

Standards by Grade Level

Fourth Grade



Table of Contents

Purpose.....	2
Guiding Principle	2
Standards.....	2
COMPUTER SCIENCE.....	2
ENGLISH LANGUAGE ARTS.....	5
FINANCIAL LITERACY.....	12
FINE ARTS: DANCE.....	13
FINE ARTS: DRAMA	14
FINE ARTS: MUSIC.....	15
FINE ARTS: VISUAL ARTS.....	17
MATHEMATICS.....	19
PHYSICAL EDUCATION	26
SCIENCE.....	30
TECHNOLOGY.....	34
WORLD LANGUAGES AND CULTURES.....	37

Purpose

The *Standards by Grade Level for Fourth Grade* is a compilation of all learning standards for fourth grade. This document does not take the place of Ohio's Learning Standards and Model Curricula. The Department of Education designed this tool to view the standards by grade level instead of content area. Every student should receive instruction aligned to the learning standards.

Guiding Principle

Prioritizing student learning

Continue to value and use **Ohio's Learning Standards** as the basis for guiding instruction and student acquisition of knowledge and skills. Ensure opportunities for students to master **core subject areas** and pursue **well-rounded learning** (such as fine arts, technology, computer science and world languages and cultures).

Standards

COMPUTER SCIENCE

Instructional Supports:

[Ohio's Learning Standards for Computer Science](#)
[Computer Science Model Curriculum](#)

Code

Standard

Computing Systems

Topic 1: Devices

CS.D.4.a

Explore external components (i.e., parts) of a computing system and their function to understand and describe the role they play in a computer system.

Topic 2: Hardware and software

CS.HS.4.a

Select and use digital learning tools/devices to support planning, implementing and reflecting upon a defined task.

Topic 3: Troubleshooting

CS.T.4.a

Diagnose problems and select an appropriate solution from a list of problems and solutions to resolve hardware and software issues.

Networks and the Internet

Topic 1: Networking

NI.N.4.a

Describe how information is broken down to be transmitted over a network to help students gain a better understanding of the internet and networks.

COMPUTER SCIENCE

NI.N.4.b	Describe network addresses, names and rules (i.e., protocols) to share or receive information from the global community.
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Topic 2: Cybersecurity

NI.C.4.a	Describe what information should be protected and the importance of a secure password to protect information.
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Data and Analysis

Topic 1: Data collection and storage

DA.DCS.4.a	Gather and organize multiple quantitative data elements using a tool to perform various tasks.
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DA.DCS.4.b	Identify techniques and formats to store, process and retrieve different types of information.
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Topic 2: Visualization and Communication

DA.VC.4.a	Organize data into subsets to provide different views or commonalities and present insights gained using visual or other types of representations.
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Topic 3: Inference and Modeling

DA.IM.4.a	Utilize data to make predictions and discuss whether there is adequate data to make reliable predictions.
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Algorithmic Thinking and Programming

Topic 1: Algorithms

ATP.A.4.a	Construct and refine an algorithm to accomplish a given task.
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Topic 2: Variables and data representation

ATP.VDR.4.a	Identify and use a variable, a placeholder for storing a value, to understand how it works in a multi-step process (i.e., algorithm).
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Topic 3: Control structures

ATP.CS.4.a	Create a program using sequences, events, loops and conditionals to solve a problem.
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Topic 4: Modularity

ATP.M.4.a	Decompose (i.e., break down) the steps needed or not needed (i.e., abstraction) into precise sequences of instructions to design an algorithm.
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COMPUTER SCIENCE

Topic 4: Program Development

ATP.PD.4.a	Use a design process to plan and develop a program that addresses a multi -step problem.
ATP.PD.4.b	Using guided questions, work through a program to identify errors and discuss possible solutions to repair the program.

Impacts of computing

Topic 1: Culture

IC.Cu.4.a	List examples of computing technologies that have changed the global community to express how those technologies influenced and are influenced by cultural practice.
IC.Cu.4.b	Identify and anticipate diverse user needs to increase accessibility to all users.

Topic 2: Social Interactions

IC.SI.4.a	Collaborate and consider diverse perspectives to improve digital artifacts.
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Topic 3: Safety, law and ethics

IC.SLE.4.a	Use public domain or Creative Commons media, and refrain from copying or using material created by others without permission.
IC.SLE.4.b	Explain why information should be shared or kept private to protect student identity.
IC.SLE.4.c	Communicate the importance of protecting your digital footprint.

ENGLISH LANGUAGE ARTS

Instructional Supports:

Ohio's Learning Standards for English Language Arts
 English Language Arts Model Curriculum with Instructional Supports

Code	Standard
Reading Standards for Literature	
Key ideas and details	
RL.4.1	Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.
RL.4.2	Analyze literary text development. a. Determine a theme of a story, drama, or poem from details in the text. b. Summarize the text, incorporating a theme determined from details in the text.
RL.4.3	Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text (e.g., a character's thoughts, words, or actions).
Craft and structure	
RL.4.4	Determine the meaning of words and phrases as they are used in a text, including those that allude to significant characters found in mythology (e.g., Herculean).
RL.4.5	Explain major differences between poems, drama, and prose, and refer to the structural elements of poems (e.g., verse, rhythm, meter) and drama (e.g., casts of characters, settings, descriptions, dialogue, stage directions) when writing or speaking about a text.
RL.4.6	Explain the differences in the point(s) of view in a text and different perspectives of the characters.
Integration of knowledge and ideas	
RI.4.7	Make connections between the text of a story or drama and a visual or oral presentation of the text, identifying where each version reflects specific descriptions and directions in the text.
RL.4.8	(Not applicable to literature)
RL.4.9	Compare and contrast the treatment of similar themes and topics (e.g., opposition of good and evil) and patterns of events (e.g., the quest) in stories, myths, and traditional literature from different cultures.

ENGLISH LANGUAGE ARTS

Range of reading and level of text complexity

RL.4.10	By the end of the year, read and comprehend literature, including stories, dramas, and poetry, in the grades 4–5 text complexity band proficiently, with scaffolding as needed at the high end of the range. Activate prior knowledge and draw on previous experiences in order to make text-to-self or text-to-text connections and comparisons.
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Reading Standards for Information Text

Key ideas and details

RI.4.1	Refer to details and examples in a text when explaining what the text says explicitly and when drawing inferences from the text.
RI.4.2	Analyze informational text development. a. Determine the main idea of a text and explain how it is supported by key details. b. Provide a summary of the text that includes the main idea and key details, as well as other important information.
RI.4.3	Explain events, procedures, ideas, or concepts in a historical, scientific, or technical text, including what happened and why, based on specific information in the text.

Craft and Structure

RI.4.4	Determine the meaning of general academic and domain-specific words or phrases in a text relevant to a grade 4 topic or subject area.
RI.4.5	Describe the overall structure (e.g., chronology, comparison, cause/effect, problem/solution) of events, ideas, concepts, or information in a text or part of a text.
RI.4.6	Compare and contrast a firsthand and secondhand account of the same event or topic; describe the differences in perspective and the information provided.

Integration of knowledge and ideas

RI.4.7	Interpret information presented visually, orally, or quantitatively (e.g., in charts, graphs, diagrams, time lines, animations, or interactive elements on Web pages) and explain how the information contributes to an understanding of the text in which it appears.
RI.4.8	Explain how an author uses evidence to support particular points in a text.
RI.4.9	Integrate information from two texts on the same topic in order to write or speak about the subject knowledgeably.

