

Teacher's Guide

Ladybug™

the magazine for young children



MAGAZINE ARTICLES

Max and Kate	3
Contemporary Realistic Fiction	640L
Sticky Situation	8
Humorous Poem	
A Picture of a Boat	9
Rebus Story	
The Paw	14
Contemporary Realistic Fiction	390L
Midnight and the Night Watchman	26
Contemporary Realistic Fiction	630L
Winter Hello	34
Procedure	990L

From Cricket Media



**Teacher’s Guide for *Ladybug*:
January 2017**

Using This Guide **2**

Skills and Standards Overview **3**

Article Guides **4**

Cross-Text Connections **10**

Mini-Unit **11**

Graphic Organizers **14**

Appendix: Meeting State and
National Standards **16**



OVERVIEW

*In this magazine, readers will enjoy learning about the adventures and misadventures of different characters, both human and animal. **Ladybug:***

January 2017 includes stories about going to a potter’s studio, visiting a polar bear at the zoo, and finding a new friend in the middle of the night. In addition, students will read about different craft projects.

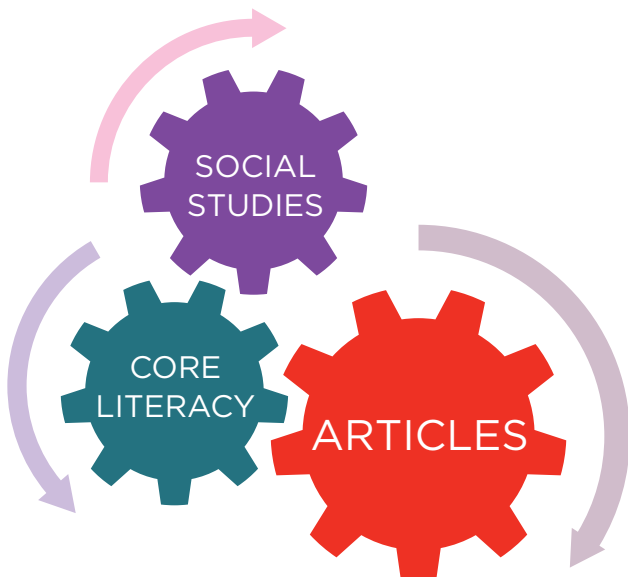
ESSENTIAL QUESTION:

What kinds of details do authors use to make their writing interesting?

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: What kinds of details do authors use to make their writing interesting?

MAGAZINE ARTICLES	CORE CONTENT CONCEPT	LITERACY SKILLS	CORRESPONDING CCSS ANCHOR STANDARDS
Max and Kate Contemporary Realistic Fiction	Illustrations can help readers notice and understand story details.	<ul style="list-style-type: none"> Close Reading Analyze Word Choice Interpret Visual Information Write Dialogue 	<i>Reading 1, 3, 4 & 7</i> <i>Writing 3</i>
Sticky Situation Humorous Poem	Rhyming words are words that have the same ending sound. Example: <i>bag</i> and <i>tag</i> .	<ul style="list-style-type: none"> Close Reading Identify Sound Devices Analyze Word Choice Make Rhymes 	<i>Reading 1, 3 & 4</i> <i>Speaking & Listening 1</i>
A Picture of a Boat Rebus Story	In rebus stories, pictures take the place of some of the words.	<ul style="list-style-type: none"> Close Reading Analyze Word Choice Interpret Visual Information Write a Rebus Story 	<i>Reading 1, 2, 3, 4 & 7</i> <i>Writing 3</i>
The Paw Contemporary Realistic Fiction	Sensory details are words that describe what you hear, smell, see, taste and touch.	<ul style="list-style-type: none"> Close Reading Analyze Word Choice Interpret Visual Information Write a Letter 	<i>Reading 3, 4 & 7</i> <i>Writing 3</i>
Midnight and the Night Watchman Contemporary Realistic Fiction	Readers can learn about a character by thinking about the character's actions.	<ul style="list-style-type: none"> Close Reading Analyze Word Choice Analyze Fiction Retell a Story 	<i>Reading 3, 4 & 5</i> <i>Speaking & Listening 1</i>
Winter Hello Procedure	Authors and illustrators can work together to explain how to do something.	<ul style="list-style-type: none"> Close Reading Analyze Text Structure Identify Author's Purpose Write Directions 	<i>Reading 1, 5 & 7</i> <i>Writing 2</i>

