# **Running River School Middle School 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 6-8. 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
  - o Experimentation
  - Books
  - Internet
  - o Experts
  - o 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	6 <sup>th</sup> Grade	7 <sup>th</sup> Grade	8 <sup>th</sup> Grade
	READING	READING	READING
Literacy	Key Ideas and Details  •Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.  •Determine a theme or central idea of a text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.  •Describe how a particular story's or drama's plot unfolds in a series of episodes as well as how the characters respond or change as the plot moves toward a resolution.  •Analyze in detail how a key individual, event, or idea is introduced, illustrated, and elaborated in a text.	Key Ideas and Details:  •Cite several pieces of textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.  •Determine a theme or central idea of a text and analyze its development over the course of the text; provide an objective summary of the text.  •Analyze how particular elements of a story or drama interact (e.g., how setting shapes the characters or plot).	Key Ideas and Details:  •Cite the textual evidence that most strongly supports an analysis of what the text says explicitly as well as inferences drawn from the text.  •Determine a theme or central idea of a text and analyze its development over the course of the text, including its relationship to the characters, setting, and plot; provide an objective summary of the text.  •Analyze how particular lines of dialogue or incidents in a story or drama propel the action, reveal aspects of a character, or provoke a decision.
	Craft and Structure:  •Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of a specific word choice on meaning and tone  •Analyze how a particular sentence, chapter, scene, paragraph, or stanza fits into the overall structure of a text and contributes to the development of the theme, setting, plot or idea of the text.  •Explain how an author develops the point of view of the narrator or speaker in a text.	Craft and Structure:  •Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of rhymes and other repetitions of sounds (e.g., alliteration) on a specific verse or stanza of a poem or section of a story or drama.  •Analyze the structure an author uses to organize a text (e.g., soliloquy, sonnet) and how it contributes to its meaning  •Analyze how an author develops and contrasts the points of view of different characters or narrators in a text.	Craft and Structure:  •Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of specific word choices on meaning and tone, including analogies or allusions to other texts.  •Compare and contrast the structure of two or more texts and analyze how the differing structure of each text contributes to its meaning and style.  •Analyze how differences in the points of view of the characters and the audience or reader (e.g., created through the use of dramatic irony) create such effects as suspense or humor.
	Integration of Knowledge and Ideas:  Compare and contrast the experience of reading a story, drama, or poem to listening to or viewing an audio, video, or live version of the text, including contrasting what they "see" and "hear" when reading the text to what they perceive when they listen or watch.  Compare and contrast texts in different forms or genres (e.g., stories and poems; historical novels and fantasy stories) in terms of their approaches to similar themes and topics.  Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not.	Integration of Knowledge and Ideas:  Compare and contrast a text, written story, drama, or poem to its audio, filmed, staged, or multimedia version, analyzing the effects of techniques unique to each medium (e.g., lighting, sound, color, or camera focus and angles in a film).  Compare and contrast a fictional portrayal of a time, place, or character and a historical account of the same period as a means of understanding how authors of fiction use or alter history.	Integration of Knowledge and Ideas:  •Analyze the extent to which a filmed or live production of a story or drama stays faithful to or departs from the text or script, evaluating the choices made by the director or actors.  •Analyze how a modern work of fiction draws on themes, patterns of events, or character types from myths, traditional stories, or religious works such as the Bible, including describing how the material is rendered new.
	•By the end of the year, read and comprehend literature, including stories, dramas, and poems, in the grades 6-8 text complexity band proficiently, with scaffolding as needed at the high end of the range.	Range of Reading and Level of Text Complexity:  *By the end of the year, read and comprehend literature, including stories, dramas, and poems, in the grades 6-8 text complexity band proficiently, with scaffolding as needed at the high end of the range.	Range of Reading and Level of Text Complexity:  By the end of the year, read and comprehend literature, including stories, dramas, and poems, at the high end of grades 6-8 text complexity band independently and proficiently.

