



West Virginia

College & Career Readiness Standard

Resource Booklet for
English Language Arts &
Mathematics

Grades 3-5

Based on WVBE Policies 2520.1A & 2520.2B

Effective July 1, 2016



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Foreword

Dear West Virginia Educators,

As we move forward with the rollout of West Virginia's College- and Career-Readiness Standards for English Language Arts and Mathematics (West Virginia Board of Education Policies 2520.1A and 2520.2B, respectively), I am excited to share this standards-focused resource booklet with you. In this booklet you will find:

- Applicable West Virginia College- and Career-Readiness Standards for English Language Arts and/or Mathematics (effective July 1, 2016) for your grade/content area;
- Sample letters by grade level for families regarding the West Virginia College- and Career-Readiness Standards;
- Progression documents for English Language Arts and/or Mathematics; and
- The state-adopted definition of College and Career Readiness for West Virginia.

I know our goal of ensuring all West Virginia students graduate from high school with the skills, knowledge and dispositions to be considered truly college and career ready can become a reality if we focus on the development and success of all students. It is my sincere hope that you will utilize the resources found within this document to tailor your instruction and curricula to meet the needs of all the students you serve.

Last, I would like to thank you for your dedication to the lives and well-being of the students of our great state. I am humbled by the amazing work you do each day to ensure all students are college and career ready.

Sincerely,



Steven L. Paine, Ed.D
State Superintendent of Schools



College- and Career-Readiness in West Virginia

West Virginia's College- and Career-Readiness Standards have been developed with the goal of preparing students for a wide range of high-quality post-secondary opportunities. Specifically, college- and career-readiness refers to the knowledge, skills, and dispositions needed to be successful in higher education and/or training that lead to gainful employment. The West Virginia College- and Career-Readiness Standards establish a set of knowledge and skills that all individuals need to transition into higher education or the workplace, as both realms share many expectations. All students throughout their educational experience, should develop a full understanding of the career opportunities available, the education necessary to be successful in their chosen pathway, and a plan to attain their goals.

College- and Career-Readiness in the English Language Arts Content Area

West Virginia's College- and Career-Readiness Standards for English Language Arts promote proficiency in reading a range of material, fluency in writing in several modes, adaptability in verbal and written communication, and integrity in responsible collaboration with peers. Students will develop problem solving and critical thinking skills independently and collaboratively as they engage in the four domains of reading, writing, speaking/listening, and language. College- and career-readiness is supported in English language arts as students acquire and further develop their abilities to be critical consumers of what they read or hear and informed sources when they write or speak.

The West Virginia College- and Career-Readiness Standards are the result of a statewide public review of the state's educational standards. The West Virginia Department of Education (hereinafter WVDE), West Virginia Board of Education (hereinafter WVBE), and West Virginia University partnered in this initiative that began with a website, Academic Spotlight, which served as the platform for feedback collection. This website was active July through September of 2015. After the comment period closed, comments were evaluated by a team of diverse stakeholders, who made recommendations to WVBE based on the comments to meet the needs of West Virginia students. Additionally, during the month of September 2015, eight universities around the state hosted town hall meetings where citizens could pose questions about the standards to a panel of teachers, administrators, and representatives from higher education. The West Virginia College- and Career-Readiness Standards reflect the improvements brought to light by these two methods of public input.



Text Complexity Expectations

Grade Band	Lexile Range
K-1	N/A
2-3	420-820L
4-5	740-1010L
6-8	926-1185L
9-10	1050-1335L
11-12	1185-1385L

Distribution of Text Types*

Grade Band	Literary	Informational
K-5	50%	50%
6-8	45%	55%
9-12	30%	70%

Distribution of Writing Types*

Grade Band	Argumentative	Informative	Narrative
K-5	30%	35%	35%
6-8	35%	35%	30%
9-12	40%	40%	20%

**The percentages shown above should be met over the course of the entire instructional day and by the end of the programmatic level.*



Explanation of Terms

Domains are the broad components that make up a content area; e.g., reading, writing, speaking/ listening, and language make up the English language arts content area.

- Language** Students will learn and apply the standard rules of written and spoken English while approaching language as a matter of craft and informed choice among alternatives to communicate. Students will understand words and phrases, their relationships, and their nuances and acquire new vocabulary, particularly general academic and domain-specific words and phrases.
- Reading** The development of proficient reading skills is critical for mastering academic content. Students must show a steadily growing ability to discern more from and make fuller use of text. This includes making an increasing number of connections among ideas and between texts, considering a wider range of textual evidence and becoming more sensitive to inconsistencies, ambiguities, and poor reasoning in text. In order to build the foundations of reading, students will master the essential components of reading (i.e., fluency, phonics and word recognition, phonological awareness, and print concepts). Students will gain exposure to a range of texts and tasks. Rigor is also infused through the requirement that students read increasingly complex texts through the grades. Students advancing through the grades are expected to meet each year's grade-specific standards and retain or further develop skills and understandings mastered in preceding grades.
- Speaking/ Listening** Students will be required to communicate ideas clearly and efficiently, including but not limited to formal presentation. They will use oral communication and interpersonal skills as they work together. They will need to be able to express and listen carefully to ideas, integrate information from oral, visual, quantitative and media sources, evaluate what they hear, use media and visual displays strategically to help achieve communicative purposes, and adapt speech to context and task.
- Writing** Students will apply writing skills and strategies to communicate effectively for different purposes using specific writing types. They will use the writing process by appropriately applying the organization of ideas, development of main ideas and supporting details, varied sentence structure, word choice, and mechanics. Using a variety of literary and informational texts, print sources and media sources, students will select, organize, and evaluate for research purposes.

Clusters are groups of standards that define the expectations students must demonstrate to be college- and career-ready.

Standards are the expectations for what students should know, understand, and be able to do; standards represent educational goals.

Numbering of Standards

The numbering for each standard is composed of three parts, each part separated by a period:

- the content area code (e.g., ELA for English language arts),
- the grade level, and
- the standard.

Illustration: ELA.3.1 refers to English language arts, grade 3, standard 1.



West Virginia College- and Career-Readiness English Language Arts – Grade 3

All West Virginia teachers are responsible for classroom instruction that integrates content standards, learning skills, and technology tools. Students in third grade will continue enhancing skills in a developmentally-appropriate progression of standards. Following the skill progressions from second grade, the following chart represents the components of literacy that will be developed in the reading, writing, speaking/listening, and language domains in third grade:

Early Learning Foundations	
<ul style="list-style-type: none"> • Read with accuracy, appropriate rate, and expression. • Use word analysis skills and phonics to decode words. • Begin cursive writing. 	
Reading	Writing
<ul style="list-style-type: none"> • Read closely to find main ideas and supporting details in a story. • Describe the logical connection between particular sentences and paragraphs in stories (e.g., first, second, and third; cause and effect). • Compare the most important points and key details presented in two books on the same topic. 	<ul style="list-style-type: none"> • Write opinions or explanations that group related information and develop topics with facts and details. • Write stories that establish a situation and include details and clear sequences of events that describe the actions, thoughts, and feelings of characters. • Independently conduct short research projects that build knowledge about various topics.
Speaking/Listening	Language
<ul style="list-style-type: none"> • Paraphrase and respond to information presented in discussions, such as comparing and contrasting ideas and analyzing evidence that speakers use to support particular points. • Report orally on a topic or telling a story with enough facts and details. 	<ul style="list-style-type: none"> • Write complete sentences with correct capitalization and spelling. • Relate words that are common in reading to words with similar meanings (synonyms) and to their opposites (antonyms).

Grades 2-3 Specifications

In grades 2-3, students should be exposed to texts that fall in the 420-820 Lexile range in order to meet college- and career-readiness expectations. By the end of the programmatic level (grade 3) and over the course of the entire instructional day, the distribution of text types should include 50% literary and 50% informational, and writing types should be 30% argumentative, 35% informative, and 35% narrative.



Numbering of Standards

The following English language arts standards are numbered continuously. The ranges in the chart below relate to the clusters found within the English language arts domains:

Early Learning Foundations	
Fluency	Foundation I
Phonics and Word Recognition	Foundation II
Handwriting	Foundation III
Reading	
Key Ideas and Details	Standards 1-6
Craft and Structure	Standards 7-12
Integration of Knowledge and Ideas	Standards 13-17
Range of Reading and Text Complexity	Standards 18-19
Writing	
Text Types and Purposes	Standards 20-22
Production and Distribution of Writing	Standards 23-25
Research to Build and Present Knowledge	Standards 26-28
Range of Writing	Standard 29
Speaking & Listening	
Comprehension and Collaboration	Standards 30-32
Presentation of Knowledge and Ideas	Standards 33-35
Language	
Conventions of Standard English	Standards 36-37
Knowledge of Language	Standard 38
Vocabulary Acquisition and Use	Standards 39-41

Early Learning Foundations

Cluster	Fluency
ELA.3.I	Read with sufficient accuracy and fluency to support comprehension. <ul style="list-style-type: none"> • Read on-level text with purpose and understanding. • Read on-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings. • Use context to confirm or self-correct word recognition and understanding, rereading as necessary.
Cluster	Phonics and Word Recognition
ELA.3.II	Know and apply grade-level phonics and word analysis skills in decoding words. <ul style="list-style-type: none"> • Identify and know the meaning of the most common prefixes and derivational suffixes. • Decode words with common Latin suffixes. • Decode multi-syllable words. • Read grade-appropriate irregularly spelled words.



Cluster	Handwriting
ELA.3.III	Write legibly in cursive or joined italics, allowing margins and correct spacing between letters in a word and words in a sentence.

Reading

Cluster	Key Ideas and Details
ELA.3.1	Ask and answer questions to demonstrate understanding of a literary text, referring explicitly to the text as the basis for the answers.
ELA.3.2	Recount stories, including fables, folktales, and myths from diverse cultures; determine the central message, lesson, or moral and explain how it is conveyed through key details in the literary text.
ELA.3.3	Describe characters in a literary story (e.g., their traits, motivations, or feelings) and explain how their actions contribute to the sequence of events.
ELA.3.4	Ask and answer questions to demonstrate understanding of an informational text, referring explicitly to the text as the basis for the answers.
ELA.3.5	Determine the main idea of an informational text; recount the key details and explain how they support the main idea.
ELA.3.6	Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in an informational text, using language that pertains to time, sequence, and cause/effect.

Cluster	Craft and Structure
ELA.3.7	Determine the meaning of words and phrases as they are used in a literary text, distinguishing literal from nonliteral language.
ELA.3.8	Refer to parts of stories, dramas, and poems when writing or speaking about a literary text, using terms such as chapter, scene, and stanza; describe how each successive part builds on earlier sections.
ELA.3.9	Distinguish one's point of view from that of the narrator or those of the characters in a literary text.
ELA.3.10	Determine the meaning of general academic and domain-specific words and phrases in an informational text relevant to a grade 3 topic or subject area.
ELA.3.11	Use informational text features and search tools (e.g., key words, sidebars, and hyperlinks) to locate information relevant to a given topic efficiently
ELA.3.12	Distinguish one's own point of view from that of the author of an informational text.

Cluster	Integration of Knowledge and Ideas
ELA.3.13	Explain how specific aspects of a literary text's illustrations contribute to what is conveyed by the words in a story (e.g., create mood or emphasize aspects of a character or setting).
ELA.3.14	Compare and contrast the themes, settings, and plots of literary stories written by the same author about the same or similar characters (e.g., in books from a series).
ELA.3.15	Use information gained from illustrations (e.g., maps or photographs) and the words in an informational text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).



ELA.3.16	Describe the logical connection between particular sentences and paragraphs in an informational text (e.g., comparison, cause/effect, or first/second/third in a sequence).
ELA.3.17	Compare and contrast the most important points and key details presented in two informational texts on the same topic.

Cluster	Range of Reading and Text Complexity
ELA.3.18	By the end of the year, read and comprehend literature, including stories, dramas and poetry, at the high end of the grades 2–3 text complexity range independently and proficiently.
ELA.3.19	By the end of the year, read and comprehend informational texts, including social studies, science, and technical texts, at the high end of the grades 2–3 text complexity range independently and proficiently.

Writing

Cluster	Text Types and Purposes
ELA.3.20	Write opinion pieces on topics or texts, supporting a point of view with reasons. <ul style="list-style-type: none"> • Introduce the topic or text being discussed, state an opinion, and create an organizational structure that lists reasons. • Provide reasons that support the opinion. • Use linking words and phrases (e.g., because, therefore, since, or for example) to connect opinion and reasons. • Provide a concluding statement or section.
ELA.3.21	Write informative/explanatory texts to examine a topic and convey ideas and information clearly. <ul style="list-style-type: none"> • Introduce a topic and group related information together; include illustrations when useful to aid comprehension. • Develop the topic with facts, definitions, and details. • Use linking words and phrases (e.g., also, another, and, more, or but) to connect ideas within categories of information. • Provide a concluding statement or section.
ELA.3.22	Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences. <ul style="list-style-type: none"> • Establish a situation and introduce a narrator and/or characters; organize an event sequence that unfolds naturally. • Use dialogue and descriptions of actions, thoughts, and feelings to develop experiences and events or show the response of characters to situations. • Use transitional words and phrases to signal event order. • Provide a sense of closure.

Cluster	Production and Distribution of Writing
ELA.3.23	With guidance and support from adults, produce writing in which the development and organization are appropriate to task and purpose. (Grade-specific expectations for writing types are defined in Text Types and Purposes.)
ELA.3.24	With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing. (Editing for conventions should demonstrate command of Language standards up to and including grade 3).



ELA.3.25	With guidance and support from adults, use technology to produce and publish writing (using keyboarding skills) as well as to interact and collaborate with others.
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Cluster	Research to Build and Present Knowledge
ELA.3.26	Conduct short research projects that build knowledge about a topic.
ELA.3.27	Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.
ELA.3.28	(Begins in grade 4.)

Cluster	Range of Writing
ELA.3.29	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Speaking & Listening

Cluster	Comprehension and Collaboration
ELA.3.30	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing ideas clearly. <ul style="list-style-type: none"> • Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion. • Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, and speaking one at a time about the topics and texts under discussion). • Ask questions to check understanding of information presented, stay on topic, and link comments to the remarks of others. • Explain ideas and understanding in light of the discussion.
ELA.3.31	Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
ELA.3.32	Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.

Cluster	Presentation of Knowledge and Ideas
ELA.3.33	Report on a topic or text; tell a story or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly and coherently.
ELA.3.34	Create engaging audio recordings of stories or poems that demonstrate fluid reading at an understandable pace; add visual displays when appropriate to emphasize or enhance certain facts or details.
ELA.3.35	Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification.



Language

Cluster	Conventions of Standard English
ELA.3.36	<p>Demonstrate command of the conventions of Standard English grammar and usage when writing or speaking.</p> <ul style="list-style-type: none"> • Explain the function of nouns, pronouns, verbs, adjectives, and adverbs in general and their functions in particular sentences. • Form and use regular and irregular plural nouns. • Use abstract nouns (e.g., childhood). • Form and use regular and irregular verbs. • Form and use the simple (e.g., I walked; I walk; I will walk) verb tenses. • Ensure subject-verb and pronoun-antecedent agreement. • Form and use comparative and superlative adjectives and adverbs, and choose between them depending on what is to be modified. • Use coordinating and subordinating conjunctions. • Produce simple, compound, and complex sentences.
ELA.3.37	<p>Demonstrate command of the conventions of Standard English capitalization, punctuation, and spelling when writing.</p> <ul style="list-style-type: none"> • Capitalize appropriate words in titles. • Use commas in addresses. • Use commas and quotation marks in dialogue. • Form and use possessives. • Use conventional spelling for high-frequency and other studied words and for adding suffixes to base words (e.g., sitting, smiled, cries, or happiness). • Use spelling patterns and generalizations (e.g., word families, position-based spellings, syllable patterns, ending rules, and meaningful word parts) in writing words. • Consult reference materials, including beginning dictionaries, as needed to check and correct spellings.
Cluster	Knowledge of Language
ELA.3.38	<p>Use knowledge of language and its conventions when writing, speaking, reading, or listening.</p> <ul style="list-style-type: none"> • Choose words and phrases for effect. • Recognize and observe differences between the conventions of spoken and written Standard English.
Cluster	Vocabulary Acquisition and Use
ELA.3.39	<p>Determine or clarify the meaning of unknown and multiple-meaning word and phrases based on grade 3 reading and content, choosing flexibly from a range of strategies.</p> <ul style="list-style-type: none"> • Use sentence-level context as a clue to the meaning of a word or phrase. • Determine the meaning of the new word formed when a known affix is added to a known word (e.g., agreeable/disagreeable, comfortable/uncomfortable, care/careless, and heat/preheat). • Use a known root word as a clue to the meaning of an unknown word with the same root (e.g., company and companion). • Use glossaries or beginning dictionaries, both print and digital, to determine or clarify the precise meaning of key words and phrases.



ELA.3.40	<p>Demonstrate understanding of word relationships and nuances in word meanings.</p> <ul style="list-style-type: none"> • Distinguish the literal and nonliteral meanings of words and phrases in context (e.g., take steps). • Identify real-life connections between words and their use (e.g., describe people who are friendly or helpful). • Distinguish shades of meaning among related words that describe states of mind or degrees of certainty (e.g., knew, believed, suspected, heard, and wondered).
ELA.3.41	<p>Acquire and accurately use grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and transitional relationships (e.g., after dinner that night we went looking for them).</p>



West Virginia College- and Career-Readiness English Language Arts – Grade 4

All West Virginia teachers are responsible for classroom instruction that integrates content standards, learning skills, and technology tools. Students in fourth grade will continue enhancing skills in a developmentally-appropriate progression of standards. Following the skill progressions from third grade, the following chart represents the components of literacy that will be developed in the reading, writing, speaking/listening, and language domains in fourth grade:

Early Learning Foundations	
<ul style="list-style-type: none"> • Read with accuracy, appropriate rate, and expression. • Use word analysis skills and phonics to decode words. • Write in cursive. 	
Reading	Writing
<ul style="list-style-type: none"> • Describe the basic elements of stories — such as characters, events, and settings — by drawing on specific details in the text. • Pay close attention to key features of informational books and articles. These include understanding the main and supporting ideas; being able to compare and contrast information; and explaining how the author uses facts, details, and evidence to support particular points. • Compare ideas, characters, events, and settings in stories and myths from different cultures. 	<ul style="list-style-type: none"> • Write summaries or opinions about topics supported with a set of well-organized facts, details, and examples. • Independently conduct short research projects on different aspects of a topic using evidence from books and the Internet.
Speaking/Listening	Language
<ul style="list-style-type: none"> • Paraphrase and respond to information presented in discussions, such as comparing and contrasting ideas and analyzing evidence that speakers use to support particular points. • Report orally on a topic or telling a story with enough facts and details. 	<ul style="list-style-type: none"> • Write complete sentences with correct capitalization and spelling. • Relate words that are common in reading to words with similar meanings (synonyms) and to their opposites (antonyms).