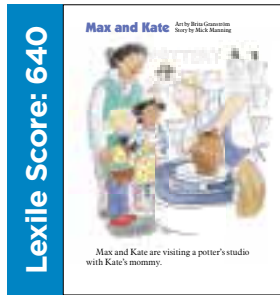
Comparing Texts: *Reading 1, 3, 5 & 9; Writing 2*

Mini-Unit: *Reading 1 & 4; Writing 3 & 5*



ARTICLE: Max and Kate

Magazine pages 3 - 7, Contemporary Realistic Fiction



Max and Kate visit a potter's studio, where they each make a pot. However, Max runs into some trouble when he uses the potter's wheel.

ESSENTIAL QUESTION

What kinds of details do authors use to make their writing interesting?

CORE CONTENT CONCEPT

English Language Arts Illustrations can help readers notice and understand story details.

CROSS-CURRICULAR EXTENSION

Art You can make things out of clay even if you don't have a potter's wheel. Use air-dry clay to make a little bowl, an animal, or anything else you can think of. When the clay dries, you can paint it. Share what you make with your class.

KEY VOCABULARY

studio (p. 3) the building or room where an artist works

gooey (p. 4) wet and sticky

whirls (p. 4) turns rapidly in circles

kiln (p. 6) an oven for baking and drying clay

chuckles (p. 7) laughs quietly

PREPARE TO READ

Display pieces or images of pottery. Ask students if they know what pottery is made of. Explain that pottery is made out of soft clay, which gets hard after it is baked in a special oven called a kiln. Tell students that in this story, Max and Kate use their hands and a special machine to make clay pots.

CLOSE READING AND TEXT ANALYSIS

Key Ideas

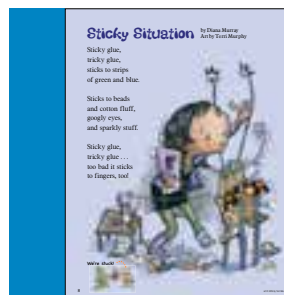
- Where does Kate's mommy take Max and Kate? Find words and pictures that support your answer. *CCSS Reading 3*
- What happens when Max makes his pot? What does Max's pot look like? Support your answer with details from the story and pictures. *CCSS Reading 1*
- How does Kate try to make Max feel better about his pot? Find words and pictures that support your answer. *CCSS Reading 3*

Craft and Structure

- **Analyze Word Choice** Which of your five senses helps you know how something feels—taste, sight, touch, smell, or hearing? Which two words on page 4 tell how the clay feels? *CCSS Reading 4*
- **Interpret Visual Information** How do you think Max feels about the pot he made? Use clues in the picture on page 7 to figure out how he feels. *CCSS Reading 7*

WRITING

Write Dialogue Choose one picture from the story. Then write the words one character in the picture might say. For example, in the first picture, the Potter might say, "Hello Max. Hello Kate. Would you like to make a clay pot today?" Share your writing with your classmates.



In this humorous poem, the speaker finds herself in a “sticky situation” as she tries to use glue.

ESSENTIAL QUESTION

What kinds of details do authors use to make their writing interesting?

CORE CONTENT CONCEPT

English Language Arts Rhyming words are words that have the same ending sound. Example: *bag* and *tag*.

CROSS-CURRICULAR EXTENSION

Arts and Crafts Use glue and art supplies to make a crazy creature. Gather strips of colored paper, beads, glitter, googly eyes, pom-poms, bottle caps, or whatever you can find at home for your project.