## Literacy

#### WRITING

## **Text Types and Purposes:**

- •Write arguments to support claims with clear reasons and relevant evidence.
- •Introduce claim(s) and organize the reasons and evidence clearly.
- Support claim(s) with clear reasons and relevant evidence, using credible sources and demonstrating an understanding of the topic or text.
- •Use words, phrases, and clauses to clarify the relationships among claim(s) and reasons.
- •Establish and maintain a formal style.
- •Provide a concluding statement or section that follows from the argument presented.
- •Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
- •Introduce a topic; organize ideas, concepts, and information, using strategies such as definition, classification, comparison/contrast, and cause/effect; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension.
- •Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples.
- •Use appropriate transitions to clarify the relationships among ideas and concepts.
- •Use precise language and domain-specific vocabulary to inform about or explain the topic.
- Write narratives to develop real or imagined experiences or events using descriptive details, and well-structured event sequences.
- •Engage and orient the reader by establishing a context and introducing a narrator and/or characters; organize an event sequence that unfolds naturally and logically.

#### WRITING

## **Text Types and Purposes:**

- •Write arguments to support claims with clear reasons and relevant evidence.
- •Introduce claim(s), acknowledge alternate or opposing claims, and organize the reasons and evidence logically.
- •Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text.
- •Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), reasons, and evidence.
- •Establish and maintain a formal style.
- Provide a concluding statement or section that follows from and supports the argument presented.
- Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
- •Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information, using strategies such as definition, classification, comparison/contrast, and cause/effect; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension.
- •Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples.
- •Use appropriate transitions to create cohesion and clarify the relationships among ideas and concepts.
- •Use precise language and domain-specific vocabulary to inform about or explain the topic.
- Provide a concluding statement or section that follows from and supports the information or explanation presented.
- Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.
- •Engage and orient the reader by establishing a context and point of view and introducing a narrator and/or characters; organize an event sequence that unfolds naturally and logically.
- •Use narrative techniques, such as dialogue, pacing, and description, to develop experiences, events, and/or characters.
- •Use a variety of transition words, phrases, and clauses to convey sequence and signal shifts from one time frame or setting to another.
- •Use precise words and phrases, relevant descriptive details, and sensory language to capture the action and convey experiences and events.
- Provide a conclusion that follows from and reflects on the narrated experiences or events.

#### WRITING

## **Text Types and Purposes:**

- •Write arguments to support claims with clear reasons and relevant evidence.
- •Introduce claim(s), acknowledge and distinguish the claim(s) from alternate or opposing claims, and organize the reasons and evidence logically.
- •Support claim(s) with logical reasoning and relevant evidence, using accurate, credible sources and demonstrating an understanding of the topic or text.
- •Use words, phrases, and clauses to create cohesion and clarify the relationships among claim(s), counterclaims, reasons, and evidence.
- ·Establish and maintain a formal style.
- •Provide a concluding statement or section that follows from and supports the argument presented.
- •Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.
- •Introduce a topic clearly, previewing what is to follow; organize ideas, concepts, and information into broader categories; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia when useful to aiding comprehension.
- •Develop the topic with relevant, well-chosen facts, definitions, concrete details, quotations, or other information and examples.
- •Use appropriate and varied transitions to create cohesion and clarify the relationships among ideas and concepts.
- •Use precise language and domain-specific vocabulary to inform about or explain the topic.
- •Provide a concluding statement or section that follows from and supports the information or explanation presented.
- •Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.
- •Engage and orient the reader by establishing a context and point of view and introducing a narrator and/or characters; organize an event sequence that unfolds naturally and logically.
- •Use narrative techniques, such as dialogue, pacing, description, and reflection, to develop experiences, events, and/or characters.
- •Use a variety of transition words, phrases, and clauses to convey sequence, signal shifts from one time frame or setting to another, and show the relationships among experiences and events.
- •Use precise words and phrases, relevant descriptive details, and sensory language to capture the action and convey experiences and events
- •Provide a conclusion that follows from and reflects on the narrated experiences or events.