ENGLISH LANGUAGE ARTS

Range of Reading and Level of Text Complexity

RI.4.10	By the end of year, read and comprehend informational texts, including history/social studies, science, and technical texts, in the grades 4–5 text complexity band proficiently, with scaffolding as needed at the high end of the range.
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Reading Standards for Foundational Skills

Print concepts

	Not Applicable
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Phonological awareness

	Not Applicable
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Phonics and word recognition

RF.4.3	Know and apply grade-level phonics and word analysis skills in decoding words by using 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.
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Fluency

RF.4.4	<p>Read with sufficient accuracy and fluency to support comprehension.</p> <ul style="list-style-type: none"> a. Read grade-level text with purpose and understanding. b. Read grade-level prose and poetry orally with accuracy, appropriate rate, and expression on successive readings. c. Use context to confirm or self-correct word recognition and understanding, rereading as necessary.
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Writing Standards

Text Types and purposes

W.4.1	<p>Write opinion pieces on topics or texts, supporting a point of view with reasons and information.</p> <ul style="list-style-type: none"> a. 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. b. Provide reasons that are supported by facts and details. c. Link opinion and reasons using words and phrases (e.g., for instance, in order to, in addition). d. Provide a concluding statement or section related to the opinion presented.
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ENGLISH LANGUAGE ARTS

W.4.2	<p>Write informative/explanatory texts to examine a topic and convey ideas and information clearly.</p> <ol style="list-style-type: none"> Introduce a topic clearly and group related information in paragraphs and sections; include formatting (e.g., headings), illustrations, and multimedia to aid comprehension, if needed. Develop the topic with facts, definitions, concrete details, quotations, or other information and examples related to the topic. Link ideas within categories of information using words and phrases (e.g., another, for example, also, because). Use precise language and domain-specific vocabulary to inform about or explain the topic. Provide a concluding statement or section related to the information or explanation presented.
W.4.3	<p>Write narratives to develop real or imagined experiences or events using effective technique, descriptive details, and clear event sequences.</p> <ol style="list-style-type: none"> Orient the reader by establishing a situation and introducing a narrator and/or characters; organize an event sequence that unfolds naturally. Use dialogue and description to develop experiences and events or show the responses of characters to situations. Use a variety of transitional words and phrases to manage the sequence of events. Use concrete words and phrases and sensory details to convey experiences and events precisely. Provide a conclusion that follows from the narrated experiences or events.
Production and distribution of writing	
W.4.4	<p>Produce clear and coherent writing in which the development and organization are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)</p>
W.4.5	<p>With guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, and editing. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grade 4.)</p>
W.4.6	<p>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, while demonstrating sufficient command of keyboarding skills.</p>
Research to build and present knowledge	
W.4.7	<p>Conduct short research projects that build knowledge through investigation of different aspects of a topic.</p>
W.4.8	<p>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.</p>

ENGLISH LANGUAGE ARTS

W.4.9	<p>Draw evidence from literary or informational texts to support analysis, reflection, and research.</p> <ul style="list-style-type: none"> a. Apply grade 4 Reading standards to literature (e.g., “Describe in depth a character, setting, or event in a story or drama, drawing on specific details in the text [e.g., a character’s thoughts, words, or actions].”). b. Apply grade 4 Reading standards to informational texts (e.g., “Explain how an author uses reasons and evidence to support particular points in a text”).
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Range of writing

W.4.10	Write routinely over extended time frames (time for research, reflection, and revision) and shorter time frames (a single sitting or a day or two) for a range of discipline-specific tasks, purposes, and audiences.
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Speaking and Listening Standards

Comprehension and collaboration

SL.4.1	<p>SL.4.1 Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 4 topics and texts, building on others’ ideas and expressing their own clearly.</p> <ul style="list-style-type: none"> a. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation and other information known about the topic to explore ideas under discussion. b. Follow agreed-upon rules for discussions and carry out assigned roles. c. 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. d. Review the key ideas expressed and explain their own ideas and understanding in light of the discussion.
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SL.4.2	Paraphrase portions of a text read aloud or information presented in diverse media and formats, including visually, quantitatively, and orally.
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SL.4.3	Identify the reasons and evidence a speaker provides to support particular points.
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Presentation of knowledge and ideas

SL.4.4	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.
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SL.4.5	Add audio recordings and visual displays to presentations when appropriate to enhance the development of main ideas or themes.
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SL.4.6	Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small group discussion); use formal English when appropriate to task and situation. (See grade 4 Language standards 1 for specific expectations.)
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ENGLISH LANGUAGE ARTS

Language Standards

Conventions of standard English

L.4.1	<p>Demonstrate command of the conventions of standard English grammar and usage when writing or speaking.</p> <ul style="list-style-type: none"> a. Use relative pronouns (who, whose, whom, which, that) and relative adverbs (where, when, why). b. Form and use the progressive (e.g., I was walking; I am walking; I will be walking) verb tenses. c. Use modal auxiliaries (e.g., can, may, must) to convey various conditions. d. Order adjectives within sentences according to conventional patterns (e.g., a small red bag rather than a red small bag). e. Form and use prepositional phrases. f. Produce complete sentences, recognizing and correcting inappropriate fragments and run-ons. g. Correctly use frequently confused words (e.g., to, too, two; there, their).
L.4.2	<p>Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing.</p> <ul style="list-style-type: none"> a. Use correct capitalization. b. Use commas and quotation marks to mark direct speech and quotations from a text. c. Use a comma before a coordinating conjunction in a compound sentence. d. Spell grade-appropriate words correctly, consulting references as needed.

Knowledge of language

L.4.3	<p>Use knowledge of language and its conventions when writing, speaking, reading, or listening.</p> <ul style="list-style-type: none"> a. Choose words and phrases to convey ideas precisely. b. Choose punctuation for effect. c. Differentiate between contexts that call for formal English (e.g., presenting ideas) and situations where informal discourse is appropriate (e.g., small-group discussion).
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Vocabulary acquisition and use

L.4.4	<p>Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 4 reading and content, choosing flexibly from a range of strategies.</p> <ul style="list-style-type: none"> a. Use context (e.g., definitions, examples, or restatements in text) as a clue to the meaning of a word or phrase. b. Use common, grade-appropriate Greek and Latin affixes and roots as clues to the meaning of a word (e.g., telegraph, photograph, autograph). c. Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation and determine or clarify the precise meaning of key words and phrases.
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ENGLISH LANGUAGE ARTS

L.4.5	Demonstrate understanding of figurative language, word relationships, and nuances in word meanings. a. Explain the meaning of simple similes and metaphors (e.g., as pretty as a picture) in context. b. Recognize and explain the meaning of common idioms, adages, and proverbs. c. Demonstrate understanding of words by relating them to their antonyms (opposites) and synonyms (words with similar but not identical meanings).
L.4.6	Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases, including those that signal precise actions, emotions, or states of being (e.g., quizzed, whined, stammered) and that are basic to a particular topic (e.g., wildlife, conservation, and endangered when discussing animal preservation).

