"Change is made by people – but people are more effective when they have well-engineered tools"

Mathematics Improvement Network
offers as free downloads

Adaptable Tools for School and District Leaders

EACH TOOL INCLUDES:

A Comprehensive Leader Guide

Presentation Slides

Session Handouts

MathNIC TOOLS

Just as well designed curricula and assessments can help improve teaching and learning, the right tools can help schools and school districts be more effective in organizing for improvement, supporting teaching and learning, and communicating with parents and the community. Such tools need to be flexible and adaptable, address critical issues, and be easy to use in order to meet the needs of each individual school district.

The Mathematics Network of Improvement Communities (Math NIC) is a collection of district administrators, principals, mathematics coaches, and teachers representing ten school districts and professional organizations. With support from the Bill & Melinda Gates Foundation, the NIC team convened in 2015 to identify challenges to the improvement of their mathematics programs. The NIC design group then collaborated with the districts to design nine prototype tools.

The tools look at the essentials of an issue so that participants can focus on challenges and options for making progress. Each tool consists of downloadable materials primarily designed to provide detailed support for a workshop-style session, typically lasting 90-120 minutes. Partner districts have piloted the tools, which are now ready for broader use, but they are far from polished or in final form. We hope you will find some of the tools useful and will try them with your school district. We welcome any feedback you can provide on how to improve the tools. On the back we outline the purpose of each of the following tools and the intended user groups; we give an explanatory introduction to the issue and how it is addressed. Contact us at mathnic.mathshell.org for further information, to give feedback, and for possible partnerships.

NOW AVAILABLE

Teaching Mathematics for Robust Understanding *What makes a mathematically powerful classroom?*	**System Coherence Health Check** *How well do our various "drivers" support policy?*	**Designing Professional Development** *How can we make PD more effective?*
Formative Assessment *What is it, and how can it improve teaching and learning?*	**World Class Mathematics for Parents (and others)** *What is it and what does it mean for my child?*	**Lesson Study for Professional Development** *What is Lesson Study, and how can it help?*
Mathematical Practices *What does it mean to "think mathematically," and how can we help students do it?*	**Developing Mathematical Proficiency** *What kinds of tasks and activities help students grow mathematically?*	**Observing Mathematics Lessons** *What should we focus on, and how?*

Teaching Mathematics for Robust Understanding

What makes a mathematically powerful classroom? This tool introduces the Teaching for Robust Understanding (TRU) framework as a foundation for thinking about, planning, observing, and reflecting on classroom teaching. It is designed for use by and with the district math team, principals and teachers in professional development or initial training.

Formative Assessment for Learning

What is formative assessment, and how can it improve teaching and learning? This tool offers professional development leaders detailed support for leading a workshop with mathematics teachers. It introduces teachers to the principles and practices of formative assessment – including what to do and what to avoid.

Mathematical Practices

"Thinking mathematically" means more than learning facts and procedures; it involves using mathematical ideas effectively. This session provides a framework for assessing students' proficiency in core mathematical practices – planning, presenting, analyzing and reflecting – as the students learn mathematics.

Program Coherence Health Check

Do our tests, curriculum, instruction, staff professional learning opportunities, policies and practices all support our math program goals? This tool helps district leaders to review the alignment of the various "drivers" of their mathematics program. The workshop session guides leaders through an initial check for their district.

World Class Mathematics for Parents

How can we communicate "what counts" in mathematics to non-mathematical audiences? This tool helps introduce various stakeholders (parents, employers, school boards, and school and district administrators) to the mathematics that is taught in high-performing countries, and described in the Common Core and related State Standards.

Developing Mathematical Proficiency

Students won't learn music if they only practice scales; they won't learn mathematics unless they engage with rich tasks that help them develop as mathematical thinkers and problem solvers. This tool provides mathematics teachers and task designers with a framework for selecting and designing a balanced range of mathematics tasks and activities.

Designing Professional Development

How can we make PD more effective? This tool provides support for a workshop session for system leaders and professional development providers in mathematics. It presents a range of approaches and the evidence on their effectiveness in improving classroom practice.

Lesson Study for Professional Development

How can we build professional learning communities for teachers? Lesson study is one effective model. This tool provides detailed support for a workshop that introduces professional development providers and mathematics teachers to the lesson study method for ongoing professional learning.

Observing Mathematics Lessons

What should we focus on when we observe mathematics lessons, and how? This tool provides comprehensive support for a workshop session for principals, or others with or without a professional mathematics background, that introduces them to a research-based framework for observing math lessons.