Grades 4-5 Specifications

In grades 4-5, students should be exposed to texts that fall in the 740-1010 Lexile range in order to meet college- and career-readiness expectations. By the end of the programmatic level (grade 5) and over the course of the entire instructional day, the distribution of text types should include 50% literary and 50% informational, and writing types should be 30% argumentative, 35% informative, and 35% narrative.



Numbering of Standards

The following English language arts standards are numbered continuously. The ranges in the chart below relate to the clusters found within the English language arts domains:

Early Learning Foundations	
Fluency	Foundation I
Phonics and Word Recognition	Foundation II
Handwriting	Foundation III
Reading	
Key Ideas and Details	Standards 1-6
Craft and Structure	Standards 7-12
Integration of Knowledge and Ideas	Standards 13-17
Range of Reading and Text Complexity	Standards 18-19
Writing	
Text Types and Purposes	Standards 20-22
Production and Distribution of Writing	Standards 23-25
Research to Build and Present Knowledge	Standards 26-28
Range of Writing	Standard 29
Speaking & Listening	
Comprehension and Collaboration	Standards 30-32
Presentation of Knowledge and Ideas	Standards 33-35
Language	
Conventions of Standard English	Standards 36-37
Knowledge of Language	Standard 38
Vocabulary Acquisition and Use	Standards 39-41

Early Learning Foundations

Cluster	Fluency
ELA.4.I	Read with sufficient accuracy and fluency to support comprehension. <ul style="list-style-type: none"> • Read on-level text with purpose and understanding. • Read on-level prose and poetry orally with accuracy, appropriate rate, and expression. • Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

Cluster	Phonics and Word Recognition
ELA.4.II	Know and apply grade-level phonics and word analysis skills in decoding words. <ul style="list-style-type: none"> • Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.



Cluster	Handwriting
ELA.4.III	Write fluidly and legibly in cursive or joined italics.

Reading

Cluster	Key Ideas and Details
ELA.4.1	Refer to details and examples in a literary text when explaining what the text says explicitly and when drawing inferences from the text.
ELA.4.2	Determine a theme of a story, drama, or poem from details in the literary text; summarize the text.
ELA.4.3	Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the literary text (e.g., a character’s thoughts, words, or actions).
ELA.4.4	Refer to details and examples in an informational text when explaining what the text says explicitly and when drawing inferences from the text.
ELA.4.5	Determine the main idea of an informational text and explain how it is supported by key details; summarize the text.
ELA.4.6	Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the informational text.

Cluster	Craft and Structure
ELA.4.7	Determine the meaning of words and phrases as they are used in a literary text, including words that allude to significant characters such as those found in mythology (e.g., herculean).
ELA.4.8	Explain major differences between poems, drama, and prose; refer to the structural elements of poems (e.g., verse, rhythm, and meter) and drama (e.g., casts of characters, settings, descriptions, dialogue, and stage directions) when writing or speaking about a literary text.
ELA.4.9	Compare and contrast the point of view from which different literary texts are narrated, including the difference between first- and third-person narrations.
ELA.4.10	Determine the meaning of general academic and domain-specific words or phrases in an informational text relevant to a grade 4 topic or subject area.
ELA.4.11	Describe the overall structure (e.g., chronology, comparison, cause/effect, or problem/solution) of events, ideas, concepts, or information in all or part of an informational text.
ELA.4.12	Compare and contrast a firsthand and secondhand account of the same event or topic; describe the differences in the focus and information provided in these informational texts.

Cluster	Integration of Knowledge and Ideas
ELA.4.13	Make connections between the text of a story or drama and a visual or oral presentation of the literary text, identifying where specific descriptions and directions in the text are reflected in the visual or oral presentation.
ELA.4.14	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, traditional literature, and literary text from different cultures.



ELA.4.15	Interpret information presented visually orally or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on web pages) and explain how the information contributes to an understanding of the informational text in which it appears.
ELA.4.16	Explain how an author uses reasons and evidence to support particular points in an informational text.
ELA.4.17	Integrate information from two informational texts on the same topic in order to write or speak about the subject knowledgeably.

Cluster	Range of Reading and Text Complexity
ELA.4.18	By the end of the year read and comprehend literature, including stories, dramas, and poetry, in the grades 4–5 text complexity range proficiently, with scaffolding as needed at the high end of the range.
ELA.4.19	By the end of the year read and comprehend informational texts, including social studies, science and technical texts, in the grades 4–5 text complexity range proficiently, with scaffolding as needed at the high end of the range.

Writing

Cluster	Text Types and Purposes
ELA.4.20	<p>Write opinion pieces on topics or texts, supporting a point of view with reasons and information.</p> <ul style="list-style-type: none"> • Introduce a topic or text clearly, state an opinion, and create an organizational structure in which related ideas are grouped to support the writer’s purpose. • Provide reasons that are supported by facts and details. • Link opinion and reasons using words and phrases (e.g., for instance, in order to, or in addition). • Provide a concluding statement or section related to the opinion presented.
ELA.4.21	<p>Write informative/explanatory texts to examine a topic and convey ideas and information clearly.</p> <ul style="list-style-type: none"> • Introduce a topic clearly and group related information in paragraphs and sections; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension. • Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic. • Link ideas within categories of information using words and phrases (e.g., another, for example, also, or because). • Use precise language and domain-specific vocabulary to inform about or explain the topic. • Provide a concluding statement or section related to the information or explanation presented.



ELA.4.22	<p>Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.</p> <ul style="list-style-type: none"> • Orient the reader by establishing a situation and introducing a narrator and/or characters; organize an event sequence that unfolds naturally. • Use dialogue and description to develop experiences and events or show the responses of characters to situations. • Use a variety of transitional words and phrases to manage the sequence of events. • Use concrete words and phrases and sensory details to convey experiences and events precisely. • Provide a conclusion that follows from the narrated experiences or events.
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Cluster	Production and Distribution of Writing
ELA.4.23	Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Text Types and Purposes.)
ELA.4.24	With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing. (Editing for conventions should demonstrate command of Language standards up to and including grade 4.)
ELA.4.25	With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills.

Cluster	Research to Build and Present Knowledge
ELA.4.26	Conduct short research projects that build knowledge through investigation of different aspects of a topic.
ELA.4.27	Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information and provide a list of sources.
ELA.4.28	<p>Draw evidence from literary or informational texts to support analysis, reflection, and research.</p> <ul style="list-style-type: none"> • Apply grade 4 Reading standards to literature (e.g., “describe in depth a character, setting or event in a story or drama, drawing on specific details in the text [e.g., a character’s thoughts, words, or actions].”). • Apply grade 4 Reading standards to informational texts (e.g., “explain how an author uses reasons and evidence to support particular points in a text.”).

Cluster	Range of Writing
ELA.4.29	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.



Speaking & Listening

Cluster	Comprehension and Collaboration
ELA.4.30	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing ideas clearly. <ul style="list-style-type: none"> • Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion. • Follow agreed-upon rules for discussions and carry out assigned roles. • Pose and respond to specific questions to clarify or follow up on information and make comments that contribute to the discussion and link to the remarks of others. • Review the key ideas expressed and explain ideas and understanding in light of the discussion.
ELA.4.31	Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
ELA.4.32	Identify the reasons and evidence a speaker provides to support particular points.

Cluster	Presentation of Knowledge and Ideas
ELA.4.33	Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.
ELA.4.34	Add audio recordings and visual displays to presentations when appropriate to enhance the development of main ideas or themes.
ELA.4.35	Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion); use formal English when appropriate to task and situation. (See grade 4 Language standards for specific expectations.)

Language

Cluster	Conventions of Standard English
ELA.4.36	Demonstrate command of the conventions of Standard English grammar and usage when writing or speaking. <ul style="list-style-type: none"> • Use relative pronouns (who, whose, whom, which, or that) and relative adverbs (where, when, or why,). • Form and use the progressive (e.g., I was walking; I am walking; I will be walking) verb tenses. • Use modal auxiliaries (e.g., can, may, or must) to convey various conditions. • Order adjectives within sentences according to conventional patterns (e.g., a small red bag rather than a red small bag). • Form and use prepositional phrases. • Produce complete sentences, recognizing and correcting inappropriate fragments and run-ons. • Correctly use frequently confused words (e.g., to, too, and two; there and their).



ELA.4.37	<p>Demonstrate command of the conventions of Standard English capitalization, punctuation, and spelling when writing.</p> <ul style="list-style-type: none"> • Use correct capitalization. • Use commas and quotation marks to mark direct speech and quotations from a text. • Use a comma before a coordinating conjunction in a compound sentence. • Spell grade-appropriate words correctly, consulting references as needed.
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Cluster	Knowledge of Language
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ELA.4.38	<p>Use knowledge of language and its conventions when writing, speaking, reading, or listening.</p> <ul style="list-style-type: none"> • Choose words and phrases to convey ideas precisely. • Choose punctuation for effect. • Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion).
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Cluster	Vocabulary Acquisition and Use
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ELA.4.39	<p>Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 4 reading and content, choosing flexibly from a range of strategies.</p> <ul style="list-style-type: none"> • Use context (e.g., definitions, examples, or restatements in text) as a clue to the meaning of a word or phrase. • Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., telegraph, photograph, and autograph). • Consult reference materials (e.g., dictionaries, glossaries, and/or thesauruses), both print and digital, to find the pronunciation and determine or clarify the precise meaning of key words and phrases.
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ELA.4.40	<p>Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.</p> <ul style="list-style-type: none"> • Explain the meaning of simple similes and metaphors (e.g., as pretty as a picture) in context. • Recognize and explain the meaning of common idioms, adages, and proverbs. • Demonstrate understanding of words by relating them to their opposites (antonyms) and to words with similar but not identical meanings (synonyms).
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ELA.4.41	<p>Acquire and accurately use grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being (e.g., quizzed, whined, and stammered) and that are basic to a particular topic (e.g., wildlife, conservation, and endangered when discussing animal preservation).</p>
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West Virginia College- and Career-Readiness English Language Arts – Grade 5

All West Virginia teachers are responsible for classroom instruction that integrates content standards, learning skills, and technology tools. Students in fifth grade will continue enhancing skills in a developmentally-appropriate progression of standards. Following the skill progressions from fourth grade, the following chart represents the components of literacy that will be developed in the reading, writing, speaking/listening, and language domains in fifth grade:

Early Learning Foundations	
<ul style="list-style-type: none"> • Read with accuracy, appropriate rate, and expression. • Use word analysis skills and phonics to decode words. 	
Reading	Writing
<ul style="list-style-type: none"> • Summarize the key details of stories, dramas, poems, and nonfiction materials, including their themes or main ideas. • Identify and judge evidence that supports particular ideas in an author's argument to change a reader's point of view. • Integrate information from several print and digital sources to answer questions and solve problems. 	<ul style="list-style-type: none"> • Write opinions that offer reasoned arguments and provide facts and examples that are logically grouped to support the writer's point of view. • Write stories, real or imaginary, that unfold naturally and developing the plot with dialogue, description, and effective pacing of the action.
Speaking/Listening	Language
<ul style="list-style-type: none"> • Come to classroom discussions prepared, then engaging fully and thoughtfully with others (e.g., contributing accurate, relevant information; elaborating on the remarks of others; synthesizing ideas). • Report on a topic or present an opinion with his or her own words, a logical sequence of ideas, sufficient facts and details, and formal English when appropriate. 	<ul style="list-style-type: none"> • Expand, combine, and reduce sentences to improve meaning, interest, and style of writing. • Build knowledge of academic words with an emphasis on those that signal a contrast in ideas or logical relationships, such as on the other hand, similarly, and therefore. • Produce writing on the computer.

Grades 4-5 Specifications

In grades 4-5, students should be exposed to texts that fall in the 740-1010 Lexile range in order to meet college- and career-readiness expectations. By the end of the programmatic level (grade 5) and over the course of the entire instructional day, the distribution of text types should include 50% literary and 50% informational, and writing types should be 30% argumentative, 35% informative, and 35% narrative.



Numbering of Standards

The following English language arts standards are numbered continuously. The ranges in the chart below relate to the clusters found within the English language arts domains:

Early Learning Foundations	
Fluency	Foundation I
Phonics and Word Recognition	Foundation II
Reading	
Key Ideas and Details	Standards 1-6
Craft and Structure	Standards 7-12
Integration of Knowledge and Ideas	Standards 13-17
Range of Reading and Text Complexity	Standards 18-19
Writing	
Text Types and Purposes	Standards 20-22
Production and Distribution of Writing	Standards 23-25
Research to Build and Present Knowledge	Standards 26-28
Range of Writing	Standard 29
Speaking & Listening	
Comprehension and Collaboration	Standards 30-32
Presentation of Knowledge and Ideas	Standards 33-35
Language	
Conventions of Standard English	Standards 36-37
Knowledge of Language	Standard 38
Vocabulary Acquisition and Use	Standards 39-41

Early Learning Foundations

Cluster	Fluency
ELA.5.I	Read with sufficient accuracy and fluency to support comprehension. <ul style="list-style-type: none"> • Read on-level text with purpose and understanding. • Read on-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings. • Use context to confirm or self-correct word recognition and understanding, rereading as necessary.
Cluster	Phonics and Word Recognition
ELA.5.II	Know and apply grade-level phonics and word analysis skills in decoding words. <ul style="list-style-type: none"> • Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.



Reading

Cluster	Key Ideas and Details
ELA.5.1	Quote accurately from a literary text when explaining what the text says explicitly and when drawing inferences from the text.
ELA.5.2	Determine a theme of a story, drama, or poem from details in a literary text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text.
ELA.5.3	Compare and contrast two or more characters, settings, or events in a story or drama, drawing on specific details in the literary text (e.g., how characters interact).
ELA.5.4	Quote accurately from an informational text when explaining what the text says explicitly and when drawing inferences from the text.
ELA.5.5	Determine two or more main ideas of an informational text and explain how they are supported by key details; summarize the text.
ELA.5.6	Using an informational text, explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.

Cluster	Craft and Structure
ELA.5.7	Determine the meaning of words and phrases as they are used in a literary text, including figurative language such as metaphors and similes.
ELA.5.8	Explain how a series of chapters, scenes, or stanzas fits together in a literary text to provide the overall structure of a particular story, drama, or poem.
ELA.5.9	Describe how a narrator's or speaker's point of view influences how events are described in a literary text.
ELA.5.10	Determine the meaning of general academic and domain-specific words and phrases in an informational text relevant to a grade 5 topic or subject area.
ELA.5.11	Compare and contrast the overall structure (e.g., chronology, comparison, cause/effect, and problem/solution) of events, ideas, concepts, or information in two or more informational texts.
ELA.5.12	Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent in informational texts.

Cluster	Integration of Knowledge and Ideas
ELA.5.13	Analyze how visual and multimedia elements contribute to the meaning, tone, or beauty of a literary text (e.g., graphic novel, multimedia presentation of fiction, folktale, myth, and/or poem).
ELA.5.14	Compare and contrast stories in literary texts of the same genre (e.g., mysteries and adventure stories) on their approaches to similar themes and topics.
ELA.5.15	Draw on information from multiple print or digital informational sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.
ELA.5.16	Explain how an author uses reasons and evidence to support particular points in an informational text, identifying which reasons and evidence support which point(s).
ELA.5.17	Integrate information from several informational texts on the same topic in order to write or speak about the subject knowledgeably.



Cluster	Range of Reading and Text Complexity
ELA.5.18	By the end of the year, read and comprehend literature, including stories, dramas, and poetry, at the high end of the grades 4–5 text complexity range independently and proficiently.
ELA.5.19	By the end of the year, read and comprehend informational texts, including social studies, science, and technical texts, at the high end of the grades 4–5 text complexity range independently and proficiently.

Writing

Cluster	Text Types and Purposes
ELA.5.20	<p>Write opinion pieces on topics or texts, supporting a point of view with reasons and information.</p> <ul style="list-style-type: none"> • Introduce a topic or text clearly, state an opinion, and create an organizational structure in which ideas are logically grouped to support the writer’s purpose. • Provide logically ordered reasons that are supported by facts and details. • Link opinion and reasons using words, phrases, and clauses (e.g., consequently and specifically). • Provide a concluding statement or section related to the opinion presented.
ELA.5.21	<p>Write informative/explanatory texts to examine a topic and convey ideas and information clearly.</p> <ul style="list-style-type: none"> • Introduce a topic clearly, provide a general observation, and focus and group related information logically; include formatting (e.g., headings), illustrations, and multimedia when useful to aid comprehension. • Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic. • Link ideas within and across categories of information using words, phrases, and clauses (e.g., in contrast and especially). • Use precise language and domain-specific vocabulary to inform about or explain the topic. • Provide a concluding statement or section related to the information or explanation presented.
ELA.5.22	<p>Write a narrative to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.</p> <ul style="list-style-type: none"> • Orient the reader by establishing a situation and introducing a narrator and/or characters; organize an event sequence that unfolds naturally. • Use narrative techniques, such as dialogue, description, and pacing, to develop experiences and events or show the responses of characters to situations. • Use a variety of transition words, phrases, and clauses to manage the sequence of events. • Use concrete words and phrases and sensory details to convey experiences and events precisely. • Provide a conclusion that follows from the narrated experiences or events.
Cluster	Production and Distribution of Writing
ELA.5.23	Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Text Types and Purposes.)



ELA.5.24	With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach. (Editing for conventions should demonstrate command of Language standards up to and including grade 5.)
ELA.5.25	With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type accurately.

Cluster	Research to Build and Present Knowledge
ELA.5.26	Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.
ELA.5.27	Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work and provide a list of sources.
ELA.5.28	Draw evidence from literary or informational texts to support analysis, reflection, and research. <ul style="list-style-type: none"> • Apply grade 5 Reading standards to literature (e.g., “compare and contrast two or more characters, settings, or events in a story or a drama, drawing on specific details in the text [e.g., how characters interact]”). • Apply grade 5 Reading standards to informational texts (e.g., “explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point[s]”).

Cluster	Range of Writing
ELA.5.29	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.

Speaking & Listening

Cluster	Comprehension and Collaboration
ELA.5.30	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others’ ideas and expressing ideas clearly. <ul style="list-style-type: none"> • Come to discussions prepared having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion. • Follow agreed-upon rules for discussions and carry out assigned roles. • Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others. • Review the key ideas expressed and draw conclusions in light of information and knowledge gained from the discussions.
ELA.5.31	Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
ELA.5.32	Summarize the points a speaker makes and explain how each claim is supported by reasons and evidence.



