

# Teacher's Guide

# Ladybug

the magazine for young children



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From Cricket Media



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October 2016**

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**OVERVIEW**

*In this magazine, readers will encounter an assortment of fun and interesting characters.*

***Ladybug: October 2016*** features stories and poems

*about animals that act like people and people who act like animals, as well as nonfiction about real creatures. Each article includes illustrations that help bring the characters, actions, and ideas to life.*

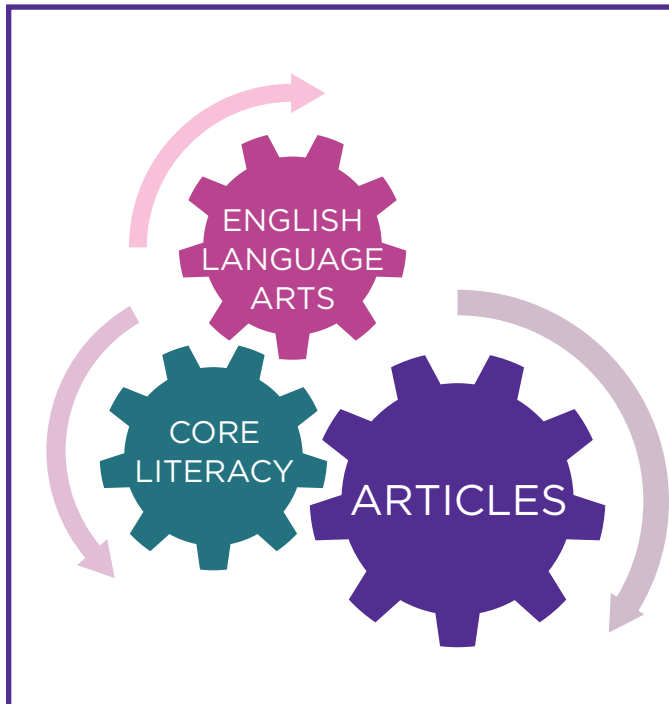
**ESSENTIAL QUESTION:**

***How do authors use illustrations to show characters, actions, and ideas?***

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:** How do authors use illustrations to show characters, actions, and ideas?

MAGAZINE ARTICLES	ENGLISH LANGUAGE ARTS CONCEPTS	LITERACY SKILLS	CORRESPONDING CCSS ANCHOR STANDARDS
<b>Max and Kate</b> Contemporary Realistic Fiction	Authors use illustrations to show details in their stories.	<ul style="list-style-type: none"> <li>Close Reading</li> <li>Interpret Visual Information</li> <li>Make Inferences</li> <li>Summarize a Text</li> </ul>	<i>Reading 1, 3, &amp; 7</i> <i>Writing 2</i>
<b>Five Little Bandits</b> Lyrical Poem	Poets use rhyme to make their poems fun to read.	<ul style="list-style-type: none"> <li>Close Reading</li> <li>Interpret Visual Information</li> <li>Analyze Sound Devices</li> <li>Write Narrative Texts</li> </ul>	<i>Reading 1, 4, &amp; 7</i> <i>Writing 3</i>
<b>Mem and Grandpa at the Farm Stand</b> Contemporary Realistic Fiction	Stories have a beginning, a middle, and an end.	<ul style="list-style-type: none"> <li>Close Reading</li> <li>Analyze Plot</li> <li>Interpret Visual Information</li> <li>Collaborate</li> </ul>	<i>Reading 1, 3, &amp; 7</i> <i>Speaking and Listening 1</i>
<b>Pill Bugs</b> Expository Nonfiction	The illustrations in an article help readers understand the facts an author presents.	<ul style="list-style-type: none"> <li>Close Reading</li> <li>Analyze Relationships</li> <li>Interpret Visual Information</li> <li>Write Informative Texts</li> </ul>	<i>Reading 1, 3, &amp; 7</i> <i>Writing 2</i>
<b>Manny's Animals</b> Narrative Poem	Poets may repeat words and phrases in their poems.	<ul style="list-style-type: none"> <li>Close Reading</li> <li>Interpret Visual Information</li> <li>Evaluate Word Choice</li> <li>Collaborate</li> </ul>	<i>Reading 1, 4, &amp; 7</i> <i>Speaking and Listening 1</i>
<b>The Halloween Parade Problem</b> Fantasy	In fantasy stories, the characters may be animals that act like people.	<ul style="list-style-type: none"> <li>Close Reading</li> <li>Interpret Visual Information</li> <li>Interpret Theme</li> <li>Write Narrative Texts</li> </ul>	<i>Reading 1, 2, &amp; 7</i> <i>Writing 3</i>

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

**Mini-Unit:** *CCSS Reading 1 & 3; CCSS Writing 3, 4, 5 & 6*

# ARTICLE: Max and Kate

Magazine pages 3 - 7, Contemporary Realistic Fiction



Max, Kate, and Charlie go trick-or-treating in their neighborhood. They meet several friendly monsters and see some funny things.

