

Correlation to South Carolina Academic Standards Mathematics – 2007

Kindergarten Developing Measurement Benchmarks: Over and Under

Students focus on the identification of the attributes of length, volume, weight, area, and time. Students order and compare the lengths, heights, and weights of a variety of objects. Standard and nonstandard units are explored. Tools such as thermometers, balance scales, tape measures, clocks, and calendars are included in the module. Sets of coins, containers, measuring cups, counters, tape measures, rulers, clocks, and calendars are made available as measurement benchmarks are developed.

This correlation was developed by the Math Out of the Box Staff.

Send email to mootb@clemson.edu with questions and comments.



Correlation Information

The purpose of this document is to provide a correlation of Math Out of the Box lessons to the South Carolina Academic Standards for Mathematics, 2007. These correlations are intended to aid classroom teachers with lesson planning, schools with vertical planning, and districts with curriculum planning.

The correlation document is arranged in the following order:

Process Standards

Process standards that are used in the lessons of the subconcept to develop conceptual understanding of mathematics are listed in this column. It is recommended that one process standard be selected for formative assessment in each subconcept.

Content Standards

The content standards listed in this column are those that are addressed in one or more of the phases of the learning cycle in the listed lessons. Standards are connected by subconcept because conceptual knowledge is built in sets of lessons in the Math Out of the Box curriculum. These subconcepts are connected to a big idea of mathematics. The first lesson of a subconcept is an embedded pre-assessment, connecting to prior learning. The final lesson in a subconcept is designed to be formative and summative.

Horizontal Connections

Connections to mathematics standards in other strands are listed here to show the horizontal weave of the Math Out of the Box curriculum. These connections provide opportunities for the development of connections between mathematical concepts, maintenance of skills, and additional practice.

Vertical Connections

Foundation standards show the vertical articulation of the lessons. At times, an investigation is planned in a lesson to specifically build a foundation for the standards in the next grade or grades. These lessons, or parts of lessons, are essential so that concepts are connected from grade to grade.

Cross Curricular Connections

Connections to standards from other subject areas are listed to aid in cross curricular integration and the development of curriculum maps.



Big Idea: Systems of measurement can be used to solve problems in the world around us.

Subconcept: Attributes of length can be analyzed and described.

Lessons 1, 2, 3, 4, 5, 6, 7, 8, 9

Focus Question: In what ways are units repeated to measure lengths?

Process Standards	Content Standards	Horizontal Connections
<p>Mathematics Standard K-1 (Process): The student will have a basic understanding of the mathematical processes of problem solving, reasoning and proof, communication, connections, and representation.</p> <p>Indicators K-1.1 Apply substantive mathematical problem-solving strategies. K-1.2 Generate conjectures and exchange mathematical ideas. K-1.3 Explain and justify answers to simple problems. K-1.4 Analyze patterns by reasoning systematically. K-1.5 Generalize mathematical concepts. K-1.6 Use a variety of forms of mathematical communication. K-1.7 Generalize connections among mathematics, the environment, and other subjects. K-1.8 Use multiple informal representations to convey mathematical ideas.</p>	<p>Mathematics Standard K-5 (Measurement): The student will demonstrate through the mathematical processes an emerging sense of coin values and the measurement concepts of length, weight, time, and temperature.</p> <p>Indicators K-5.2 Compare the lengths of two objects, both directly and indirectly, to order objects according to length. K-5.3 Use nonstandard units to explore the measurement concepts of length and weight. K-5.4 Identify rulers, yardsticks, and tape measures as devices used to measure length; scales and balances as devices used to measure weight; calendars and analog and digital clocks as devices used to measure time; and digital and standard thermometers as devices used to measure temperature. K-5.5 Understand which measure – length, weight, time, or temperature – is appropriate for a given situation.</p>	<p>Mathematics Standard K-3 (Algebra): The student will demonstrate through the mathematical processes an emerging sense of repeating and growing patterns and classification based on attributes.</p> <p>Indicators K-3.4 Classify objects according to one or more attributes such as color, size, shape, and thickness.</p> <p>Standard K-6 (Data Analysis and Probability): The student will demonstrate through the mathematical processes an emerging sense of organizing and interpreting data.</p> <p>Indicators K-6.1 Organize data in graphic displays in the form of drawings and pictures.</p>

