

Teacher's Guide



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OVERVIEW

In this magazine, readers will learn how people's collections form connections to the past and inform the present.

Muse: Curious Collections

includes information about what people collect, why they collect, and how collections are displayed.

ESSENTIAL QUESTION:

Why do people collect things?

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.

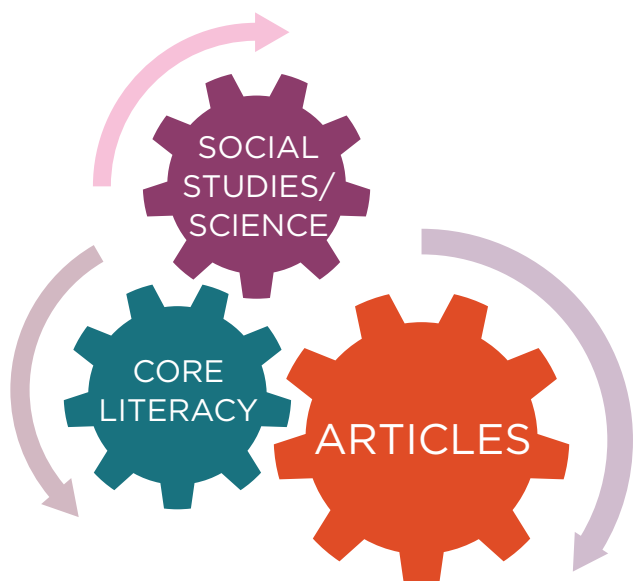
READ INDIVIDUAL ARTICLES PAGES 4 - 9

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 11 - 13

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: Why do people collect things?

MAGAZINE ARTICLES	CORE CONTENT CONCEPT	LITERACY SKILLS	CORRESPONDING CCSS ANCHOR STANDARDS
Reinventing Wonder Expository Nonfiction	The power of observation helps us learn about systems and their relationships.	<ul style="list-style-type: none"> • Close Reading • Analyze Word Choice • Interpret Visual Information • Support an Opinion 	<i>Reading 1, 2, 4 & 7</i> <i>Writing 1</i>
The Bone Collection Expository Nonfiction	Small changes in one part of an ecosystem might cause large changes in another part.	<ul style="list-style-type: none"> • Close Reading • Interpret Figurative Language • Evaluate Evidence • Present a Statement 	<i>Reading 1, 2, 3, 4 & 8</i> <i>Speaking & Listening 4</i>
Trash or Treasure Expository Nonfiction	Scientific knowledge can describe the consequences of actions but doesn't necessarily prescribe the decisions society makes.	<ul style="list-style-type: none"> • Close Reading • Analyze Text Features • Analyze Perspective • Write a Memory 	<i>Reading 1, 2, 3, 5 & 6</i> <i>Writing 2</i>
What They Left Behind Expository Nonfiction	Patterns can be used to identify cause-effect relationships.	<ul style="list-style-type: none"> • Close Reading • Interpret Visual Information • Analyze Perspective • Write a Letter 	<i>Reading 1, 2, 3, 6 & 7</i> <i>Writing 2</i>
The Case of the Disappearing Words Expository Nonfiction	Historical events influence cultures and their languages.	<ul style="list-style-type: none"> • Close Reading • Evaluate Evidence • Analyze Word Choice • Collaborate 	<i>Reading 1, 2, 4 & 8</i> <i>Speaking & Listening 1</i>
Found in Translation Expository Nonfiction	Language helps distinguish one place from another.	<ul style="list-style-type: none"> • Close Reading • Analyze Word Choice • Analyze Tone/Mood • Write a Personal Essay 	<i>Reading 1, 3, 4 & 6</i> <i>Writing 2</i>

Comparing Texts: *Reading 1, 3 & 9; Writing 1, 2 & 9*

Mini-Unit: *Reading 1 & 3; Writing 2 & 5*



Curiosity cabinets have a long history dating back to the 1300s. At that time, people collected items to understand how the world worked. Today, we continue to collect—perhaps less out of wonder and more to preserve our past and learn from it.

ESSENTIAL QUESTION

Why do people collect things?

CORE CONTENT CONCEPT

Science The power of observation helps us learn about systems and their relationships.

CROSS-CURRICULAR EXTENSION

Survey Create a survey to find out what your family members, friends, and neighbors collect and why. Record responses in a chart and note the age of each person. Do you notice any age-related collecting patterns?