## ESSENTIAL QUESTION

**How do authors use illustrations to show characters, actions, and ideas?**

## CORE CONTENT CONCEPT

**English Language Arts** Authors use illustrations to show details in their stories.

## CROSS-CURRICULAR EXTENSION

**Art** Draw a picture of you and your friends in Halloween costumes. Include fun details in your drawing.

## KEY VOCABULARY

*shadowy* (p. 6) not clearly seen

## PREPARE TO READ

Ask students if they have gone trick-or-treating. Invite them to tell about the costumes they wore, who took them, and what they liked or disliked about the experience. Finally, tell students they are about to read a story about friends who go trick-or-treating.

## CLOSE READING AND TEXT ANALYSIS

### Key Ideas

- What are Kate, Max, and Charlie doing? How do you know? *CCSS Reading 1*
- What do Kate, Max, and Charlie see at the houses they visit? Find details in the pictures to support your answer. *CCSS Reading 3*
- What happens when they get back to Max's house? Use details in the picture to explain what happens. *CCSS Reading 1*

### Craft and Structure

- **Interpret Visual Information** How do the pictures help you understand what Max, Kate, and Charlie do and see? Which details from the story are shown in the pictures? *CCSS Reading 7*
- **Make Inferences** Max's father is dressed as the Big Bad Wolf. Max, Kate, and Charlie are dressed as pigs. What story does this make you think of? Why do you think Kate says they will have to "huff and puff"? *CCSS Reading 1*

## WRITING

**Write a Summary** Work with a partner to summarize the story by writing answers to these questions:

- Who are the important characters?
- Where and when does the story happen?
- What do the characters do?

Share your summary with other pairs of students.

# ARTICLE: Five Little Bandits

Magazine pages 8 - 9, Lyrical Poem



Five young raccoons leave their home at night to find food in the stream.

## ESSENTIAL QUESTION

**How do authors use illustrations to show characters, actions, and ideas?**

## CORE CONTENT CONCEPT

**English Language Arts** Poets use rhyme to make their poems fun to read.

## CROSS-CURRICULAR EXTENSION

**Science** Research raccoons to find out more about them. Where do they live? What do they eat? Share what you learn with a partner.

## KEY VOCABULARY

**bandits (p. 8)** people who steal from others and wear masks for disguise

**crayfish (p. 8)** an animal that lives in streams and looks like a small lobster

## PREPARE TO READ

Show students a picture of a raccoon and ask if they have ever seen one. Then make a word web on the board with the word raccoon in the center. Invite students to share what they know about raccoons. List their ideas in the web.

## CLOSE READING AND TEXT ANALYSIS

### Key Ideas

- Why do the raccoons go outside at night? Find details to support your response. *CCSS Reading 1*
- What do the second and fourth raccoons find? Identify those raccoons in the picture. *CCSS Reading 1*
- What does the third raccoon do? Why do you think the raccoon does this? Use picture details to support your answer. *CCSS Reading 1*

### Craft and Structure

- **Interpret Visual Information** Why do you think the poet calls the raccoons little bandits? Use details from the poem and picture to support your ideas. *CCSS Reading 7*
- **Analyze Sound Devices** With a partner, take turns reading lines from the poem aloud. Listen for words that rhyme. Make a list of these words. *CCSS Reading 4*

## WRITING

**Write a Poem** Write a short poem about another animal. Describe the animal's actions and follow the same rhyming pattern. Read your poem to a partner or the class.



# ARTICLE: Mem and Grandpa at the Farm Stand

Magazine pages 10 - 12, Contemporary Realistic Fiction



On a crisp fall day, Mem and Grandpa go to Josie's Farm Stand. There they find vegetables, flowers, and a furry friend.

## ESSENTIAL QUESTION

**How do authors use illustrations to show characters, actions, and ideas?**

## CORE CONTENT CONCEPT

**English Language Arts** Stories have a beginning, a middle, and an end.

## CROSS-CURRICULAR EXTENSION

**Research** Visit a farm stand or farmers' market where you live. Find out where the fruits, vegetables, and flowers come from.

