Supporting Students with Learning Disabilities or Difficulty Learning Mathematics

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Training and Technical Assistance Center (T/TAC) at Virginia Tech

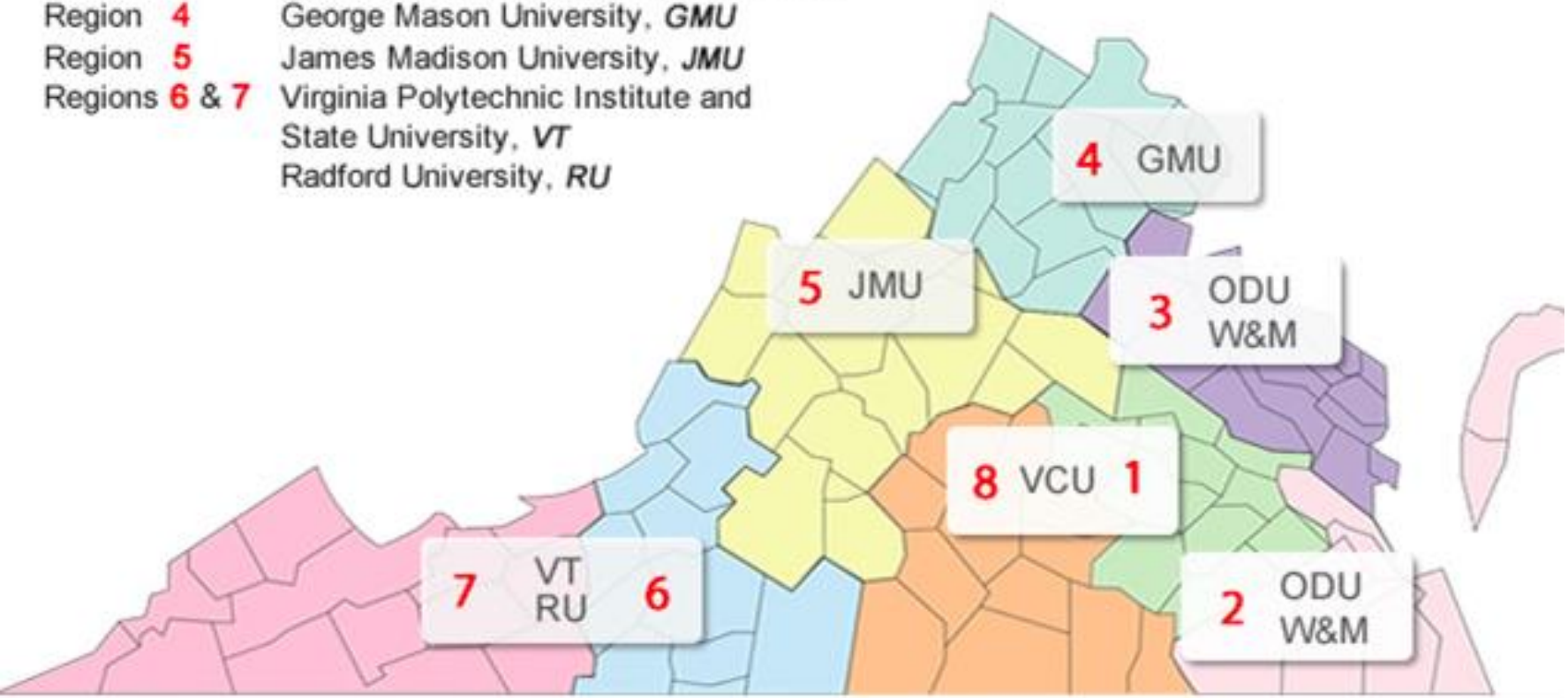
Training and Technical Assistance Center

