

## WV Standards for Grade 4

### English Language Arts – Grade 4

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.

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 held in 2015. In 2019, as part of the WVBE’s content standard revision cycle, the West Virginia College- and Career-Readiness Standards for English Language Arts were reviewed by a team of diverse stakeholders, including educators, administrators, representatives from higher education, parents, and community members who made recommendations for revisions. The West Virginia College- and Career-Readiness Standards incorporate the feedback provided by these stakeholders.

#### Explanation of Terms

**Domains** are the broad components that make up a content area. English language arts is primarily composed of four domains: reading, writing, speaking/listening, and language. In Kindergarten through Grade 8, an additional domain is present: Literacy Foundations.

#### Literacy Foundations

Students are expected to master foundational literacy skills in order to become proficient readers with the capacity to comprehend, discuss, and write to increasingly complex texts as they mature. The foundational literacy skills include print concepts, phonological awareness, phonics and word recognition, and fluency as well as morphology, context use, and handwriting. These foundations are critical to the development of literacy and require explicit instruction and intervention when necessary. In Grades 6 through 8, the Literacy Foundations domain transitions to focus on applying previously learned skills to increasingly complex texts and tasks.

**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. 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. The complexity of a text includes quantitative complexity (such as Lexile), qualitative complexity (such as figurative language, historical context, and layers of meaning), and reader and task considerations (such as student interest/motivation and instructional goal for reading).

**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 smaller groups of standards that provide an organizational structure for the overarching skills and understandings that students must demonstrate to be college- and career- ready.

**Standards** are the specific expectations for what students should know, understand, and be able to do by the end of each grade level; 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 or high school course, and
- the standard.

Illustrations: ELA.3.1 refers to English language arts, grade 3, standard 1. ELA.C.14 refers to high school Creative Writing and Reading, standard 14.

### **Abbreviations**

C – Creative Writing and Reading

TE – Technical English Language Arts

T – Transition English Language Arts for Seniors

The following standards will be organized and numbered continuously for English language arts in grades K-12\*. The chart below demonstrates how the standards are organized by cluster and domain for grades K-12\*.

<b>Literacy Foundations (Grades K-8)</b>	
Literacy Foundations	Foundation I-V
<b>Reading</b>	
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
<b>Writing</b>	
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
<b>Speaking &amp; Listening</b>	
Comprehension and Collaboration	Standards 30-32
Presentation of Knowledge and Ideas	Standards 33-35
<b>Language</b>	
Conventions of Standard English	Standards 36-37
Knowledge of Language	Standard 38
Vocabulary Acquisition and Use	Standards 39-41

\*Standards for additional high school courses are presented at the end of the document and feature their own course-specific organizational charts.

### **College- and Career-Readiness Indicators for English Language Arts**

The grades K-12 standards define what students should know, understand, and be able to do by the end of each grade level. They correspond to the College- and Career-Readiness Indicators for English language arts below by cluster. The College- and Career-Readiness Indicators and grade-specific standards are necessary complements – the former providing broad standards, the latter providing additional specificity – that together define the skills and understandings that all students must demonstrate to be college- and career-ready.

#### **Literacy Foundations (K-8)**

**Cluster: Fluency** – Students practice reading a variety of texts to gain the ability of reading accurately and with appropriate rate and expression. Because fluent readers do not have to struggle with decoding individual words in a text, they are able to focus on the meaning of the text and gain greater comprehension.

**Cluster: Phonics and Word Recognition** – Students learn to connect their understanding of oral language to written text. Students examine simple letter-sound correspondences to more complex spelling patterns following a specific scope and sequence. Accurate word recognition and decoding yield fluent readers with better comprehension.

**Cluster: Handwriting** - Students develop fine motor skills as they connect letter names with their shapes and begin to express themselves with written language. The development of handwriting skills creates a bridge to phonics development and written expression. Students will move from print to cursive or joined italics to fluently and clearly express themselves as writers.

**Cluster: Phonological Awareness** – Students orally identify and manipulate individual whole words, syllables, and sounds to demonstrate their awareness of the spoken language. As students move to phonemic awareness of individual sounds, they will demonstrate critical skills needed for reading including segmenting and blending sounds in words.

**Cluster: Print Concepts** – Students explore print directionality and mechanics as they distinguish between sentences, words, and letters in text. They realize that written language is related to oral language and that text has meaning. The ability to understand how print works leads to the learning of reading and writing.

## **Reading**

**Cluster: Key Ideas and Details** – Students read closely to determine what is said explicitly as well as to determine the central ideas or themes of texts. Students also analyze how and why central ideas or themes, individuals, events, and details develop and interact over the course of the text supporting their conclusions with specific evidence from the text when writing or speaking.

**Cluster: Craft and Structure** – Students analyze how specific parts of a text contribute to the overall structure as well as how specific word or phrase choices shape meaning and tone. Students also assess how point of view or purpose shapes the content and style of text and evaluate the effectiveness or impact of authors' choices.

**Cluster: Integration of Knowledge and Ideas** – Students evaluate content from a range of print, non-print, and digital texts and media integrating it appropriately to build knowledge or to compare authors' approaches. Students also delineate and evaluate arguments and specific claims within texts placing an emphasis on examining the validity of the reasoning and relevance and sufficiency of the evidence used to support the argument and claims within the text.

**Cluster: Range of Reading and Text Complexity** – Students read and comprehend increasingly complex literary and informational texts each year with the goal of reaching college- and career-readiness by the end of Grade 12. The complexity of a text includes quantitative complexity (such as Lexile), qualitative complexity (such as figurative language, historical context, layers of meaning), and reader and task considerations (such as student interest/motivation and instructional goal for reading). With regard to quantitative complexity, to be college- and career-ready, students should read and comprehend texts that fall between 1185L and 1385L on the Lexile scale independently and proficiently.

## Writing

**Cluster: Text Types and Purposes** – Students write a variety of text types for diverse purposes to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence, to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content, and to develop real or imagined experiences or events using effective technique, well-chosen details, and well-structured event sequences.

**Cluster: Production and Distribution of Writing** – Students use the writing process to produce clear and coherent writing and strengthen writing as needed to ensure the development, organization, and style are appropriate to task, purpose, and audience. Students also use a variety of technology tools to produce and publish writing and to interact and collaborate with others.

**Cluster: Research to Build and Present Knowledge** – Students engage in a range of research projects in which they gather information from multiple print, non-print, and digital sources assessing the credibility and accuracy of each source and demonstrating understanding of the subject by integrating information from a variety of sources while avoiding plagiarism. Students also draw evidence from literary and informational texts to support analysis, reflection, and research.

**Cluster: Range of Writing** – Students write routinely over extended time frames for research, reflection, and revision and shorter time frames for a range of tasks, purposes, and audiences.

## Speaking/Listening

**Cluster: Comprehension and Collaboration** – Students prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on other’s ideas and expressing ideas clearly and persuasively; they also integrate and evaluate information presented in diverse media and formats and evaluate a speaker’s point of view, reasoning, and use of evidence and rhetoric.

**Cluster: Presentation of Knowledge and Ideas** – Students present information, findings, and supporting evidence clearly with organization, development, and style appropriate to task, purpose, and audience making strategic use of digital media and visual displays, adapting speech to a variety of contexts and tasks, and demonstrating command of formal English when indicated or appropriate.

## Language

**Cluster: Conventions of Standard English** – Students demonstrate command of the conventions of Standard English capitalization, punctuation, and spelling when writing and command of the conventions of Standard English grammar and usage when writing and speaking.

**Cluster: Knowledge of Language** – Students apply knowledge of language to understand how language functions in different contexts, to make effective choices for meaning or style, and to comprehend more fully when reading or listening.

**Cluster: Vocabulary Acquisition and Use** – Students demonstrate understanding of figurative language, word relationships, and nuances in word meanings, determining or clarifying the meaning of unknown and multi-meaning words and phrases by using context clues, analyzing meaningful word parts, and

consulting general and specialized reference materials as appropriate. Overall, students acquire and accurately use a range of general academic and discipline-specific words and phrases sufficient for reading, writing, speaking, and listening at the college- and career-readiness level and demonstrate independence in gathering vocabulary knowledge when encountering an unknown term important to comprehension or expression.

#### English Language Arts – Grade 4

All West Virginia teachers are responsible for classroom instruction that integrates content standards, technology, and dispositions for student success. In grade 4, students should be immersed in a literacy-rich environment and have numerous opportunities to read, discuss, and write to complex texts appropriate for fourth grade in order to meet college- and career-readiness expectations. The complexity of a text includes quantitative complexity (such as Lexile), qualitative complexity (such as conceptual knowledge, text structure, and figurative language), and reader and task considerations (such as student interest/motivation and instructional goal for reading). Over the course of the entire instructional day, students should be given opportunities to engage with a balance of literary and informational text and to write for a variety of purposes and audiences including an even distribution of opinion, informative, and narrative writing. 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 college- and career-readiness indicators that will be developed in fourth grade:

<b>College- and Career-Readiness Indicators for Grade 4</b>	
<b>Literacy Foundations</b>	
<ul style="list-style-type: none"> <li>• Read with sufficient accuracy and fluency to support comprehension.</li> <li>• Use phonics and word analysis skills to decode unfamiliar words.</li> <li>• Write fluidly and legibly in cursive or joined italics.</li> </ul>	
<b>Reading</b>	<b>Writing</b>
<ul style="list-style-type: none"> <li>• Read and comprehend a variety of complex texts including texts that fall in the 740-1010 Lexile range.</li> <li>• Refer to details and examples in literary and informational texts when explaining what the text says explicitly and when drawing inferences from the text.</li> <li>• Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably</li> <li>• Compare and contrast the structures and points of view of multiple literary and informational texts.</li> </ul>	<ul style="list-style-type: none"> <li>• Write opinion and informative pieces by clearly introducing a topic; developing the topic with reasons supported by facts, details, quotations, or other information related to the topic; linking ideas with words and phrases; and providing a concluding statement or section.</li> <li>• Write narratives with clear event sequences by introducing the setting; using dialogue, sensory details, a variety of transitional words and phrases, and providing a conclusion that follows from the narrated experiences or events.</li> </ul>
<b>Speaking/Listening</b>	<b>Language</b>
<ul style="list-style-type: none"> <li>• Engage effectively in collaborative discussions on fourth grade topics and texts, building on others' ideas and expressing ideas clearly.</li> </ul>	<ul style="list-style-type: none"> <li>• Demonstrate understanding of figurative language, word relationships, and nuances in word meanings, including similes, metaphors, idioms, adages, and proverbs.</li> </ul>

<ul style="list-style-type: none"> <li>Identify the reasons and evidence a speaker provides to support particular points.</li> </ul>	<ul style="list-style-type: none"> <li>Use correct capitalization, commas and quotation marks.</li> <li>Acquire and accurately use grade-appropriate general academic and domain-specific words and phrases.</li> </ul>
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### Literacy Foundations

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

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"> <li>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.</li> </ul>

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.
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 central 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.
ELA.4.8	Explain major differences between poems, drama, and prose; refer to the structural elements of poems and drama 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 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.

