

Standards by Grade Level

Sixth Grade



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Purpose

The *Standards by Grade Level for Sixth Grade* is a compilation of all learning standards for sixth 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.6.a	Identify the benefits and limitations of a given computing device's functions (including individual components) to explain how the functions and components work together to create the computing system.
Topic 2: Hardware and software	
CS.HS.6.a	Identify ways that hardware and software work together as a system to collect and exchange data.
Topic 3: Troubleshooting	
CS.T.6.a	Use a systematic process to identify and evaluate the source of a routine computing problem. Select the best solution to solve the computing problem and communicate the solution to others.

COMPUTER SCIENCE

Networks and the Internet

Topic 1: Networking

NI.N.6.a	Identify the role of hardware components to understand the infrastructure of networks and the internet (including cloud servers).
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Topic 2: Cybersecurity

NI.C.6.a	Identify cybersecurity concerns and measures needed to protect electronic information.
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NI.C.6.b	Identify the different types of malware to understand threats to data security.
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NI.C.6.c	Identify ways to protect private information.
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Data and Analysis

Topic 1: Data collection and storage

DA.DCS.6.a	Identify and use an appropriate digital data collection tool to compile information.
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DA.DCS.6.b	Select and utilize appropriate file formats to organize collected data.
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DA.DCS.6.c	Utilize a file structure to logically organize data to support individual and collaborative work.
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Topic 2: Visualization and communication

DA.VC.6.a	Identify and label patterns in models or representations to infer connections between data sets.
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DA.VC.6.b	Create a spreadsheet utilizing formulas, functions and graphs to represent and analyze data.
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Topic 3: Inference and modeling

DA.IM.6.a	Identify and utilize data sets to support or refute a hypothesis.
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Algorithmic Thinking and Programming

Topic 1: Algorithms

ATP.A.6.a	Compare and refine multiple algorithms for the same task to determine which is the most efficient.
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ATP.VDR.6.a	Identify unknown values that need to be represented by a variable within a multi-step process.
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COMPUTER SCIENCE

ATP.VDR.6.b	Create variables and use them within a multi-step process.
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Topic 3: Control structures

ATP.CS.6.a	Identify and trace decisions and loops that exist in a multistep process within a program.
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Topic 4: Modularity

ATP.M.6.a	Decompose problems into parts to facilitate the design, implementation and review of programs.
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Topic 5: Program Development

ATP.PD.6.a	Write code that utilizes algorithms, variables and control structures to solve problems or as a creative expression.
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ATP.PD.6.b	Test and trace to debug and refine code.
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Impacts of computing**Topic 1: Culture**

IC.Cu.6.a	Identify the change that current technologies have on people's everyday activities to understand the impact within a society.
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IC.Cu.6.b	Identify issues of bias and accessibility in the design of existing technologies to address equality and equity in society.
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IC.Cu.6.c	Identify and explore careers related to the field of computer science.
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Topic 2: Social Interactions

IC.SI.6.a	Analyze and present beneficial and harmful effects of electronic communications to understand their impacts on interpersonal, global, economic, political, business and cultural interactions.
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COMPUTER SCIENCE**Topic 3: Safety, Law and Ethics**

IC.SLE.6.a	Describe tradeoffs between allowing information to be public and keeping information private and secure to inform decision making.
IC.SLE.6.b	Identify the social and economic implications of privacy in the context of safety, law or ethics to understand how privacy impacts these areas.
IC.SLE.6.c	Evaluate the development of new technologies in communication, entertainment and business to understand the impact.
IC.SLE.6.d	Provide appropriate credit when using resources or artifacts that are not our own.
IC.SLE.6.e	Differentiate between the appropriate and inappropriate content on the internet and identify unethical and illegal online behavior.

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.6.1	Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
RL.6.2	Analyze literary text development. a. Determine a theme of a text and how it is conveyed through particular details. b. Incorporate a theme and story details into an objective summary of the text.
RI.6.3	Describe how a particular story's or drama's plot unfolds in a series of episodes as well as how the characters respond or change as the plot moves toward a resolution.
Craft and structure	
RL.6.4	Determine the meaning of words and phrases as they are used in a text, including figurative and connotative meanings; analyze the impact of specific word choices, including sensory language, on meaning and tone.
RL.6.5	Analyze how a particular sentence, chapter, scene, or stanza fits into the overall structure of a text and contributes to the development of the theme, setting, or plot.
RL.6.6	Explain how an author uses the point of view to develop the perspective of the narrator or speaker in a text.
Integration of knowledge and ideas	
RL.6.7	Compare and contrast the experience of reading a story, drama, or poem to listening to or viewing an audio, video, or live version of the text, including contrasting what they "see" and "hear" when reading the text to what they perceive when they listen or watch.
RL.6.8	(Not applicable to literature)
RL.6.9	Compare and contrast texts in different forms or genres (e.g., stories and poems; historical novels and fantasy stories) in terms of their approaches to similar themes and topics.

ENGLISH LANGUAGE ARTS

Range of reading and level of text complexity

RL.6.10	By the end of the year, read and comprehend literature, including stories, dramas, and poems, in the grades 6–8 text complexity band proficiently, with scaffolding as needed at the high end of the range. Build background knowledge and activate prior knowledge in order to make text-to-self, text-to-text, and text-to-world connections that deepen understanding of the text.
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Reading Standards for Information Text

Key ideas and details

RI.6.1	Cite textual evidence to support analysis of what the text says explicitly as well as inferences drawn from the text.
RI.6.2	Analyze informational text development. <ul style="list-style-type: none"> a. Determine a central idea of a text and how it is conveyed through particular details. b. Provide an objective summary of the text that includes the central idea and relevant details.
RI.6.3	Analyze in detail how a key individual, event, or idea is introduced, illustrated, and elaborated in a text (e.g., through examples or anecdotes).

Craft and structure

RI.6.4	Determine the meaning of words and phrases as they are used in a text, including figurative, connotative, and technical meanings.
RI.6.5	Analyze how a particular sentence, paragraph, chapter, or section fits into the overall structure of a text and contributes to the development of the ideas.
RI.6.6	Determine an author’s perspective or purpose in a text and explain how it is conveyed in the text.

Integration of knowledge and ideas

RI.6.7	Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.
RI.6.8	Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by evidence from claims that are not.
RI.6.9	Compare and contrast one author’s presentation of events with that of another (e.g., a memoir written by and a biography on the same person).

