

Running River School K-5 Curriculum Guide

Running River is a school that recognizes learning as natural, that a love of learning is normal, and that real learning is passionate learning. We have a school curriculum that values questions above answers...creativity above fact regurgitation...individuality above conformity, and excellence above standardized performance. (taken from quote by Tom Peters) Our education guides children to know who they are and what they're passionate about; to develop the skills for critical thinking, collaboration, creativity and meeting challenges, so that they manifest their gifts and talents to serve humanity and the planet.

In this book you will find a curriculum guide that lists academic content and skills (as is appropriate for a guide) for grades K-5. Our intent is to show how our curriculum spirals from one grade to the next, so we set our formatting to that feature.

The heart of our curriculum is in our philosophy. The key components of Running River's curriculum are:

- Meaningful, Experiential, Inquiry and Project Based Curriculum based on the latest brain research
- Integrated Academics
- Real life work whenever possible
- Mixed Ages/Collaborative AND Individual Learning
- Responsibility/Integrity of engagement & work increasingly coming from the child
- Mastery (quality and excellence of work & skill acquisition)
- In-depth learning from every angle
 - Experimentation
 - Books
 - Internet
 - Experts
 - Collaborative Work
 - Questioning
 - Problem solving
- Learning how to learn and transference across subject areas
- Inner development and outer knowledge go hand in hand... a balanced education cultivates abilities beyond the verbal and conceptual to include matters of heart, character, creativity, self-knowledge, concentration, openness and mental flexibility.
- Life Skills
- The Arts
- Physical Fitness and development of capacities
- Outdoor Education
- Connection to Nature
- Communication/Harmonious Living

Area of Study	Kindergarten	1 st Grade	2 nd Grade	3 rd Grade	4 th Grade	5 th Grade
Literacy	<p>READING Kinds of Reading</p> <ul style="list-style-type: none"> • Variety of non-fiction and fiction texts • Poetry and verse (nursery rhymes, songs, chants) • Concept books (abc, counting, shapes) • Wordless picture books • Books with repetitive text • Author/illustrator studies • Fairy tales (original, modern, multicultural) • Drama & plays 	<p>READING Kinds of Reading</p> <ul style="list-style-type: none"> • Variety of non-fiction texts from content areas • Variety of fiction texts • Poetry and verse • Concept books (abc, counting, shapes) • Wordless picture books • Books with repetitive text • Reference books • Fairy tales (original, modern, multicultural) • Drama and plays • Realistic fiction • Magazines 	<p>READING Kinds of Reading:</p> <ul style="list-style-type: none"> • Variety of non-fiction texts • Variety of fiction • Magazines • Poetry and verse • Reference books • Drama and plays • Author/Illustrator Studies 	<p>READING Kinds of Reading:</p> <ul style="list-style-type: none"> • Variety of non-fiction from content areas • Reference books • Magazines • Poetry and verse • Begin to explore different types of books: realistic fiction, legends/folk tales, historical fiction, drama, autobiographies, biographies, mysteries, fantasy, and science fiction 	<p>READING Kinds of Reading:</p> <ul style="list-style-type: none"> • Non-fiction • Different media sources (internet, magazines, newspapers) • Poetry • Reading from a wide variety of sources and genres. For example: realistic fiction, historical fiction, autobiographies, biographies, fantasy, science fiction, drama, and mystery 	<p>READING Kinds of Reading:</p> <ul style="list-style-type: none"> • Same as 4th grade with increasing variety • Persuasive texts
	<p>Comprehension</p> <ul style="list-style-type: none"> • Develop awareness of schema (life experiences/prior knowledge) in relation to literature • Make connections from texts to schema • Ask questions to further their understanding of texts • Recognize that print conveys meaning • Recall details, events and ideas of familiar stories • Make predictions • Develop an awareness of story elements: setting, plot, character • Retell a simple story with a beginning, middle, and end using picture prompts • Begin to be aware of specific authors/illustrators and their individual style • Engage in whole-class book talks 	<p>Comprehension</p> <ul style="list-style-type: none"> • Apply schema in relation to literature to expand understanding • Make connections beyond self to include other texts and world experiences • Ask questions to further their understanding of texts • Retell and sequence stories including relevant details • Make predictions about text and confirm or contradict them as they read on • Understand and identify basic story elements: character, setting, plot • Begin to differentiate between fiction and non-fiction • Begin to generate and use visualization to enhance comprehension • Recognize that pictures convey and enhance meaning • Engage in whole-class book discussion • Demonstrate understanding through a variety of media: dramatic interpretation, written response, artwork • Develop awareness of 	<p>Comprehension</p> <ul style="list-style-type: none"> • Apply schema in relation to literature to expand understanding (R) • Make connections beyond self to include other texts and world experiences (R) • Ask questions to further understanding of texts (R) • Retell and sequence stories including relevant details (R) • Make predictions and check predictions with further reading (R) • Understand and identify basic elements of story: character, setting, plot, conflict (C) • Develop awareness of different types of characters • Describe how characters in a story respond to major events and challenges • Begin to distinguish important from unimportant information in non-fiction text • Begin to identify the main topic of a non-fiction text • Differentiate between fiction, non-fiction and poetry (C) • Use visualization to enhance comprehension • Demonstrate understanding through a variety of media: dramatic interpretations, 	<p>Comprehension</p> <ul style="list-style-type: none"> • Engage with text and ask questions in order to infer, confirm/contradict, and predict • Discuss and retell stories while including important information • Demonstrates understanding of text through various media: dramatic interpretations, written responses, and artwork (R) • Understand and identify basic elements of story: character, setting, plot, conflict, (R) and themes • Apply schema in relation to literature to expand understanding • Make connections from text to text, self, and world • Begin to recognize a variety of genre • Use evidence from text to justify understanding of the text • Determine the main idea of a text • Begin to understand cause and effect in text • Use compare and contrast with two texts • Use visualization to strengthen 	<p>Comprehension</p> <ul style="list-style-type: none"> • Discuss and retell stories and articles • Create summaries of what is read • Develop connections to self and other text and the world before, during and after reading • Understand main idea, and story elements (character, setting, plot, conflict or challenge and solution, climax, theme and mood) • Respond to and reflect on literature in a variety of creative and meaningful ways • Hypothesize and predict to infer story events or outcomes • Discriminate between fact and opinion • Determine the meaning of words and phrases as they are used in a text • Learn to follow written directions • Support ideas by reference to evidence in text • Recognize point of view • Compare and contrast the treatment of similar themes and topics (e.g., opposition of good and evil) and patterns of events (e.g., the quest) in stories, myths, and traditional literature 	<p>Comprehension</p> <ul style="list-style-type: none"> • Recall specific information from a given selection with increasing accuracy • Skim text for specific information • Understand the differences between a variety of fiction genres: i.e. realistic fiction, historical fiction, and fantasy • Understand the differences between a variety of non-fiction genres: i.e. biography, autobiography, informational article, opinion piece • Summarize and synthesize information • Analyze the structure of text: i.e. introduction, main idea, supporting details, and conclusion • Analyze and evaluate opinions and arguments • Recognize use of literary devices: i.e. rhyme, alliteration, repetitions, consonance, onomatopoeia, and personification