## KEY VOCABULARY

**zucchini (p. 10)** a dark green vegetable that is long and thin

## PREPARE TO READ

If possible, share photos of a farmers' market or a farm stand. Ask students if they have ever been to a farm stand, farmers' market, or pumpkin patch. Invite them to share their experiences and describe the things they saw and purchased.

## CLOSE READING AND TEXT ANALYSIS

### Key Ideas

- What fruits and vegetables do Mem and Grandpa choose? Use details in the pictures and words to support your answer. *CCSS Reading 1*
- What does Mem feel when she is at the counter? Use word and picture details to support your answer. *CCSS Reading 1*
- What size pumpkin does Mem choose? Find details in the story to support your answer. *CCSS Reading 1*

### Craft and Structure

- **Analyze Plot** Reread pages 10-11. What events happen on these pages? Look for the words first, next, and then to help you identify events. Then make a list of them. *CCSS Reading 3*
- **Interpret Visual Information** What do you learn about Mem, Grandpa, and the farm stand from the illustrations? Describe the characters and the setting. *CCSS Reading 7*

## SPEAKING AND LISTENING

**Retell a Story** Work with a partner to retell the story. Describe the beginning, middle, and ending of the story. Use the illustrations to help you with your retelling.



Have you ever seen a pill bug? You might have seen one without realizing it. Pill bugs are good at hiding.

## ESSENTIAL QUESTION

**How do authors use illustrations to show characters, actions, and ideas?**

## CORE CONTENT CONCEPT

**English Language Arts** The illustrations in an article help readers understand the facts an author presents.

## CROSS-CURRICULAR EXTENSION

**Science** Look under rocks, logs, and leaves to see what kinds of bugs live near you.

## KEY VOCABULARY

**rotting (p. 16)** slowly breaking down by natural processes

**gills (p. 17)** the body part that a fish uses to breathe

## PREPARE TO READ

Share photos of pill bugs with students. Ask if students have ever seen pill bugs before. Invite them to share their observations and experiences. Then tell students they will learn more about pill bugs in this article.

## CLOSE READING AND TEXT ANALYSIS

### Key Ideas

- Why do pill bugs live in dark, wet places? Use details to support your answer. *CCSS Reading 1*
- In what ways do pill bugs and shrimp look alike? Support your answer with picture details. *CCSS Reading 1*
- What do pill bugs do to protect themselves? Find details that support your answer. *CCSS Reading 1*

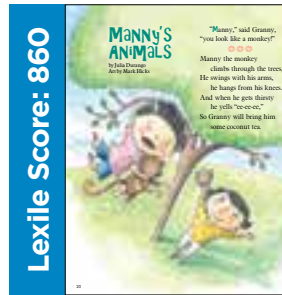
### Craft and Structure

- **Analyze Relationships** Find the paragraph that tells about baby pill bugs. List the details that tell how pill bugs change from eggs to baby pill bugs. Then get together with a classmate to compare lists. *CCSS Reading 3*
- **Interpret Visual Information** With a partner, look at the pictures on page 18. Find the information in the text that is also shown in the pictures. *CCSS Reading 7*

## WRITING

**Write a Report** Choose another bug to research. Use a book or a website to find one or two interesting facts about the bug. Write the facts down and then draw a picture to go with them.





Manny and Granny are using imagination to have fun together.

## ESSENTIAL QUESTION

**How do authors use illustrations to show characters, actions, and ideas?**

## CORE CONTENT CONCEPT

**English Language Arts** Poets may repeat words and phrases in their poems.

## CROSS-CURRICULAR EXTENSION

**Writing** Write an acrostic poem about one of Manny's animals. Add an illustration and then read your poem to the class.

## KEY VOCABULARY

**gooseberry (p. 21)** a small green berry that tastes sour

**crumpets (p. 21)** a small round bread that has a smooth bottom and holes on the top

## PREPARE TO READ

Invite students to imitate a monkey, an elephant, and a frog. Then tell them to see how the boy in this poem pretends to be each of these animals.