TTAC Misson

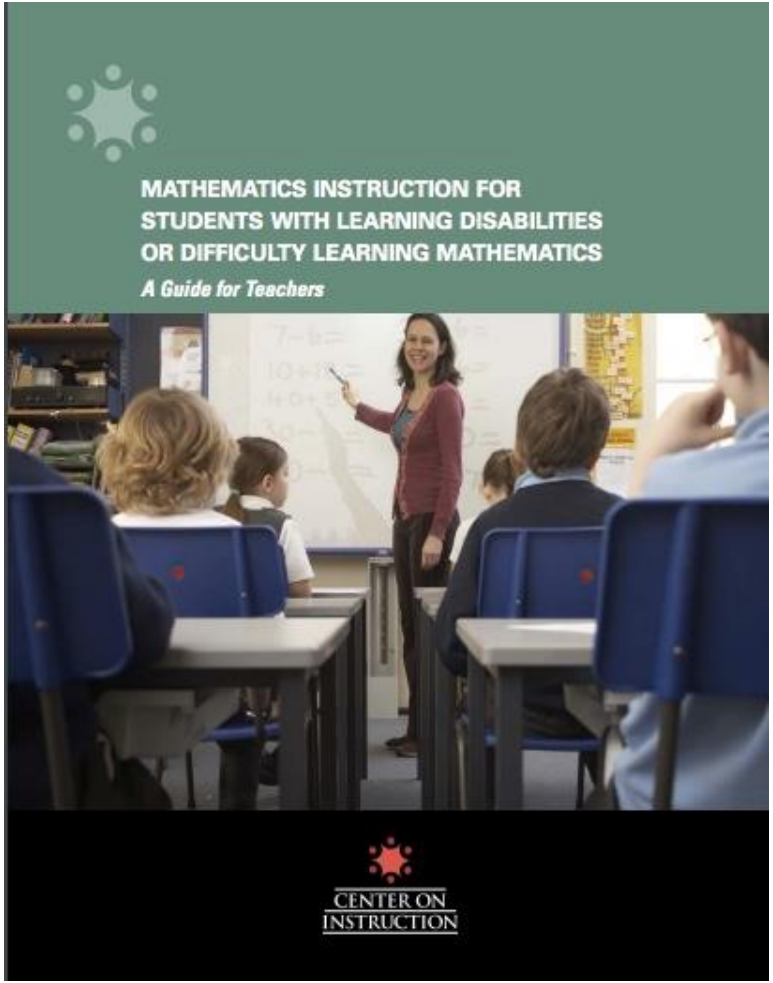
Introduction

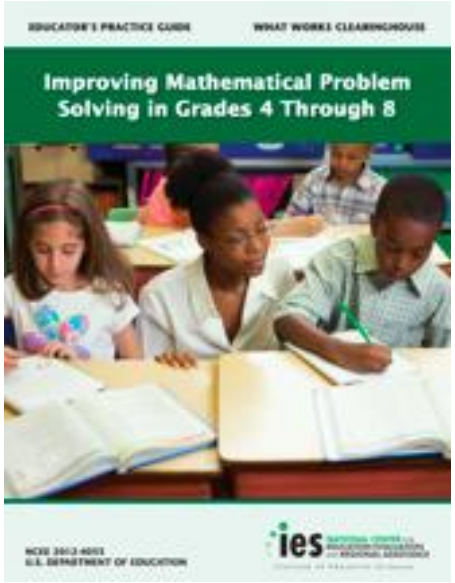
The mission of the Training & Technical Assistance Center (T/TAC) is to improve educational opportunities and contribute to the success of children and youth with disabilities (birth–22 years).

Regions 1 & 8	Virginia Commonwealth University, *VCU*
Regions 2 & 3	Old Dominion University, *ODU*
	The College of William and Mary, *W&M*
Region 4	George Mason University, *GMU*
Region 5	James Madison University, *JMU*
Regions 6 & 7	Virginia Polytechnic Institute and State University, *VT*
	Radford University, *RU*



