Focus Areas from CSB:

• Classroom Strategies
• Math Anxiety and Motivation
• Effective Evaluation and Assessment

Classroom Strategies

• Teaching Practices
  – We have many suggestions
  – But first, some research findings
    • Research will help us frame our suggestions
    • Research results may help you understand your students’ difficulties are not unique
Research Findings

• Deaf students may not be skilled at:
  – Metacognition (thinking about thinking)
  – Monitoring their own understanding
  – Recognizing what they do not know
  – Understanding the whole instead of individual parts
  – Understanding the purpose of a task
  – Relating new material to existing knowledge

Research Findings

• Deaf students may not be skilled at:
  – Making inferences
  – Transferring and applying what they know
  – Sorting important from unimportant information: sketching difficulties
  – Knowing when to ask for help and what questions to ask
  – Reading and expressing ideas in writing

Classroom Strategies

• In spite of research findings, we are optimistic
  – We take satisfaction in moving students along mathematically
  – We will share some of the more successful strategies used in our classes.
What We Value and Encourage (Target Values)

- Problem solving, reasoning, divergent thinking
- Technology, calculators, reasonableness of results
- Models, diagrams, sketching
- Symbol use and meaning
- Lab activities and reports
- Language and communication
- Study skills and use of a text
- Positive attitude toward learning, including persistence.

Strategy #1: Emphasize and Practice Language

- Reinforce the language of instruction since it may not be the student’s first language
- Make connections between the language of mathematics, sign language and the language used in your academic setting
- Discuss vocabulary
  - Math vocabulary including variations
  - Everyday vocabulary in a mathematical context
  - Non-technical vocabulary
- Key words? Be careful!

Strategy #1: Emphasize and Practice Language (cont.)

- Use questions to summarize. Encourage sentences and details.
  - What did we study yesterday (or today)?
  - Which homework problem was difficult? Why was it difficult?
  - Why does the sign for (XXX) make sense?
  - How do you explain (XXX) to a friend?
  - What comparisons can be made between two given quantities?
Strategy # 2: Encourage Sketching  
- Visuals should be part of student’s mental resources  
- Sketches give students a frame of reference and illustrate their thinking  
- As instructors model sketching, students can see what is the essence of a problem  
- Instructors’ knowledge of visuals in previous courses can be used to make connections to new material.

Strategy # 3: Use Quality Materials  
- Videotapes, WWW, and Text Books  
  - Issues  
    - Content  
    - Pace  
    - Mathematical accuracy  
    - Language accessibility  
    - Expense  
- In-house materials  
- Texts and supporting material  
  - Learning to use a text: target value

Strategy # 4: Improving Retention of Knowledge, Skills  
- Use a spiral approach  
- Introduce new topics with a mention of what they learned previously  
- Prod with clues when students ‘forget’  
- Keep spiraling positive--you will enjoy teaching more, too  
- Calculators can help
Strategy #5: Tutoring

Math Anxiety and Motivation

- Use of a variety of assessment methods, not just tests
- Convey your satisfaction with student progress
- Address avoidance behaviors
- Use activities that you find interesting
- Use problems that are meaningful (from the technical programs)

Assessment and Evaluation
Underlying Principles

- We strive to maintain standards without causing student failure
- We recognize that there is a thin line between enabling and preventing
- We know that most of our students do not pursue careers in mathematics
Assessment and Evaluation

• Our assessment of student work reflects established standards of mathematics education in the USA
  – Tests, quizzes
  – Lab reports
  – Group work
  – Presentations
  – Homework assignments

Assessment and Evaluation

• Assessment of student learning can be difficult because of language factors
  – Students may not be able to communicate all they know
  – Students may not read well
  – We might assume students know more (or less) than they really do

Mathematics Placement

• Use of selected questions to target the ‘heart’ of a course
• Use results to place in a course where student can be successful and challenged
• Percents used for placement may seem low or arbitrary
• Student interviews can help in placement, as can academic record
• “But I already had algebra.”