Literacy	Production and Distribution of Writing:  •With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.	Production and Distribution of Writing:  With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.  Use technology, including the Internet, to produce and publish writing and link to and cite sources as well as to interact and collaborate with others.	Production and Distribution of Writing:  •With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach, focusing on how well purpose and audience have been addressed.  •Use technology, including the Internet, to produce and publish writing and present the relationships between information and ideas efficiently as well as to interact and collaborate with others.
	Research to Build and Present Knowledge:  •Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.  •Gather relevant information from multiple print and digital sources; assess the credibility of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and providing basic bibliographic information for sources.  •Draw evidence from literary or informational texts to support analysis, reflection, and research.	Research to Build and Present Knowledge:  •Conduct short research projects to answer a question, drawing on several sources and generating additional related, focused questions for further research and investigation.  •Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.  •Draw evidence from literary or informational texts to support analysis, reflection, and research.	Research to Build and Present Knowledge:  •Conduct short research projects to answer a question (including a self-generated question), drawing on several sources and generating additional related, focused questions that allow for multiple avenues of exploration.  •Gather relevant information from multiple print and digital sources, using search terms effectively; assess the credibility and accuracy of each source; and quote or paraphrase the data and conclusions of others while avoiding plagiarism and following a standard format for citation.  •Draw evidence from literary or informational texts to support analysis, reflection, and research.
	Comprehension and Collaboration:  •Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on relevant topics, texts, and issues, building on others' ideas and expressing their own clearly.  •Come to discussions prepared, having read or studied required material; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.  •Follow rules for collegial discussions, set specific goals and deadlines, and define individual roles as needed.  •Pose and respond to specific questions with elaboration and detail by making comments that contribute to the topic, text, or issue under discussion.  •Review the key ideas expressed and demonstrate understanding of multiple perspectives through reflection and paraphrasing.  •Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.  •Delineate a speaker's argument and specific claims, distinguishing claims that are supported by reasons and evidence from claims that are not.	Comprehension and Collaboration:  •Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on relevant topics, texts, and issues, building on others' ideas and expressing their own clearly.  •Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.  •Follow rules for collegial discussions, track progress toward specific goals and deadlines, and define individual roles as needed.  •Pose questions that elicit elaboration and respond to others' questions and comments with relevant observations and ideas that bring the discussion back on topic as needed.  •Acknowledge new information expressed by others and, when warranted, modify their own views.  •Analyze the main ideas and supporting details presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how the ideas clarify a topic, text, or issue under study.  •Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and the relevance and sufficiency of the evidence.	Comprehension and Collaboration:  •Engage effectively in a range of collaborative discussions (one-onone, in groups, and teacher-led) with diverse partners on relevant topics, texts, and issues, building on others' ideas and expressing their own clearly.  •Come to discussions prepared, having read or researched material under study; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion.  •Follow rules for collegial discussions and decision-making, track progress toward specific goals and deadlines, and define individual roles as needed.  •Pose questions that connect the ideas of several speakers and respond to others' questions and comments with relevant evidence, observations, and ideas.  •Acknowledge new information expressed by others, and, when warranted, qualify or justify their own views in light of the evidence presented.  •Analyze the purpose of information presented in diverse media and formats (e.g., visually, quantitatively, orally) and evaluate the motives (e.g., social, commercial, political) behind its presentation.  •Delineate a speaker's argument and specific claims, evaluating the soundness of the reasoning and relevance and sufficiency of the evidence and identifying when irrelevant evidence is introduced.