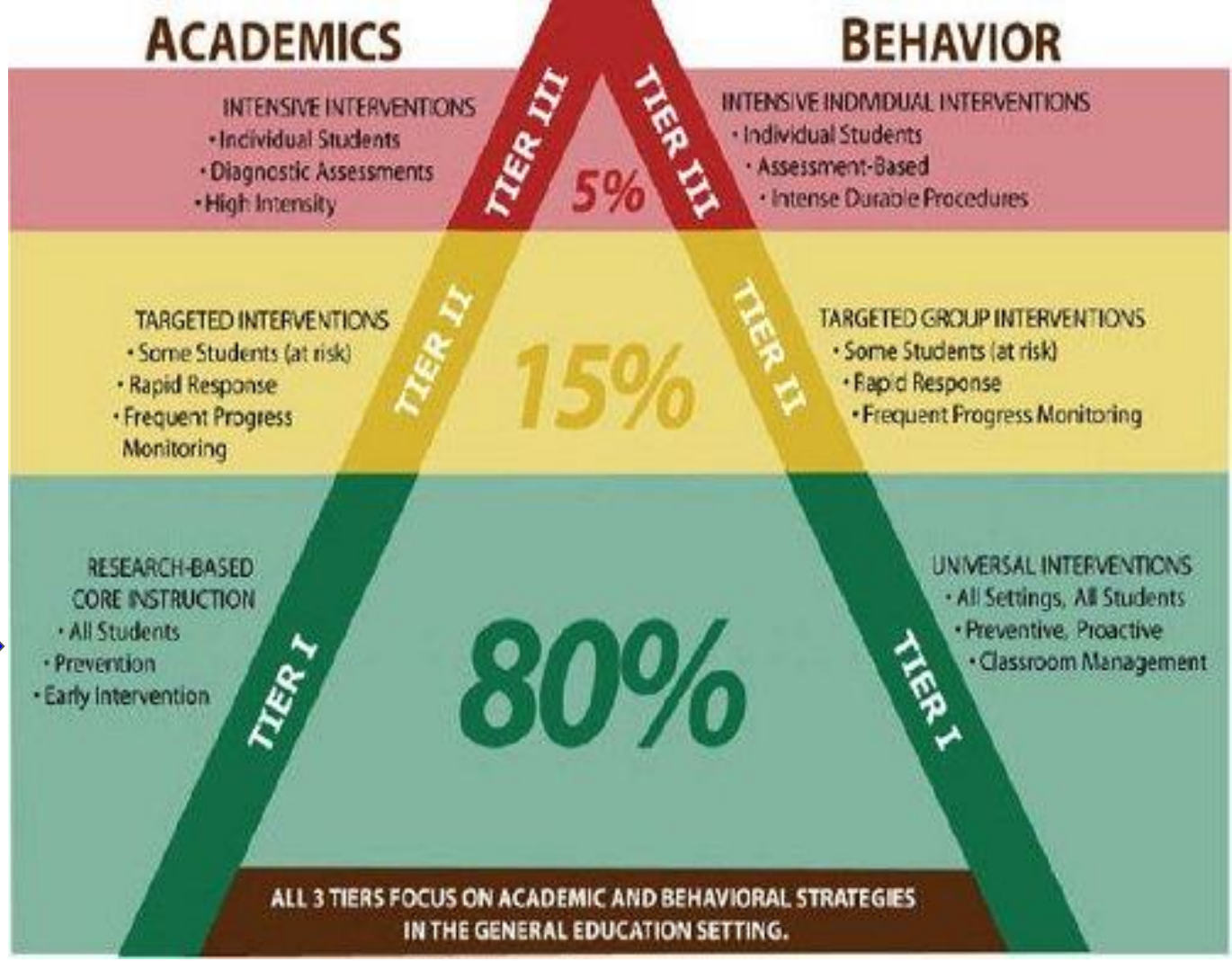
Regional TTAC MAP





Center on Instruction & Institute of Educational Sciences

7 Recommendations



7 Recommendations

1. Teach using **explicit instruction.**
2. Teach using **multiple instructional examples**.
3. Have **students verbalize** decisions and solutions.
4. Teach students to **visually represent** the information.
5. Teach **students** to **solve problems using multiple/heuristic strategies**.

I DO

TEACHER MODELS TEACHER / STUDENT ROLES

- ✓ Teach sub-tasks step-by-step.
- ✓ Emphasize key words and phrases.
- ✓ Show, not tell. "Watch me."
- ✓ Show examples, then non-examples (as appropriate). "This is an acute angle. This is not."
- ✓ Think aloud. Tell why / justify. "Here's my thinking on this…"
- ✓ Model once or twice, then go to WE DO.
- ✓ Return to I DO for difficult sub-tasks / new sub-tasks / corrections.

WE DO

TEACHER DOES WITH STUDENTS

- ✓ Structure choral responses. Require 100% response.
- ✓ Structure partner responses. "First A's, then B's share."

