

**Fayette County Public Schools**  
**Mathematics Guidance Document for Tier One *Instructional Design Models, PK***

<p><b>Whole Group (circle time: 10-15 minutes) - Optional</b>          (Intentional math instruction up to 5 minutes)</p> <p>Whole group contains blocks of time devoted to instruction through modeling and/or mathematical discovery with intentionally planned higher-level questions using Early Childhood Kentucky standards and:</p> <ul style="list-style-type: none"> <li>• Data-driven decision making using AEPS</li> <li>• Assessments and checklists meeting AEPS and IEP goals</li> </ul> <p><b>Instructional Design Structures for Whole Group:</b>  <a href="#">Inquiry-Based Instructional Design Model</a> (IDM)</p>	<p><b>Circle Time Math Routine:</b>          Purpose: Students engage in and discuss mathematics to develop number sense, fluency, and reasoning.</p> <p><b>Examples:</b> Transition counting, Mighty Minutes, positional words, how many friends are at school?, graphing favorite things, etc.</p> <p><b>Grade-Level Standards-Based Instruction: Up to 5 minutes</b>          Share learning intention and success criteria to set a purpose for learning, engage students with a “hook”, ask questions to activate prior knowledge, introduce new learning and vocabulary, and/or provide visuals and manipulatives.</p> <p><b>Student Practice: Follow up during work time</b>          Intentionally selected activities for students to complete <b>cooperatively, during work time</b>, while the teacher/para provides in-the-moment interaction and feedback. Formatively assess students through observation. Students are actively engaged and should productively explore, persevere, and compare.</p>
<p><b>Small Group</b>          10-15 minutes  <b>During or Outside of Center Time</b> 60 minutes</p> <p>Instruction includes:</p> <ul style="list-style-type: none"> <li>• Small groups conducted with teacher/para.</li> <li>• Data-driven decision making staff monitors students working, whether at teacher/para directed table or while working in centers.</li> <li>• Differentiation based on student need and scaffolding.</li> <li>• Accountability measures in place to monitor independent and teacher/para instruction</li> </ul> <p><b>Instructional Design Structures for Small Group:</b>  <a href="#">Preschool Teacher-Led Small Group Mathematics Instructional Design Model</a> (IDM)</p>	<p><b>Examples of Math Activities in Interdisciplinary Learning Centers: Students could work collaboratively or independently depending on the purpose of each task.</b></p> <p><i>Independent work should be tasks students can successfully complete without teacher support.</i></p> <ul style="list-style-type: none"> <li>• Patterning/Sequencing</li> <li>• Sorting/Categorizing</li> <li>• Counting and Cardinality</li> <li>• Identify and use common shapes.</li> <li>• Problem Solving</li> <li>• Demonstrates understanding of color, shape, and size concepts.</li> <li>• Qualitative and quantitative concepts</li> <li>• Demonstrates understanding of printed numerals.</li> <li>• Spatial and temporal concepts.</li> </ul>
<p><b>Summarize</b>          Ongoing throughout the school day.</p>	<ul style="list-style-type: none"> <li>• Review learning intention and success criteria</li> <li>• Reflect on various activities presented and available in centers</li> <li>• Possible time for assessments based on AEPS</li> </ul>

