



Kindergarten Mathematics

Curriculum Committee Members

Mary Abegg, Keeven Elementary
Nichole Alexander, Jury Elementary
Toni Grimes, Garrett Elementary
Lesli Henderson, Lusher Elementary
Karen Hoelscher, Lusher Elementary
Renee Jenner, Walker Elementary
Michelle Prather, Jury Elementary
Adrian Spurduto, Townsend Elementary

Dr. Nevels Nevels, Mathematics Curriculum Coordinator

Reviewed by Elementary School Math Teachers on January 25, 2017

Reviewed by Curriculum Advisory Committee on February 16, 2017

Approved by the Board of Education on June 20, 2017

TABLE OF CONTENTS

Kindergarten Mathematics

Hazelwood School District Mission Statement	3
Hazelwood School District Vision Statement	3
Hazelwood School District Goals.....	3
Curriculum Overview.....	4
Implementation Plan.....	5
Kindergarten Assessments.....	11
Kindergarten Unit 1.....	43
Kindergarten Unit 2.....	65
Kindergarten Unit 3.....	84
Kindergarten Unit 4.....	102
Kindergarten Unit 5.....	122
Kindergarten Unit 6.....	138
Kindergarten Unit 7.....	161
Kindergarten Unit 8.....	181

Hazelwood School District

Mission Statement

We are a collaborative learning community guided by a relentless focus to ensure each student achieves maximum growth.

Vision Statement

HSD will foster lifelong learners, productive citizens and responsible leaders for an ever-evolving society.

Board of Education on January 5, 2010

Goals

Goal #1: Hazelwood students will meet or exceed state standards in all curricular areas with emphasis in reading, writing, mathematics, science and social studies.

Goal #2: Hazelwood staff will acquire and apply skills necessary for improving student achievement.

Goal #3: Hazelwood School District, the community and all families will support the learning of all children.

Mathematics Curriculum Overview

The Hazelwood School District's (HSD) most recent adoption of elementary mathematics curriculum occurred in 2009. In 2010, Missouri officially adopted the Common Core State Standards and subsequently created and adopted the Missouri Learning Standards in 2016. These changes in state standards and learning progressions have resulted in the need for an intensive curriculum revision to ensure that all students in the Hazelwood School District are adequately prepared to meet grade-level learning expectations and be prepared for entry into college, or equipped to begin securing a career.

During the 2016-2017 school year, HSD piloted Investigations in Number, Data & Space 3rd Edition in 13 classrooms across the district. All pilot teachers were enamored with the updates to the curricular materials and were pleased with the strong alignment to the Missouri Learning Standards. Additionally, as of January 2017, the pilot teachers in grades 3-5 had an average of 46.2% of students meeting proficiency, compared to the district's 38.8% as measured by Evaluate mathematics benchmark assessment. Furthermore, 2016 Missouri Assessment Program data results for Grades 3-5 indicates a need for strengthening our current mathematics curriculum as the district's mathematics students scoring proficient and advanced fell to 34.6% from 37.1%. After a careful review of state and district data, it was determined by the Curriculum Department to revise the curriculum to align with the most recent state adopted standards.

The committee members aligned the curriculum with the 2016 Missouri Learning Standards published by Missouri Department of Elementary and Secondary Education. The curriculum meets all of the state and district requirements for research, technology, workplace readiness skills, gender/racial equity, and disability awareness.

The curriculum contains learning activities and unit assessments components that are rigorous, and outline clear learning expectations. As the curriculum is implemented and taught, the learning activities and assessments may be revised. The assessments are required. The learning activities should be implemented in the order, and with the fervor, as intended by the TERC curriculum writers.

We must be aware that students have mathematical ideas. The curriculum supports all students in developing and expanding those ideas. Also, teachers are engaged in ongoing learning about mathematics content, pedagogy, and student learning. The curriculum supports them in this learning. Moreover, teachers collaborate with the students and curriculum materials to create the curriculum as enacted in the classroom. The curriculum provides a clear, focused, and coherent mathematical agenda and supports teachers in implementing in a way that accommodates the needs of their particular students. Most of the learning activities are very sequential and, when all of them are used, a student should be able to successfully complete the unit assessments.