Cluster	Presentation of Knowledge and Ideas
ELA.5.33	Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.
ELA.5.34	Include multimedia components (e.g., graphics and/or sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.
ELA.5.35	Adapt speech to a variety of contexts and tasks, using formal English when appropriate to task and situation. (See grade 5 Language standards for specific expectations.)

Language

Cluster	Conventions of Standard English
ELA.5.36	Demonstrate command of the conventions of Standard English grammar and usage when writing or speaking. <ul style="list-style-type: none"> • Explain the function of conjunctions, prepositions, and interjections in general and their function in particular sentences. • Form and use the perfect (e.g., I had walked; I have walked; I will have walked) verb tenses. • Use verb tense to convey various times, sequences, states, and conditions. • Recognize and correct inappropriate shifts in verb tense. • Use correlative conjunctions (e.g., either/or and neither/nor).
ELA.5.37	Demonstrate command of the conventions of Standard English capitalization, punctuation and spelling when writing. <ul style="list-style-type: none"> • Use punctuation to separate items in a series. • Use a comma to separate an introductory element from the rest of the sentence. • Use a comma to set off the words yes and no (e.g., Yes, thank you.), to set off a tag question from the rest of the sentence (e.g., It's true, isn't it?), and to indicate direct address (e.g., Is that you, Steve?). • Use underlining, quotation marks, or italics to indicate titles of works. • Spell grade-appropriate words correctly, consulting references as needed.

Cluster	Knowledge of Language
ELA.5.38	Use knowledge of language and its conventions when writing, speaking, reading, or listening. <ul style="list-style-type: none"> • Expand, combine, and reduce sentences for meaning, reader/listener interest, and style. • Compare and contrast the varieties of English (e.g., dialects and/or registers) used in stories, dramas, or poems.



Cluster	Vocabulary Acquisition and Use
ELA.5.39	<p>Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 5 reading and content, choosing flexibly from a range of strategies.</p> <ul style="list-style-type: none"> • Use context (e.g., cause/effect relationships and comparisons in text) as a clue to the meaning of a word or phrase. • Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., photograph and photosynthesis). • Consult reference materials (e.g., dictionaries, glossaries, and/or thesauruses), both print and digital, to find the pronunciation and determine or clarify the precise meaning of key words and phrases.
ELA.5.40	<p>Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.</p> <ul style="list-style-type: none"> • Interpret figurative language, including similes and metaphors, in context. • Recognize and explain the meaning of common idioms, adages, and proverbs. • Use the relationship between particular words (e.g., synonyms, antonyms, and homographs) to better understand each of the words.
ELA.5.41	<p>Acquire and accurately use grade-appropriate general academic and domain-specific words and phrases, including those that signal contrast, addition, and other logical relationships (e.g., however, although, nevertheless, similarly, moreover, and in addition).</p>



College- and Career-Readiness in the Mathematics Content Area

West Virginia's College- and Career-Readiness Standards have been developed with the goal of preparing students in a wide range of high-quality post-secondary opportunities. Specifically, college- and career-readiness refers to the knowledge, skills, and dispositions needed to be successful in higher education and/or training that lead to gainful employment. The West Virginia College- and Career-Readiness Standards establish a set of knowledge and skills that all individuals need to transition into higher education or the workplace, as both realms share many expectations. All students throughout their educational experience, should develop a full understanding of the career opportunities available, the education necessary to be successful in their chosen pathway, and a plan to attain their goals.

West Virginia's College- and Career-Readiness Standards for Mathematics are the culmination of an extended, broad-based effort to help ensure that all students are college- and career-ready upon completion of high school. The skills contained in the mathematics standards are essential for college- and career-readiness in a twenty-first-century, globally competitive society. The standards reflect a progression and key ideas determining how knowledge is organized and generated within the content area. Standards evolve from specifics to deeper structures inherent in the discipline. These deeper structures serve to connect the specifics. The standards follow such a design, stressing conceptual understanding of key ideas and continually returning to organizing principles such as place value or the properties of operations to structure those ideas. The sequence of topics and performances outlined in mathematics standards must respect the scientific research about how students learn and what is known about how their mathematical knowledge, skill, and understanding develop over time.

Explanation of Terms

Domains are broad components that make up a content area. Domains in mathematics vary by grade-level and by course. For example, the five domains for mathematics in grade 3 are Operations and Algebraic Thinking, Number and Operations in Base Ten, Number and Operations-Fractions, Geometry, and Measurement and Data.

Clusters are groups of standards that define the expectations students must demonstrate to be college- and career-ready.

Standards are expectations for what students should know, understand and be able to do; standards represent educational goals.

Numbering of Standards

The numbering for each standard is composed of three parts, each part separated by a period:

- the content code (e.g., M for Mathematics),
- the grade level or course, and
- the standard.

Illustration: M.3.1 refers to mathematics, grade 3, standard 1.



MATHEMATICS

The West Virginia College- and Career-Readiness Standards for Mathematics define what students should understand and be able to do in their study of mathematics. Asking a student to understand something means asking a teacher to assess whether the student has understood it. What does mathematical understanding look like? One hallmark of mathematical understanding is the ability to justify, in a way appropriate to the student's mathematical maturity, why a particular mathematical statement is true or where a mathematical rule comes from. There is a world of difference between a student who can summon a mnemonic device to expand a product such as $(a + b)(x + y)$ and a student who can explain where the mnemonic comes from. The student who can explain the rule understands the mathematics, and may have a better chance to succeed at a less familiar task such as expanding $(a + b + c)(x + y)$. Mathematical understanding and procedural skill are equally important, and both are assessable using mathematical tasks of sufficient richness.

The Standards begin with eight Mathematical Habits of Mind.

Mathematics: Mathematical Habits of Mind

The Mathematical Habits of Mind (hereinafter MHM) describe varieties of expertise that mathematics educators at all levels should develop in their students.

MHM1. Make sense of problems and persevere in solving them.

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.

MHM2. Reason abstractly and quantitatively.

Mathematically proficient students make sense of quantities and their relationships in problem situations. They 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.



MHM3. Construct viable arguments and critique the reasoning of others.

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.

MHM4. Model with mathematics.

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.

MHM5. Use appropriate tools strategically.

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.

MHM6. Attend to precision.

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.



MHM7. Look for and make use of structure.

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 .

MHM8. Look for and express regularity in repeated reasoning.

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.

Connecting the Mathematical Habits of Mind to the Standards for Mathematical Content

The Mathematical Habits of Mind describe ways in which developing students of mathematics increasingly engage with the subject matter as they grow in mathematical maturity and expertise throughout the elementary, middle and high school years. Designers of curricula, assessments and professional development should all attend to the need to connect the mathematical habits of mind to mathematical content in mathematics instruction.



West Virginia College- and Career-Readiness Mathematics – Grade 3

All West Virginia teachers are responsible for classroom instruction that integrates content standards and mathematical habits of mind. Students in the third grade will focus on four critical areas: (1) developing understanding of multiplication and division and strategies for multiplication and division within 100; (2) developing understanding of fractions, especially unit fractions (fractions with numerator 1); (3) developing understanding of the structure of rectangular arrays and of area; and (4) describing and analyzing two-dimensional shapes. Mathematical habits of mind, which should be integrated in these content areas, include: making sense of problems and persevering in solving them, reasoning abstractly and quantitatively; constructing viable arguments and critiquing the reasoning of others; modeling with mathematics; using appropriate tools strategically; attending to precision, looking for and making use of structure; and looking for and expressing regularity in repeated reasoning. Continuing the skill progressions from second grade, the following chart represents the mathematical understandings that will be developed in third grade:

<p>Operations and Algebraic Thinking</p> <ul style="list-style-type: none"> Understand and know from memory how to multiply and divide numbers up to 10×10 fluently. Solve word problems using addition, subtraction, multiplication, and division. Begin to multiply numbers with more than one digit (e.g., multiplying 9×80). 	<p>Number and Operations in Base Ten</p> <ul style="list-style-type: none"> Understand place value and properties of operations to perform multi-digit arithmetic, such as 10×2, 50×3, and 40×7.
<p>Number and Operations- Fractions</p> <ul style="list-style-type: none"> Understand fractions and relate them to the familiar system of whole numbers (e.g., recognizing that $\frac{3}{1}$ and 3 are the same number). 	<p>Measurement and Data</p> <ul style="list-style-type: none"> Measure and estimate weights and liquid volumes, and solve word problems involving these quantities. Tell time and write time to the nearest minute. Recognize area as a quality of two-dimensional regions. Understand that rectangular arrays can be broken into identical rows or into identical columns. By breaking rectangles into rectangular arrays of squares, students connect area to multiplication, and explain how multiplication is used to determine the area of a rectangle.
<p>Geometry</p> <ul style="list-style-type: none"> Reason about shapes (e.g., all squares are rectangles but not all rectangles are squares). Find areas of shapes, and relate area to multiplication (e.g., why is the number of square feet for a 9-foot by 7-foot room given by the product 9×7?). Understand the connection between equal parts of a shape being a unit of the whole. 	



Numbering of Standards

The following Mathematics Standards are numbered continuously. The following ranges relate to the clusters found within Mathematics:

Operations and Algebraic Thinking	
Represent and solve problems involving multiplication and division.	Standards 1-4
Understand properties of multiplication and the relationship between multiplication and division.	Standards 5-6
Multiply and divide within 100.	Standard 7
Solve problems involving the four operations, and identify and explain patterns in arithmetic.	Standards 8-9
Number and Operations in Base Ten	
Use place value and properties of operations to perform multi-digit arithmetic.	Standards 10-12
Number and Operations- Fractions	
Develop an understanding as fractions as numbers.	Standards 13-15
Measurement and Data	
Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.	Standards 16-17
Represent and interpret data.	Standards 18-19
Geometric measurement: understand concepts of area and relate area to multiplication and to addition.	Standards 20-22
Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.	Standard 23
Geometry	
Reason with shapes and their attributes.	Standards 24-25

Operations and Algebraic Thinking

Cluster	Represent and solve problems involving multiplication and division.
M.3.1	Interpret products of whole numbers, e.g., interpret 5×7 as the total number of objects in 5 groups of 7 objects each (e.g., describe context in which a total number of objects can be expressed as 5×7).
M.3.2	Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each (e.g., describe a context in which a number of shares or a number of groups can be expressed as $56 \div 8$).
M.3.3	Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays and measurement quantities (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem).



M.3.4	Determine the unknown whole number in a multiplication or division equation relating three whole numbers (e.g., determine the unknown number that makes the equation true in each of the equations $8 \times ? = 48$, $5 = ? \div 3$, $6 \times 6 = ?$).
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Cluster	Understand properties of multiplication and the relationship between multiplication and division.
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M.3.5	Apply properties of operations as strategies to multiply and divide (e.g., If $6 \times 4 = 24$ is known, then $4 \times 6 = 24$ is also known: Commutative Property of Multiplication. $3 \times 5 \times 2$ can be found by $3 \times 5 = 15$, then $15 \times 2 = 30$, or by $5 \times 2 = 10$, then $3 \times 10 = 30$: Associative Property of Multiplication. Knowing that $8 \times 5 = 40$ and $8 \times 2 = 16$, one can find 8×7 as $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$: Distributive Property. Instructional Note: Students need not use formal terms for these properties.
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M.3.6	Understand division as an unknown-factor problem (e.g., find $32 \div 8$ by finding the number that makes 32 when multiplied by 8).
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Cluster	Multiply and divide within 100.
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M.3.7	Learn multiplication tables (facts) with speed and memory in order to fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows that $40 \div 5 = 8$) or properties of operations by the end of Grade 3.
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Cluster	Solve problems involving the four operations, and identify and explain patterns in arithmetic.
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M.3.8	Solve two-step word problems using the four operations, represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. Instructional Note: This standard is limited to problems posed with whole numbers and having whole number answers; students should know how to perform operations in the conventional order when there are no parentheses to specify a particular order (Order of Operations).
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M.3.9	Identify arithmetic patterns (including patterns in the addition table or multiplication table) and explain those using properties of operations (e.g., observe that 4 times a number is always even and explain why 4 times a number can be decomposed into two equal addends).
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Number and Operations in Base Ten

Cluster	Use place value understanding and properties of operations to perform multi-digit arithmetic.
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M.3.10	Use place value understanding to round whole numbers to the nearest 10 or 100.
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M.3.11	Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction.
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M.3.12	Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9×80 , 5×60) using strategies based on place value and properties of operations.
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Number and Operations- Fractions

Cluster	Develop understanding of fractions as numbers.
M.3.13	Understand a fraction $1/b$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size $1/b$. Instructional Note: Fractions in this standard are limited to denominators of 2, 3, 4, 6, and 8.
M.3.14	<p>Understand a fraction as a number on the number line and represent fractions on a number line diagram.</p> <ol style="list-style-type: none"> Represent a fraction $1/b$ on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size $1/b$ and that the endpoint of the part based at 0 locates the number $1/b$ on the number line. (e.g., Given that b parts is 4 parts, then $1/b$ represents $1/4$. Students partition the number line into fourths and locate $1/4$ on the number line.) Represent a fraction a/b on a number line diagram by marking off a lengths $1/b$ from 0. Recognize that the resulting interval has size a/b and that its endpoint locates the number a/b on the number line. (e.g., Given that a/b represents $3/4$ or $6/4$, students partition the number line into fourths and represent these fractions accurately on the same number line; students extend the number line to include the number of wholes required for the given fractions.) <p>Instructional Note: Fractions in this standard are limited to denominators of 2, 3, 4, 6, and 8.</p>
M.3.15	<p>Explain equivalence of fractions in special cases and compare fractions by reasoning about their size.</p> <ol style="list-style-type: none"> Understand two fractions as equivalent (equal) if they are the same size or the same point on a number line. Recognize and generate simple equivalent fractions (e.g., $1/2 = 2/4$, $4/6 = 2/3$). Explain why the fractions are equivalent (e.g., by using a visual fraction model). Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. (e.g., Express 3 in the form $3 = 3/1$; recognize that $6/1 = 6$; locate $4/4$ and 1 at the same point of a number line diagram.) Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>$, $=$ or $<$ and justify the conclusions (e.g., by using a visual fraction model). <p>Instructional Note: Fractions in this standard are limited to denominators of 2, 3, 4, 6, and 8.</p>

Measurement and Data

Cluster	Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.
M.3.16	Tell and write time to the nearest minute, measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes (e.g., by representing the problem on a number line diagram).



M.3.17	Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg) and liters (l). Add, subtract, multiply or divide to solve one-step word problems involving masses or volumes that are given in the same units (e.g., by using drawings, such as a beaker with a measurement scale) to represent the problem. Instructional Note: Exclude compound units such as cm^3 and finding the geometric volume of a container.
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Cluster	Represent and interpret data.
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M.3.18	Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs (e.g., draw a bar graph in which each square in the bar graph might represent 5 pets).
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M.3.19	Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units—whole numbers, halves or quarters.
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Cluster	Geometric measurement: understand concepts of area and relate area to multiplication and to addition.
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M.3.20	Recognize area as an attribute of plane figures and understand concepts of area measurement. <ul style="list-style-type: none"> a. A square with side length 1 unit, called “a unit square,” is said to have “one square unit” of area and can be used to measure area. b. A plane figure which can be covered without gaps or overlaps by b unit squares is said to have an area of b square units.
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M.3.21	Measure areas by counting unit squares (square cm, square m, square in, square ft. and improvised units).
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M.3.22	Relate area to the operations of multiplication and addition. <ul style="list-style-type: none"> a. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths. b. Multiply side lengths to find areas of rectangles with whole number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning. c. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning. d. Recognize area as additive and find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems.
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Cluster	Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.
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M.3.23	Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.
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Geometry

Cluster	Reason with shapes and their attributes.
M.3.24	Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), that the shared attributes can define a larger category (e.g. quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories.
M.3.25	Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts with equal area, and describe the area of each part as $\frac{1}{4}$ or the area of the shape.



West Virginia College- and Career-Readiness Mathematics – Grade 4

All West Virginia teachers are responsible for classroom instruction that integrates content standards and mathematical habits of mind. Students in the fourth grade will focus on three critical areas: (1) developing understanding and fluency with multi-digit multiplication, and developing understanding of dividing to find quotients involving multi-digit dividends; (2) developing an understanding of fraction equivalence, addition and subtraction of fractions with like denominators, and multiplication of fractions by whole numbers; (3) understanding that geometric figures can be analyzed and classified based on their properties, such as having parallel sides, perpendicular sides, particular angle measures, and symmetry. Mathematical habits of mind, which should be integrated in these content areas, include: making sense of problems and persevering in solving them, reasoning abstractly and quantitatively; constructing viable arguments and critiquing the reasoning of others; modeling with mathematics; using appropriate tools strategically; attending to precision, looking for and making use of structure; and looking for and expressing regularity in repeated reasoning. Continuing the skill progressions from third grade, the following chart represents the mathematical understandings that will be developed in fourth grade:

<p>Operations and Algebraic Thinking</p> <ul style="list-style-type: none"> • Use whole-number arithmetic to solve word problems, including problems with remainders and problems with measurements. • Add and subtract whole numbers quickly and accurately (numbers up to 1 million). • Multiply and divide multi-digit numbers in simple cases (e.g., multiplying $1,638 \times 7$ or 24×17, and dividing 6,966 by 6). • Gain familiarity with factors and multiples. • Generate and analyze patterns. 	<p>Number and Operations in Base Ten</p> <ul style="list-style-type: none"> • Generalize place value understanding for multi-digit whole numbers. • Use place value understanding and properties of operations to perform multi-digit arithmetic.
<p>Number and Operations- Fractions</p> <ul style="list-style-type: none"> • Use equivalent fractions to understand and order fractions (e.g., recognize that $\frac{1}{4}$ is less than $\frac{3}{8}$ because $\frac{2}{8}$ is less than $\frac{3}{8}$). • Add, subtract, and multiply fractions in simple cases (such as $2\frac{3}{4} - 1\frac{1}{4}$ or $3 \times \frac{5}{8}$), and solve related word problems. • Understand and compare simple decimals in terms of fractions (e.g., rewriting 0.62 as $\frac{62}{100}$). 	<p>Measurement and Data</p> <ul style="list-style-type: none"> • Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit. • Represent and interpret data. • Geometric measurement: understand concepts of angle and measure angles.
<p>Geometry</p> <ul style="list-style-type: none"> • Draw and identify lines and angles, and classify shapes by properties of their lines and angles. • Measure angles and find unknown angles in a diagram. 	