<b>Cluster</b>	<b>Integration of Knowledge and Ideas</b>
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 and patterns of events in stories, myths, traditional literature, and literary text from different cultures.
ELA.4.15	Interpret information presented visually orally or quantitatively 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.

<b>Cluster</b>	<b>Range of Reading and Text Complexity</b>
ELA.4.18	By the end of the year read and comprehend literary texts 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

<b>Cluster</b>	<b>Text Types and Purposes</b>
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"> <li>• 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.</li> <li>• Provide reasons that are supported by facts and details.</li> <li>• Link opinion and reasons using words and phrases (e.g., for instance, in order to, or in addition).</li> <li>• Provide a concluding statement or section related to the opinion presented.</li> </ul>
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"> <li>• Introduce a topic clearly and group related information in paragraphs and sections; include formatting, illustrations, and multimedia when useful to aiding comprehension.</li> </ul>



	<ul style="list-style-type: none"> <li>• Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic.</li> <li>• Link ideas within categories of information using words and phrases (e.g., another, for example, also, or because).</li> <li>• Use precise language and domain-specific vocabulary to inform about or explain the topic.</li> <li>• Provide a concluding statement or section related to the information or explanation presented.</li> </ul>
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"> <li>• Orient the reader by establishing a situation and introducing a narrator and/or characters; organize an event sequence that unfolds naturally.</li> <li>• Use dialogue and description to develop experiences and events or show the responses of characters to situations.</li> <li>• Use a variety of transitional words and phrases to manage the sequence of events.</li> <li>• Use concrete words and phrases and sensory details to convey experiences and events precisely.</li> <li>• Provide a conclusion that follows from the narrated experiences or events.</li> </ul>

<b>Cluster</b>	<b>Production and Distribution of Writing</b>
ELA.4.23	Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience.
ELA.4.24	With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing to 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.

<b>Cluster</b>	<b>Research to Build and Present Knowledge</b>
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	Draw evidence from literary or informational texts and apply grade-level Reading standards to support analysis, reflection, and research.

<b>Cluster</b>	<b>Range of Writing</b>
ELA.4.29	Write routinely over extended time frames for research, reflection, and/or revision and shorter time frames for a range of discipline-specific tasks, purposes, and audiences.

**Speaking & Listening**

<b>Cluster</b>	<b>Comprehension and Collaboration</b>
ELA.4.30	<p>Engage effectively in a range of collaborative discussions with diverse partners including one-on-one, small groups, and teacher-led on grade 4 topics and texts, building on others’ ideas and expressing ideas clearly.</p> <ul style="list-style-type: none"> <li>• Come to discussions prepared, having read or studied required material; explicitly</li> </ul>

	<p>draw on that preparation and other information known about the topic to explore ideas under discussion.</p> <ul style="list-style-type: none"> <li>• Follow agreed-upon rules for discussions and carry out assigned roles.</li> <li>• 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.</li> <li>• Review the key ideas expressed and explain ideas and understanding in light of the discussion.</li> </ul>
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.

<b>Cluster</b>	<b>Presentation of Knowledge and Ideas</b>
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 visuals to presentations when appropriate to enhance the development of main ideas or themes.
ELA.4.35	Differentiate between contexts that call for formal English and situations where informal discourse is appropriate; demonstrating command of grade 4 Language standards and using formal English when appropriate to task and situation.

## Language

<b>Cluster</b>	<b>Conventions of Standard English</b>
ELA.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"> <li>• Use relative pronouns.</li> <li>• Form and use the progressive verb tenses.</li> <li>• Use modal auxiliaries to convey various conditions (e.g., can, may, or must).</li> <li>• Order adjectives within sentences according to conventional patterns.</li> <li>• Form and use prepositional phrases.</li> <li>• Produce complete sentences, recognizing and correcting inappropriate fragments and run-ons.</li> <li>• Correctly use frequently confused words.</li> </ul>
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"> <li>• Use correct capitalization.</li> <li>• Use commas and quotation marks to mark direct speech and quotations from a text.</li> <li>• Use a comma before a coordinating conjunction in a compound sentence.</li> <li>• Spell grade-appropriate words correctly, consulting references as needed.</li> </ul>

<b>Cluster</b>	<b>Knowledge of Language</b>
ELA.4.38	<p>Use knowledge of language and its conventions when writing, speaking, reading, or listening.</p> <ul style="list-style-type: none"> <li>• Choose words and phrases to convey ideas precisely.</li> <li>• Choose punctuation for effect.</li> <li>• Differentiate between contexts that call for formal English and situations where</li> </ul>

	informal discourse is appropriate.
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Cluster	Vocabulary Acquisition and Use
ELA.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"> <li>• Use context as a clue to the meaning of a word or phrase.</li> <li>• Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word.</li> <li>• Consult reference materials, both print and digital, to find the pronunciation and determine or clarify the precise meaning of key words and phrases.</li> </ul>
ELA.4.40	Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. <ul style="list-style-type: none"> <li>• Explain the meaning of simple similes and metaphors in context.</li> <li>• Recognize and explain the meaning of common idioms, adages, and proverbs.</li> <li>• Demonstrate understanding of words by relating them to their antonyms and to their synonyms.</li> </ul>
ELA.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 and that are basic to a particular topic.

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## 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  $7 \times 8$  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  $2 \times 7$  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.

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

## Numbering of Standards

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

<b>Operations and Algebraic Thinking</b>	
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
<b>Number and Operations in Base Ten</b>	
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
<b>Number and Operations- Fractions</b>	
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
<b>Measurement and Data</b>	
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
<b>Geometry</b>	
Draw and identify lines angles and classify shapes by properties of their lines and angles.	Standards 26-28

### **Operations and Algebraic Thinking**

<b>Cluster</b>	<b>Use the four operations with whole numbers to solve problems.</b>
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.

<b>Cluster</b>	<b>Gain familiarity with factors and multiples.</b>
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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<b>Cluster</b>	<b>Generate and analyze patterns.</b>
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.)

### Number and Operations in Base Ten

<b>Cluster</b>	<b>Generalize place value understanding for multi-digit whole numbers.</b>
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.

<b>Cluster</b>	<b>Use place value understanding and properties of operations to perform multi-digit arithmetic.</b>
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

<b>Cluster</b>	<b>Extend understanding of fraction equivalence and ordering.</b>
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.

<b>Cluster</b>	<b>Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.</b>
M.4.14	Understand the fraction $a/b$ , with $a > 1$ , as the sum of $a$ of the fractions $1/b$ . <ul style="list-style-type: none"> <li>a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.</li> <li>b. 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., <math>\frac{3}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8}</math>; <math>\frac{3}{8} =</math></li> </ul>



	<p><math>1/8 + 2/8</math>; <math>2 \frac{1}{8} = 1 + 1 + 1/8 = 8/8 + 8/8 + 1/8</math>).</p> <p>c. 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.</p> <p>d. 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.</p>
M.4.15	<p>Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.</p> <p>a. Understand a fraction <math>a/b</math> as a multiple of <math>1/b</math>, (e.g., use a visual fraction model to represent <math>5/4</math> as the product <math>5 \times (1/4)</math>, recording the conclusion by the equation <math>5/4 = 5 \times (1/4)</math>).</p> <p>b. Understand a multiple of <math>a/b</math> as a multiple of <math>1/b</math>, and use this understanding to multiply a fraction by a whole number (e.g., use a visual fraction model to express <math>3 \times (2/5)</math> as <math>6 \times (1/5)</math>, recognizing this product as <math>6/5</math>. In general, <math>n \times (a/b) = (n \times a)/b</math>).</p> <p>c. 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 <math>3/8</math> 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?).</p>

<b>Cluster</b>	<b>Understand decimal notation for fractions, and compare decimal fractions.</b>
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 $62/100$ ; 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

<b>Cluster</b>	<b>Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.</b>
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.)
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<b>Cluster</b>	<b>Represent and interpret data.</b>
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).

<b>Cluster</b>	<b>Geometric measurement: understand concepts of angle and measure angles.</b>
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"> <li>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 <math>\frac{1}{360}</math> of a circle is called a “one-degree angle,” and can be used to measure angles.</li> <li>b. An angle that turns through b one-degree angles is said to have an angle measure of b degrees.</li> </ul>
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).

## Geometry

<b>Cluster</b>	<b>Draw and identify lines and angles and classify shapes by properties of their lines and angles.</b>
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.

## Science

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.

West Virginia educators, including regular classroom teachers, instructors representing higher education institutions, and county instructional leaders convened to revise the content standards; they played a key role in shaping the content standards to align with rigorous national assessments. The committees considered major advances in science and technology, research from the American Association for Advancement in Science, the National Research Council in addition to their understanding of how students learn science as decisions were made regarding science content, practices of scientists and engineers, science connecting concepts, the nature of science, science literacy, science lab safety, and the sequencing of standards. The contribution of these professionals was critical in creating a policy that is meaningful to classroom teachers and appears in a format that can easily be understood and used.

West Virginia's College- and Career-Readiness Standards for Science are organized around the two major components of a standards-based curriculum: learning standards and College- and Career-Readiness Indicators for Science. The learning standards are the descriptions of what all students must know and be able to do at the conclusion of the instructional sequence. The College- and Career-Readiness Indicators establish a set of knowledge and skills that all students need throughout their educational experience. Science learning standards address science content, science practices, and engineering design. The accompanying programmatic level science indicators are specific descriptors of knowledge, skills, practices, and attitudes that, when mastered, will enable students to attain each standard. The instructional standards guide instructional planning and provide a basis for determining appropriate instructional strategies, resources, and assessments.

There is a deliberate sequencing of standards, based on programmatic level, to ensure students will develop skills to acknowledge and distinguish claim(s) from alternate or opposing claims, support arguments for claims or counterclaims with evidence, and communicate about science related topics and issues in a knowledgeable, clear, and objective manner. In combination, the use of learning standards and College- and Career-Readiness Indicators for Science become a comprehensive guide for delivering a rigorous and relevant science curriculum to all West Virginia students. These elements, when used to guide the instructional process and delivered with the creativity and instructional expertise of West Virginia teachers, will become a powerful resource for preparing students to be scientifically literate and prepared for college and/or career pathways.