Mathematics Implementation Plan

The Investigations curriculum requires 55–60 minutes of math time a day in Kindergarten and 70–75 minutes a day in Grades 1–5. This includes a 45-minute (for Kindergarten) or 60-minute session (for Grades 1–5) and 10–15 minutes outside of math time for the daily Classroom Routine (Kindergarten–Grade 2) or Ten-Minute Math (Grades 3–5) activity. Each curriculum unit consists of 2–5 investigations. An investigation focuses on a set of related mathematical ideas, coordinating students’ work in hands-on activities, written activities, assessments, and classroom discussions over a period of several days. The duration of an investigation ranges from 4–9 class sessions. Each session begins with a list of all of the activities to help you plan the math time for the day. It is important to move through all of the activities because they are carefully designed to offer coherent and focused work on the main math ideas of the unit.

Mathematics teaching and learning, at its best, is a collaboration among teachers, students, and the curriculum. The curriculum materials provide a coherent, carefully sequenced core of mathematics content for students and supportive professional development material for teachers. Modifying the curriculum and making it work in your classroom requires knowing the curriculum well. It means taking the time to understand the mathematical focus of each lesson, how the Math Focus Points build over many lessons, and how the Mathematical Practices are integrated into the content. Learning the curriculum well means holding back the urge to change activities because you think they are too easy or too difficult for your students before you have tried them and actually seen your students’ work. Keep in mind that the way ideas are developed and sequenced has been researched and tested in multiple classrooms¹, and many suggestions for accommodations are already built into the curriculum.

Moreover, the curriculum has been written in a coherent manner and is horizontally and vertically connected. This means that several mathematics ideas and concepts are purposefully introduced in a particular sequence and over a period of time. Therefore, the curriculum should be presented in order, without omitting any session. The following charts below provide a visual of the spiraling of major concepts for grade K.



¹ http://assets.pearsonschool.com/asset_mgr/current/201021/PEAR_ResSum_InvMath_LoRes.pdf

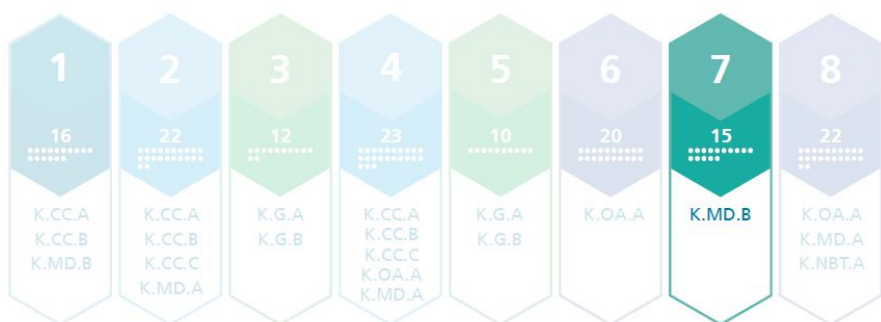
ADDITION, SUBTRACTION, AND THE NUMBER SYSTEM



GEOMETRY



MODELING WITH DATA



The HSD approach to assessing student learning is a comprehensive, carefully woven one that makes use of multiple sources of data: student written work, written assessments, and informal and formal observation of student behaviors and interactions. These multiple sources of data allow for a more in-depth portrait of each student’s understandings of and proficiencies with key mathematical concepts, helping teachers provide more targeted instructional support. Assessments are tied to Unit Benchmarks that set clear expectations for what students should know and be able to do. These assessments include

Embedded Assessments, Quizzes, and Assessment Checklists. Embedded Assessments in each curriculum unit are written activities that provide information on students' progress toward the Benchmarks. Starting in Grade 1, students encounter a Quiz every 5 to 10 sessions. These assessments have the dual purpose of providing evidence of students' progress towards meeting the Benchmarks and offering students exposure to the types assessment items that they are likely to encounter on the Missouri Assessment Program Grade Level Assessments. Finally, some Benchmarks are best assessed by observing students as they are actively engaged in doing mathematics. Because younger students are learning how to communicate their understanding through reading problems and writing responses, Assessment Checklists are used more often in Kindergarten and Grade 1 than in Grades 2–5.

Additional components that are germane to successful implementation of the curriculum include some combination of these five parts on a daily basis: Activity, Discussion, Math Workshop, Assessment Activity, and Session Follow-Up.