		<p>different types of characters</p> <ul style="list-style-type: none"> • Begin to distinguish important from unimportant information in a non-fiction text • Begin to explore different authors and illustrators and their individual styles • Begin to develop an awareness of the reading-writing connection 	<p>written responses, and artwork</p>	<p>comprehension (R)</p> <ul style="list-style-type: none"> • Actively participate in book talks • Explore different authors and illustrators and their individual style 	<p>from different cultures</p> <ul style="list-style-type: none"> • Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably 	
Literacy	<p>Vocabulary and Decoding</p> <ul style="list-style-type: none"> • Understand directionality – left to right, return sweep, top to bottom • Know upper-and lower-case letters and sounds • Know short and long vowel sounds • Know digraphs sh, th, ch • Segment phonemes • Understand 1-1 correspondence • Begin to apply meaning, syntax, and visual cues • Recognize Kindergarten high frequency word list • Recognize and use rhyming words • Begin building word family knowledge 	<p>Vocabulary and Decoding</p> <ul style="list-style-type: none"> • Integrate meaning, syntax, and visual cues to read unfamiliar words • Develop understanding of more complex vowel sounds • Apply knowledge of initial consonant blends • Increase and build word family knowledge • Apply knowledge of endings -s, -ing, -ed • Know print concepts: letters, words, sentences, questions, capitals, end marks • Recognize compound words 	<p>Vocabulary and Decoding</p> <ul style="list-style-type: none"> • Integrate meaning, syntax, (word order) and visual cues to successfully read unfamiliar words (R) • Develop understanding of more complex vowel sounds (R) • Continue building word family knowledge (C) • Apply the rules of punctuation when reading aloud more frequently • Apply knowledge of endings: s, ing, ed • Know print concepts: letters, words, sentences, questions, capitals, end marks 	<p>Vocabulary and Decoding</p> <ul style="list-style-type: none"> • Integrate meaning, syntax, (word order) and visual cues to successfully read unfamiliar words (R) • Increase phonemic awareness • Continue building word family knowledge and sight vocabulary(C) • Apply the rules of punctuation when reading aloud more frequently • Increase frequency of correct use of endings • Understand and follow the rules of grammar as a reader • Develop dictionary and other reference materials usage skills 	<p>Vocabulary and Decoding</p> <ul style="list-style-type: none"> • Use context and familiar word parts to identify unknown word parts • Interpret new words by understanding prefixes, suffixes and meaning of word parts • Study new vocabulary 	<p>Vocabulary and Decoding</p> <ul style="list-style-type: none"> • Consult a dictionary or other reference materials for meaning • Study new vocabulary
	<p>WRITING</p> <p>Kinds of Writing:</p> <ul style="list-style-type: none"> • Personal narrative/experience • Concept books (abc, counting, shapes) • Imaginative stories • Thank-you notes 	<p>WRITING</p> <p>Kinds of Writing</p> <ul style="list-style-type: none"> • Personal narrative/experience • Imaginative stories • Concept books (abc, counting, shapes) • Thank-you notes • Book response • Poetry and verse • Friendly letters • Research reports 	<p>WRITING</p> <p>Kinds of Writing:</p> <ul style="list-style-type: none"> • Personal narrative/experience (R) • Poetry and verse • Imaginative stories (R) • Thank you notes (R) • Book responses (R) • Paragraphs with topic sentences supported with details and closing sentence • Research reports • Writer’s Choice Project • Journaling (R) • Visual note taking 	<p>WRITING</p> <p>Kinds of Writing:</p> <ul style="list-style-type: none"> • Personal narrative • Poetry and verse • Imaginative stories • Book responses • Summaries • Paragraphs with topic sentences supported with details and closing sentence • Research reports • Writer’s Choice Project 	<p>WRITING</p> <p>Kinds of Writing</p> <ul style="list-style-type: none"> • Attempts several types of writing, such as: poetry and verse, realistic fiction, thank you notes, memoir, biographies, book responses, journals, personal narratives, historical fiction, plays, news stories, survival and adventure stories • Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences • Learn to write a variety of paragraphs using outlines, topic sentences, supporting details 	<p>WRITING</p> <p>Kinds of Writing</p> <ul style="list-style-type: none"> • Same as 4th grade with increasing proficiency

