Kentucky Department of

EDUCATION

Mathematics Instructional Resources Consumer Guide

Table of Contents

Introduction

The Kentucky legislature charged the Kentucky Department of Education (KDE) with creating a consumer guide to aid in local selection of high-quality instructional resources (HQIRs) and to provide for public participation in the process (KRS 156.405). Because districts direct the process to evaluate and select instructional resources per KRS 160.345, within the Curriculum Development Process in the *Model Curriculum Framework*, the KDE has set out to:

- Communicate the definition of and rationale for HQIRs;
- Promote the use of standards-aligned HQIRs to support implementation of the locally developed curriculum; and
- Provide guidance and tools for evaluating, selecting and implementing standards-aligned HQIRs at the local level.

HQIRs are a means by which local curriculum aligned to the *Kentucky Academic Standards (KAS)* becomes an actionable foundation for improving the way students experience learning in the state of Kentucky, and selecting a primary HQIR enables districts and schools to make a marked shift toward equitable, vibrant learning experiences for all students. A local curriculum anchored in a HQIR supports the learning goals, outcomes and core competencies that students must demonstrate to reach the grade-level expectations within the *KAS*. It also provides teachers with an array of pedagogical supports to help meet the needs of all learners.

Current research recommends districts adopt and implement a primary HQIR as the print, nonprint or electronic medium designed to assist student learning and support implementation of a high-quality curriculum. The research shows:

- Aligned to state standards, a HQIR can reduce variability in the quality of instruction across classrooms (SREB, 2017), and students in classrooms that used one HQIR for four consecutive years outpaced comparison students by a margin of 38 percentile points — equivalent to four additional years of learning (Steiner, 2018).
- Teachers creating their own lessons rarely results in a fully sequenced, coherent learning experience over time and across systems (Steiner, 2018), and 75 percent of teacher created or selected resources are found to be below grade-level (TNTP, 2018).
- Teachers without access to HQIRs spend 7-12 hours per week searching for resources online (Goldberg, M. 2016).
- Switching from a low to a high-quality instructional resource can boost student achievement more than other, more popular interventions (Steiner, 2018).
- When students who started the year behind had greater access to grade-appropriate assignments, they closed the outcomes gap with their peers by more than seven months. (TNTP, 2018)

Students and teachers deserve access to high-quality instructional resources (HQIRs) designed to help students reach the grade-level expectations within the *KAS*. When teachers have access

to HQIRs, it increases their pedagogical knowledge. Access to comprehensive HQIRs also enables teachers to adapt lessons to meet the diverse needs of students and to focus their time, energy and creativity on bringing lessons to life and engaging students with grade-level content.

Selecting instructional resources to support implementation of a locally developed curriculum is a key component of the Curriculum Development Process. Curriculum teams should use their instructional vision developed in Phase 2 of the Curriculum Development Process as their guide for identifying, evaluating and selecting HQIRs. The instructional vision for teaching and learning in each content area ensures decision-makers select resources that will serve local priorities and meet the needs of all learners.

The work of selecting instructional resources may be completed by the curriculum team, or the district may choose to form a sub-committee to undertake this task. If a sub-committee is charged with the evaluation and selection of HQIRs, members of the team must understand the instructional vision to ensure selected resources align to that vision. In addition, the sub-committee should receive ongoing support and collaboration with the curriculum team throughout the selection process.

Overall, this consumer guide is intended to help decision-makers at Kentucky districts and schools select high-quality mathematics instructional resources that meet the unique needs of students, educators and families within their local communities. Specifically, the purpose of the guide is to provide:

- An overview of the characteristics and markers of high-quality mathematics instructional resources, and
- The four key steps districts may utilize as they seek out resources, evaluate their effectiveness and ultimately select them for use in schools.

Characteristics of High-Quality Mathematics Instructional Resources

An effective instructional vision for Mathematics must account for elements specific to the *KAS* and to a local context; it also must be equitable. To identify and be **aligned with** what is unique in the ***Kentucky Academic Standards*** *for Mathematics*, and to equitably ensure **vibrant student learning experiences**, the content and considerations in this section should be used to crosscheck an instructional vision draft. This ensures selection criteria derived from an instructional vision account for the depth, dimensions and practices of the *KAS* and can fully inform HQIR evaluation.

