



DESIGN LAB NATIONAL & STATE LEARNING STANDARDS ALIGNMENT

Design LAB presents architecture and design concepts that can be used across subject areas to achieve your classroom goals. The following outline highlights some of the content standards that **Design LAB** can help you achieve.

MATHEMATICS STANDARDS

Kindergarten

- (1) Students use numbers, including written numerals, to represent quantities and to solve quantitative problems, such as counting objects in a set; counting out a given number of objects; comparing sets or numerals; and modeling simple joining and separating situations with sets of objects...
- (2) Students describe their physical world using geometric ideas (e.g. shape, orientation, spatial relations) and vocabulary.

K.MD Measurement and Data

- Describe and compare measurable attributes.

K.G Geometry

- Identify and describe shapes (squares, circles, triangles, rectangles, hexagons, cubes, cones, cylinders, and spheres).
- Analyze, compare, create, and compose shapes.

Grade 1

3. Students develop an understanding of the meaning and processes of measurement, including underlying concepts such as iterating (the mental activity of building up the length of an object with equal-sized units) and the transitivity principle for indirect measurement.
4. Students compose and decompose plane or solid figures (e.g. put two triangles together to make a quadrilateral) and build understanding of part-whole relationships as well as the properties of the original and composite shapes. As they combine shapes, they recognized them from different perspectives and orientations, describe their geometric attributes, and determine how they are alike and different, to develop the background for measurement and for initial understanding of properties such as congruence and symmetry.

1.MD Measurement and Data

Measure lengths indirectly and directly by iterating length units.
Represent and interpret data.

1.G Geometry

Distinguish between defining attributes (e.g., triangles are closed and three-sided) versus non-defining attributes (e.g., color, orientation, overall size); build and draw shapes to possess defining attributes.
Compose two-dimensional shapes (rectangles, squares, trapezoids, triangles, half-circles, and quarter-circles) or three-dimensional shapes (cubes, right rectangular prisms, right circular cones, and right circular cylinders) to create a composite shape, and compose new shapes from the composite shape.

Grade 2

3. Students recognize the need for standard units of measure (centimeter and inch) and they use rulers and other measurement tools with the understanding that linear measure involves an iteration of units. They recognize that the smaller the unit, the more iterations they need to cover a given length.
4. Students describe and analyze shapes by examining their sides and angles. Students investigate, describe, and reason about decomposing and combining shapes to make other shapes. Through building, drawing, and analyzing two- and three-dimensional shapes, students develop a foundation for understanding area, volume, congruence, similarity, and symmetry in later grades.



DESIGN LAB NATIONAL & STATE LEARNING STANDARDS ALIGNMENT

2.MD Measurement and Data

Measure and estimate lengths in standard units.
Relate addition and subtraction to length.
Work with time and money.
Represent and interpret data.

2.G Geometry

Reason with shapes and their attributes.

Grade 3

2. Students develop and understanding of fractions, beginning with unit fractions.

3. Students recognize an area as an attribute of a two-dimensional regions. They measure the area of a shape by finding the total number of same-size units of area required to cover the shape without gaps or overlaps, a square with sides of a unit length being the standard unit for measuring area. Students understand that rectangular arrays can be decomposed into identical rows or into identical columns. By decomposing rectangles into rectangular arrays of squares, students connect area to multiplication, and justify using multiplication to determine the area of a rectangle.

4. Students describe, analyze, and compare properties of two- dimensional shapes. They compare and classify shapes by their sides and angles, and connect these with definitions of shapes. Students also relate their fraction work to geometry by expressing the area of part of a shape as a unit fraction of the whole.

3.NF Number and Operations – Fractions

Develop understanding of fractions as numbers.

3.MD Measurement and Data

Solve problems involving measurement and estimation of intervals of time, liquid volumes, and masses of objects.
Represent and interpret data.
Geometric measurement: understand concepts of area and relate area to multiplication and addition.
Geometric measurement: recognize perimeter as an attribute of plane figures and distinguish between linear and area measures.

3.G Geometry

Reason with shapes and their attributes.

Grade 4

2. Students develop understanding of fraction equivalence and operations with fractions. They recognize that two different fractions can be equal (e.g., $15/9 = 5/3$), and they develop methods for generating and recognizing equivalent fractions. Students extend previous understandings about how fractions are built from unit fractions, composing fractions from unit fractions, decomposing fractions into unit fractions, and using the meaning of fractions and the meaning of multiplication to multiply a fraction by a whole number.

3. Students describe, analyze, compare, and classify two-dimensional shapes. Through building, drawing, and analyzing two-dimensional shapes, students deepen their understanding of properties of two-dimensional objects and the use of them to solve problems involving symmetry.

4.NF Number and Operations – Fractions

Extend understanding of fraction equivalence and ordering.
Build fractions from unit fractions by applying and extending previous understandings of operations on whole numbers.
Understand decimal notation for fractions, and compare decimal fractions.