Notes:

Vertical Connections	Cross Curricular Connections
<p>Grade 1 Standard 1-5 (Measurement): The student will demonstrate through the mathematical processes a sense of the value of combinations of coins and the measurement of length, weight, time, and temperature. Indicators 1-5.4 Use whole-inch units to measure the length of an object. 1-5.5 Generate common referents for whole inches. 1-5.6 Use common referents to make estimates in whole inches.</p> <p>Grade 2 Standard 2-5(Measurement): The student will demonstrate through the mathematical processes an understanding of the value of combinations of coins and bills and the measurement of length, weight, time, and temperature. Indicators 2-5.3 Use appropriate tools to measure objects to the nearest whole unit; measuring length in centimeters, feet, and yards; measuring liquid volume in cups, quarts, and gallons; measuring weight in ounces and pounds; and measuring temperature on Celsius and Fahrenheit thermometers. 2-5.4 Generate common measurement referents for feet, yards, and centimeters. 2-5.6 Predict whether the measurement will be greater or smaller when different units are used to measure the same object.</p> <p>Grade 3 Standard 3-5 (Measurement): The student will demonstrate through the mathematical processes an understanding of length, time, weight, and liquid volume measurements; the relationships between systems of measure; accurate, efficient, and generalizable methods of determining the perimeters of polygon; and the values and combinations of coins required to make change. Indicators 3-5.2 Use appropriate tools to measure objects to the nearest unit: measuring length in meters and half inches; measuring liquid volume in fluid ounces, pints, and liters; and measuring mass in grams. 3-5.4 Use common referents to make comparisons and estimates associated with length, liquid volume, and mass and weight; meters compared to yards, kilometers to miles, liters to quarts, and kilograms to pounds. 3-5.5 Generate strategies to determine the perimeters of polygons.</p>	<p>Language Arts Standard K-1 (Reading): The student will begin to read and comprehend a variety of literary texts in print and nonprint formats. Indicators K-1.1 Use pictures and words to make predictions regarding a story read aloud.</p> <p>Standard K-2 (Reading): The student will begin to read and comprehend a variety of informational texts in print and nonprint formats. Indicators K-2.1 Summarize the central idea and details from informational texts read aloud. K-2.2 Analyze texts during classroom discussions to make inferences. K-2.7 Understand graphic features such as illustrations and graphs.</p> <p>Standard K-3 (Reading): The student will learn to read by applying appropriate skills and strategies. Indicators K-3.15 Use prior knowledge and life experiences to construct meaning from texts. K-3.17 Exemplify the parts of a book (including the front and back covers, the title, and the author’s name).</p> <p>Standard K-4 (Writing): The student will begin to create written work that has a clear focus, sufficient detail, coherent organization, effective use of voice, and correct use of the conventions of written Standard American English. Indicators K-4.2 Generate complete sentences orally. K-4.3 Use pictures, letters, or words to tell a story from beginning to end. K-4.6 Use strategies to revise small group or whole class writing with teacher support. K-4.7 Use upper case and lower case letters. K-4.8 Use appropriate letter formation when printing.</p> <p>Science Standard K-1 (Scientific Inquiry): The student will demonstrate an understanding of scientific inquiry, including the processes, skills, and mathematical thinking necessary to conduct a simple scientific investigation. Indicators K-1.4 Compare objects by using nonstandard units of measurement.</p>



	<p>Visual Arts Grade K (Art) Standard I. Understanding and applying media techniques and processes. Indicators C. Use art materials and tools in a safe and responsible manner.</p>
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Big Idea: Systems of measurement can be used to solve problems in the world around us.