Numbering of Standards

The Mathematics Standards are numbered continuously. The following ranges relate to the clusters found within Mathematics:

Operations and Algebraic Thinking	
Use the four operations with whole numbers to solve problems.	Standards 1-3
Gain familiarity with factors and multiples.	Standard 4
Generate and analyze patterns.	Standard 5
Number and Operations in Base Ten	
Generalize place value understanding for multi-digit whole numbers.	Standards 6-8
Use place value understanding and properties of operations to perform multi-digit arithmetic.	Standards 9-11
Number and Operations- Fractions	
Extend understanding of fraction equivalence and ordering.	Standards 12-13
Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.	Standards 14-15
Understand decimal notation for fractions, and compare decimal fractions.	Standards 16-18
Measurement and Data	
Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.	Standards 19-21
Represent and interpret data.	Standards 22
Geometric measurement: understand concepts of angle and measure angles.	Standards 23-25
Geometry	
Draw and identify lines angles and classify shapes by properties of their lines and angles.	Standards 26-28

Operations and Algebraic Thinking

Cluster	Use the four operations with whole numbers to solve problems.
M.4.1	Interpret a multiplication equation as a comparison (e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5). Represent verbal statements of multiplicative comparisons as multiplication equations.
M.4.2	Multiply or divide to solve word problems involving multiplicative comparison (e.g., by using drawings and equations with a symbol for the unknown number to represent the problem) and distinguish multiplicative comparison from additive comparison.



M.4.3	Solve multi-step word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.
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Cluster	Gain familiarity with factors and multiples.
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M.4.4	Find all factor pairs for a whole number in the range 1–100, recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite.
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Cluster	Generate and analyze patterns.
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M.4.5	Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. (e.g., Given the rule “Add 3” and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.)
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Number and Operations in Base Ten

Cluster	Generalize place value understanding for multi-digit whole numbers.
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M.4.6	Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right (e.g., recognize that $700 \div 70 = 10$ by applying concepts of place value and division).
M.4.7	Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$, $=$ and $<$ symbols to record the results of comparisons.
M.4.8	Use place value understanding to round multi-digit whole numbers to any place.

Cluster	Use place value understanding and properties of operations to perform multi-digit arithmetic.
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M.4.9	Fluently add and subtract multi-digit whole numbers using the standard algorithm.
M.4.10	Multiply a whole number of up to four digits by a one-digit whole number, multiply two two-digit numbers, using strategies based on place value and the properties of operations and illustrate and explain the calculation by using equations, rectangular arrays and/or area models.
M.4.11	Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays and/or area models.



Number and Operations- Fractions

Cluster	Extend understanding of fraction equivalence and ordering.
M.4.12	Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions.
M.4.13	Compare two fractions with different numerators and different denominators (e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $\frac{1}{2}$). Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$ or $<$, and justify the conclusions by using a visual fraction model.

Cluster	Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.
M.4.14	<p>Understand the fraction a/b, with $a > 1$, as the sum of a of the fractions $1/b$.</p> <ol style="list-style-type: none"> Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation and justify decompositions by using a visual fraction model (e.g., $3/8 = 1/8 + 1/8 + 1/8$; $3/8 = 1/8 + 2/8$; $2 \frac{1}{8} = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8$). Add and subtract mixed numbers with like denominators by replacing each mixed number with an equivalent fraction and/or by using properties of operations and the relationship between addition and subtraction. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators by using visual fraction models and equations to represent the problem.
M.4.15	<p>Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.</p> <ol style="list-style-type: none"> Understand a fraction a/b as a multiple of $1/b$, (e.g., use a visual fraction model to represent $5/4$ as the product $5 \times (1/4)$, recording the conclusion by the equation $5/4 = 5 \times (1/4)$). Understand a multiple of a/b as a multiple of $1/b$, and use this understanding to multiply a fraction by a whole number (e.g., use a visual fraction model to express $3 \times (2/5)$ as $6 \times (1/5)$, recognizing this product as $6/5$. In general, $n \times (a/b) = (n \times a)/b$). Solve word problems involving multiplication of a fraction by a whole number by using visual fraction models and equations to represent the problem (e.g., If each person at a party will eat $3/8$ of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?).

Cluster	Understand decimal notation for fractions, and compare decimal fractions.
M.4.16	Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100 (e.g., express $3/10$ as $30/100$, and add $3/10 + 4/100 = 34/100$). Instructional Note: Students who can generate equivalent fractions can develop strategies for adding fractions with unlike denominators in general. But addition and subtraction with unlike denominators in general is not a requirement at this grade.



M.4.17	Use decimal notation for fractions with denominators 10 or 100 (e.g., rewrite 0.62 as $\frac{62}{100}$; describe a length as 0.62 meters; locate 0.62 on a number line diagram).
M.4.18	Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $>$, $=$ or $<$, and justify the conclusions by using a visual model.

Measurement and Data

Cluster	Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.
M.4.19	Know relative sizes of measurement units within a system of units, including the metric system (km, m, cm; kg, g; l, ml), the standard system (lb, oz), and time (hr, min, sec.). Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two-column table. (e.g., Know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ...)
M.4.20	Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale.
M.4.21	Apply the area and perimeter formulas for rectangles in real world and mathematical problems by viewing the area formula as a multiplication equation with an unknown factor. (e.g., find the width of a rectangular room given the area of the flooring and the length.)

Cluster	Represent and interpret data.
M.4.22	Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Solve problems involving addition and subtraction of fractions by using information presented in line plots (e.g., from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection).

Cluster	Geometric measurement: understand concepts of angle and measure angles.
M.4.23	Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement: <ul style="list-style-type: none"> a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $\frac{1}{360}$ of a circle is called a “one-degree angle,” and can be used to measure angles. b. An angle that turns through b one-degree angles is said to have an angle measure of b degrees.
M.4.24	Measure angles in whole-number degrees using a protractor and sketch angles of specified measure.



M.4.25	Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems (e.g., by using an equation with a symbol for the unknown angle measure).
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Geometry

Cluster	Draw and identify lines and angles and classify shapes by properties of their lines and angles.
M.4.26	Draw points, lines, line segments, rays, angles (right, acute, obtuse) and perpendicular and parallel lines. Identify these in two-dimensional figures.
M.4.27	Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles.
M.4.28	Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.



West Virginia College- and Career-Readiness Mathematics – Grade 5

All West Virginia teachers are responsible for classroom instruction that integrates content standards and mathematical habits of mind. Students in the fifth grade will focus on three critical areas: (1) developing fluency with addition and subtraction of fractions, and developing understanding of the multiplication of fractions and of division of fractions in limited cases (unit fractions divided by whole numbers and whole numbers divided by unit fractions); (2) extending division to 2-digit divisors, integrating decimal fractions into the place value system and developing understanding of operations with decimals to hundredths, and developing fluency with whole number and decimal operations; (3) developing an understanding of volume. Mathematical habits of mind, which should be integrated in these content areas, include: making sense of problems and persevering in solving them, reasoning abstractly and quantitatively; constructing viable arguments and critiquing the reasoning of others; modeling with mathematics; using appropriate tools strategically; attending to precision, looking for and making use of structure; and looking for and expressing regularity in repeated reasoning. Students in fifth grade will continue developing mathematical proficiency in a developmentally-appropriate progressions of standards. Continuing the skill progressions from fourth grade, the following chart represents the mathematical understandings that will be developed in fifth grade:

<p>Operations and Algebraic Thinking</p> <ul style="list-style-type: none"> • Write and interpret numerical expressions. • Analyze mathematical patterns and relationships. 	<p>Number and Operations in Base Ten</p> <ul style="list-style-type: none"> • Understand the place value system. • Generalize the place-value system to include decimals, and calculate with decimals to the hundredths place (two places after the decimal). • Multiply whole numbers quickly and accurately, for example $1,638 \times 753$, and divide whole numbers in simple cases, such as dividing 6,971 by 63.
<p>Number and Operations- Fractions</p> <ul style="list-style-type: none"> • Add and subtract fractions with like and unlike denominators (e.g., $2\frac{1}{4} - 1\frac{1}{3}$), and solve word problems of this kind. • Multiply fractions; divide fractions in simple cases; and solve related word problems (e.g., find the area of a rectangle with fractional side lengths; determine how many $\frac{1}{3}$-cup servings are in 2 cups of raisins; determine the size of a share if 9 people share a 50-pound sack of rice equally or if 3 people share $\frac{1}{2}$ pound of chocolate equally). 	<p>Measurement and Data</p> <ul style="list-style-type: none"> • Convert like measurement units within a given measurement system. • Make a line plot to display a data set with fractional units of measure and interpret the data to solve problems. • Geometric measurement: Understand the concept of volume, and solve word problems that involve volume.
<p>Geometry</p> <ul style="list-style-type: none"> • Graph points on the coordinate plane to solve real-world and mathematical problems. • Classify two-dimensional figures into categories based on their properties. 	



Numbering of Standards

The following Mathematics Standards are numbered continuously. The following ranges relate to the clusters found within Mathematics:

Operations and Algebraic Thinking	
Write and interpret numerical expressions.	Standards 1-2
Analyze patterns and relationships.	Standard 3
Number and Operations in Base Ten	
Understand the place value system.	Standard 4-7
Perform operations with multi-digit whole numbers and with decimals to hundredths.	Standards 8-10
Number and Operations- Fractions	
Use equivalent fractions as a strategy to add and subtract fractions.	Standards 11-12
Apply and extend previous understandings of multiplication and division to multiply and divide fractions.	Standards 13-17
Measurement and Data	
Convert like measurement units within a given measurement system.	Standard 18
Represent and interpret data.	Standard 19
Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.	Standards 20-22
Geometry	
Graph points on the coordinate plane to solve real-world and mathematical problems.	Standards 23-24
Classify two-dimensional figures into categories based on their properties.	Standards 25-26

Operations and Algebraic Thinking

Cluster	Write and Interpret numerical expressions.
M.5.1	Use parentheses, brackets or braces in numerical expressions and evaluate expressions with these symbols.
M.5.2	Write simple expressions that record calculations with numbers and interpret numerical expressions without evaluating them. (e.g., Express the calculation “add 8 and 7, then multiply by 2” as $2 \times (8 + 7)$. Recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$, without having to calculate the indicated sum or product.)



Cluster	Analyze patterns and relationships
M.5.3	Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. (e.g., Given the rule “Add 3” and the starting number 0 and given the rule “Add 6” and the starting number 0, generate terms in the resulting sequences and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.)

Number and Operations in Base Ten

Cluster	Understand the place value system
M.5.4	Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left.
M.5.5	Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10.
M.5.6	Read, write, and compare decimals to thousandths. <ul style="list-style-type: none"> a. Read and write decimals to thousandths using base-ten numerals, number names and expanded form (e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9(1/100) + 2 \times (1/1000)$). b. Compare two decimals to thousandths based on meanings of the digits in each place, using $>$, $=$ and $<$ symbols to record the results of comparisons.
M.5.7	Use place value understanding to round decimals to any place.

Cluster	Perform operations with multi-digit whole numbers and with decimals to hundredths.
M.5.8	Fluently multiply multi-digit whole numbers using the standard algorithm.
M.5.9	Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
M.5.10	Add, subtract, multiply and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between related operations, relate the strategy to a written method and explain the reasoning used.



Number and Operations - Fractions

Cluster	Use equivalent fractions as a strategy to add and subtract fractions.
M.5.11	Add and subtract fractions with unlike denominators, including mixed numbers, by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators (e.g., $2/3 + 5/4 = 8/12 + 15/12 = 23/12$). Instructional Note: In general, $a/b + c/d = (ad + bc)/bd$.
M.5.12	Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers (e.g., recognize an incorrect result $2/5 + 1/2 = 3/7$, by observing that $3/7 < 1/2$).
Cluster	Apply and extend previous understandings of multiplication and division to multiply and divide fractions.
M.5.13	Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers by using visual fraction models or equations to represent the problem. (e.g., Interpret $3/4$ as the result of dividing 3 by 4, noting that $3/4$ multiplied by 4 equals 3 and that when 3 wholes are shared equally among 4 people each person has a share of size $3/4$. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?)
M.5.14	Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction. <ol style="list-style-type: none"> Interpret the product $(a/b) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$. (e.g., Use a visual fraction model to show $(2/3) \times 4 = 8/3$ and create a story context for this equation. Do the same with $(2/3) \times (4/5) = 8/15$.) Instructional Note: In general, $(a/b) \times (c/d) = ac/bd$. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles and represent fraction products as rectangular areas.
M.5.15	Interpret multiplication as scaling (resizing), by: <ol style="list-style-type: none"> Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1.
M.5.16	Solve real-world problems involving multiplication of fractions and mixed numbers by using visual fraction models or equations to represent the problem.



M.5.17	<p>Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions. Instructional Note: Students able to multiply fractions in general can develop strategies to divide fractions in general, by reasoning about the relationship between multiplication and division, but division of a fraction by a fraction is not a requirement at this grade.</p> <ol style="list-style-type: none"> Interpret division of a unit fraction by a non-zero whole number and compute such quotients. (e.g., Create a story context for $(1/3) \div 4$ and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $(1/3) \div 4 = 1/12$ because $(1/12) \times 4 = 1/3$.) Interpret division of a whole number by a unit fraction and compute such quotients. (e.g., Create a story context for $4 \div (1/5)$ and use a visual fraction model to show the quotient. Use the relationship between multiplication and division to explain that $4 \div (1/5) = 20$ because $20 \times (1/5) = 4$.) Solve real-world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions by using visual fraction models and equations to represent the problem. (e.g., How much chocolate will each person get if 3 people share $1/2$ lb. of chocolate equally? How many $1/3$-cup servings are in 2 cups of raisins?)
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Measurement and Data

Cluster	Convert like measurement units within a given measurement system.
M.5.18	Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m) and use these conversions in solving multi-step, real-world problems.

Cluster	Represent and interpret data.
M.5.19	Make a line plot to display a data set of measurements in fractions of a unit ($1/2$, $1/4$, $1/8$). Use operations on fractions for this grade to solve problems involving information presented in line plots. (e.g., Given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally).

Cluster	Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.
M.5.20	<p>Recognize volume as an attribute of solid figures and understand concepts of volume measurement.</p> <ol style="list-style-type: none"> A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume and can be used to measure volume. A solid figure which can be packed without gaps or overlaps using b unit cubes is said to have a volume of b cubic units.
M.5.21	Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units.



M.5.22	<p>Relate volume to the operations of multiplication and addition and solve real-world and mathematical problems involving volume.</p> <ol style="list-style-type: none"> Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes (e.g., to represent the associative property of multiplication). Apply the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real-world and mathematical problems. Recognize volume as additive and find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real-world problems.
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Geometry

Cluster	Graph points on the coordinate plane to solve real-world and mathematical problems.
M.5.23	Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines, the origin, arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate).
M.5.24	Represent real-world mathematical problems by graphing points in the first quadrant of the coordinate plane and interpret coordinate values of points in the context of the situation.

Cluster	Classify two-dimensional figures into categories based on their properties.
M.5.25	Understand that attributes belonging to a category of two dimensional figures also belong to all subcategories of that category (e.g., all rectangles have four right angles and squares are rectangles, so all squares have four right angles).
M.5.26	Classify two-dimensional figures in a hierarchy based on properties.



Appendix A Standards vs. Curriculum

COLLEGE- & CAREER-READINESS

STANDARDS

CURRICULUM

What's the Difference?

Standards are what we want students to know, understand and be able to do; **Standards** represent goals.

The **Curriculum** is an intentional learning plan to ensure students achieve the goals of the standards; the **Curriculum** represents the learning experience.

Standards and Curriculum

A STANDARD is a goal. The CURRICULUM is a means to achieve the goal.

Example 1 • 3rd Grade Mathematics Goal

Standard: M.3.8

Solve two-step word problems using the four operations, represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.

Example 2 • 6th Grade English Language Arts Goal

Standard: ELA.6.18

By the end of the year, read and comprehend literature, including stories, dramas, and poems, in the grade 6-8 text complexity range proficiently, with scaffolding as needed at the high end of the range.

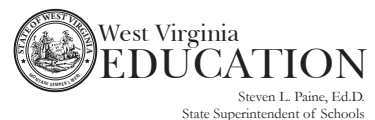
Curriculum:

Teacher locates instructional materials, plans and facilitates learning activities and assesses the students' mastery of the standard.

Who is Responsible?

West Virginia Board of Education
West Virginia Department of Education

County boards of education,
administrators and teachers



Appendix B

Sample Introductory Parent Letter (Grade 3)

(Insert Date)

Dear Parent or Guardian,

I look forward to being your child's third grade teacher. Elementary school builds the foundation for future learning. It is a great honor to work with you as we dedicate our time to the academic, emotional, and healthy physical growth of your child. This year, the West Virginia Board of Education adopted new learning standards to meet the needs of all West Virginia students. Our rigorous standards set high expectations for West Virginia students so they will be able to compete with other students across the state, the nation, and the world. The West Virginia College- and Career-Readiness Standards for third grade support previous learning, set the stage for future learning, and prepare your child for success.

Here are some of the academic highlights your child will experience in third grade this year:

- write stories that include details and clear sequences of events
- spell accurately
- build vocabulary usage
- express an opinion and clearly articulate facts and details
- know from memory and be able to explain all multiplication facts through 10×10
- Solve word problems
- Perform multi-digit arithmetic problems
- Basic geometry and measurement
- Tell time

These, among many other concepts will prepare your child for future complex problem solving and scientific understanding.

I look forward to building a relationship with your child and family this year. With your assistance and support, your child will have a successful school year and a smooth transition into third grade. Communication between us is vital as we undertake such an adventure, please feel free to contact me by phone or email to answer questions or concerns.

Sincerely,



Sample Introductory Parent Letter (Grade 4)

(Insert Date)

Dear Parent or Guardian,

I look forward to being your child's fourth grade teacher. Elementary school builds the foundation for future learning. It is a great honor to work with you as we dedicate our time to the academic, emotional, and healthy physical growth of your child. This year, the West Virginia Board of Education adopted new learning standards to meet the needs of all West Virginia students. Our rigorous standards set high expectations for West Virginia students so they will be able to compete with other students across the state, the nation, and the world. The West Virginia College- and Career-Readiness Standards for fourth grade support previous learning, set the stage for future learning, and prepare your child for success.

Here are some of the academic highlights your child will experience in fourth grade this year:

- write narratives, opinion pieces, and informative information
- spell accurately and demonstrate command of English grammar and usage when writing and speaking
- build vocabulary and an understanding of figurative language, word relationships, and nuances in word meanings
- express an opinion and clearly tell about facts and details
- develop understanding and demonstrate fluency with multi-digit multiplication and develop understanding of dividing to find quotients involving multi-digit dividends
- solve word problems involving all four operations and fractions
- develop an understanding of fraction equivalence, addition and subtraction of fractions with like denominators and multiplication of fractions by whole numbers
- understand that geometric figures can be analyzed and classified based on their properties, such as having parallel sides, perpendicular sides, particular angle measures and symmetry

These, among many other concepts will prepare your child for future complex problem solving and scientific understanding.