## **Explanation of Terms**

**Domains.** Include the four main subject areas of Life Science, Earth and Space Science, Physical Science, and Engineering, Technology, and Applications of Science.

**Indicators.** A set of knowledge and skills that all students need to transition into higher education or the workplace.

**Topics.** Categorical groupings of central ideas within each science course.

**Standards.** Expectations of what students should know and be able to do in a content area and represent educational goals. Standards followed by an asterisk (\*) denote the integration of traditional science content with an engineering practice.

## **Numbering of Standards**

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

- the content area code is S for Science,
- the grade level or high school course, and
- the standard number.

Examples:

S.8.1 refers to science standard #1 for grade 8.

S.HAP.1 refers to science standard #1 for Human Anatomy and Physiology.

## **Abbreviations**

### **Content Area**

S Science

### **Course Content**

ESS Earth and Space Science Content

B Biology Content

PS Physical Science Content

C Chemistry Content

P Physics Content

ENV Environmental Content

FS Forensics Science Content

HAP Human Anatomy and Physiology Content

## **Indicators for Science**

Science is the study of the structures and processes of the physical and natural world through observations and experiments. By its very nature, science embodies the *doing* of science and engineering practices which builds and organizes knowledge in the form of testable explanations, predictions about the universe, and technological applications. The science policy describes students engaging in those practices as they acquire science knowledge and skills necessary for the furtherance of their education, careers, and general welfare.

The grades K - 12 standards on the following pages define what students should know, understand, and be able to do by the end of each grade band. They correspond to the College- and Career-Readiness Indicators for Science by programmatic level (K - 2, 3 - 5, 6 - 8, and 9 - 12). The College- and Career-Readiness Indicators and grade-specific standards are necessary complements- the former providing broad standards, the latter providing additional specificity- that together define the skills and understandings that all students must demonstrate.

Literacy strategies and skills are applied as students acquire information and communicate their learning and understanding of science. Integration of literacy in science is critical for student success. It is essential that literacy strategy and skill instruction be purposefully and appropriately planned and embedded within science instruction.

## **Science Content K – 12**

### **Earth and Space Science**

Earth and Space Science content provides opportunities for students to investigate processes that operate on Earth and address its place in the solar system and the galaxy. The content encompasses three central ideas: Earth's Place in the Universe; Earth's Systems; and Earth and Human Activity. Beginning in kindergarten, students make observations, ask questions, and make predictions as they describe patterns in their local Weather and Climate. In later grades, the content progresses to include these topics: Space Systems: Patterns and Functions, Stars and the Solar System; Earth Systems: Processes that Shape the Earth; History of Earth; and Human Impacts. Elementary students observe and investigate matter and processes in their own yards and neighborhoods with their own eyes. The content continues in the grades that follow to include investigations of invisibly small phenomena to the unimaginably large and distant. As

students investigate the atmosphere, hydrosphere, geosphere, and biosphere, they gain an understanding of the different sources of energy, matter cycles, multiple systems' interconnections, and feedback which cause Earth to change over time.

### **Life Science**

Life science content focuses on patterns, processes, and relationships of living organisms. The content includes four central ideas: From Molecules to Organisms: Structures and Processes; Ecosystems: Interactions, Energy, and Dynamics; Heredity: Inheritance and Variation of Traits across Generations; and Biological Evolution: Unity and Diversity. These four central ideas, which represent basic life science fields of investigation - structures and processes in organisms, ecology, heredity, and evolution - have a long history and solid foundation based on the research evidence established by many scientists working across multiple fields. Beginning in kindergarten, curious learners explore Animals, Plants, and Their Environment as they learn of the Interdependent Relationships in Ecosystems. In the grades which follow, the inquiry continues as the content encompasses these topics: Structure, Function, and Information Processing; Inheritance and Variation of Traits: Life Cycles and Traits; Matter and Energy in Organisms and Ecosystems; and Growth, Development, and Reproduction of Organisms. Investigations include single molecules, organisms, ecosystems, and the entire biosphere that is all life on Earth. Students examine processes that occur on time scales from the blink of an eye to those that happen over billions of years. As they make observations, construct hypotheses, perform experiments, evaluate evidence, build models, and use technology to explore how life works, they prepare to answer questions about themselves and the world around them.

### **Physical Science**

Physical Science content focuses on two subjects, physics and chemistry, presented in a coherent approach that addresses five central ideas: Matter and Its Interactions; Motion and Stability, Forces and Interactions; Energy; and Waves and Their Applications in Technologies for Information Transfer. Beginning in kindergarten, students explore pushes and pulls as an introduction to the Forces and Interactions topic. The inquiry continues through each grade level and includes Light and Sound, Structure and Properties of Matter, Forces and Interactions, Energy, Waves and Information, Matter and Energy in Organisms and Ecosystems, Waves and Electromagnetic Radiation, and Chemical Reactions. An understanding of these topics allows students to answer two fundamental questions - "What is everything made of?" and "Why do things happen?" Students apply these central ideas to explain and predict a wide variety of phenomena, such as the evaporation of water, the transmission of sound, the digital storage and transmission of information, the properties of metals, and photosynthesis, to name just a few. Because such explanations and predictions rely on a basic understanding of matter and energy, students' abilities to conceive the interactions of matter and energy are central to their science education.

### **Chemistry**

Chemistry content focuses on the central concepts: Structure and Properties of Matter and Chemical Reactions. Opportunities are provided for studying in-depth phenomena central to the physical sciences, life science, and earth and space science. The chemistry standards go into greater depth as students progress through grade levels investigating matter, its composition, and its changes by including concepts such as the periodic table and modern theories of bonding, the effects of temperature, concentration, and vapor pressure on solubility, types of chemical reactions, stoichiometry, molarity, and gas laws. The content blends the central ideas with the practices of scientists and engineers and science connecting concepts to support students in developing useable knowledge to explain ideas across the science disciplines. There is an emphasis on several scientific practices, which include developing and using models, planning and conducting investigations, analyzing and interpreting data, using mathematical and computational thinking, and constructing explanations.

### **Physics**

Physics content focuses on the central concepts: Forces and Interactions, Energy, States of Matter, Waves and Electromagnetic Radiation, and Electricity and Magnetism. Opportunities are provided for studying in-depth phenomena central not only to the physical sciences but to life science and earth and space science.

The physics standards go into greater depth as students progress through grade levels, investigating elastic and inelastic collisions, buoyancy and fluid dynamics, projectile motion, vectors, circuits and currents, and optics. The content blends the central ideas with the practices and science connecting concepts to support students in developing useable knowledge to explain ideas across the science disciplines. There is an emphasis on several scientific practices, including developing and using models, planning and conducting investigations, analyzing and interpreting data, using mathematical and computational thinking, and constructing explanations.

### **Environmental Science**

Environmental Science content focuses on chemical, physical, biological, and geological processes, and the interdependent relationships in the natural world. Concepts from the major science domains - Life Science, Physical Science, and Earth and Space Science - are integrated into six environmental topics including: Biogeochemical cycles, Energy Conservation, Ecosystems, Oceans and Climate, Water Management, and Land Use. There is an emphasis on several scientific practices that include developing and using models, planning and conducting investigations, analyzing and interpreting data, constructing explanations, engaging in arguments from evidence, obtaining, evaluating, and communicating information, and synthesizing concepts across various science disciplines. The content provides opportunities for students to develop an understanding of systems of a complex world and the interdependence of organisms along with an appreciation of the ecosystem in which they live. As students develop an awareness of the environment and its associated problems, they acquire knowledge and skills to work individually and collectively toward solutions to current issues and the prevention of new ones.

### **Forensic Science**

Forensic Science content applies the knowledge and technology of science to criminal and civil law. Concepts from the three major domains - Life Science, Physical Science, and Earth and Space Science - are reinforced and made relevant and pertinent to students as they acquire techniques and skills and learn the limitations of the modern crime laboratories. There is an emphasis on several scientific practices, which include planning and carrying out investigations, using mathematics and computations, analyzing and interpreting data, and obtaining, evaluating and communicating information. Students must address the attention to detail and protocol necessary for providing impartial scientific evidence that may be used in courts of law to support the prosecution or defense in criminal and civil investigations. These skills and attitudes transfer readily to other areas of science.

### **Human Anatomy and Physiology**

Human Anatomy and Physiology content addresses the structures and functions of the human body. While concepts from the Life Science domain are the major focus of study, concepts from the Physical Sciences are incorporated to explain processes and mechanisms of the human body. The interdisciplinary nature of the sciences is revealed through the interdependency of body systems. There is an emphasis on several scientific practices, which include asking questions, developing and using models, constructing explanations, and obtaining and communicating information. The standard encompasses gross and microscopic content, including basic biochemistry and physiological concepts, which are foundational to medical fields of study as students make health-related decisions.

### **Engineering, Technology, and Applications of Science**

Engineering, Technology, and Applications of Science content provide opportunities for students to utilize science and appreciate the distinctions and relationships between engineering, technology, and applications of science. As Engineering, Technology, and the Application of Science are integrated with content from the three major domains of science - Life Science, Physical Science, and Earth and Space Science - students develop understandings of how scientific knowledge is acquired, scientific explanations are developed, and science is applied in the world around us. The interactive cycle of design offers potential in applying scientific knowledge and engaging in engineering practices. Through instruction that implements this interactive cycle, students gain experiences and understandings in the use of technology to modify the natural world to fulfill human needs or desires; they employ an engineering approach to design objects, use processes, or construct systems to meet human needs and wants; and they apply scientific knowledge for a specific purpose, whether to do more science, design a product, process, or medical treatment, develop new technology, or to predict the impacts of human actions.

## Science Indicators Grades 3 - 5

All West Virginia teachers are responsible for classroom instruction that integrates content standards, foundational skills, literacy, learning skills, computer science and technology tools. Students in grades 3 - 5 will advance through a developmentally appropriate progression of standards. The following chart represents the College- and Career-Readiness Indicators for Science that will be developed in grades 3 - 5.