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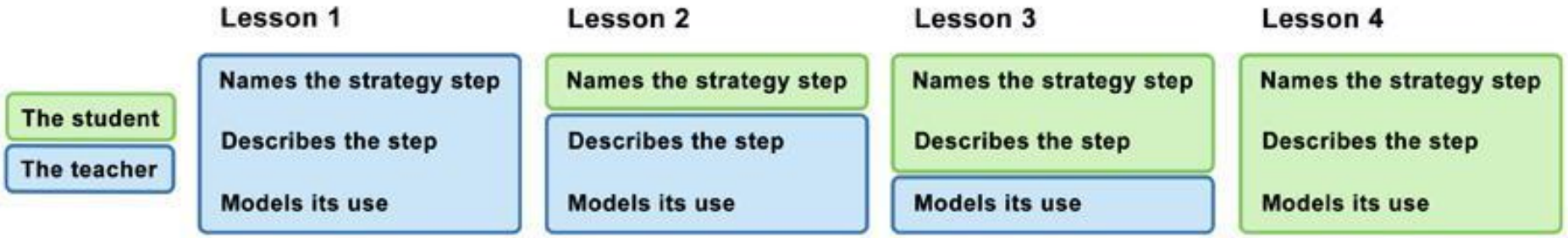
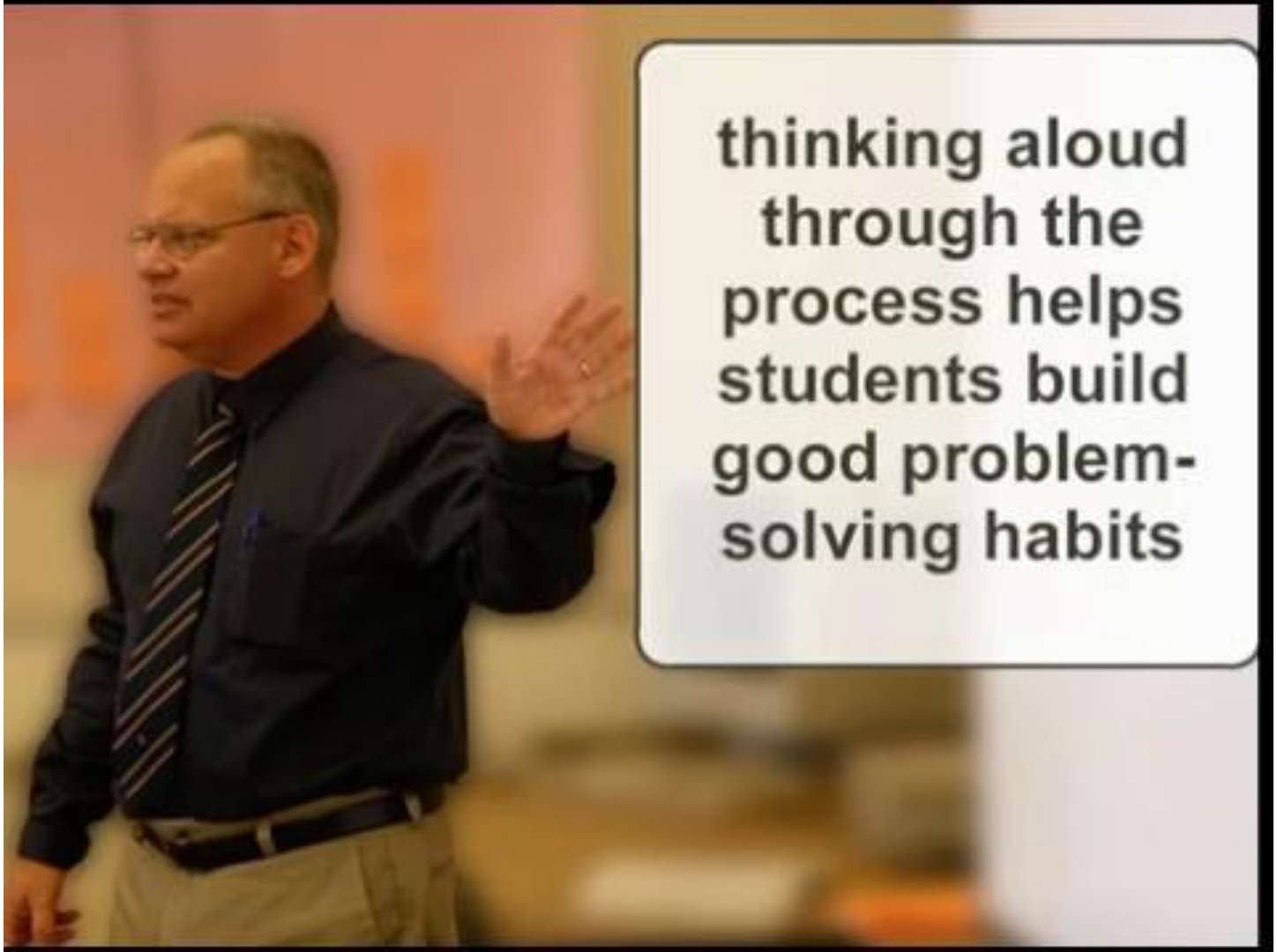