DESIGN LAB NATIONAL & STATE LEARNING STANDARDS ALIGNMENT

4.MD Measurement and Data

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

Represent and interpret data.

Geometric measurement: understand concepts of angle and measure angles.

4.G Geometry

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

Grade 5

3. Students recognize volume as an attribute of three-dimensional space. They understand that volume can be measured by finding the total number of same-size units of volume required to fill the space without gaps or overlaps. They understand that a 1-unit by 1-unit by 1-unit cube is the standard unit for measuring volume. They select appropriate units, strategies, and tools for solving problems that involve estimating and measuring volume. They decompose three-dimensional shapes and find volumes of right rectangular prisms by viewing them as decomposed into layers of arrays of cubes. They measure necessary attributes of shapes in order to determine volumes to solve real world and mathematical problems.

5.MD Measurement and Data

Convert like measurement units within a given measurement system.

Represent and interpret data.

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

5.G Geometry

Classify two-dimensional figures into categories based on their properties.

Grade 6

1. Students use reasoning about multiplication and division to solve ratio and rate problems about quantities. By viewing equivalent ratios and rates as deriving from, and extending, pairs of rows (or columns) in the multiplication table, and by analyzing simple drawings that indicate the relative size of quantities, students connect their understanding of multiplication and division with ratios and rates. Thus students expand the scope of problems for which they can use multiplication and division to solve problems, and they connect ratios and fractions. Students solve a wide variety of problems involving ratios and rates.

Students in Grade 6 also build on their work with area in elementary school by reasoning about relationships among shapes to determine area, surface area, and volume. They find areas of right triangles, other triangles, and special quadrilaterals by decomposing these shapes, rearranging or removing pieces, and relating the shapes to rectangles. Using these methods, students discuss, develop, and justify formulas for areas of triangles and parallelograms. Students find areas of polygons and surface areas of prisms and pyramids by decomposing them into pieces whose area they can determine. They reason about right rectangular prisms with fractional side lengths to extend formulas for the volume of a right rectangular prism to fractional side lengths. They prepare for work on scale drawings and constructions in Grade 7 by drawing polygons in the coordinate plane.

6.RP RATIOS AND PROPORTIONAL RELATIONSHIPS

Understand ratio concepts and use ratio reasoning to solve problems.

6.G GEOMETRY

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

Grade 7

(1) Students extend their understanding of ratios and develop understanding of proportionality to solve single- and multi-step problems. Students use their understanding of ratios and proportionality to solve a wide variety of percent problems, including those involving discounts, interest, taxes, tips, and percent increase or decrease. Students solve problems about scale drawings by relating corresponding lengths between the objects or by using the fact that relationships of lengths within an object are



DESIGN LAB NATIONAL & STATE LEARNING STANDARDS ALIGNMENT

preserved in similar objects. Students graph proportional relationships and understand the unit rate informally as a measure of the steepness of the related line, called the slope. They distinguish proportional relationships from other relationships.

(2) Students develop a unified understanding of number, recognizing fractions, decimals (that have a finite or a repeating decimal representation), and percents as different representations of rational numbers. Students extend addition, subtraction, multiplication, and division to all rational numbers, maintaining the properties of operations and the relationships between addition and subtraction, and multiplication and division. By applying these properties, and by viewing negative numbers in terms of everyday contexts (e.g., amounts owed or temperatures below zero), students explain and interpret the rules for adding, subtracting, multiplying, and dividing with negative numbers. They use the arithmetic of rational numbers as they formulate expressions and equations in one variable and use these equations to solve problems.

(3) Students continue their work with area from Grade 6, solving problems involving the area and circumference of a circle and surface area of three-dimensional objects. In preparation for work on congruence and similarity in Grade 8 they reason about relationships among two-dimensional figures using scale drawings and informal geometric constructions, and they gain familiarity with the relationships between angles formed by intersecting lines. Students work with three-dimensional figures, relating them to two-dimensional figures by examining cross-sections. They solve real-world and mathematical problems involving area, surface area, and volume of two- and three-dimensional objects composed of triangles, quadrilaterals, polygons, cubes and right prisms.

7. RP RATIOS AND PROPORTIONAL RELATIONSHIPS

Analyze proportional relationships and use them to solve real-world and mathematical problems.

7.NS THE NUMBER SYSTEM

Apply and extend previous understandings of operations with fractions to add, subtract, multiply, and divide rational numbers.

7.EE EXPRESSIONS AND EQUATIONS

Solve real-life and mathematical problems using numerical and algebraic expressions and equations.

7.G GEOMETRY

Draw, construct and describe geometrical figures and describe the relationships between them.
Solve real-life and mathematical problems involving angle measure, area, surface area, and volume.

Grade 8

8.G GEOMETRY

Understand congruence and similarity using physical models, transparencies, or geometry software.
Understand and apply the Pythagorean theorem.
Solve real-world and mathematical problems involving volume of cylinders, cones and spheres.