Range of reading and level of text complexity

RI.6.10	By the end of the year, read and comprehend literary nonfiction in the grades 6–8 text complexity band proficiently, with scaffolding as needed at the high end of the range.
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ENGLISH LANGUAGE ARTS

Reading Standards for Foundational Skills

NOT APPLICABLE AT THIS GRADE LEVEL (ENDS AT GRADE 5)

Writing Standards

Text types and purposes

W.6.1	<p>Write arguments to support claims with clear reasons and relevant evidence.</p> <ol style="list-style-type: none"> Establish a thesis statement to present an argument. Introduce claim(s) and organize the reasons and evidence clearly. Support claim(s) with clear reasons and relevant evidence, using credible sources and demonstrating an understanding of the topic or text. Use words, phrases, and clauses to clarify the relationships among claim(s) and reasons. Establish and maintain a formal style. Provide a concluding statement or section that follows from the argument presented.
W.6.2	<p>Write informative/explanatory texts to examine a topic and convey ideas, concepts, and information through the selection, organization, and analysis of relevant content.</p> <ol style="list-style-type: none"> Establish a thesis statement to present information. Introduce a topic; organize ideas, concepts, and information, using strategies such as definition, classification, comparison/contrast, and cause/effect; include formatting (e.g., headings), graphics (e.g., charts, tables), and multimedia to aid comprehension, if needed. Develop the topic with relevant facts, definitions, concrete details, quotations, or other information and examples. Use appropriate transitions to clarify the relationships among ideas and concepts. Use precise language and domain-specific vocabulary to inform about or explain the topic. Establish and maintain a formal style. Provide a concluding statement or section that follows from the information or explanation presented.
W.6.3	<p>Write narratives to develop real or imagined experiences or events using effective technique, relevant descriptive details, and well-structured event sequences.</p> <ol style="list-style-type: none"> Engage and orient the reader by establishing a context and introducing a narrator and/or characters; organize an event sequence that unfolds naturally and logically. Use narrative techniques, such as dialogue, pacing, and description, to develop experiences, events, and/or characters. Use a variety of transition words, phrases, and clauses to convey sequence and signal shifts from one time frame or setting to another. Use precise words and phrases, relevant descriptive details, and sensory language to convey experiences and events. Provide a conclusion that follows from the narrated experiences or events.

ENGLISH LANGUAGE ARTS

Production and distribution of writing

W.6.4	W.6.4 Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience. (Grade-specific expectations for writing types are defined in standards 1–3 above.)
W.6.5	W.6.5 With some guidance and support from peers and adults, develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach. (Editing for conventions should demonstrate command of Language standards 1–3 up to and including grade 6.)
W.6.6	W.6.6 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.

Research to build and present knowledge

W.6.7	Conduct short research projects to answer a question, drawing on several sources and refocusing the inquiry when appropriate.
W.6.8	Gather relevant information from multiple print and digital sources; assess the credibility of each source; and quote or paraphrase the data and conclusions of others, while avoiding plagiarism and providing basic bibliographic information for sources.
W.6.9	<p>Draw evidence from literary or informational texts to support analysis, reflection, and research.</p> <ol style="list-style-type: none"> a. Apply grade 6 Reading standards to literature (e.g., “Compare and contrast texts in different forms or genres [e.g., stories and poems; historical novels and fantasy stories] in terms of their approaches to similar themes and topics”). b. Apply grade 6 Reading standards to literary nonfiction (e.g., “Trace and evaluate the argument and specific claims in a text, distinguishing claims that are supported by reasons and evidence from claims that are not”).

Range of writing

W.6.10	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.6.1	<p>Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on grade 6 topics, texts, and issues, building on others’ ideas and expressing their own clearly.</p> <ol style="list-style-type: none"> a. Come to discussions prepared, having read or studied required material; explicitly draw on that preparation by referring to evidence on the topic, text, or issue to probe and reflect on ideas under discussion. b. Follow rules for collegial discussions, set specific goals and deadlines, and define individual roles as needed. c. Pose and respond to specific questions with elaboration and detail by making comments that contribute to the topic, text, or issue under discussion. d. Review the key ideas expressed and demonstrate understanding of multiple perspectives through reflection and paraphrasing.
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ENGLISH LANGUAGE ARTS

SL.6.2	Interpret information presented in diverse media and formats (e.g., visually, quantitatively, orally) and explain how it contributes to a topic, text, or issue under study.
SL.6.3	Delineate a speaker’s argument and specific claims, distinguishing claims that are supported by reasons and evidence from claims that are not.
Presentation of knowledge and ideas	
SL.6.4	Present claims and findings, sequencing ideas logically and using pertinent descriptions, facts, and details to accentuate main ideas or themes; use appropriate eye contact, adequate volume, and clear pronunciation.
SL.6.5	Include multimedia components (e.g., graphics, images, music, sound) and visual displays in presentations to clarify information.
SL.6.6	Adapt speech to a variety of contexts and tasks, demonstrating command of formal English when indicated or appropriate. (See grade 6 Language standards 1 and 3 for specific expectations.)
Language Standards	
Convention of standard English	
L.6.1	Demonstrate command of the conventions of standard English grammar and usage when writing or speaking. <ul style="list-style-type: none"> a. Ensure that pronouns are in the proper case (subjective, objective, possessive). b. Use intensive pronouns (e.g., myself, ourselves). c. Recognize and correct inappropriate shifts in pronoun number and person. d. Recognize and correct vague pronouns (i.e., ones with unclear or ambiguous antecedents). e. Recognize variations from standard English in their own and others’ writing and speaking, and identify and use strategies to improve expression in conventional language.
L.6.2	Demonstrate command of the conventions of standard English capitalization, punctuation, and spelling when writing. <ul style="list-style-type: none"> a. Use punctuation (commas, parentheses, dashes) to set off nonrestrictive/parenthetical elements. b. Spell correctly.
Knowledge of language	
L.6.3	Use knowledge of language and its conventions when writing, speaking, reading, or listening. <ul style="list-style-type: none"> a. Vary sentence patterns for meaning, reader/listener interest, and style. b. Maintain consistency in style and tone.

