

Topic	Presenter	Session Title	Session Description
Patterns	Joe Zilliox Shari Ishii	From Patterns to Generalizations: Activities from the Nanaikapono Algebra Camp	Having students see and build patterns, and move from extending the pattern and providing a verbal description of the pattern to a symbolic generalization can be challenging. Participants will engage in activities from several iterations of the Nanaikapono summer Algebra Camp. Student work on these same activities will be presented.
Proportional Reasoning	Mike Gilbert	Investigating the concept of Proportion: A rational look at ratio	Proportional reasoning concepts underpin many topics in advanced mathematics. One of the major conundrums in mathematics is that it is difficult to say in a concise way what proportional reasoning is. And, it is difficult to say exactly how a person learns to reason proportionally. Proportional relationships are grounded in multiplicative reasoning that is different from the additive reasoning that characterizes the whole number instruction of elementary school. In this session, we will foster and model a spirit of thinking proportionally. We will investigate a series of tasks and support each
Inequalities	Linda Venenciano Fay Zenigami Claire Okazaki	Inequalities, intuitive but not trivial: An application of logical thinking	The concept of an inequality seems to be intuitive for most students. Elementary students learn about the “>” and “<” symbols as alligator mouths but this has had the unfortunate consequence of trivializing the mathematics, an impact which may not be realized until middle school. This session will explore an intuitive-to-abstract approach to representing and reasoning about mathematical relationships of quantities.

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Operations with Signed Numbers	Joel Weiner	A general context for working with the integers	It is always good to have a way of interpreting any true mathematical statement so that the statement expresses a reasonable or plausible idea. This helps students appreciate why the statement should be regarded as true. For example, $(-1)(-1) = 1$, should be something more than just a fact to be memorized and recalled as needed. The goal of this presentation is to establish a context in which all true statements involving addition and multiplication of integers can be interpreted in what can be regarded as a reasonable reflection of students' understanding of symbolic representations strongly impacts their success in higher-level mathematics.
Variables, Expressions, and Equations	Hannah Slovin	Symbolic Expressions and the Representation Process	The middle grades are a critical time for students to develop a deep understanding of variables and expressions. In this session, participants will engage in activities that illustrate how students move from informal, individually meaningful representations toward the use of formal, traditional representations through a gradual process. Samples of student work will also be shared.
The Coordinate Plane	Charlie Souza Melfried Olson	Navigating the Coordinate Plane with Navigator	to make connections between graphical representations, tables of values, and verbal descriptions of real-world contexts to develop a deeper understanding of the coordinate plane. The session will also emphasize teaching with technology and strategies for student involvement and formative assessment. Participants will experience the TI-Navigator System and how to use it to increase the cognitive levels for students through the use of questioning techniques; explore the resulting increase in the level of student responses; and examine formative assessment techniques for which Navigator can be used.
TI-Nspire	Debbie Kula	Teaching Tough Topics - Action/Consequence Documents on TI-Nspire	Tough-to-teach, tough-to-learn topics can contribute to student misconceptions and perpetuate student difficulties on assessments. The TI-Nspire™ handheld provides a platform for building conceptual understanding of critical core math concepts via interactive, dynamic activities that engage students in their own learning. Come to this session for an introduction to this exciting new classroom