

Teacher's Guide

digTM
INTO HISTORY

**Winter Count
Robes**

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Time**

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**What
Time
Is It?**

Teacher’s Guide for *Dig: What Time Is It?*

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OVERVIEW

*In this magazine, readers will learn how different people conceptualize and mark time. **Dig: What Time Is It?** includes information about*

how chronometers have impacted life at sea and how a variety of timekeeping devices were invented or constructed.

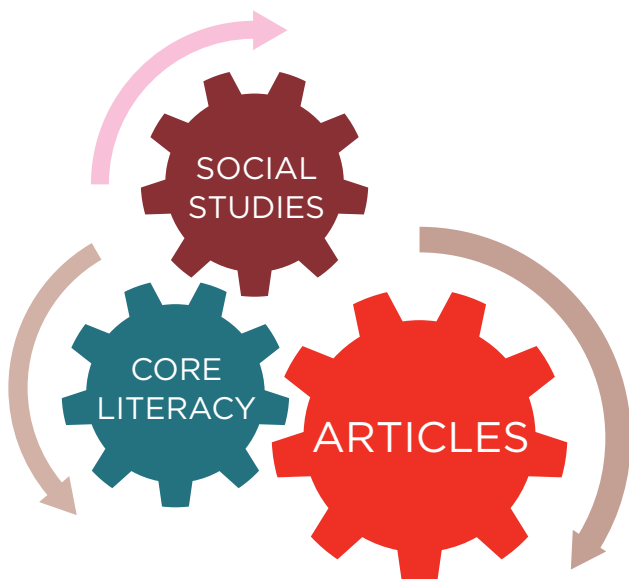
ESSENTIAL QUESTION:

How do humans conceptualize and track time?

We invite you to use this magazine as a flexible teaching tool, ideal for providing interdisciplinary instruction of social studies and science content as well as core literacy concepts. Find practical advice for teaching individual articles or use a mini-unit that helps your students make cross-text connections as they integrate ideas and information.

READ INDIVIDUAL ARTICLES PAGES 4 - 11

Each article in this magazine is well-suited for teaching literacy concepts and content area knowledge. For each individual article in this guide, you'll find the following:



TEACH A MINI-UNIT PAGES 13 - 15

Magazine articles can easily be grouped to make cross-text connections and comparisons. Our Mini Unit allows students to read and discuss multiple articles and integrate ideas and information (CCSS.Reading.9). Discussing multiple articles (CCSS.Reading.9) prepares students to write texts to share and publish in a variety of ways (CCSS.Writing.2).

Essential Question: How do humans conceptualize and track time?

MAGAZINE ARTICLES	CORE CONTENT CONCEPT	LITERACY SKILLS	CORRESPONDING CCSS ANCHOR STANDARDS
When Time Stood Still Expository Nonfiction	Changes in technology represent examples of historical change.	<ul style="list-style-type: none"> Close Reading Interpret Visual Information Analyze Text Structure Write Narrative Texts 	<i>Reading 1, 2, 3, 5 & 7</i> <i>Writing 3</i>
American Woodhenge Expository Nonfiction	The needs of a culture influence the technology it creates.	<ul style="list-style-type: none"> Close Reading Evaluate Word Choice Determine Author's Purpose Research and Write 	<i>Reading 2, 4, 5 & 6</i> <i>Writing 2 & 7</i>
Calendars... Expository Nonfiction	The needs of a culture influence the technology it creates.	<ul style="list-style-type: none"> Close Reading Interpret Visual Information Analyze Multiple Perspectives Debate a Topic 	<i>Reading 1, 2, 3, 7 & 9</i> <i>Speaking & Listening 1 & 2</i>
All in Your Head Expository Nonfiction	Environmental needs influence cultural patterns of behavior.	<ul style="list-style-type: none"> Close Reading Evaluate Tone Evaluate Word Choice Research and Write 	<i>Reading 1, 2 & 4</i> <i>Writing 1 & 7</i>
Lakota Winter Count Expository Nonfiction	People's perspectives shape the historical sources they create.	<ul style="list-style-type: none"> Close Reading Analyze Text Features Analyze an Argument Present an Opinion 	<i>Reading 1, 2, 5 & 8</i> <i>Speaking & Listening 4</i>
Help! I'm Lost Without My Watch! Expository Nonfiction	The needs of a culture influence the technology it creates.	<ul style="list-style-type: none"> Close Reading Analyze Literary Devices Evaluate Tone Write Arguments 	<i>Reading 1, 3, 4 & 5</i> <i>Writing 1</i>
Sand, Bells, and Watches Expository Nonfiction	The needs of a culture influence the technology it uses.	<ul style="list-style-type: none"> Close Reading Interpret Visual Information Evaluate Word Choice Write Narrative Texts 	<i>Reading 1, 2, 4, 5 & 7</i> <i>Writing 3</i>
The Thrill of Time Travel Expository Nonfiction	People's perspectives shape the historical sources they create.	<ul style="list-style-type: none"> Close Reading Analyze Text Structure Analyze Point of View Analyze Poetry Write Narrative Texts 	<i>Reading 1, 2, 4, 5 & 6</i> <i>Writing 3</i>

