MEC Principles of Design

These principles guide MEC's decision making in designing workshops and other professional development events.

- Model fully the learning environment and assessment practices that optimize learning in mathematics classrooms; bring the Standards for Mathematical Practice to life.
- Get the 'grain size' right – when planning for instruction and/or identifying student/teacher-learning outcomes, a 'unit of study' rather than a lesson is the appropriate grain size.
- Surface 'soft spots' in learners' understanding early and often, and push on those 'soft spots' throughout the unit/workshop.
- All learners have mathematical ideas worth listening to, and it is our job as teachers and PD providers to build a classroom/workshop culture that helps students/teachers learn to express their ideas clearly.
- Meet a range of learner needs through the use of 'menu' and 'expandable tasks' allowing access to all and yet challenging every learner.
- Mathematical discourse and convincing mathematical arguments are essential. PD providers/teachers are not the answer book. The soundness of the mathematics should be the arbiter of whether or not an idea is reasonable.
- Through questioning and listening carefully to what they have to say, continually seek to understand students'/teachers' thinking.
- Embrace mistakes as sites for new learning; they provide opportunities to look more deeply or consider ideas that might not otherwise be encountered.
- Recognize confusion or cognitive dissonance as a necessary, and even desirable part of the process of learning; a natural step on the pathway to constructing new understanding.
- While efficiency is a goal, recognize that whether or not any given strategy is efficient lies in the thinking and understanding of the individual learner.
- Student/teacher sense-making always matters. Value and encourage diverse ways of solving any given problem.
- Create a learning environment where all learners feel safe sharing their mathematical ideas.
- Understandings develop over time through confronting ideas in multiple contexts. The 'big ideas' are never fully mastered; they deepen in complexity over time.
- A good assessment task is a good learning task.