<b>College- and Career-Readiness Indicators for Science</b>	
<b>Grades 3 - 5</b>	
<b>Nature of Science</b>	
<ul style="list-style-type: none"> <li>• Scientific knowledge is simultaneously reliable and subject to change based on empirical evidence and interpretation.</li> <li>• Scientific knowledge is obtained through a combination of observations of the natural world and inferences based on those observations.</li> <li>• Science is a creative human endeavor which is influenced by social and cultural biases.</li> <li>• A primary goal of science is the formation of theories and laws. Theories are inferred explanations of some aspect of the natural world based on successfully tested information from evidence and evaluated phenomena. Laws describe relationships among what has been observed in the natural world.</li> <li>• Scientific investigations use a variety of methods to address questions about the natural and material world.</li> </ul>	
<b>Practices of Scientists and Engineers</b>	<b>Science Connecting Concepts</b>
<ul style="list-style-type: none"> <li>• Asking questions and defining problems</li> <li>• Developing and using models</li> <li>• Planning and carrying out investigations</li> <li>• Analyzing and interpreting data</li> <li>• Using mathematical and computational thinking</li> <li>• Constructing explanations and designing solutions</li> <li>• Engaging in argument from evidence</li> <li>• Obtaining, evaluating, and communicating information</li> </ul>	<ul style="list-style-type: none"> <li>• Observing patterns</li> <li>• Investigating and explaining cause and effect</li> <li>• Recognizing scale, proportion, and quantity</li> <li>• Defining systems and system models</li> <li>• Tracking energy and matter flows into, out of, and within systems to understand system behavior</li> <li>• Determining the relationships between structure and function</li> <li>• Studying stability and change</li> </ul>
<b>Science Literacy</b>	<b>Science Lab Safety</b>
<ul style="list-style-type: none"> <li>• Utilizing and connecting ideas among informational (factual) scientific texts</li> <li>• Integrating and applying information presented in various media formats when writing and speaking</li> <li>• Citing evidence to support scientific claims</li> <li>• Comparing and contrasting sets of data</li> <li>• Building and appropriately using science domain vocabulary and phrases</li> </ul>	<ul style="list-style-type: none"> <li>• Requiring lab safety training and archiving signed student safety contracts including medical conditions</li> <li>• Wearing proper protective equipment as needed (e.g., goggles, apron, and gloves)</li> <li>• Requiring grade appropriate lab equipment operation and safety training</li> <li>• Storing and disposing of chemical/biological materials properly</li> </ul>
<ul style="list-style-type: none"> <li>• Interpreting and applying visually expressed information (e.g., flowchart, diagram, model, graph, or table)</li> </ul>	<ul style="list-style-type: none"> <li>• Following ethical classroom use of living organisms</li> </ul>

### Science - Grade 4

Fourth Grade Science standards build on the study of physics and geology. Through a progressive rigorous, integrated approach, the inquiry-based program of study provides students opportunities to demonstrate scientific literacy in the fields of Physical Science, Life Science, and Earth and Space Science focusing on the connecting concepts of science: systems, changes, and models. The content develops basic problem-solving skills through observing, experimenting, and concluding. Students will engage in hands-on activities at least 50% of the instructional time as they develop and demonstrate conceptual understandings along with research and laboratory skills described in the standards and indicators for science. Engineering, Technology, and the Application of Science standards are integrated throughout instruction as students define problems and design solutions related to the course standards and indicators for science. Fourth Grade Science intentionally supports developmental and academic growth. Standards followed by an asterisk (\*) denote the integration of traditional science content with an engineering practice.

<b>Physical Science</b>	
<b>Topic</b>	<b>Energy</b>
S.4.1	Use evidence to construct an explanation relating the speed of an object to the energy of that object.
S.4.2	Make observations to provide evidence that energy can be transferred from place to place by sound, light, heat, and electric currents.
S.4.3	Ask questions and predict outcomes about the changes in energy that occur when objects collide.
S.4.4	Apply scientific ideas to design, test, and refine a device that converts energy from one form to another.*



<b>Topic</b>	<b>Waves: Waves and Information</b>
S.4.5	Develop a model of waves to describe patterns in terms of amplitude and wavelength and that waves can cause objects to move.
S.4.6	Generate and compare multiple solutions that use patterns to transfer information.*

<b>Life Science</b>	
<b>Topic</b>	<b>Structure, Function, and Information Processing</b>
S.4.7	Develop a model to describe that light reflecting from objects and entering the eye allows objects to be seen.
S.4.8	Construct an argument that plants and animals have internal and external structures that function to support survival, growth, behavior, and reproduction.
S.4.9	Use a model to describe that animals receive different types of information through their senses, process the information in their brain, and respond to the information in different ways.

<b>Earth and Space Science</b>	
<b>Topic</b>	<b>Earth's Systems: Processes that Shape the Earth</b>
S.4.10	Identify evidence from patterns in rock formations and fossils in rock layers to support an explanation for changes in a landscape over time.
S.4.11	Analyze and interpret data from fossils to provide evidence of the organisms and the environments in which they lived long ago.
S.4.12	Make observations and/or measurements to provide evidence of the effects of weathering or the rate of erosion by water, ice, wind, or vegetation.
S.4.13	Analyze and interpret data from maps to describe patterns of Earth's geological features.

<b>Engineering, Technology, and Applications of Science</b>	
<b>Topic</b>	<b>Engineering Design</b>
S.4.14	Define a simple design problem reflecting a need or a want that includes specified criteria for success and constraints on materials, time, or cost.
S.4.15	Generate and compare multiple possible solutions to a problem based on how well each is likely to meet the criteria and constraints of the problem.
S.4.16	Plan and carry out fair tests in which variables are controlled and failure points are considered to identify aspects of a model or prototype that can be improved.

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## Social Studies

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.

West Virginia's College- and Career-Readiness Standards for Social Studies promote proficiency in civics, economics, geography, and history. Students will develop problem solving and critical thinking skills

independently and collaboratively as they engage in informed inquiry in social studies. College- and career-readiness is supported in social studies 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 overarching goal was to build a rigorous, relevant, challenging and developmentally appropriate social studies curriculum that prepares students for college- and career-readiness. West Virginia educators played a key role in shaping the content standards to align with the best practices in the field of social studies education. The contributions of these professionals were critical in creating a policy that is meaningful to classroom teachers and appears in a format that can easily be used and understood.

### **Explanation of Terms**

**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., SS for Social Studies),
- the grade level or high school content area, and
- the standard.

Illustration: SS.3.1 refers to Social Studies, grade 3, standard 1. SS.W.20 refers to high school World Studies standard 20.

### **Abbreviations:**

W – World Studies

US – United States Studies

USC – United States Studies – Comprehensive

CS – Contemporary Studies

C – Civics

E – Economics

G – Geography

S – Sociology

P – Psychology

The following four areas of social studies form all the courses in grades K-8 and the majority of the high school courses that are not content specific (e.g. geography and economics):

### **Civics**

Civics addresses both citizenship and political systems. Citizenship education prepares students to be informed, active and effective citizens who accept their responsibilities, understand their privileges and rights and participate actively in society and government. To be successful participants in society, students must understand how to build social capital (a network of social relationships) that encourages reciprocity and trust, two characteristics of civic virtue and good citizenship. Students must be able to research issues, form reasoned opinions, support their positions and engage in the political process. Students exercise tolerance and empathy, respect the rights of others, and share a concern for the common good while acting responsibly with the interests of the larger community in mind. Students must learn and practice intellectual and participatory skills essential for an involved citizenry. To develop these skills, the curriculum must extend beyond the school to include experiences in the workplace and service in the

community. While studying political systems, students develop global awareness and study the foundations of various world governments and the strategies they employ to achieve their goals. With respect to the United States, students learn the underlying principles of representative democracy, the constitutional separation of powers and the rule of law. Students learn the origins and meaning of the principles, ideals and core democratic values expressed in the foundational documents of the United States. Students recognize the need for authority, government and the rights and responsibilities of citizens.

### **Economics**

Economics analyzes the production, allocation, distribution and use of resources. The economic principles include an understanding of scarcity and choice, productivity, markets and prices, supply and demand, competition, role of government, international trade factors and consumer decisions in a global economy. Understanding economic principles, whole economies and the interactions between different types of economies helps students comprehend the exchange of information, capital and products across the globe. Learners investigate economic principles and their application to historical situations. Learners will work cooperatively and individually to analyze how basic economic principles affect their daily lives. Students become financially responsible by examining the consequences of and practicing personal financial decision-making.

### **Geography**

Geography encompasses physical and human systems and the interactions between them on local and global scales. People interact with the natural world in culturally distinct ways to produce unique places, which change over time. New technologies and perspectives of geography provide students with an understanding of the world, and the ability to evaluate information in spatial terms. The geography standards stress the world in which we live and the role of the U.S. in the global community. Students use geographic perspectives and technology to interpret culture, environment and the connection between them. Students collaborate with one another and work individually using geographic skills and tools to ask geographic questions based on the five themes of geography (location, place, human-environmental interaction, movement and regions). They acquire the necessary information, organize and analyze the information and respond to those geographic questions. Students examine the varying ways in which people interact with their environments and appreciate the diversity and similarities of cultures and places created by those interactions.

### **History**

History organizes events and phenomena in terms of when they occurred and examines where, how and why they took place. Students study how individuals and societies have changed and interacted over time. They organize events through chronologies and evaluate cause-and-effect relationships among them. Students analyze how individuals, groups and nations have shaped cultural heritages. They gather historical data, examine, analyze and interpret this data, and present their results in a clear, critical manner. Students study origins and evolutions of culture hearths, settlements, civilizations, states, nations, nation-states, governments and economic developments. Through history, students understand the identity and origins of their families, communities, state and nation. Through history, students recognize the influence of world events on the development of the United States and they evaluate the influence of the United States on the world. Understanding the past helps students prepare for today and the events of the future.

### **College- and Career-Readiness Indicators for Social Studies**

The grades K-12 standards on the following pages define what students should know, understand, and

be able to do by the end of each grade band. They correspond to the College- and Career-Readiness Indicators for Social Studies by grade band (K-2, 3-5, 6-8, and 9-12). The College- and Career-Readiness Indicators and grade-specific standards are necessary complements – the former providing broad standards, the latter providing additional specificity – that together define the skills and understandings that all students must demonstrate.

### **Integration of Literacy in Social Studies**

Literacy strategies and skills are applied as students acquire information and communicate their learning and understanding of social studies. Integration of literacy in social studies is critical for student success. It is essential that literacy strategy and skill instruction be purposefully and appropriately planned and embedded within social studies instruction.