Comparing Texts: CCSS Reading 9

Mini-Unit: CCSS Reading 1, Reading 7, Writing 9, Writing 10

ARTICLE: When Time Stood Still

Magazine pages 2 - 3, Expository Nonfiction



The ability to tell time is necessary to humans, and many devices, from the sundial to the modern egg timer, have been invented for the purpose.

ESSENTIAL QUESTION

How do humans conceptualize and track time?

CORE CONTENT CONCEPT

Social Studies Changes in technology represent examples of historical change.

CROSS-CURRICULAR EXTENSION

Science Build a sundial and use it to mark time while studying the principles behind its effectiveness.

KEY VOCABULARY

chronometer (p. 3) a watch or clock that measures time very exactly

refined (p. 2) improved to be more precise or exact

reservoir (p. 2) a place (such as a part of a machine) where a liquid is stored

PREPARE TO READ

Ask if the students have ever been late for something. What were the results? Have them imagine a society where no one kept track of time. What would it be like? Lead them to draw conclusions about why it's important to track time.

CLOSE READING AND TEXT ANALYSIS

Key Ideas

- Make a chart of each device used to tell time. Include how it works and its limitations. *CCSS Reading 3*
- What is the theme of this article? Highlight details in the text that helped you determine the theme. *CCSS Reading 1 & 2*

Craft and Structure

- **Interpret Visual Information** Study the illustrations that accompany the text. Note which section of the text each relates to. How does each improve your understanding of the topic? *CCSS Reading 7*
- **Analyze Text Structure** How is this text organized? What role does each section play in the organization and development of the ideas presented? *CCSS Reading 5*

WRITING

Write Narrative Texts Write about a time in your life when time was important. Were you late for something, waiting for something, or in the right place at the right time?

Lexile Score: 1110



AMERICAN WOODHENGE

by A. Cooper Redburn

The Cahokia people of North America constructed woodhenges, groups of wooden posts set in a circle, to mark the equinoxes and solstices. These structures were used for ceremonial purposes as well as their time-keeping needs. The structures were made of wooden posts set in a circle, to mark the equinoxes and solstices. These structures were used for ceremonial purposes as well as their time-keeping needs. The structures were made of wooden posts set in a circle, to mark the equinoxes and solstices. These structures were used for ceremonial purposes as well as their time-keeping needs.

The Cahokia people of North America constructed woodhenges, groups of wooden posts set in a circle, to mark the equinoxes and solstices. These may have served ceremonial purposes as well as their time-keeping needs.

ESSENTIAL QUESTION

How do humans conceptualize and track time?