Subconcept: Attributes of money, time, and temperature can be analyzed and described.

Lessons 10, 11, 12, 13, 14, 15, 16

Focus Question: In what ways are units repeated to measure money, time, and temperature?

Process Standards	Content Standards	Horizontal Connections
<p>Mathematics Standard K-1 (Process): The student will have a basic understanding of the mathematical processes of problem solving, reasoning and proof, communication, connections, and representation. Indicators K-1.1 Apply substantive mathematical problem-solving strategies. K-1.2 Generate conjectures and exchange mathematical ideas. K-1.3 Explain and justify answers to simple problems. K-1.4 Analyze patterns by reasoning systematically. K-1.5 Generalize mathematical concepts. K-1.6 Use a variety of forms of mathematical communication. K-1.7 Generalize connections among mathematics, the environment, and other subjects. K-1.8 Use multiple informal representations to convey mathematical ideas.</p>	<p>Mathematics Standard K-5 (Measurement): The student will demonstrate through the mathematical processes an emerging sense of coin values and the measurement concepts of length, weight, time, and temperature. Indicators K-5.1 Identify a penny, a nickel, a dime, a quarter, and a dollar and the value of each. K-5.4 Identify rulers, yardsticks, and tape measures as devices used to measure length; scales and balances as devices used to measure weight; calendars and analog and digital clocks as devices used to measure time; and digital and standard thermometers as devices used to measure temperature. K-5.5 Understand which measure – length, weight, time, or temperature – is appropriate for a given situation. K-5.6 Use analog and digital clocks to tell time to the hour. K-5.7 Use a calendar to identify dates, days of the week, and months of the year. K-5.8 Recall equivalencies associated with time: 7 days = 1 week and 12 months = 1 year.</p>	<p>Mathematics Standard K-2 (Numbers and Operations): The student will demonstrate through the mathematical processes an emerging sense of quantity and numeral relationships, sets, and place values. Indicators K-2.2 Translate between numeral and quantity through 31. Standard K-3 (Algebra): The student will demonstrate through the mathematical processes an emerging sense of repeating and growing patterns and classification based on attributes. Indicators K-3.4 Classify objects according to one or more attributes such as color, size, shape, and thickness. Standard K-6 (Data Analysis and Probability): The student will demonstrate through the mathematical processes an emerging sense of organizing and interpreting data. Indicators K-6.1 Organize data in graphic displays in the form of drawings and pictures.</p>