I look forward to building a relationship with your child and family this year. With your assistance and support, your child will have a successful school year and a smooth transition into fourth grade. Communication between us is vital as we undertake such an adventure, please feel free to contact me by phone or email to answer questions or concerns.

Sincerely,



Sample Introductory Parent Letter (Grade 5)

(Insert Date)

Dear Parent or Guardian,

I look forward to being your child's fifth grade teacher. Elementary school builds the foundation for future learning. It is a great honor to work with you as we dedicate our time to the academic, emotional, and healthy physical growth of your child. This year, the West Virginia Board of Education adopted new learning standards to meet the needs of all West Virginia students. Our rigorous standards set high expectations for West Virginia students so they will be able to compete with other students across the state, the nation, and the world. The West Virginia College- and Career-Readiness Standards for fifth grade build upon previous learning, set the stage for future learning, and prepare your child for success.

Here are some of the academic highlights your child will experience in fifth grade this year:

- determine a theme of a story, drama, or poem from details in the text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text
- write narratives that include details and clear sequences of events
- write opinion pieces on topics or texts supporting a point of view with reasons and information
- write informative texts to examine a topic and convey ideas and information clearly
- spell accurately and demonstrate command of English grammar and usage when writing and speaking
- build vocabulary by building knowledge of academic words with an emphasis on those that signal a contrast in ideas or logical relationships, such as on the other hand, similarly, and therefore
- express an opinion and clearly articulate facts and details
- demonstrate fluency with multi-digit multiplication and develop understanding of dividing to find quotients involving multi-digit dividends
- develop understanding of why division procedures work based on the meaning of base-ten numerals and properties of operations
- recognize volume as an attribute of three-dimensional space. They understand that volume can be measured by finding the total number of same-size units of volume required to fill the space without gaps or overlaps
- select appropriate units, strategies, and tools for solving problems that involve estimating and measuring volume and solve word problems involving all four operations and fractions

These, among many other concepts will prepare your child for future complex problem solving and scientific understanding.

I look forward to building a relationship with your child and family this year. With your assistance and support, your child will have a successful school year and a smooth transition into fifth grade. Communication between us is vital as we undertake such an adventure, please feel free to contact me by phone or email to answer questions or concerns.

Sincerely,



Appendix C

English Language Arts Standards Progressions

Skill Progressions in West Virginia College- and Career-Readiness Standards for English Language Arts

The following pages contain the skill progressions found in the West Virginia College- and Career Readiness Standards for English language arts (ELA). In ELA, each grade level consists of 41 standards; these standards have been organized in K-12 order to show the advancing rigor and complexity of the expectations for what students should know, understand, and be able to do.

This document is intended to be a resource to foster and support discussion among teachers or how best to personalize and differentiate instruction for their students. The progression of skills toward college- and career-readiness that are outlined here can be used to scaffold instruction, assist with remediation, and to develop instructional plans that meet the specific needs of each student.

Early Learning Foundations-Fluency	
2.I	Read with sufficient accuracy and fluency to support comprehension. <ul style="list-style-type: none"> • Read on-level text with purpose and understanding. • Read on-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings. • Use context to confirm or self-correct word recognition and understanding, rereading as necessary.
3.I	Read with sufficient accuracy and fluency to support comprehension. <ul style="list-style-type: none"> • Read on-level text with purpose and understanding. • Read on-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings. • Use context to confirm or self-correct word recognition and understanding, rereading as necessary.
4.I	Read with sufficient accuracy and fluency to support comprehension. <ul style="list-style-type: none"> • Read on-level text with purpose and understanding. • Read on-level prose and poetry orally with accuracy, appropriate rate, and expression. • Use context to confirm or self-correct word recognition and understanding, rereading as necessary.
5.I	Read with sufficient accuracy and fluency to support comprehension. <ul style="list-style-type: none"> • Read on-level text with purpose and understanding. • Read on-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings. • Use context to confirm or self-correct word recognition and understanding, rereading as necessary.

Early Learning Foundations-Phonics and Word Recognition	
2.II	Know and apply grade-level phonics and word analysis skills in decoding words. <ul style="list-style-type: none"> • Distinguish long and short vowels when reading regularly spelled one-syllable words. • Know spelling-sound correspondences for additional common vowel teams. • Decode regularly spelled two-syllable words with long vowels. • Decode words with common prefixes and suffixes. • Identify words with inconsistent but common spelling-sound correspondences. • Recognize and read grade-appropriate irregularly spelled words.



3.II	Know and apply grade-level phonics and word analysis skills in decoding words. <ul style="list-style-type: none"> Identify and know the meaning of the most common prefixes and derivational suffixes. Decode words with common Latin suffixes. Decode multi-syllable words. Read grade-appropriate irregularly spelled words.
4.II	Know and apply grade-level phonics and word analysis skills in decoding words. <ul style="list-style-type: none"> Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.
5.II	Know and apply grade-level phonics and word analysis skills in decoding words. <ul style="list-style-type: none"> Use combined knowledge of all letter-sound correspondences, syllabication patterns, and morphology (e.g., roots and affixes) to read accurately unfamiliar multisyllabic words in context and out of context.

Early Learning Foundations-Handwriting

2.III	Create readable documents with legible print or cursive as developmentally appropriate.
3.III	Write legibly in cursive or joined italics, allowing margins and correct spacing between letters in a word and words in a sentence.
4.III	Write fluidly and legibly in cursive or joined italics.

Standard 1

2.1	Ask and answer key ideas such questions as who, what, where, when, why, and how to demonstrate understanding of key details in literary text.
3.1	Ask and answer questions to demonstrate understanding of a literary text, referring explicitly to the text as the basis for the answers.
4.1	Refer to details and examples in a literary text when explaining what the text says explicitly and when drawing inferences from the text.
5.1	Quote accurately from a literary text when explaining what the text says explicitly and when drawing inferences from the text.
6.1	Cite textual evidence to support analysis of what the literary text says explicitly as well as inferences drawn from the text.

Standard 2

2.2	Recount stories, including fables and folktales from diverse cultures and determine their central message, lesson, or moral in literary text.
3.2	Recount stories, including fables, folktales, and myths from diverse cultures; determine the central message, lesson, or moral and explain how it is conveyed through key details in the literary text.
4.2	Determine a theme of a story, drama, or poem from details in the literary text; summarize the text.
5.2	Determine a theme of a story, drama, or poem from details in a literary text, including how characters in a story or drama respond to challenges or how the speaker in a poem reflects upon a topic; summarize the text.
6.2	Determine a theme or central idea of a literary text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.

Standard 3

2.3	Describe how characters in a story respond to major events and challenges in literary text.
3.3	Describe characters in a literary story (e.g., their traits, motivations, or feelings) and explain how their actions contribute to the sequence of events.



4.3	Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the literary text (e.g., a character's thoughts, words, or actions).
5.3	Compare and contrast two or more characters, settings, or events in a story or drama, drawing on specific details in the literary text (e.g., how characters interact).
6.3	Describe how a particular story's or drama's plot unfolds in a series of events and how the characters respond or change as the plot moves toward a resolution.
Standard 4	
2.4	Ask and answer such questions as who, what, where, when, why, and how to demonstrate understanding of key details in informational text.
3.4	Ask and answer questions to demonstrate understanding of an informational text, referring explicitly to the text as the basis for the answers.
4.4	Refer to details and examples in an informational text when explaining what the text says explicitly and when drawing inferences from the text.
5.4	Quote accurately from an informational text when explaining what the text says explicitly and when drawing inferences from the text.
6.4	Cite textual evidence to support analysis of what the informational text says explicitly as well as inferences drawn from the text.
Standard 5	
2.5	Identify the main topic of a multi-paragraph text as well as the focus of specific paragraphs within informational text.
3.5	Determine the main idea of an informational text; recount the key details and explain how they support the main idea.
4.5	Determine the main idea of an informational text and explain how it is supported by key details; summarize the text.
5.5	Determine two or more main ideas of an informational text and explain how they are supported by key details; summarize the text.
6.5	Determine a central idea of an informational text and how it is conveyed through particular details; provide a summary of the text distinct from personal opinions or judgments.
Standard 6	
2.6	Describe the connection between a series of historical events, scientific ideas or concepts, or steps in technical procedures in an informational text.
3.6	Describe the relationship between a series of historical events, scientific ideas or concepts, or steps in technical procedures in an informational text, using language that pertains to time, sequence, and cause/effect.
4.6	Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the informational text.
5.6	Using an informational text, explain the relationships or interactions between two or more individuals, events, ideas, or concepts in a historical, scientific, or technical text based on specific information in the text.
6.6	Analyze in detail how a key individual, event, or idea is introduced, illustrated, and developed in an informational text (e.g., through examples or anecdotes).
Standard 7	
2.7	Describe how words and phrases (e.g., regular beats, alliteration, rhymes, and repeated lines) in literary text supply rhythm and meaning in a story, poem, or song.
3.7	Determine the meaning of words and phrases as they are used in a literary text, distinguishing literal from nonliteral language.
4.7	Determine the meaning of words and phrases as they are used in a literary text, including those that allude to significant characters found in mythology (e.g., herculean).



5.7	Determine the meaning of words and phrases as they are used in a literary text, including figurative language such as metaphors and similes.
6.7	Determine the meaning of words and phrases as they are used in a literary text, including figurative and connotative meanings; analyze the impact of a specific word choice on meaning and tone.

Standard 8

2.8	Describe the overall structure of a story, including describing how the beginning introduces the story and the ending concludes the action in literary text.
3.8	Refer to parts of stories, dramas, and poems when writing or speaking about a literary text, using terms such as chapter, scene, and stanza; describe how each successive part builds on earlier sections.
4.8	Explain major differences between poems, drama, and prose; refer to the structural elements of poems (e.g., verse, rhythm, and meter) and drama (e.g., casts of characters, settings, descriptions, dialogue, and stage directions) when writing or speaking about a literary text.
5.8	Explain how a series of chapters, scenes, or stanzas fits together in a literary text to provide the overall structure of a particular story, drama, or poem.
6.8	Analyze how a particular sentence, chapter, scene, or stanza fits into the overall structure of a literary text and contributes to the development of the theme, setting, or plot.

Standard 9

2.9	Acknowledge differences in the points of view of characters, including speaking in a different voice for each character when reading dialogue aloud from literary text.
3.9	Distinguish one's point of view from that of the narrator or those of the characters in a literary text.
4.9	Compare and contrast the point of view from which different literary texts are narrated, including the difference between first- and third-person narrations.
5.9	Describe how a narrator's or speaker's point of view influences how events are described in a literary text.
6.9	Explain how an author develops the point of view of the narrator or speaker in a literary text.

Standard 10

2.10	Determine the meaning of words and phrases in informational text relevant to a grade 2 topic or subject area.
3.10	Determine the meaning of general academic and domain-specific words and phrases in an informational text relevant to a grade 3 topic or subject area.
4.10	Determine the meaning of general academic and domain-specific words or phrases in an informational text relevant to a grade 4 topic or subject area.
5.10	Determine the meaning of general academic and domain-specific words and phrases in an informational text relevant to a grade 5 topic or subject area.
6.10	Determine the meaning of words and phrases as they are used in an informational text, including figurative, connotative, and technical meanings.

Standard 11

2.11	Know and use various informational text features (e.g., captions, bold print, subheadings, glossaries, indexes, electronic menus, and icons) to locate key facts or information in a text efficiently.
3.11	Use informational text features and search tools (e.g., key words, sidebars, and hyperlinks) to locate information relevant to a given topic efficiently
4.11	Describe the overall structure (e.g., chronology, comparison, cause/effect, or problem/solution) of events, ideas, concepts, or information in all or part of an informational text.



5.11	Compare and contrast the overall structure (e.g., chronology, comparison, cause/effect, and problem/solution) of events, ideas, concepts, or information in two or more informational texts.
6.11	Analyze how a particular sentence, paragraph, chapter, or section fits into the overall structure of an informational text and contributes to the development of the ideas.
Standard 12	
2.12	Identify the main purpose of informational text, including what the author wants to answer, explain, or describe
3.12	Distinguish one's own point of view from that of the author of an informational text.
4.12	Compare and contrast a firsthand and secondhand account of the same event or topic; describe the differences in focus and the information provided in informational text.
5.12	Analyze multiple accounts of the same event or topic, noting important similarities and differences in the point of view they represent in an informational text.
6.12	Determine an author's point of view or purpose in an informational text and explain how it is communicated in the text.
Standard 13	
2.13	Use information gained from the illustrations and words in a print or digital literary text to demonstrate understanding of its characters, setting, or plot.
3.13	Explain how specific aspects of a literary text's illustrations contribute to what is conveyed by the words in a story (e.g., create mood or emphasize aspects of a character or setting).
4.13	Make connections between the text of a story or drama and a visual or oral presentation of the literary text, identifying where each version reflects specific descriptions and directions in the text.
5.13	Analyze how visual and multimedia elements contribute to the meaning, tone, or beauty of a literary text (e.g., graphic novel, multimedia presentation of fiction, folktale, myth, and/or poem).
6.13	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 literary text, including contrasting what is "seen" and "heard" when reading the text to what is perceived when listening or watching.
Standard 14	
2.14	Compare and contrast two or more versions of the same story (e.g., Cinderella stories) by different authors or from different cultures in a literary text.
3.14	Compare and contrast the themes, settings, and plots of literary stories written by the same author about the same or similar characters (e.g., in books from a series).
4.14	Compare and contrast the treatment of similar themes and topics (e.g., opposition of good and evil) and patterns of events (e.g., a journey) in stories, myths, traditional literature, and literary text from different cultures.
5.14	Compare and contrast stories in literary texts of the same genre (e.g., mysteries and adventure stories) on their approaches to similar themes and topics.
6.14	Compare and contrast literary texts in different forms or genres (e.g., stories, poems, historical novels, and fantasy stories) in terms of their approaches to similar themes and topics.
Standard 15	
2.15	Explain how specific images (e.g., a diagram showing how a machine works) contribute to and clarify an informational text.
3.15	Use information gained from illustrations (e.g., maps or photographs) and the words in an informational text to demonstrate understanding of the text (e.g., where, when, why, and how key events occur).



4.15	Interpret information presented visually orally or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on web pages) and explain how the information contributes to an understanding of the informational text in which it appears.
5.15	Draw on information from multiple print or digital informational sources, demonstrating the ability to locate an answer to a question quickly or to solve a problem efficiently.
6.15	Integrate information presented in different media or formats (e.g., visually and/or quantitatively) and in words to develop a coherent understanding of a topic or issue.

Standard 16

2.16	Describe how reasons support specific points the author makes in an informational text.
3.16	Describe the logical connection between particular sentences and paragraphs in an informational text (e.g., comparison, cause/effect, or first/second/third in a sequence).
4.16	Explain how an author uses reasons and evidence to support particular points in an informational text.
5.16	Explain how an author uses reasons and evidence to support particular points in an informational text, identifying which reasons and evidence support which point(s).
6.16	Trace and evaluate the argument and specific claims in an informational text, distinguishing claims that are supported by reasons and evidence from claims that are not.

Standard 17

2.17	Compare and contrast the most important points presented by two informational texts on the same topic.
3.17	Compare and contrast the most important points and key details presented in two informational texts on the same topic.
4.17	Integrate information from two informational texts on the same topic in order to write or speak about the subject knowledgeably.
5.17	Integrate information from several informational texts on the same topic in order to write or speak about the subject knowledgeably.
6.17	Compare and contrast two authors' presentations of events (e.g., a memoir written by and a biography on the same person) in informational text.

Standard 18

2.18	By the end of the year, read and comprehend literature, including stories and poetry, in the grades 2–3 text complexity range proficiently, with scaffolding as needed at the high end of the range.
3.18	By the end of the year, read and comprehend literature, including stories, dramas and poetry, at the high end of the grades 2–3 text complexity range independently and proficiently.
4.18	By the end of the year read and comprehend literature, including stories, dramas, and poetry, in the grades 4–5 text complexity range proficiently, with scaffolding as needed at the high end of the range.
5.18	By the end of the year, read and comprehend literature, including stories, dramas, and poetry, at the high end of the grades 4–5 text complexity range independently and proficiently.
6.18	By the end of the year, read and comprehend literature, including stories, dramas, and poetry, in the grades 6–8 text complexity range proficiently, with scaffolding as needed at the high end of the range.



Standard 19	
2.19	By the end of year, read and comprehend informational texts, including social studies, science, and technical texts, in the grades 2–3 text complexity range proficiently, with scaffolding as needed at the high end of the range.
3.19	By the end of the year, read and comprehend informational texts, including social studies, science, and technical texts, at the high end of the grades 2–3 text complexity range independently and proficiently.
4.19	By the end of the year read and comprehend informational texts, including social studies, science and technical texts, in the grades 4–5 text complexity range proficiently, with scaffolding as needed at the high end of the range.
5.19	By the end of the year, read and comprehend informational texts, including social studies, science, and technical texts, at the high end of the grades 4–5 text complexity range independently and proficiently.
6.19	By the end of the year, read and comprehend nonfiction and other informational texts in the grades 6–8 text complexity range proficiently, with scaffolding as needed at the high end of the range.
Standard 20	
2.20	Write opinion pieces by introducing the topic or text being discussed, stating an opinion, supplying reasons that support the opinion, using linking words (e.g., because, and, or also) to connect opinion and reasons, and providing a concluding statement or section.
3.20	Write opinion pieces on topics or texts, supporting a point of view with reasons. <ul style="list-style-type: none"> • Introduce the topic or text being discussed, state an opinion, and create an organizational structure that lists reasons. • Provide reasons that support the opinion. • Use linking words and phrases (e.g., because, therefore, since, or for example) to connect opinion and reasons. • Provide a concluding statement or section.
4.20	Write opinion pieces on topics or texts, supporting a point of view with reasons and information. <ul style="list-style-type: none"> • Introduce a topic or text clearly, state an opinion, and create an organizational structure in which related ideas are grouped to support the writer’s purpose. • Provide reasons that are supported by facts and details. • Link opinion and reasons using words and phrases (e.g., for instance, in order to, or in addition). • Provide a concluding statement or section related to the opinion presented.
5.20	Write opinion pieces on topics or texts, supporting a point of view with reasons and information. <ul style="list-style-type: none"> • Introduce a topic or text clearly, state an opinion, and create an organizational structure in which ideas are logically grouped to support the writer’s purpose. • Provide logically ordered reasons that are supported by facts and details. • Link opinion and reasons using words, phrases, and clauses (e.g., consequently and specifically). • Provide a concluding statement or section related to the opinion presented.
6.20	Write arguments to support claims with clear reasons and relevant evidence. <ul style="list-style-type: none"> • 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.