KEY VOCABULARY

ingenuity (p. 11) skill or cleverness that allows someone to solve problems, invent things, etc.

apothecary (p. 11) a person who prepared and sold medicines in past times

irrelevant (p. 12) not important or relating to what is being discussed right now

PREPARE TO READ

Ask students if they have ever collected anything. Invite students to share what they collect and tell why they started their collections. Then ask students to describe ways in which their collections have changed over time.

CLOSE READING AND TEXT ANALYSIS

Key Ideas

- What is the main idea of the article? Use details from the text to support the main idea. *CCSS Reading 2*
- Summarize the difference between curiosity cabinets today and in the past. Cite textual evidence to support your answer. *CCSS Reading 2*
- Describe the three types of modern curiosity cabinets: science, art, and ordinary. Support your response with details from the text. *CCSS Reading 1*

Craft and Structure

- **Analyze Word Choice** What is the meaning of the article's title? How has "wonder" changed over time? Why must it be "reinvented" today? Discuss your ideas with a partner. *CCSS Reading 4*
- **Interpret Visual Information** How do the photos help you understand the range of these collections? What additional information do the photos provide? *CCSS Reading 7*

WRITING

Support an Opinion The author says that today, we humans have just as many questions about our place in the world as we did 700 years ago. Do you agree? Express your opinion in a short essay. Use details from the article and any other sources you choose to support your opinion. Share your essay with the class.

ARTICLE: The Bone Collection

Magazine pages 16-19, Expository Nonfiction



The La Brea Tar Pits are a treasure trove of fossils and bones that give us a glimpse into the past and help us understand how our planet has changed over time.

ESSENTIAL QUESTION

Why do people collect things?

CORE CONTENT CONCEPT

Science Small changes in one part of an ecosystem might cause large changes in another part.

CROSS-CURRICULAR EXTENSION

Math Use details from the article to estimate the rate at which fossils are found at La Brea annually. Share your results with the class.

KEY VOCABULARY

relic (p. 16) something that is from a past time, place, culture, etc.

mired (p. 18) stuck in a difficult situation

PREPARE TO READ

Point out the location of the La Brea Tar Pits on a map of Los Angeles or show students an aerial photo of the tar pits (available online). Ask students why this seems like an unlikely place for an ongoing fossil excavation.

CLOSE READING AND TEXT ANALYSIS

Key Ideas

- What theories exist about why the megafauna vanished? Support your response with details from the text. *CCSS Reading 1*
- Summarize the process of excavating a fossil. Use specific details from the text in your summary. *CCSS Reading 2*
- Identify an example of a cause-effect relationship in the article. Cite details from the article to describe this relationship. *CCSS Reading 3*

Craft and Structure

- **Interpret Figurative Language** The author states that the museum's fossil collection is "a library of a lost world." What is the meaning of this metaphor? Create a similar metaphor to describe the collection. *CCSS Reading 4*
- **Evaluate Evidence** How does the author convey the importance of the La Brea Tar Pits to our understanding of the past and the future? Cite the facts and information he uses as evidence of its importance. *CCSS Reading 8*

SPEAKING AND LISTENING

Deliver a Statement Assume you are a mediator in an argument between a Los Angeles land developer and a conservationist. Explore their conflicting desires for land and expansion vs. the preservation of places like La Brea. How will you help these two find common ground? Write a statement that expresses your ideas. Practice presenting your statement. Then deliver your statement to the class.

ARTICLE: Trash or Treasure

Magazine pages 20-23, Expository Nonfiction



Most people feel a sense of connection to their belongings. Many people cherish and hold on to objects from their childhood. Hoarding, however, is a mental health issue that prevents people from throwing anything away.

ESSENTIAL QUESTION

Why do people collect things?

CORE CONTENT CONCEPT

Science Scientific knowledge can describe the consequences of actions but doesn't necessarily prescribe the decisions society makes.

CROSS-CURRICULAR EXTENSION

Life Skills Create a plan to declutter your room—make it your New Year's resolution! Use information from the sidebar on page 23 to formulate your plan.

KEY VOCABULARY

hoarding (p. 21) a pattern of behavior that is characterized by excessive acquisition and an inability or unwillingness to discard large quantities of objects

essence (p. 23) the quality or qualities that make a thing what it is

PREPARE TO READ

Invite students to share what they know about hoarding. Tell students that hoarding is a mental health issue that prevents people from throwing anything away. Ask students to hypothesize how this behavior starts and the consequences of having an uncontrollable need to collect things.