CORE CONTENT CONCEPT

Social Studies The needs of a culture influence the technology it creates.

CROSS-CURRICULAR EXTENSION

Science How do the rotation and revolution of the earth lead to the existence and characteristics of the equinoxes and solstices?

KEY VOCABULARY

palisade (p. 6) a high fence made of pointed stakes that was used in the past to protect a building or area

pinpoint (p. 5) very exact or precise

ritual (p. 5) done as part of a ceremony or ritual

PREPARE TO READ

Look at the definition of American Woodhenge that is given with the article. Encourage students to speculate about how a henge might be used to tell time.

CLOSE READING AND TEXT ANALYSIS

Key Ideas

- Highlight details in the text that explain how the American Woodhenge may have been constructed. *CCSS Reading 2*
- Underline details in the text that show how geography allowed the Cahokia to build the American Woodhenge. Which features did they use? *CCSS Reading 2*

Craft and Structure

- **Evaluate Word Choice** Reread the opening paragraphs and note the word “when.” Why is the third usage in quotation marks? How does it relate to the other two usages? *CCSS Reading 4*
- **Determine Author’s Purpose** What is the purpose of this text? How does each section relate to the purpose? What elements helped you determine the purpose? *CCSS Reading 5 & 6*

WRITING

Research and Write Research the Cahokia people and write an essay explaining what else archaeologists have learned about them.



The Gregorian, Coptic, and Chinese calendars serve to help people keep track of time, but how they are used and by whom differs.

ESSENTIAL QUESTION

How do humans conceptualize and track time?

CORE CONTENT CONCEPT

Social Studies The needs of a culture influence the technology it creates.

CROSS-CURRICULAR EXTENSION

English Language Arts Research a common expression related to time and write an essay explaining its origins and meaning.

KEY VOCABULARY

compelling (p. 10) strong and forceful; causing you to feel that you must do something

martyr (p. 11) a person who is killed or who suffers greatly for a religion, cause, etc.

refinement (p. 8) the act or process of improving something

PREPARE TO READ

Discuss all of the ways you and your students use the calendar. Explain that there are other calendars and ask if the students have experience with any.

CLOSE READING AND TEXT ANALYSIS

Key Ideas

- Create a chart of the calendars mentioned. Include information on where and how each was developed and is used today. *CCSS Reading 1*
- Highlight details in the text that explain the relationship between each calendar and a religion. *CCSS Reading 2 & 3*

Craft and Structure

- **Interpret Visual Information** Study the images associated with the article. How does each relate to the text? Why might each image have been chosen to accompany the text? *CCSS Reading 7*
- **Analyze Multiple Perspectives** How does each author build the theme of each section? How do they show each group's relationship to time? *CCSS Reading 9*

SPEAKING AND LISTENING

Debate a Topic Work with a partner to determine which calendar is best. Once you have decided, prepare materials to use in a debate with other pairs in your class. Once every pair has participated, the class will vote on the best calendar.

ARTICLE: All in Your Head?

Magazine pages 14 - 15, Expository Nonfiction



Scientists have shown that how a culture uses language impacts its ability to conceptualize time.

ESSENTIAL QUESTION

How do humans conceptualize and track time?

CORE CONTENT CONCEPT

Social Studies Environmental needs influence cultural patterns of behavior.

CROSS-CURRICULAR EXTENSION

Science Research how the brain processes language.

KEY VOCABULARY

dominate (p. 15) to be most common

progression (p. 15) the process of developing over a period of time

PREPARE TO READ

Use the image on page 14 to lead into a discussion of what it means for something to be “all in your head.” Discuss the term as an idiom and as a literal expression and ask how time can be all in your head.

