

# STRATEGIES FOR MATH PROBLEM SOLVING

## \* Seven effective MATH instructional practices:

- 1: Teach students using explicit instruction on a regular basis.
- 2: Teach students using multiple instructional examples.
- 3: Have students verbalize decisions and solutions to a math problem.
- 4: Teach students to visually represent the information in the math problem.
- 5: Teach students to solve problems using multiple/ heuristic strategies.
- 6: Provide ongoing formative assessment data and feedback to teachers.
- 7: Provide peer-assisted instruction to students.

**\*TINS Math Problem Solving Strategy:** Use the acronym TINS to use a step-by-step process for solving math word problems:

T for Thought – Circle key words in the problem, write the operation symbol.

I for Information – Write most important details needed to solve problem.

N for Number Sentence – Write the equation.

S for Solution Sentence – Write the answer in a sentence that answers the question in the problem.

## \*Five-Point Problem Solving Strategy:

1. QUESTION: Understand the question.
2. DATA: Find the needed data.
3. PLAN: Plan what to do.
4. ANSWER: Find the answer.
5. CHECK: Check back.

## \*TACKS Problem-Solving Strategy:

1. Organize the information:
  - T – What does the problem TELL me?
  - A – Prove or defend the ANSWER.
  - C – What are the CLUE words?
  - K – What KIND of process will I use?
  - S – How many STEPS are involved?
2. Prove or defend the answer.

**\* Utilize this step-by-step process as a “Cognitive Strategy” to increase comprehension for math problem solving:**

- 1) Read
- 2) Paraphrase
- 3) Visualize
- 4) Hypothesize
- 5) Estimate or predict an outcome
- 6) Compute
- 7) Check

[www.mathinterventions.org](http://www.mathinterventions.org)

[www.projectachieve.info](http://www.projectachieve.info)

**\* CONCEPT BASED MATH INSTRUCTION** (Meir Ben-Hur, International Renewal Institute) - The teacher discusses, trains, models and scaffolds instruction to teach students how to think through problems, using following sequential steps:

1. Practice – both quantity and quality – variability, level of challenge, novelty
2. Decontextualization – higher order questions, wait time, encourage diverse responses, analyze errors
3. Meaning – not just “what?” but more “how?” and “why?”
4. Recontextualization – Where else is it applicable? In which conditions, if any, is it not applicable?
5. Realization – interdisciplinary collaboration (shared goals and activities), school-community collaboration, parent involvement