ACTIVITY: An Activity is where mathematical ideas are introduced and investigated. Activities are organized as work for the whole class, pairs, small groups, or individuals. Many activities are available as digital presentations, some of which include digital tools. Activities typically require 30-45 minutes.

Discussion: Many sessions include a whole-class Discussion, during which students share strategies and conclusions and compare methods and results. A subset of the session's Math Focus Points helps you guide each discussion. It is essential to allow time for class discussions, giving students an opportunity to articulate their own ideas, compare solutions, and consolidate their understanding. Discussions require 15-20 minutes.

Math Workshop: Some sessions include a Math Workshop, where students choose from and complete a set of activities. Students work individually, in pairs, or in small groups for 30-45 minutes during Math Workshop.

Assessment Activity: Some sessions include an Assessment Activity, where students are assessed on their progress toward unit specific Benchmarks through both written activities and observations. The Assessment Activities range from 10-40 minutes.

Session Follow-Up: Every session has a Session Follow-Up section where details about the review and practice assignments are found. Daily Practice offers ongoing review of materials from previous units or practice of content in the current unit. These practice activities can be completed in class or for homework. Homework offers practice with the content of the unit, review of previous content, or preparation for an upcoming activity.

COURSE TITLE: Investigations in Number, Data and Space

GRADE LEVEL: Kindergarten

CONTENT AREA: Mathematics

Course Description:

Students are introduced to processes, structures, and materials that form the basis of math instruction throughout the year and establishes the mathematical community. They are also introduced to Classroom Routines that develop and reinforce concepts and ideas in the Number and Operations, Data, and Geometry strands of Investigations. Students focus on connecting number names, numerals, and quantities; counting and developing visual images of quantities up to 10; comparing and ordering two or more amounts; and describing and measuring the length of objects by direct comparison. Students focus on identifying, describing, and comparing attributes of 2-D shapes, naming shapes, considering the features of specific shapes (e.g., a triangle has three sides and three vertices, and composing and decomposing shapes from and into smaller shapes. Students focus on counting and representing sets of up to 15 objects, applying counting skills by using multiple units to measure and compare lengths, decomposing numbers in many different ways, and beginning to make sense of the operations of addition and subtraction. Students focus on identifying, describing, and comparing attributes of 3-D shapes (e.g., a cube has 6 congruent faces), naming 3-D shapes, constructing 3-D shapes, and composing and decomposing 3-D shapes from and into smaller shapes. Students focus on counting sets of up to 20 objects; decomposing the numbers to 10 in a variety of ways (e.g., 7 can be seen as 5 and 2 or as 3 and 2); using notation to describe addition and subtraction situations; finding and exploring combinations of a number; and solving addition and subtraction story problems. Students focus on describing attributes of objects and data, and using this information to sort, classify, count, order, compare, and represent data, and to use this data to model real-world problems with mathematics. Students also extend their work with counting by 1s and counting sequences of 2s and 10s. Students focus on extending the counting sequence to 100, including counting from numbers other than 1 and by 10s, adding and subtracting in a variety of contexts, making sense of the teen numbers as a group of ten ones and some number of leftover ones.

Course Rationale:

Investigations in Number, Data, and Space is a K–5 mathematics curriculum designed to engage students in making sense of mathematical ideas. The curriculum is designed to: support students to make sense of mathematics and learn that they can be mathematical thinkers; focus on computational fluency with whole numbers as a major goal of the elementary grades; provide substantive work in important areas of mathematics—rational numbers, geometry, measurement, data, and early algebra—and the connections among them; emphasize reasoning about mathematical ideas; communicate mathematics content and pedagogy to teachers; and engage the range of learners in understanding mathematics.

Course Scope and Sequence

Unit 1: CLASSROOM ROUTINES AND MATERIALS (Approx. 19 days)	Unit 2: COUNTING AND MEASUREMENT 1 (Approx. 25 days)	Unit 3: 2-D GEOMETRY (Approx. 15 days)
Unit 4: COUNTING AND MEASUREMENT 2 (Approx. 26 days)	Unit 5: 3-D GEOMETRY (Approx. 13 days)	Unit 6: ADDITION, SUBTRACTION, AND THE NUMBER SYSTEM 1 (Approx. 23 days)
Unit 7: MODELING WITH DATA (Approx. 18 days)	Unit 8: ADDITION, SUBTRACTION, AND THE NUMBER SYSTEM 2 (Approx. 25 days)	