CLOSE READING AND TEXT ANALYSIS

Key Ideas

- Create a chart of each culture mentioned, the form its language takes, and how this has impacted the people’s ability to conceptualize time. *CCSS Reading 1*
- What can you infer about the impact of industrialization on a people’s need to conceptualize time to a greater degree? Highlight details in the text that support your inference. *CCSS Reading 1 & 2*

Craft and Structure

- **Evaluate Word Choice** What is meant by the term “abstract concept”? What specific details in the text help you determine its meaning? How does understanding this phrase help you understand the article? *CCSS Reading 4*
- **Evaluate Tone** What is the author’s tone? Which specific words and phrases give you this impression? *CCSS Reading 4*

WRITING

Research and Write Conduct further research on how the languages we know influence the way we conceptualize thought and write an argument about the importance of learning languages. Remember to support your argument with evidence.



Native American groups in the Great Plains region often used a winter count robe to mark time. They recorded images of the most important event of the year, as determined by tribal or band elders, on the robes.

ESSENTIAL QUESTION

How do humans conceptualize and track time?

CORE CONTENT CONCEPT

Social Studies People's perspectives shape the historical sources they create.

CROSS-CURRICULAR EXTENSION

Art Paint an image of an important event in your life on a piece of leather in the style of a winter robe.

KEY VOCABULARY

skirmish (p. 17) a brief and usually unplanned fight during a war

spectacular (p. 17) causing wonder and admiration

PREPARE TO READ

Share images or symbols of important events in your life with your students. Discuss the importance of saving mementos or pictures and have students share some of their own.

CLOSE READING AND TEXT ANALYSIS

Key Ideas

- What can you conclude about the Native American tribes based on the events they chose to remember from each year? Cite details from the text to support your answer. *CCSS Reading 1 & 2*
- What can you infer about the impact of the arrival of Europeans on the tribes native to the Plains? Which details in the text support this inference? *CCSS Reading 1 & 2*

Craft and Structure

- **Analyze Text Features** What is the role of the introduction to this article? How does it introduce the concepts involved in the winter count? How does it help the author develop the theme of the text? *CCSS Reading 5*
- **Analyze an Argument** What evidence does the author present for the indeterminate age of the winter count? Is this evidence sufficient? *CCSS Reading 8*

SPEAKING AND LISTENING

Present an Opinion Consider important events of the past year. Decide which event you would like to place on a class winter count robe and create a multimedia presentation to convince the class that your choice is best.

ARTICLE: Help! I'm Lost Without My Watch!

Magazine pages 18 - 21, Expository Nonfiction



Although celestial objects were used to calculate latitude, no means existed for calculating longitude until the British Parliament began a contest to prevent the loss of further ships. A clockmaker, John Harrison, solved the problem.

ESSENTIAL QUESTION

How do humans conceptualize and track time?

CORE CONTENT CONCEPT

Social Studies The needs of a culture influence the technology it creates.

CROSS-CURRICULAR EXTENSION

Engineering Study clockworks and the mechanical theories behind them.

KEY VOCABULARY

blunder (p. 18) a bad mistake made because of stupidity or carelessness

venture (p. 19) to go somewhere that is unknown, dangerous, etc.

PREPARE TO READ

Complete the first two columns of a KWLS chart (p. 17) on why it is important to know what time it is. Explain that students will read about a situation where knowing the time in two locations at once is important.

CLOSE READING AND TEXT ANALYSIS

Key Ideas

- Create a timeline of events in the text. *CCSS Reading 3*
- Using details from the text, write a character sketch of John Harrison. Include information about his character traits as well as his family. *CCSS Reading 1 & 3*

Craft and Structure

- **Analyze Literary Devices** Why did the author begin the text with the tragedy? How does this beginning contribute to the development of the remaining text? *CCSS Reading 5*
- **Evaluate Tone** Read the quotes by King George III. What do they suggest about his personality and his attitude toward the Committee? Do his actions support your conclusions? *CCSS Reading 4*

WRITING

Write Arguments Do you believe the Harrison family should have received the full prize? Why or why not? Cite details from the text to support your argument.



The half-hour glass and bell system was used to make sure crews aboard ships were all on watch for an equal time period, allowing for a smooth voyage.