KDE's General Definition of High-Quality Instructional Resources

The KDE defines High-Quality Instructional Resources (HQIRs) as materials that are:

- Aligned with the *Kentucky Academic Standards (KAS)*;
- Research-based and/or externally validated;
- Comprehensive to include engaging texts (books, multimedia, etc.), tasks and assessments;
- Based on fostering vibrant student learning experiences
- Culturally relevant, free from bias; and
- Accessible for all students.

KDE's Markers of High-Quality Mathematics Instructional Resources

The markers for mathematics listed below are interdependent and interrelated, and all must be represented within an instructional resource for it to be deemed high-quality. The markers for high-quality mathematics resources include:

1. **Focus on Grade-Level Content**
   Instructional resources must focus coherently on the content standards in a way that is consistent with the *KAS for Mathematics.*

   - In any single grade/course, instructional time is spent on grade-level standards.
   - Instructional resources follow a progression consistent with that outlined within the *KAS for Mathematics*. Content from previous or future grades does not unduly interfere with on-grade-level content.

***Note**: If marker one is not met and evidence indicates the instructional resource does not focus adequately on grade-level content, schools/districts should shift efforts to evaluating other potential instructional resources rather than proceeding through the remaining markers.

2. **Target of the Standard and Cognitive Complexity**
   Instructional resources must reflect the balance among conceptual understanding, procedural skill/fluency and application within mathematics to help students meet the expectations of the *KAS for Mathematics*.

   - Instructional resources support the development of students' conceptual understanding, especially where called for in specific content standards or cluster headings.
     - From page 7 of the *KAS for Mathematics*, conceptual understanding refers to understanding mathematical concepts, operations and relations. Conceptual understanding is more than knowing isolated facts and methods; students should be able to make sense of why a mathematical idea is important and the kinds of contexts in which it is useful. Conceptual understanding allows students to connect prior knowledge to new ideas and concepts.

- Instructional resources are designed so that students attain the procedural skills and fluencies required by the *KAS for Mathematics*.
    - From page 7 of the *KAS for Mathematics,* procedural skill and fluency is the ability to apply procedures accurately, efficiently, flexibly and appropriately. It requires speed and accuracy in calculation while giving students opportunities to practice basic skills. Students' ability to solve more complex application and modeling tasks is dependent on procedural skill and fluency (National Council Teachers of Mathematics, 2014).
- Instructional resources are designed so that students apply mathematics in relevant and meaningful ways as required by the *KAS for Mathematics*.
    - From page 8 of the *KAS for Mathematics*, application provides a valuable context for learning and the opportunity to solve problems in a relevant and a meaningful way. It is through real-world application that students learn to select an efficient method to find a solution, determine whether the solution(s) makes sense by reasoning and develop critical thinking skills.

3. **Standards for Mathematical Practice**
   Instructional resources must demonstrate authentic connections between content standards and practice standards.

    - Instructional resources address the practice standards in such a way as to enrich the content of the grade/course; practice standards strengthen learning around the content standards instead of detracting from it, in both teacher and student resources.
    - Tasks and assessments of student learning are designed to provide evidence of students' proficiency in the Standards for Mathematical Practice.
      Descriptions of each Standard for Mathematical Practice can be found on pages 12-15 of the *KAS for Mathematics.*

4. **Access to Standards for All Learners**
   Instructional resources must provide supports to help ensure equitable access across all student populations.

    - Support for multilingual learners and other special populations is thoughtful and helps those students meet the same standards as all other students. The language in which problems are posed is carefully considered.
    - Design of lessons attends to the needs of a variety of learners. Instructional resources provide appropriate level and type of scaffolding, differentiation, intervention and support for a broad range of learners with gradual removal of

supports, when needed, to allow students to demonstrate their mathematical understanding independently.
- The instructional resource embeds connections to literacy, supporting all learners in accessing the content.

Equity Lenses for High-Quality Mathematics Instructional Resources

Students deserve access to HQIRs that are engaging, accessible and inclusive of the cultural diversity and perspectives of their communities. The KDE is committed to providing guidance that supports the selection of resources that are **culturally relevant, free from bias, and accessible for all students** to further the KDE's diversity, equity, and inclusion efforts. Below are five equity lenses schools and districts may use during resource selection to help promote equitable learning environments for all students:

- Resources meet the high-quality instructional markers laid out in the KDE definition of High-Quality Instructional Resources.
- Resources recognize, celebrate and leverage students' cultures and identities and provide opportunities to broaden perspectives by learning about other cultures.
- Resources provide opportunities for students to lead learning that is meaningful and relevant to them, both in connection with their local context and communities and the broader global context of the world.
- Resources provide engagement with grade-level content and the *KAS* for all students.
- Resources allow students to engage and demonstrate learning in a variety of ways.