ENGLISH LANGUAGE ARTS

Vocabulary acquisition and use

L.6.4	<p>L.6.4 Determine or clarify the meaning of unknown and multiple-meaning words and phrases based on grade 6 reading and content, choosing flexibly from a range of strategies.</p> <ol style="list-style-type: none"> Use context (e.g., the overall meaning of a sentence or paragraph; a word's position or function in a sentence) as a clue to the meaning of a word or phrase. Use common, grade-appropriate Greek or Latin affixes and roots as clues to the meaning of a word (e.g., audience, auditory, audible). Consult reference materials (e.g., dictionaries, glossaries, thesauruses), both print and digital, to find the pronunciation of a word or determine or clarify its precise meaning or part of speech. Verify the preliminary determination of the meaning of a word or phrase (e.g., by checking the inferred meaning in context or in a dictionary).
L.6.5	<p>Demonstrate understanding of figurative language, word relationships, and nuances in word meanings.</p> <ol style="list-style-type: none"> Interpret figures of speech (e.g., personification) in context. Use the relationship between particular words (e.g., cause/effect, part/whole, item/category) to better understand each of the words. Distinguish among the connotations (associations) of words with similar denotations (definitions) (e.g., stingy, scrimping, economical, frugal, thrifty).
L.6.6	<p>Acquire and use accurately grade-appropriate general academic and domain-specific words and phrases; gather vocabulary knowledge when considering a word or phrase important to comprehension or expression.</p>

FINANCIAL LITERACY

Instructional Supports:

[Ohio's Learning Standards for Financial Literacy in Middle 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 6-8 Dance Model Curriculum](#)

[Fine Arts Instructional Strategies](#)

Code	Standard
Perceiving / Knowing (PE)	
1PE	Deepen personal awareness of the expressive body as it moves and feels in personal and communal spaces.
2PE	Deepen personal awareness of the expressive body as it moves and feels in relation to the dance elements.
3PE	Observe and ask questions about movement concepts.
4PE	Explore the body's range of movement possibilities.
5PE	View works by various influential choreographers.
6PE	Recognize how thoughts and ideas influence dance.
7PE	Observe dances with attention to rhythmic structure, with or without musical accompaniment.
Producing / Performing (PR)	
1PR	Create movement that is influenced by personal, social, cultural and political concepts.
2PR	Perform dances from various global cultures, theatrical styles and historical periods.
3PR	Perform movement phrases with increased focus, alignment, strength, flexibility, coordination and skill.
4PR	Demonstrate and use available technology including new media to create, record and share dances in conventional and innovative ways.
5PR	Demonstrate how to dance with a supporting partner or group.

FINE ARTS: DANCE
Responding (RE)

1RE	Identify a variety of career possibilities in which dance skills are useful.
2RE	Explain the role of dance in daily life across various periods and cultures and provide examples.
3RE	Identify an influential choreographer and describe his or her choreographic work in terms of genre, form and style.
4RE	State and support a personal preference of dance genre, form and style.
5RE	Create and apply criteria to make judgments about self-made dances and dances made by others.
6RE	Share ideas and raise questions about the relevance of dance skills to their lives and adult career choices.

FINE ARTS: DRAMA
Instructional Supports:

[Ohio's 2012 Learning Standards for Drama](#)
[Grade 6-8 Drama Model Curriculum](#)
[Fine Arts Instructional Strategies](#)

Code	Standard
Creating (CE)	
1CE	Consider and discuss how the characters, events and theme of a story contribute to its meaning and storyline.
2CE	Differentiate between character types and explain the relationship among characters.
3CE	Discuss how history and culture affect the production style and performance of plays.
4CE	Use dramatic and theatrical vocabulary accurately when discussing and creating dramatic works.
5CE	Compare and contrast the creative processes of other art forms (e.g., dance, music, visual and media arts) to those of drama and theatre.
6CE	Examine and describe the roles, skills and responsibilities of scenic, lighting, technology and sound designers and backstage crew.

FINE ARTS: DRAMA**Producing / Performing (PR)**

1PR	Create and perform improvisations and scripted scenes based on personal experience, imagination or heritage.
2PR	Construct a scripted or improvised scene with developed characters that uses a plot curve.
3PR	Construct and produce the technical components for a script, using art or electronic media to present design ideas.
4PR	Compose and perform an informal production influenced by a contemporary or cultural issue.
5PR	Use dramatic and theatrical skills to demonstrate concepts or ideas from other academic areas.

Responding (RE)

1RE	Express and compare personal reactions to comedy, tragedy and other dramatic forms.
2RE	Describe, analyze and evaluate the artistic choices in a dramatic production using specified criteria.
3RE	Explain how changes in a production concept (such as time period or modernization) would alter the presentation of a work.
4RE	Critique the effectiveness and quality of an actor's interpretation of a role.
5RE	Justify a personal interpretation to a theatre performance with reference to the dramatic elements.
6RE	Establish criteria and use it to evaluate personal progress and determine the quality of their dramatic works.
7RE	Discuss the role and value of drama and theatre to the school and larger community.

FINE ARTS: MUSIC

Instructional Supports:

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

[Grade 6-8 Music Model Curriculum](#)

[Fine Arts Instructional Strategies](#)

Code	Standard
Creating (CE)	
1CE	Describe distinguishing characteristics of music forms (e.g., verse-refrain, AB, ABA, rondo, canon, theme and variation) from various cultures and historical periods.
2CE	Identify instruments used in Western and world music ensembles.
3CE	Identify different functions and uses of music in American and other cultures.
4CE	Identify the major periods, genres and composers in the development of Western and non-Western music.
5CE	Distinguish between and among the use of dynamics, meter, tempo and tonality in various pieces through active listening.
6CE	Describe roles and skills musicians assume in various cultures and settings.
Producing / Performing (PR)	
1PR	Independently or collaboratively, perform with good posture and breath control a varied repertoire of music representing diverse cultures with appropriate dynamics and tempo.
2PR	Play a variety of classroom instruments, independently or collaboratively, with increasingly complex rhythms and melodic phrases.
3PR	Improvise, compose and arrange music.
4PR	Respond appropriately to the cues of a conductor.
5PR	Read, write, perform and compose rhythm patterns and simple melodies in 2/4, 3/4, 4/4 and 6/8 meter.
6PR	Attend live performances and demonstrate appropriate audience etiquette.

