



Mnemonics to Teach Mathematical Problem Solving

Objective: To teach students to use the mnemonic device called the SOLVE Strategy, to teach mathematical problem solving skills.

Setting and Materials:

Settings: Special education classroom (30 – 45 minute sessions; total time – approximately 4.5 hours)

Materials:

- **Step-by-step instructions for each lesson**
- **SOLVE Strategy cue cards**
 - **S – Study the Problem**
 - **O – Organize the Facts**
 - **L – Line up a Plan**
 - **V – Verify your Plan with Action**
 - **E – Examine your Results**

Content Taught

Six lessons to teach mathematical problem solving skills using the SOLVE Strategy mnemonic.

Teaching Procedures

1. *First discuss with students the reasons their current strategies may be ineffective. Next, students commit to actively learn and use the SOLVE Strategy (sign a learning contract).*
2. *Describe and model the “S” (i.e., Study the Problem) and the “O” (i.e., Organize the Facts)*
 - *Students determine what the word problem is and find and identify key facts in the word problem*
3. *Describe and model the “L” step (i.e., Line up a Plan)*
 - *Students created a plan for solving word problems without using numbers*
4. *Describe and model the “V” and “E” steps (i.e., Verify your Plan with Action and Evaluate your Answer)*
 - *Students Verify their plan by carrying out the plan created during the “L” step*
 - *Students write a mathematical equation and estimate the solution prior to solving the equation*

- Students Evaluate the answer by using a series of self-monitoring questions
 - Students ask themselves if the answer makes sense, if the answer is reasonable, if the answer is accurate
 - Students write their answer as a complete sentence
- 5. Students practice using all steps of the SOLVE Strategy
- 6. Students continue to practice; provide feedback on student performance

Evaluation

1. *Create a grade-level mathematical word problems. Student receives one point for correctly setting up the equation and one point for a correct response.*
2. *To evaluate students' knowledge of the steps of the SOLVE Strategy, ask students to list and explain the strategy steps and components of each step.*

Lesson Plan Based on:

Freeman-Green, S. M., O'Brien, C., Wood, C. L., & Hitt, S. B. (2015). Effects of the SOLVE strategy on mathematics of secondary students with learning disabilities. *Learning Disabilities Research & Practice*, 30, 76-90.

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