					<p>and closing sentences.</p> <ul style="list-style-type: none"> •Write opinion pieces on topics or texts, supporting a point of view with reasons and information •Write informative/explanatory texts to examine a topic and convey ideas and information clearly. •Research reports 	
Literacy	<p>Content</p> <ul style="list-style-type: none"> • Draw pictures and tells stories about them • Attempt to communicate with an audience through pictures and/or letters, letter strings, and scribble writing • Create illustrations that support the story • Write title for story • Attempt to connect ideas in a logical order • Publish a shared writing project or an individual written piece • Choose a topic to write about • Write reflective responses 	<p>Content</p> <ul style="list-style-type: none"> • Independently generate ideas for writing • Comfortably communicate ideas in writing • Begin to re-read writing to check for breaks in meaning • Share writing with others through peer conferences and small and large group presentations • Begin to use feedback from teachers and peers to improve/revise their writing • Begin to explore the purposes for writing • Begin to make simple changes and add details in their writing to revise for clarity and/or enhance interest • Begin to experiment with writers voice 	<p>Content</p> <ul style="list-style-type: none"> •Begin to develop awareness of the importance of word choice •Develop understanding of a sentence •Begin to recognize a paragraph •Begin to develop and explore descriptive word choice •Begin to experiment with other writing genres •Begin to recognize and use techniques from mentor authors and texts •Begin to use different strategies for generating writing ideas •Begin to re-read own writing for meaning •Share writing with others through peer conferences and author’s chair •Use feedback from teachers and peers to improve/revise writing •Include illustrations when useful •Engage in writing process from rough draft to revision to editing and publishing •Write informative/explanatory texts in which they introduce a topic, use facts and definitions to develop points, and provide a concluding statement or section. •Develop researching and note taking skills (written or picture) 	<p>Content</p> <ul style="list-style-type: none"> •Develop a writer’s voice and style •Develop understanding of a sentence •Begin to recognize a paragraph •Develop ideas/stories/pieces cohesively and sequentially •Increase awareness of dynamic word choice •Develop higher-level writing techniques: character, grabbing leads, climax, satisfying ending •Write informative/explanatory texts to examine a topic and convey ideas and information clearly including introducing the topic, reasons and details, and conclusion •Include illustrations when useful •Engage in writing process from rough draft to revision to editing and publishing •Develop researching and note taking skills (written or picture notes) 	<p>Content</p> <ul style="list-style-type: none"> •Practice pre-writing strategies: i.e. brainstorming, lists, outlining, graphic organizers •Develop personal writing style and voice •Develop and use elements of literature •Develop researching and note taking skills (written or picture notes) •Reinforce the writing process (draft, revising and editing, final draft) with greater emphasis on revising and editing •Write paragraphs of increasing length •Organize writing in a clear coherent order •Begins to use transitional words and phrases 	<p>Content</p> <ul style="list-style-type: none"> •Continue to develop skills from 4th grade list •Use paragraphs to organize information and ideas •Write a well formed single subject paragraph with a topic and concluding sentence •Enhance word choice using dictionary and thesaurus •Write with audience and purpose in mind •Understand and use revision to enhance meaning
	<p>Grammar and Mechanics</p> <ul style="list-style-type: none"> • Begin to print legible upper and lower-case letters with growing consistency • Use appropriate spacing between words 	<p>Grammar and Mechanics</p> <ul style="list-style-type: none"> • Form lower and upper case letters with increasing legibility • Use spaces between words with increasing consistency • Spatially organize print 	<p>Grammar and Mechanics</p> <ul style="list-style-type: none"> •Write in complete sentences with increasing consistency •Use ending punctuation with increasing frequency •Print letters legibly in upper 	<p>Grammar and Mechanics</p> <ul style="list-style-type: none"> •Write complete sentences with increasing frequency •Use ending punctuation with increasing frequency •Use capitalization correctly 	<p>Grammar and Mechanics</p> <ul style="list-style-type: none"> •Recognize and use simple and compound sentences •Use end punctuation correctly •Begin to use advance punctuation with increasing 	<p>Grammar and Mechanics</p> <ul style="list-style-type: none"> •Recognize and produce complex sentences •Recognize and define all eight parts of speech: noun, verb, adjective, adverb, pronoun,