Literacy	Presentation of Knowledge and Ideas:  •Present claims and findings, sequencing ideas logically and using pertinent descriptions, facts, and details to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciation.  •Include multimedia components (e.g., graphics, images, music, sound) and visual displays in presentations to clarify information.  •Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.	Presentation of Knowledge and Ideas:  • Present claims and findings, emphasizing salient points in a focused, coherent manner with pertinent descriptions, facts, details, and examples; use appropriate eye contact, adequate volume, and clear pronunciation.  • Include multimedia components and visual displays in presentations to clarify claims and findings and emphasize salient points.  • Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.	Presentation of Knowledge and Ideas:  •Present claims and findings, emphasizing salient points in a focused, coherent manner with relevant evidence, sound valid reasoning, and well-chosen details; use appropriate eye contact, adequate volume, and clear pronunciation.  •Integrate multimedia and visual displays into presentations to clarify information, strengthen claims and evidence, and add interest.  •Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate.
	Conventions of Standard English:  Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.  Ensure that pronouns are in the proper case (subjective, objective, possessive).  Use intensive pronouns (e.g., myself, ourselves).  Recognize and correct inappropriate shifts in pronoun number and person.  Recognize variations from standard English in their own and others' writing and speaking, and identify and use strategies to improve expression in conventional language.  Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.  Use punctuation (commas, parentheses, dashes) to set off nonrestrictive/parenthetical elements.	Conventions of Standard English:  Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.  Explain the function of phrases and clauses in general and their function in specific sentences.  Choose among simple, compound, complex, and compound-complex sentences to signal differing relationships among ideas.  Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.  Spell correctly.	Conventions of Standard English:  Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.  Explain the function of verbals (gerunds, participles, infinitives) in general and their function in particular sentences.  Form and use verbs in the active and passive voice.  Recognize and correct inappropriate shifts in verb voice and mood.  Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.  Use punctuation (comma, ellipsis, dash) to indicate a pause or break.  Spell correctly.
	*Use knowledge of language and its conventions when writing, speaking, reading, or listening.     *Vary sentence patterns for meaning, reader/listener interest, and style.     *Maintain consistency in style and tone.      *Vocabulary Acquisition and Use:      *Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.     *Use common, grade-appropriate Greek or Latin	•Use knowledge of Language:  •Use knowledge of language and its conventions when writing, speaking, reading, or listening.  •Choose language that expresses ideas precisely and concisely, recognizing and eliminating wordiness and redundancy.   Vocabulary Acquisition and Use:  •Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.  •Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word	•Use knowledge of Language:  •Use knowledge of language and its conventions when writing, speaking, reading, or listening.  •Use verbs in the active and passive voice and in the conditional and subjunctive mood to achieve particular effects (e.g., emphasizing the actor or the action; expressing uncertainty or describing a state contrary to fact).  Vocabulary Acquisition and Use:  •Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of a word or phrase.  •Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., precede, recede, secede).
	affixes and roots as clues to the meaning of a word (e.g., audience, auditory, audible).  •Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or its part of speech.	(e.g., belligerent, bellicose, rebel).  •Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or its part of speech.  •Verify the preliminary determination of the meaning of a	Consult general and specialized reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or its part of speech.      Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a

	•Verify the preliminary determination of the	word or phrase (e.g., by checking the inferred meaning in	dictionary).
Literacy	meaning of a word or phrase (e.g., by checking the	context or in a dictionary).	•Demonstrate understanding of figurative language, word
	inferred meaning in context or in a dictionary).	•Demonstrate understanding of figurative language, word	relationships, and nuances in word meanings.
	<ul> <li>Demonstrate understanding of figurative language,</li> </ul>	relationships, and nuances in word meanings.	•Interpret figures of speech (e.g. verbal irony, puns) in context.
	word relationships, and nuances in word meanings.	•Interpret figures of speech (e.g., literary, biblical, and	•Use the relationship between particular words to better understand
	•Interpret figures of speech (e.g., personification) in	mythological allusions) in context.	each of the words.
	context.	•Use the relationship between particular words (e.g.,	•Distinguish among the connotations (associations) of words with
	<ul> <li>Distinguish among the connotations (associations)</li> </ul>	synonym/antonym, analogy) to better understand each of	similar denotations (definitions) (e.g., bullheaded, willful, firm,
	of words with similar denotations (definitions)	the words.	persistent, resolute).
	(e.g., stingy, scrimping, economical, unwasteful,	•Distinguish among the connotations (associations) of	Acquire and use accurately grade-appropriate general academic
	thrifty).	words with similar denotations (definitions) (e.g., refined,	and domain-specific words and phrases; gather vocabulary
	<ul> <li>Acquire and use accurately grade-appropriate</li> </ul>	respectful, polite, diplomatic, condescending).	knowledge when considering a word or phrase important to
	general academic and domain-specific words and	Acquire and use accurately grade-appropriate general	comprehension or expression.
	phrases; gather vocabulary knowledge when	academic and domain-specific words and phrases; gather	
	considering a word or phrase important to	vocabulary knowledge when considering a word or phrase	
	comprehension or expression.	important to comprehension or expression.	