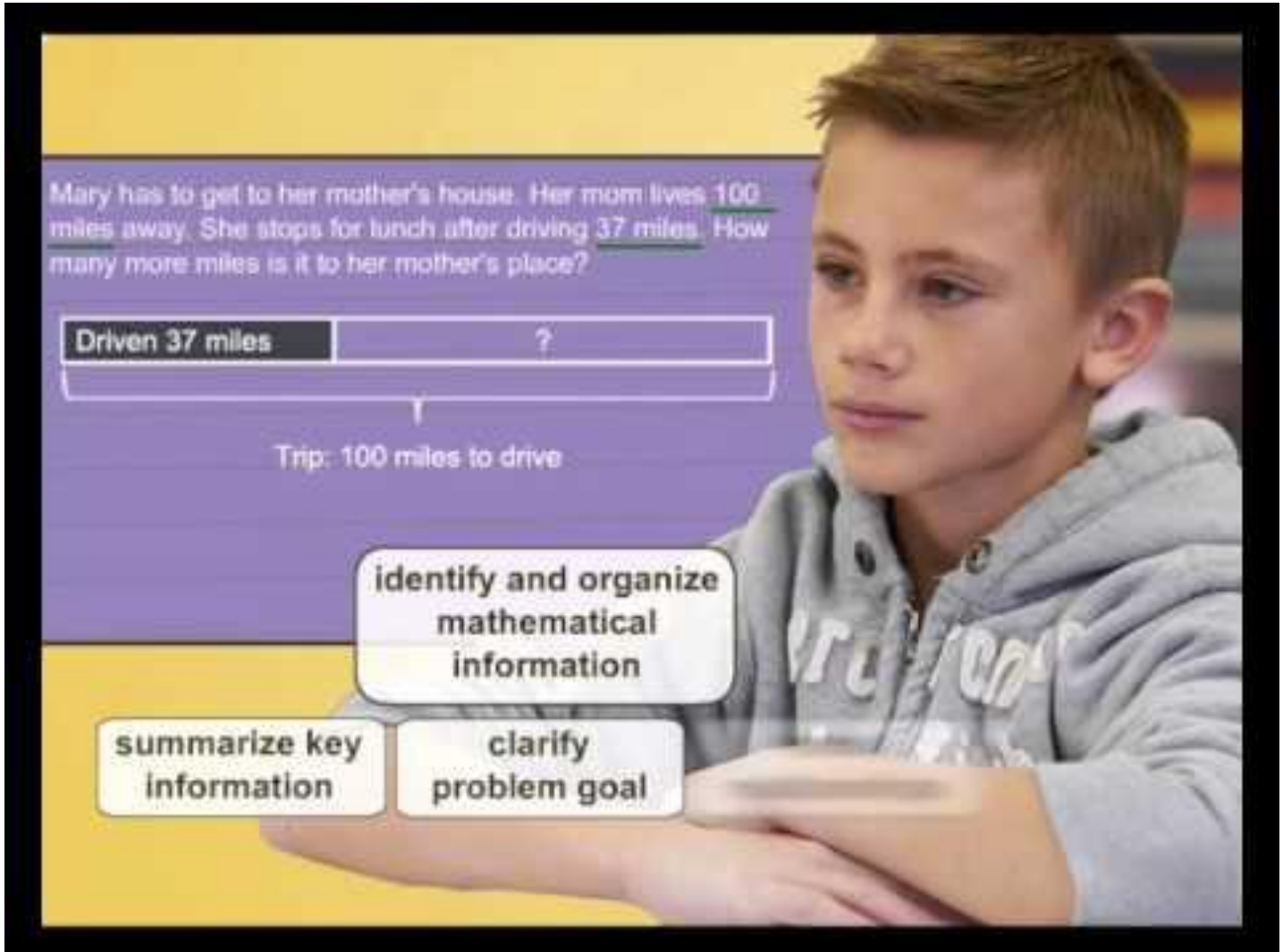
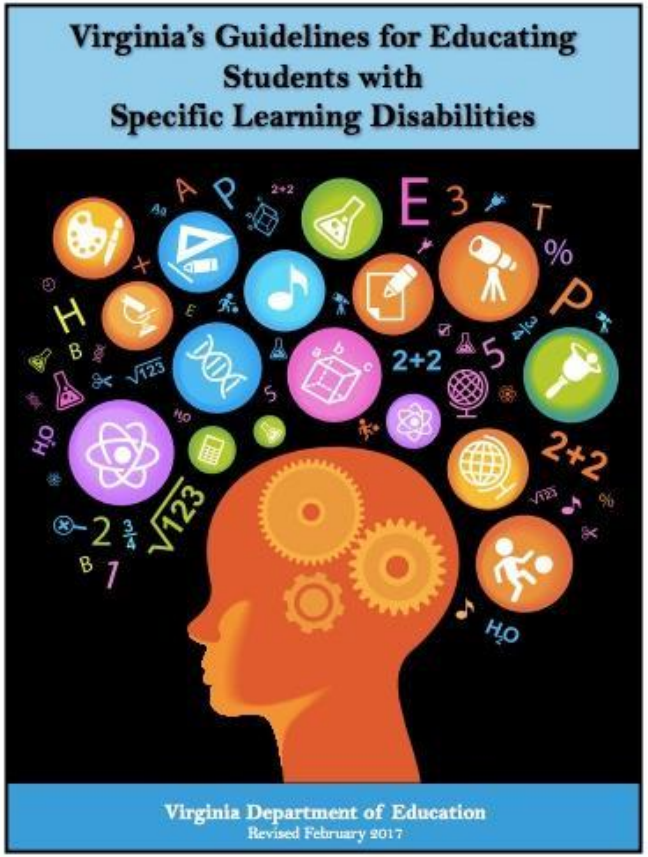
DOINGWHAT
WORKS