FINE ARTS: MUSIC

Responding (RE)

1RE	Develop criteria to evaluate the quality and effectiveness of music performances and compositions including their own.
2RE	Reflect on a variety of live or recorded music performances.
3RE	Communicate the importance of music in everyday life.
4RE	Describe ways that music relates to other art forms using appropriate terminology.
5RE	Compare and contrast subject matter common to music and other subject areas.
6RE	Explain and apply skills developed in music (e.g., critical thinking, collaboration) to other disciplines.

FINE ARTS: VISUAL ARTS

Instructional Supports:

[Ohio's 2012 Learning Standards for Visual Art](#)
[Grade 6-8 Visual Art Model Curriculum](#)
[Fine Arts Instructional Strategies](#)

Code	Standard
Perceiving / Knowing (PE)	
1PE	Describe how art and design elements and principles are used in artworks to produce certain visual effects and create meaning.
2PE	Discover and articulate how the media forms of the day use art and images to communicate messages and meaning.
3PE	Compare and contrast visual forms of expression found throughout local regions and in different cultures of the world.
4PE	Connect selected ideas, concepts and processes used in visual art with those used in other academic disciplines.
5PE	Use observations, life experiences and imagination as sources for visual symbols, images and creative expression.

FINE ARTS: VISUAL ARTS
Producing / Performing (PR)

1PR	Describe how art and design elements and principles are used in artworks to produce certain visual effects and create meaning.
2PR	Discover and articulate how the media forms of the day use art and images to communicate messages and meaning.
3PR	Compare and contrast visual forms of expression found throughout local regions and in different cultures of the world.
4PR	Connect selected ideas, concepts and processes used in visual art with those used in other academic disciplines.
5PR	Use observations, life experiences and imagination as sources for visual symbols, images and creative expression.
6PR	Describe how art and design elements and principles are used in artworks to produce certain visual effects and create meaning.

Responding (RE)

1RE	Explain what makes an object a work of art using a range of criteria.
2RE	Describe content, meaning and design in various works of art using accurate, descriptive language and art-specific vocabulary.
3RE	Explore and discuss how aspects of culture influence ritual and social artwork.
4RE	Defend artistic decisions using appropriate visual art vocabulary.
5RE	Assess personal progress to improve craftsmanship and refine and complete works of art.
6RE	Develop and use criteria for self-assessment and to select and organize artworks for a portfolio.

MATHEMATICS

Instructional Supports:

[Ohio's Learning Standards for Grade 6 Mathematics](#)
[Ohio's Kindergarten – Grade 8 Learning Progressions](#)
[Grade 6 Mathematics Model Curriculum](#)

Code	Standard
Standards for Mathematical Practice	
MP.1	Make sense of problems and persevere in solving them.
<p>In grade 6, students solve problems involving ratios and rates and discuss how they solved them. Students solve real-world problems through the application of algebraic and geometric concepts. Students seek the meaning of a problem and look for efficient ways to represent and solve it. They may check their thinking by asking themselves, “What is the most efficient way to solve the problem?”, “Does this make sense?”, and “Can I solve the problem in a different way?”. Students can explain the relationships between equations, verbal descriptions, and tables and graphs. Mathematically proficient students check their answers to problems using a different method.</p>	
MP.2	Reason abstractly and quantitatively.
<p>In grade 6, students represent a wide variety of real-world contexts through the use of real numbers and variables in mathematical expressions, equations, and inequalities. Students contextualize to understand the meaning of the number or variable as related to the problem and decontextualize to manipulate symbolic representations by applying properties of operations or other meaningful moves. To reinforce students’ reasoning and understanding, teachers might ask, “How do you know?” or “What is the relationship of the quantities?”.</p>	
MP.3	Construct viable arguments and critique the reasoning of others.
<p>In grade 6, students construct arguments using verbal or written explanations accompanied by expressions, equations, inequalities, models, and graphs, tables, and other data displays (i.e. box plots, dot plots, histograms, etc.). They further refine their mathematical communication skills through mathematical discussions in which they critically evaluate their own thinking and the thinking of other students. They pose questions like “How did you get that?”, “Why is that true?” “Does that always work?” They explain their thinking to others and respond to others’ thinking.</p>	
MP.4	Model with mathematics.
<p>In grade 6, students model problem situations symbolically, graphically, in tables, contextually and with drawings of quantities as needed. Students form expressions, equations, or inequalities from real-world contexts and connect symbolic and graphical representations. Students begin to represent two quantities simultaneously. Students use number lines to compare numbers and represent inequalities. They use measures of center and variability and data displays (i.e. box plots and histograms) to draw inferences about and make comparisons between data sets. Students need many opportunities to connect and explain the connections between the different representations. They should be able to use all of these representations as appropriate and apply them to a problem context. Students should be encouraged to answer questions such as “What are some ways to represent the quantities?” or “What formula might apply in this situation?”</p>	

MATHEMATICS

MP.5 Use appropriate tools strategically.

Students consider available tools (including estimation and technology) when solving a mathematical problem and decide when certain tools might be helpful. For instance, students in grade 6 may decide to represent figures on the coordinate plane to calculate area. Number lines are used to create dot plots, histograms, and box plots to visually compare the center and variability of the data. Visual fraction models can be used to represent situations involving division of fractions. Additionally, students might use physical objects or applets to construct nets and calculate the surface area of three-dimensional figures. Students should be encouraged to answer questions such as “What approach did you try first?” or “Why was it helpful to use?”

MP.6 Attend to precision.

In grade 6, students continue to refine their mathematical communication skills by using clear and precise language in their discussions with others and in their own reasoning. Students use appropriate terminology when referring to rates, ratios, geometric figures, data displays, and components of expressions, equations or inequalities. When using ratio reasoning in solving problems, students are careful about specifying units of measure and labeling axes to clarify the correspondence with quantities in a problem. Students also learn to express numerical answers with an appropriate degree of precision when working with rational numbers in a situational problem. Teachers might ask, “What mathematical language, definitions, or properties can you use to explain ___?”

MP.7 Look for and make use of structure.

Students routinely seek patterns or structures to model and solve problems. For instance, students recognize patterns that exist in ratio tables recognizing both the additive and multiplicative properties. Students apply properties to generate equivalent expressions (i.e. $6 + 2n = 2(3 + n)$ by distributive property) and solve equations (i.e. $2c + 3 = 15$, $2c = 12$ by subtraction property of equality; $c = 6$ by division property of equality). Students compose and decompose two- and three-dimensional figures to solve real-world problems involving area and volume. Teachers might ask, “What do you notice when ___?” or “What parts of the problem might you eliminate, simplify, or ___?”