Resources and Assessments: Center for Teaching and Learning; Step Up to Writing; Donald Graves; Worldly Wise; Spelling Power; Rubrics for written projects; portfolios.

Projects: Annual RR Book Fair where every student publishes a narrative to be partially read and sold to the public; Shakespeare; all school theater production; portfolios; presenting work at parent night and parent conferences. Every year projects will be determined that will best engage learners. Some example from past years: The Hero's Cycle (Joseph Campbell); individual research projects using reading and a final product that includes a written paper; school magazine.

Content Area	Sixth Grade	Seventh Grade	Eighth Grade
Math	Skills	Skills	Skills
	<ul> <li>Ratio and Proportional Relationships</li> <li>Understand ratio concepts and use ratio reasoning to solve problems</li> <li>Make tables of equivalent ratios relating quantities with whole-number measurements, find missing values in the tables, and plot the pairs of values on the coordinate plane. Use tables to compare ratios</li> <li>Solve unit rate problems including those involving unit pricing and constant speed</li> <li>Find a percent of a quantity as a rate per 100</li> <li>Use ratio reasoning to convert measurement units</li> </ul>	Ratio and Proportional Relationships     Analyze proportional relationships and use them to solve real-world and mathematical problems     Compute unit rates associated with ratios of fractions, including ratios of lengths, areas and other quantities measured in like or different units     Recognize and represent proportional relationships between quantities     Use proportional relationships to solve multistep ratio and percent problems	<ul> <li>Functions</li> <li>Define, evaluate, and compare functions</li> <li>Use functions to model relationships between quantities</li> </ul>
	The Number System  • Perform operations with fractions and mixed numbers  • Apply and extend previous understandings of multiplication and division to divide fractions by fractions  • Compute fluently with multi-digit numbers and find common factors and multiples  • Fluently add, subtract, multiply, and divide multi-digit decimals using the standard algorithm for each operation  • Apply and extend previous understandings of numbers to the system of rational numbers  • Graph points in all four quadrants of the coordinate plane  • Find and position integers and other rational numbers	The Number System Apply and extend previous understandings of addition and subtraction to add and subtract rational numbers; represent addition and subtraction on a horizontal or vertical number line diagram Apply and extend previous understandings of multiplication and division and of fractions to multiply and divide rational numbers	The Number System  Understand informally that every number has a decimal expansion; for rational numbers show that the decimal expansion repeats eventually, and convert a decimal expansion which repeats eventually into a rational number.  Use rational approximations of irrational numbers to compare the size of irrational numbers, locate them approximately on a number line diagram, and estimate the value of expressions.