FINANCIAL LITERACY

Instructional Supports:

[Ohio's Learning Standards for Financial Literacy in Elementary Grades](#)
[Financial Literacy Model Curriculum](#)

Code	Standard
Financial responsibility and decision making	
1	People have limited resources and must prioritize their needs and wants. Saving and/or investing a percentage of income contributes to an individual's financial well-being. Professionals can help individuals determine financial goals.
2	Competencies (knowledge and skills), commitment (motivation and enthusiasm), competition (globalization and automation), training, work ethic, abilities and attitude are all factors impacting one's earning potential and employability.
3	People may receive money as gifts, allowance or income. Incomes can vary based on knowledge, skills and experiences.
4	Recognize that people pay taxes on the money they earn. Money collected from taxes is used to provide local, state and national government services.
Planning and money management	
5	Financial responsibility includes the development of a spending and savings plan (personal budget).
Informed consumer	
6	An informed consumer makes decisions on purchases that may include a decision-making strategy to determine if purchases are within their budget.
Credit and debt	
7	Examine the different ways that people pay for goods and services.
8	People may have to borrow money for large purchases. There are financial responsibilities with borrowing
9	Saving today can help meet future goals, including education.
Risk management and insurance	
10	Individuals must protect their identity, money and property.

FINE ARTS: DANCE

Instructional Supports:

[Ohio's 2012 Learning Standards for Dance](#)

[Grade 3-5 Dance Model Curriculum](#)

[Fine Arts Instructional Strategies](#)

Code	Standard
Perceiving / Knowing (PE)	
1PE	Relate specific dance concepts and vocabulary to meanings conveyed through dance.
2PE	Observe, identify and describe basic choreographic elements.
3PE	Observe the dances created by peers and identify creative problem-solving strategies using dance concepts and vocabulary.
4PE	Increase kinesthetic awareness by attending to and describing a range of somatic ideas.
5PE	Recognize and describe features of dance in Ohio and how it represents local cultural values.
Producing / Performing (PR)	
1PR	Learn and demonstrate dances from various cultures represented in Ohio, past and present.
2PR	Invent multiple solutions to movement prompts, improvisations and dance compositions by varying aspects of space, time or energy.
3PR	Improvise, create and perform dances in response to prompts.
4PR	Demonstrate kinesthetic awareness and safe practices when performing developmentally appropriate movements and sequences.
5PR	Apply and combine the elements of dance to express ideas, feelings, moods and personal narratives.
Responding (RE)	
1RE	Discuss personal reactions to dances viewed or performed and explain how these reactions relate to personal artistic criteria.
2RE	Discuss personal assessment of movement skills and challenges in performing dance movements of increasing difficulty.
3RE	Describe the relationship among visual, aural and kinesthetic elements in a dance that is performed or observed.
4RE	Demonstrate inquiry skills when stating and supporting their views about dance.
5RE	Give and receive constructive feedback to produce dances that achieve learning goals.

FINE ARTS: DRAMA

Instructional Supports:

[Ohio's 2012 Learning Standards for Drama](#)
[Grade 3-5 Drama Model Curriculum](#)
[Fine Arts Instructional Strategies](#)

Code	Standard
Creating (CE)	
1CE	Connect events in a story to sustain a storyline and achieve resolution.
2CE	Explore dramatic, theatrical and storytelling traditions in the cultures or ethnic groups throughout the history of Ohio.
3CE	Explain how certain characters reflect time periods and cultures.
4CE	Use a variety of dramatic and theatrical vocabulary (e.g., theme, author, conflict, resolution) to describe a dramatic experience.
5CE	Explain the plot, characters, conflict, resolution and theme of a dramatic and theatrical work or experience using descriptive language.
6CE	Identify where dramatic and theatrical activities occur in the school or community.
Producing / Performing (PR)	
1PR	Create the movement and voice of a character to convey the character's decisions, actions and motivation.
2PR	Manipulate voice, movement, space, design and physical objects to communicate thoughts, feelings and ideas in both improvised and scripted activities.
3PR	Create a variety of improvisations based on a dramatic theme.
4PR	Direct peers in performing a dramatic task or action in two different ways.
5PR	Use vivid, descriptive language to create a script around one or more elements of theatre (e.g., character, action, prop, setting).
6PR	Use problem-solving and cooperative skills to dramatize stories, historical events or concepts from Ohio history.
7PR	Use the elements of theatre in combination with art elements from at least one other art form.

FINE ARTS: DRAMA

Responding (RE)

1RE	Explain how manipulation of dramatic and theatrical elements brings about changes in performances.
2RE	Apply creative and critical reasoning processes to make personal connections to the drama material they encounter.
3RE	Explain how a theatrical experience (e.g., live theatre production, film, video and media) impacts its audience.
4RE	Justify personal opinions about a play or theatre experience.
5RE	Establish criteria to critique the portrayal of a character based on voice, gesture, facial expression and movement.

FINE ARTS: MUSIC

Instructional Supports:

[Ohio's 2012 Learning Standards for Music](#)
[Grade 3-5 Music Model Curriculum](#)
[Fine Arts Instructional Strategies](#)

Code	Standard
Creating (CE)	
1CE	Classify instruments by the four families of the orchestra.
2CE	Describe the way sound is produced by various instruments and the human voice
3CE	Listen, identify and respond to music of different composers and world cultures.
4CE	Discuss the lives and times of composers from various historical periods.
5CE	Identify and respond to basic music forms (e.g., AABA and rondo).
6CE	Identify elements of music using developmentally appropriate vocabulary.
7CE	Describe the roles of musicians in various music settings.
8CE	Describe the use of technology and digital tools in music.

FINE ARTS: MUSIC

Producing / Performing (PR)

1PR	Sing a varied repertoire with accurate rhythm and pitch and expressive qualities individually and with others.
2PR	Use the head voice to produce a light, clear sound employing breath support and maintaining appropriate posture.
3PR	Play a variety of classroom instruments with proper technique.
4PR	Sing, move and respond to music from world cultures and different composers.
5PR	Improvise and compose short compositions using a variety of classroom instruments and sound sources.
6PR	Read, write and perform using sixteenth through whole note values including syncopated rhythms in 2/4, 3/4 and 4/4 meter.
7PR	Read, write and perform in treble clef extended pentatonic melodies G, F and C.
8PR	Demonstrate appropriate audience etiquette at live performances.

Responding (RE)

1RE	Explain how the elements and subject matter of music connect with disciplines outside the arts.
2RE	Describe the connection between emotion and music in selected musical works.
3RE	Explain classification of musical instruments, voices, composers and forms using appropriate music vocabulary.
4RE	Discuss the roles of musicians heard in various performance settings.
5RE	Interpret a selected musical work using dance, drama or visual art.
6RE	Use constructive feedback to improve and refine musical performance and response.

FINE ARTS: VISUAL ARTS

Instructional Supports:

[Ohio's 2012 Learning Standards for Visual Art](#)
[Grade 3-5 Visual Art Model Curriculum](#)
[Fine Arts Instructional Strategies](#)

Code	Standard
Perceiving / Knowing (PE)	
1PE	Use sensory details and descriptive language to identify and describe universal themes, subject matter and ideas expressed across arts disciplines.
2PE	Notice and describe different visual effects resulting from artmaking techniques.
3PE	Compare and contrast art forms, techniques and functions and artistic styles from a variety of cultures and historical periods.
4PE	Identify and describe how artists from various cultural and ethnic groups have impacted Ohio's history.
5PE	Link ideas in and design of works of art to the emotions and moods expressed in them.
6PE	Identify and name the sources for artmaking ideas (e.g., self, environment and other people).
Producing / Performing (PR)	
1PR	Identify, select and vary art materials, tools and processes to achieve desired results in their artwork.
2PR	Experiment with art materials by using them in unexpected and creative ways to express ideas and convey meaning.
3PR	Generate ideas and employ a variety of strategies to solve visual problems.
4PR	Demonstrate motivation, independence and persistence during studio practices to complete artworks.
5PR	Combine the elements and principles of art and design to create visually effective compositions in original works of art.
6PR	Demonstrate technical skill through the integration of common processes and topics from other subject areas.