Grades 9 – 12

N-Q QUANTITIES

Reason quantitatively and use units to solve problems

Modeling

Modeling links classroom mathematics and statistics to everyday life, work, and decision-making. Modeling is the process of choosing and using appropriate mathematics and statistics to analyze empirical situations, to understand them better, and to improve decisions. Quantities and their relationships in physical, economic, public policy, social, and everyday situations can be modeled using mathematical and statistical methods. When making mathematical models, technology is valuable for varying assumptions, exploring consequences, and comparing predictions with data.



DESIGN LAB NATIONAL & STATE LEARNING STANDARDS ALIGNMENT

Geometry

An understanding of the attributes and relationships of geometric objects can be applied in diverse contexts—interpreting a schematic drawing, estimating the amount of wood needed to frame a sloping roof, rendering computer graphics, or designing a sewing pattern for the most efficient use of material.

G-CO Congruence

Make geometric constructions

G-GMD GEOMETRIC MEASUREMENT AND DIMENSION

Visualize relationships between two- dimensional and three-dimensional objects.

G-MG MODELING WITH GEOMETRY

Apply geometric concepts in modeling situations

SCIENCE STANDARDS

Grades K – 2

Theme: Observations of the Environment

This theme focuses on helping students develop the skills for systematic discovery to understand the science of the natural world around them in greater depth by using scientific inquiry.

K: Living and nonliving things have specific physical properties that can be used to sort and classify.

1: Energy is observed through movement, heating, cooling and the needs of living organisms.

2. Living and nonliving things may move. A moving object has energy. Air moving is wind and wind can make a windmill turn.

Changes in energy and movement can cause change to organisms and the environment in which they live.

Earth and Space Science (ESS) Topics:

Daily and Seasonal Changes

Sun, Energy, and Weather

Earth's Resources

Earth's Surface

Physical Science (PS) Topics

Properties of Everyday Objects and Materials

Motion and Materials

Matter and Forms of Energy

Life Science

Basic Needs of Living Things

Interactions within Habitats

Science Inquiry and Applications

During the years of PreK to grade 4, all students must develop the ability to:

- Observe and ask questions about the natural environment;
- Plan and conduct simple investigations;
- Employ simple equipment and tools to gather data and extend the senses;
- Use appropriate mathematics with data to construct reasonable explanations;
- Communicate about observations, investigations and explanations; and
- Review and ask questions about the observations and explanations of others.



DESIGN LAB NATIONAL & STATE LEARNING STANDARDS ALIGNMENT

Grades 3 – 5

Theme: Interconnections within Systems

This theme focuses on helping students explore the components of various systems and then investigate dynamic and sustainable relationships within systems using scientific inquiry.

3: Matter is what makes up all substances on Earth. Matter has specific properties and exists in different states Earth's resources are made of matter, can be used by living things and can be used for the energy they contain. There are many different forms of energy. Each living component of an ecosystem is composed of matter and uses energy.

4: Heat and electrical energy are forms of energy that can be transferred from one location to another. Matter has properties that allow the transfer of heat and electrical energy. Heating and cooling affect the weathering of Earth's surface and Earth's past environments. The processes that shape Earth's surface and the fossil evidence found can help decode Earth's history.

5: Cycles on Earth, such as those occurring in ecosystems, in the solar system and in the movement of light and sound, result in describable patterns. Speed is a measurement of movement. Change in speed is related to force and mass. The transfer of energy drives changes in systems, including ecosystems and physical systems.

Earth and Space Science (ESS) Topics:

Earth's Resources

Life Science (LS) Topics:

Interactions within Ecosystems

Science Inquiry and Applications

During the years of grades 5 through 8, all students must have developed the ability to:

- Identify questions that can be answered through scientific investigations;
- Design and conduct a scientific investigation;
- Use appropriate mathematics, tools and techniques to gather data and information;
- Analyze and interpret data;
- Develop descriptions, models, explanations and predictions;
- Think critically and logically to connect evidence and explanations;
- Recognize and analyze alternative explanations and predictions; and
- Communicate scientific procedures and explanations.

Grades 6 – 8

Theme: Order and Organization

This theme focuses on helping students use scientific inquiry to discover patterns, trends, structures and relationships that may be inferred from simple principles. These principles are related to the properties or interactions within and between systems.

6: All matter is made of small particles called atoms. The properties of matter are based on the order and organization of atoms and molecules. Cells, minerals, rocks and soil are all examples of matter

7: Systems can exchange energy and/or matter when interactions occur within systems and between systems. Systems cycle matter and energy in observable and predictable patterns.

8: Systems can be described and understood by analysis of the interaction of their components. Energy, forces and motion combine to change the physical features of the Earth. The changes of the physical Earth and the species that have lived on Earth are found in the rock record. For species to continue, reproduction must be successful.