Standard 21

2.21	Write informative/explanatory texts by introducing a topic, using facts and definitions to develop points, and providing a concluding statement or section.
3.21	Write informative/explanatory texts to examine a topic and convey ideas and information clearly. <ul style="list-style-type: none">• Introduce a topic and group related information together; include illustrations when useful to aid comprehension.• Develop the topic with facts, definitions, and details.• Use linking words and phrases (e.g., also, another, and, more, or but) to connect ideas within categories of information.• Provide a concluding statement or section.
4.21	Write informative/explanatory texts to examine a topic and convey ideas and information clearly. <ul style="list-style-type: none">• Introduce a topic clearly and group related information in paragraphs and sections; include formatting (e.g., headings), illustrations, and multimedia when useful to aiding comprehension.• Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic.• Link ideas within categories of information using words and phrases (e.g., another, for example, also, or because).• Use precise language and domain-specific vocabulary to inform about or explain the topic.• Provide a concluding statement or section related to the information or explanation presented.
5.21	Write informative/explanatory texts to examine a topic and convey ideas and information clearly. <ul style="list-style-type: none">• Introduce a topic clearly, provide a general observation, and focus and group related information logically; include formatting (e.g., headings), illustrations, and multimedia when useful to aid comprehension.• Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic.• Link ideas within and across categories of information using words, phrases, and clauses (e.g., in contrast and especially).• Use precise language and domain-specific vocabulary to inform about or explain the topic.• Provide a concluding statement or section related to the information or explanation presented.
6.21	Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content. <ul style="list-style-type: none">• 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 or tables), and multimedia when useful to aid 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.• Establish and maintain a formal style.• Provide a concluding statement or section that follows from the information or explanation presented.



Standard 22	
2.22	Write narratives to recount a well-elaborated event or short sequence of events, including details to describe actions, thoughts, and feelings, and using transitional words to signal event order and provide a sense of closure.
3.22	Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences. <ul style="list-style-type: none"> • Establish a situation and introduce a narrator and/or characters; organize an event sequence that unfolds naturally. • Use dialogue and descriptions of actions, thoughts, and feelings to develop experiences and events or show the response of characters to situations. • Use transitional words and phrases to signal event order. • Provide a sense of closure.
4.22	Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences. <ul style="list-style-type: none"> • Orient the reader by establishing a situation and introducing a narrator and/or characters; organize an event sequence that unfolds naturally. • Use dialogue and description to develop experiences and events or show the responses of characters to situations. • Use a variety of transitional words and phrases to manage the sequence of events. • Use concrete words and phrases and sensory details to convey experiences and events precisely. • Provide a conclusion that follows from the narrated experiences or events.
5.22	Write a narrative to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences. <ul style="list-style-type: none"> • Orient the reader by establishing a situation and introducing a narrator and/or characters; organize an event sequence that unfolds naturally. • Use narrative techniques, such as dialogue, description, and pacing, to develop experiences and events or show the responses of characters to situations. • Use a variety of transition words, phrases, and clauses to manage the sequence of events. • Use concrete words and phrases and sensory details to convey experiences and events precisely. • Provide a conclusion that follows from the narrated experiences or events.
6.22	Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences. <ul style="list-style-type: none"> • 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. • 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 convey experiences and events. • Provide a conclusion that follows from the narrated experiences or events.
Standard 23	
2.23	(Begins in grade 3.)
3.23	With guidance and support from adults, produce writing in which the development and organization are appropriate to task and purpose. (Grade-specific expectations for writing types are defined in Text Types and Purposes.)
4.23	Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Text Types and Purposes.)



5.23	Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Text Types and Purposes.)
6.23	Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in Text Types and Purposes.)

Standard 24

2.24	With guidance and support from adults and collaborative discussions, focus on a topic and strengthen writing as needed by revising and editing.
3.24	With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing. (Editing for conventions should demonstrate command of Language standards up to and including grade 3).
4.24	With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing. (Editing for conventions should demonstrate command of Language standards up to and including grade 4.)
5.24	With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach. (Editing for conventions should demonstrate command of Language standards up to and including grade 5.)
6.24	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. (Editing for conventions should demonstrate command of Language standards up to and including grade 6.)

Standard 25

2.25	With guidance and support from adults, use a variety of digital tools to produce and publish writing, including collaboration with peers.
3.25	With guidance and support from adults, use technology to produce and publish writing (using keyboarding skills) as well as to interact and collaborate with others.
4.25	With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills.
5.25	With some guidance and support from adults, use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type accurately.
6.25	Use technology, including the Internet, to produce and publish writing as well as to interact and collaborate with others; demonstrate sufficient command of keyboarding skills to type efficiently and accurately.

Standard 26

2.26	Participate in shared research and writing projects (e.g., read a number of books on a single topic to produce a report; record science observations).
3.26	Conduct short research projects that build knowledge about a topic.
4.26	Conduct short research projects that build knowledge through investigation of different aspects of a topic.
5.26	Conduct short research projects that use several sources to build knowledge through investigation of different aspects of a topic.
6.26	Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.



Standard 27	
2.27	Recall information from experiences or gather information from provided sources to answer a question.
3.27	Recall information from experiences or gather information from print and digital sources; take brief notes on sources and sort evidence into provided categories.
4.27	Recall relevant information from experiences or gather relevant information from print and digital sources; take notes and categorize information and provide a list of sources.
5.27	Recall relevant information from experiences or gather relevant information from print and digital sources; summarize or paraphrase information in notes and finished work and provide a list of sources.
6.27	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.
Standard 28	
2.28	(Begins in grade 4.)
3.28	(Begins in grade 4.)
4.28	<p>Draw evidence from literary or informational texts to support analysis, reflection, and research.</p> <ul style="list-style-type: none"> Apply grade 4 Reading standards to literature (e.g., “describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text [e.g., a character’s thoughts, words, or actions].”). Apply grade 4 Reading standards to informational texts (e.g., “explain how an author uses reasons and evidence to support particular points in a text.”).
5.28	<p>Draw evidence from literary or informational texts to support analysis, reflection, and research.</p> <ul style="list-style-type: none"> Apply grade 5 Reading standards to literature (e.g., “compare and contrast two or more characters, settings, or events in a story or a drama, drawing on specific details in the text [e.g., how characters interact]”). Apply grade 5 Reading standards to informational texts (e.g., “explain how an author uses reasons and evidence to support particular points in a text, identifying which reasons and evidence support which point[s]”).
6.28	<p>Draw evidence from literary or informational texts to support analysis, reflection, and research.</p> <ul style="list-style-type: none"> Apply grade 6 Reading standards to literature (e.g., “compare and contrast texts in different forms or genres [e.g., stories, poems, historical novels, and fantasy stories] in terms of their approaches to similar themes and topics”). Apply grade 6 Reading standards to nonfiction and other informational texts (e.g., “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”).
Standard 29	
2.29	(Begins in grade 3.)
3.29	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.
4.29	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.
5.29	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.



6.29	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.
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Standard 30

2.30	<p>Participate in collaborative conversations with diverse partners about grade 2 topics and texts with peers and adults in small and larger groups.</p> <ul style="list-style-type: none"> • Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, and speaking one at a time about the topics and texts under discussion). • Build on others' talk in conversations by linking comments to the remarks of others. • Ask for clarification and further explanation as needed about the topics and texts under discussion.
3.30	<p>Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 3 topics and texts, building on others' ideas and expressing ideas clearly.</p> <ul style="list-style-type: none"> • Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion. • Follow agreed-upon rules for discussions (e.g., gaining the floor in respectful ways, listening to others with care, and speaking one at a time about the topics and texts under discussion). • Ask questions to check understanding of information presented, stay on topic, and link comments to the remarks of others. • Explain ideas and understanding in light of the discussion.
4.30	<p>Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others' ideas and expressing ideas clearly.</p> <ul style="list-style-type: none"> • Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion. • Follow agreed-upon rules for discussions and carry out assigned roles. • Pose and respond to specific questions to clarify or follow up on information and make comments that contribute to the discussion and link to the remarks of others. • Review the key ideas expressed and explain ideas and understanding in light of the discussion.
5.30	<p>Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 5 topics and texts, building on others' ideas and expressing ideas clearly.</p> <ul style="list-style-type: none"> • Come to discussions prepared having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion. • Follow agreed-upon rules for discussions and carry out assigned roles. • Pose and respond to specific questions by making comments that contribute to the discussion and elaborate on the remarks of others. • Review the key ideas expressed and draw conclusions in light of information and knowledge gained from the discussions.



6.30	Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 6 topics, texts, and issues, building on others' ideas and expressing ideas clearly. <ul style="list-style-type: none"> • 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 shared 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.
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Standard 31

2.31	Recount or describe key ideas or details from a text read aloud or information presented orally or through other media.
3.31	Determine the main ideas and supporting details of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
4.31	Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
5.31	Summarize a written text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
6.31	Interpret information presented in diverse media and formats (e.g., visually, quantitatively, and/or orally) and explain how it contributes to a topic, text, or issue under study.

Standard 32

2.32	Ask and answer questions about what a speaker says in order to clarify comprehension, gather additional information, or deepen understanding of a topic or issue.
3.32	Ask and answer questions about information from a speaker, offering appropriate elaboration and detail.
4.32	Identify the reasons and evidence a speaker provides to support particular points.
5.32	Summarize the points a speaker makes and explain how each claim is supported by reasons and evidence.
6.32	Delineate a speaker's argument and specific claims, distinguishing claims that are supported by reasons and evidence from claims that are not.

Standard 33

2.33	Tell a story or recount an experience with appropriate facts and relevant, descriptive details; speaking audibly and coherently.
3.33	Report on a topic or text; tell a story or recount an experience with appropriate facts and relevant, descriptive details, speaking audibly and coherently.
4.33	Report on a topic or text, tell a story, or recount an experience in an organized manner, using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.
5.33	Report on a topic or text or present an opinion, sequencing ideas logically and using appropriate facts and relevant, descriptive details to support main ideas or themes; speak clearly at an understandable pace.
6.33	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.



Standard 34	
2.34	Create audio recordings of stories or poems; add drawings or other visual displays to stories or recounts of experiences when appropriate to clarify ideas, thoughts, and feelings.
3.34	Create engaging audio recordings of stories or poems that demonstrate fluid reading at an understandable pace; add visual displays when appropriate to emphasize or enhance certain facts or details.
4.34	Add audio recordings and visual displays to presentations when appropriate to enhance the development of main ideas or themes.
5.34	Include multimedia components (e.g., graphics and/or sound) and visual displays in presentations when appropriate to enhance the development of main ideas or themes.
6.34	Include multimedia components (e.g., graphics, images, music, and/or sound) and visual displays in presentations to clarify information.
Standard 35	
2.35	Produce complete sentences when appropriate to task and situation in order to provide requested detail or clarification.
3.35	Speak in complete sentences when appropriate to task and situation in order to provide requested detail or clarification.
4.35	Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion); use formal English when appropriate to task and situation. (See grade 4 Language standards for specific expectations.)
5.35	Adapt speech to a variety of contexts and tasks, using formal English when appropriate to task and situation. (See grade 5 Language standards for specific expectations.)
6.35	Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See grade 6 Language standards for specific expectations.)
Standard 36	
2.36	<p>Demonstrate command of the conventions of Standard English grammar and usage when writing or speaking.</p> <ul style="list-style-type: none"> • Use collective nouns (e.g., group). • Form and use frequently occurring irregular plural nouns (e.g., feet, children, teeth, mice, and fish). • Use reflexive pronouns (e.g., myself or ourselves). • Form and use the past tense of frequently occurring irregular verbs (e.g., sat, hid, or told). • Use adjectives and adverbs and choose between them depending on what is to be modified. • Produce, expand, and rearrange complete simple and compound sentences (e.g., the boy watched the movies; the little boy watched the movie; the action movie was watched by the little boy).



3.36	<p>Demonstrate command of the conventions of Standard English grammar and usage when writing or speaking.</p> <ul style="list-style-type: none"> • Explain the function of nouns, pronouns, verbs, adjectives, and adverbs in general and their functions in particular sentences. • Form and use regular and irregular plural nouns. • Use abstract nouns (e.g., childhood). • Form and use regular and irregular verbs. • Form and use the simple (e.g., I walked; I walk; I will walk) verb tenses. • Ensure subject-verb and pronoun-antecedent agreement. • Form and use comparative and superlative adjectives and adverbs, and choose between them depending on what is to be modified. • Use coordinating and subordinating conjunctions. • Produce simple, compound, and complex sentences.
4.36	<p>Demonstrate command of the conventions of Standard English grammar and usage when writing or speaking.</p> <ul style="list-style-type: none"> • Use relative pronouns (who, whose, whom, which, or that) and relative adverbs (where, when, or why). • Form and use the progressive (e.g., I was walking; I am walking; I will be walking) verb tenses. • Use modal auxiliaries (e.g., can, may, or must) to convey various conditions. • Order adjectives within sentences according to conventional patterns (e.g., a small red bag rather than a red small bag). • Form and use prepositional phrases. • Produce complete sentences, recognizing and correcting inappropriate fragments and run-ons. • Correctly use frequently confused words (e.g., to, too, and two; there and their).
5.36	<p>Demonstrate command of the conventions of Standard English grammar and usage when writing or speaking.</p> <ul style="list-style-type: none"> • Explain the function of conjunctions, prepositions, and interjections in general and their function in particular sentences. • Form and use the perfect (e.g., I had walked; I have walked; I will have walked) verb tenses. • Use verb tense to convey various times, sequences, states, and conditions. • Recognize and correct inappropriate shifts in verb tense. • Use correlative conjunctions (e.g., either/or and neither/nor).
6.36	<p>Demonstrate command of the conventions of Standard English grammar and usage when writing or speaking.</p> <ul style="list-style-type: none"> • Ensure that pronouns are in the proper case (subjective, objective, or possessive). • Use intensive pronouns (e.g., myself or ourselves). • Recognize and correct inappropriate shifts in pronoun number and person. • Recognize and correct vague pronouns (i.e., ones with unclear or ambiguous antecedents). • Recognize variations from Standard English in one's own and others' writing and speaking; identify and use strategies to improve expression in conventional language.



Standard 37

2.37	Demonstrate command of the conventions of Standard English capitalization, punctuation, and spelling when writing. <ul style="list-style-type: none">• Capitalize holidays, product names, and geographic names.• Use commas in greetings and closings of letters.• Use an apostrophe to form contractions and frequently occurring possessives.• Generalize learned spelling patterns when writing words (e.g., cage / badge; boy / boil).• Consult reference materials, including beginning dictionaries, as needed to check and correct spellings.
3.37	Demonstrate command of the conventions of Standard English capitalization, punctuation, and spelling when writing. <ul style="list-style-type: none">• Capitalize appropriate words in titles.• Use commas in addresses.• Use commas and quotation marks in dialogue.• Form and use possessives.• Use conventional spelling for high-frequency and other studied words and for adding suffixes to base words (e.g., sitting, smiled, cries, or happiness).• Use spelling patterns and generalizations (e.g., word families, position-based spellings, syllable patterns, ending rules, and meaningful word parts) in writing words.• Consult reference materials, including beginning dictionaries, as needed to check and correct spellings.
4.37	Demonstrate command of the conventions of Standard English capitalization, punctuation, and spelling when writing. <ul style="list-style-type: none">• Use correct capitalization.• Use commas and quotation marks to mark direct speech and quotations from a text.• Use a comma before a coordinating conjunction in a compound sentence.• Spell grade-appropriate words correctly, consulting references as needed.
5.37	Demonstrate command of the conventions of Standard English capitalization, punctuation and spelling when writing. <ul style="list-style-type: none">• Use punctuation to separate items in a series.• Use a comma to separate an introductory element from the rest of the sentence.• Use a comma to set off the words yes and no (e.g., Yes, thank you.), to set off a tag question from the rest of the sentence (e.g., It's true, isn't it?), and to indicate direct address (e.g., Is that you, Steve?).• Use underlining, quotation marks, or italics to indicate titles of works.• Spell grade-appropriate words correctly, consulting references as needed.
6.37	Demonstrate command of the conventions of Standard English capitalization, punctuation, and spelling when writing. <ul style="list-style-type: none">• Use punctuation (commas, parentheses, or dashes) to set off nonrestrictive/parenthetical elements.• Spell correctly.

Standard 38

2.38	Use knowledge of language and its conventions when writing, speaking, reading, or listening. <ul style="list-style-type: none">• Compare formal and informal uses of English.
3.38	Use knowledge of language and its conventions when writing, speaking, reading, or listening. <ul style="list-style-type: none">• Choose words and phrases for effect.• Recognize and observe differences between the conventions of spoken and written Standard English.



4.38	Use knowledge of language and its conventions when writing, speaking, reading, or listening. <ul style="list-style-type: none"> Choose words and phrases to convey ideas precisely. Choose punctuation for effect. Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion).
5.38	Use knowledge of language and its conventions when writing, speaking, reading, or listening. <ul style="list-style-type: none"> Expand, combine, and reduce sentences for meaning, reader/listener interest, and style. Compare and contrast the varieties of English (e.g., dialects and/or registers) used in stories, dramas, or poems.
6.38	Use knowledge of language and its conventions when writing, speaking, reading, or listening. <ul style="list-style-type: none"> Vary sentence patterns for meaning, reader/listener interest, and style. Maintain consistency in style and tone.

Standard 39

2.39	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 2 reading and content, choosing flexibly from an array of strategies. <ul style="list-style-type: none"> Use sentence-level context as a clue to the meaning of a word or phrase. Determine the meaning of the new word formed when a known prefix is added to a known word (e.g., happy/unhappy, and tell/retell). Use a known root word as a clue to the meaning of an unknown word with the same root (e.g., addition and additional). Use knowledge of the meaning of individual words to predict the meaning of compound words (e.g., birdhouse, lighthouse, and housefly; bookshelf, notebook, and bookmark). Use glossaries and beginning dictionaries, both print and digital, to determine or clarify the meaning of words and phrases.
3.39	Determine or clarify the meaning of unknown and multiple-meaning word and phrases based on grade 3 reading and content, choosing flexibly from a range of strategies. <ul style="list-style-type: none"> Use sentence-level context as a clue to the meaning of a word or phrase. Determine the meaning of the new word formed when a known affix is added to a known word (e.g., agreeable/disagreeable, comfortable/uncomfortable, care/careless, and heat/preheat). Use a known root word as a clue to the meaning of an unknown word with the same root (e.g., company and companion). Use glossaries or beginning dictionaries, both print and digital, to determine or clarify the precise meaning of key words and phrases.
4.39	Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 4 reading and content, choosing flexibly from a range of strategies. <ul style="list-style-type: none"> Use context (e.g., definitions, examples, or restatements in text) as a clue to the meaning of a word or phrase. Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., telegraph, photograph, and autograph). Consult reference materials (e.g., dictionaries, glossaries, and/or thesauruses), both print and digital, to find the pronunciation and determine or clarify the precise meaning of key words and phrases.