FINE ARTS: VISUAL ARTS

Responding (RE)

1RE	Identify qualities that contribute to the design and meaning of their artworks and the works of others.
2RE	Develop and share their ideas, beliefs and values about art.
3RE	Recognize and describe the relationship of artworks to their social and cultural contexts.
4RE	Generate criteria for discussing and assessing works of art.
5RE	Refer to criteria and use art vocabulary when discussing and judging the quality of artworks.
6RE	Give and use constructive feedback to produce artworks that achieve learning goals.

MATHEMATICS

Instructional Supports:

[Ohio's Learning Standards for Grade 4 Mathematics](#)
[Ohio's Kindergarten – Grade 8 Learning Progressions](#)
[Grade 4 Mathematics Model Curriculum](#)

Code	Standard
Standards for Mathematical Practice	
MP.1	Make sense of problems and persevere in solving them.
<p>In fourth grade, students know that doing mathematics involves solving problems and discussing how they solved them. Students explain to themselves the meaning of a problem and look for ways to solve it. Fourth graders may use concrete objects or pictures to help them conceptualize and solve problems. They may check their thinking by asking themselves, “Does this make sense?” They listen to the strategies of others and will try different approaches. They often will use another method to check their answers.</p> <p>Students might use an equation strategy to solve the word problem. For example, students could solve the problem “Chris bought clothes for school. She bought 3 shirts for \$12 each and a skirt for \$15. How much money did Chris spend on her new school clothes?” with the equation $3 \times \\$12 + \\$15 = a$.</p> <p>Fourth graders may use concrete objects or pictures to help them conceptualize and solve problems. They may check their thinking by asking themselves, “Does this make sense?” They listen to the strategies of others and will try different approaches. They often will use another method to check their answers.</p>	
MP.2	Reason abstractly and quantitatively.
<p>Fourth graders should recognize that a number represents a specific quantity. They connect the quality to written symbols and create a logical representation of the problem at hand, considering both the appropriate units involved and the meaning of quantities. They extend this understanding from whole numbers to their work with fractions and decimals. Students write simple expressions, record calculations with numbers, and represent or round numbers using place value concepts. Students might use base 10 blocks or drawings to demonstrate 154×6, as 154 added six times, and develop an understanding of the distributive property. For example: 154×6</p> $= (100 + 50 + 4) \times 6$ $= (100 \times 6) + (50 \times 6) + (4 \times 6)$ $= 600 + 300 + 24 = 924$	

MATHEMATICS

MP.3 Construct viable arguments and critique the reasoning of others.

In fourth grade, students may construct arguments using concrete referents, such as objects, pictures, and drawings. They explain their thinking and make connections between models and equations. They refine their mathematical communication skills as they participate in mathematical discussions involving questions like “How did you get that?”, “Explain your thinking,” and “Why is that true?” They not only explain their own thinking, but listen to others’ explanations. Students explain and defend their answers and solution strategies as they answer question that require an explanation. For example, “Vincent cuts 2 meters of string into 4 centimeter pieces for a craft. How many pieces of string does Vincent have? Explain your reasoning.” Students ask appropriate questions and they decide if explanations make sense.

MP.4 Model with mathematics.

Students experiment with representing problem situations in multiple ways including numbers, words (mathematical language), drawing pictures, using objects, making a chart, list, or graph, creating equations, etc. Students need opportunities to connect the different representations and explain the connections. They should be able to use all of these representations as needed.

Fourth graders should evaluate their results in the context of the situation and reflect on whether the results make sense. For example, students may use money (i.e. dollars and coins) or base10 blocks to solve the following problem: Elsie buys a drink for \$1.39 and a granola bar for \$0.89. How much change will she receive if she pays with a \$5 bill?

MP.5 Use appropriate tools strategically.

Fourth graders consider the available tools (including estimation) when solving a mathematical problem and decide when certain tools might be helpful. For instance, they may use graph paper, a number line, or base 10 blocks to represent, compare, add, and subtract decimals to the hundredths. Students in fourth grade use protractors to measure angles. They use other measurement tools to understand the relative size of units within a given system and express measurements given in larger units in terms of smaller units.

MP.6 Attend to precision.

As fourth graders develop their mathematical communication skills, they try to use clear and precise language in their discussions with others and in their own reasoning. For instance, they may use graph paper or a number line to represent, compare, add, and subtract decimals to the hundredths. Students in fourth grade use protractors to measure angles. They are careful about specifying units of measure and state the meaning of the symbols they choose. For instance, they use appropriate labels when creating a line plot.

MP.7 Look for and make use of structure.

In fourth grade, students look closely to discover a pattern or structure. For instance, students use properties of operations to explain calculations (partial products model). They relate representations of counting problems such as arrays and area models to the multiplication principal of counting. They generate number or shape patterns that follow a given rule using two-column tables.

MATHEMATICS

MP.8 Look for and express regularity in repeated reasoning.

Students in fourth grade should notice repetitive actions in computation to make generalizations. Students use models to explain calculations and understand how algorithms work. They also use models to examine patterns and generate their own algorithms. For example, students use visual fraction models to write equivalent fractions.

Operations and Algebraic Thinking

Use the four operations with whole numbers to solve problems.

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|--------|---|
| 4.OA.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. |
| 4.OA.2 | Multiply or divide to solve word problems involving multiplicative comparison, e.g., by using drawings and equations with a symbol for the unknown number to represent the problem, distinguishing multiplicative comparison from additive comparison. See Table 2, page 19. Drawings need not show details, but should show the mathematics in the problem. (This applies wherever drawings are mentioned in the Standards.) |
| 4.OA.3 | Solve multistep word problems posed with whole numbers and having whole number answers using the four operations, including problems in which remainders must be interpreted. Represent these problems using equations with a letter standing for the unknown quantity. Assess the reasonableness of answers using mental computation and estimation strategies including rounding. |

Gain familiarity with factors and multiples.

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| 4.OA.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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Generate and analyze patterns.

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| 4.OA.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. <i>For example, given the rule "Add 3" and the starting number 1, generate terms in the resulting sequence and observe that the terms appear to alternate between odd and even numbers. Explain informally why the numbers will continue to alternate in this way.</i> |
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MATHEMATICS

Numbers and Operations in Base Ten

Generalize place value understanding for multi-digit whole numbers less than or equal to 1,000,000.

4.NBT.1	Recognize that in a multi-digit whole number, a digit in one place represents ten times what it represents in the place to its right by applying concepts of place value, multiplication, or division.
4.NBT.2	Read and write multi-digit whole numbers using standard form, word form, and expanded form ⁶ . Compare two multi-digit numbers based on meanings of the digits in each place, using >, =, and < symbols to record the results of comparisons. Grade 4 expectations in this domain are limited to whole numbers less than or equal to 1,000,000.
4.NBT.3	Use place value understanding to round multi-digit whole numbers to any place through 1,000,000.