	<ul style="list-style-type: none"> Experiment with conventions of ending punctuation Experiment with conventions of beginning capitalization Attempt to write simple sentences, phrases or labels 	<p>appropriately on the page</p> <ul style="list-style-type: none"> Begin to use ending punctuation Begin to write in complete sentences Begin to use capitalization correctly at the beginning of sentences 	and lower case	<p>with increasing frequency</p> <ul style="list-style-type: none"> Begin to use advance punctuation with increasing accuracy: comma, apostrophe, quotation marks Handwriting is legible Learn cursive writing 	<p>accuracy: comma, apostrophe, quotation marks</p> <ul style="list-style-type: none"> Use capitalization correctly Use complete sentences when appropriate Recognize and define noun, verb, adjective Learn pre-fixes, suffixes and some root words 	<p>conjunction, article and preposition</p> <ul style="list-style-type: none"> Identify run-on, fragment, and complete sentences Identify and use abbreviations correctly (Mr., Mrs., Ms., Dr.) Use higher level punctuation marks correctly (comma, serial commas, colon, semi-colon, quotation marks) Continue learning pre-fixes, suffixes and Greek and Latin root words
Literacy	<p>Spelling</p> <ul style="list-style-type: none"> Spell Kindergarten high frequency word list Use spelling which includes letters and letter/sound correspondence and phonetically related approximations Develop awareness of conventional spelling 	<p>Spelling</p> <ul style="list-style-type: none"> Correctly spell the 1st grade high frequency words Begin to apply growing phonetic knowledge to spell words with increasing accuracy Begin to use a variety of spelling resources Begin to develop a spelling conscience Use phonetic spelling while applying phonetic guidelines 	<p>Spelling</p> <ul style="list-style-type: none"> Begin to consistently spell the 2nd high frequency grade words correctly Develop the ability to apply growing phonetic knowledge to spell words Develop the use of a variety of spelling resources 	<p>Spelling</p> <ul style="list-style-type: none"> Work towards spelling the 3rd grade high frequency words Use conventional spelling on final copies Use invented spelling while applying phonetic guidelines 	<p>Spelling</p> <ul style="list-style-type: none"> Demonstrate steady growth in spelling conventionally 	<p>Spelling</p> <ul style="list-style-type: none"> Demonstrate steady growth in spelling conventionally

Language Arts Resources: Wilson Foundation, Words Their Way, Daily Language Instruction, Spelling Power, Wordly Wise, Handwriting Without Tears, Center for Teaching and Learning, Step up to Writing Program, Donald Graves.

Assessments: A-Z Reading, Writing rubrics for student and teacher evaluation, Portfolio Assessments, Written Self-reflection

School Projects integrating L.A.: Theater Production, 4th-5th grade Shakespeare Production with the Colorado Shakespeare Festival, All School Book Fair (every child publishes a book to sell as well as to read parts of to the school community, Parent Night presentations of work three times a year, 5th-8th grade Science Fair. Every year projects will be determined that will best engage learners. Past Project include: Biography unit integrating reading, writing and art; Living Museums that integrate theme, reading, writing and art; making short videos.