5.39	<p>Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 5 reading and content, choosing flexibly from a range of strategies.</p> <ul style="list-style-type: none"> • Use context (e.g., cause/effect relationships and comparisons in text) as a clue to the meaning of a word or phrase. • Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., photograph and photosynthesis). • Consult reference materials (e.g., dictionaries, glossaries, and/or thesauruses), both print and digital, to find the pronunciation and determine or clarify the precise meaning of key words and phrases.
6.39	<p>Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 6 reading and content, choosing flexibly from a range of strategies.</p> <ul style="list-style-type: none"> • 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., audience, auditory, and audible). • Consult reference materials (e.g., dictionaries, glossaries, and/or 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 initial determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).
Standard 40	
2.40	<p>Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.</p> <ul style="list-style-type: none"> • Identify real-life connections between words and their use (e.g., describe foods that are spicy or juicy). • Distinguish shades of meaning among closely related verbs (e.g., toss, throw, and hurl) and closely related adjectives (e.g., thin, slender, skinny, and scrawny).
3.40	<p>Demonstrate understanding of word relationships and nuances in word meanings.</p> <ul style="list-style-type: none"> • Distinguish the literal and nonliteral meanings of words and phrases in context (e.g., take steps). • Identify real-life connections between words and their use (e.g., describe people who are friendly or helpful). • Distinguish shades of meaning among related words that describe states of mind or degrees of certainty (e.g., knew, believed, suspected, heard, and wondered).
4.40	<p>Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.</p> <ul style="list-style-type: none"> • Explain the meaning of simple similes and metaphors (e.g., as pretty as a picture) in context. • Recognize and explain the meaning of common idioms, adages, and proverbs. • Demonstrate understanding of words by relating them to their opposites (antonyms) and to words with similar but not identical meanings (synonyms).
5.40	<p>Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.</p> <ul style="list-style-type: none"> • Interpret figurative language, including similes and metaphors, in context. • Recognize and explain the meaning of common idioms, adages, and proverbs. • Use the relationship between particular words (e.g., synonyms, antonyms, and homographs) to better understand each of the words.



6.40	<p>Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.</p> <ul style="list-style-type: none"> • Interpret figures of speech (e.g., personification) in context. • Use the relationship between particular words (e.g., cause/effect, part/whole, or item/category) to better understand each of the words. • Distinguish among the connotations (associations) of words with similar denotations (definitions) (e.g., stingy, scrimping, economical, frugal, and thrifty).
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Standard 41

2.41	Use words and phrases acquired through conversations, reading, being read to, and responding to texts, including using adjectives and adverbs to describe (e.g., when other kids are happy, that makes me happy).
3.41	Acquire and accurately use grade-appropriate conversational, general academic, and domain-specific words and phrases, including those that signal spatial and transitional relationships (e.g., after dinner that night, we went looking for them).
4.41	Acquire and accurately use grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being (e.g., quizzed, whined, and stammered) and that are basic to a particular topic (e.g., wildlife, conservation, and endangered when discussing animal preservation).
5.41	Acquire and accurately use grade-appropriate general academic and domain-specific words and phrases, including those that signal contrast, addition, and other logical relationships (e.g., however, although, nevertheless, similarly, moreover, and in addition).
6.41	Acquire and accurately use grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.



Appendix D

Mathematics Standards Progressions

Building Numeracy through Mathematical Progressions Grades 3-5

“Numeracy” is a term that refers to all the mathematics that elementary students learn including number, operations, and geometry and measurement concepts. This document was created by the West Virginia Department of Education Office of Early Learning primarily as a tool to help teachers and parents to understand the role of progressions in developing numeracy skills in elementary students. Having knowledge of how children progress in their development of numeracy concepts helps teachers and parents to select and use activities that will intentionally build numeracy skills in students. Building these skills is foundational for children as they progress through their study of mathematics.

The West Virginia College- and Career-Readiness Standards (WCCRS) call for a greater focus in mathematics. Rather than racing to cover topics in a mile-wide, inch-deep curriculum, the WCCRS require us to significantly narrow and deepen the way time and energy is spent in the math classroom. We focus on the major work of each grade so that students can gain strong foundations: solid conceptual understanding, a high degree of procedural skill and fluency, and the ability to apply the math they know to solve problems inside and outside the math classroom.

This appendix is designed to facilitate discussions related to mathematics progressions and to indicate the body of concepts that can be developed in elementary children.



Operations and Algebraic Thinking

Grade 3	<p>Represent and solve problems involving multiplication and division.</p> <ol style="list-style-type: none">1. Interpret products of whole numbers, e.g., interpret 5×7 as the total number of objects in 5 groups of 7 objects each. For example, describe a context in which a total number of objects can be expressed as 5×7.2. Interpret whole-number quotients of whole numbers, e.g., interpret $56 \div 8$ as the number of objects in each share when 56 objects are partitioned equally into 8 shares, or as a number of shares when 56 objects are partitioned into equal shares of 8 objects each. For example, describe a context in which a number of shares or a number of groups can be expressed as $56 \div 8$.3. Use multiplication and division within 100 to solve word problems in situations involving equal groups, arrays, and measurement quantities, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem.14. Determine the unknown whole number in a multiplication or division equation relating three whole numbers. For example, determine the unknown number that makes the equation true in each of the equations $8 \times ? = 48$, $5 = \div 3$, $6 \times 6 = ?$. <p>Understand properties of multiplication and the relationship between multiplication and division.</p> <ol style="list-style-type: none">5. Apply properties of operations as strategies to multiply and divide. <i>2 Examples: If $6 \times 4 = 24$ is known, then $4 \times 6 = 24$ is also known. (Commutative property of multiplication.) $3 \times 5 \times 2$ can be found by $3 \times 5 = 15$, then $15 \times 2 = 30$, or by $5 \times 2 = 10$, then $3 \times 10 = 30$. (Associative property of multiplication.) Knowing that $8 \times 5 = 40$ and $8 \times 2 = 16$, one can find 8×7 as $8 \times (5 + 2) = (8 \times 5) + (8 \times 2) = 40 + 16 = 56$. (Distributive property.)</i>6. Understand division as an unknown factor problem. For example, find $32 \div 8$ by finding the number that makes 32 when multiplied by 8. <p>Multiply and divide within 100.</p> <ol style="list-style-type: none">7. Learn multiplication tables (facts) with speed and memory in order to fluently multiply and divide within 100, using strategies such as the relationship between multiplication and division (e.g., knowing that $8 \times 5 = 40$, one knows that $40 \div 5 = 8$) or properties of operations by the end of Grade 3. <p>Solve problems involving the four operations, and identify and explain patterns in arithmetic.</p> <ol style="list-style-type: none">8. Solve two-step word problems using the four operations. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding.9. Identify arithmetic patterns (including patterns in the addition table or multiplication table), and explain them using properties of operations. <i>For example, observe that 4 times a number is always even, and explain why 4 times a number can be decomposed into two equal addends.</i>
Grade 4	<p>Use the four operations with whole numbers to solve problems.</p> <ol style="list-style-type: none">1. Interpret a multiplication equation as a comparison, e.g., interpret $35 = 5 \times 7$ as a statement that 35 is 5 times as many as 7 and 7 times as many as 5. Represent verbal statements of multiplicative comparisons as multiplication equations.2. Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison.3. Solve multistep word problems posed with whole numbers and having whole-number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. <p>Gain familiarity with factors and multiples.</p> <ol style="list-style-type: none">4. Find all factor pairs for a whole number in the range 1–100. Recognize that a whole number is a multiple of each of its factors. Determine whether a given whole number in the range 1–100 is a multiple of a given one-digit number. Determine whether a given whole number in the range 1–100 is prime or composite. <p>Generate and analyze patterns.</p> <ol style="list-style-type: none">5. Generate a number or shape pattern that follows a given rule. Identify apparent features of the pattern that were not explicit in the rule itself. For example, given the rule “Add 3” and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.



Grade 5	<p>Write and interpret numerical expressions.</p> <ol style="list-style-type: none"> 1. Use parentheses, brackets, or braces in numerical expressions, and evaluate expressions with these symbols. 2. Write simple expressions that record calculations with numbers, and interpret numerical expressions without evaluating them. For example, express the calculation “add 8 and 7, then multiply by 2” as $2 \times (8 + 7)$. Recognize that $3 \times (18932 + 921)$ is three times as large as $18932 + 921$, without having to calculate the indicated sum or product. Analyze patterns and relationships. 3. Generate two numerical patterns using two given rules. Identify apparent relationships between corresponding terms. Form ordered pairs consisting of corresponding terms from the two patterns, and graph the ordered pairs on a coordinate plane. <i>For example, given the rule “Add 3” and the starting number 0, and given the rule “Add 6” and the starting number 0, generate terms in the resulting sequences, and observe that the terms in one sequence are twice the corresponding terms in the other sequence. Explain informally why this is so.</i>
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Numbers and Operations in Base Ten	
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Grade 3	<p>Use place value understanding and properties of operations to perform multi-digit arithmetic.</p> <ol style="list-style-type: none"> 1. Use place value understanding to round whole numbers to the nearest 10 or 100. 2. Fluently add and subtract within 1000 using strategies and algorithms based on place value, properties of operations, and/or the relationship between addition and subtraction. 3. Multiply one-digit whole numbers by multiples of 10 in the range 10–90 (e.g., 9×80, 5×60) using strategies based on place value and properties of operations
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Grade 4	<p>Generalize place value understanding for multi-digit whole numbers.</p> <ol style="list-style-type: none"> 1. Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right. For example, recognize that $700 \div 70 = 10$ by applying concepts of place value and division. 2. Read and write multi-digit whole numbers using base-ten numerals, number names, and expanded form. Compare two multi-digit numbers based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons. 3. Use place value understanding to round multi-digit whole numbers to any place. <p>Use place value understanding and properties of operations to perform multi-digit arithmetic.</p> <ol style="list-style-type: none"> 4. Fluently add and subtract multi-digit whole numbers using the standard algorithm. 5. Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. 6. Find whole-number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
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Grade 5	<p>Understand the place value system.</p> <ol style="list-style-type: none"> 1. Recognize that in a multi-digit number, a digit in one place represents 10 times as much as it represents in the place to its right and 1/10 of what it represents in the place to its left. 2. Explain patterns in the number of zeros of the product when multiplying a number by powers of 10, and explain patterns in the placement of the decimal point when a decimal is multiplied or divided by a power of 10. Use whole-number exponents to denote powers of 10. 3. Read, write, and compare decimals to thousandths. a. Read and write decimals to thousandths using base-ten numerals, number names, and expanded form, e.g., $347.392 = 3 \times 100 + 4 \times 10 + 7 \times 1 + 3 \times (1/10) + 9 \times (1/100) + 2 \times (1/1000)$. b. Compare two decimals to thousandths based on meanings of the digits in each place, using $>$, $=$, and $<$ symbols to record the results of comparisons. 4. Use place value understanding to round decimals to any place. <p>Perform operations with multi-digit whole numbers and with decimals to hundredths.</p> <ol style="list-style-type: none"> 5. Fluently multiply multi-digit whole numbers using the standard algorithm. 6. Find whole-number quotients of whole numbers with up to four-digit dividends and two-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models. 7. Add, subtract, multiply, and divide decimals to hundredths, using concrete models or drawings and strategies based on place value, properties of operations, and/or the relationship between addition and subtraction; relate the strategy to a written method and explain the reasoning used.
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Numbers and Operations - Fractions

Grade 3	<p>Develop understanding of fractions as numbers.</p> <ol style="list-style-type: none"> 1. Understand a fraction $1/b$ as the quantity formed by 1 part when a whole is partitioned into b equal parts; understand a fraction a/b as the quantity formed by a parts of size $1/b$. 2. Understand a fraction as a number on the number line; represent fractions on a number line diagram. <ol style="list-style-type: none"> a. Represent a fraction $1/b$ on a number line diagram by defining the interval from 0 to 1 as the whole and partitioning it into b equal parts. Recognize that each part has size $1/b$ and that the endpoint of the part based at 0 locates the number $1/b$ on the number line. b. Represent a fraction a/b on a number line diagram by marking off a lengths $1/b$ from 0. Recognize that the resulting interval has size a/b and that its endpoint locates the number a/b on the number line. 3. Explain equivalence of fractions in special cases, and compare fractions by reasoning about their size. <ol style="list-style-type: none"> a. Understand two fractions as equivalent (equal) if they are the same size, or the same point on a number line. b. Recognize and generate simple equivalent fractions, e.g., $1/2 = 2/4$, $4/6 = 2/3$. Explain why the fractions are equivalent, e.g., by using a visual fraction model. c. Express whole numbers as fractions, and recognize fractions that are equivalent to whole numbers. Examples: Express 3 in the form $3 = 3/1$; recognize that $6/1 = 6$; locate $4/4$ and 1 at the same point of a number line diagram. d. Compare two fractions with the same numerator or the same denominator by reasoning about their size. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual fraction model.
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Grade 4	<p>Extend understanding of fraction equivalence and ordering.</p> <ol style="list-style-type: none"> 1. Explain why a fraction a/b is equivalent to a fraction $(n \times a)/(n \times b)$ by using visual fraction models, with attention to how the number and size of the parts differ even though the two fractions themselves are the same size. Use this principle to recognize and generate equivalent fractions. 2. Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $1/2$. Recognize that comparisons are valid only when the two fractions refer to the same whole. Record the results of comparisons with symbols $>$, $=$, or $<$ and justify the conclusions, e.g., by using a visual fraction model. <p>Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.</p> <ol style="list-style-type: none"> 3. Understand a fraction a/b with $a > 1$ as a sum of fractions $1/b$. <ol style="list-style-type: none"> a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole. b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model. Examples: $3/8 = 1/8 + 1/8 + 1/8$; $3/8 = 1/8 + 2/8$; $2\ 1/8 = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8$. c. Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction. d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem. 4. Apply and extend previous understandings of multiplication to multiply a fraction by a whole number. <ol style="list-style-type: none"> a. Understand a fraction a/b as a multiple of $1/b$. For example, use a visual fraction model to represent $5/4$ as the product $5 \times (1/4)$, recording the conclusion by the equation $5/4 = 5 \times (1/4)$. b. Understand a multiple of a/b as a multiple of $1/b$, and use this understanding to multiply a fraction by a whole number. For example, use a visual fraction model to express $3 \times (2/5)$ as $6 \times (1/5)$, recognizing this product as $6/5$. (In general, $n \times (a/b) = (n \times a)/b$.) c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. <i>For example, if each person at a party will eat $3/8$ of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?</i> <p>Understand decimal notation for fractions, and compare decimal fractions.</p> <ol style="list-style-type: none"> 5. Express a fraction with denominator 10 as an equivalent fraction with denominator 100, and use this technique to add two fractions with respective denominators 10 and 100. For example, express $3/10$ as $30/100$, and add $3/10 + 4/100 = 34/100$. 6. Use decimal notation for fractions with denominators 10 or 100. For example, rewrite 0.62 as $62/100$; describe a length as 0.62 meters; locate 0.62 on a number line diagram. 7. Compare two decimals to hundredths by reasoning about their size. Recognize that comparisons are valid only when the two decimals refer to the same whole. Record the results of comparisons with the symbols $>$, $=$, or $<$, and justify the conclusions, e.g., by using a visual model.
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Grade 5**Use equivalent fractions as a strategy to add and subtract fractions.**

1. Add and subtract fractions with unlike denominators (including mixed numbers) by replacing given fractions with equivalent fractions in such a way as to produce an equivalent sum or difference of fractions with like denominators. For example, $2/3 + 5/4 = 8/12 + 15/12 = 23/12$. (In general, $a/b + c/d = (ad + bc)/bd$.)
2. Solve word problems involving addition and subtraction of fractions referring to the same whole, including cases of unlike denominators, e.g., by using visual fraction models or equations to represent the problem. Use benchmark fractions and number sense of fractions to estimate mentally and assess the reasonableness of answers. For example, recognize an incorrect result $2/5 + 1/2 = 3/7$, by observing that $3/7 < 1/2$.

Apply and extend previous understandings of multiplication and division to multiply and divide fractions.

3. Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$). Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers, e.g., by using visual fraction models or equations to represent the problem. For example, interpret $3/4$ as the result of dividing 3 by 4, noting that $3/4$ multiplied by 4 equals 3, and that when 3 wholes are shared equally among 4 people each person has a share of size $3/4$. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?

Apply and extend previous understandings of multiplication to multiply a fraction or whole number by a fraction.

4. Interpret the product $(a/b) \times q$ as a parts of a partition of q into b equal parts; equivalently, as the result of a sequence of operations $a \times q \div b$. For example, use a visual fraction model to show $(2/3) \times 4 = 8/3$, and create a story context for this equation. Do the same with $(2/3) \times (4/5) = 8/15$. (In general, $(a/b) \times (c/d) = ac/bd$.)
 - a. Find the area of a rectangle with fractional side lengths by tiling it with unit squares of the appropriate unit fraction side lengths, and show that the area is the same as would be found by multiplying the side lengths. Multiply fractional side lengths to find areas of rectangles, and represent fraction products as rectangular areas.
5. Interpret multiplication as scaling (resizing), by:
 - a. Comparing the size of a product to the size of one factor on the basis of the size of the other factor, without performing the indicated multiplication.
 - b. Explaining why multiplying a given number by a fraction greater than 1 results in a product greater than the given number (recognizing multiplication by whole numbers greater than 1 as a familiar case); explaining why multiplying a given number by a fraction less than 1 results in a product smaller than the given number; and relating the principle of fraction equivalence $a/b = (n \times a)/(n \times b)$ to the effect of multiplying a/b by 1.
6. Solve real world problems involving multiplication of fractions and mixed numbers, e.g., by using visual fraction models or equations to represent the problem.

Apply and extend previous understandings of division to divide unit fractions by whole numbers and whole numbers by unit fractions.

