

### **FLEXIBLE GROUPING IS KEY!**

**Flexible grouping:** Students are grouped according to their learning needs, interests, and learning styles.

**Sample Guiding Questions:**  
 Which students need more time, practice, or instruction?  
 Which students are ready to move on or extend?  
 Which students have an interest in \_\_\_\_\_?  
 Which students prefer visual learning? Auditory? Kinesthetic?

**GROUPING: MIX IT UP!**

### Differentiating Readiness

*Readiness: Student's entry point in relation knowledge, understandings, and skills.*

- Ability vs. Readiness: What's the difference?
- Assessing readiness (Pair-Share): When & how?

**COMMON PITFALLS:**

- High readiness students work at a higher level thinking. Lower readiness students confined to the concrete/drill & kill.
- Lack of class convergence on big ideas/understandings (groups of students or individuals working on different tasks without a common language).

### *Tiering Strategy: When should I use tiered assignments in science?*

- Are there times when some students need more time to work than others?
- Are some students ready for more advanced work?
- Is there an activity in which students could benefit from working on the same outcome but doing different types of work?
- Are there some students who need more scaffolding to grasp the concept?

### Tiered Assignments in Science

- All tasks focus on the same essential knowledge, understanding, or skill.
- All tasks are equally engaging and at a high level of thinking.

**WHAT CAN BE TIERED?**  
 Activities, Problems, Homework, Science prompts, Discussions, Learning contracts, etc.

### Tiered Assignments

*All students climb toward a common objective or understanding*

**VARY CONTENT, PROCESS, OR PRODUCT**

**Materials:** Basic to advanced

**Directions:** Single facet to multiple facet.

**Structure & Approaches:** More structured to more open

**Problems:** Clearly defined problems to fuzzy problems


**Pace:** Slower to Quicker

**Connections:** Single facet to multiple facet

**Scaffolding:** Less independent to more independent

## DIFFERENTIATING BY LEARNING PROFILE!


*Shaped by intelligence preferences, gender, culture, learning style, & the interaction of these elements.*



<p><u>Group Orientation</u>          Self-Orientation          Adult Independent/Self-Orientation          Group/Peer Orientation          Combination</p> <p><u>Cognitive Style</u>          Creative/conforming          Essence/facts          Whole to part/part to whole          Expressive/controlled          Non-linear/linear          Inductive/deductive          People oriented/task or object oriented          Concrete/abstract          Collaboration/competition          Interpersonal/introspective          Easily distracted/long attention span          Group achievement/personal achievement          Oral/visual-spatial          Reflective/action-oriented</p>	<p><u>Learning Environment</u>          Quiet/noise          Warm/cool          Still/mobile          Flexible/fixe          "Busy"/"Spare"</p> <p><u>Style of Thinking/Processing</u>          Analytic          Practical          Creative</p> <p>Verbal/linguistic          Logical/mathematical          Spatial/visual          Bodily/kinesthetic          Musical/rhythmic          Interpersonal          Intrapersonal          Naturalistic          Existential</p>
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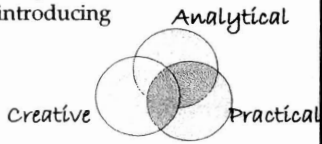
## A Balancing Act Along Continuums

*Conformity – Creativity*  
*Part to Whole – Whole to Part*  
*Competition – Collaboration*  
*On-demand – Reflective*  
*Individual emphasis – Group emphasis*  
*Information – Feeling*  
*Controlled - Expressive*



## Strategy: Tri-Mind

- Ⓞ Sternberg's Triarchic Model of Intelligence (1985)
- Ⓞ Looking at how we are wired-typically stronger in one or two areas!
- Ⓞ Know where students' strengths lie & teach through those intelligences especially when introducing new ideas.



## I Like... 1

- Ⓞ Designing new things
- Ⓞ Coming up with ideas
- Ⓞ Using my imagination
- Ⓞ Thinking of alternative solutions
- Ⓞ Noticing things people tend to ignore
- Ⓞ Thinking in pictures & images
- Ⓞ Inventing
- Ⓞ Supposing things were different
- Ⓞ Acting & role playing

Sternberg, 2000

## I Like... 2

- Ⓞ Analyzing situations.
- Ⓞ Comparing and contrasting ideas.
- Ⓞ Critiquing my own work & the work of others.
- Ⓞ Thinking clearly & analytically.
- Ⓞ Appealing to logic.
- Ⓞ Explaining difficult problems to others.
- Ⓞ Making inferences & deriving conclusions
- Ⓞ Sorting & classifying
- Ⓞ Thinking about things

Sternberg, 2000

### I Like... 3

- @ Taking things apart and fixing them.
- @ Learning through hands-on activities.
- @ Making & maintaining friends.
- @ Understanding & working with others.
- @ Resolving conflicts.
- @ Convincing someone to do something.
- @ Applying my knowledge.
- @ Working & learning with others.
- @ Putting into practice what I've learned

Stenberg, 2000

Analytical	Creative	Practical
-Ability to analyze and evaluate own ideas and those of others	-Ability to generate ideas that are high quality and novel/ Ability to react to novel stimuli and situations/ Capacity for insight, synthesis	-Ability to grasp, understand, and solve real-life problems in everyday life/Ability to convince people of the value of ideas, to render ideas practical "Street smarts"
Show the parts of _____ and how they work. Explain why _____ works the way it does. Diagram how _____ affects _____ Identify the key parts of _____ Present a step-by-step approach to _____	Find a new way to show _____ Use unusual materials to explain _____ Explain (show) a new and better way to _____ Make connections between _____ and _____ to help us understand _____ Become a _____ and use your "new" perspectives to help us think about _____	Demonstrate how someone uses _____ in their life or work. Show how we could apply _____ to solve this real life problem _____ Based on your own experience, explain how _____ can be used. Here's a problem at school, _____ Using your knowledge of _____, develop a plan to address the problem

### Tri-Mind! Reinforce the P-Theorem

ANALYTICAL	CREATIVE	PRACTICAL
Compare and contrast a geometric representation and an algebraic representation of the Pythagorean theorem (show an example of both). Which is easier for you to understand?	Create a new way of using the Pythagorean theorem to show the connection between algebra and geometry.	Describe two ways in which the Pythagorean theorem can be used to solve real-life problems. Present the problem, the process of deriving the solution, and the solution!

### Review/Extend Task

(Understanding the relationship between K, U, & D objectives)

Analytical	Creative	Practical
Construct a visual (diagram, graphic organizer, etc) that shows how K, U, and D objectives operate as parts of a whole!	Create a metaphor or analogy to help us understand K, U, and D objectives and the relationships between them!	A novice teacher is in need of your help! Create a one page document (snapshot) that succinctly reflects the differences between K, U, and D objectives and the relationship between them!


### Differentiating by Interest!

**CHOICE=GREAT MOTIVATOR**

- ◆ Math problems
- ◆ Order of tasks
- ◆ Group roles
- ◆ Modes of expression/products
- ◆ Work together/alone
- ◆ Areas of exploration/depth
- ◆ Partners
- ◆ Reading materials
- ◆ Independent studies

Under the umbrella of common objectives!

### Interest Jigsaw!



- ◆ HOME GROUPS:  
(Assign each person a different expert area):  
- USING ESSENTIAL QUESTIONS, RAFTS)
- ◆ EXPERT GROUPS
- ◆ HOME GROUPS

How can your strategy be used in secondary math classrooms to motivate students?