### **Fourth Grade Standards**

Fourth Grade Social Studies is an introduction to the growth of the United States from colonization through the American Revolution to Westward Expansion prior to 1854. Students will analyze the assimilation of various colonial groups, development of improved technology, major historical figures and events. The physical features of the United States and West Virginia and the impact of the settlers on the environment will be investigated. Students will be introduced to democratic beliefs expressed in founding documents, good citizenship and individual rights. Students are expected to investigate the three branches of government and participate in a school or community project. Fourth graders will be introduced to economic concepts and factors that impact consumer choices. They will investigate jobs needed in the future based on the concept of supply and demand.

<b>Civics</b>	
SS.4.1	Identify, explain and critique commonly held American democratic values, principles and beliefs (e.g., diversity, family values, community service, justice, liberty, etc.) through established documents (e.g., <i>Declaration of Independence</i> , <i>U.S. Constitution</i> , <i>Bill of Rights</i> , etc.).
SS.4.2	Compare and contrast the powers of each branch of government and identify the responsibilities and rights of United States citizens.
SS.4.3	Explore the concepts of rule of law to create a visual or oral presentation of how these concepts protect individual rights and the common good.
SS.4.4	Demonstrate patriotism by creating and implementing school/community service projects (e.g., litter cleanup, fundraisers for community groups, participation in community holiday parades, celebrations, services, etc.).

<b>Economics</b>	
SS.4.5	Investigate and recognize people as consumers and as producers of goods, and the effects of competition and supply-demand on prices through projects (e.g., developing budgets or products in simulated situations, etc.).
SS.4.6	Determine jobs that are needed according to supply and demand on a national level.
SS.4.7	Research and examine how slavery and indentured servitude influenced the early economy of the United States by constructing graphics (e.g., charts, graphs, tables and grids, etc.) displaying the effect of having slaves and indentured servants.

<b>Geography</b>	
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SS.4.8	Describe and locate examples of the major physical features of the United States (e.g., bodies of water, mountains, rivers, grasslands, oases, etc.) using references and technology (e.g., atlas, globe, geographic information system, etc.).
SS.4.9	Document the effects of and explain how people adapted to geographic factors (e.g., climate, mountains, bodies of water, etc.) on the following: <ul style="list-style-type: none"> <li>• transportation routes</li> <li>• settlement patterns and population density</li> <li>• culture (e.g., jobs, food, clothing, shelter, religion, government, etc.)</li> <li>• interactions with others (local and national)</li> </ul>
SS.4.10	Compare and contrast the physical, economic and political changes to America caused by geographic conditions and human intervention (e.g., bridges, canals, state boundaries, transportation, etc.).
SS.4.11	Plan and construct maps to demonstrate the effect of geographic conditions on historical processes, practices and events (e.g., colonization, industry, agriculture, major engagements in the Revolutionary War, Westward Expansion, etc.).
SS.4.12	Analyze the impact of West Virginia’s geography on transportation, settlement, jobs, clothing, food, shelter, services and interaction with others outside the state.

<b>History</b>	
SS.4.13	Demonstrate an understanding of the various factors that influenced the founding of the original colonies (e.g., economic, political, cultural, etc.). <ul style="list-style-type: none"> <li>• Analyze the southern, middle and northern colonies (e.g., origins, early government, resources, religious and cultural diversity, etc.).</li> <li>• Compare and contrast community life, family roles and social classes in colonial America (e.g., indentured servants, slaves, colonists, etc.).</li> <li>• Compare and contrast backgrounds, motivations and occupational skills among English, French and Spanish settlers (e.g., economics, culture, trade, new agricultural products, etc.).</li> </ul>
SS.4.14	Demonstrate an understanding of the conflict between the American colonies and England that led to the Revolutionary War. <ul style="list-style-type: none"> <li>• Explain the political and economic factors leading to the American Revolution (e.g., the French and Indian War; British colonial policies, and American colonists’ early resistance, etc.).</li> <li>• Explain the major ideas reflected in the <i>Declaration of Independence</i>.</li> <li>• Summarize the roles of the principal American, British and European leaders involved in the conflict (e.g., King George III, Benjamin Franklin, George Washington, Thomas Jefferson, John Adams, Thomas Paine, Patrick Henry, and Marquis de Lafayette, etc.).</li> <li>• Explain the contributions of Native Americans, the French and Dutch during the Revolutionary War, and list the contributions of women and African Americans during and after the American Revolution.</li> </ul>
SS.4.15	Trace the beginnings of America as a nation and the establishment of the new government. <ul style="list-style-type: none"> <li>• Compare and contrast the various forms of government in effect from 1774-1854 (e.g., <i>Continental Congress</i>, <i>Articles of Confederation</i>, <i>U.S. Constitution</i>, <i>Bill of Rights</i>, etc.).</li> <li>• Research the contributions of early American historic figures (e.g., George</li> </ul>

	<p>Washington, John Adams, Abigail Adams, Thomas Jefferson, Alexander Hamilton, Andrew Jackson, James Madison, Dolly Madison, etc.).</p> <ul style="list-style-type: none"> <li>• Explain the political, social and economic challenges faced by the new nation (e.g., development of political parties, expansion of slavery, taxation, etc.).</li> </ul>
SS.4.16	<p>Demonstrate an understanding of the causes and effects of Westward Expansion.</p> <ul style="list-style-type: none"> <li>• Investigate the economic, political and cultural factors involved in Westward Expansion (e.g., Land Ordinance of 1785, Northwest Ordinance of 1787, Indian Removal Act, Trail of Tears, Manifest Destiny, resources, trade, etc.).</li> <li>• Analyze the people and events that facilitated Westward Expansion (e.g., Daniel Boone, Louisiana Purchase, Lewis and Clark, Northwest Territory, Alamo, Gold Rush, etc.).</li> <li>• Trace transportation innovations and explain their impact on Westward Expansion (e.g., bridges, canals, steamboats, railroads, steam engines, clipper ships, flat boats, roads, dams, locks, ports, harbors, etc.).</li> </ul>

<b>WV History</b>	
SS.4.17	Analyze the impact of West Virginia’s geography on transportation, settlement, jobs, clothing, food, shelter, services and interaction with others outside the state.
SS.4.18	Compare and contrast West Virginia’s population, products, resources and transportation from the 18th century through modern day.
SS.4.19	Pose, research and answer student-generated questions relating to West Virginia (e.g., primary source documents, magazines, online resources, etc.).

## Wellness

WVCCRS have been developed with the goal of preparing students for a wide range of high-quality postsecondary 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 WVCCRS 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.

WVCCRS for Wellness Education promote wellness concepts that build the foundation for health literacy and an appreciation for lifelong physical fitness. Students will learn to adopt healthy behaviors. This is a life-long process of enhancing the components of health education (physical, intellectual, emotional, social, spiritual and environmental), physical education (movement forms, motor skill development and fitness) and physical activity, an important factor in brain development and learning. The WVCCRS for Wellness Education identify what students should know, understand, and be able to do in practicing skills and behaviors that apply to healthy lifestyles. College- and career-readiness is supported in wellness education as students acquire and further develop self-responsibility, motivation, and excellence in learning as well as life-long commitment to wellness.

Committees of educators from across the state convened to revise the standards. The overarching goal was to build rigorous, relevant and challenging wellness education programming that would prepare students for college- and career-readiness. West Virginia educators and representatives from higher

education institutions played a key role in shaping the standards to align with research and best practice in the field of wellness education. The contribution of these professionals was critical in creating a policy that is meaningful to classroom teachers and appears in a format that can easily be used and understood.

### Explanation of Terms

**Domains** are the broad components that make up a content area; e.g., health education and physical education make up wellness education.

**Health Education** - The goal of health education is to provide students with the knowledge and skills needed to lead healthy lifestyles; this is often referred to as health literacy. Health literacy is an important measure of the effectiveness of health education and is critical to ensuring that students have the ability to be healthy throughout their lives. Health-literate people are able to address their own health needs along with the needs of others. They are able to obtain and apply knowledge and skills to enhance their own health and the health of others now and in the future as their needs change throughout their lives.

**Physical Education** - Physical education provides students with planned, sequential, K-12 standards-based instruction designed to develop motor skills, knowledge and behaviors for active living, physical fitness, sportsmanship, self-efficacy, and emotional intelligence.

**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.

### Wellness Education – Kindergarten – 5<sup>th</sup>

All West Virginia teachers are responsible for classroom instruction that integrates content standards, learning skills, and technology. Students in grades K-5 are introduced to wellness concepts that build the foundation for health literacy and an appreciation for lifelong physical fitness. It is critical that children learn to adopt healthy behaviors at an early age, so they can develop sound habits before being faced with health concerns later in life. This is a life-long process of enhancing the components of health education (physical, intellectual, emotional, social, spiritual, and environmental), physical education (movement forms, motor skill development and fitness) and physical activity, an important factor in early brain development and learning. The K-5 wellness content standards identify what students should know, understand and be able to do in practicing skills and behaviors that apply to healthy lifestyles. The goal of these standards is to promote self-responsibility, motivation and excellence in learning as well as life-long commitment to wellness. The following chart represents the components of health and physical education that will be developed throughout grades K-5:

Health Education	Physical Education
<b>Wellness Promotion and Disease Prevention</b>	<b>Development of Movement Forms/Motor Skills</b>
<ul style="list-style-type: none"> <li>acquire basic wellness concepts and functional wellness knowledge</li> </ul>	<ul style="list-style-type: none"> <li>develop foundational movement forms and motor skills</li> <li>establish a foundation to facilitate continued motor skill acquisition</li> </ul>
<b>Wellness Information and Services</b>	<b>Physical Fitness</b>

<ul style="list-style-type: none"> <li>• identify valid wellness information and health promoting products and services</li> <li>• apply analysis and comparison of health resources to develop health literacy</li> </ul>	<ul style="list-style-type: none"> <li>• develop knowledge of fitness principles,</li> <li>• accept responsibility for personal fitness</li> <li>• understand fundamentals of how to lead an active, healthy lifestyle</li> <li>• develop higher levels of basic fitness and physical competence</li> <li>• endeavor to improve components cardiorespiratory endurance, muscular strength and endurance, flexibility, and body composition</li> </ul>
<b>Wellness Behaviors</b>	<b>Responsible, Personal, and Social Behaviors</b>
<ul style="list-style-type: none"> <li>• understand that wellness enhancing behaviors can contribute to a positive quality of life</li> <li>• understand many disease and injuries can be prevented by reducing harmful and risk-taking behaviors</li> <li>• accept personal responsibility for health</li> <li>• identify and practice healthy behaviors</li> </ul>	<ul style="list-style-type: none"> <li>• understand that personal fitness is impacted by a variety of positive and negative influences within society</li> <li>• identify and understand the diverse internal and external factors that influence wellness practices and behaviors</li> </ul>

#### **West Virginia Code and Policy Requirements**

- In accordance with WV Code §18-2-7(a) in grades K-5, not less than 30 minutes of physical education, including physical exercise and age appropriate physical activities, for not less than three days a week shall be provided. Schools that do not currently have the number of certified physical education teachers or required physical setting may develop alternate programs to enable current staff and physical settings to be used to meet this requirement. Alternate programs shall be submitted to the WVDE for approval.
- In accordance with Policy 2510 at least 50 percent of class time for physical education will be spent in moderate to vigorous-intensity physical activity.
- In accordance with WV Code §18-2-7(a), the FitnessGram® shall be administered to all students in grades four through eight and the required high school course.