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Vertical Connections	Cross Curricular Connections
<p>Grade 1 Standard 1-5 (Measurement): The student will demonstrate through the mathematical processes a sense of the value of combinations of coins and the measurement of length, weight, time, and temperature. Indicators 1-5.1 Use a counting procedure to determine the value of a collection of pennies, nickels, dimes, and quarters totaling less than a dollar. 1-5.2 Represent a nickel, a dime, a quarter, a half-dollar, and a dollar in combinations of coins. 1-5.8 Use analog and digital clocks to tell and record time to the half hour. 1-5.9 Illustrate past and future dates on a calendar. 1-5.10 Represent dates in standard form and numeric form. 1-5.11 Use Celsius and Fahrenheit thermometers to measure temperature.</p> <p>Grade 2 Standard 2-5 (Measurement): The student will demonstrate through the mathematical processes an understanding of the value of combinations of coins and bills and the measurement of length, weight, time, and temperature. Indicators 2-5.1 Use a counting procedure to determine the value of a collection of coins and bills. 2-5.2 Use coins to make change up to one dollar. 2-5.3 Use appropriate tools to measure objects to the nearest whole unit; measuring length in centimeters, feet, and yards; measuring liquid volume in cups, quarts, and gallons; measuring weight in ounces and pounds; and measuring temperature on Celsius and Fahrenheit thermometers. 2-5.7 Use analog and digital clocks to tell and record time to the nearest quarter hour and to the nearest five-minute interval. 2-5.8 Match a.m. and p.m. to familiar situations.</p> <p>Grade 3 Standard 3-5 (Measurement): The student will demonstrate through the mathematical processes an understanding of length, time, weight, and liquid volume measurements; the relationships between systems of measure; accurate, efficient, and generalizable methods of determining the perimeters of polygon; and the values and combinations of coins required to make change. Indicators 3-5.1 Use the fewest possible number of coins when making change. 3-5.6 Use analog and digital clocks to tell time to the nearest minute.</p>	<p>Language Arts Standard K-1 (Reading): The student will begin to read and comprehend a variety of literary texts in print and nonprint formats. Indicators K-1.1 Use pictures and words to make predictions regarding a story read aloud. K-1.4 Generate a retelling that identifies the characters and the setting in a story and relates the important events in sequential order. K-1.6 Use relevant details in summarizing stories read aloud. K-1.8 Carry out independent reading for pleasure.</p> <p>Standard K-3 (Reading): The student will learn to read by applying appropriate skills and strategies. Indicators K-3.15 Use prior knowledge and life experiences to construct meaning from texts. K-3.17 Exemplify the parts of a book (including the front and back covers, the title, and the author's name).</p> <p>Standard K-4 (Writing): The student will begin to create written work that has a clear focus, sufficient detail, coherent organization, effective use of voice, and correct use of the conventions of written Standard American English. Indicators K-4.2 Generate complete sentences orally. K-4.3 Use pictures, letters, or words to tell a story from beginning to end. K-4.6 Use strategies to revise small group or whole class writing with teacher support. K-4.7 Use upper case and lower case letters. K-4.8 Use appropriate letter formation when printing.</p> <p>Standard K-6 (Researching): The student will begin to access and use information from a variety of sources. Indicators K-6.1 Generate how and why questions about a topic of interest. K-6.3 Classify information by constructing categories such as living and nonliving things. K-6.4 Use complete sentence when orally communicating with others. K-6.5 Understand and follow one- and two-step oral directions.</p> <p>Science Standard K-1 (Scientific Inquiry): The student will demonstrate an understanding of scientific</p>



	<p>inquiry, including the processes, skills, and mathematical thinking necessary to conduct a simple scientific investigation.</p> <p>Indicators K-1.4 Compare objects by using nonstandard units of measurement.</p> <p>Social Studies Standard K-4 (Citizenship): The student will demonstrate an understanding good citizenship.</p> <p>Indicators K-4.2 Demonstrate good citizenship in classroom behaviors, including taking personal responsibility, cooperating and respecting others, taking turns and sharing, and working with others to solve problems.</p>
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Big Idea: Systems of measurement can be used to solve problems in the world around us.

Subconcept: Attributes of capacity and weight can be analyzed and described.

Lessons 17, 18, 19, 20

Focus Question: In what ways are units repeated to measure weight?

Process Standards	Content Standards	Horizontal Connections
<p>Mathematics Standard K-1 (Process): The student will have a basic understanding of the mathematical processes of problem solving, reasoning and proof, communication, connections, and representation. Indicators K-1.1 Apply substantive mathematical problem-solving strategies. K-1.2 Generate conjectures and exchange mathematical ideas. K-1.3 Explain and justify answers to simple problems. K-1.4 Analyze patterns by reasoning systematically. K-1.5 Generalize mathematical concepts. K-1.6 Use a variety of forms of mathematical communication. K-1.7 Generalize connections among mathematics, the environment, and other subjects. K-1.8 Use multiple informal representations to convey mathematical ideas.</p>	<p>Mathematics Standard K-5 (Measurement): The student will demonstrate through the mathematical processes an emerging sense of coin values and the measurement concepts of length, weight, time, and temperature. Indicators K-5.3 Use nonstandard units to explore the measurement concepts of length and weight. K-5.4 Identify rulers, yardsticks, and tape measures as devices used to measure length; scales and balances as devices used to measure weight; calendars and analog and digital clocks as devices used to measure time; and digital and standard thermometers as devices used to measure temperature. K-5.5 Understand which measure length, weight, time, or temperature – is appropriate for a given situation.</p>	<p>Standard K-2 (Numbers and Operations): The student will demonstrate through the mathematical processes an emerging sense of quantity and numeral relationships, sets, and place values. Indicators K-2.3 Compare sets of no more than 31 objects by using the terms more than, less than, and the same as.</p> <p>Standard K-3 (Data Analysis and Probability): The student will demonstrate through the mathematical processes an emerging sense of repeating and growing patterns and classification based on attributes. Indicators K-3.4 Classify objects according to one or more attribute such as color, size, shape, and thickness.</p>

