Key Shift in the K–12 Learning Standards for Mathematics

Overview

The Washington State K–12 Learning Standards for Mathematics (WA Math 2025) are a revision of the Common Core State Standards (2011). This revision aims to:

- Integrate data science as a foundational component of mathematical understanding
- Reorganize the standards under four broad domains that span all grades K–12
- Center the Standards for Mathematical Practice
- Clarify fluency as efficient, flexible, and accurate use of strategies

Together, these revisions create a cohesive vision of mathematics education that equips students with the skills and understanding needed for college, careers, and civic engagement as members of the community.

Key Shift: Mathematics is contextual, connected, and meaningful

When mathematics is contextual, connected, and meaningful, students:

1. Engage in data science inquiry
2. Learn mathematics through four broad domains
3. Develop efficient, flexible, and accurate strategies for problem solving
4. Engage with the Standards for Mathematical Practice

This document describes the key shift through these four focal ideas, summarizing how they appear in the WA Math 2025. Inquiry, collaboration, and communication are central components of each focal idea. Each description connects back to mathematics as an academic study reliant on interpersonal, contextual, and meaningful teaching and learning.

Educators, instructional material/curriculum developers, and assessment developers can use this document to align curriculum, instruction, assessments, and other resources to the WA Math 2025.

1. Students engage in data science inquiry

Data science is the interdisciplinary study of data collection, maintenance, analysis, visualization, and communication. In WA Math 2025, every student engages in data science through the **data science inquiry** cycle by:

- Formulating statistical investigative questions
- Collecting and considering data

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- Analyzing data
- Interpreting results

For example, a kindergarten student may ask how weather patterns change over time, collect data on temperature and rainfall, analyze these through visuals, and interpret results based on seasonal shifts.

The standards are informed by the Guidelines for Assessment and Instruction in Statistics Education II (GAISE II) framework and emphasize that data science is not limited to older students or advanced technology use. Instead, it promotes curiosity-driven inquiry with increasing complexity across grades, supported by tools like spreadsheets, Common Online Data Analysis Platform (CODAP), and Tableau.

Students also develop **data literacy**, the ability to reason with and about data, and question the validity of data-based claims. Together, data literacy and data science empower students to become critical consumers and authors of data stories.

2. Students learn math through four broad domains

The WA Math 2025 is organized into four domains that reflect how mathematics is experienced in the real world:

- **Data Analysis:** Investigating questions with data, using and interpreting visualizations
- **Quantity:** Understanding and comparing quantities through mathematical operations
- **Relationships:** Recognizing and reasoning about connections between quantities
- **Spatial Reasoning:** Understanding shape and spread in geometry and data

This reorganization supports conceptual understanding and mirrors how mathematics is used in careers and everyday life. For instance, rather than treating algebra, geometry, and statistics as isolated subjects, the domains encourage students to make sense of real-world problems through multiple mathematical lenses.

3. Students develop fluency that is efficient, flexible, and accurate

The WA Math 2025 clarifies fluency as more than speed or memorization. Students demonstrate fluency when they:

- Choose the most efficient strategy for the task
- Adapt strategies flexibly based on context
- Reliably apply strategies to produce correct answers

Fluency develops progressively: from **basic fact fluency** (e.g., single-digit addition), to **computational fluency** (e.g., multi-digit operations), to **procedural fluency** (e.g., solving equations). These forms are nested and interconnected.

Instruction must ensure that all students—regardless of background or ability—develop fluency through conceptual understanding, strategy instruction, and meaningful practice. Fluency is a matter of **equity**, helping students build confidence and agency in mathematics.

4. Students engage with the Standards for Mathematical Practice

The WA Math 2025 is structured to demonstrate interconnected mathematics concepts and the central role of data science, with the Standards for Mathematical Practice serving as a foundation from which mathematics teaching and learning is built. As concepts gain depth and relevance through contextualization, students have multiple means to access and demonstrate their knowledge. The Standards for Mathematical Practice are as follows:

1. Make sense of problems and persevere in solving them.
2. Reason abstractly and quantitatively.
3. Construct viable arguments and critique the reasoning of others.
4. Model with mathematics.
5. Use appropriate tools strategically.
6. Attend to precision.
7. Look for and make use of structure.
8. Look for and express regularity in repeated reasoning.

By centering/emphasizing mathematics in meaningful contexts, the Standards for Mathematical Practice are elevated—engaging students in reasoning, communication, and the development of resilient problem-solving skills they will carry into college and careers.

Conclusion

Together, the four focal ideas support the WA Math 2025 vision that mathematics is contextual, connected, and meaningful. Through rich, integrated mathematical experiences, students are positioned as critical thinkers, problem solvers, and active participants in their communities.