To support schools and districts in selecting equitable resources, a detailed table of the equity lenses provides guidance on what to look for in mathematics resources. Throughout the Consumer Guide, there are connections to the lenses and suggestions for how to use them in each step of the selection process.

Remember, no one instructional resource will be perfect. Selection committees should use the KDE's definition of HQIRs, the mathematics markers and the equity lenses to help evaluate the strengths and weaknesses of instructional resources to make the best decision about the resources selected. School and district leaders should use the analyses of those strengths and weaknesses to inform additional supports needed (such as high-quality professional learning, implementation supports and supplemental resource selection) for effective implementation of the locally developed curriculum and the selected HQIRs.

Identifying, Evaluating and Selecting High-Quality Mathematics Instructional Resources

The process of identifying, evaluating and selecting high-quality instructional resources involves multiple steps to ensure decision-makers adopt resources that will serve local priorities and

meet the needs of all learners. The remainder of this guide outlines four steps school and district resource committee teams may follow as they seek out resources, evaluate their effectiveness and ultimately select them for use in schools.

Each subsection includes general guidance, key questions and recommended tools users may download and edit for use with their district review committees (e.g., guidance documents and data collection tools).

Step 1: Determine Selection Criteria

To help determine selection criteria, the committee should use their instructional vision that considers KDE's definition of HQIRs, the Mathematics markers and the equity lenses included in section two of this guide.

As with crafting an instructional vision, the curriculum team should again engage educators and stakeholders upfront in meaningful ways to capitalize on the knowledge and expertise they can bring to the decision-making process. Gathering input from educators and other stakeholders is an essential component of the selection process and should reflect the diverse voices of the school and/or district (including families, students, teachers, support staff and community members). Taking time to gather this input will help build support for and investment in the work and ensure the perspectives of those affected by the selection decision inform the process.

Key Questions

- **Stakeholder Inclusion:**
  - How will we communicate the importance of selecting a primary high-quality instructional resource (HQIR) to support development of the local curriculum?
  - How will we gather stakeholder input to help inform possible selection criteria?
    - What do we want to learn from each stakeholder group?
    - How are we going to get this input?
    - Who is responsible for gathering input?
    - When and how will we see the collected information? (Instruction Partners, 2019)
    - How will stakeholder input inform drafting of selection criteria?
- **Selection Criteria Considerations:**
  - How well do the selection criteria represent the most important aspects of the instructional vision?
    - Alignment to the *Kentucky Academic Standards*
    - Alignment to Current Research
    - Local Context

- How are important local initiatives and pedagogical practices (e.g., portrait of a learner, project-based learning, cooperative learning, workshop model, standards-based grading) represented in the selection criteria?
- Based on the instructional vision, what specific supports are needed in a resource to help teachers make the instructional shifts necessary to provide the desired student experience?
- Has the instructional resources consumer guide been used to cross-check the instructional vision and selection criteria?
  - HQIR Markers for the Content Area
  - Equity Lenses for the Content Area

Key Tools

- Developing Selection Criteria
- Data Collection Tool
- Sample Stakeholder Questions for Mathematics
- Equity Lenses for Mathematics

Step 2: Identify Potential Primary HQIRs

Once the team has determined the selection criteria, the next step is to identify **research-based and/or externally validated** resources for review. Educators have more options than ever from which to find instructional resources to try to meet their local priorities; however, in such a crowded marketplace, finding high-quality instructional resources that are aligned to the *Kentucky Academic Standards for Mathematics* and meet specific school and district needs can be difficult.

The KDE has published a list of approved Tier 1 core comprehensive high-quality instructional resources for mathematics. A core comprehensive instructional resource is one that serves as the primary means of instruction in a content area for a grade level or course. This list serves as the starting point for district curriculum teams to identify potential HQIRS they may want to further explore for adoption consideration. While all vendors on the approved lists meet the KDE standards for high-quality instructional resources, districts and schools should carefully review materials to determine which HQIR best meets the local instructional vision and the needs of the teachers and students in the district.

EdReports.org also serves as a critical support for curriculum teams to research available evidence-based materials. EdReports provides free reviews of K-12 instructional resources and offers comprehensive information about indicators of quality, including standards alignment and usability, from a number of publishers. Curriculum teams can access reviews for resources they may want to further explore from the state-approved lists.