The math program at Running River School strives to help students create meaning of processes and operations through the use of **problem solving, real life learning, project based learning, number sense development, estimation, mental math, math fact fluency, and math discussions.** Students work in small groups determined by ability.

Content Area	Kindergarten	First Grade	Second Grade	Third Grade	Fourth Grade	Fifth Grade
Math	Skills	Skills	Skills	Skills	Skills	Skills
	Operations and Algebraic Thinking <ul style="list-style-type: none"> Solve word problems adding and subtracting up to 10 Decompose numbers less than 10 in more than one way Best friends (facts that equal 10) Fluently add and subtract to 5 	Operations and Algebraic Thinking <ul style="list-style-type: none"> Solve word problems adding and subtracting up to 20 Understand the relationship between adding and subtracting and use to solve problems Fluently add and subtract to 10 Determine unknown numbers in an addition or subtraction equation 	Operations and Algebraic Thinking <ul style="list-style-type: none"> Solve word problems and equations adding and subtracting up to 100 Fluently add and subtract to 20 Works with equal groups of objects to gain foundations for multiplication Repeats and grows number patterns Begins fraction exploration Compares and orders 2 and 3-digit numbers 	Operations and Algebraic Thinking <ul style="list-style-type: none"> Adds and subtracts 3 and 4 digit numbers Understands properties of multiplication and the relationship between multiplication and division Represents and solves problems involving multiplication and division Multiplies and divides within 100 Solves problems involving the four operations and identifies and explains patterns in arithmetic 	Operations and Algebraic Thinking <ul style="list-style-type: none"> Uses the four operations with whole numbers to solve problems Develops models and strategies for multiplication and division Gains familiarity with factors and multiples Generates and analyzes patterns 	Operations and Algebraic Thinking <ul style="list-style-type: none"> Writes and interprets numerical expressions Analyzes patterns and relationships Adds and subtracts decimals Explores variables and equations Models algebraic situations
	Numbers and Operations <ul style="list-style-type: none"> Understands place value up to 20 Counting and Cardinality <ul style="list-style-type: none"> Count to 100 by ones fives and by tens Counting on from a given number Write numbers 0-20 Connects objects to numbers Greater than and less than 	Numbers and Operations <ul style="list-style-type: none"> Writes, recognizes and can count numerals to 120 Counts on by 2's, 5's, and 10's Understands odd and even numbers Adds 2 digit and 1 digit numbers to 100 Adds and subtracts 10's with 2 digit numbers Understands Best Friends, extended Place value for tens and ones 	Numbers and Operations <ul style="list-style-type: none"> Understands place value Uses place value understanding and properties of operations to add and subtract Skip counts Begins fraction exploration Compares and orders 2 and 3-digit numbers 	Numbers and Operations <ul style="list-style-type: none"> Uses place value understanding and properties of operations to perform multi-digit arithmetic Develops an understanding of fractions as numbers Reads, writes, compares, orders fractions Explores equivalent fractions Understands expanded notation Understands money and decimal notation 	Numbers and Operations <ul style="list-style-type: none"> Generalizes place value understanding for multi-digit whole numbers Uses place value understanding and properties of operations to perform multi-digit arithmetic Extends understanding of fraction equivalence and ordering Builds fractions from unit fractions by applying and extending previous understandings of operations on whole numbers Understands decimal notation for fractions Compares decimal fractions Explores the concept of a variable Explores square numbers 	Numbers and Operations <ul style="list-style-type: none"> Understands the place value system Performs operations with multi-digit whole numbers and with decimals to hundredths Uses equivalent fractions as a strategy to add and subtract fractions Applies and extends previous understandings of multiplication and division to multiply and divide fractions Divides with and without remainders Understands improper and mixed numbers and converts between the two Adds and subtracts fractions with like and unlike denominators