Grades 9 – 12

Physical Science:

SCIENCE INQUIRY AND APPLICATION

During the years of grades 9 through 12, all students must use the following scientific processes with appropriate laboratory safety techniques to construct their knowledge and understanding in all science content areas:



DESIGN LAB NATIONAL & STATE LEARNING STANDARDS ALIGNMENT

- Identify questions and concepts that guide scientific investigations;
- Design and conduct scientific investigations;
- Use technology and mathematics to improve investigations and communications;
- Formulate and revise explanations and models using logic and evidence (critical thinking);
- Recognize and analyze explanations and models; and
- Communicate and support a scientific argument.

Course Content

- ▲ Study of Matter
- ▲ Energy and Waves
- ▲ Forces and Motion

Environmental Science:

SCIENCE INQUIRY AND APPLICATION

During the years of grades 9 through 12, all students must use the following scientific processes with appropriate laboratory safety techniques to construct their knowledge and understanding in all science content areas:

- Identify questions and concepts that guide scientific investigations;
- Design and conduct scientific investigations;
- Use technology and mathematics to improve investigations and communications;
- Formulate and revise explanations and models using logic and evidence (critical thinking);
- Recognize and analyze explanations and models; and
- Communicate and support a scientific argument.

Course Content

- ▲ Earth Systems: Interconnected Spheres of Earth
- ▲ Earth's Resources
- ▲ Global Environmental Problems and Issues

Expectations for Technological and Engineering Design

Grades K-4

Identify problems and potential technological/engineering solutions
Understand the design process, role of troubleshooting
Understand goals of physical, informational and bio-related technologies
Understand how physical technologies impact humans

Grades 5 – 8

Understand and be able to select and use physical and informational technologies
Understand how all technologies have changed over time
Recognize role of design and testing in the design process
Apply research, innovation and invention to problem solving

Grades 9 – 12

Demonstrate an understanding of the relationship among people, technology, engineering and the environment
Identify a problem or need, consider design criteria and constraints
Integrate multiple disciplines when problem solving
Synthesize technological and engineering knowledge and design in problem solving
Apply research, development, experimentation and redesign based on feedback to problem solving
Build, test and evaluate a model or prototype that solves a problem or a need



DESIGN LAB NATIONAL & STATE LEARNING STANDARDS ALIGNMENT

SOCIAL STUDIES STANDARDS

Grade K

Theme: A Child's Place in Time and Space The kindergarten year is the time for children to begin to form concepts about the world beyond their own classroom and communities. Culture, heritage and democratic principles are explored, building upon the

foundation of the classroom experience. Children deepen their learning about themselves and begin to form an understanding of roles, responsibility for actions and decision making in the context of the group setting

Strand: History

Topic: Heritage

Strand: Geography

Topic: Spatial Thinking and Skills

Topic: Human Systems

Strand: Government

Topic: Civic Participation and Skills

Strand: Economic

Topic: Scarcity

Grade 1

Theme: Families Now and Long Ago, Near and Far The first-grade year builds on the concepts developed in kindergarten by focusing on the individual as a member of a family. Students begin to understand how families lived long ago and how they live in other cultures. They develop concepts about how the world is organized spatially through beginning map skills. They build the foundation for understanding principles of government and their roles as citizens

Strand: History

Topic: Heritage

Strand: Geography

Topic: Spatial Thinking and Skills

Topic: Places and Regions

Topic: Human Systems

Strand: Government

Topic: Civic Participation and Skills

Strand: Economic

Topic: Scarcity

Grade 2

Theme: People Working Together Work serves as an organizing theme for the second grade. Students learn about jobs today and long ago. They use biographies, primary sources and artifacts as clues to the past. They deepen their knowledge of diverse cultures and their roles as citizens

Strand: History

Topic: Historical Thinking and Skills

Topic: Heritage

Strand: Geography

Topic: Spatial Thinking and Skills



DESIGN LAB NATIONAL & STATE LEARNING STANDARDS ALIGNMENT

Topic: Places and Regions
Topic: Human Systems

Strand: Government
Topic: Civic Participation and Skills
Topic: Rules and Laws

Strand: Economic
Topic: Economic Decision Making and Skills
Topic: Scarcity
Topic: Financial Literacy

Grade 3

Theme: Communities: Past and Present, Near and Far The local community serves as the focal point for third grade as students begin to understand how their communities have changed over time and to make comparisons with communities in other places. The study of local history comes alive through the use of artifacts and documents. They also learn how communities are governed and how the local economy is organized

Strand: History
Topic: Historical Thinking and Skills
Topic: Heritage

Strand: Geography
Topic: Spatial Thinking and Skills
Topic: Human Systems

Strand: Government
Topic: Civic Participation and Skills

Strand: Economic
Topic: Economic Decision Making and Skills
Topic: Scarcity
Topic: Financial Literacy

Grade 4

Theme: Ohio in the United States The fourth-grade year focuses on the early development of Ohio and the United States. Students learn about the history, geography, government and economy of their state and nation. Foundations of U.S. history are laid as students study prehistoric Ohio cultures, early American life, the U.S. Constitution, and the development and growth of Ohio and the United States. Students begin to understand how ideas and events from the past have shaped Ohio and the United States today