Use place value understanding and properties of operations to perform multi-digit arithmetic with whole numbers less than or equal to 1,000,000.

4.NBT.4	Fluently ⁶ add and subtract multi-digit whole numbers using a standard algorithm ⁶ .
4.NBT.5	Multiply a whole number of up to four digits by a one-digit whole number, and multiply two two-digit numbers, using strategies based on place value and the properties of operations. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.
4.NBT.6	Find whole number quotients and remainders with up to four-digit dividends and one-digit divisors, using strategies based on place value, the properties of operations, and/or the relationship between multiplication and division. Illustrate and explain the calculation by using equations, rectangular arrays, and/or area models.

Numbers and Operations - Fractions

Extend understanding of fraction equivalence and ordering limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.

4.NF.1	Explain why a fraction $\frac{a}{b}$ is equivalent to a fraction $\frac{(n \times a)}{(n \times b)}$ 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.
4.NF.2	Compare two fractions with different numerators and different denominators, e.g., by creating common denominators or numerators, or by comparing to a benchmark fraction such as $\frac{1}{2}$. 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 conclusions, e.g., by using a fraction model.

MATHEMATICS

Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100. (Fractions need not be simplified).

4.NF.3	<p>Understand a fraction $\frac{a}{b}$ with $a > 1$ as a sum of fractions $\frac{1}{b}$.</p> <p>a. Understand addition and subtraction of fractions as joining and separating parts referring to the same whole.</p> <p>b. Decompose a fraction into a sum of fractions with the same denominator in more than one way, recording each decomposition by an equation. Justify decompositions, e.g., by using a visual fraction model⁶. <i>Examples:</i> $\frac{3}{8} = \frac{1}{8} + \frac{1}{8} + \frac{1}{8}$; $\frac{3}{8} = \frac{1}{8} + \frac{2}{8}$; $2 \frac{1}{8} = 1 + 1 + \frac{1}{8} = \frac{8}{8} + \frac{8}{8} + \frac{1}{8}$.</p> <p>c. Add and subtract mixed numbers with like denominators, e.g., by replacing each mixed number with an equivalent fraction, and/or by using properties of operations and the relationship between addition and subtraction.</p> <p>d. Solve word problems involving addition and subtraction of fractions referring to the same whole and having like denominators, e.g., by using visual fraction models and equations to represent the problem.</p>
4.NF.4	<p>Apply and extend previous understandings of multiplication to multiply a fraction by a whole number.</p> <p>a. Understand a fraction $\frac{a}{b}$ as a multiple of $\frac{1}{b}$. <i>For example, use a visual fraction model to represent $\frac{5}{4}$ as the product $5 \times (\frac{1}{4})$, recording the conclusion by the equation $\frac{5}{4} = 5 \times (\frac{1}{4})$ or $\frac{5}{4} = (\frac{1}{4}) + (\frac{1}{4}) + (\frac{1}{4}) + (\frac{1}{4}) + (\frac{1}{4})$.</i></p> <p>b. Understand a multiple of $\frac{a}{b}$ as a multiple of $\frac{1}{b}$, and use this understanding to multiply a fraction by a whole number. <i>For example, use a visual fraction model to express $3 \times (\frac{2}{5})$ as $6 \times (\frac{1}{5})$, recognizing this product as $\frac{6}{5}$. (In general, $n \times (\frac{a}{b}) = (\frac{n \times a}{b})$.)</i></p> <p>c. Solve word problems involving multiplication of a fraction by a whole number, e.g., by using visual fraction models and equations to represent the problem. <i>For example, if each person at a party will eat $\frac{3}{8}$ of a pound of roast beef, and there will be 5 people at the party, how many pounds of roast beef will be needed? Between what two whole numbers does your answer lie?</i></p>
<p>Understand decimal notation for fractions, and compare decimal fractions limited to fractions with denominators 2, 3, 4, 5, 6, 8, 10, 12, and 100.</p>	
4.NF.5	<p>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. <i>For example, express $\frac{3}{10}$ as $\frac{30}{100}$, and add $\frac{3}{10} + \frac{4}{100} = \frac{34}{100}$. In general, students who can generate equivalent fractions can develop strategies for adding fractions with unlike denominators, but addition and subtraction with unlike denominators is not a requirement at this grade.</i></p>
4.NF.6	<p>Use decimal notation for fractions with denominators 10 or 100. <i>For example, rewrite 0.62 as $\frac{62}{100}$; describe a length as 0.62 meters; locate 0.62 on a number line diagram.</i></p>
4NF.7	<p>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 and the conclusions, e.g., by using a visual model.</p>

MATHEMATICS

Measurement and Data

Solve problems involving measurement and conversion of measurements from a larger unit to a smaller unit.

4.MD.1	Know relative sizes of the metric measurement units within one system of units. Metric units include kilometer, meter, centimeter, and millimeter; kilogram and gram; and liter and milliliter. Express a larger measurement unit in terms of a smaller unit. Record measurement conversions in a two-column table. <i>For example, express the length of a 4-meter rope in centimeters. Because 1 meter is 100 times as long as a 1 centimeter, a two-column table of meters and centimeters includes the number pairs 1 and 100, 2 and 200, 3 and 300, ...</i>
4.MD.2	Solve real-world problems involving money, time, and metric measurement. a. Using models, add and subtract money and express the answer in decimal notation. b. Using number line diagrams ⁶ , clocks, or other models, add and subtract intervals of time in hours and minutes. c. Add, subtract, and multiply whole numbers to solve metric measurement problems involving distances, liquid volumes, and masses of objects
4.MD.3	Develop efficient strategies to determine the area and perimeter of rectangles in real-world situations and mathematical problems. <i>For example, given the total area and one side length of a rectangle, solve for the unknown factor, and given two adjacent side lengths of a rectangle, find the perimeter.</i>

Represent and interpret data.

4.MD.4	Display and interpret data in graphs (picture graphs, bar graphs, and line plots ⁶) to solve problems using numbers and operations for this grade.
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Geometric measurement: understand concepts of angle and measure angles.

4.MD.5	Recognize angles as geometric shapes that are formed wherever two rays share a common endpoint, and understand concepts of angle measurement. a. Understand an angle is measured with reference to a circle with its center at the common endpoint of the rays, by considering the fraction of the circular arc between the points where the two rays intersect the circle. An angle that turns through $\frac{1}{360}$ of a circle is called a “one-degree angle,” and can be used to measure angles. b. Understand an angle that turns through n one-degree angles is said to have an angle measure of n degrees.
4.MD.6	Measure angles in whole number degrees using a protractor. Sketch angles of specified measure.
4.MD.7	Recognize angle measure as additive. When an angle is decomposed into non-overlapping parts, the angle measure of the whole is the sum of the angle measures of the parts. Solve addition and subtraction problems to find unknown angles on a diagram in real-world and mathematical problems, e.g., by using an equation with a symbol for the unknown angle measure.

MATHEMATICS

Geometry

Draw and identify lines and angles, and classify shapes by properties of their lines and angles.

4.G.1	Draw points, lines, line segments, rays, angles (right, acute, and obtuse), and perpendicular and parallel lines. Identify these in two-dimensional figures.
4.G.2	Classify two-dimensional figures based on the presence or absence of parallel or perpendicular lines or the presence or absence of angles of a specified size.