CLOSE READING AND TEXT ANALYSIS

Key Ideas

- Describe the difference between a hoarder and a collector. Use details from the article to support your ideas. *CCSS Reading 3*
- What inferences did psychologist Susan Gelman make based on her experiments with preschoolers? Why do you think she chose this group? Cite details from the text to support your response. *CCSS Reading 1*
- What is the main idea of this article? Support your response with details from the text. *CCSS Reading 2*

Craft and Structure

- Analyze Text Features** How does the use of subheadings organize the information? Change the subheadings into questions and then work with a partner to answer these questions. *CCSS Reading 5*
- Analyze Perspectives** Use details from the article to express the views of (1) a hoarder, (2) a social worker, (3) a neighbor or relative of a hoarder. Why is it important for people to understand the perspectives of others? *CCSS Reading 6*

WRITING

Write a Memory Think back to your preschool days. Write about a special toy or blanket you remember. What did you love about the object? How did it make you feel? Now that you're older, can you understand the purpose this object served in your life? Explain your thoughts in writing.

ARTICLE: What They Left Behind

Magazine pages 28-32, Expository Nonfiction



Since the Vietnam War Memorial was completed, over 400,000 items of remembrance have been left by visitors. These items are collected and kept at the Museum Resource Center, where their connection to the names on the Wall is researched.

ESSENTIAL QUESTION

Why do people collect things?

CORE CONTENT CONCEPT

Science Patterns can be used to identify cause-effect relationships.

CROSS-CURRICULAR EXTENSION

History Learn more about the Vietnam War and how the U. S. became involved. Explore the war's effect on the U. S. Find examples of music, literature, and movies from this period. Share your findings with the class.

KEY VOCABULARY

curator (p. 29) a person who is in charge of the things in a museum, zoo, etc.

memorabilia (p. 29) objects or materials that are collected because they are related to a particular event, person, etc.

PREPARE TO READ

Discuss what students know about the Vietnam War. When and where did it happen? What effect did it have on America? Ask if any students know a Vietnam War veteran. If possible, build background using one of the many classroom-focused web sites or online videos about the war and the Wall.

CLOSE READING AND TEXT ANALYSIS

Key Ideas

- Why do you think people leave items at the Wall? Support your conclusions with examples mentioned in the article. *CCSS Reading 1*
- How does the work at the Museum Resource Center continue the legacy of the Vietnam War? Cite text details to support your response. *CCSS Reading 2*
- Locate statements in the article that illustrate the relationship between the past and present. *CCSS Reading 3*

Craft and Structure

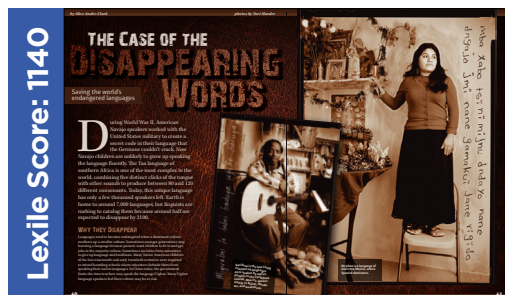
- **Interpret Visual Information** How do the photos accompanying the article help you understand the scope of this collection? Do the photos include information not mentioned in the text? Explain your ideas. *CCSS Reading 7*
- **Analyze Perspectives** Janet Donlin has the rare job of processing items left at the Wall. Locate quotes that express her ideas about her job. In what ways are analysis, reflection, and research important in her job? *CCSS Reading 6*

WRITING

Write a Letter Write a thank-you letter to a family member or acquaintance who's served in the military. In your letter, describe the freedoms you cherish most. Explain how you intend to exercise those freedoms by listing examples. Conclude it with an inspirational quote.

ARTICLE: The Case of the Disappearing Words

Magazine pages 40-43, Expository Nonfiction



Languages can be just as endangered as animals. Linguists are scrambling to collect and catalog information about fading languages before they disappear completely. When a language becomes extinct, the cultural diversity of the planet suffers.

ESSENTIAL QUESTION

Why do people collect things?

CORE CONTENT CONCEPT

Social Studies Historical events influence cultures and their languages.