Strand: History
Topic: Heritage

Strand: Geography
Topic: Spatial Thinking and Skills
Topic: Places and Regions
Topic: Human Systems

Strand: Economic
Topic: Economic Decision Making and Skills



DESIGN LAB NATIONAL & STATE LEARNING STANDARDS ALIGNMENT

Grade 5

Theme: Regions and People of the Western Hemisphere In grade five, students study the Western Hemisphere (North and South America), its geographic features, early history, cultural development and economic change. Students learn about the early inhabitants of the Americas and the impact of European exploration and colonization. The geographic focus includes the study of contemporary regional characteristics, the movement of people, products and ideas, and cultural diversity. Students develop their understanding of the relationship between markets and available resources

Strand: History

Topic: Early Civilizations

Topic: Heritage

Strand: Geography

Topic: Spatial Thinking and Skills

Topic: Places and Regions

Topic: Human Systems

Strand: Government

Topic: Civic Participation and Skills

Strand: Economic

Topic: Economic Decision Making and Skills

Grade 6

Theme: Regions and People of the Eastern Hemisphere In grade six, students study the Eastern Hemisphere (Africa, Asia, Australia and Europe), its geographic features, early history, cultural development and economic change. Students learn about the development of river civilizations in Africa and Asia, including their governments, cultures and economic systems. The geographic focus includes the study of contemporary regional characteristics, the movement of people, products and ideas, and cultural diversity. Students develop their understanding of the role of consumers and the interaction of markets, resources and competition

Strand: History

Topic: Early Civilizations

Strand: Geography

Topic: Spatial Thinking and Skills

Topic: Places and Regions

Topic: Human Systems

Strand: Economic

Topic: Economic Decision Making and Skills

Grade 7

Theme: World Studies from 750 B.C. to 1600 A.D.: Ancient Greece to the First Global Age The seventh grade year is an integrated study of world history, beginning with ancient Greece and continuing through global exploration. All four social studies strands are used to illustrate how historic events are shaped by geographic, social, cultural, economic and political factors. Students develop their understanding of how ideas and events from the past have shaped the world today

Strand: Geography

Topic: Spatial Thinking and Skills

Topic: Human Systems

Strand: Economic

Topic: Economic Decision Making and Skills



DESIGN LAB NATIONAL & STATE LEARNING STANDARDS ALIGNMENT

Grade 8

Theme: U.S. Studies from 1492 to 1877: Exploration through Reconstruction The historical focus continues in the eighth grade with the study of European exploration and the early years of the United States. This study incorporates all four social studies strands into a chronologic view of the development of the United States. Students examine how historic events are shaped by geographic, social, cultural, economic and political factors.

Strand: Geography
Topic: Spatial Thinking and Skills
Topic: Human Systems

Strand: Economic
Topic: Economic Decision Making and Skills
Topic: Production and Consumption

Grade 9 – 12

Theme: Contemporary World Issues
The dynamics of global interactions among nations and regions present issues that affect all humanity. These dynamics include: competing beliefs and goals; methods of engagement; and conflict and cooperation. Contemporary issues have political, economic, social, historic and geographic components.

Approaches to addressing global and regional issues reflect historical influences and multiple perspectives. Students can impact global issues through service learning and senior projects

Theme: World Geography
This course builds on students' understanding of geography and spatial thinking. Contemporary issues are explored through the lens of geography. In addition to understanding where physical and cultural features are located and why those features are located as they are, students examine the implications of these spatial arrangements.

Topics:
Civic Participation and Skills
Achievements and Crises
Globalization
Economic Decision Making and Skills
Fundamentals of Economics
Financial Responsibility and Money Management
Civic Participation and Skills
Sustainability
Environment and Society
Movement
Human Settlement



DESIGN LAB NATIONAL & STATE LEARNING STANDARDS ALIGNMENT

ENGLISH LANGUAGE STANDARDS

Grades K-5

Strand: Reading Standards

Topic: Key Ideas and Details

- ⤴ Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.
- ⤴ Determine central ideas or themes of a text and analyze their development; summarize the key supporting details and ideas.

Topic: Craft and Structure

- ⤴ Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.

Topic: Integration of Knowledge and Ideas

- ⤴ Integrate and evaluate content presented in diverse media and formats, including visually and quantitatively, as well as in words.

Strand: Writing Standards

Topic: Text Types and Purposes

- ⤴ Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.

Topic: Research to Build and Present Knowledge

- ⤴ Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.
- ⤴ Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.

Topic: Range of Writing

- ⤴ 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 tasks, purposes, and audiences.

Strand: Speaking and Listening

Topic: Comprehension and Collaboration

- ⤴ Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.
- ⤴ Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.

Topic: Presentation of Knowledge and Ideas

- ⤴ Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.
- ⤴ Make strategic use of digital media and visual displays of data to express information and enhance understanding of presentations.

Strand: Language

Topic: Vocabulary Acquisition and Use

- ⤴ Determine or clarify the meaning of unknown and multiple-meaning words and phrases by using context clues, analyzing meaningful word parts, and consulting general and specialized reference materials, as

DESIGN LAB NATIONAL & STATE LEARNING STANDARDS ALIGNMENT

appropriate.