Notes:

Vertical Connections	Cross Curricular Connections
<p>Grade 1 Standard 1-5 (Measurement): The student will demonstrate through the mathematical processes a sense of the value of combinations of coins and the measurement of length, weight, time, and temperature. Indicators 1-5.7 Use nonstandard units to measure the weight of objects.</p> <p>Grade 2 Standard 2-5 (Measurement): The student will demonstrate through the mathematical processes an understanding of the value of combinations of coins and bills and the measurement of length, weight, time, and temperature. Indicators 2-5.3 Use appropriate tools to measure objects to the nearest whole unit; measuring length in centimeters, feet, and yards; measuring liquid volume in cups, quarts, and gallons; measuring weight in ounces and pounds; and measuring temperature on Celsius and Fahrenheit thermometers. 2-5.6 Predict whether the measurement will be greater or smaller when different units are used to measure the same object.</p> <p>Grade 3 Standard 3-5 (Measurement): The student will demonstrate through the mathematical processes an understanding of length, time, weight, and liquid volume measurements; the relationships between systems of measure; accurate, efficient, and generalizable methods of determining the perimeters of polygon; and the values and combinations of coins required to make change. Indicators 3-5.2 Use appropriate tools to measure objects to the nearest unit: measuring length in meters and half inches; measuring liquid volume in fluid ounces, pints, and liters; and measuring mass in grams. 3-5.3 Recognize the relationship between meters and yards, kilometers and miles, liters and quarts, and kilograms and pounds. 3-5.4 Use common referents to make comparisons and estimates associated with length, liquid volume, and mass and weight; meters compared to yards, kilometers to miles, liters to quarts, and kilograms to pounds.</p>	<p>Language Arts Standard K-3 (Reading): The student will learn to read by applying appropriate skills and strategies. Indicators K-3.3 Use vocabulary acquired from a variety of sources.</p> <p>Standard K-4 (Writing): The student will begin to create written work that has a clear focus, sufficient detail, coherent organization, effective use of voice, and correct use of the conventions of written Standard American English. Indicators K-4.1 Generate ideas for writing by using techniques such as participating in conversations and looking at pictures. K-4.2 Generate complete sentences orally. K-4.6 Use strategies to revise small group or whole class writing with teacher support. K-4.7 Use upper case and lower case letters. K-4.8 Use appropriate letter formation when printing.</p> <p>Science Standard K-1 (Scientific Inquiry): The student will demonstrate an understanding of scientific inquiry, including the processes, skills, and mathematical thinking necessary to conduct a simple scientific investigation. Indicators K-1.1 Identify observed objects or events by using the senses. K-1.2 Use tools safely, accurately, and appropriately when gathering specific data. K-1.3 Predict and explain information or events based on observation or previous experience. K-1.4 Compare objects by using nonstandard units of measurement.</p> <p>Social Studies Standard K-4 (Citizenship): The student will demonstrate an understanding good citizenship. Indicators K-4.2 Demonstrate good citizenship in classroom behaviors, including taking personal responsibility, cooperating and respecting others, taking turns and sharing, and working with others to solve problems.</p>