CROSS-CURRICULAR EXTENSION

Language Arts Read the poem “My Language” by Alitet Nemtushkin. (You can find it online.) How does the poem connect to ideas in this article? Share the poem and your ideas with classmates.

KEY VOCABULARY

linguist (p. 40) a person who studies language and the way languages work

PREPARE TO READ

Ask students to name the foreign language classes offered in your school or district. Discuss why these particular languages are offered and not others. Then have students hypothesize what the result would be if a language disappeared completely.

CLOSE READING AND TEXT ANALYSIS

Key Ideas

- What are the main reasons why languages disappear? Cite details from the article to support your response. *CCSS Reading 1*
- Why is the United Nations involved in determining levels of language endangerment? Support your ideas with details from the text. *CCSS Reading 1*
- Locate details from the article that support this key idea: A variety of languages promotes cultural diversity. *CCSS Reading 2*

Craft and Structure

- **Evaluate Evidence** Why does the author believe that saving languages is important? Analyze the evidence the author includes to support this idea. Is the evidence sufficient? Discuss ideas with a partner. *CCSS Reading 8*
- **Analyze Mood** The author includes many examples of words that are unique to different cultures. Why do you think she chose these words? What mood or feeling do these words create in the article? *CCSS Reading 4*

SPEAKING AND LISTENING

Collaborate Get together with classmates to discuss these questions: Why have governments at different points throughout history discouraged (or prohibited) the use of indigenous languages? What were the positive and negative effects of this? What can be done now to right this wrong? In addition to sharing your ideas, work hard to listen to and support your classmates when they are speaking.

ARTICLE: Found in Translation

Magazine pages 44-45, Expository Nonfiction



Psychologist Tim Lomas is a collector of words, but not just any words—Lomas searches for words that express positive feelings and relationships. Through his collection, Lomas hopes to help people understand human emotions.

ESSENTIAL QUESTION

Why do people collect things?

CORE CONTENT CONCEPT

Social Studies Language helps distinguish one place from another.

CROSS-CURRICULAR EXTENSION

Language Arts Make up some new words to express positive ideas and experiences. List your words and write definitions. Then use each word in a sentence. See if a classmate can guess the definitions by reading your sentences.

KEY VOCABULARY

phenomenon (p. 45) something (such as an interesting fact or event) that can be observed and studied and that is typically unusual or difficult to understand or explain fully

aesthetic (p. 45) of or relating to art or beauty

PREPARE TO READ

Ask students to look at the photos accompanying the article. Encourage them to explain what's happening in each one. Then challenge students to describe the emotion or feeling conveyed in each picture.

CLOSE READING AND TEXT ANALYSIS

Key Ideas

- Why did Dr. Lomas focus on words that describe positive concepts? Cite details from the article to support your response. *CCSS Reading 1*
- What does Dr. Lomas believe about the relationship between language and feelings? Use details from the article to support your response. *CCSS Reading 1*
- What does Dr. Lomas hope the readers of his dictionary will discover? Support your response with details from the text. *CCSS Reading 3*

Craft and Structure

- **Interpret Word Choice** The article's title is based on the expression "lost in translation." Determine the meaning of this expression. How does the article title change and build on this meaning? *CCSS Reading 4*
- **Determine Tone** How does Dr. Lomas feel about the relationship between language and emotions? Is his tone detached? Sincere? Bitter? Something else? Which details in the text help convey the tone? *CCSS Reading 6*

WRITING

Write a Personal Essay Write an essay about a positive experience in your life. Choose several words from the article to include in your essay. Use the words in a way that shows that you understand what they mean. Read your essay to the class.

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).

- Some collections described in the magazine articles were created by individuals and reflect the values and ideas of a single person. Other collections reflect the values of a group. Create a T-chart to classify collections in the articles as individual or group ownerships.
- How is the concept “language is power” conveyed in the articles “The Case of the Disappearing Words” and “Found in Translation”? Write a response that includes details from these articles.
- Use details from all the articles to answer the Essential Question: Why do people collect things? Summarize information about people’s motives for collecting and describe the effects, or hoped-for effects, of the collections.
- Imagine you are a museum curator. Create a wunderkammern for your museum using objects and/or words from the different articles. Your collection should have a theme or pattern. List 5-10 items for your wunderkammern. Then exchange lists with a partner and see if you can determine the theme or pattern of the collection.
- What do you learn about people from the things they collect? Use information from “The Bone Collection,” “Reinventing Wonder,” and “What They Left Behind” to write an answer to this question.