#### **FitnessGram® - Begins in Grade 4**

The FitnessGram® test battery assesses health-related fitness components: aerobic capacity, muscular strength and endurance, flexibility and body composition. FitnessGram® tests all students regardless of age, gender, or ability. Students are encouraged to be self-aware of health-related fitness and take responsibility by setting personal fitness goals. When students focus on the process of doing their personal best, a more positive lifelong impact is achieved. The FitnessGram® is composed of the following six fitness areas, with test options provided for most areas:

##### **Aerobic Capacity**

- PACER (Progressive Aerobic Cardiovascular Endurance Run)
- One-Mile Run

##### **Upper Body Strength and Endurance\***

- Push-Up
- Modified Pull-Up
- Flexed Arm Hang



<p><b>Abdominal Strength and Endurance</b></p> <ul style="list-style-type: none"> <li>• Curl-Up</li> </ul> <p><b>Flexibility</b></p> <ul style="list-style-type: none"> <li>• Trunk Lift</li> <li>• Back-Saver Sit and Reach</li> <li>• Shoulder Stretch</li> </ul> <p><b>Body Composition</b></p> <ul style="list-style-type: none"> <li>• Body Mass Index</li> <li>• Bioelectric Impedance Analyzer</li> </ul>
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**Wellness Education – Grade 4**

All West Virginia teachers are responsible for classroom instruction that integrates content standards, learning skills, and technology. Fourth grade health education standards focus on developing plans for wellness behaviors, practice health-enhancing skills and become advocates for personal health. Students will propose wellness strategies to develop independence, self-motivation and critical thinking skills. Fourth grade physical education standards focus on continued advancements of motor skills, movement concepts, and physical fitness allowing for greater exploration of lifetime physical activities. Fourth grade incorporates vigorous activity to enhance physical development, social skills, and foster participation in enjoyable physical activity outside the classroom.

**Health Education**

<b>Cluster</b>	Wellness Promotion and Disease Prevention
WE.4.1	Identify responsible health behaviors to avoid the spread of contagious diseases.
WE.4.2	Describe the functions of the circulatory, respiratory, nervous, endocrine systems of the human body.
WE.4.3	Describe the harmful effects of excessive sun exposure and identify ways to reduce overexposure.

<b>Cluster</b>	<b>Wellness Information and Services</b>
WE.4.4	Identify specific community resources providing health care, health information, and health enhancing activities.
WE.4.5	Explore how the media attempts to influence thoughts, feelings, and health behaviors.

<b>Cluster</b>	<b>Wellness Behaviors</b>
WE.4.6	Develop and practice a personal hygiene plan.
WE.4.7	Recognize and accept individual differences in others (e.g., skills, appearance, gender).
WE.4.8	Discuss the improper use and abuse of drugs.
WE.4.9	Examine food labels and nutritional value.
WE.4.10	Discuss examples for food advertising and influences on personal health.
WE.4.11	Identify and discuss TV and other media programs exemplifying healthy family relationships.
WE.4.12	Examine the consequences of not using appropriate safety skills and equipment for recreational purposes.
WE.4.13	Plan a balanced meal using proper nutrition guides.
WE.4.14	Define risk-taking behaviors and resulting consequences.
WE.4.15	Explain the physical, social, and emotional changes that occur during puberty and adolescence.

**Physical Education**

<b>Cluster</b>	<b>Development of Motor Skills/Movement Forms</b>
WE.4.16	Demonstrate critical elements or components for the kick, catch, throw, dribble with hands and feet, and jump/land.
WE.4.17	Strike, toss, and catch objects using short and long-handled implements.
WE.4.18	Volley an object to self.
WE.4.19	Jump a single rope continuously using a variety of jump skills.
WE.4.20	Apply strategies for chasing, fleeing, and evading in a variety of activities.
WE.4.21	Perform rhythmic sequences using equipment.
WE.4.22	Dribble and kick an object while moving.

<b>Cluster</b>	<b>Physical Fitness</b>
WE.4.23	Demonstrate proper form when performing the following muscular strength and endurance exercises (e.g., curl up, sit up, plank, push up).
WE.4.24	Demonstrate proper form when developing flexibility (e.g., trunk lift, sit and reach, shoulder stretch).
WE.4.25	Demonstrate proper pacing technique when running for various periods of time or distance (e.g., sprint, jog, mile-run).
WE.4.26	Use fitness assessment results to identify personal strengths and weaknesses and plan for personal improvement.
WE.4.27	Match various exercises to the appropriate fitness components (e.g., push-up to upper body strength, curl up to abdominal strength).
WE.4.28	Identify the components of the F.I.T.T. principle of exercise: frequency, intensity, time, and type.
WE.4.29	Identify the characteristics of activities needed to maintain health-related fitness.

<b>Cluster</b>	<b>Responsible Personal and Social Behaviors</b>
WE.4.30	Work cooperatively, productively, and safely with a partner or small group.
WE.4.31	Demonstrates the importance of rules and etiquette in physical activities.
WE.4.32	Define fair play and provide examples of fair play in a variety of activities.
WE.4.33	Identify examples of appropriate feedback.

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## Arts

WVCCRS have been developed with the goal of preparing students for a wide range of high-quality postsecondary 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 WVCCRS 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.

WVCCRS for the Arts promote proficiency in performing a range of material or creating two or three dimensional artworks, analyzing and processing feedback, the application of verbal and non-verbal 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 common domains of the arts – create, connect, explore, perform, relate, respond, and others germane to specific arts disciplines. College-and career-readiness is supported in the arts as students acquire and further develop abilities to become creators, consumers and advocates of the arts.

Committees of educators from across the state convened to revise the standards. The overarching goal was to build rigorous, relevant and challenging arts education programming that would prepare students for college- and career-readiness. West Virginia educators and representatives from higher education institutions played a key role in shaping the standards to align with research and best practice in the field of arts education. The contribution of these professionals was critical in creating a policy that is meaningful to classroom teachers and appears in a format that can easily be used and understood.

### **Explanation of Terms**

**Domains** are the broad components that make up a content area; e.g., create, connect, explore, perform, relate, respond are domains found in all arts disciplines.

**Create** - In the arts, to create is to generate, conceptualize, and express artistic ideas and work. It can include a performance, a composition, and/or a two and three dimensional piece of art.

**Connect** - In the arts, to connect is to synthesize and relate knowledge and experiences to make art. It can include relating artistic ideas and works with societal, cultural and historical context to deepen understanding.

**Explore** - In the arts, to explore is to study, analyze, experience, describe and interpret arts disciplines.

**Perform** - In the arts, to perform is to interpret, develop and refine artistic ideas and works for presentation and study. It can include individual and group efforts.

**Relate** - In the arts, to relate is to understand the relationship of a single arts discipline to other arts disciplines, other disciplines outside the arts, and to a variety of cultures and historical periods.

**Respond** - In the arts, to respond is to perceive, interpret, and analyze artistic work giving it meaning. It can include applying criteria to evaluate artistic work.

Others specific to theatre and visual art are: Theatre - scriptwriting, acting, technical theatre, directing, and Visual Art – media, techniques and processes, elements of art and principles of design, subject matter, symbols, and Ideas, art history and diversity, reflection and analysis and multi-disciplinary connections. These content-specific domains are featured in chart form at the beginning of standards in which they appear.

**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 or four parts, each part separated by a period:

- the content area code (e.g., MU for Music).
- the grade level or high school content area,
- the course level (when applicable), and
- the standard.

Illustration: MU.K-2.1 refers to General Music, grades K-2, standard 1

MU.B.3.22 refers to Band, level III, standard 22.

### **Abbreviations:**

MU – Music  
VA – Visual Art  
DA - Dance  
TH – Theatre

The following four arts disciplines are:

### **Music education**

Music education provides students with opportunities to explore the world of music through singing, playing instruments, moving, and listening and to develop skills to perform, create, and appreciate music. Civic literacy is developed in music education through the study of patriotic and folk music. In addition, global awareness will be introduced to the student through experiencing the music of other cultures. Collaboration skills will be emphasized as students learn to perform with others in various ensembles. Critical-thinking skills will be sharpened as students actively listen and respond to what they hear. Creativity and problem-solving skills will be developed through simple composition and improvisation. Students will relate music to other disciplines, including literature, math, science, and visual art.

### **Visual Art education**

The study of visual art provides students with the skills to appreciate and create and visual art. In visual art, students explore the world of art through subject matter that centers on the student's own environment, allowing them to express feelings and ideas using a variety of media and tools. Communication skills are developed as students discover how to communicate through art and to discuss their own creations. Technical expertise is honed as they learn to use tools properly for drawing, painting, printing, and sculpture. As they develop their artistic sensibilities, students will build upon their knowledge of the elements and principles of visual art to investigate more complex concepts of artistic design. Civic literacy is developed as subject matter expands from personal to the community, environment, nature and other cultures, and an understanding of connections between the arts and other disciplines is formed.

### **Dance education**

The study of dance provides students with the skills to perform, create, and appreciate dance. Students will experience a variety of dance concepts, ideas, and techniques. Advancing personal knowledge of a variety of dance concepts, ideas, and techniques, students develop as dance artists. In dance education, students evaluate personal actions, commitment, and discipline necessary to achieve dance goals discovering an individual voice as an artist performer. Health literacy is developed as students identify strategies and approaches which can ensure the health and care of the dancer's instrument (body). Civic literacy is developed as students explore the influence of culture, historical period, and context on the creation and interpretation of dance.

### **Theatre education**

The study of theatre provides students with the skills to perform, create, and appreciate theatre. In theatre, students study, adapt, and create stories for performance; identify contemporary styles of theatre/drama and depict characters in them; identify elements of technical theatre; and demonstrate technical theatre knowledge and skills. Communication and collaboration skills are developed as students discuss multiple interpretations for production ideas and collaborate to uncover how the non-dramatic art forms enhance a theatre production. Through exploration of diverse texts, students will

study the influence of culture, historical period, and context on the creation and interpretation of theatre.

