

Livingston County Schools

District Mathematics Vision

Livingston County Schools, in partnership with the community, is committed to fostering a mathematics-rich environment that supports learners at all levels. We believe that with a structured approach to mathematics instruction, all students can develop the ability to reason abstractly, think critically, solve problems strategically, and apply mathematical understanding to real-world situations. In Livingston County Schools, we strive to build mathematically proficient students prepared to meet the demands of college and career, and apply mathematics to solve problems in the real world through these six beliefs:

Belief #1

Conceptual understanding, procedural fluency, and application are deeply linked and effective math instruction reflects a balance of all three.

Belief #2

Mathematical reasoning is the backbone of conceptual understanding and algorithmic proficiency.

Belief #3

Student conceptual understanding and the ability to apply mathematics is enhanced when students have frequent opportunities to communicate about math.

Belief #4

Deep understanding of mathematical concepts is the gateway to success in higher level mathematics in high school.

Belief #5

Students and teacher must have a growth mindset.

Belief #6

We believe in high expectations and strong support for all students.

	Description	Evidence
Students...	• Make sense of problems and persevere in solving them. • Reason abstractly and quantitatively. • Construct viable arguments and critique the reasoning of others. • Model with mathematics. • Use appropriate tools strategically. • Attend to precision. • Look for and make use of structure. • Look for and express regularity in repeated reasoning. The Mathematical Practices: What Mathematically Proficient Students Are able to Do (NGA & CCSSO, 2010)	• Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution...mathematically proficient students can explain correspondences between equations, verbal descriptions, tables, and graphs or draw diagram of important features and relationships, graph data, and search for regularity or trends....Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, "Does this make sense?" • Mathematically proficient students make sense of quantities and their relationships in problem situations. • Mathematically proficient students understand and use stated assumptions, definitions, and previously established results in constructing arguments.... Mathematically proficient students are also able to compare the effectiveness of two plausible arguments, distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in an argument—explain what it is. • Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and they are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. • Mathematically proficient students consider the available tools when solving a mathematical problem.... Mathematically proficient students are sufficiently familiar with tools appropriate for their grade or course and make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations. • Mathematically proficient students try to communicate precisely to others. • Mathematically proficient students look closely to discern a pattern or structure. • Mathematically proficient students notice if calculations are repeated and look both for general methods and for shortcuts.
Teachers...	• Establish mathematics goals to focus learning. • Implement tasks that promote reasoning and problem-solving. • Use and connect mathematical representations. • Facilitate meaningful mathematical discourse. • Pose purposeful questions. • Building procedural fluency from conceptual understanding. • Support productive struggle in learning mathematics.	• Effective mathematics educators establish clear goals for the mathematics that students are learning, situates goals within learning progressions, and uses the goals to guide instructional decisions. • Effective mathematics educators engage students in solving and discussing tasks that promote mathematical reasoning and problem-solving and allow multiple entry points and varied solution strategies. • Effective mathematics educators engage students in making connections among mathematical representations to deepen understanding of mathematics concepts and procedures and as tools for problem solving. • Effective mathematics educators facilitate discourse among students to build shared understanding of mathematical ideas by analyzing and comparing student approaches and arguments.

	Elicit and use evidence of student thinking. Mathematics Teaching Practices (<i>Principles to Action, NCTM</i>)	- Effective mathematics educators use purposeful questions to assess and advance students' reasoning and sense-making about important mathematical ideas and relationships. - Effective mathematics educators cultivate student fluency with procedures based on a foundation of conceptual understanding so that students, over time, become skillful in using procedures flexibly as they solve mathematical problems in real world applications. - Effective mathematics educators consistently provide students, individually and collectively, with opportunities and supports to engage in productive struggle as they grapple with mathematical ideas and relationships. - Effective mathematics educators use evidence of student thinking (formative assessment) to assess progress toward mathematical understanding and adjust instruction continually in ways that support and extend learning.
School leaders ...	- Communicate a clear vision for excellence in math to staff, students and families and empower them in sharing this vision with the communities they lead. - Preserve PLC time for VITAL collaboration between teachers to achieve this vision by supporting their use of research-backed activities that target teacher needs. - Support teacher attendance at high-quality professional learning that is grounded in mathematical standards. - Monitor the implementation of standards-aligned materials and instructional practices through student data and assessment. - Regularly observe and provide feedback to individual teachers that is grounded in content, instructional innovation, and standards alignment while ensuring access to high quality resources.	- Completing observations with detailed feedback on each math teacher with a focus on high quality instruction. - Conducting PLCs that support teachers in instruction delivery as well as specific teacher needs. - Periodically, completing non-evaluative assessment reviews and reflections that inform professional learning. - Demonstrating understanding of their building's instruction and student-data. - Meeting with district administration to ensure school alignment to district mathematics vision and determine school mathematics supports.

District Leaders...	• Communicate a vision for excellence in mathematics to school leaders and empower them in sharing this vision with the communities they lead. • Define strategic expectations around the use of high-quality curriculum in classrooms, including expectations for teacher planning that align with the vision for mathematics instruction. • Continually improve by regularly monitoring implementation of expectations and making adaptations when necessary. • Facilitate and curate high quality professional development for teachers that is aligned to standards and supports implementation of high-quality curriculum.	• A clear and documented vision for mathematics instruction that is communicated equitably throughout the district • Professional learning calendar that prioritized standards-based learning for school leaders and teachers • Frequent and intentional conversations amongst instructional leaders to ensure clarity around the vision for mathematics instruction in the district. • Facilitation of math professional learning and content focus groups to provide support in numeracy instruction.
Parents/Guardians...	• Make mathematics a priority in the home. • Engaging students in conversations about the importance of mathematics. • Demonstrate an interest and keeping informed about student's progress in school. • Follow suggestions recommended by school staff to assist in student's learning. • Review student's assessment reports and report card with him/her. • Are aware of student's assigned homework and classroom procedures and assists student in adhering to homework expectations and policies. • Provide an appropriate, quiet place and time for the student to do homework.	• Time set aside by family to engage in mathematics opportunities. • Actively participating in conferences with teachers and other school staff when needed. • Assures student comes to school regularly and on time. • Signs and promptly return parent notices. • When assigned, homework and other assignments are completed on time. • Student comes to school with a positive attitude toward learning and school.