Focus in High School Mathematics: Reasoning and Sense Making

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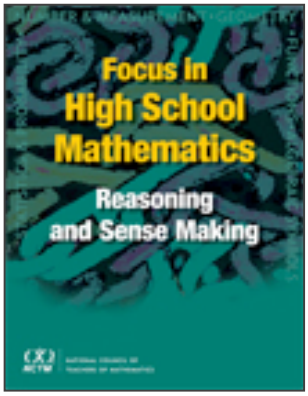
DESCRIPTION



Focus in High School Mathematics: Reasoning and Sense Making, by W Gary Martin, John Carter, Susan Forster, Roger Howe, Gary Kader, Henry Kepner, Judith Reed Quander, William McCallum, Eric Robinson, Vincent Snipes, and Patricia Valdez, advocates that all high school mathematics programs must focus on reasoning and sense making. Instructional approaches along with curricular emphases that make reasoning and sense making foundational to the content taught are proposed.

Chapter 1 describes reasoning and sense making, why they should be considered as foundational, and how they link with other mathematical processes. Chapter 2 describes reasoning habits that occur in the processes of mathematical inquiry and sense making, a trajectory for how they develop, and suggestions for how to promote them in the classroom. These reasoning habits include:

- Analyzing a Problem
- Implementing a Strategy
- Seeking and Using Connections
- Reflecting on a Solution

The second section demonstrates how reasoning and sense making can be incorporated into the high school curriculum. Chapter 3 provides an overview and chapters 4-8 describe how reasoning and sense making fit into five areas of mathematics - number and measurement, algebraic symbols, functions, geometry, and statistics and probability.

The final section discusses issues related to implementing reasoning and sense making including equity and expectations. Chapter 11 presents questions for stakeholders to consider.

STAGE 3 LEADERSHIP DEVELOPMENT

Focus in High School Mathematics: Reasoning and Sense Making, by W Gary Martin, John Carter, Susan Forster, Roger Howe, Gary Kader, Henry Kepner, Judith Reed Quander, William McCallum, Eric Robinson, Vincent Snipes, and Patricia Valdez, supports stage 3 leadership development of

leaders working to advocate and systematize to meet the curriculum principle indicators. Stage 3 leaders work to:

- Ensure coherent implementation and ongoing review by district, regional, or provincial stakeholders for the alignment of local curriculum with state and national curriculum recommendations and assessments.
- Ensure the collective analysis and continuous systemic improvement of the implemented local curriculum throughout the district, region, or province.
- Participate in the systemic development, implementation, and student attainment of a well-articulated, rigorous, and coherent preK-12 mathematics curriculum throughout the district, region, or province.

Chapter 11 urges all stakeholders to work together in meaningful ways to ensure that high school mathematics programs are focused on providing all students with mathematical reasoning and sense-making skills. Several sections outline questions that leaders can use in engaging stakeholders in important conversations about what is happening and what needs to happen. Questions are provided with reference to:

- Students
- Families
- Teachers
- Administrators
- Policymakers
- Higher Education
- Curriculum Designers
- Collaboration among Stakeholders