PHYSICAL EDUCATION

Instructional Supports:
[Ohio's Learning Standards for Physical Education](#)

Code	Standard
Standard 1	Demonstrates competency in a variety of motor skills and movement patterns.
Benchmark A: Combine locomotor and non-locomotor skills into movement patterns.	
Locomotor and non-locomotor combined skills	
1	Perform a movement sequence comprised of both basic and intermediate skills (e.g., dance, gymnastics, jump rope).
2	Jump rope demonstrating a variety of footwork and arm action skills.
3	Combine balance and weight transfer skills in a movement sequence.
4	Combine locomotor movement patterns and dance steps to create and perform a dance.
Benchmark B: Apply the critical elements of fundamental manipulative skills in a variety of physical activities.	
Application of skills	
1	Throw overhand with varying degrees of force using appropriate critical elements to reach different distances.
2	Catch two-handed during a game or game-like situation using the critical elements.
3	Strike an object with an implement using the critical elements.
4	Kick a ball with the inside of the foot using the critical elements to targets at different distances, locations and relationship to objects.
5	Dribble with control while moving through space to avoid stationary objects using the critical elements.
6	Send (e.g., pass, roll) an object to a target using critical elements while varying space, distance, location and relationship to objects.

PHYSICAL EDUCATION

Standard 2	Applies knowledge of concepts, principles, strategies and tactics related to movement and performance.
Benchmark A: Demonstrate and apply basic tactics and principles of movement.	
Strategies and tactics	
1	Explain the importance of weight transfer in object propulsion skills (e.g., throw, strike).
2	Describe and demonstrate the correct movement or movement qualities based on the characteristics of the task (e.g., size of object, distance to target, goal, speed or time to complete movement) and/or environment (e.g., space, number of players).
3	Identify open space and areas of space to defend in a dynamic environment (e.g., partner or small group dance spacing, proximity to the ball or teammate in small-sided games).
4	Select correct decision when presented with a tactical problem to score (e.g., ball possession, attack, moving an opponent).
Benchmark B: Demonstrate knowledge of critical elements for more complex motor skills.	
Principles and critical elements	
1	Identify correct and incorrect aspects of skill performance using critical elements.
2	Explain how to improve performance of a movement or skill.
Standard 3	Demonstrates the knowledge and skills to achieve and maintain a health-enhancing level of physical activity and fitness.
Benchmark A: Describes current level of physical activity and identifies additional physical activity opportunities to create calorie balance.	
Physical activity knowledge	
1	Identify school, home and community physical activity opportunities to meet physical activity guidelines.
Evaluate level of physical activity	
2	Track physical activity minutes to determine progress toward daily recommendation.
Healthy habits in relation to physical activity	
3	Recognize the benefits of food choices from each food group related to physical activity.

PHYSICAL EDUCATION

Benchmark B: Understand the principles, components and practices of health-related physical fitness to maintain or improve one's level of fitness.

Health-related fitness knowledge

1 Link specific activities to the appropriate health-related fitness component.

Cardio

2 Interpret heart rate during physical activity and exercise to sustain a moderate to vigorous activity for longer periods of time.

Muscular strength and endurance

3 Identify activities to improve muscular strength and endurance in the upper and lower body.

Flexibility

4 Identify warm-up and cool-down activities.

Planning (FITT and other principles)

5 Analyze the results of a fitness assessment to determine areas in the HFZ and those that need improvement.

6 Identify the intensity and time of exercise in relationship to the FITT principle.

Standard 4 Exhibits responsible personal and social behavior that respects self and others

Benchmark A: Understand the purpose of and apply appropriate rules, procedures and safe practices in physical activity settings.

Self-direction

1 Follow rules and safe practices and engage in class activities.

Safety

2 Adjust performance to characteristics of the environment to ensure safe play (e.g., space, equipment, others).

3 Engage in activities and stay on task with prompts and encouragement from others.

PHYSICAL EDUCATION

Benchmark B: Interact and communicate positively with others.

Cooperation

1 Listen, discuss options and develop a plan to accomplish a partner or group task or to improve play.

Respect

2 Participate with a group in cooperative problem-solving activities.

Resolving conflict

3 Demonstrate cooperation with and respect for peers different from oneself.

4 Demonstrate cooperation with others when resolving conflict.

Standard 5 Recognizes the value of physical activity for health, enjoyment, challenge, self-expression and/or social interaction.

Benchmark A: Identifies multiple, specific health benefits as a reason to value physical activity.

Health reasons to be physically active

1 Identify three health benefits from different dimensions (e.g., physical, emotional, intellectual) by participation in physical activity.

Benchmark B: Expresses multiple, specific reasons (enjoyment, challenge, social) to participate in physical activity.

Values physical activity through various means

1 Identify specific reasons for enjoying a selected physical activity.

2 Identify aspects of a physical activity that are challenging.

3 Identify the social benefits of a selected physical activity.

SCIENCE

Instructional Supports:

[Ohio's Learning Standards and Model Curriculum for Science](#)
[Science Resources](#)

Code	Standard
Earth science	
4.ESS.1	Earth's surface has specific characteristics and landforms that can be identified.
4.ESS.2	The surface of Earth changes due to weathering.
4.ESS.3	The surface of Earth changes due to erosion and deposition.
Physical science	
4.PS.1	When objects break into smaller pieces, dissolve, or change state, the total amount of matter is conserved.
4.PS.2	Energy can be transferred from one location to another or can be transformed from one form to another.
Life science	
4.LS.1	Changes in an organism's environment are sometimes beneficial to its survival and sometimes harmful.
4.LS.2	Fossils can be compared to one another and to present-day organisms according to their similarities and differences.

SOCIAL STUDIES

Instructional Supports:

Ohio's Learning Standards for Social Studies
Grade 4 Social Studies Model Curriculum

Code	Standard
History Strand	
Historical thinking and skills	
1	The order of significant events in Ohio and the United States can be shown on a timeline.
2	Primary and secondary sources can be used to create historical narratives.
Heritage	
3	Various groups of people have lived in Ohio over time including American Indians, migrating settlers and immigrants. Interactions among these groups have resulted in cooperation, conflict and compromise.
4	The 13 colonies came together around a common cause of liberty and justice, uniting to fight for independence during the American Revolution and to form a new nation.
5	The Northwest Ordinance incorporated democratic ideals into the territories. It provided a process for territories to become states and recognized them as equal to the other existing states.
6	Ongoing conflicts on the Ohio frontier with American Indians and Great Britain contributed to the United States' involvement in the War of 1812.
7	Following the War of 1812, Ohio continued to play a key role in national conflicts including the anti-slavery movement and the Underground Railroad.
8	Many technological innovations that originated in Ohio benefitted the United States.
Geography Strand	
Spatial thinking and skills	
9	A map scale and cardinal and intermediate directions can be used to describe the relative location of physical and human characteristics of Ohio and the United States.

SOCIAL STUDIES

Place and regions

10	The economic development of the United States continues to influence and be influenced by agriculture, industry and natural resources in Ohio.
11	The regions of the United States known as the North, South and West developed in the early 1800s largely based on their physical environments and economies.

Human systems

12	People have modified the environment throughout history resulting in both positive and negative consequences in Ohio and the United States.
13	The population of the United States has changed over time, becoming more diverse (e.g., racial, ethnic, linguistic, religious). Ohio's population has become increasingly reflective of the multicultural diversity of the United States.
14	Ohio's location and its transportation systems continue to influence the movement of people, products and ideas in the United States.