### General Music - Grades K-8

The sequential program of music study will include, but not be limited to, general music kindergarten through eighth grade. Sufficient time should be allotted for students to achieve the General Music Standards. A quality music program brings richness to the school curriculum; therefore, it is recommended that schools provide more than a sufficient amount of time for the delivery of the music curriculum. The standards are written to maximize teacher flexibility and creativity in delivering quality music instruction to all students.

<ul style="list-style-type: none"> <li>• Sing, alone and with others, a varied repertoire of music.</li> <li>• Perform on instruments, alone and with others, a varied repertoire of music.</li> </ul>	<ul style="list-style-type: none"> <li>• Read and notate music</li> <li>• Listen to, analyze, and describe music</li> <li>• Evaluate music and music performances.</li> </ul>
<ul style="list-style-type: none"> <li>• Improvise melodies, variations, and accompaniments.</li> <li>• Compose and arrange music within specified guidelines.</li> </ul>	<ul style="list-style-type: none"> <li>• Understand relationships between music, the other arts, and disciplines outside the arts.</li> <li>• Understand music in relation to history and culture.</li> </ul>

### General Music - Grades 3-5

In General Music – 3-5, students will develop further independence in the use of the singing voice. Terms will be added to the basic music vocabulary for continued music literacy. Through the use of the voice, classroom instruments and body percussion, students’ creativity and problem-solving skills will be further developed as they improvise and compose rhythms and melodies. Critical-thinking skills will be refined by evaluating personal musical performances and the performances of others. Global awareness will be expanded through performing and listening to music of other cultures. Students will continue to collaborate with others in classroom ensembles. Students will relate music to other disciplines by singing songs in foreign languages and examining the correlation of music with history and visual art.

#### Performing

MU.3-5.1	Demonstrate singing a variety of musical styles.
MU.3-5.2	Demonstrate understanding of the structure and the elements of music (e.g., rhythm, pitch, form, and harmony) in music for selected performances.
MU.3-5.3	Read and perform music using standard notation.
MU.3-5.4	Demonstrate a variety of tempi and form through movement.
MU.3-5.5	Perform music following the cues of a conductor.
MU.3-5.6	Demonstrate and explain intent through interpretive decisions and expressive qualities (e.g., dynamics, tempo, timbre, and articulation/style).

#### Exploring

MU.3-5.7	Identify aurally and visually a variety of instruments, vocal timbres, and music ensembles.
MU.3-5.8	Demonstrate understanding of musical concepts through the use of standard and/or iconic notation and/or recording technology.
MU.3-5.9	Read and notate from the grand staff.
MU.3-5.10	Discover a variety of expressive qualities (e.g., dynamics, phrasing, articulation, form,

	and tempo) relating to musical performance.
MU.3-5.11	Analyze and understand appropriate tone production for instruments and voices.

### Creating

MU.3-5.12	Improvise rhythmic, melodic, and harmonic ideas, and explain connections to specific purpose and context (e.g., social, cultural, and historical).
MU.3-5.13	Generate musical ideas (e.g., rhythms, melodies, and accompaniment patterns) within specific related tonalities, meters, and simple chord changes.
MU.3-5.14	Create rhythmic and melodic ideas based on varied music forms.

### Relating

MU.3-5.15	Demonstrate and interpret the influence of personal interest, knowledge, and context and technical skill on music selection.
MU.3-5.16	Relate contextual influence (e.g., social, cultural, and historical) to music performances.
MU.3-5.17	Sing, perform, and relate West Virginia songs to West Virginia history and West Virginia geography.
MU.3-5.18	Compare and contrast personal and expressive preferences in the evaluation and active listening of music for specific purposes, citing evidence from the elements of music.
MU.3-5.19	Apply teacher-provided, collaboratively-developed, and/or established criteria and feedback to evaluate accuracy of ensemble and personal performances.
MU.3-5.20	Demonstrate connections between music and other arts, other disciplines, varied contexts, and daily life.
MU.3-5.21	Explore life skills relevant to musical careers.

### Visual Art - Grades K – 2; 3 – 5; 6 – 8

The sequential program of study in visual art will include, but not be limited to, general art kindergarten through eighth grade. Sufficient time should be allotted for students to achieve the visual art standards. A quality visual art program brings richness to the school curriculum; therefore, it is highly recommended that schools provide more than a minimal amount of time for the delivery of the elementary general visual art curriculum. The standards are written in a way to maximize teacher flexibility and creativity in delivering quality instruction to all students.

<ul style="list-style-type: none"> <li>Identify media and materials used in creating art; understand processes and techniques in creating art; apply problem-solving skills in creating two-dimensional and three-dimensional works of art; and use materials and tools in a safe and responsible manner.</li> </ul>	<ul style="list-style-type: none"> <li>Identify selected elements and principles of design as they relate to art and the environment; understand qualities of elements of art and principles of design as they apply to two-dimensional and three-dimensional objects and artworks; apply elements of art and principles of design as they relate to problem-solving skills in the creating of art; and communicate expressive ideas that demonstrate an understanding of structures and functions in art.</li> </ul>
<ul style="list-style-type: none"> <li>Identify symbols and ideas to communicate meaning in art; determine potential content for artworks; and apply problem-solving skills when creating art relative to subject matter, symbols, and ideas.</li> </ul>	<ul style="list-style-type: none"> <li>Identify how visual art has a history and specific relationship to culture; analyze works of art that reflect different styles and time periods; and demonstrate an understanding of how history, culture, and the arts influence each other.</li> </ul>

<ul style="list-style-type: none"> <li>Identify multiple purposes for creating works of art; analyze contemporary and historic meanings in specific artworks through cultural and aesthetic inquiry; and describe and compare a variety of individual responses to their artworks and to artworks from various eras and cultures.</li> </ul>	<ul style="list-style-type: none"> <li>Identify characteristics of visual art and other disciplines; and analyze by comparing and contrasting connections between disciplines.</li> </ul>
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### General Art - Grades 3-5

All West Virginia teachers are responsible for classroom instruction that integrates content standards, learning skills and technology tools. Students in Grades 3-5 will build on the skills developed in K-2. They will continue to improve creative problem-solving skills in their artwork as they progress beyond the basics of color, perspective and dimensionality. They will begin to explore the subtleties of color through complementary colors, tints and shades, will discover subtractive and dettractive sculpture, and will delve into the world of abstract and non-objective symbols. Students will increase their understanding of art in culture and history, identify artists through their unique styles, continue to explore art as communication, and examine the use of art media and technology, techniques, and processes.

### Media, Techniques and Processes

VA.3-5.1	Compare, contrast, and explain the effectiveness of a variety of two- and three-dimensional art tools, techniques, and processes in multiple media.
VA.3-5.2	Construct two and three-dimensional art using multiple media to communicate ideas experiences, and stories with aesthetic prompt, multiple solutions, and to communicate ideas, experience, and stories with peer critique.
VA.3-5.3	Use materials, tools, and technology in a safe and responsible manner.

### Elements of Art and Principles of Design

VA.3-5.4	Compare and contrast, analyze, and ask and answer questions about the elements of art and principles of design as they apply to the creation of two and three-dimensional art and the communication of multiple ideas.
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### Subject Matter, Symbols and Ideas

VA.3-5.5	Explore, compare and contrast, and analyze the presence of a subject, symbol or idea that visually communicate a meaning in art.
VA.3-5.6	Create art using various subject matter or symbols.

### Art History and Diversity

VA.3-5.7	Compare and contrast, analyze, and ask and answer questions about how art has existed through time and is affected by its creator, culture, style, and/or time periods.
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VA.3-5.8	Create art that reflects the style of various cultures from different time periods as well as from current events.
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### Reflection and Analysis

VA.3-5.9	Compare and contrast, analyze, and ask and answer questions about how personal and others' works of art represent feelings, reflect experiences, create meaning, and/or have a function.
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### Multidisciplinary Connections

VA.3-5.10	Explore, compare and contrast, and analyze how ideas, experiences, and stories can be expressed through multiple arts, disciplines, and other subjects.
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## Technology and Computer Science

West Virginia's College- and Career-Readiness Standards (WVCCRS) 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 WVCCRS establish a set of knowledge and skills that all individuals need to transition into higher education or into 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.

WVCCRS for Technology and Computer Science promote proficiency in foundational technology skills, digital literacy, digital citizenship, and computer science. College- and career-readiness is supported in Technology and Computer Science as students acquire and develop their abilities to engage and thrive in a connected, digital world. The standards are designed in grade bands (e.g. K-2, 3-5, 6-8, and 9-12), with a goal of cultivating these skills throughout a student's academic career and challenge them to enhance learning with technology and challenge them to be agents of their own learning.

The overarching goal is to build a rigorous, relevant, challenging, and developmentally appropriate technology and computer science curriculum that prepares students for college- and career-readiness. West Virginia educators play a key role in shaping the content standards to align with the best practices in the field of technology and computer science education. The contributions of these professionals are critical in creating a policy that is meaningful to classroom teachers and appears in a format that can easily be used and understood.

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### Technology 3-5

All West Virginia teachers are responsible for classroom instruction that integrates content standards, foundational skills, literacy, learning skills, and technology tools. Students in grades three through five will advance through an integrated, developmentally appropriate progression of standards. By the end of the 5<sup>th</sup> grade, students should demonstrate competency in all Technology 3-5 standards. The following chart represents the components of technology integration that will be developed in grades 3-5.

<b>3-5 Technology Indicators</b>	
•	Use a variety of age-appropriate technologies to assist with the learning process.
•	Deepen learning across a variety of content areas through the use of age-appropriate technologies.
•	Integrate technology responsibly.

### Grades 3-5 Standards

In the later elementary grades, students spend more time interacting with technology. As they develop their critical thinking skills across the curriculum, they begin to use those technologies that support their learning. Students enhance their communication and research skills via the Internet and become familiar with programs that allow them to create original works as well as to record, analyze and graph various kinds of data. Students deepen their understanding of safe technology use and the importance of maintaining privacy—both their own and others’.

<b>Empowered Learner</b>	
T.3-5.1	Explore a variety of age-appropriate technologies that can assist with the learning process.
T.3-5.2	Explore multiple ways to share ideas and organize information about themselves and the things around them using appropriate digital resources (pictures, portfolio, etc.)
T.3-5.3	Evaluate digital sources for accuracy, perspective, credibility, and relevance.
T.3-5.4	Learn proper keyboarding techniques.