						<ul style="list-style-type: none"> • Understands models and meanings of fractions, decimals, and percents • Understands decimal and fraction equivalencies
Math	Measurement and Data <ul style="list-style-type: none"> • Compares amounts • Understands a calendar • Recognizes coins • Uses non-standard units to measure length, weight, and time • Classifies and counts the number of object in categories • Estimates 	Measurement <ul style="list-style-type: none"> • Understands a calendar • Understands coin values • Uses non-standard units to measure length, weight, and time • Measures length in whole units • Compares lengths • Represent and interpret data • Tell and write time to the half hour • Estimates 	Measurement <ul style="list-style-type: none"> • Measures and estimates length and mass in standard units • Relates addition and subtraction to length and mass • Works with time and money • Represents, interprets, sorts and graphs data • Counts money and makes change 	Measurement and Data <ul style="list-style-type: none"> • Measures mass • Solves problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects • Represents and interprets data • Understands volume and surface area 	Measurement and Data <ul style="list-style-type: none"> • Measures mass • Solves problems involving measurement and conversion of measurements from a larger unit to a smaller unit • Represents and interprets data • Understands volume and surface area • Reads and interprets picture, circle, bar and line graphs 	Measurement and Data <ul style="list-style-type: none"> • Converts like measurements with a given measurement system • Represents and interprets data • Understands concepts of volume and relates volume to multiplication and addition • Explores range, median, mode, mean
	Geometry <ul style="list-style-type: none"> • Identifies and describes 2D, 3D shapes • Analyzes, compares, creates and composes shapes 	Geometry <ul style="list-style-type: none"> • Identifies and describes 2D, 3D shapes • Analyzes, compares, creates and composes shapes • Divides shapes into halves and 4ths 	Geometry <ul style="list-style-type: none"> • Reasons with shapes and their attributes • Understands properties of 2D and 3D shapes • Composes and decomposes 2D and 3D shapes • Understands congruence, symmetry, area 	Geometry <ul style="list-style-type: none"> • Understands properties of 3D shapes • Reasons with shapes and their attributes • Understands concepts of area and relates are to multiplication and addition • Recognizes perimeter as an attribute of plane figures and distinguishes between linear and area measures • Continues to recognize more and more complex geometric shapes and structures in the environment • Understands a coordinate grid system 	Geometry <ul style="list-style-type: none"> • Understands concepts of angles • Measures angles • Draws and identifies lines and angles • Classifies shapes by properties of their lines and angles • Recognize and draw lines of symmetry for 2D shapes 	Geometry <ul style="list-style-type: none"> • Graphs points on the coordinate plane to solve real-world and mathematical problems • Classifies two-dimensional figures into categories based on their properties
Resources and Assessment: Everyday Mathematics; Bridges Mathematics; Math in Focus, Khan Academy, Math Solutions (Marilyn Burns); Number Sense Routines (Jessica Shumway); Developing Number Concepts (Kathy Richardson)						

Elementary School (K-5) Science Curriculum Overview:

Grade-Level Concepts and Standards will align with the National Science Teachers Association (NSTA): Next Generation Science Standards (NGSS). The *NGSS* content is focused on preparing students for college and careers. The *NGSS* are aligned by grade level and cognitive demand with the English Language Arts and Mathematics Common Core Standards. At Running River, science will be integrated with the classroom theme curriculum whenever possible. The science program will allow students to develop their connections to themselves, humanity, and the planet through hands-on scientific investigations. Our goal will be to foster a curiosity for the natural world in each student using an inquiry-based approach.