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

In grade 6, students use repeated reasoning to understand algorithms and make generalizations about patterns. During multiple opportunities to solve and model problems, they may notice that $\frac{a}{b} \div \frac{c}{d} = \frac{ad}{bc}$ and construct other examples and models that confirm their generalization. Students connect place value and their prior work with operations to understand algorithms to fluently divide multi-digit numbers and perform all operations with multi-digit decimals. Students informally begin to make connections between rates and representations showing the relationships between quantities. Students should be encouraged to answer questions such as, “How would we prove that ___?” or “How is this situation like and different from other situations?”

MATHEMATICS

Ratios and Proportional Relationships

Understand ratio concepts and use ratio reasoning to solve problems.

6.RP.1	Understand the concept of a ratio and use ratio language to describe a ratio relationship between two quantities. <i>For example, “The ratio of wings to beaks in the bird house at the zoo was 2:1, because for every 2 wings there was 1 beak.” “For every vote candidate A received, candidate C received nearly three votes.”</i>
6.RP.2	Understand the concept of a unit rate a/b associated with a ratio $a:b$ with $b \neq 0$, and use rate language in the context of a ratio relationship. <i>For example, “This recipe has a ratio of 3 cups of flour to 4 cups of sugar, so there is $3/4$ cup of flour for each cup of sugar.” “We paid \$75 for 15 hamburgers, which is a rate of \$5 per hamburger.”</i>
6.RP.3	Use ratio and rate reasoning to solve real-world and mathematical problems, e.g., by reasoning about tables of equivalent ratios, tape diagrams ^G , double number line diagrams ^G , or equations. <ul style="list-style-type: none"> a. Make tables of equivalent ratios relating quantities with whole number measurements; find missing values in the tables; and plot the pairs of values on the coordinate plane. Use tables to compare ratios. b. Solve unit rate problems including those involving unit pricing and constant speed. <i>For example, if it took 7 hours to mow 4 lawns, then at that rate, how many lawns could be mowed in 35 hours? At what rate were lawns being mowed?</i> c. Find a percent of a quantity as a rate per 100, e.g., 30% of a quantity means $30/100$ times the quantity; solve problems involving finding the whole, given a part and the percent. d. Use ratio reasoning to convert measurement units; manipulate and transform units appropriately when multiplying or dividing quantities.

The Number System

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

6.NS.1	Interpret and compute quotients of fractions, and solve word problems involving division of fractions by fractions, e.g., by using visual fraction models ^G and equations to represent the problem. <i>For example, create a story context for $(2/3) \div (3/4)$ and use a visual fraction model to show the quotient; use the relationship between multiplication and division to explain that $(2/3) \div (3/4) = 8/9$ because $3/4$ of $8/9$ is $2/3$. (In general, $(a/b) \div (c/d) = ad/bc$.) How much chocolate will each person get if 3 people share $1/2$ pound of chocolate equally? How many $3/4$ cup servings are in $2/3$ of a cup of yogurt? How wide is a rectangular strip of land with length $3/4$ mi and area $1/2$ square mi?</i>
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Compute fluently with multi-digit numbers and find common factors and multiples.

6.NS.2	Fluently ^G divide multi-digit numbers using a standard algorithm ^G .
6.NS.3	Fluently add, subtract, multiply, and divide multi-digit decimals using a standard algorithm for each operation.

MATHEMATICS

6.NS.4	Find the greatest common factor of two whole numbers less than or equal to 100 and the least common multiple of two whole numbers less than or equal to 12. Use the distributive property to express a sum of two whole numbers 1-100 with a common factor as a multiple of a sum of two whole numbers with no common factor. <i>For example, express $36 + 8$ as $4(9 + 2)$.</i>
Apply and extend previous understandings of numbers to the system of rational numbers.	
6.NS.5	Understand that positive and negative numbers are used together to describe quantities having opposite directions or values, e.g., temperature above/below zero, elevation above/below sea level, credits/debits, positive/negative electric charge; use positive and negative numbers to represent quantities in real-world contexts, explaining the meaning of 0 in each situation.
6.NS.6	<p>Understand a rational number as a point on the number line. Extend number line diagrams and coordinate axes familiar from previous grades to represent points on the line and in the plane with negative number coordinates.</p> <ol style="list-style-type: none"> Recognize opposite signs of numbers as indicating locations on opposite sides of 0 on the number line; recognize that the opposite of the opposite of a number is the number itself, e.g., $-(-3) = 3$, and that 0 is its own opposite. Understand signs of numbers in ordered pairs as indicating locations in quadrants of the coordinate plane; recognize that when two ordered pairs differ only by signs, the locations of the points are related by reflections across one or both axes. Find and position integers and other rational numbers on a horizontal or vertical number line diagram; find and position pairs of integers and other rational numbers on a coordinate plane.
6.NS.7	<p>Understand ordering and absolute value of rational numbers.</p> <ol style="list-style-type: none"> Interpret statements of inequality as statements about the relative position of two numbers on a number line diagram. <i>For example, interpret $-3 > -7$ as a statement that -3 is located to the right of -7 on a number line oriented from left to right.</i> Write, interpret, and explain statements of order for rational numbers in real-world contexts. <i>For example, write $-3^{\circ}\text{C} > -7^{\circ}\text{C}$ to express the fact that -3°C is warmer than -7°C.</i> Understand the absolute value of a rational number as its distance from 0 on the number line; interpret absolute value as magnitude for a positive or negative quantity in a real-world situation. <i>For example, for an account balance of -30 dollars, write $-30 = 30$ to describe the size of the debt in dollars.</i> Distinguish comparisons of absolute value from statements about order. <i>For example, recognize that an account balance less than -30 dollars represents a debt greater than 30 dollars</i>
6.NS.8	Solve real-world and mathematical problems by graphing points in all four quadrants of the coordinate plane. Include use of coordinates and absolute value to find distances between points with the same first coordinate or the same second coordinate.

MATHEMATICS

Expressions and Equations

Apply and extend previous understandings of arithmetic to algebraic expressions.