KEY VOCABULARY

situation (p. 8) problem

tricky (p. 8) hard to deal with

strips (p. 8) long, narrow pieces of something

PREPARE TO READ

Ask students to explain what the word “sticky” means. Explain that “sticky” can mean “able to stick to things” and it can also mean “very difficult.” Tell students to see which meaning the writer uses in this poem—or does she use both?

CLOSE READING AND TEXT ANALYSIS

Key Ideas

- Why is the girl using glue? What is she working on? Find words and pictures that support your answer. *CCSS Reading 3*
- What things does glue stick to? Use details in the poem and picture to support your answer. *CCSS Reading 1*
- Why is the girl having a hard time using the glue? Use details in the poem and the picture to support your answer. *CCSS Reading 1*

Craft and Structure

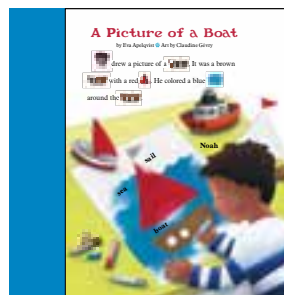
- **Identify Sound Devices** Rhyming words are words that have the same ending sound. Example: *spoon* and *moon*. Find the words that rhyme in this poem. *CCSS Reading 4*
- **Analyze Word Choice** Which words in the poem describe the way things look? Which words describe the way things feel? Make two lists to show these words. *CCSS Reading 4*

SPEAKING AND LISTENING

Make Rhymes Sit in a circle with three or four classmates. Say a starter word out loud. Then have your classmates take turns saying words that rhyme with the starter word. When your group runs out of rhymes, pick a new starter word.

ARTICLE: A Picture of a Boat

Magazine pages 9 - 11, Rebus Story



Puppies are cute. Puppies are fun. But puppies can be trouble too!
Find out what trouble the puppy in this story gets into.

ESSENTIAL QUESTION

What kinds of details do authors use to make their writing interesting?

CORE CONTENT CONCEPT

English Language Arts In rebus stories, pictures take the place of some of the words.

CROSS-CURRICULAR EXTENSION

Art Fill every inch of a piece of paper with a colorful drawing. Then cut the drawing into pieces—not too small. Now you have a puzzle. Share your puzzle with your classmates.

KEY VOCABULARY

returned (p. 10) came back

flattened (p. 11) made something flat

PREPARE TO READ

Have students look at the story pages and share what they notice about them. Explain that “A Picture of a Boat” is called a rebus story. In a rebus story, pictures take the place of some of the words. Go over the picture words with students. Then have them say these words as you read the story aloud.

CLOSE READING AND TEXT ANALYSIS

Key Ideas

- What does Noah’s boat look like? Use details from the words and pictures to support your answer. *CCSS Reading 1*
- What did the puppy do to Noah’s picture? Use details in the story and picture to support your answer. *CCSS Reading 2*
- What did Noah do with the pieces of his picture? Support your answer with details from the story and pictures. *CCSS Reading 3*

Craft and Structure

- **Analyze Word Choice** Why does the storyteller say “Oh no!” on page 10? Which words on page 11 help you understand that Noah is happy again? *CCSS Reading 4*
- **Interpret Visual Information** What story parts are shown in each picture? With a partner, take turns telling these parts of the story to each other. *CCSS Reading 7*

WRITING

Write a Rebus Story Write a rebus story about getting ready for school. You can use the sentences below or write your own. Draw pictures to finish the sentences.

The first thing I do is get out of _____.

Then I go downstairs and eat _____.

Next I brush my _____.



Sarah and her mom visit the polar bear exhibit at the zoo.

ESSENTIAL QUESTION

What kinds of details do authors use to make their writing interesting?

CORE CONTENT CONCEPT

English Language Arts Sensory details are words that describe what you hear, smell, see, taste and touch.