7. Interpret a fraction as division of the numerator by the denominator ($a/b = a \div b$).
8. Solve word problems involving division of whole numbers leading to answers in the form of fractions or mixed numbers by using visual fraction models or equations to represent the problem. (e.g., Interpret $3/4$ as the result of dividing 3 by 4, noting that $3/4$ multiplied by 4 equals 3 and that when 3 wholes are shared equally among 4 people each person has a share of size $3/4$. If 9 people want to share a 50-pound sack of rice equally by weight, how many pounds of rice should each person get? Between what two whole numbers does your answer lie?)
 - b. Solve real world problems involving division of unit fractions by non-zero whole numbers and division of whole numbers by unit fractions, e.g., by using visual fraction models and equations to represent the problem. For example, *how much chocolate will each person get if 3 people share $1/2$ lb of chocolate equally? How many $1/3$ -cup servings are in 2 cups of raisins?*



Measurement and Data

Grade 3

Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.

1. Tell and write time to the nearest minute and measure time intervals in minutes. Solve word problems involving addition and subtraction of time intervals in minutes, e.g., by representing the problem on a number line diagram.
2. Measure and estimate liquid volumes and masses of objects using standard units of grams (g), kilograms (kg), and liters (l).⁶ Add, subtract, multiply, or divide to solve one-step word problems involving masses or volumes that are given in the same units, e.g., by using drawings (such as a beaker with a measurement scale) to represent the problem.

Represent and interpret data.

3. Draw a scaled picture graph and a scaled bar graph to represent a data set with several categories. Solve one- and two-step “how many more” and “how many less” problems using information presented in scaled bar graphs. For example, draw a bar graph in which each square in the bar graph might represent 5 pets.
4. Generate measurement data by measuring lengths using rulers marked with halves and fourths of an inch. Show the data by making a line plot, where the horizontal scale is marked off in appropriate units— whole numbers, halves, or quarters.

Geometric measurement: understand concepts of area and relate area to multiplication and to addition.

5. Recognize area as an attribute of plane figures and understand concepts of area measurement.
 - a. A square with side length 1 unit, called “a unit square,” is said to have “one square unit” of area, and can be used to measure area.
 - b. A plane figure which can be covered without gaps or overlaps by n unit squares is said to have an area of n square units.
6. Measure areas by counting unit squares (square cm, square m, square in, square ft., and improvised units).
7. Relate area to the operations of multiplication and addition.
 - a. Find the area of a rectangle with whole-number side lengths by tiling it, and show that the area is the same as would be found by multiplying the side lengths.
 - b. Multiply side lengths to find areas of rectangles with whole number side lengths in the context of solving real world and mathematical problems, and represent whole-number products as rectangular areas in mathematical reasoning.
 - c. Use tiling to show in a concrete case that the area of a rectangle with whole-number side lengths a and $b + c$ is the sum of $a \times b$ and $a \times c$. Use area models to represent the distributive property in mathematical reasoning.
 - d. Recognize area as additive. Find areas of rectilinear figures by decomposing them into non-overlapping rectangles and adding the areas of the non-overlapping parts, applying this technique to solve real world problems. **Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.**
8. Solve real world and mathematical problems involving perimeters of polygons, including finding the perimeter given the side lengths, finding an unknown side length, and exhibiting rectangles with the same perimeter and different areas or with the same area and different perimeters.



Grade 4	<p>Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.</p> <ol style="list-style-type: none"> 1. Know relative sizes of measurement units within one system of units including km, m, cm; kg, g; lb, oz.; l, ml; hr, min, sec. Within a single system of measurement, express measurements in a larger unit in terms of a smaller unit. Record measurement equivalents in a two column table. For example, know that 1 ft is 12 times as long as 1 in. Express the length of a 4 ft snake as 48 in. Generate a conversion table for feet and inches listing the number pairs (1, 12), (2, 24), (3, 36), ... 2. Use the four operations to solve word problems involving distances, intervals of time, liquid volumes, masses of objects, and money, including problems involving simple fractions or decimals, and problems that require expressing measurements given in a larger unit in terms of a smaller unit. Represent measurement quantities using diagrams such as number line diagrams that feature a measurement scale. 3. Apply the area and perimeter formulas for rectangles in real world and mathematical problems. For example, find the width of a rectangular room given the area of the flooring and the length, by viewing the area formula as a multiplication equation with an unknown factor. <p>Represent and interpret data.</p> <ol style="list-style-type: none"> 4. Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Solve problems involving addition and subtraction of fractions by using information presented in line plots. For example, from a line plot find and interpret the difference in length between the longest and shortest specimens in an insect collection. <p>Geometric measurement: understand concepts of angle and measure angles.</p> <ol style="list-style-type: none"> 5. Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement: <ol style="list-style-type: none"> a. An angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $\frac{1}{360}$ of a circle is called a “one-degree angle,” and can be used to measure angles. b. An angle that turns through n one degree angles is said to have an angle measure of n degrees. 6. Measure angles in whole-number degrees using a protractor. Sketch angles of specified measure. 7. Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.
Grade 5	<p>Convert like measurement units within a given measurement system.</p> <ol style="list-style-type: none"> 1. Convert among different-sized standard measurement units within a given measurement system (e.g., convert 5 cm to 0.05 m), and use these conversions in solving multistep, real world problems. <p>Represent and interpret data.</p> <ol style="list-style-type: none"> 2. Make a line plot to display a data set of measurements in fractions of a unit ($\frac{1}{2}$, $\frac{1}{4}$, $\frac{1}{8}$). Use operations on fractions for this grade to solve problems involving information presented in line plots. For example, given different measurements of liquid in identical beakers, find the amount of liquid each beaker would contain if the total amount in all the beakers were redistributed equally. <p>Geometric measurement: understand concepts of volume and relate volume to multiplication and to addition.</p> <ol style="list-style-type: none"> 3. Recognize volume as an attribute of solid figures and understand concepts of volume measurement. <ol style="list-style-type: none"> a. A cube with side length 1 unit, called a “unit cube,” is said to have “one cubic unit” of volume, and can be used to measure volume. b. A solid figure which can be packed without gaps or overlaps using n unit cubes is said to have a volume of n cubic units. 4. Measure volumes by counting unit cubes, using cubic cm, cubic in, cubic ft, and improvised units. 5. Relate volume to the operations of multiplication and addition and solve real-world and mathematical problems involving volume. <ol style="list-style-type: none"> a. Find the volume of a right rectangular prism with whole-number side lengths by packing it with unit cubes and show that the volume is the same as would be found by multiplying the edge lengths, equivalently by multiplying the height by the area of the base. Represent threefold whole-number products as volumes (e.g., to represent the associative property of multiplication). b. Apply the formulas $V = l \times w \times h$ and $V = b \times h$ for rectangular prisms to find volumes of right rectangular prisms with whole number edge lengths in the context of solving real-world and mathematical problems. c. Recognize volume as additive and find volumes of solid figures composed of two non-overlapping right rectangular prisms by adding the volumes of the non-overlapping parts, applying this technique to solve real-world problems.



Geometry	
Grade 3	<p>Reason with shapes and their attributes.</p> <ol style="list-style-type: none"> 1. Understand that shapes in different categories (e.g., rhombuses, rectangles, and others) may share attributes (e.g., having four sides), that the shared attributes can define a larger category (e.g. quadrilaterals). Recognize rhombuses, rectangles, and squares as examples of quadrilaterals, and draw examples of quadrilaterals that do not belong to any of these subcategories. 2. Partition shapes into parts with equal areas. Express the area of each part as a unit fraction of the whole. For example, partition a shape into 4 parts with equal area, and describe the area of each part as $\frac{1}{4}$ or the area of the shape.
Grade 4	<p>Draw and identify lines and angles and classify shapes by properties of their lines and angles.</p> <ol style="list-style-type: none"> 1. Draw points, lines, line segments, rays, angles (right, acute, obtuse) and perpendicular and parallel lines. Identify these in two-dimensional figures. 2. Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines or the presence or absence of angles of a specified size. Recognize right triangles as a category, and identify right triangles. 3. Recognize a line of symmetry for a two-dimensional figure as a line across the figure such that the figure can be folded along the line into matching parts. Identify line-symmetric figures and draw lines of symmetry.
Grade 5	<p>Graph points on the coordinate plane to solve real-world and mathematical problems.</p> <ol style="list-style-type: none"> 1. Use a pair of perpendicular number lines, called axes, to define a coordinate system, with the intersection of the lines, the origin, arranged to coincide with the 0 on each line and a given point in the plane located by using an ordered pair of numbers, called its coordinates. Understand that the first number indicates how far to travel from the origin in the direction of one axis and the second number indicates how far to travel in the direction of the second axis, with the convention that the names of the two axes and the coordinates correspond (e.g., x-axis and x-coordinate, y-axis and y-coordinate). 2. Represent real-world mathematical problems by graphing points in the first quadrant of the coordinate plane and interpret coordinate values of points in the context of the situation. <p>Classify two-dimensional figures into categories based on their properties.</p> <ol style="list-style-type: none"> 3. Understand that attributes belonging to a category of two dimensional figures also belong to all subcategories of that category (e.g., all rectangles have four right angles and squares are rectangles, so all squares have four right angles). 4. Classify two-dimensional figures in a hierarchy based on properties.



Appendix E

West Virginia's Comprehensive Assessment System



West Virginia's Comprehensive Assessment System

A Comprehensive Assessment System

When some people hear the phrase “state assessment,” they think of the test students have to take at the end of the school year. While summative tests are important and provide valuable information about student performance, a comprehensive assessment system goes well beyond the end-of-the-year test. In addition to the summative assessment given to students in the spring of the school year, West Virginia’s Comprehensive Assessment System also includes access to interim and diagnostic assessments, as well as formative assessment resources in the Digital Library. All of these are critical to support meaningful instruction and help students in the successful demonstration of knowledge and skills based upon rigorous college and career readiness standards.

Summative Assessment

West Virginia’s summative test is known as the West Virginia General Summative Assessment (WVGSA). The English language arts (ELA) and mathematics assessments are computer adaptive, which means each student’s individual test adjusts based on how he or she responds. For example, if a student answers questions correctly, the next set of questions the student receives will be more difficult; if a student answers questions incorrectly, the next set of questions the student receives will be easier. A computer adaptive test allows a more precise, valid and reliable score for each student. A more detailed look at the WVGSA is provided on the next page. The state also administers an alternate summative assessments to students with significant cognitive disabilities. For more information about the alternate assessment, contact the Office of Assessment.

Interim/Diagnostic Assessments

The interim and diagnostic assessments are optional tests that allow educators to measure student progress throughout the year and support instruction of the standards. There are two types of interim assessments—the Interim Comprehensive Assessment (ICA) and the Interim Assessment Block (IAB). The ICAs mirror the end-of-year summative test. The item types and formats, including performance tasks, are similar to those students will encounter on the summative test. The IABs are shorter and focus on sets of targets. The diagnostic assessments were created by West Virginia teachers to focus on specific skills aligned to various targets.

Formative Assessment

Formative assessment is a deliberate, ongoing process used during instruction to ensure students are making progress toward specific learning goals by providing actionable feedback. Formative assessment resources are available in the Digital Library. These resources are designed to help teachers integrate formative assessment processes instructionally.

Reports

A variety of useful reports are available for the WVGSA, as well as the interim and diagnostic assessments. These reports provide valuable information to districts, schools, teachers, students and parents. The summative assessment reports include roster performance on each target and student performance on each claim and in each proficiency level. Students and parents receive individual student reports that indicate students’ levels of performance. In the future, we expect to add a separate writing score report that will show how students scored on the following writing traits—purpose/organization, elaboration/evidence, and conventions. A variety reports also are available for the interim and diagnostic assessments, including item-level analysis reporting. West Virginia will continue to work toward improving reports so teachers and parents will have the information they need.

Measuring Critical Thinking

West Virginia’s balanced assessment system measures critical thinking and higher-level problem solving skills through a variety of innovative test questions. Students are required to write persuasively and use evidence to support their answers. The state’s assessments also measure research, listening, and communicating reasoning skills, which are not assessed by other tests.

Supports for All Students

West Virginia provides accommodations, designated supports and universal tools to ensure all students have access to the assessments. The state offers assessments in a variety of forms, including braille, large print and Spanish. For more options and information, see the *West Virginia Guidelines for Participation in Statewide Assessments* at the link at the bottom of this page.

For more information on West Virginia’s statewide assessment system, call 304.558.2546 or visit the following website: <http://wvde.state.wv.us/assessment/>.



West Virginia General Summative Assessment (WVGSA)

Overview:

The West Virginia General Summative Assessment (WVGSA) is the state test administered at the end of each school year. Results from the test provide information about a student's academic strengths, as well as any areas that need improvement, in each assessed content area.

Test Length

The length of time a student spends taking the WVGSA depends on what grade the student is in and could be affected by the student's ability and effort. One advantage of the WVGSA is that it is an untimed test. As long as students are actively engaged in taking the test, students can take as much time as they need. An analysis of last year's test scores shows that the more time students spend working on the test, the better they perform. On average, each student will spend no more than a total of 6 to 8 hours taking the test with sessions spread over 4 to 5 days, depending on the school's testing schedule and the student's grade level. Each district sets its own overall testing window and school testing schedule.

Grades 3-8:

Students in Grades 3-8 take the English language arts (ELA) and mathematics tests. Students in Grades 4 and 6 also take the science test. The tests are aligned to the state-approved grade-level standards for each content area and provide teachers, students and parents with information on how well students are progressing toward being college and career ready when they graduate.

High School

Students in Grades 9-11 take the ELA and mathematics tests. Students in Grade 10 also take the science test. The tests are aligned to the state-approved grade-level high school standards for each content area. West Virginia also offers a Grade 12 College and Career Readiness Assessment, a retest of the Grade 11 WVGSA.

West Virginia students deserve to graduate prepared for the world that awaits them. High school is a critical time to ensure students are on track to graduate with the skills and knowledge to be college and career ready. To ensure students are making progress and meeting college and career readiness benchmarks, West Virginia administers ELA and math tests for Grades 9, 10 and 11 using a comprehensive high school item bank that includes thousands of possible questions written to various assessment targets and at various levels of difficulty.

Achievement levels have been established at each grade level so students and parents can see where students are performing based on grade-level expectations.

- **Grade 9:**
Students are tested in ELA and math. Students get information about their progress based on West Virginia's 9th grade ELA and math achievement levels. The ELA test is aligned to specific ELA content and targets that span the breadth of high school ELA standards. The math test is aligned to the specific math content students should know by the end of their 9th grade year.
- **Grade 10:**
Students are tested in ELA, math and science. Students get information about their progress based on West Virginia's 10th grade ELA, math and science achievement levels. The ELA test is aligned to specific ELA content and targets that span the breadth of high school ELA standards. The math test is aligned to the specific math content students should know by the end of their 10th grade year.
- **Grade 11:**
Students are tested in ELA and math on the high school standards and get information about their progress based on 11th grade achievement levels. If students score at a 3 or higher in ELA or math, West Virginia colleges and universities recognize the student is prepared for credit-bearing courses; thus, they can skip remedial courses and enroll in credit bearing classes. This saves students time and money. Additionally, the student's scores help schools determine whether students would benefit from placement in Grade 12 transition courses to help them achieve college and career readiness.
- **Grade 12 College and Career Readiness Assessment:**
Seniors enrolled in a Grade 12 transition course will take the Grade 12 College and Career Readiness Assessment (CCRA) unless they can provide evidence they have earned an acceptable benchmark on the Grade 11 WVGSA, ACT or SAT. Students only have to take the content area test for which they do not have a college and career ready indicator. Seniors not enrolled in a Grade 12 transition course have the option to take the Grade 12 CCRA. They can use their ACT or SAT scores to show college readiness.



Appendix F

A **SNAPSHOT** of Assessments and Assessment Processes for West Virginia Schools

	FORMATIVE ASSESSMENT PROCESS <i>(occurs daily in grades Pre-K-12; is a fundamental component of high-quality teaching and learning)</i>	INTERIM/DIAGNOSTIC ASSESSMENTS <i>(occur periodically in grades Pre-K-12; are optional)</i>	STATE SUMMATIVE ASSESSMENT <i>(occurs yearly in grades 3-8 and grade 11 in English language arts and mathematics, and in science in grades 5,8, and 10)</i>
What is it?	A daily process teachers and students use that links evidence of learning to standards in order to personalize learning for all students. (Evidence of learning can include work samples, observations, anecdotal information, graded work, etc...)	Non-secure assessments used to obtain data educators can use to help identify: <ul style="list-style-type: none"> » strengths and weaknesses of their classes and individual students » necessary adjustments to instruction 	A standardized test designed to provide a snapshot of student progress toward college and career readiness in the tested content areas
Who selects the assessment?	Is a teacher-driven process; not an isolated event	Educators	State
Who participates in it?	All educators and students in grades Pre-K-12	Students in grades Pre-K-12	All students in grades 3-8 and grade 11
When does it occur?	Daily, during high-quality instruction; the formative assessment process is NOT an event	Periodically, throughout the school year as applicable	At the end of the year or at the end of a course of study
What is done with the results?	Evidence of learning is collected and discussed by teachers and students; evidence is organized in a way that helps teachers tailor their instruction and articulate learning to families	Districts, schools, and educators use results to evaluate student achievement and learning	Long-range planning based on results can occur at the district or state levels; used in state accountability system
How much time does the assessment take?	Is an ongoing, daily process teachers use to personalize learning for all students	1 hour average	4.5 hour average for the WV General Summative Assessment (average across all grades levels and includes ELA, math, and science)



Appendix G

Overview of the West Virginia TREE (Teacher Resources for Educational Excellence)



WEST VIRGINIA TREE
one voice. one focus. one stop.

<https://wvde.state.wv.us/apps/tree/>

West Virginia's online platform for educators is a one stop, grade- and/or content-specific site highlighting WV content standards, resources, and links that are essential to ensure high-quality educational programming. The resources include grade specific lessons, professional learning, and guidance documents crafted to help enhance teaching practice and guide the classroom teacher in the art of teaching. The links connect teachers with information regarding:

- Grade- and/or content-specific content standards, linked to resources to support use
- College and career readiness in West Virginia
- The formative assessment process
- Summative assessment login and resources (grades 3-12)
- Opportunities for professional learning
- Working with children with special needs
- Educator effectiveness and licensure (certification and evaluation)
- Guidance documents
- Programmatic level foundations for learning
- Additional resources

The WV TREE is designed with the teacher's busy schedule in mind, one stop, one focus, and tailored for the professional educator. This 'one stop' ensures teachers will not have to scour the WVDE website to find needed resources.

The WV TREE is a fluid website, with resources and content added on a regular basis. Additionally, future plans for the TREE include a site specific to principals, county chief instructional leaders, as well as counselors.





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