**Fayette County Public Schools**  
**Mathematics Guidance Document for Tier One *Instructional Design Models*, K-5**

<p><b>Whole Group</b> 30-50 minutes</p> <p>Whole group contains blocks of time devoted to instruction through modeling and/or mathematical discovery with intentionally planned higher-level questions using grade-level Kentucky standards.</p> <ul style="list-style-type: none"> <li>• Data-driven decision making</li> <li>• Collaboration through teamwork or partner work</li> <li>• Formative Assessments</li> </ul> <p><b>Instructional Design Structures for Whole Group:</b>  <a href="#">Inquiry-Based Instructional Design Model</a> (IDM)  <a href="#">Gradual Release Instructional Design Model</a> (IDM)</p>	<p><b>Daily Math Routine: 5-10 minutes (Can be outside of whole group block if needed)</b>          Purpose: Students engage in and discuss mathematics to develop number sense, fluency and reasoning.  <b>Examples:</b> Calendar Math, Problem of the Day, Number Talks, Math Journal, Splat!, Notice/Wonder, Which One Doesn't Belong, Esti-Mysteries, Estimation 180, My Favorite "No", 3-Act Math Task, K-2 Sentence Frames</p> <p><b>Grade-Level Standards-Based Instruction: 15 to 30 minutes</b>          Share learning intention and success criteria to set a purpose for learning, engage students with a "hook", ask questions to activate prior knowledge, and introduce new learning and vocabulary. <a href="#">Use concrete examples (manipulatives) and move to pictorial, then toward abstract/symbolic (this transition may occur over multiple lessons).</a></p> <p><b>Student Practice: 10-15 minutes</b>          Devoted time for intentionally selected questions for students to complete <b>cooperatively</b> while the teacher provides in-the-moment feedback. Formatively assess students through observation. Students are actively engaged and should productively struggle, explore, persevere, share, justify, and compare.</p>
<p><b>Small Group</b> 30-45 minutes</p> <p>Instruction includes:</p> <ul style="list-style-type: none"> <li>• Deliberate small groups happening simultaneously</li> <li>• Data-driven decision making as teacher monitors students working, whether at teacher-directed table or while working in groups</li> <li>• Differentiation based on student need and scaffolding</li> <li>• Accountability measures in place to monitor independent and teacher-led instruction</li> </ul> <p><b>Instructional Design Structures for Small Group:</b>  <a href="#">Workshop Instructional Design Model</a> (IDM) or  <a href="#">Teacher-Led Small Group Instructional Design Model</a> (IDM)</p>	<p><b>Potential Teacher Table:</b></p> <ul style="list-style-type: none"> <li>• Tier 1 Differentiated Instruction correlated to whole-group instruction</li> <li>• Scaffolded practice based on formative assessment</li> </ul> <p><b>Examples of Workstations: Students could work collaboratively or independently depending on the purpose of each task.</b></p> <p><i>Independent work should be tasks students can successfully complete without teacher support.</i></p> <ul style="list-style-type: none"> <li>• Fluency</li> <li>• Spiral Review</li> <li>• Writing in response to math</li> <li>• Enrichment</li> <li>• Problem Solving</li> </ul>
<p><b>Summarize</b> 5-10 minutes</p>	<ul style="list-style-type: none"> <li>• Review learning intention and success criteria</li> <li>• Reflect on various strategies used</li> <li>• Possible time for formal formative assessment</li> </ul>