CROSS-CURRICULAR EXTENSION

Science Use a book or website to find 2-3 interesting facts about polar bears. Write the facts down on paper and then draw a picture to go with them.

KEY VOCABULARY

glided (p. 15) moved in a smooth way

surface (p. 16) the upper layer of an area of land or water

dove (p. 16) swam underwater

PREPARE TO READ

Invite students to tell about visits to the zoo and ask them to name the animals they saw. Then ask if they saw any polar bears at the zoo. Discuss what polar bears look like. Then tell them that the next story is about a girl named Sarah and her mom who have fun at the polar bear exhibit at the zoo.

CLOSE READING AND TEXT ANALYSIS

Key Ideas

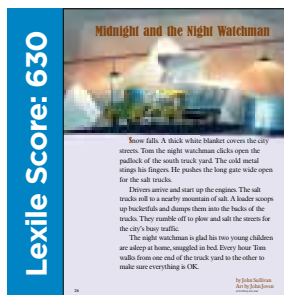
- How does Sarah feel about seeing the polar bear? Find details in the story and pictures to support your answer. *CCSS Reading 3*
- Why does Sarah think the bear wants to play with the people? Find details in the story to support your answer. *CCSS Reading 3*
- What happens at the end of the story? Use details in the story and pictures to support your answer. *CCSS Reading 3*

Craft and Structure

- **Analyze Word Choice** Some of the words in this story describe how things look, sound, and feel. Work with a partner to find words in the story that help you see, hear, and feel what is happening. List the words. *CCSS Reading 4*
- **Interpret Visual Information** Compare the words and the picture on page 17. Which details in the story are also shown in the picture? *CCSS Reading 7*

WRITING

Write a Letter Pretend you are Sarah and write a letter to a friend. In your letter, tell about your visit to the zoo. Describe what you saw and how you felt. Draw a picture to go with your letter.



On a cold winter night, Tom, the night watchman, finds a stray kitten in the truck yard.

ESSENTIAL QUESTION

What kinds of details do authors use to make their writing interesting?

CORE CONTENT CONCEPT

English Language Arts Readers can learn about a character by thinking about the character's actions.

CROSS-CURRICULAR EXTENSION

Social Studies Visit a local animal shelter to find out how they help animals. See if you can volunteer or donate items the shelter needs. Share your experiences with the class.

KEY VOCABULARY

watchman (p. 26) a person whose job is to watch and guard property at night or when the owners are away

darts (p. 27) moves quickly or suddenly

lobby (p. 29) a large open area inside and near the entrance of a building

PREPARE TO READ

Read the title aloud and preview the illustrations with students. Ask students to predict what the story will be about. Record predictions on the board and then read the story. Pause as you read to revisit and revise predictions.

CLOSE READING AND TEXT ANALYSIS

Key Ideas

- What does Tom do as a night watchman? Describe his responsibilities. Find details in the story to support your answer. *CCSS Reading 3*
- How can you tell that Tom is a nice person? Support your answer with details from the story. *CCSS Reading 3*
- What happens to Midnight at the end of the story? Find details in the story and pictures to support your answer. *CCSS Reading 3*

Craft and Structure

- **Analyze Word Choice** On pages 30-31, find three words that help you imagine how things sound. Write these words. Then write what is making each sound. *CCSS Reading 4*
- **Analyze Fiction** This story is make-believe. The writer made it up using his imagination. Could some of the events in this story happen in real life? With a partner, choose three events that could really happen. *CCSS Reading 5*

SPEAKING AND LISTENING

Retell a Story Work with a partner to take turns retelling the story. When it's your turn to retell, point to a picture and tell your partner what is happening in it. When it's your partner's turn to retell, listen quietly and pay attention.

Lexile Score: 990

Winter Hello
 Art by Shelia Becken
 Welcome! Shovel, broom, and small creatures that pass by your home with your new icy pal!