Grade Level	K-1	2-3	4-5
<p align="center">Units of Study</p>	<p>Life Science:</p> <ul style="list-style-type: none"> • Interdependent Relationships in Ecosystems: Animals, Plants, and Their Environment • Structure, Function, and Information Processing: Species Survival (traits and behaviors) <p>Earth & Space Science:</p> <ul style="list-style-type: none"> • Weather and Climate • Space Systems: Patterns and Cycles <p>Physical Science:</p> <ul style="list-style-type: none"> • Forces and Interactions: Pushes and Pulls • Waves: Light and Sound <p>Engineering Design:</p> <ul style="list-style-type: none"> • Introduction to Building Models: Habitat Dioramas 	<p>Life Science:</p> <ul style="list-style-type: none"> • Interdependent Relationships in Ecosystems: Food, Health, and Their Environment • Inheritance and Variation of Traits: Life Cycles <p>Earth & Space Science:</p> <ul style="list-style-type: none"> • Earth Systems: Connections between Biosphere, Hydrosphere, Atmosphere, and Geosphere • Weather and Climate: Astronomy and Seasonal Change <p>Physical Science:</p> <ul style="list-style-type: none"> • Structure and Properties of Matter: Solids, Liquids, Gases • Forces and Interactions: Simple Machines and Magnets <p>Engineering Design:</p> <ul style="list-style-type: none"> • Developing and Using Models 	<p>Life Science:</p> <ul style="list-style-type: none"> • Structure, Function, and Information: Animal Adaptations, cells • Matter and Energy in Organisms and Ecosystems: Energy Transfer and Food Chains <p>Earth & Space Science:</p> <ul style="list-style-type: none"> • Earth’s systems: Processes That Shape the Earth • Space Systems: Stars and the Solar System <p>Physical Science:</p> <ul style="list-style-type: none"> • Energy: Renewable and Non-renewable • Waves: Waves and Information <p>Engineering Design:</p> <ul style="list-style-type: none"> • Planning and Carrying out Investigations
<p align="center">Skills</p> <p>Students who demonstrate understanding can:</p>	<p>Life Science:</p> <ul style="list-style-type: none"> • Use observations to describe patterns of what plant and animals need to survive. • Construct an argument supported by evidence for how plants and animals can change the environment to meet their needs. • Use a model to represent the relationship between the needs of different plants or animals and the places they live. • Communicate solutions that will reduce the impact of humans on the land, water, air, and/or other living things in the local environment. • Use materials to design a solution to a human problem by mimicking how plants and/or animals use their external parts to help them survive, grow, and meet their needs. • Read texts or use media to determine patterns in behavior of parents and offspring that help offspring survive. <p>Earth & Space Science:</p> <ul style="list-style-type: none"> • Make observations to determine the effect of sunlight on Earth’s surface. • Use tools and materials to design and build a structure that will reduce the warming effect of sunlight on an area. • Use and share observations of local weather conditions to describe patterns over time. • Ask questions to obtain information about the 	<p>Life Science:</p> <ul style="list-style-type: none"> • Construct an argument that some animals form groups that help members survive. • Construct an argument with evidence that in a particular habitat some organisms can survive well, some survive less well, and some cannot survive at all. • Make a claim about the merit of a solution to a problem caused when the environment changes and the types of plants and animals that live there may change. • Develop models to describe that organisms have unique and diverse life cycles but all have in common birth, growth, reproduction, and death. • Use evidence to support the explanation that traits can be influenced by the environment. • Use evidence to construct an explanation for how the variations in characteristics among individuals of the same species may provide advantages in surviving, finding mates, and reproducing. <p>Earth & Space Science:</p> <ul style="list-style-type: none"> • Use information from several sources to provide evidence that Earth events can occur quickly or slowly. • Compare multiple solutions designed to slow or prevent wind or water from changing the shape of the land. • Develop a model to represent the shapes and kinds 	<p>Life Science:</p> <ul style="list-style-type: none"> • Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction. • Use models to describe that energy in animals’ food (used for body repair, growth, motion, and to maintain body warmth) was once energy from the sun. • Support an argument that plants get the materials they need for growth chiefly from air and water. • Develop a model to describe the movement of matter among plants, animals, decomposers, and the environment. <p>Earth & Space Science:</p> <ul style="list-style-type: none"> • Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time. • Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation. • Analyze and interpret data from maps to describe patterns of Earth’s features. • Generate and compare multiple solutions to reduce the impacts of natural Earth processes on humans. • Support an argument that the gravitational force exerted by Earth on objects is directed down • Support an argument that differences in the apparent brightness of the sun compared to other stars is due to their relative distances from Earth. • Represent data in graphical displays to reveal patterns of daily

