

How Can I Help My Students Enjoy Learning
Mathematics Instead of Being Afraid of It?
Fostering Positive Mathematics Experiences
With Special Needs and English Language Learner
Populations



TEXAS
STATE
UNIVERSITY
SAN MARCOS

Presenter: Joyce Fischer

TSUS MELL Classroom Practices Framework

Texas State University System Mathematics
for English Language Learners
Initiative

Sections of TSUS MELL CPF

1. Learning Atmosphere &
Physical Environment
2. Instructional Practices
3. Mathematics Content & Curriculum
4. Language Practices
5. Family & Community Involvement
6. Assessment of Student Learning

(1) Learning Atmosphere & Physical Environment

- A caring classroom atmosphere of mutual respect and support is facilitated by the teacher who:
 - Knows each child as an individual,
 - Embraces languages, customs, and cultures of ELL students,
 - Provides culturally rich learning materials,
 - Encourages self-expression and provides positive recognition,
 - Builds student confidence and esteem,
 - Fosters an emotionally safe environment that allows students to feel secure and to take risks.

(1) Learning Atmosphere & Physical Environment

- The classroom is visually rich to support student learning
 - Incorporates displays of student produced work, whenever possible,
 - Is colorful and thought stimulating,
 - Contains pertinent, real-world information and applications,
 - Reinforces math-specific vocabulary and concepts,
 - Provides color-coded learning supports when appropriate.
- Room arrangement facilitates student interaction and group work.

(2) Instructional Practices

- Instructional practices foster cooperation and collaboration.
- Concepts are presented accurately, logically, and in engaging ways.
- Multiple representations incorporate mathematics learning levels: concrete, semi-concrete, and abstract.

(2) Instructional Practices

- The teacher employs student-centered instructional practices.
 - Approaches content from a concept-oriented constructivist method,
 - Surrounds students with different modalities,
 - Connects new concepts to prior learning,
 - Encourages students to refine and reflect about their own work and verbalize concept understanding “in their own words”,
 - Chooses homework to optimize individual content development,
 - Provides extra help and resources on an individual basis.

(2) Instructional Practices

- Students are frequently partnered with peer learners to enhance learning opportunities.
 - To develop math content,
 - To aid English language development,
 - To insure sustained active participation in the class,
 - To welcome new students into an established learning community.

(2) Instructional Practices

- Instructional activities are varied and support diverse learning styles and multiple intelligences, including for instance:
 - Frequent use of models,
 - Music as a motivator and anchor,
 - Mind maps, poster-walks, and word walls
 - Key vocabulary and cognates presented in different forms,
 - Vivid adjectives.

(3) Mathematics Content & Curriculum

- Glossary of mathematical terms is always available for reference.
- Content is aligned to appropriate grade-level, mathematics TEKS and professional standards.
- Content is based on diagnosed student needs.

(3) Mathematics Content & Curriculum

- Content is systematically designed to incorporate sound learning principles.
 - To incorporate increased complexity,
 - To present a cohesive big-picture through chunking,
 - To connect concepts through bridging and scaffolding,
 - To emphasize multidisciplinary understandings,
 - To reflect on inherent patterns by comparing and contrasting concepts.

(3) Mathematics Content & Curriculum

- Curriculum is challenging, relevant, age-appropriate, and well-paced
 - To include contextually-based problems,
 - To incorporate student realities,
 - To involve interactive problem solving.

(4) Language Practices

- Language support is offered without supplanting English instruction.
- Support is aligned with student's diagnosed language needs.
- Language used is appropriate to age and grade level and presented in a socially meaningful context.
- Mathematics-specific vocabulary is explicitly and implicitly taught and reinforced through repetition.

(4) Language Practices

- Teachers are knowledgeable about the second language acquisition theories and best practices embodied in Texas Administrative Code, Title 19, Part II, Chapter 128.
- Ideally, dual language instructional support should be offered.
- When dual language teachers are not available, sheltered instruction should be utilized to provide strong language support by addressing content through ESL.

(5) Family & Community Involvement

- Schools connect to student's family-life by embedding contextual experiences and skills in teaching and curriculum.
- Projects are relevant and promote family interaction.
- Opportunities are available for English-speaking higher grade-level students to mentor ELL lower grade-level students either in an in-school or after-school program, as appropriate.

(5) Family & Community Involvement

- Teacher engages in frequent communication with families
 - About activities and events in which parents can participate,
 - About student progress.
- Teacher utilizes services provided by a community liaison and is knowledgeable about community resources.
- Parents are informed about the benefits of using their most cognitively advanced language at home.

(6) Assessment of Student Learning

- Classroom assessment is designed to foster student success.
- Assessment methods allow students frequent opportunities to demonstrate mastery in a variety of ways.
- Various assessment techniques are used to measure student understandings.

(6) Assessment of Student Learning

- Grades are oriented to promote and emphasize valid step-by-step logical reasoning processes.
- Assessment data and results shape instructional planning.
- Flexible time allotments are given to demonstrate concept mastery.

Further Information

- TSUS Website: www.tsusmell.org
- Texas State Project Team Leader
 - Dr. Joyce Fischer, Mathematics
 - Email: jf10@txstate.edu
 - Phone: (512) 245-8023
 - Fax: (512) 245-1211