6.EE.1	Write and evaluate numerical expressions involving whole number exponents.
6.EE.2	<p>Write, read, and evaluate expressions in which letters stand for numbers.</p> <ul style="list-style-type: none"> a. Write expressions that record operations with numbers and with letters standing for numbers. <i>For example, express the calculation “Subtract y from 5” as $5 - y$.</i> b. Identify parts of an expression using mathematical terms (sum, term, product, factor, quotient, coefficient); view one or more parts of an expression as a single entity. <i>For example, describe the expression $2(8 + 7)$ as a product of two factors; view $(8 + 7)$ as both a single entity and a sum of two terms.</i> c. Evaluate expressions at specific values of their variables. Include expressions that arise from formulas used in real-world problems. Perform arithmetic operations, including those involving whole number exponents, using the algebraic order of operations when there are no parentheses to specify a particular order. <i>For example, use the formulas $V = s^3$ and $A = 6s^2$ to find the volume and surface area of a cube with sides of length $s = \frac{1}{2}$.</i>
6.EE.3	Apply the properties of operations to generate equivalent expressions. <i>For example, apply the distributive property to the expression $3(2 + x)$ to produce the equivalent expression $6 + 3x$; apply the distributive property to the expression $24x + 18y$ to produce the equivalent expression $6(4x + 3y)$; apply properties of operations to $y + y + y$ to produce the equivalent expression $3y$.</i>
6.EE.4	Identify when two expressions are equivalent, i.e., when the two expressions name the same number regardless of which value is substituted into them. <i>For example, the expressions $y + y + y$ and $3y$ are equivalent because they name the same number regardless of which number y stands for.</i>

Reason about and solve one-variable equations and inequalities.

6.EE.5	Understand solving an equation or inequality as a process of answering a question: which values from a specified set, if any, make the equation or inequality true? Use substitution to determine whether a given number in a specified set makes an equation or inequality true.
6.EE.6	Use variables to represent numbers and write expressions when solving a real-world or mathematical problem; understand that a variable can represent an unknown number, or, depending on the purpose at hand, any number in a specified set.
6.EE.7	Solve real-world and mathematical problems by writing and solving equations of the form $x + p = q$ and $px = q$ for cases in which p , q , and x are all nonnegative rational numbers.
6.EE.8	Write an inequality of the form $x > c$ or $x < c$ to represent a constraint or condition in a real-world or mathematical problem. Recognize that inequalities of the form $x > c$ or $x < c$ have infinitely many solutions; represent solutions of such inequalities on number line diagrams.

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Represent and analyze quantitative relationships between dependent and independent variables.

6.EE.9	Use variables to represent two quantities in a real-world problem that change in relationship to one another; write an equation to express one quantity, thought of as the dependent variable, in terms of the other quantity, thought of as the independent variable. Analyze the relationship between the dependent and independent variables using graphs and tables, and relate these to the equation. <i>For example, in a problem involving motion at constant speed, list and graph ordered pairs of distances and times, and write the equation $d = 65t$ to represent the relationship between distance and time.</i>
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Geometry

Solve real-world and mathematical problems involving area, surface area, and volume.

6.G.1	Through composition into rectangles or decomposition into triangles, find the area of right triangles, other triangles, special quadrilaterals, and polygons; apply these techniques in the context of solving real-world and mathematical problems.
6.G.2	Find the volume of a right rectangular prism with fractional edge lengths by packing it with unit cubes of the appropriate unit fraction edge lengths, and show that the volume is the same as would be found by multiplying the edge lengths of the prism. Apply the formulas $V = \ell \cdot w \cdot h$ and $V = B \cdot h$ to find volumes of right rectangular prisms with fractional edge lengths in the context of solving real-world and mathematical problems.
6.G.3	Draw polygons in the coordinate plane given coordinates for the vertices; use coordinates to find the length of a side joining points with the same first coordinate or the same second coordinate. Apply these techniques in the context of solving real-world and mathematical problems.
6.G.4	Represent three-dimensional figures using nets made up of rectangles and triangles, and use the nets to find the surface area of these figures. Apply these techniques in the context of solving real-world and mathematical problems.

Statistics and Probability

Develop understanding of statistical problem solving.

6.SP.1	Develop statistical reasoning by using the GAISE model: <ol style="list-style-type: none"> a. Formulate Questions: Recognize and formulate a statistical question as one that anticipates variability and can be answered with quantitative data. <i>For example, “How old am I?” is not a statistical question, but “How old are the students in my school?” is a statistical question because of the variability in students’ ages.</i> (GAISE Model, step 1) b. Collect Data: Design and use a plan to collect appropriate data to answer a statistical question. (GAISE Model, step 2) c. Analyze Data: Select appropriate graphical methods and numerical measures to analyze data by displaying variability within a group, comparing individual to individual, and comparing individual to group. (GAISE Model, step 3) d. Interpret Results: Draw logical conclusions from the data based on the original question. (GAISE Model, step 4)
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MATHEMATICS

6.SP.2	Understand that a set of data collected to answer a statistical question has a distribution which can be described by its center, spread, and overall shape.
6.SP.3	Recognize that a measure of center for a numerical data set summarizes all of its values with a single number, while a measure of variation describes how its values vary with a single number.
Summarize and describe distributions.	
6.SP.4	Display numerical data in plots on a number line, including dot plots ^G (line plots), histograms, and box plots ^G . (GAISE Model, step 3)
6.SP.5	<p>Summarize numerical data sets in relation to their context.</p> <ol style="list-style-type: none"> Report the number of observations. Describe the nature of the attribute under investigation, including how it was measured and its units of measurement. Find the quantitative measures of center (median and/or mean) for a numerical data set and recognize that this value summarizes the data set with a single number. Interpret mean as an equal or fair share. Find measures of variability (range and interquartile range^G) as well as informally describe the shape and the presence of clusters, gaps, peaks, and outliers in a distribution. Choose the measures of center and variability, based on the shape of the data distribution and the context in which the data were gathered.

