Wyoming Department of Education Required Virtual Education Course Syllabus

Sheridan County School District # 1

Program Name	Sheridan County School District #1 Virtual School	Content Area	MA
Course ID	AC02030-K	Grade Level	K
Course Name	Grade K Math-CCSS	# of Credits	1
SCED Code	02030	Curriculum Type	Acellus

COURSE DESCRIPTION

Grade K Math-CCSS leades meaningful virtual lessons whereby students are introduced and then practice rudimentary concepts, preparing them for basic mathematical operations. Students use colorful and varied manipulatives and graphics in the video lessons for them stay focused on and interested in the subject matter. Students are introduced to and practice foundational concepts of mathematics such as counting whole numbers and understanding patterns, time, and money. Specific content depends upon state standards for kindergarten.

WYOMING CONTENT AND PERFORMANCE STANDARDS

STANDARD#	BENCHMARK (Standard/Indicator) Use the Standards and Benchmarks as Spreadsheets
MP1	Mathematically proficient students start by explaining to themselves the meaning of a problem and looking for entry points to its solution. They analyze givens, constraints, relationships, and goals. They make conjectures about the form and meaning of the solution and plan a solution pathway rather than simply jumping into a solution attempt. They consider analogous problems, and try special cases and simpler forms of the original problem in order to gain insight into its solution. They monitor and evaluate their progress and change course if necessary. Older students might, depending on the context of the problem, transform algebraic expressions or change the viewing window on their graphing calculator to get the information they need. Mathematically proficient students can explain correspondences between equations, verbal descriptions, tables, and graphs or draw diagrams of important features and relationships, graph data, and search for regularity or trends. Younger students might rely on using concrete objects or pictures to help conceptualize and solve a problem. Mathematically proficient students check their answers to problems using a different method, and they continually ask themselves, “Does this make sense?” They can understand the approaches of others to solving complex problems and identify correspondences between different approaches.
MP2	Mathematically proficient students make sense of the quantities and their relationships in problem situations. Students bring two complementary abilities to bear on problems involving quantitative relationships: the ability to decontextualize—to abstract a given situation and represent it symbolically and manipulate the representing symbols as if they have a life of their own, without necessarily attending to their referents—and the ability to contextualize, to pause as needed during the manipulation process in order to probe into the referents for the symbols involved. Quantitative reasoning entails habits of creating a coherent representation of the problem at hand; considering the units involved; attending to the meaning of quantities, not just how to compute them; and knowing and flexibly using different properties of operations and objects.
MP3	Mathematically proficient students understand and use stated assumptions, definitions, and previously established results in constructing arguments. They make conjectures and build a logical progression of statements to explore the truth of their conjectures. They are able to analyze situations by breaking them into cases, and can recognize and use counterexamples. They justify their conclusions, communicate them to others, and respond to the arguments of others. They reason inductively about data, making plausible arguments that take into account the context from which the data arose. Mathematically proficient students are also able to compare the effectiveness of two plausible arguments, distinguish correct logic or reasoning from that which is flawed, and—if there is a flaw in an argument—explain what it is. Elementary students can construct arguments using concrete referents such as objects, drawings, diagrams, and actions. Such arguments can make sense and be correct, even though they are not generalized or made formal until later grades. Later, students learn to determine domains to which an argument applies. Students at all grades can listen or read the arguments of others, decide whether they make sense, and ask useful questions to clarify or improve the arguments.