- ⤴ Acquire and use accurately a range of general academic and domain-specific words and phrases sufficient for reading, writing, speaking, and listening at the college and career readiness level; demonstrate independence in gathering vocabulary knowledge when encountering an unknown term important to comprehension or expression.

Grades 6 – 12

Strand: Reading

Topic: Craft and Structure

- ⤴ Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.

Topic: Integration of Knowledge and Ideas

- ⤴ Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words

Topic: Range of Reading and Level of Text Complexity

- ⤴ Read and comprehend complex literary and informational texts independently and proficiently.

Strand: Writing

Topic: Text Types and Purposes

- ⤴ Write arguments to support claims in an analysis of substantive topics or texts, using valid reasoning and relevant and sufficient evidence.
- ⤴ Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content.

Topic: Production and Distribution of Writing

- ⤴ Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.

Topic: Research to Build and Present Knowledge

- ⤴ Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.
- ⤴ Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.

Topic: Range of Writing

- ⤴ 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 tasks, purposes, and audiences.

Strand: Speaking and Listening

Topic: Comprehension and Collaboration

- ⤴ Prepare for and participate effectively in a range of conversations and collaborations with diverse partners, building on others' ideas and expressing their own clearly and persuasively.
- ⤴ Integrate and evaluate information presented in diverse media and formats, including visually, quantitatively, and orally.

Topic: Presentation of Knowledge and Ideas

- ⤴ Present information, findings, and supporting evidence such that listeners can follow the line of reasoning and the organization, development, and style are appropriate to task, purpose, and audience.
- ⤴ Make strategic use of digital media and visual displays of data to express information and enhance

DESIGN LAB NATIONAL & STATE LEARNING STANDARDS ALIGNMENT

understanding of presentations.

Strand: Language

Topic: Vocabulary Acquisition and Use

- ⤴ Determine or clarify the meaning of unknown and multiple-meaning words and phrases by using context clues, analyzing meaningful word parts, and consulting general and specialized reference materials, as appropriate.

Strand: Reading

Topic: Key Ideas and Details

- ⤴ Read closely to determine what the text says explicitly and to make logical inferences from it; cite specific textual evidence when writing or speaking to support conclusions drawn from the text.

Topic: Craft and Structure

- ⤴ Interpret words and phrases as they are used in a text, including determining technical, connotative, and figurative meanings, and analyze how specific word choices shape meaning or tone.

Topic: Integration of Knowledge and Ideas

- ⤴ Integrate and evaluate content presented in diverse formats and media, including visually and quantitatively, as well as in words.

Topic: Range of Reading and Level of Complexity

- ⤴ Read and comprehend complex literary and informational texts independently and proficiently

Strand: Writing

Topic: Text Types and Purposes

- ⤴ Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately through the effective selection, organization, and analysis of content

Topic: Production and Distribution of Writing

- ⤴ Produce clear and coherent writing in which the development, organization, and style are appropriate to task, purpose, and audience.
- ⤴ Develop and strengthen writing as needed by planning, revising, editing, rewriting, or trying a new approach.
- ⤴ Use technology, including the Internet, to produce and publish writing and to interact and collaborate with others.

Topic: Research to Build and Present Knowledge

- ⤴ Conduct short as well as more sustained research projects based on focused questions, demonstrating understanding of the subject under investigation.
- ⤴ Gather relevant information from multiple print and digital sources, assess the credibility and accuracy of each source, and integrate the information while avoiding plagiarism.

Range of Writing

- ⤴ 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 tasks, purposes, and audiences.



DESIGN LAB NATIONAL & STATE LEARNING STANDARDS ALIGNMENT

VISUAL ART STANDARDS

All Grades

Enduring Understandings

- Personal Choice and Vision: Students construct and solve problems of personal relevance and interest when expressing themselves through visual art.
- Critical and Creative Thinking: Students combine and apply artistic and reasoning skills to imagine, create, realize and refine artworks in conventional and innovative ways.
- Authentic Application and Collaboration: Students work individually and in groups to focus ideas and create artworks that address genuine local and global community needs.
- Literacy: As consumers, critics and creators, students evaluate and understand artworks and other texts produced in the media forms of the day

Progress Points

Grades K – 2

- B. Explore a range of art concepts and artworks and construct meaning about the works.
- C. Connect making art with individual choice and understanding personal cultural identity.
- D. Produce artworks that express and represent their experiences, imagination and ideas using a range of media including new technologies.
- E. Form and express opinions about artworks and apply critical and creative thinking skills to assess and refine their artworks

Grades 3-5

- C. Demonstrate technical skill, craftsmanship and reasoning abilities in solving visual art problems using appropriate tools, media and technologies.
- D. Express personal responses to artistic works giving reasons for their interpretations and preferences.
- E. Provide and use feedback to improve and refine their artworks.