ESSENTIAL QUESTION

How do humans conceptualize and track time?

CORE CONTENT CONCEPT

Social Studies The needs of a culture influence the technology it uses.

CROSS-CURRICULAR EXTENSION

Math Create math problems using the watches and bells and complete problems created by classmates. For example, what time is at six bells during the forenoon watch?

KEY VOCABULARY

interval (p. 24) a period of time between events

monotonous (p. 25) used to describe something that is boring because it is always the same

nautical (p. 27) relating to ships and sailing

PREPARE TO READ

Discuss the challenges of working when you can't track time. How do you know when you're done? When it is someone else's turn? Allow students to share their experiences with not being able to track time.

CLOSE READING AND TEXT ANALYSIS

Key Ideas

- Consider the title and the illustrations on pages 24 and 25. What do you believe the article is about? What specific details lead you to make this prediction?
CCSS Reading 1, 2 & 7
- How does the shipboard setting impact timekeeping and the needs of the crew in relation to time? *CCSS Reading 1 & 3*

Craft and Structure

- Interpret Visual Information** Study the images associated with the article. Mark the section of text that each relates to. How does it add to your understanding of the information presented? *CCSS Reading 5 & 7*
- Evaluate Word Choice** Create a three-column chart indicating each nautical term used, its meaning, and the context clues or other information that helped you determine its meaning. Use a dictionary to further clarify the meanings. *CCSS Reading 4*

WRITING

Write Narrative Texts Imagine you are in the crew of an ancient sailing ship. Write a letter to a loved one back home. Explain the nature of life at sea. Be sure to include information about your shipboard duties and schedule.



Scientists, science fiction authors, and philosophers have pondered the nature of time and the impacts of time travel, assuming it were possible.

ESSENTIAL QUESTION

How do humans conceptualize and track time?

CORE CONTENT CONCEPT

Social Studies People's perspectives shape the historical sources they create.

CROSS-CURRICULAR EXTENSION

English Language Arts Read and discuss science fiction stories related to time travel.

KEY VOCABULARY

manipulate (p. 30) to move or control (something) with your hands or by using a machine

paradox (p. 31) something (such as a situation) that is made up of two opposite things and that seems impossible but is actually true or possible

PREPARE TO READ

Imagine you can travel through time. What time period would you visit? Why? What would you see there? Who might you meet? Have your students imagine their own time travel journeys.

CLOSE READING AND TEXT ANALYSIS

Key Ideas

- What can you conclude about the relationship between science and science fiction? Cite evidence from the text to support your answer. *CCSS Reading 1 & 2*
- Underline details in the text that support the idea that sci-fi has consistent rules. *CCSS Reading 2*

Craft and Structure

- **Analyze Text Structure** How does the opening limerick relate to the remainder of the text? Why might the author have chosen to include it? What tone does it establish? *CCSS Reading 5*
- **Analyze Point of View** What is the author's opinion of time travel? Which specific words and phrases give you this impression? How does it impact your understanding of the topic presented? *CCSS Reading 6*
- **Analyze Poetry** What is the structure of a limerick? What is its tone? *CCSS Reading 4 & 5*

WRITING

Write Narrative Texts Work with a partner to write a skit around the rules for time travel presented in the article. Consider who your characters are and why they need to travel. Will any of the rules prevent them from making their journey? Will they break one? What are the consequences?

CROSS-TEXT CONNECTIONS

SYNTHESIZE: Guide students to compare articles they read. Help students find the connections between pieces of information in multiple articles. Use prompts, such as the following examples, to have students work together to **Integrate Ideas and Information** (*CCSS.Reading.9*).