<p style="text-align: center;"><u>Skills</u></p> <p style="text-align: center;">Students who demonstrate understanding can:</p>	<p>purpose of weather forecasting to prepare for, and respond to severe weather.</p> <ul style="list-style-type: none"> • Use observations of the sun, moon, and stars to describe patterns that can be predicted. • Make observations at different times of year to relate the amount of daylight to the time of year. <p>Physical Science:</p> <ul style="list-style-type: none"> • Plan and conduct an investigation to compare the effects of different strengths or different directions of pushes and pulls on the motion of an object. • Analyze data to determine if a design solution works as intended to change the speed or direction of an object with a push or a pull. • Plan and conduct investigations to provide evidence that vibrating materials can make sound and that sound can make materials vibrate. • Plan and conduct an investigation to determine the effect of placing objects made with different materials in the path of a beam of light. • Use tools and materials to design and build a device that uses light or sound to solve the problem of communicating over a distance. 	<p>of land and bodies of water in an area.</p> <ul style="list-style-type: none"> • Obtain information to identify where water is found on Earth and that it can be solid or liquid. • Represent data in tables and graphical displays to describe typical weather conditions expected during a particular season. • Obtain and combine information to describe climates in different regions of the world. <p>Physical Science:</p> <ul style="list-style-type: none"> • Plan and conduct an investigation to describe and classify different kinds of materials by their observable properties. • Analyze data obtained from testing different materials to determine which materials have the properties that are best suited for an intended purpose. • Construct an argument with evidence that some changes caused by heating or cooling can be reversed and some cannot • Plan and conduct an investigation to provide evidence of the effects of balanced and unbalanced forces on the motion of an object. • Make observations and/or measurements of an object's motion to provide evidence that a pattern can be used to predict future motion. • Ask questions to determine cause and effect relationships of electric or magnetic interactions between two objects not in contact with each other. • Define a simple design problem that can be solved by applying scientific ideas about magnets <p>Engineering Design:</p> <ul style="list-style-type: none"> • Ask questions, make observations, and gather information about a situation people want to change to define a simple problem that can be solved through the development of a new or improved object or tool. • Develop a simple sketch, drawing, or physical model to illustrate how the shape of an object helps it function as needed to solve a given problem. • Analyze data from tests of two objects designed to solve the same problem to compare the strengths and weaknesses of how each performs. 	<p>changes in length and direction of shadows, day and night, and the seasonal appearance of some stars in the night sky.</p> <p>Physical Science:</p> <ul style="list-style-type: none"> • Use evidence to construct an explanation relating the speed of an object to the energy of that object. • Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents. • Ask questions and predict outcomes about the changes in energy that occur when objects collide. • Apply scientific ideas to design, test, and refine a device that converts energy from one form to another • Obtain and combine information to describe that energy and fuels are derived from natural resources and their uses affect the environment. • Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move. • Generate and compare multiple solutions that use patterns to transfer information. <p>Engineering Design:</p> <ul style="list-style-type: none"> • Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost • Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem. • Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.
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<p>Area of Study:</p> <p>Social Studies</p>	<p>How did learning unfold from the beginning of humanity? What necessities and questions unlocked each new phase of human understanding? How does change – and human evolution - come about? To understand how language, history, science and mathematics unfolded is to understand how change occurs. We are used to learning subjects in isolation, but life is much more complex, and interconnected. All innovation is the result of these connections, and inquiry is the driving force of all change. Moreover, the progression of acquiring knowledge is the same process that takes place for children as their brains develop and allow them to grasp new concepts. The theme curriculum will be:</p> <ul style="list-style-type: none"> • Inquiry based • Spiral from one year to the next • Integrated to show how connections across academia happen • All will include Geography • Experiential and project based where choice and independent work demonstrates learning • Mixed aged classrooms will rotate cycles yearly 					
	<p>Kindergarten</p> <p>Cycle 1</p> <p>The Development of Life on Earth and Early Humans</p> <ul style="list-style-type: none"> •Evolution & Creation •Early life forms •Early people •Story 	<p>1st Grade</p> <p>Cycle 1</p> <p>The Development of Life on Earth and Early Humans</p> <ul style="list-style-type: none"> •Evolution & Creation •Early life forms •Early people •Story 	<p>2nd Grade</p> <p>Cycle 1</p> <p>Living in Community</p> <ul style="list-style-type: none"> •What is community? •How did power over others evolve? •Early civilizations •Mesopotamia •Egypt •Animal communities 	<p>3rd Grade</p> <p>Cycle 1</p> <p>Living in Community</p> <ul style="list-style-type: none"> •What is community? •How did power over others evolve? •Early civilizations •Mesopotamia •Egypt •Animal Communities 	<p>4th Grade</p> <p>Cycle 1</p> <p>Westward Expansion</p> <ul style="list-style-type: none"> •Colorado History •Native Americans •Immigration to North America •Pioneers 	<p>5th Grade</p> <p>Cycle 1</p> <p>Westward Expansion</p> <ul style="list-style-type: none"> •Colorado History •Native Americans •Immigration to North America •Pioneers
	<p>Cycle 2</p> <p>The Cycles of Life</p> <ul style="list-style-type: none"> •Nature’s cycles •Animals •Story 	<p>Cycle 2</p> <p>The Cycles of Life</p> <ul style="list-style-type: none"> •Nature’s cycles •Animals •Story 	<p>Cycle 2</p> <p>Global Expansion of Cultures</p> <ul style="list-style-type: none"> •Way of the Warriors - Samurai •Age of Chivalry •Early Explorers 	<p>Cycle 2</p> <p>Global Expansion of Cultures</p> <ul style="list-style-type: none"> •Way of the Warriors - Samurai •Age of Chivalry •Early Explorers 	<p>Cycle 2</p> <p>History of Law: What law do you live by?</p> <ul style="list-style-type: none"> •What is the difference between inner (moral) law and social/institutional law? •Early people – clan law •First Civilization – Mesopotamia revisited •Major religious laws – the history: •Buddhism, Judaism, Islam, Christianity •The Iroquois Confederacy •The American Revolution, Constitution & Bill of Rights 	<p>Cycle 2</p> <p>History of Law: What law do you live by?</p> <ul style="list-style-type: none"> •What is the difference between inner (moral) law and social/institutional law? •Early people – clan law •First Civilization – Mesopotamia •Major religious laws – the history: •Buddhism, Judaism, Islam, Christianity •The Iroquois Confederacy •The American Revolution, Constitution & Bill of Rights