Lesson 1
Lesson 2
Lesson 3
Lesson 4
The student
The teacher
Names the strategy step
Describes the step
Models its use
Names the strategy step
Describes the step
Models its use
Names the strategy step
Describes the step
Models its use
Names the strategy step
Describes the step
Models its use

there are multiple ways
to approach any problem


thinking aloud
through the
process helps
students build
good problem-
solving habits


Mary has to get to her mother's house. Her mom lives 100 miles away. She stops for lunch after driving 37 miles. How many more miles is it to her mother's place?
Driven 37 miles
?
Trip: 100 miles to drive
identify and organize mathematical information
summarize key information
clarify problem goal



STANDARDS OF LEARNING (SOL) & TESTING

MATHEMATICS 2016

Mathematics Standards of Learning (SOL) – Adopted 2016

- **2016 Mathematics Standards of Learning**
  The 2016 Mathematics Standards of Learning identify academic content for essential components of the mathematics curriculum at different grade levels for Virginia's public schools.
- **2016 Mathematics Standards of Learning Curriculum Framework**
  The 2016 Mathematics Standards of Learning Curriculum Framework, a companion document to the 2016 Mathematics Standards of Learning, amplifies the Mathematics Standards of Learning and further defines the content knowledge, skills, and understandings that are measured by the Standards of Learning assessments. The Curriculum Framework delineates in greater specificity the minimum content that all teachers should teach and all students should learn.
- **2009 to 2016 Crosswalk (Summary of Revisions)**
  The 2009 to 2016 Crosswalk (Summary of Revisions) for each grade level and course provides a summary of additions, deletions, and edits to the Mathematics Standards of Learning and Mathematics Standards of Learning Curriculum Frameworks. These documents also provide a side-by-side comparison of the 2009 Mathematics Standards of Learning and the 2016 Mathematics Standards of Learning.
- **2017 Mathematics Standards of Learning Institutes**
  The 2017 Mathematics Standards of Learning Institutes provided training that focused on deepening participants' understanding of the Standards of Learning review and revision process, progression of the mathematics standards, and the use of high leverage mathematics teaching practices as outlined in the NCTM *Principles to Actions: Ensuring Mathematical Success for All* executive summary. A product of the 2017 Mathematics Institutes is a set of online professional development modules designed to be used by a group of teachers of a specific grade level or course, facilitated by a member of the team. Modifications could be made to adapt the professional development for more than one grade level/course or for large groups. Facilitators should review the activities and handouts in this guide prior to facilitating this professional development.

2016 Mathematics SOL

Watch the video playlist to learn more about the 2016 Mathematics Standards of Learning (SOL).

- 2016 Mathematics SOL: Overview
- Vertical Progression & Support
- Implementation & Resources

Note the Process goals from SOL and Equity Statement