MP4	Mathematically proficient students can apply the mathematics they know to solve problems arising in everyday life, society, and the workplace. In early grades, this might be as simple as writing an addition equation to describe a situation. In middle grades, a student might apply proportional reasoning to plan a school event or analyze a problem in the community. By high school, a student might use geometry to solve a design problem or use a function to describe how one quantity of interest depends on another. Mathematically proficient students who can apply what they know are comfortable making assumptions and approximations to simplify a complicated situation, realizing that these may need revision later. They are able to identify important quantities in a practical situation and map their relationships using such tools as diagrams, two-way tables, graphs, flowcharts and formulas. They can analyze those relationships mathematically to draw conclusions. They routinely interpret their mathematical results in the context of the situation and reflect on whether the results make sense, possibly improving the model if it has not served its purpose.
MP5	Mathematically proficient students consider the available tools when solving a mathematical problem. These tools might include pencil and paper, concrete models, a ruler, a protractor, a calculator, a spreadsheet, a computer algebra system, a statistical package, or dynamic geometry software. Proficient students are sufficiently familiar with tools appropriate for their grade or course to make sound decisions about when each of these tools might be helpful, recognizing both the insight to be gained and their limitations. For example, mathematically proficient high school students analyze graphs of functions and solutions generated using a graphing calculator. They detect possible errors by strategically using estimation and other mathematical knowledge. When making mathematical models, they know that technology can enable them to visualize the results of varying assumptions, explore consequences, and compare predictions with data. Mathematically proficient students at various grade levels are able to identify relevant external mathematical resources, such as digital content located on a website, and use them to pose or solve problems. They are able to use technological tools to explore and deepen their understanding of concepts.
MP6	Mathematically proficient students try to communicate precisely to others. They try to use clear definitions in discussion with others and in their own reasoning. They state the meaning of the symbols they choose, including using the equal sign consistently and appropriately. They are careful about specifying units of measure, and labeling axes to clarify the correspondence with quantities in a problem. They calculate accurately and efficiently, express numerical answers with a degree of precision appropriate for the problem context. In the elementary grades, students give carefully formulated explanations to each other. By the time they reach high school they have learned to examine claims and make explicit use of definitions.
MP7	Mathematically proficient students look closely to discern a pattern or structure. Young students, for example, might notice that three and seven more is the same amount as seven and three more, or they may sort a collection of shapes according to how many sides the shapes have. Later, students will see 7×8 equals the well remembered $7 \times 5 + 7 \times 3$, in preparation for learning about the distributive property. In the expression $x^2 + 9x + 14$, older students can see the 14 as 2×7 and the 9 as $2 + 7$. They recognize the significance of an existing line in a geometric figure and can use the strategy of drawing an auxiliary line for solving problems. They also can step back for an overview and shift perspective. They can see complicated things, such as some algebraic expressions, as single objects or as being composed of several objects. For example, they can see $5 – 3(x – y)^2$ as 5 minus a positive number times a square and use that to realize that its value cannot be more than 5 for any real numbers x and y.

MP8	Mathematically proficient students notice if calculations are repeated, and look both for general methods and for shortcuts. Upper elementary students might notice when dividing 25 by 11 that they are repeating the same calculations over and over again, and conclude they have a repeating decimal. By paying attention to the calculation of slope as they repeatedly check whether points are on the line through (1, 2) with slope 3, middle school students might abstract the equation (y – 2)/(x –1) = 3. Noticing the regularity in the way terms cancel when expanding (x – 1)(x + 1), (x – 1)(x^2 + x + 1), and (x – 1)(x^3 + x^2 + x + 1) might lead them to the general formula for the sum of a geometric series. As they work to solve a problem, mathematically proficient students maintain oversight of the process, while attending to the details. They continually evaluate the reasonableness of their intermediate results.
K.CC.1	Count to 100 by ones and by tens.
K.CC.2	Count forward beginning from a given number within the known sequence (instead of having to begin at 1).
K.CC.3	Write numbers from 0 to 20. Represent a number of objects with a written numeral 0-20 (with 0 representing a count of no objects).
K.CC.4	Understand the relationship between numbers and quantities; connect counting to cardinality.
K.CC.4a	When counting objects, say the number names in the standard order, pairing each object with one and only one number name and each number name with one and only one object.
K.CC.4b	Understand that the last number name said tells the number of objects counted. The number of objects is the same regardless of their arrangement or the order in which they were counted.

K.CC.4c	Understand that each successive number name refers to a quantity that is one larger.
K.CC.5	Count to answer “how many?” questions about as many as 20 things arranged in a line, a rectangular array, or a circle, or as many as 10 things in a scattered configuration; given a number from 1-20, count out that many objects.
K.CC.6	Identify whether the number of objects in one group is greater than, less than, or equal to the number of objects in another group, e.g., by using matching and counting strategies. (Include groups with up to ten objects.)
K.CC.7	Compare two numbers between 1 and 10 presented as written numerals.
K.OA.1	Represent addition and subtraction with objects, fingers, mental images, drawings (drawings need not show details, but should show the mathematics in the problem), sounds (e.g., claps), acting out situations, verbal explanations, expressions, or equations.

K.OA.2	Solve addition and subtraction word problems, and add and subtract within 10, e.g., by using objects or drawings to represent the problem.
K.OA.3	Decompose numbers less than or equal to 10 into pairs in more than one way, e.g., by using objects or drawings, and record each decomposition by a drawing or equation (e.g., 5 = 2 + 3 and 5 = 4 + 1).
K.OA.4	For any number from 1 to 9, find the number that makes 10 when added to the given number, e.g., by using objects or drawings, and record the answer with a drawing or equation.
K.OA.5	Fluently add and subtract within 5.