EXPLORATORY LEARNING - FLEXIBLE MINI-UNIT DESIGN

ENGAGE

READ FOR A PURPOSE

APPLY

In this mini-unit, students will consider the different types of collections they read about and how these collections connect the past and the present. Then, working both individually and collaboratively, they will create a collection of items to include in a classroom time capsule. Finally, students will discuss their collection to determine what it communicates about them as a group.

ENGAGE: Engage students in the topic of curious collections by focusing on the Essential Question: Why do people collect things? Then help students brainstorm a list of collections from the magazine. Discuss how the collections connect the past and the present. Record ideas in a chart like the one below. Sample text is shown.

Collection	How does it connect the past to the present?
old-fashioned seltzer bottles, subway tokens, tiny statues of liberty	People today can learn about aspects of life in New York long ago by looking at objects people used to use. People who were alive when these objects were in use can be reminded of the past.
bones and fossils from the La Brea Tar Pits	

**READ FOR A PURPOSE**

INTRODUCE THE ACTIVITY: WUNDERKAMMERN TIME CAPSULE: Explain to students that they will be compiling objects to contribute to a classroom time capsule. Continue by telling students that they will each be responsible for adding one item to the capsule. In addition, they will write a short description of the item and why they chose to include it.

RETURN TO THE TEXT: Before students can choose an object to contribute, they must first learn about the various purposes of collections and what we learn from them. Use the Collections Chart (p. 14) shown below to assist students in compiling information from the magazine articles. Divide the class into 3-4 groups and give each group a copy of the chart. Assign each group a different magazine article and have them use the information in it to fill in their chart.

Bring the class back together to discuss the information they gathered and what can be learned from the different collections. Tell students that the objects they add to the time capsule will be part of a collection. Explain that students in the future will probably try to learn about them from the objects in the capsule.

Article Title: _____	
What kinds of items were collected?	
How were the items chosen?	
How were the items displayed?	
What is the unifying theme of the collection?	
What can we learn from the collection?	





APPLY: WUNDERKAMMERN TIME CAPSULE Now that students have gathered information from the articles and thought about the information that collections can reveal, they are ready to begin working on the class time capsule.

Materials

- container (provided by teacher)
- objects brought in by students
- index cards, one per student

STEP 2: Draft Have students use notebook paper to draft their statements. Remind students that the statement should include a short description of the item and an explanation for why it was chosen to be included in the time capsule.

STEP 4: Display Reserve a table or other area to display students' items. One at a time, have students stand up and share their items and statements before adding them to the table.

STEP 1: Build Background Remind students that they each need to bring in an object for the time capsule. Explain that the objects must be small and something they already have at home. Continue by telling students that their objects should communicate something about them as individuals. Have students work in groups to brainstorm ideas about objects to include.

STEP 3: Revise Have students

- exchange statements with a partner for feedback.
- use the feedback to help them revise and edit their statements.
- write the final version on an index card.
- add their name, age, and grade to the top of the index card.

STEP 5: Discuss Display the questions below. Allow time for students to look over the collection and write answers to the questions. Then have students share their answers in a class discussion. If possible, invite another class to view the collection and answer the questions.

1. What patterns do you see in the collection?
2. What overall themes do you notice?
3. What will future generations learn about your generation from this collection?

STEP 6: Seal the Deal (optional) At this point, you may decide to place objects in a container with a label that tells when to open it. Decide with the class where to store the capsule.



NAME: _____

COLLECTIONS CHART

Article Title: _____	
What kinds of items were collected?	
How were the items chosen?	
How were the items displayed?	
What is the unifying theme of the collection?	
What can we learn from the collection?	



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

- Structure and Function of Living Things
- Life Cycles and Stages
- Reproduction & Inherited Traits
- Animals
- Plants

PHYSICAL SCIENCE

- Forces and Interactions
- Energy
- Light
- Sound
- Electricity/ Magnetism
- Matter
- Waves
- Heat
- Chemistry
- Information Processing

EARTH SCIENCE

- Weather
- Climate
- Rocks & Soil
- Erosion and Weathering
- Landforms
- Water
- Oceans
- History of Earth
- Plate Tectonics
- Volcanoes, Earthquakes, and Tsunamis

SPACE SYSTEMS

- Solar System
- Planets
- Moon
- Sun

