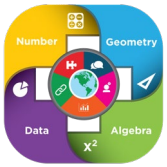

Key Instructional Shifts for Nebraska's 2022 College and Career Ready Standards for Mathematics

Shifting instructional practice is central to improving teaching and learning. The 2022 revisions to *Nebraska's College and Career Ready Standards for Mathematics* require key shifts in practice and consideration of instructional materials to realize the vision for excellent instruction in mathematics. This document provides an overview of the instructional shifts and the roles that teachers, leaders, and students have in their implementation.

Mathematics Shift 1: Focus | The ability to focus on fewer concepts at a grade level allows for deeper engagement with concepts and topics. The revised standards reflect the emphasis of developmentally appropriate concepts at each grade level that are foundational to later proficiency. These shifts narrow and deepen learning experiences and focus on the "major work" of each grade.

Teachers…	School leaders…	Students…
▪ Establish clear learning goals for the mathematics students are learning and use the goals to make instructional decisions. ▪ Design learning experiences using high-quality instructional materials that focus on the major work of the grade and promote positive dispositions toward the study of mathematics. ▪ Facilitate meaningful discourse to build a shared understanding of mathematical ideas. ▪ Provide students sufficient time working with engaging applications of mathematics while allowing students to think independently about problems.	▪ Ensure instruction aligns with a district-wide, developed and shared vision for excellent teaching and learning of mathematics. ▪ Support the procurement and implementation of high-quality, standards-aligned instructional materials. ▪ Provide professional learning focused on the major work of each grade supported by high-quality instructional materials.	▪ Use learning goals to focus on progress in improving their understanding of grade-level content and proficiency with using the mathematical processes. ▪ Participate in grade-level content in classroom interactions and assignments. ▪ Explain how they solved a problem and provide mathematical justification for their reasoning. ▪ Discuss how different approaches to solving a problem are the same and how they are different. ▪ Reflect on mistakes and misconceptions to improve their mathematical understanding.

Mathematics Shift 2: Coherence | Mathematics represents a coherent body of knowledge that is made up of interconnected concepts and topics. The revised standards are designed as coherent progressions both within and across grade levels. The five mathematical processes (*Problem solving, Reasoning, Representations, Connections, and Communications*) support the interlinking within and across grades. Each standard is an extension of previous learning. All students should have the opportunity to exhibit mathematical processes while engaging in the content of the lesson.

Teachers…	School leaders…	Students…
▪ Prioritize the mathematical processes in all aspects of classroom practice including teaching, instructional materials, assessment, and the use of tools and technology. ▪ Use high-quality instructional materials that address the major work of each grade and reflect the learning progressions. ▪ Provide learning experiences that build on and extend the student's current mathematical understanding.	▪ Develop and/or refine a coherent, district-wide scope and sequence based on the learning progressions. ▪ Ensure the use of high-quality instructional materials that incorporate the mathematical processes. ▪ Establish and maintain sustained professional learning across grade levels. ▪ Observe lessons or engage in classroom walk-throughs, focusing on the mathematical processes.	▪ Engage with the mathematical processes to apply and extend previous understandings. ▪ Transfer mathematical skills and understandings across concepts and grade levels. ▪ Make sense of tasks by drawing upon, and making connections to, prior understanding and ideas. ▪ Use a variety of ways to demonstrate how previous learning supports their thinking with new topics and concepts.

Mathematics Shift 3: Rigor | Rigor refers to the deep, authentic command of mathematical concepts and includes three aspects in the major work of each grade: *conceptual understanding*, *procedural skills and fluency*, and *application*. When these aspects are balanced in instruction and applied with equal intensity and through the use of high-quality questions and tasks, students are equipped to meet the standards at each grade level.		
Teachers… ▪ Use high-quality instructional materials that support the development of conceptual understanding of mathematics. ▪ Provide work with grade-level, authentic problems to develop procedural skill and fluency. ▪ Select tasks from high-quality instructional materials that promote multiple entry points using varied tools and representations. ▪ Pose tasks and problems that require a high level of cognitive demand.	**School leaders…** ▪ Design professional learning that deepens teachers' knowledge of the three aspects of rigor and the importance of balance among them. ▪ Engage families and other stakeholders in the process of selecting high-quality instructional materials and the rigor expected from them. ▪ Support the use of assessments that measure conceptual understanding, procedural skills, fluency, and application.	**Students…** ▪ Build a foundation of conceptual understandings so that, over time, they become skillful in using procedures flexibly as they solve authentic mathematical problems. ▪ Access concepts from a variety of perspectives. ▪ Use tools and representations, as needed, to support their thinking and problem solving. ▪ Persevere in exploring and reasoning through tasks.