K.NBT.1	Compose and decompose numbers from 11 to 19 into ten ones and some further ones, e.g., by using objects or drawings, and record each composition or decomposition by a drawing or equation (such as 18 = 10 + 8); understand that these numbers are composed of ten ones and one, two, three, four, five, six, seven, eight, or nine ones.
K.MD.1	Describe measurable attributes of objects, such as length or weight. Describe several measurable attributes of a single object.
K.MD.2	Directly compare two objects with a measurable attribute in common, to see which object has “more of”/“less of” the attribute, and describe the difference. For example, directly compare the heights of two children and describe one child as taller/shorter.
K.MD.3	Classify objects into given categories; count the numbers of objects in each category and sort the categories by count. (Limit category counts to be less than or equal to 10.)
K.G.1	Describe objects in the environment using names of shapes, and describe the relative positions of these objects using terms such as above, below, beside, in front of, behind, and next to.
K.G.2	Correctly name shapes regardless of their orientations or overall size.
K.G.3	Identify shapes as two-dimensional (lying in a plane, “flat”) or three-dimensional (“solid”).
K.G.4	Analyze and compare two- and three-dimensional shapes, in different sizes and orientations, using informal language to describe their similarities, differences, parts (e.g., number of sides and vertices/“corners”) and other attributes (e.g., having sides of equal length).

K.G.5	Model shapes in the world by building shapes from components (e.g., sticks and clay balls) and drawing shapes.
K.G.6	Compose simple shapes to form larger shapes. For example, "can you join these two triangles with full sides touching to make a rectangle?"

SCOPE AND SEQUENCE			
UNIT OUTLINE		STANDARD#	OUTCOMES OBJECTIVES/STUDENT CENTERED GOALS
Unit 1	Compare and Sort Objects	K.CC.4a; K.G.1; K.G.2; MP6, MP7	Students by single or multiple attributes and comparing to determine things that are the same, things that are different, and groups with more, fewer, or the same number of objects.
Unit 2	Use Numbers 0 to 5	K.CC.2;K.CC.3;MP1;	Students are introduced to the meaning of the numbers 0 through 5, as well as typing, counting, comparing, and ordering these numbers.
Unit 3	Describe Position and Patterns	K.G.1; K.G.2; MP6; MP7	Students observe and describe positioning, including over, under, above, and below, as well as top, middle, bottom, before, and after. Students determine how to identify patterns, including object, sound, movement, and prediction patterns
Unit 4	Use Numbers to 10	K.CC.1;K.CC.2;K.CC.3; K.CC.4; K.CC.4c; K.CC.7; K.OA.4	Students are introduced to the meaning of the numbers 6 through 10 as well as typing these numbers, comparing, ordering, and counting backwards with the numbers 0 through 10. Students are introduced to Ordinal Numbers and Counting to 100, as well asl Counting forward and backward from 0 to 10.
Unit 5	Construct and Use Graphs	K.MD.1;K.MD.2;K.MD .3; MP4;	Students collect and record data, including performing a survey, how to read graphs, and graphing using real objects and picture graphs.
Unit 6	Use Numbers to 20	K.CC.3;K.CC.4;K.CC.4 b;K.CC.4c; K.CC.5; K.CC.6; K.NBT.1;	Students are introduced to the meaning of the numbers 11 through 20, as well as typing, comparing, and ordering these numbers.
Unit 7	Compare Measurements	K.CC.4; K.MD.2; K.G.1; K.G.3; K.G.4;K.G; MP6; MP7, MP8	Students compare length, weight, capacity, area, and temperature, and ordering length.

Unit 8	Use Numbers Beyond 20	K.CC.3;K.CC.4;K.CC.4c; K.CC.6; K.CC.7;K.NBT.1; MP6	Students are introduced to the meaning of the numbers 21 through 30, as well as comparing and ordering these numbers and estimating.
Unit 9	Time / MoneyThis	MP1;MP3,MP5; MP6;	Students are introduced to and pratice the basic concepts of time, including time of day (morning, afternoon, and evening), the days of the week, yesterday, today, and tomorrow, how to read a calendar, and how to use an analog and a digital clock. Students learn how to identify and understand the value of the basic monetary units (pennies, nickels, dimes, and quarters).
Unit 10	Describe Geometric Figures	K.MD.1; K.MD.3; MP2; MP5; MP6	Students are introduced to the concepts of geometry including basic 2- and 3-dimensional shapes (rectangles, squares, circles, triangles, cubes, spheres, cones, and cylinders), the differences between 2- and 3-dimensional figures, basic properties of 3-dimensional objects (rolling, sliding, and stacking), equal parts, and 2-dimensional figures in position.
Unit 11	Model Addition	K.OA.1; K.OA.2; K.OA.3; K.OA.5; MP1; MP4, MP8	Students observe and then practice using objects to add, solving addition stories, recognizing the addition sign, and adding to make the numbers 4 through 9, as well as practicing addition.
Unit 12	Model Subtraction	K.OA.1; K.OA.2; K.OA.3; K.OA.5; MP1; MP4, MP8	Students practice using objects to subtract, solving subtraction stories, recognizing the subtraction sign, and subtracting from the numbers 4 through 9, as well as recognizing the equals sign and practicing addition.