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: Demonstrate movement skills and patterns in a variety of individual performance activities and lifetime physical activities.	
Specialized skills and movement patterns	
1	Demonstrate movement patterns in dance, gymnastics or fitness (e.g., yoga, Zumba).
2	Demonstrate the critical elements of specialized locomotor and non-locomotor skills in a variety of movement forms (e.g., fitness, track and field, martial arts, outdoor activities, aquatics, cycling, rollerblading) in controlled settings.
3	Perform simple dance sequences.
Benchmark B: Demonstrate critical elements of specialized manipulative skills in a variety of settings.	
Application of specialized manipulative skills	
1	Send, receive, dribble and shoot in game-like practice using appropriate critical elements.
2	Strike an object with hand or implement in game-like practice using appropriate critical elements.
3	Strike and field an object with foot, hand or implement in game-like practice.
4	Send an object to a target in game-like practice using appropriate critical elements.
Standard 2	Applies knowledge of concepts, principles, strategies and tactics related to movement and performance.
Benchmark A: Apply tactical concepts and performance principles in game-like settings.	
Tactics and principles	
1	Demonstrate understanding of basic offensive tactics related to off-the-ball movements while participating in game-like settings (e.g., when and where should I move?).
2	Demonstrate understanding of basic defensive tactics related to defending space while participating in game-like settings (e.g., when and where should I move?).

PHYSICAL EDUCATION

3 Identify correct decision in game-like settings.

Benchmark B: Demonstrate knowledge of critical elements and biomechanical principles for specialized skills.

Principles and critical elements

1 Demonstrate understanding of movement principles through knowledge of critical elements (key points) of specialized skills in fitness, sport/games, individual performance activities and movement forms.

2 Analyze skills in fitness, sport/games, individual performance activities and movement forms to identify strengths and areas to improve.

Standard 3 Demonstrates the knowledge and skills to achieve and maintain a health-enhancing level of physical activity and fitness.

Benchmark A: Develops a plan to meet the recommendation for daily physical activity.

Physical activity knowledge

1 Identify a variety of moderate to vigorous school, home and community physical activity opportunities to meet physical activity guidelines.

2 Identify active alternatives to screen time.

Evaluate level of physical activity

3 Collect physical activity assessment data and create a plan to improve or maintain physical activity levels.

Benchmark B: Utilizes principles and practices to design a personalized health-related fitness plan.

Health-related fitness knowledge

1 Describe and use technology to monitor fitness (e.g., heart monitor, pedometer, phone and iPod apps).

Cardio

2 Calculate target heart rate and describe rates of perceived exertion (using RPE scale).

Muscular strength and endurance

3 Identify major muscles used in selected physical activities.

PHYSICAL EDUCATION

Flexibility

4 Identify activities to improve upper body flexibility.

Planning (FITT and other principles)

5 Apply principles of training (e.g., specificity, overload, progression) to maintain or improve health-related fitness.

Healthy habits in relation to fitness

6 Identify foods and appropriate servings to balance calorie intake with energy expenditure.

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

Benchmark A: Develop and apply rules, safe practices and procedures in physical activity settings.

Safety

1 Make a conscious decision about playing within the rules, procedures and etiquette of a game or activity.

2 Acknowledge and apply rules to game situations to ensure personal and group safety.

Self-direction

3 Make choices to demonstrate self-direction and effort.

Benchmark B: Communicate effectively with others to promote respect and conflict resolution in physical activity settings.

Cooperation

1 Offer positive suggestions to facilitate group progress in physical activities.

Respect

2 Demonstrate cooperation with peers of different gender, race and ability in physical activity settings.

Resolving conflict

3 Show consideration of the rights and feelings of others when resolving conflict.

4 Accept decisions made by the designated official and return to activity.

PHYSICAL EDUCATION

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

Benchmark A: Makes a connection between participation in physical activity and physical, emotional and intellectual health.

Health reasons to be physically active

1	Describe how being physically active contributes to a healthy body.
2	Describe how being physically active contributes to emotional health.
3	Describe how being physically active contributes to intellectual health.

Benchmark B: Discusses the positive impact physical activity has on his or her life.

Values physical activity through various means

1	Identify enjoyable physical activities.
2	Identify a specific activity the student plays because he or she finds it challenging.
3	Identify a specific activity the student plays because of the opportunities for social interaction.

SCIENCE**Instructional Supports:**

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

Code	Standard
Earth science	
6.ESS.1	Minerals have specific, quantifiable properties.
6.ESS.2	Igneous, metamorphic and sedimentary rocks have unique characteristics that can be used for identification and/or classification.
6.ESS.3	Igneous, metamorphic and sedimentary rocks form in different ways.
6.ESS.4	Soil is unconsolidated material that contains nutrient matter and weathered rock.
6.ESS.5	Rocks, mineral and soils have common and practical uses.
Physical science	
6.PS.1	Matter is made up of small particles called atoms.
6.PS.2	Changes of state are explained by a model of matter composed of particles that are in motion.
6.PS.3	There are two categories of energy: kinetic and potential.
6.PS.4	An object's motion can be described by its speed and the direction in which it is moving.
Life science	
6.LS.1	Cells are the fundamental unit of life.
6.LS.2	All cells come from pre-existing cells.
6.LS.3	Cells carry on specific functions that sustain life.
6.LS.4	Living systems at all levels of organization demonstrate the complementary nature of structure and function.

SOCIAL STUDIES

Instructional Supports:

[Ohio's Learning Standards for Social Studies](#)
[Grade 6 Social Studies Model Curriculum](#)

Code	Standard
History Strand	
Historical thinking and skills	
1	Multiple tier timelines can be used to show relationships among events and places.
Early civilizations	
2	Early civilizations (India, Egypt, China and Mesopotamia) had unique governments, economic systems, social structures, religions, technologies and agricultural practices and products. The cultural practices and products of these early civilizations can be used to help understand the Eastern Hemisphere today.
Geography Strand	
Spatial thinking and skills	
3	Geographic tools can be used to gather, process and report information about people, places and environments. Cartographers decide which information to include and how it is displayed.
4	Latitude and longitude can be used to identify absolute location.
Places and regions	
5	Regions can be determined, classified and compared using data related to various criteria including landform, climate, population, and cultural and economic characteristics.
Human systems	
6	The variety of physical environments within the Eastern Hemisphere influences human activities. Likewise, human activities modify the physical environment.
7	Political, environmental, social and economic factors cause people, products and ideas to move from place to place in the Eastern Hemisphere in the past and today.
8	Diffusion of agricultural practices and products, technology, cultural practices and major world religions (Buddhism, Christianity, Hinduism, Islam and Judaism) impacted the Eastern Hemisphere.