## Mathematics Guidance Document for Tier One *Instructional Design Models*, 6-12

<p><b>Daily Math Routine</b> 5-10 minutes</p>	<p>Purpose: Students engage in and discuss mathematics to develop number sense, fluency, and reasoning.</p> <ul style="list-style-type: none"> <li>● Vocabulary practice</li> <li>● Standards-based questions connected to current or previously taught standards</li> <li>● <b>Examples:</b> Calendar Math, Problem of the Day, Number Talk, Math Journal, Splat!, Notice/Wonder, Which One Doesn't Belong, Esti-Mysteries, Estimation 180, My Favorite "No", 3-Act Math Task</li> <li>● Review of lesson's visible learning</li> </ul>
<p><b>Grade-Level Standards-Based Instruction</b> 15-30 minutes</p> <p><b>Instructional Design Structures for Whole Group:</b> <a href="#">Inquiry-Based Instructional Design Model</a> (IDM) or <a href="#">Gradual Release Instructional Design Model</a> (IDM)</p>	<p><b>Teacher-led Whole Group:</b> Share learning intention and success criteria to set a purpose for learning, engage students with a "hook", ask questions to activate prior knowledge, and introduce new learning and vocabulary. Use concrete examples (manipulatives) and move to pictorial, then toward abstract/symbolic (this transition may occur over multiple lessons).</p> <p>Whole group contains blocks of time devoted to instruction through modeling and/or mathematical discovery with intentionally planned higher-level questions using grade-level Kentucky standards.</p> <ul style="list-style-type: none"> <li>● Data-driven decision making</li> <li>● Collaboration through teamwork or partner work</li> <li>● Formative Assessments</li> </ul>
<p><b>Student Practice</b> 10-15 minutes OR <b>Small Group</b> 15-20 minutes</p> <p><b>Instructional Design Structures for Small Group:</b> <a href="#">Workshop Instructional Design Model</a> (IDM) or <a href="#">Teacher-Led Small Group Instructional Design Model</a> (IDM)</p>	<p>Devoted time for intentionally selected questions for students to complete <b>cooperatively</b> while the teacher provides in-the-moment feedback. Formatively assess students through observation. Students are actively engaged and should productively struggle, explore, persevere, share, justify, and compare.</p> <p><b>Small Group Instruction/Workstations:</b> Students could work collaboratively/independently or with the teacher depending on the purpose of each task. Independent work should be tasks students can successfully complete without teacher support.</p> <ul style="list-style-type: none"> <li>● Deliberate small groups happening simultaneously</li> <li>● Data-driven decision making as teacher monitors students working, whether at teacher-directed table or while working in groups</li> <li>● Differentiation based on student need and scaffolding</li> </ul>
<p><b>Summarize</b> 5-10 minutes</p>	<p>Teachers use this time to connect student learning to the visible learning, formatively assess student learning, and help determine next steps.</p> <ul style="list-style-type: none"> <li>● Review learning intention and success criteria</li> <li>● Reflect on various strategies used</li> <li>● Possible time for formal formative assessment</li> <li>● Students share-out and synthesize their learning.</li> </ul>

## Glossary:

**Collaborative learning:** Collaborative learning is “a method that implies working in a group of two or more to achieve a common goal, while respecting each individual’s contribution to the whole” (McInerney and Robert 2004, 205). Collaboration implies direct interaction among individuals to produce a product and involves negotiations, discussions, and accommodating others’ perspectives. Successful collaboration requires participants to share in the process of knowledge creation (Dillenbourg et al. 1996; Roschelle and Teasley 1995).

**Cooperative learning:** Cooperative learning is a specific kind of collaborative learning. In cooperative learning, students work together in small groups on a structured activity. They are individually accountable for their work, and the work of the group as a whole is also assessed. Cooperative groups work face-to-face and learn to work as a team. Cooperative learning can be defined as “working together to accomplish shared goals” (Smith 1995), cooperation can be achieved if all participants do their assigned parts separately and bring their results to the table; cooperation is more focused on working together to create an end product, (Dillenbourg et al. 1996; Roschelle and Teasley 1995).

**Enrichment:** To make learning more meaningful, substantial, and rewarding through lesson extensions using rigor and depth.

**Fluency:** In mathematics, the meaning denotes efficiency, accuracy, flexibility and appropriateness. Being fluent means students flexibly choose among methods and strategies to solve contextual and mathematical problems, understand and explain their approaches and produce accurate answers efficiently.

**Formative Assessment:** Formal and informal assessment procedures during the learning process in order to modify teaching and learning in response to student need.

**Learning Intention:** Specification of what students are supposed to learn.

**Prerequisite Skills:** Skills students should have mastered prior to current learning in order to access grade-level content.

**Spiral Review:** Idea that after introducing and teaching a skill, students continue to practice it regularly throughout the school year in order to maintain what they have learned.

**Success Criteria:** Discrete learning steps that provide a clear answer to the question, “How will I know that I have learned it?”

**Vocabulary:** Words and their meanings.

**Work Stations:** One of the ways to address the varied needs of students and curricular demands of classrooms. Teachers can use these to engage students with the curriculum by appealing to different interests, levels of understanding, and zones of proximal development. Workstations (or sometimes called **centers**) provide an opportunity for students to practice and apply skills and strategies taught within the classroom. These should always be rehearsal/practice tasks, NOT new learning.