<b>Digital Citizen</b>	
T.3-5.5	Demonstrate responsible use of technology (e.g., seek guidance and appropriate support when selecting digital content, understand how to be safe online, follow safety rules when using media, etc.).
T.3-5.6	Practice using safe, legal, and ethical behavior when using technology and interacting online.
T.3-5.7	Collaborate with peers, teams, and individuals within their communities and home through the use of age-appropriate technology.
T.3-5.8	Demonstrate an understanding of the role an online identity plays in the digital world and learn the permanence of decisions made when interacting online.

T.3-5.9	Demonstrate appropriate methods of sharing personal data online and how to keep personal data private.
T.3-5.10	Demonstrate responsible use of technology by respecting intellectual property with both print and digital media when using and sharing the work of others.

<b>Knowledge Constructor</b>	
T.3-5.11	Create original work through the use of age-appropriate technology and digital resources and tools.
T.3-5.12	Demonstrate creativity and learning through technology (e.g., digital storytelling, portfolio creation, digital media displays, etc.).

<b>Innovative Designer</b>	
T.3-5.13	With support and guidance, select appropriate technology tools to solve problems and communicate information.
T.3-5.14	With support and guidance, create a product using a step-by-step process through the use of age-appropriate digital and non-digital resources.
T.3-5.15	Use appropriate technology to transfer learning to a variety of tools or learning environments.

<b>Computational Thinker</b>	
T.3-5.16	Research information on topics of interest through the use of age-appropriate technology and digital resources provided by the classroom teacher.
T.3-5.17	With support and guidance, deepen learning across content areas through the use of age-appropriate technology and digital resources.
T.3-5.18	Graph data using a spreadsheet. Analyze and produce a report that explains the analysis of data.

<b>Creative Communicator</b>	
T.3-5.19	Communicate with others through the use of electronic mail (email) or other digital resources.
T.3-5.20	Utilize embedded digital tools for feedback.

<b>Global Collaborator</b>	
T.3-5.21	Connect with others and explore and different points of view on various topics through the use of age-appropriate technology resources.
T.3-5.22	Explore multiple ways to share ideas and information about themselves and the world around them, considering the expected audience.

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## West Virginia College- and Career-Readiness Dispositions and Standards for Student Success (WVCCR DSSS)

### Introduction

West Virginia’s College- and Career-Readiness Standards (hereinafter WVCCR) 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 WVCCR establish a set of knowledge and skills that all individuals need to transition into higher education or into 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 educators provided input to the development of the West Virginia College- and Career-Readiness Dispositions and Standards for Student Success (WVCCRDS). They played a key role in shaping the content standards to ensure the WVCCRDS complement the core subjects being taught in West Virginia schools and have been identified by research and multiple entities including workforce and post-secondary leaders, WVBE, and school staff as essential for the success of every student.

Per WVBE Policy 2510, the WVCCRDS describe the attitudes, knowledge, skills, and dispositions all students shall develop in relation to personal and social development; academic and learning development; career and life planning; and global citizenship. The WVCCRDS are critical to the holistic development of all students and require integration into all aspects of each student's educational experience utilizing a variety of delivery modalities. The WVCCRDS are foundational standards for all students, and serve as primary standards for middle and high school teacher led, student advisory systems in West Virginia schools.

### **Explanation of Terms**

#### **Dispositions**

The following social and emotional dispositions will be the guide for county boards of education. The categories are defined as follows:

1. Individual dispositions – are observable actions that students can demonstrate independently without interaction.
2. Initiative interaction – are observable actions that require students to purposefully start social engagement.
3. Responsive interaction – are observable actions that requires students to engage in reaction to social encounters.
4. Work skills interactions (grades 9-12) – are observable actions that require students to demonstrate social skills and dispositions that are expected in the workplace.

**Standards** are broad statements that define the knowledge, skills, and dispositions that all students shall demonstrate in a content area in each programmatic level in grades K-12.

#### **Numbering of Standards**

The numbering of standards is composed of five parts, each part separated by a period:

- the content area code (DSS – Dispositions Student Success)
- the programmatic level (K-2 – Kindergarten through Grade Two; 3-5 – Grades 3-5; 6-8 – Grades 6-8; and 9-12 – Grades 9-12)
- the standard.

Illustration: DSS.6-8.14 refers to the Student Success standard for Grades 6-8, standard number 14.

### **Dispositions and Standards for Student Success Kindergarten – Grade 5**

The Early Learning Programming (Grades K-5) focus on students' social and emotional development to lay the foundation for all learning. Progressive physical, cognitive, and academic development depends on a student's ability to intentionally engage in learning activities through a variety of modalities. Essential to

this process is the student’s ability to self-regulate and persist in activities when challenged with new experiences. Active learning is achieved through a student’s ability to solve problems within the context of positive relationships, communicate their needs effectively and evaluate themselves. Effective teaching strategies help students develop strong self-regulation, which in turn prepares students to succeed in school.

**Third Grade-Fifth Grade Standards**

Through a developmentally appropriate, integrated approach, students in the later elementary years will continue to engage in experiences that promote positive social and communication skills. They will develop awareness of how words, actions, and behaviors affect others, learn to be responsible for their actions both socially and academically, and increase their understanding of the world around them through cultural interaction, exposure to career and professional opportunities, and the investigation of local, national, and international events.

<b>Personal and Social Development</b>	
Respect Yourself and Others	
DSS.3-5.1	<i>Understand Self and Others</i> <ul style="list-style-type: none"> <li>• Demonstrate an awareness as to how their words impact others.</li> <li>• Develop positive relationships with peers, other children and adults.</li> </ul>
DSS.3-5.2	<i>Maintain Positive Relationships</i> <ul style="list-style-type: none"> <li>• Show respectful and caring behavior toward others.</li> <li>• Use appropriate communication skills to initiate and join activities and complete varied learning tasks.</li> </ul>
DSS.3-5.3	<i>Exhibit Respectful Behavior</i> <ul style="list-style-type: none"> <li>• Use and accept negotiation and compromise to resolve conflicts.</li> </ul>
Goal Setting and Attainment	
DSS.3-5.4	<i>Decision Making and Personal Responsibility</i> <ul style="list-style-type: none"> <li>• Set goals, develop a plan, and follow it through to completion.</li> </ul>
Safety and Survival Skills	
DSS.3-5.5	<i>Protect Emotional and Physical Safety</i> <ul style="list-style-type: none"> <li>• Express needs, wants, and feelings appropriately.</li> <li>• Describe how situations such as teasing, bullying, harassment, breaking rules, threats, intimidation, and damaging other’s property impact emotional safety.</li> <li>• Exhibit respect for physical boundaries, rights, and personal privacy in relation to personal safety.</li> <li>• Demonstrate knowledge of emergency contact information (e.g., emergency [police, fire, medical, 911], and family phone numbers, addresses, contact names).</li> </ul>

<b>Academic and Learning Development</b>	
Self-Directed Learning	
DSS.3-5.6	<i>Develop Academic Motivation</i> <ul style="list-style-type: none"> <li>• Use personal skills, interest, and accomplishments to support learning.</li> <li>• Independently and collaboratively approach tasks and activities with flexibility and creativity.</li> <li>• Use abilities and accomplishments to maximize learning opportunities.</li> </ul>
DSS.3-5.7	<i>Develop Learning Skills</i> <ul style="list-style-type: none"> <li>• Work collaboratively to solve problems, complete tasks, and/or investigate topics of interest.</li> <li>• Explore a variety of learning opportunities within the classroom and home environment.</li> <li>• Maintain concentration over a reasonable amount of time despite distractions and interruptions.</li> </ul>

	<ul style="list-style-type: none"> <li>Independently complete routines and learning tasks.</li> </ul>
DSS.3-5.8	<i>Achieve School Success</i> <ul style="list-style-type: none"> <li>Accept guidance and direction from a variety of peers and adults.</li> <li>Develop increased ability to make choices from identified options.</li> </ul>
Post-Secondary Preparation	
DSS.3-5.9	<i>Prepare for Post-Secondary Success</i> <ul style="list-style-type: none"> <li>Develop an appreciation for and articulate the benefits of learning.</li> <li>Interact with varied community members.</li> </ul>
DSS.3-5.10	<i>Plan to Achieve Goals</i> <ul style="list-style-type: none"> <li>Demonstrate an understanding of the steps used in developing a plan.</li> <li>Make short-term and long-term plans, as appropriate.</li> <li>Persist in activities to achieve goals.</li> <li>Investigate the importance of early academic planning to prepare for post-secondary success and reaching career goals.</li> </ul>

<b>Career Development and Life Planning</b>	
Career Exploration and Planning	
DSS.3-5.11	<i>Develop Career Awareness</i> <ul style="list-style-type: none"> <li>Interact with a variety of community members.</li> <li>Investigate career paths.</li> </ul>
DSS.3-5.12	<i>Develop Career and Life Plan</i> <ul style="list-style-type: none"> <li>Interact with local and national professional and/or experts to extend personal knowledge to a variety of careers.</li> </ul>
DSS.3-5.13	<i>Careers and Life Success</i> <ul style="list-style-type: none"> <li>Use expected workplace dispositions, skills, and behaviors in the school and community (e.g., attendance, punctuality, communication, relationships, attitudes, perseverance, collaboration, critical thinking, and leadership).</li> </ul>

<b>Global Citizenship</b>	
Intercultural Perspectives	
DSS.3-5.14	<i>Acquire a Diverse and Knowledgeable World View</i> <ul style="list-style-type: none"> <li>Investigate and respect aspects of various communities and discuss how these contribute to each individual's perspective of local, state, and world events.</li> <li>Identify themselves as members of varied groups within the local, state, national, and international community.</li> </ul>
DSS.3-5.15	<i>Interact Respectfully with Diverse Cultures</i> <ul style="list-style-type: none"> <li>Interact respectfully with all individuals regardless of gender, race, disability, culture, language, and family structure.</li> </ul>
Democratic Principles	
DSS.3-5.16	<i>Promote Social Justice</i> <ul style="list-style-type: none"> <li>Follow rules and routines and use materials purposefully and respectfully.</li> </ul>
DSS.3-5.17	<i>Assume Responsible Leadership</i> <ul style="list-style-type: none"> <li>Assume leadership roles in collaborative tasks within the classroom and school community.</li> </ul>
DSS.3-5.18	<i>Practice Financial Responsibility</i> <ul style="list-style-type: none"> <li>Evaluate financial choices based on needs and wants.</li> <li>Create a budget with income from incidental funds to save for goals.</li> </ul>