- Refer to “Help! I’m Lost Without My Watch!” and “Sand, Bells, and Watches” to learn about the importance of time at sea. Which chronometers were used and why? How has the technology changed over time?
- Reread all of the articles to create a chart listing each chronometer mentioned and how or why it was used. Add time periods and information about the culture or people who were served by the devices if appropriate.
- Use information from “Calendars...,” “All in Your Head,” “Lakota Winter Count,” and “The Thrill of Time Travel” to compare how culture, language, and increased scientific understanding impact our conceptualization of time.
- Study “Lakota Winter Count” and “The Thrill of Time Travel” to gain a better understanding of how our views of time lead us to create artistic products.
- Reread all of the articles to create a timeline of timekeeping technology.

EXPLORATORY LEARNING - FLEXIBLE MINI-UNIT DESIGN

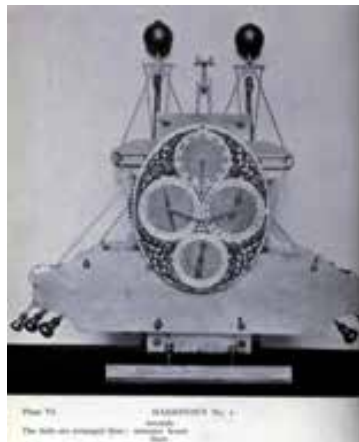
Timekeeping devices have been part of the fashion world since the pocket watch. Even today, there are iWatches, clock earrings, and T-shirts sporting Stonehenge or sundials. In this Mini-Unit your students will devise their own timely fashions and explain the history for whichever chronometer they choose to wear.

ENGAGE

READ FOR A PURPOSE

APPLY

ENGAGE: Engage students in the topic of time by having them place the timekeeping devices pictured in chronological order to show how chronometers have evolved over time. Look at the images with your students and discuss them. Consider together which device or structure may have come first. Then, have students continue in pairs or independently until all of the images are ordered. Review the images together to determine the correct order.



Discuss how each item represents the culture it came from and how those people perceived time.

READ FOR A PURPOSE

INTRODUCE THE ACTIVITY: TIMELY FASHION SHOW Bring in any fashion accessories or items you own related to time or show pictures of some. Explain that the students will be creating wearable models of timekeeping devices and describing their history, how they work, who used them, and why. The presentation will be part of a fashion show.

Present the students with a list of timepieces discussed in the issue and decide if you'll have them work independently or in pairs. Also decide if you'll allow them to use resources other than the magazine. Help each student (or pair) select a device to learn more about.

RETURN TO THE TEXT: Explain to students that before they can create their fashions they must gather information to include in their presentations. The following list contains the chronometers found within each article.

When Time Stood Still (p. 2)

Candles, sundial, water clock, hourglass, egg timer, watch

American Woodhenge (p. 4)

American Woodhenge

Calendars... (p. 8)

Gregorian, Coptic and Chinese calendars

Lakota Winter Count (p. 16)

Winter count robes

Help! I'm Lost Without My Watch! (p. 18)

Harrison's clocks

Sand, Bells, and Watches (p. 24)

Hourglasses and bells, GPS

As students read the articles, remind them to keep the issue's essential question in mind and to note details on the history, function, and uses of their timepieces.

APPLY: TIMELY FASHION SHOW

Fashion Show Intro:

Once students have decided on a topic and taken notes, discuss how fashion shows are structured. Explain that they will narrate for themselves (or select one partner to narrate while the other acts as the model). Give them some of the language commonly found in fashion shows. (See box below for examples.) Establish a time limit for each presentation and tell them they will be able to rehearse with a stopwatch, timer, or clock to help them.

Fashionable Language

Sporting a (name or adjective) design

Now we have (name) wearing...

Notice the...

Fashionable Materials

Old T-shirts (turned inside out to hide designs)

Fabric markers or paint

Wire

String

Scissors

Crayons or markers

STEP 1: GET ORGANIZED

Have students use the Fashion Show Template on page 16 to organize their notes and plan their presentations. Extra boxes are for any details that don't fit in another box. Each item can be copied or glued to an index card for use during the presentation. Students can change the order of their cards to help develop a cohesive presentation.

