
Focus in High School Mathematics: Technology to Support Reasoning and Sense Making

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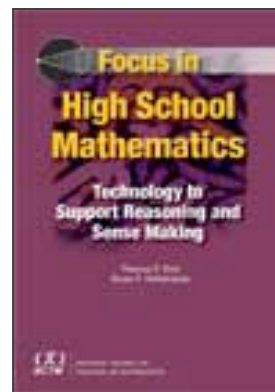
2011 ♦ NCTM

ISBN: 978-087353-674-5

Mathematical and Pedagogical Knowledge: Books

DESCRIPTION

Focus in High School Mathematics: Technology to Support Reasoning and Sense Making, by Thomas P. Dick and Karen F. Hollebrands and published by the National Council of Teachers of Mathematics, describes an instructional mantra of “push or probe” to guide decisions involving the use of technology in mathematics classrooms. Teachers should make instructional choices that push students’ mathematical thinking forward or that probe how students are thinking mathematically.



Types of technology for mathematics teaching include:

- Conveyance technologies that are not mathematics specific including those used for presentation, communication, sharing/collaboration, and assessment/monitoring/distribution
- Mathematical action technologies including computational/representational tool kits, dynamic geometry environments, micro-worlds, and computer simulations

For technology to be an effective tool, good questions demanding sense making and reasoning from students are needed. Questions should support students as they:

- Predict consequences (what would happen if...?)
- Consider action (what would make ...happen?)
- Conjecture/test/generalize (When?)
- Justify (Why?)

The book includes many figures of interactive, dynamic technology via screenshots. Also included is an access code that allows the reader to try out many of the technologies live at More4U, NCTM’s online resource center. More4U includes interactive applets, animations, and movies.

STAGE 3 LEADERSHIP DEVELOPMENT

Focus in High School Mathematics: Technology to Support Reasoning and Sense Making, by Thomas P. Dick and Karen F. Hollebrands, supports stage 3 leadership development of those working to advocate and systematize to meet the teaching and learning principle indicators. Stage 3 leaders

work to ensure the ongoing use of technology as a systemic part of the mathematics curriculum and instruction at the district, regional, or provincial level.

Leaders will find the guidelines for choosing and using interactive technology in the introduction of the book. Working with mathematics coaches and leaders in individual schools and across the district, the ten questions in the guide can be used to determine the inclusion of technology and scenarios using technology in mathematics classrooms. The questions in the guide, which provide examples and probes, are a good starting place for the collaborative development of protocols for including technology in mathematics lessons. These questions help to answer the bottom line question: *Can the technology be used to ask questions demanding reflection, sense making, and reasoning from the students?*

The seventh chapter, “Technology Tools to Support Mathematics Teaching,” focuses on conveyance technologies that aide in communication and collaboration. The descriptions and suggestions provide a good starting place for developing protocols for using technology in mathematics classrooms. Teaching practices that can be supported using conveyance technologies include:

- Encouraging student collaboration
- Sequencing and sharing student work on mathematical tasks
- Orchestrating mathematical discourse
- Monitoring and assessing students’ mathematical learning