

Mathematics Team Analysis Resources

The following resources have been curated to build understanding of the *Kentucky Academic Standards (KAS)*, research-based best practices and approach to mathematics instruction and your local context. The district curriculum team then uses a shared understanding of the three lenses to inform drafting of a local instructional vision that will be used to guide decisions regarding curriculum, selection of high-quality instructional resources and professional learning.

Lens 1: Alignment to *Kentucky Academic Standards for Mathematics*

[KAS for Mathematics:](#)

- Writer's Vision Statement (pgs. 6-7)
- Design Considerations (pgs. 7-9)
- Organization of the Standards (pgs.10-12)
- Standards for Mathematical Practice (pgs. 12-15)
- Grade-level Overviews:
 - K-5 Overviews (pgs. 16, 29, 45, 60, 76, 97)
 - 6-8 Overviews (pgs. 116, 136, 154)
 - 9-12 Overviews (pgs. 171, 182, 195, 210, 229)

[Getting to Know the KAS for Mathematics](#)—with a spotlight on three sections:

- **Section 1C: A Closer Look at the Standards for Mathematical Practices** - This session builds a shared understanding of the Standards for Mathematical Practice (SMPs) within the KAS for Mathematics and how the components of the architecture provide support to educators working to make connections between the content standards and the practice standards within instruction.
 - One specific resource of note in this section is the [Engaging the Standards for Mathematical Practice: Look fors and Question Stems](#)
- **Section 1D: A Closer Look at the Standards for Mathematical Content** - This session focuses on how the Breaking Down a Standard resource and the Assignment Review Protocol can work together to support instruction around specific standards and to ensure tasks and assignments are aligned to grade level standards.
- **Section 1E: : A Closer Look at the Coherence/Vertical Alignment within the KAS for Mathematics** - This session builds a shared understanding of the Coherence/Vertical Alignment within the KAS for Mathematics and how that component provides guidance for teachers on sequencing content to align with the developmental progressions and the target of the standard.

Lens 2: Alignment to Current Researching on Teaching and Learning in Mathematics

Math Instruction

- [NCTM Principles to Action](#)
- [Effective Mathematics Teaching Practices \(NCTM\)](#) which highlights what teachers and students are doing for each of the eight teaching practices.

The Modeling Cycle

- *GAIMME: Guidelines for Assessment and Instruction in Mathematical Modeling Education, Second Edition*, Sol Garfunkel and Michelle Montgomery, editors, COMAP and SIAM,

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Philadelphia, 2019. View the entire report, available freely online, at <https://www.siam.org/Publications/Reports/Detail/guidelines-for-assessment-and-instruction-in-mathematical-modeling-education>

Grade-Level Specific Math Resources

- What Works Clearinghouse Practice Guide: [Teaching Strategies for Improving Algebra Knowledge in Middle and High School Students](#)
- What Works Clearinghouse Practice Guide: [Teaching Math to Young Children](#)
- What Works Clearinghouse Practice Guide: [Improving Mathematical Problem Solving in Grades 4 Through 8](#)

[Evidence-Based Instructional Practice Series](#), which synthesizes the connections between current research and the *KAS for Mathematics*.

- EBIP 1: [Establishing the Learning Environment and the KAS for Mathematics](#)
- EBIP 2: [Clarifying and Sharing Clear Learning Goals and the KAS for Mathematics](#)
- EBIP 3: [Explicit Teaching and Modeling and the KAS for the Mathematics](#)
- EBIP 4: [Discussion and the KAS for Mathematics](#)
- EBIP 5: [Questioning and the KAS for Mathematics](#)
- EBIP 6: [Meaningful Feedback and the KAS for Mathematics](#)

Lens 3: Alignment to Local Context

Possible Local Sources of Data to Consider:

- Student demographics
- Unique learning needs/gaps
- Cultural connections
- District values, initiatives and pedagogical practices (examples below):
 - Elements of project-based learning
 - Inquiry-based learning
 - Portrait of a learner competencies
 - Universal Design for Learning
 - Cooperative learning
 - Cognitive strategies (a.k.a. “metacognitive” or “thinking” strategies)
 - Workshop model