What You Need
 empty plastic deli container
 small container
 yarn or string
 optional: water

What to Do:

1. Take a snow globe, bottle or similar, to look for resources that will fit in the bottom of your container. You might find bugs, berries, leaves, twigs, flowers, pebbles—whatever you like!
2. Arrange the resources in your container. Make a loop with the yarn and place both ends in the container, with the loop hanging over the edge.
3. Pour in enough water to cover your resources and the ends of the yarn. Freeze overnight.
4. In the morning, pop your icy art out of the container and hang it outside. It will catch the sun and get better in winter weather!

This article teaches readers how to make a winter craft to hang outdoors.

ESSENTIAL QUESTION

What kinds of details do authors use to make their writing interesting?

CORE CONTENT CONCEPT

English Language Arts Authors and illustrators can work together to explain how to do something.

CROSS-CURRICULAR EXTENSION

Science Fill a cup with water and put it in your freezer at home. Check the water every hour to see how long it takes to freeze. Share the results with the class.

KEY VOCABULARY

deli (p. 34) a store where you can buy foods such as meats, cheeses, and sandwiches

treasures (p. 34) things that are very special or important

loop (p. 34) the shape made when something long and thin (such as a rope or thread) bends so that it touches or crosses over itself

PREPARE TO READ

Invite volunteers to share crafts they have made or enjoy making. Then tell students the next article explains how to make a winter craft to hang outdoors. Read aloud the article to students, pointing out the different sections of the article as you get to them.

CLOSE READING AND TEXT ANALYSIS

Key Ideas

- What outside treasures can you put in your art? What inside treasures can you use? Use details in the text and pictures to support your answer. *CCSS Reading 1*
- What should you do with the water? Support your answer with details in the text and pictures. *CCSS Reading 1*
- What would happen if you hung your icy artwork inside instead of outside? Use details from the text and pictures to support your ideas. *CCSS Reading 1*

Craft and Structure

- **Analyze Text Structure** What does the “What You Need” section tell you about? Why do you think the author uses numbers in the “What to Do” section? *CCSS Reading 5*
- **Identify Author’s Purpose** Why did the author write this article? Does she want to entertain you by telling a story? Does she want to give you information? Does she want you to believe something? *CCSS Reading 7*

WRITING

Write Directions Think of a snack you know how to prepare. For example, do you know how to make buttered toast, a peanut butter sandwich, or hummus and carrot sticks? Write a set of directions telling others how to make your snack. In the “What You Need” section, list all the different ingredients and tools you need. In the “What to Do” section, list the steps for making the snack. Number the steps. Then share with 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*).

- Compare the adventures characters have in “Max and Kate” and “The Paw.” Where do the characters go? What special things do they do with their hands? How do they feel about their adventures? Use the Compare Texts organizer (p. 15) to record your ideas.
- Both “Sticky Situation” and “Winter Hello” tell about making a craft. Are these texts mostly similar or mostly different? Write a sentence that states your opinion. List your reasons below it.
- Think about the characters in “A Picture of a Boat” and “Sticky Situation.” What problems do the characters have? How do they solve their problems? Write sentences to answer these questions.

Think about the stories “A Picture of a Boat,” “The Paw,” and “Midnight and the Night Watchman.” All three stories have animals. Compare the stories by answering these questions:

- Where do the animals live at the beginning of each story?
- What do the animals do with the humans in each story?
- Where do the animals live at the end of each story?

Think about the stories “Max and Kate” and “A Picture of a Boat.” Both stories are about making things. Compare the stories by answering these questions:

- What do the characters make?
- What happens to the things they make?
- How does the story end?

EXPLORATORY LEARNING - FLEXIBLE MINI-UNIT DESIGN

ENGAGE

READ FOR A
PURPOSE

APPLY

This mini-unit offers students the opportunity for an in-depth look at how authors use sensory details in their writing. Students will use their own senses to describe their environment. Next, they will find sensory details in a magazine text. Finally, they will write riddles using sensory words and details.