	on a horizontal or vertical number line diagram		
	Understand ordering and absolute value of rational		
	numbers  Expressions and Equations	Expressions and Equations	Expressions and Equations
	<ul> <li>Apply and extend previous understandings of arithmetic to algebraic expressions</li> <li>Write and evaluate numerical expressions involving whole-number exponents</li> <li>Write, read, and evaluate expressions in which letters stand for numbers</li> <li>Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity</li> <li>Use order of operations when solving problems</li> <li>Apply the properties of operations (like the distributive property) to generate equivalent expressions</li> <li>Identify when two expressions are equivalent</li> <li>Reason about and solve one-variable equations and inequalities</li> <li>Represent and analyze quantitative relationships</li> </ul>	<ul> <li>Apply properties of operations as strategies to add, subtract, factor, and expand linear expressions with rational coefficients</li> <li>Solve multi-step real-life and mathematical problems posed with positive and negative rational numbers in any form (whole numbers, fractions, and decimals), using tools strategically. Apply properties of operations to calculate with numbers in any form; convert between forms as appropriate; and assess the reasonableness of answers using mental computation and estimation strategies</li> <li>Use variables to represent quantities in a real-world or mathematical problem, and construct simple equations and inequalities to solve problems by reasoning about the quantities</li> </ul>	<ul> <li>Know and apply the properties of integer exponents to generate equivalent numerical expressions</li> <li>Use square root and cube root symbols to represent solutions to equations</li> <li>Use numbers expressed in the form of a single digit times an integer power of 10 to estimate very large or very small quantities, and to express how many times as much one is than the other</li> <li>Perform operations with numbers expressed in scientific notation</li> <li>Understand the connections between proportional relationships, lines, and linear equations</li> <li>Analyze and solve linear equations and pairs of simultaneous linear equations</li> </ul>
	between dependent and independent variables		
Math	Solve real-world and mathematical problems involving area, surface area, and volume Find the area of right triangles, other triangles, special quadrilaterals, and polygons Find the volume of a right rectangular prism with fractional edge lengths Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures	<ul> <li>Geometry</li> <li>Draw, construct, and describe geometrical figures and describe the relationships between them.</li> <li>Solve problems involving scale drawings of geometric figures</li> <li>Draw geometric shapes with given conditions</li> <li>Describe the two-dimensional figures that result from slicing three-dimensional figures</li> <li>Solve real-life and mathematical problems involving angle measure, area, surface area, and volume</li> <li>Know the formulas for the area and circumference of a circle and use them to solve problems</li> <li>Use facts about supplementary, complementary, vertical, and adjacent angles in a multi-step problem to write and solve simple equations for an unknown angle in a figure</li> </ul>	<ul> <li>Geometry</li> <li>Understand congruence and similarity using physical models or transparencies</li> <li>Verify experimentally the properties of rotations, reflections, and translations</li> <li>Describe the effect of dilations, translations, rotations, and reflections on two-dimensional figures using coordinates</li> <li>Use informal arguments to establish facts about the angle sum and exterior angle of triangles, about the angles created when parallel lines are cut by a transversal, and the angle-angle criterion for similarity of triangles</li> <li>Understand and apply the Pythagorean Theorem</li> <li>Know the formulas for the volumes of cones, cylinders, and spheres and use them to solve real-world and mathematical problems</li> </ul>
	Probability and Statistics	Probability and Statistics	Probability and Statistics
	<ul> <li>Develop understanding of statistical variability</li> <li>Recognize a statistical question as one that anticipates variability in the data related to the question and accounts for it in the answers</li> <li>Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.</li> <li>Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number</li> <li>Summarize and describe distributions</li> <li>Display numerical data in plots on a number line,</li> </ul>	<ul> <li>Use random sampling to draw inferences about a population</li> <li>Draw informal comparative inferences about two populations</li> <li>Investigate chance processes and develop, use, and evaluate probability models</li> <li>Understand that the probability of a chance event is a number between 0 and 1 that expresses the likelihood of the event occurring</li> <li>Find probabilities of compound events using organized lists, tables, tree diagrams, and simulation</li> </ul>	<ul> <li>Investigate patterns of association in bivariate data</li> <li>Construct and interpret scatter plots</li> <li>Estimating lines of fit</li> <li>Construct and interpret a two-way table summarizing data on two categorical variables collected from the same subjects. Use relative frequencies calculated for rows or columns to describe possible association between the two variables</li> </ul>

including dot plots, histograms, and box plots

Resources and Assessments: Common Core; Everyday Mathematics; Bridges Mathematics; Khan Academy, Math in Focus

