differentiated Instruction* represent complementary approaches to teaching and learning. Used together, they provide educators with powerful tools for helping students achieve success in school.

A FOURTH GRADE SCENARIO

The students in Mrs. Walker's 4th grade class are studying the concept of systems in Science and Social Studies. Throughout the unit they have studied various types of systems, such as the skeletal system, circulatory system, ecosystems, and the judicial system. The students have learned that systems are comprised of many components and have analyzed how the components of a system work together to achieve a goal. Today's science lesson, coming toward the end of the unit, focuses on the effects of change on a system. The essential understandings of today's lesson are:

- > Understand the role of various elements in a system
- > Understand the effects of change on a system

The key skills that students will use in the lesson are observation, making inferences, and prediction.

Mrs. Walker's Classroom

Mrs. Walker's students represent a diverse continuum of learners, with each student bringing unique strengths and weaknesses to the lessons. Mrs. Walker recognizes these differences and strives to maximize each student's growth and achievement in a way that is meaningful and sustained. She regularly differentiates her instruction to address the needs of this diverse group, providing multiple paths for students to achieve the concepts and skills through whole class lessons, small group instruction, and one-on-one support when needed. She also provides a classroom environment that encourages students to understand themselves as learners and to make effective choices about how they learn.

For today's lesson, Mrs. Walker has developed three opportunities for students to further explore systems and the effect of change on a system, each designed to achieve the essential understandings and skills, but that allow for various readiness levels and learning profiles. As part of her planning of these activities, Mrs. Walker relies on her knowledge of how well her students understand the concept of systems and their mastery of the identified skills. She also relies on her knowledge of the neurodevelopmental demands of the activities, creating options that place demands on different neurodevelopmental Constructs and Functions. A description and analysis of each option is provided below. Students are given a choice of working alone or with a partner on all options.

A Powerful Learning Example

Mrs. Walker's 4th grade classroom is an example of the powerful learning that can occur when a teacher combines his/her understanding of learning and learners using a neurodevelopmental perspective with their understanding of how to effectively differentiate instruction to maximize students' growth and learning. These two approaches to teaching and learning serve to provide opportunities for students to find success and to celebrate their differences in learning.

> OPTION 1	> OPTION 2	> OPTION 3
<p>Part A: Using graphic organizer templates provided by the teacher, students create a representation of a system they have studied as part of previous lessons (e.g., the ecosystem of a particular habitat). A list of suggested systems is provided. Representations must show the elements of the system and how the elements work together to achieve a goal.</p> <p>Part B: Using their graphic representation as a starting point, students identify and propose a change to one element of the system (e.g., algae stops growing in a local lake due to pollution). Students preview and demonstrate the effects of this system change.</p> <p>DI Differentiated Analysis of Option 1:</p> <ul style="list-style-type: none"> > Foundational > Small leaps from known > Midpoint of concrete to abstract continuum > More structured <p> Neurodevelopmental Analysis of Option 1:</p> <ul style="list-style-type: none"> > Higher Order Cognition (Critical Thinking, Creativity/Brainstorming, Concept Formation) > Language – Expressive > Spatial Ordering > Memory 	<p>The teacher selects and provides students with an assortment of reading materials (e.g., books, newspapers, advertisements) that describe various systems. Using these materials as a primary source, students identify the system and its key elements. Using any demonstration method they choose, students represent the system described, showing the elements of the system and how the elements work together to achieve a goal. As part of the representation, students also identify and propose a change to one element of the system and demonstrate the effects of this system change.</p> <p>DI Differentiated Analysis of Option 2:</p> <ul style="list-style-type: none"> > More Transformational > More Abstract > Greater leaps from the known <p> Neurodevelopmental Analysis of Option 2:</p> <ul style="list-style-type: none"> > Higher Order Cognition (Critical Thinking, Creativity/Brainstorming, Concept Formation) > Language – Receptive and Expressive > Memory (Active Working and Long-Term Access) > Attention (Processing Controls) 	<p>Using newspapers, advertisements, online resources, and interviews with adults, students identify situations occurring in their state in which two separate systems are having an impact one another (e.g., the legislature approves an increase to the sales tax). Leveraging their understandings of each individual system, students propose a change to one system and demonstrate the impact of this change on the related systems (e.g., A sales tax increase intended to support the local education system by building new schools and increasing teacher pay has a negative effect on retail sales in a community.)</p> <p>DI Differentiated Analysis of Option 3:</p> <ul style="list-style-type: none"> > Highly Transformational > More Abstract > Greater Leaps from known > More open (less structured) > Greater Independence <p> Neurodevelopmental Analysis of Option 3:</p> <ul style="list-style-type: none"> > Higher Order Cognition (Critical Thinking, Creativity/Brainstorming, Concept Formation – manipulating more sophisticated concepts) > Language – Receptive and Expressive > Memory (Active Working and Long-Term Access) > Attention – Processing and Production Controls

MICHAEL'S SUCCESS: A STUDENT EXAMPLE

Throughout the year, Mrs. Walker has been teaching her students about learning, helping them to understand the various aspects of learning and to begin thinking about their own learning strengths and weaknesses. For some students who have struggled significantly with the demands of 4th grade, collaborating with Mrs. Walker through a Student Learning Partnership has been helpful. For a select few, the Attuning a Student process has provided Mrs. Walker and the students with a more comprehensive view of their neurodevelopmental profiles.

Equipped with these understandings of themselves as learners, the students are empowered to select learning activities best suited to their profiles. For some students, this decision is made with guidance from Mrs. Walker. Independently or with her guidance, students select activities that balance the use of their strengths with challenging learning opportunities.

Michael, a student in Mrs. Walker's class, really enjoys school, particularly the way Mrs. Walker offers him choices about activities. Many aspects of 4th grade have been difficult for Michael, such as narrative writing and multi-step math problems. Michael has been working with Mrs. Walker to better understand his learning profile. Together, he and Mrs. Walker have discovered that Michael has tremendous strengths in Expressive Language and Social Cognition, but his weaker Active Working Memory and Sequential Memory tend to make certain tasks more difficult.

Armed with this knowledge about himself as a learner, Michael chooses Option 2 and plans to work with a partner. While he knows this option will tax his Active Working Memory, he talks with Mrs. Walker and identifies strategies to help manage the information on his "cognitive countertop." Mrs. Walker also encourages Michael to leverage his Expressive Language strengths to talk with his partner about the project, noting interesting findings as they go along, a strategy that will help both of them better understand the concept of systems and how they are affected by change.



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