Grades 6-8

- A. Recognize that examining the artistic works of others leads to understanding about cultural traditions, history, politics and their world.
- B. Describe, interpret and evaluate artworks empathizing with and challenging the opinions of others.
- C. Select, manipulate and refine arts concepts and processes to produce artworks that visually communicate their experiences, ideas and viewpoints.
- D. Develop and use criteria for making judgments about artworks and visual imagery and use descriptive language when talking and writing about works of art.
- E. Connect the content of visual artworks to interdisciplinary concepts, issues and themes.

Grades 9 – 12

- C. Address and communicate complex visual and conceptual ideas using a range of technical skill and art media including new technologies.
- E. Apply reasoning skills to communicate key ideas expressed in their artworks and the works of others and use appropriate criteria and language to critique the works.
- G. Demonstrate flexibility and reflective habits when creating visual art forms in a variety of artistic contexts and environments.
- H. Demonstrate respect for, and effectively work with, socially and culturally diverse teams or content to increase innovation and quality.

Cognitive & Creative Learning Processes

- ⤴ Perceiving/Knowing (PE)
- ⤴ Producing/Performing (PR)
- ⤴ Responding/Reflecting (RE)



DESIGN LAB NATIONAL & STATE LEARNING STANDARDS ALIGNMENT

Grade K

7PE Explore their environments and experiences for artmaking ideas.

4PR Reduce objects into basic shapes and lines in relation to the whole image.

5PR Engage in artmaking that explores and combines various forms of symbolic representation including words, symbols, images, music and movement.

1RE Describe their artworks and efforts and share their artmaking processes.

2RE Show confidence and pride in their artistic accomplishments.

3RE Connect their personal experiences to what they see in works of art.

4RE Communicate the ideas and stories they see in works of art.

Grade 1

1PE Recognize and describe that people create art and art objects to communicate ideas and serve different purposes.

6PE Generate artmaking ideas from their daily experiences and the environment.

1PR Demonstrate beginning skill and craftsmanship in the use of art materials and tools.

2RE Revise works of art to a level of personal satisfaction.

3RE Share their artmaking processes with peers.

4RE Explain how personal interests and experiences are reflected in the subject matter of artworks

7RE Describe how elements and principles communicate meaning in works of art.

Grade 2

1PE Notice and point out details and respond to expressive features in artworks.

7PE Generate artmaking ideas from their daily experiences and the environment.

1PR Demonstrate increasing skill and craft in the use of art tools and materials with attention to their diverse qualities.

2PR Envision what cannot be observed directly and depict it visually.

3PR Create artworks based on imagination and observation of familiar objects and scenes.

4PR Demonstrate flexibility in their creative processes and use of art materials

2RE Understand the difference between assessing the quality of an artwork and their personal preference for the work. 3RE

Relate the subject matter and ideas in their own artworks to those in the works of others.

Grade 3

5PE Provide examples of how we encounter art and artists in everyday life

3PR Find and solve problems of personal relevance and interest when developing artmaking ideas.

4PR Create artworks that demonstrate awareness of two- and three-dimensional space.

5PR Show increasing attention to the nuances of elements and principles of design when creating personal works of art.

6PR Collaborate with others to create a work of art that addresses an interdisciplinary theme

1RE Examine and describe how art and design principles are used by artists to create visual effects.

3RE Compare and contrast their opinions of a work of art with those of their peers.

5RE Use feedback and self-assessment to improve the quality of personal artworks.

Grade 4

1PE Use sensory details and descriptive language to identify and describe universal themes, subject matter and ideas expressed across arts disciplines

1PR Identify, select and vary art materials, tools and processes to achieve desired results in their artwork.



DESIGN LAB NATIONAL & STATE LEARNING STANDARDS ALIGNMENT

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.
6PR Demonstrate technical skill through the integration of common processes and topics from other subject areas.

1RE Identify qualities that contribute to the design and meaning of their artworks and the works of others.
3RE Recognize and describe the relationship of artworks to their social and cultural contexts.
6RE Give and use constructive feedback to produce artworks that achieve learning goals

Grade 5

3PE Investigate the role of cultural objects in our everyday environment.
4PE Compare and contrast how form and style are influenced by social, environmental and political views in artworks.

3PR Experiment with various ideas and visual art media to solve a problem that addresses a contemporary social issue.
4PR Select and use the elements and principles of art and design to communicate understanding of an interdisciplinary concept.
5PR During collaborative artmaking experiences, demonstrate respect and support for peer ideas and creativity.

4RE Communicate how personal artistic decisions are influenced by social, environmental and political views.
5RE Express what was learned and the challenges that remain when assessing their artworks.
6RE Use criteria to assess works of art individually and collaboratively

Grade 6

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.

1PR Demonstrate technical skill and craftsmanship in the use of materials, tools and technology to solve an artistic problem.
2PR Experiment with a variety of techniques and working methods when creating an original work of art.
3PR Generate ideas and engage in thoughtful planning when solving a visual art problem.
4PR Transform perceptions and processes into two- and three-dimensional artworks.
6PR Integrate elements of art and design to solve interdisciplinary problem

4RE Defend artistic decisions using appropriate visual art vocabulary.
5RE Assess personal progress to improve craftsmanship and refine and complete works of art.