STEP 2: CREATE FASHIONS

Decide if students will be allowed to use fashion accessories they already own and discuss how they will create their designs. Students can fashion wire into a model attached to string as a necklace, paint T-shirts, or create cardboard placards. Encourage their creativity in using other objects to develop their designs as well, but have them clear ideas with you before proceeding.

STEP 3: SHOW TIME!

Once all designs and presentations are complete, conduct your fashion show. Use a timer and remind students of any time limits you may have set.

GRAPHIC ORGANIZERS

Fashion Show Template

Name: _____

Introduce yourself and your design:	Reason this timepiece was needed:
When it was in use:	Who used it:
How it works:	Is it still in use? If not, what replaced it and when?
Inventor:	

GRAPHIC ORGANIZERS

KWLS

K What I Know	W What I Want to Know	L What I Learned	S What I Still Want to Know

Meeting State and National Standards: Core Instructional Concepts

The articles in this magazine provide a wealth of opportunities for meeting state and national instructional standards. The following pages contain charts listing Core Instructional Concepts for each of three curricular areas: English Language Arts, Science, and Social Studies.

USING THE STANDARDS CHARTS

ELA

Corresponding CCSS anchor standards have been listed next to each item on the Core Instructional Concepts chart. To customize the chart, add your own grade, state, or district standards in the last column. Match the concepts and standards from the chart to the activities on each page of the Teacher's Guide to complete your lesson plans.

SOCIAL STUDIES

Content Concepts in each Article Guide are based on Dimension 2 of the CS Framework for Social Studies: Applying Disciplinary Concepts and Tools. Use the last column in the accompanying chart to correlate these concepts to your state or district standards.

SCIENCE

Content Concepts in each Article Guide are drawn from the Three Dimensions of the Next Generation Science Standards. You will also find connections to these concepts within individual close-reading questions.

MATH

Content Opportunities for math activities are provided in the Cross-Curricular extensions on each Article Guide page.

CORE INSTRUCTIONAL CONCEPTS: READING, LITERATURE, AND LANGUAGE ARTS

SKILLS AND CONCEPTS	CCSS ANCHOR STANDARD	CORRESPONDING STANDARD
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KEY IDEAS AND DETAILS

Read closely to determine what a text says explicitly.	Reading 1	
Make logical inferences to determine what the text communicates implicitly.	Reading 1	
Cite specific textual evidence to support conclusions drawn from the text.	Reading 1	
Determine central ideas or themes of a text and analyze their development.	Reading 2	
Summarize key supporting details and ideas.	Reading 2	
Analyze how individuals, events, and ideas develop and interact over the course of a text.	Reading 3	

CRAFT AND STRUCTURE

Interpret words and phrases as they are used in a text.	Reading 4	
Determine technical, connotative, and figurative meanings.	Reading 4	
Analyze how specific word choices shape meaning or tone.	Reading 4	
Analyze the structure of texts (sequence, cause/effect, compare/contrast, problem/solution)	Reading 5	
Recognize the genre, key elements, and characteristics of literary texts.	Reading 5	
Assess how point of view or purpose shapes the content and style of a text.	Reading 6	
Analyze how an author's style and tone affects meaning.	Reading 6	

INTEGRATION OF KNOWLEDGE AND IDEAS

Integrate and evaluate content presented in diverse media and formats.	Reading 7	
Identify and evaluate the argument and claims in a text.	Reading 8	
Analyze how two or more texts address similar themes or topics.	Reading 9	

WRITING

Write arguments to support claims, using valid reasoning and relevant and sufficient evidence.	Writing 1	
Write informative/explanatory texts to examine and convey complex ideas and information clearly and accurately.	Writing 2	
Write narratives to develop real or imagined experiences or events.	Writing 3	
Draw evidence from literary or informational texts to support analysis, reflection, and research.	Writing 9	
Conduct short as well as more sustained research projects.	Writing 10	



CORE INSTRUCTIONAL CONCEPTS: SOCIAL STUDIES

**C3 INQUIRY ARC
DIMENSION 2: APPLYING DISCIPLINARY CONCEPTS AND TOOLS**

**STATE OR
DISTRICT
STANDARD**

CIVICS

Analyze the origins, functions, and structure of different governments and the origins and purposes of laws and key constitutional provisions.	
Summarize core civic virtues and democratic principles .	
Evaluate policies intended to address social issues.	