Essential Terminology/Vocabulary

above, attribute, beneath, calendar, color, count, Counting Jar, days of the week, different, double-check, first, fourth, Friday, how many, Monday, month, more, on top of, same, same number (equal), Saturday, shape, second, size, sort/sorted/sorting, Sunday, take attendance, third, Thursday, Tuesday, under, Wednesday, year, biggest, compare, count, distance, double-check, equal, fewer/fewest, in order, inventory, long, longer than, longest, measure, more, most, penny, same, same number, short, shorter than, shortest, smallest, tall/taller, Ten Frame, wide, zero, 2-D, 2-dimensional, 3-D, 3-dimensional, circle, corners, curved, geoboard, hexagon, points, rectangle, rhombus, round, sides, square, straight, straight sides, total, trapezoid, triangle, vertex, vertices, add, arrange, arrangement, combining, compare, double-check, equal sign, fewer, greater, length, less, long, longest, measure, minus, more, plus, plus sign, remove, removing, shortest, total, 2-dimensional, 3-dimensional, attributes, circle, cone, counting back, cube, cylinder, different, double-check, face, faces, matching, rectangular prism, same, sphere, square, three-dimensional shape, triangular prism, two-dimensional shape, vertex/vertices, add, combination, combine, eighteen, eleven, equals, equal sign, equation, inventory, fewest, fifteen, fourteen, how long, join, length, longer, longer than, measure, minus, minus sign, more, most, nineteen, number line, plus, plus sign, put together, remove, seventeen, shorter, shorter than, sixteen, sort/sorted, take away, thirteen, twelve, twenty, at least one, attributes, characteristics, color, compare, counting by 2s, counting by 10s, data, different, fewest, hexagon, in order, pattern, represent, representation, response, rhombus, same, shape, size, sort, square, survey, thickness, trapezoid, triangle, zero, counting back, equals, equal sign, equation, heavier, heavy, height, how long, how tall, length, lighter, longer, measure, minus, minus sign, pan balance, remove, same, shorter, subtracted, subtraction, take away, teens, teen number (s), weigh (s) weight.

Unit Objectives:

Unit 1: CLASSROOM ROUTINES AND MATERIALS (Approx. 19 days)

- Count and explore the math manipulatives
- Count and describe attributes
- Understand how to collect data, count and sort

Unit 2: COUNTING AND MEASUREMENT 1 (Approx. 25 days)

- Understand how to accurately count quantities to 10
- Describe length and decide which of the two objects is longer
- Compare two quantities up to 10 to determine which is greater.

Unit 3: 2-D GEOMETRY (Approx. 15 days)

- Identify and describe the overall size, shape, and features of familiar 2-D shapes
- Make 2-D shapes
- Understand how to combine shapes to make 2-D shapes

Unit 4: COUNTING AND MEASUREMENT 2 (Approx. 26 days)

- Understand how to measure and compare the lengths of objects
- Understand how to count, and count out, a set of up to 15 object
- Understand how to compare and order quantities (what is one more or one less than a number)

Unit 5: 3-D GEOMETRY (Approx. 13 days)

- Understand words that describe relative position
- Identify and describe the overall size, shape and features of familiar 3-D shapes
- Make 3-D shapes
- Combine shapes to make 3-D shapes

Unit 6: ADDITION, SUBTRACTION, AND THE NUMBER SYSTEM 1 (Approx. 23 days)

- Understand how to count, and count out, a set of up to 15 object
- Write the numbers to 10
- Represent and solve addition problems within 10
- Decompose a number into two addends in more than one way

Unit 7: MODELING WITH DATA (Approx. 18 days)

- Sort a set of objects by a given attribute and order the groups
- Understand how to use data to represent and solve a real-world problem

Unit 8: ADDITION, SUBTRACTION, AND THE NUMBER SYSTEM 2 (Approx. 25 days)

- Represent and solve subtraction story problems within 10, with results unknown
- Rote count by 1's and 10's to 100; when counting by 1's start from a number other than 1
- Fluently add and subtract within 5
- Figure out a missing addend when the sum is 10
- Write the numbers to 20
- Represent the teen numbers as ten 1's and some numbers of 1's
- Understand how to measure and compare weight

Approved Course Materials and Resources:

Investigations in Number, Data, and Space 3rd Edition

Pearson Education, Inc.

Copyright © 2017