Grade 7

2PE Identify professions that use artistic skills and problem-solving.
5PE Examine designed objects and identify the processes and decisions made to produce them with attention to purpose, aesthetics, social issues and cultural and personal meaning

1PR Improve craftsmanship and refine ideas in response to feedback.
2PR Manipulate materials, tools and technology in conventional and unconventional ways to create a work of art.
3PR Represent depth and volume in their two-dimensional works of art.
4PR Apply art and design principles in the construction of three-dimensional artworks.
5PR Create a work of art in collaboration with others to address a social or cultural issue.
6PR Demonstrate understanding of visual literacy, illustration and graphic communication.

3RE Interpret selected artworks and synthesize their interpretations with the interpretations of others. 4RE Classify and categorize examples of artworks from various eras and cultures
6RE Develop and use criteria to guide reflection and assessment of selected personal artworks.
7RE Assess one's own work and working process and the work of others in relation to criteria and standards

Grade 8

2PE Develop awareness and articulate various functions of art.



DESIGN LAB NATIONAL & STATE LEARNING STANDARDS ALIGNMENT

3PE Connect science and technology with the development of art in various cultures.

4PE Understand how social, cultural and political factors affect what contemporary artists and designers create.

5PE Discover how culture, age, gender and background influence audience perception of art.

6PE Identify professions that use artistic and problem-solving skills.

1PR Select, organize and manipulate skills, elements and techniques appropriate to the art form when making art.

2PR Demonstrate increased technical skill and craftsmanship by using more complex processes and materials to design and create two- and three-dimensional artworks.

3PR Use critical thinking and visual literacy to communicate a specific idea.

5PR Collaborate to create a thematic work that combines visual art with other arts disciplines

2RE Explain and defend their artistic decisions using visual art vocabulary.

3RE Identify examples of visual culture and discuss how visual art is used to shape individual and social behavior

5RE Identify professions that use art and design, and explore the relationship between art, technology and industry.

6RE Develop and apply criteria to assess personal works for content and craftsmanship.

Grade 9-12 Beginning

2PE Identify and describe the sources artists use for visual reference and to generate ideas for artworks.

3PE Identify the relationship between community or cultural values and trends in visual art.

6PE Describe the decisions made in the design of everyday objects.

1PR Demonstrate basic technical skill and craftsmanship with various art media when creating images from observation, memory and imagination.

2PR Apply the elements and principles of art and design using a variety of media to solve specific visual art problems.

3PR Explore multiple solutions to visual art problems through preparatory work.

4PR Establish the appropriate levels of craftsmanship when completing artworks.

2RE Identify assessment practices to manage, monitor and document their learning.

3RE Use appropriate vocabulary to define and describe techniques and materials used to create works of art.

Grade 9-12 Intermediate

2PE Describe sources visual artists use to generate ideas for artworks.

3PE Explore the relationship between community or cultural values and trends in visual art.

6PE Connect processes and decisions made in the design of everyday objects, environments, and communications

1PR Demonstrate proficient technical skills and craftsmanship with various art media when creating images from observation, memory, or imagination.

2PR Make informed choices in the selection of materials and techniques as they relate to solving a visual problem.

3PR Generate a variety of solutions to visual arts problems through preparatory work.

4PR Establish and apply appropriate levels of craftsmanship to complete artworks

2RE Apply assessment practices to revise and improve their artworks and to document their learning.

3RE Expand the use of arts-specific vocabulary to define and describe techniques and materials used to create works of art.

Grade 9-12 Accelerated

2PE Analyze and explain the factors that influence artworks

6PE Identify, examine and understand the aesthetic, stylistic and functional considerations of designing objects, environments and communications.

1PR Demonstrate increased technical skill and craftsmanship with various art media when creating images from observation, memory and imagination.

2PR Make informed choices in the selection of materials and techniques that relate to solving a visual problem.



DESIGN LAB NATIONAL & STATE LEARNING STANDARDS ALIGNMENT

3PR Solve visual art problems that demonstrate skill, imagination and observation.

4PR Prepare artworks for display that demonstrate high levels of craftsmanship.

2RE Practice self-assessment to understand their progress and prioritize steps for improvement.

3RE Explain artistic processes from idea conception to completion of a work of art using descriptive and arts-specific terminology.

Grade 9-12 Advanced

6PE Apply self-direction, independence and a purposed approach when defining and solving a visual design problem.

1PR Demonstrate advanced technical skills and craftsmanship with various art media when creating images from observation, memory and imagination.

2PR Use criteria to revise works-in-progress and describe changes made and what was learned in the process

4RE Analyze and explain the relationship between the content and ideas in artworks and the use of media and compositional elements.

6RE Engage in discourse and express a point of view about issues related to the public display of works of art.