Government Strand

Civic participation and skills

15	Individuals have a variety of opportunities to act in and influence their state and national government. Citizens have both rights and responsibilities in Ohio and the United States.
16	Civic participation in a democratic society requires individuals to make informed and reasoned decisions by accessing, evaluating and using information effectively to engage in compromise.

Rules and laws

17	Laws can protect rights, provide benefits and assign responsibilities.
18	The U.S. Constitution establishes a system of limited government and protects citizens' rights; five of these rights are addressed in the First Amendment.

Roles and systems of government

19	A constitution is a written plan for government. The Ohio Constitution and the U.S. Constitution separate the major responsibilities of government among three branches.
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SOCIAL STUDIES

Economics Strand

Economic decision making and skills

20	Tables and charts organize data in a variety of formats to help individuals understand information and issues.
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Production and consumption

21	Entrepreneurs in Ohio and the United States organize productive resources and take risks to make a profit and compete with other producers.
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Financial literacy

22	Saving a portion of income contributes to an individuals' financial well-being. Individuals can reduce spending to save more of their income.
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TECHNOLOGY

Instructional Supports:
[Ohio's Learning Standards for Technology](#)
[Technology resources](#)

Code	Standard
Information and Communications Technology	
Topic 1: Identify and use appropriate digital learning tools and resources to accomplish a defined task.	
3-5.ICT.1.a.	With guidance, identify and use digital learning tools or resources to support planning, implementing and reflecting upon a defined task.
3-5.ICT.1.b.	Explain the use of selected digital learning tools and resources to support productivity and learning.
Topic 2: Use digital learning tools and resources to locate, evaluate and use information.	
3-5.ICT.2.a.	Identify questions related to a topic of interest to broaden or narrow the topic as needed.
3-5.ICT.2.b.	Use appropriate search techniques to locate needed information using digital learning tools and resources.
3-5.ICT.2.c.	Use multiple criteria developed with guidance to differentiate between relevant and irrelevant information found with digital learning tools and resources.
3-5.ICT.2.d.	Explain basic ideas of plagiarism and copyright.
3-5.ICT.2.e.	Use digital citation tools to cite sources with appropriate guidance.
Topic 3: Use digital learning tools and resources to construct knowledge.	
3-5.ICT.3.a.	Gather, organize and summarize information from multiple digital learning tools and resources to build knowledge of a topic.
3-5.ICT.3.b.	Interpret images, diagrams, maps, graphs, infographics, videos, animations, interactives, etc., in digital learning tools and resources to clarify and add to knowledge.
3-5.ICT.3.c.	Organize observations and data collected during student explorations to determine if patterns are present.
3-5.ICT.3.d.	Create artifacts using digital learning tools and resources to demonstrate knowledge.
Topic 4: Use digital learning tools and resources to communicate and disseminate information to multiple audiences.	
3-5.ICT.4.a.	With guidance, discuss and identify communication needs considering goals, audience and content.

TECHNOLOGY

3-5.ICT.4.b.	With guidance, select media formats appropriate to content and audience.
3-5.ICT.4.c.	Evaluate the features of digital learning tools and resources based on the characteristics of a specific audience.
3-5.ICT.4.d.	Produce and publish information appropriate for a target audience using digital learning tools and resources.

Society and Technology

Topic 1: Demonstrate an understanding of technology’s impact on the advancement of humanity – economically, environmentally and ethically.

3-5.ST.1.a.	Demonstrate appropriate use of technology and explain the importance of responsible and ethical technology use.
3-5.ST.1.b.	Identify positive and negative impacts one’s use of personal technology and technology systems (e.g., agriculture, transportation, energy generation, water treatment) can have on one’s community.
3-5.ST.1.c.	Describe legal and responsible practices when utilizing technology.

Topic 2: Analyze the impact of communication and collaboration in both digital and physical environments.

3-5.ST.2.a.	Create a plan and select collaboration and/or communication tools to complete a given task.
3-5.ST.2.b.	Exercise digital etiquette when communicating and collaborating.
3-5.ST.2.c.	Identify the positive and negative impact the use of technology can have on relationships, communities and self.

Topic 3: Explain how technology, society and the individual impact one another.

3-5.ST.3.a.	Describe the advantages and disadvantages of technology (past, present, future) to understand the relationship between technology, society and the individual.
3-5.ST.3.b.	Demonstrate how technology innovations/inventions can have multiple applications.
3-5.ST.3.c.	Identify and discuss how the use of technology affects self and others in various ways.
3-5.ST.3.d.	Identify the components of one’s digital identity and one’s digital footprint.
3-5.ST.3.e.	Identify and discuss laws and rules that apply to digital content and information.

TECHNOLOGY

Design and Technology

Topic 1: Define and describe technology, including its core concepts of systems, resources, requirements, processes, controls, optimization and trade-offs.

3-5.DT.1.a.	Demonstrate how applying human knowledge using tools and machines extends human capabilities to meet our needs and wants.
3-5.DT.1.b.	Give examples of how requirements for a product can limit the design possibilities for that product.
3-5.DT.1.c.	Describe a process as a series of actions and how it is used to produce a result.
3-5.DT.1.d.	Identify and describe examples of technology products and processes.
3-5.DT.1.e.	Explain how controls use information to cause systems to change, like a home thermostat turning on the heat based on the low temperature of a room.

Topic 2: Identify a problem and use an engineering design process to solve the problem.

3-5.DT.2.a.	Critique needs and opportunities for designing solutions.
3-5.DT.2.b.	Plan and implement a design process: identify a problem, think about ways to solve the problem, develop possible solutions, test and evaluate solution(s), present a possible solution, and redesign to improve the solution.
3-5.DT.2.c.	Generate, develop and communicate design ideas and decisions using appropriate terms and graphical representations.

Topic 3: Demonstrate that solutions to complex problems require collaboration, interdisciplinary understanding and systems thinking.

3-5.DT.3.a.	Design a product with multiple components and describe how the components interact to form a system.
3-5.DT.3.b.	Explore and document connections between technology and other fields of study.
3-5.DT.3.c.	Identify a product and describe how people from different disciplines combined their skills in the design and production of the product.

Topic 4: Evaluate designs using functional, aesthetic and creative elements.

3-5.DT.4.a.	Use criteria developed with guidance to evaluate a new or improved product for its functional, aesthetic and creative elements.
3-5.DT.4.b.	Examine a familiar product or process and suggest improvements to its design.

WORLD LANGUAGES AND CULTURES

Instructional Supports:

[Ohio's Learning Standards for World Languages and Cultures](#)
[World Languages Resource Center](#)

Students will engage with and progress through language and culture courses at differing stages of their K-12 education. The novice levels for K-6 are displayed below. Choose the column that fits the proficiency level of your student(s). Additional levels can be found in the world languages and cultures standards.