If a district is interested in adopting a resource that does not appear on KDE's approved lists and is unrated by EdReports or is not currently green-rated, the district has a greater burden to curate:

- **(1) substantial evidence of both KAS alignment (using the Instructional Resource Alignment Rubrics, as applicable, or a vendor crosswalk to the KAS) and**
- **(2) the research-basis demonstrating external validity and reliability.**

The resource selection and accompanying evidence basis will need to be shared as an off-list notification, per KRS 156.445, to kdetextbooks@education.ky.gov . **The district also must monitor implementation results of the off-list resource to determine its impact on student learning at the local level.** Please note: This notification is required for off-list Tier 1 core comprehensive resources only, not supplemental resources.

After identifying primary HQIRs of interest, the team is ready to narrow the choices down to those that have the potential to meet the instructional vision and the needs of the teachers and students in the district. The narrowing process allows the committee to not only learn about potential resources through research but also to compare characteristics of resources to determine how well they can serve the selection criteria. It may also be helpful to contact other districts or schools who are using the resources under consideration to gather anecdotal information that can help ground findings in a Kentucky context.

Key Questions

- Based on KDE's approved list, which 2-3 resources do we want to further evaluate using our selection criteria and EdReport reviews?

Key Tools

- 2025 KY HQIR List for Mathematics
- EdReports Reports Center
- How to Read an EdReports Review
- EdReports Compare Tool and Compare Tool Overview
- Video Tutorial: Navigating EdReports to Identify Potential HQIRs

Step 3: Evaluate Potential Primary HQIRs

Once EdReports has been used to identify two to four potential resources, the district should establish a process for examining each of the resources being considered to determine the best option for meeting the local selection criteria. As a part of the process, the team will need to create an organizer around their selection criteria to capture evaluation notes.

Because HQIRs are **comprehensive** and include a range of **texts, tasks and assessments**, teams should also engage publishers to request samples and set up presentations. The time spent

with publishers can be used to have them answer questions the committee has developed that specifically align to the instructional vision and the identified selection criteria.

Key Questions

- **Review Considerations:**
  - How will the team collect evaluation notes and final ratings? What format for an organizer might work best (for evaluation organizer examples, please see Key Tools).
  - What is the timeline team members will have to conduct the reviews?
  - Who will set up meetings with vendors and what questions will guide those conversations (Sample HQIR Vendor Questions in Key Tools below)?
  - What materials/resources will reviewers need access to and how will they get access?
- **Stakeholder Inclusion:**
  - How will stakeholders be provided opportunities to review and give input on the 2-3 potential high-quality instructional resources under consideration?

Key Tools

- Sample HQIR Vendor Questions for Mathematics
- Sample Evaluation Organizers
- Procurement Information for Resource Selection

Step 4: Select HQIRs

The evidence gathered from the evaluation process is used to inform the review committee as they make a final selection. Resource review committees should examine the evidence collected from the evaluation activities in light of the identified selection criteria. **Ultimately, no one primary instructional resource is likely to provide the full supports necessary to reach the grade-level expectations within the *KAS for Mathematics*, the local articulated vision and the identified selection criteria.** Therefore, districts may select a primary HQIR but then determine there is a need to purchase supplemental resources to fill identified gaps. The Mathematics Instructional Resources Alignment Rubric and the Kentucky Digital Learning Guidelines can help inform selection of potential supplemental resources.

Once made, the decision and next steps should be shared with all stakeholders. Finally, a plan should be established for the procurement and distribution of the resources to get them into teachers' hands and for the committee to use as they move into developing the curriculum documents.

Key Questions

- **Selection Considerations:**

- What are the comparative strengths and weaknesses of identified HQIR options (selection criteria, alignment to stakeholder feedback, initial and recurring costs, vendor supports, etc.)?
- What work will need to be engaged to implement each option, and what are potential implications of the choices on other initiatives and on staff capacity?
- For any identified gaps (e.g., with the *KAS*, the equity lenses, local initiatives) in the selected primary HQIR, what additional resources/supports will teachers need to ensure students experience the content in a way that fulfills the instructional vision?

- **Stakeholder Inclusion:**
  - How will a rationale for the selected primary HQIR be communicated to stakeholders?
- **Logistical Considerations**
  - Where will we store the materials before distribution can occur?
  - How will we inventory materials once they arrive?
  - How will we inventory and track materials once they are distributed to schools?
  - Where and how will the school and/or district distribute the resources (Instruction Partners, 2019)?

Key Tools

- Decision-Making Options
- Sample Consensus Protocol

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