

Instructional Strategies That Support Authentic Assessment Within the Dimensions of Math

Dimensions of Math	Essential Questions	Instructional Strategies
<p>Numbers & Numeration Understanding names, terms, signs, symbols, whole numbers, and part numbers (fractions and decimals)</p>	<p>Does the student have the knowledge and skills of the number system necessary to be successful?</p>	<ul style="list-style-type: none"> • Assistive technology/math dictionary • Interactive notebook • Picture cues/visual displays • Games • Use of real-life experiences <p>Resource: T/TAC Considerations Packet: A “Word” About Vocabulary (2001)</p>
<p>Patterns and Relationships Determining patterns, identifying missing information, and making associations between differences, similarities, and proportions.</p> <p>Operations and Computation Understanding facts and algorithms, operational properties (distributive, associative, etc.) and performing computational skills.</p>	<p>Does the student recognize patterns and link them logically to problem-solving?</p> <p>Does the student have the computational skills to accomplish the task presented?</p>	<ul style="list-style-type: none"> • Inset pattern boards • Walking number lines • Manipulatives to demonstrate concepts • Incremental rehearsal • Modeling strategy steps and providing mnemonics • Chunking • Connecting vocabulary to prior learning experiences • Rhymes/poems/songs • Games • Touch Math (Innovative Learning Concepts, Inc) • Computer programs <p>Resource: T/TAC Considerations Packet: Algebra Strategies for Middle School (2004)</p>
<p>Probability and Statistics Performing logical approximations and reasonable possibilities, predicting outcomes, and displaying data graphically</p>	<p>Is the student able to estimate, approximate, and graph data?</p>	<ul style="list-style-type: none"> • Cooperative learning strategies • Investigative problem-solving • Discussion, questioning, conjecture • Use of real-life experiences • Modeling • Visual aids <p>Resource: T/TAC Considerations Packet: Techniques for Active Learning (2000)</p>

Adapted from Gravois, T., & Gickling, E. (2003).

T/TAC Link Lines

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<p>Measurement Understanding terms and processes related to distance, time, temperature, height, weight, money, perimeters, area, and volume.</p>	<p>Does the student possess the necessary measurement skills to perform measurement operations?</p>	<ul style="list-style-type: none"> • Hands-on activities related to real-life situations • Cooperative learning activities • Modeling • Visual aids/manipulatives • Concept sorts
<p>Geometry and Multiple Representations Recognition and application of activities related to solids, shapes, figures, symmetry and congruence, angles in basic polygons, and plotting coordinates in tables, graphs, and charts.</p>	<p>Does the student recognize, draw, and interpret lines, angles, and coordinates expressing a variety of data?</p>	<ul style="list-style-type: none"> • Graphic aids/visual cues • Games • Frames (SIM: Strategic Instruction Model) • Mystery words (for review) • Concept sorts <p>Resource: T/TAC Consideration Packet: <i>Geometry Strategies for Middle School (2004)</i></p>

Gravois, T., & Gickling, E. (2003). Adapted by C. Gray & J. Martin

Additional Resource available in the T/TAC W&M Library (www.wm.edu/ttac)

Allsopp, D., & Kyger M. (2000). *Math VIDS user manual-Effective instructional strategies for students who have math learning problems*. Virginia Department of Education.

Ohanian, S. (1995). *Math as a way of knowing*. ME: Stenhouse Publishers.

T/TAC Considerations Packet – *Instructional Assessment: An Essential Tool for Designing Effective Instruction (2002)*

T/TAC Considerations Packet – *Practice and Homework: Effective Teaching Strategies (2004)*

Website

Instructional Resources for Mathematics. Virginia Department of Education web site (geometry, fractions, decimals, percent, patterns, functions, algebra, probability and statistics) (http://www.pen.k12.va.us/VDOE/Instruction/Elem_M/emath.html)

Enhanced Scope and Sequence Plus (<http://www.ttaconline.org>)