ENGAGE: Engage students in the topic of sensory details by first reviewing the Essential Question: What kinds of details do authors use to make their writing interesting? Remind students that the magazine authors used many different sensory words to describe people, places, and experiences. Then have students use their senses to describe the classroom (or another setting or object of your choice). Record responses in a chart like the one below.

OUR CLASSROOM

<p>What can we see?</p>	<ul style="list-style-type: none"> • sun shining through the windows • crowded coat closet • colorful posters on the walls • messy desks
<p>What can we hear?</p>	<ul style="list-style-type: none"> • chairs squeaking and banging • people talking • pencils dropping on the floor
<p>What can we feel?</p>	<ul style="list-style-type: none"> • warm sunshine • people bumping into us • a tap on the shoulder • smooth desktop
<p>What can we smell?</p>	<ul style="list-style-type: none"> • cleaning products • glue • hand sanitizer • perfume
<p>What can we taste? (our snacks)</p>	<ul style="list-style-type: none"> • sweet • salty • chocolatey • tangy



READ FOR A PURPOSE

INTRODUCE THE ACTIVITY: WHAT IS IT? RIDDLE Explain to students that they will be writing riddles by using their five senses to help them describe something. Continue by saying that they will not identify the object they are describing. Instead, they will exchange riddles with a partner to see if they can guess what is being described. Review these simple project steps with students:

- 1) Choose something to describe: socks, chicken soup, popcorn, the ocean, a farm.
- 2) Use sense words to describe how it looks, sounds, feels, smells, and tastes.

RETURN TO THE TEXT: Tell students that before they begin to write, they will work together to practice making a “What is it?” riddle. Display a chart like the one below and explain that you are going to read aloud the first two pages of the magazine story “The Paw.” Tell students to listen for and identify sense words and description they hear. Add the words and details to the chart to create a “What is it?” riddle about the polar bear exhibit. Then invite a teacher or student from another class to read the riddle and guess what is being described.

WHAT IS IT?

I see	shiny railing, large pool, big white bear, glass wall, bear gliding, big paws
I hear	noisy crowd, children calling, babies fussing, children squealing
I feel	very warm, moist air
I smell	
I taste	



APPLY: WHAT IS IT? RIDDLE Now that students have practiced writing a “What is it?” riddle with the class, they are ready to write one on their own. Students should work independently to draft their riddles. If any students need help, invite them to meet with you for a brief writer’s conference.

STEP 1: Build Background

Remind students that they will be describing something without saying what it is. Continue by explaining that they will use sense words to describe an object or place so readers can try to imagine what it is.

STEP 2: Choose a Topic

Tell students they can write about any place or any object they want, but they should choose something they know about, such as pancakes, snow, or a kitchen. Keep a list of students’ topics.

STEP 3: Write

Distribute a riddle frame to each student. Have students begin writing details. If students get stuck, invite them to brainstorm with you. Let students know that they may not have words for every sense.

MATERIALS

writing pencils
What Is It? riddle frame (p. 14)

STEP 4: Revise and Edit

Tell students to read their riddles to see if they need to add or change any details. Then display the checklist below and have students use it to edit their riddles.

1. My handwriting is neat.
2. My riddle contains sense words and details.
3. I put a comma between the words and details.

STEP 5: Guess

When students are finished, have them switch riddles with a partner. Then have partners take turns reading riddles and guessing what they are about. Finally, display riddles for all to enjoy.





RIDDLE FRAME

WHAT IS IT?

I see	
I hear	
I feel	
I smell	
I taste	



NAME: _____

COMPARE TEXTS

	MAX "Max and Kate"	KATE "Max and Kate"	SARAH "The Paw"
Where does the character go?			
What does the character do with his or her hands?			
How does the character feel about the adventure?			



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