SOCIAL STUDIES

Government Strand

Civic participation and skills

9	Different perspectives on a topic can be obtained from a variety of historic and contemporary sources and used to effectively communicate and defend a claim based on evidence. Sources should be examined for accuracy and credibility.
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Roles and systems of government

10	Governments can be categorized as monarchies, theocracies, dictatorships or democracies, but categories may overlap and labels may not accurately represent how governments function. The extent of citizens' liberties and responsibilities varies according to limits on governmental authority.
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Economics Strand

Economic decision making and skills

11	Economists compare data sets to draw conclusions about relationships among them.
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12	The choices made by individuals and governments have both present and future consequences. The evaluation of choices is relative and may differ across individuals and societies.
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Scarcity

13	The fundamental questions of economics include what to produce, how to produce and for whom to produce.
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14	When regions and/or countries specialize, global trade occurs.
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Markets

15	The interaction of supply and demand, influenced by competition, helps to determine price in a market. This interaction also determines the quantities of outputs produced and the quantities of productive resources (entrepreneurship, human resources, natural resources and capital) used.
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Financial literacy

16	When selecting items to buy, individuals can weigh costs and benefits and compare the price and quality of available goods and services.
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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.	
6-8.ICT.1.a.	Develop criteria for selecting digital learning tools and resources to accomplish a defined task.
6-8.ICT.1.b.	Select and use digital learning tools or resources to support planning, implementing and reflecting upon a defined task.
6-8.ICT.1.c.	Evaluate the use of digital learning tools and resources to support learning and productivity.
Topic 2: Use digital learning tools and resources to locate, evaluate and use information.	
6-8.ICT.2.a.	Use advanced search techniques to locate needed information using digital learning tools and resources.
6-8.ICT.2.b.	Use multiple criteria to evaluate the validity of information found with digital learning tools and resources.
6-8.ICT.2.c.	Apply principles of copyright, use digital citation tools and use strategies to avoid plagiarism.
Topic 3: Use digital learning tools and resources to construct knowledge.	
6-8.ICT.3.a.	Analyze and integrate textual, visual and quantitative information (e.g., images, diagrams, maps, graphs, infographics, videos, animations, interactives) from multiple digital learning tools and resources.
6-8.ICT.3.b.	Analyze data collected or retrieved from a variety of digital learning tools and resources to determine if patterns or trends are present.
6-8.ICT.3.c.	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.	
6-8.ICT.4.a.	Use digital learning tools and resources to identify communication needs considering goals, audience and content.
6-8.ICT.4.b.	Select and use a variety of media formats to communicate information to a target audience.
6-8.ICT.4.c.	Discuss and identify ways to communicate and disseminate information so that users with varied needs can access information.
6-8.ICT.4.d.	Evaluate the effectiveness of a digital tool to communicate information with multiple audiences.

TECHNOLOGY

Society and Technology

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

6-8.ST.1.a.	Advocate and exhibit ethical, legal and responsible practices when utilizing technology.
6-8.ST.1.b.	Explore the advantages and disadvantages of widespread use, accessibility and reliance on technology in one’s world.
6-8.ST.1.c.	Review and demonstrate ethical considerations and legal requirements involved in the creation and use of digital technologies.
6-8.ST.1.d.	Analyze an environmental concern and investigate technology solutions to that problem.

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

6-8.ST.2.a.	Critique specific instances of how technology has impacted access to information, communications and collaboration.
6-8.ST.2.b.	Explain the positive and negative impact the use of technology can have on personal, professional and community relationships.
6-8.ST.2.c.	Investigate how social media impacts society and the digital identities of individuals and organizations.
6-8.DT.2.d.	Apply appropriate interactions and digital etiquette in varying contexts, reflecting upon potential impacts in both digital and physical environments.

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

6-8.ST.3.a.	Discuss and define how issues (e.g., economic, political, scientific and cultural) are influenced by the development and use of technology.
6-8.ST.3.b.	Explain how new technology development is driven by factors such as commercialization, creative/inventive thinking and cultural/historical influence.
6-8.ST.3.c.	Analyze how technological innovations and inventions can have multiple applications, both intended and unintended.
6-8.ST.3.d.	Describe the impact of an individual’s wants, values and interests on the development of new technologies.
6-8.ST.3.e.	Manage components of one’s digital identity and one’s digital footprint.
6-8.ST.3.f.	Evaluate current and past revisions to laws, rules and policies as society responds to technological advancements.

TECHNOLOGY

Design and Technology

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

6-8.DT.1.a.	Explore and document how technology can impact efficiency.
6-8.DT.1.b.	Analyze how tools, materials and processes are used to alter the natural and human-designed worlds.
6-8.DT.1.c.	Define and categorize the requirements of a design as either criteria or constraints.
6-8.DT.1.d.	Explain how optimization is the process of making a product as fully functional and effective as possible.
6-8.DT.1.e.	Describe how trade-offs involve a choice of one quality over another.
6-8.DT.1.f.	Give examples of how trade-offs must occur when optimizing a design in order to maintain design requirements.

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

6-8.DT.2.a.	Apply a complete design process to solve an identified individual or community problem: research, develop, test, evaluate and present several possible solutions, and redesign to improve the solution.
6-8.DT.2.b.	Describe how invention is a process of turning ideas and imagination into devices and systems.
6-8.DT.2.c.	Explain how innovation is the process of modifying an existing system or system element(s) to improve it.
6-8.DT.2.d.	Consider multiple factors, including criteria and constraints, (e.g., research, cost, time, materials, feedback, safety) to justify decisions when developing products and systems to solve problems.
6-8.DT.2.e.	Identify and explain why effective designs develop from non-linear, flexible application of a design process.

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

6-8.DT.3.a.	Collaborate to solve a problem as an interdisciplinary team modeling different roles and functions.
6-8.DT.3.b.	Explain ways that invention and innovation within one field can transfer into other fields of technology.
6-8.DT.3.c.	Evaluate the effectiveness of the group's collaboration during the engineering design process and the contribution of the varying roles.
6-8.DT.3.d.	Give examples of how changes in one part of a system can impact other parts of that system.
6-8.DT.3.e.	Deconstruct a system into its component parts and describe how they interrelate.

TECHNOLOGY

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

6-8.DT.4.a.	Examine the progression of a product to identify how the functional, aesthetic and creative elements were applied.
6-8.DT.4.b.	Analyze environments or products that are examples of the application of the principles of universal or inclusive design.
6-8.DT.4.c.	Apply the design principle “form follows function” to develop a product.

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.
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.

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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.
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.

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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.
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.