ECONOMICS

Evaluate the benefits and costs of individual economic choices .	
Analyze economic incentives , including those that cause people and businesses to specialize and trade.	
Explain the importance of resources (i.e. labor, human capital, physical capital, natural resources) in methods of economic production .	
Explain the functions of money in a market economy.	
Explain the importance of competition in a market economy.	
Apply economic concepts (i.e. interest rate, inflation, supply and demand) and theories of how individual and government actions affect the production of goods and services .	
Analyze economic patterns , including activity and interactions between and within nations.	

GEOGRAPHY

Construct and use maps and other graphic representations (i.e. images, photographs, etc.) of different places.	
Explain cultural influences on the way people live and modify and adapt to their environments.	
Analyze places, including their physical, cultural and environmental characteristics and how they change over time.	
Analyze movement of people, goods, and ideas .	
Analyze regions, including how they relate to one another and the world as a whole from a political, economic, historical, and geographic perspective.	

HISTORY

Interpret historical context to understand relationships among historical events or developments .	
Evaluate historical events and developments to identify them as examples of historical change and/or continuity .	
Analyze perspectives , including factors that influence why and how individuals and groups develop different ones.	
Evaluate historical sources , including their reliability, relevancy, utility, and limitations.	
Analyze causes and effects , both intended and unintended, of historical developments.	



CORE INSTRUCTIONAL CONCEPTS: SCIENCE

DIMENSION 1: SCIENTIFIC AND ENGINEERING PRACTICES

Dimension 1 focuses on the practice of science, and how knowledge is continually adapted based on new findings. The eight practices of the K-12 Science and Engineering Curriculum are as follows:

- Asking questions (for science) and defining problems (for engineering)
- Developing and using models
- Planning and carrying out investigations
- Analyzing and interpreting data
- Using mathematics and computational thinking
- Constructing explanations (for science) and designing solutions (for engineering)
- Engaging in argument from evidence
- Obtaining, evaluating, and communicating information

DIMENSION 2: CROSSCUTTING CONCEPTS

Dimension 2 provides an organizational schema for integrating and interrelating knowledge from different science domains. The eight NGSS Crosscutting Concepts are as follows:

- Patterns
- Similarity and Diversity
- Cause and Effect
- Scale, Proportion, and Quantity
- Systems and System Models
- Energy and Matter
- Structure and Function
- Stability and Change

DIMENSION 3: DIMENSIONS AND DISCIPLINARY CORE IDEAS

Dimension 3 presents a contained set of Disciplinary Core Ideas to support deeper understanding and application of content. The following chart details Core Ideas for curriculum, instructional content, and assessments within four domains.

LIFE SCIENCE	PHYSICAL SCIENCE	EARTH SCIENCE	SPACE SYSTEMS
<ul style="list-style-type: none">• Structure and Function of Living Things• Life Cycles and Stages• Reproduction & Inherited Traits• Animals• Plants	<ul style="list-style-type: none">• Forces and Interactions• Energy• Light• Sound• Electricity/ Magnetism• Matter• Waves• Heat• Chemistry• Information Processing	<ul style="list-style-type: none">• Weather• Climate• Rocks & Soil• Erosion and Weathering• Landforms• Water• Oceans• History of Earth• Plate Tectonics• Volcanoes, Earthquakes, and Tsunamis	<ul style="list-style-type: none">• Solar System• Planets• Moon• Sun