Functions	Novice Low	Novice Mid	Novice High
Interpretive intercultural communication (E.INT-C)			
Investigate Intercultural Products, Practices and Perspectives	Recognize a few typical products and practices related to familiar, everyday life in native and other cultures.	Identify typical cultural products and practices related to familiar, everyday life in native and other cultures to help understand perspectives.	Identify and compare typical products and practices related to familiar, everyday life in native and other cultures to help understand perspectives.
Compare Intercultural Behaviors	Recognize a few very simple behaviors in other cultures.	Identify familiar or everyday behaviors in other cultures.	Identify and compare familiar or everyday behaviors in native and other cultures.
Comprehend Authentic Texts that are Spoken, Written or Signed	Understand a few familiar words or phrases in: a. Simple, authentic informational texts; b. Simple, authentic fictional texts; c. Simple, overheard or observed conversations.	Understand very basic information in: a. Simple, authentic informational texts; b. Simple, authentic fictional texts; c. Simple, overheard or observed conversations.	Understand the topic and some isolated facts in: a. Simple, authentic informational texts; b. Simple, authentic fictional texts; c. Simple, overheard or observed conversations.
Interpretive literacy (E.INT-LIT)			
Infer Meaning of Texts	Recognize traditional and nontraditional letters, accents, characters or tone marks, as well as cognates and familiar or practiced words.	Recognize non-traditional letters, accents, characters or tone marks, as well as cognates and words from context.	Recognize cognates and infer meaning of unfamiliar words or phrases using context clues and background knowledge.

WORLD LANGUAGES AND CULTURES

Recognize and Use Organizational Features of Texts	Recognize visual, aural and organizational features to identify the purpose of very simple texts, such as lists, labels, titles or headlines.	Recognize visual, aural and organizational features to identify the purpose of simple texts, such as schedules, song refrains, simple poems or infographics.	Use visual, aural and organizational features to identify the purpose of simple texts, such as announcements, instructions, fables or graphics.
Apply Self-Questioning Skills	Use literal or factual self-questioning before, during and after engaging with texts, such as “Who, where, when, what or how many?”	Use literal or factual self-questioning before, during and after engaging with texts, such as “What time, who is, why or how?”	Use a mixture of literal and inferential self-questioning before, during and after engaging with texts, such as “What happened or what might happen next?”
Make Text Connections	Make personal connections to a text using background knowledge or experiences.	Make personal connections to a text using background knowledge or experiences.	Make simple text-to-text connections using information from previous texts.
Use Resources Appropriately	Use digital and cultural resources appropriately.	Use digital and cultural resources appropriately.	Use digital and cultural resources appropriately.
Interpersonal intercultural communication (E.INP-C)			
Investigate Intercultural Products, Practices and Perspectives	Identify a few typical products and practices related to familiar, everyday life in native and other cultures.	Identify typical products and practices related to familiar, everyday life in native and other cultures.	Identify products and practices related to everyday life to help understand perspectives of native and other cultures.
Interact with Culturally Appropriate Language and Behavior	Interact in very familiar intercultural situations using practiced language and behaviors.	Interact in very familiar intercultural situations using practiced language and behaviors and show cultural awareness by recognizing a few culturally inappropriate behaviors.	Interact in familiar, everyday intercultural situations using practiced language and behaviors, and show cultural awareness by recognizing culturally inappropriate behaviors.
Exchange Information	Provide basic information on very familiar topics.	Request and share simple information on familiar or everyday topics.	Request and share information on familiar and everyday topics.

WORLD LANGUAGES AND CULTURES

Meet Personal Needs	Express a few basic personal needs in very familiar situations.	Express basic needs in familiar or everyday situations.	Interact with others to meet basic needs in familiar and everyday situations.
Express and React to Preferences and Opinions	Express a few basic preferences or feelings.	Express basic preferences or feelings and react to those of others.	Express, ask about, and react to simple preferences, feelings or opinions on familiar topics.
Interpersonal literacy (E.INP-LIT)			
Communicate, React and Show Interest	Use familiar, relevant vocabulary or structures and rehearsed or imitated cultural behaviors to communicate, react and show interest.	Use familiar, relevant vocabulary and structures and rehearsed or imitated cultural behaviors to communicate, react and show interest.	Use culturally appropriate and relevant language and rehearsed or learned behaviors to communicate, react and show interest.
Continue and Extend Conversations	Use a few very simple verbal or nonverbal rejoinders or interjections.	Use very simple verbal and nonverbal interrogatives, rejoinders, interjections or requests for clarification.	Use simple interrogatives, rejoinders interjections, requests for clarification or transition words.
Increase Comprehensibility and Clarity of Expression	Increase comprehensibility using gestures, hand shapes, facial expressions or repetition.	Increase comprehensibility using gestures, hand shapes, facial expressions, repetition or word substitution.	Increase comprehensibility and clarify information using word substitution, rephrasing, circumlocution or attention to pronunciation, tone or pitch.
Infer Meaning of Unfamiliar Language	Infer meaning of unfamiliar language from gestures, facial and body expressions or context clues during simple interactions.	Infer meaning of unfamiliar language from gestures, facial and body expressions or context clues during simple interactions.	Infer meaning of unfamiliar language from gestures, facial and body expressions, context clues or topic of conversation.
Use Resources Appropriately	Use digital and cultural resources appropriately.	Use digital and cultural resources appropriately.	Use digital and cultural resources appropriately.

WORLD LANGUAGES AND CULTURES

Presentational intercultural communication (E.P-C)

Investigate Intercultural Products, Practices and Perspectives	Identify a few typical products and practices related to familiar, everyday life in native and other cultures.	Identify typical products and practices related to familiar, everyday life in native and other cultures.	Identify similarities and differences between typical products and practices related to everyday life to help understand perspectives of native and other cultures.
Communicate in Culturally Appropriate Ways	Present in very familiar intercultural situations using memorized or practiced language and behaviors.	Present in very familiar intercultural situations using practiced or learned language and behaviors.	Present in very familiar situations using practiced or learned language and behaviors.
Inform and Describe	Name very familiar people, places and objects.	Give simple information about very familiar topics.	Give simple descriptions of familiar and everyday topics.
Narrate About Life and Activities	Provide very basic details about self.	Provide simple details about self, interests and activities.	Provide details about personal life, interests and activities.
Express Preferences	Express likes and dislikes about very familiar topics from native and other cultures.	Express likes and dislikes about familiar topics from native and other cultures.	Express preferences on familiar and everyday topics or topics of interest from native and other cultures.

Presentational literacy (E.P-LIT)

Choose Relevant, Authentic Content	Use familiar vocabulary and structures that are relevant to the topic and very simple authentic resources as needed.	Use familiar vocabulary and structures that are relevant to the topic and very simple authentic resources as needed.	Use familiar content, structures and syntax that are relevant to the topic and authentic resources as needed.
Organize Information	Organize very simple information in a logical sequence and support with gestures or visuals	Organize simple information in a logical sequence and support with gestures or visuals.	Organize information in a logical sequence, with topic sentence, simple details and conclusion, and support with gestures, visuals or additional language as needed.

WORLD LANGUAGES AND CULTURES

Increase Comprehensibility	Communicate with emerging awareness of pronunciation, spelling, punctuation, hand shapes or signing parameters.	Communicate with awareness of pronunciation, spelling, punctuation, hand shapes or signing parameters.	Communicate with attention to pronunciation, spelling, punctuation, hand shapes or signing parameters.
Maintain Audience Interest	Maintain audience interest via gestures, creativity, emotion, technology or visuals.	Maintain audience interest via gestures, creativity, emotion, humor, technology or visuals.	Maintain audience interest via content, creativity, emotion, humor, technology or visuals.
Use Resources Appropriately	Use digital and cultural resources appropriately.	Use digital and cultural resources appropriately.	Use digital and cultural resources appropriately.