## Middle School (6-8) 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	6 <sup>th</sup> Grade	7 <sup>th</sup> Grade	8 <sup>th</sup> Grade
Units of Study	Life Science: • Interdependent Relationships in Ecosystems: Habitat Study  Earth & Space Science: • Space Systems: Earth's Place, Scale, and Space Exploration  Physical Science: • Structure and Properties of Matter: Atoms and Elements  Engineering Design: • Planning, Testing, and Creating Design Solutions	Life Science:  • Natural Selection and Adaptations: Classification  Earth & Space Science:  • History of the Earth  Physical Science:  • Chemical Reactions  Engineering Design:  • Planning, Testing, and Creating Design Solutions	Life Science:  • Growth, Development, and Reproduction of Organisms  Earth & Space Science:  • Human Impacts: Climate Change  Physical Science:  • Forces and Interactions: Newton's Laws of Motion  Engineering Design:  • Planning, Testing, and Creating Design Solutions
Skills  Students who demonstrate understanding can:	Life Science: Construct an explanation that predicts patterns of interactions among organisms across multiple ecosystems. Evaluate competing design solutions for maintaining biodiversity and ecosystem services. Earth & Space Science: Develop and use a model of the Earth-sun-moon system to describe the cyclic patterns of lunar phases, eclipses of the sun and moon, and seasons. Develop and use a model to describe the role of gravity in the motions within galaxies and the solar system. Analyze and interpret data to determine scale properties of objects in the solar system. Physical Science: Develop models to describe the atomic composition of simple molecules and extended structures Gather and make sense of information to describe that synthetic materials come from natural resources and impact society. Develop a model that predicts and describes changes in particle motion, temperature, and state of a pure substance when thermal energy is added or removed.	Life Science: Apply scientific ideas to construct an explanation for the anatomical similarities and differences among modern organisms and between modern and fossil organisms to infer evolutionary relationships. Construct an explanation based on evidence that describes how genetic variations of traits in a population increase some individuals' probability of surviving and reproducing in a specific environment.  Use mathematical representations to support explanations of how natural selection may lead to increases and decreases of specific traits in populations over time.  Earth & Space Science: Construct a scientific explanation based on evidence from rock strata for how the geologic time scale is used to organize Earth's 4.6-billion-year-old history. Construct an explanation based on evidence for how geoscience processes have changed Earth's surface at varying time and spatial scales. Analyze and interpret data on the distribution of fossils and rocks, continental shapes, and seafloor structures to provide evidence of the past plate motions.  Physical Science:	Life Science:  Construct a scientific explanation based on evidence for how environmental and genetic factors influence the growth of organisms.  Develop and use a model to describe why asexual reproduction results in offspring with identical genetic information and sexual reproduction results in offspring with genetic variation.  Gather and synthesize information about the technologies that have changed the way humans influence the inheritance of desired traits in organisms.  Earth & Space Science:  Analyze and interpret data on natural hazards to forecast future catastrophic events and inform the development of technologies to mitigate their effects.  Apply scientific principles to design a method for monitoring and minimizing a human impact on the environment.  Construct an argument supported by evidence for how increases in human population and per-capita consumption of natural resources impact Earth's systems.  Physical Science:  Apply Newton's Third Law to design a solution to a problem involving the motion of two colliding objects.  Plan an investigation to provide evidence that the change in an object's motion depends on the sum of the forces on the object

Engineering Design:	Analyze and interpret data on the properties of	and the mass of the object.
• Define the criteria and constraints of a design problem	substances before and after the substances interact to	Ask questions about data to determine the factors that affect the
with sufficient precision to ensure a successful solution,	determine if a chemical reaction has occurred.	strength of electric and magnetic forces.
taking into account relevant scientific principles and	Develop and use a model to describe how the total	Engineering Design:
potential impacts on people and the natural environment	number of atoms does not change in a chemical reaction	(Same as 6 <sup>th</sup> Grade.)
that may limit possible solutions.	and thus mass is conserved.	
• Evaluate competing design solutions using a	Engineering Design:	
systematic process to determine how well they meet the	(Same as 6 <sup>th</sup> Grade.)	
criteria and constraints of the problem.		
<ul> <li>Analyze data from tests to determine similarities and</li> </ul>		
differences among several design solutions to identify		
the best characteristics of each that can be combined		
into a new solution to better meet the criteria for		
success.		

Area of Study:	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		
Social Studies	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:  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 over a 3 year period		
	6 <sup>th</sup> Grade	7 <sup>th</sup> Grade	8 <sup>th</sup> Grade
	History of Change  How does change effect all aspects of life?  How do people make change happen?  Are we in a period of change now?  Civil War  Industrial Revolution	History of Government What is a government?  What are the major governmental systems in the world and how did they evolve?  How should a government serve people?  What would utopia look like?  What is war? WW I & II  Movements for peace and non-violence: Ghandi, MLK	A year long study of Current Events:  How do we listen to the news and what are the different sources of information?  A study of advertising, propaganda and media  What is happening around the world and where do we place our attention?  Historical trends: what lessons can we learn (based on previous learning)?  Service: how can we help?