## CLOSE READING AND TEXT ANALYSIS

### Key Ideas

- What does Manny do when he pretends to be an elephant? List the action words that describe his movements. *CCSS Reading 1*
- Where is Manny when he is being a monkey? Use the details in the picture to support your answer. *CCSS Reading 1*
- What does Granny do when Manny pretends to be a brown bear? Find picture details to support your answer. *CCSS Reading 1*

### Craft and Structure

- **Interpret Visual Information** What is Manny really doing when he pretends to be a dolphin? Which of his actions in the poem are shown in this picture? Use details to support your answer. *CCSS Reading 7*
- **Evaluate Word Choice** Poets sometimes repeat the words they use in their poems. Look for words and ideas that are repeated in this poem. Why do you think the poet did this? *CCSS Reading 4*

## SPEAKING AND LISTENING

**Read a Poem Aloud** Work in a group to read the poem aloud. Choose one member to be Granny and read the first two lines in each stanza. Other members should take turns reading the rest of each stanza. Use your voices to make the poem funny and interesting for listeners.

**Lexile Score: 570**



**The Halloween Parade Problem**  
 Cat and his friend Mouse couldn't wait to march in the town's Halloween parade on Saturday. "I'll wear my bee-hive costume," said Cat.  
 Mouse grinned. "I've always done making my secret costume," he said. "Please come over on Friday evening!"  
 Friday morning, Cat ran next door to Mouse's house. He found his friend in the yard. Mouse waved hello, jerked into his shed, and switched on a light bulb the size of a lima bean.  
 by Megan Wright  
 ©2015 Illustration

Mouse works hard to make a costume to wear in the Halloween parade. Then he realizes he can't walk fast enough in the costume. His friend Cat comes up with a great way to solve this problem.

## ESSENTIAL QUESTION

**How do authors use illustrations to show characters, actions, and ideas?**

## CORE CONTENT CONCEPT

**English Language Arts** In fantasy stories, the characters may be animals that act like people.

## CROSS-CURRICULAR EXTENSION

**Art** Use small boxes, foil, pasta, glue, and paint to create a mini robot.

## KEY VOCABULARY

**blanketed (p. 26)** covered

**pennant (p. 28)** a long, thin, pointed flag

## PREPARE TO READ

Invite students to tell about their best Halloween costumes. Discuss why they chose them. Then ask if they made the costumes or bought them. Tell students that in the next story, they will read about a special costume made by a mouse.

## CLOSE READING AND TEXT ANALYSIS

### Key Ideas

- What kind of costume did Mouse make? Use details to support your answer. *CCSS Reading 1*
- Why does Mouse say he can't wear his costume in the parade? Find details to support your answer. *CCSS Reading 1*
- How does Cat solve Mouse's problem? Do you think it was a good solution? Why or why not? Use details to support your answer. *CCSS Reading 1*

### Craft and Structure

- **Interpret Visual Information** In a fantasy story, the characters may be animals that act like people. Find animals acting like people in this story. Look at the words and pictures to find examples. *CCSS Reading 7*
- **Interpret Theme** One important lesson in this story is "Don't give up." How does the story teach this lesson? *CCSS Reading 2*

## WRITING

**Write a Letter** Imagine that you were in a Halloween parade. Write a letter to a friend or relative to describe the parade. Use your imagination to tell what the parade was like. Include details about your costume and costumes that other people wore.

## 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*).

- “Max and Kate” and “The Halloween Parade Problem” are both Halloween stories. How are the stories the same? How are they different? How are the characters similar and different? Use the Compare Texts graphic organizer on page 15 to record your ideas.
- Both “Five Little Bandits” and “Pill Bugs” tell about animals and their habits. Are these texts mostly similar or mostly different? Write a sentence that states your opinion. List your reasons below it.
- Compare “Five Little Bandits” and “Manny’s Animals.” In what ways do these poems look and sound similar? Write sentences that describe your ideas.
- Which animals in the magazine act like people? Which people act like animals? Make a two-column chart. Label the columns “Animals like Humans” and “Humans like Animals.” Record your answers in your chart. Did any animals in the magazine act like animals?
- Think about the stories “Mem and Grandpa at the Farm Stand” and “Manny’s Animals.” Both stories have grandparents and grandchildren. Compare the stories by answering these questions:
  - o What do the grandparents do with the grandchildren?
  - o How are their actions similar and different?
  - o What do you learn about the grandparents and grandchildren from the illustrations?

## EXPLORATORY LEARNING - FLEXIBLE MINI-UNIT DESIGN

ENGAGE

 READ FOR A  
PURPOSE

APPLY

**ENGAGE:** Engage students in the topic of illustrated stories by first reviewing the Essential Question: How do authors use illustrations to show characters, actions, and ideas? Continue by reviewing stories from the magazine. Use a chart like the one below to help students identify events that happen at the beginning, middle, and end of these stories.

Story Name	Beginning	Middle	End
Max and Kate	Max, Kate, and Charlie go trick-or-treating with Max's mom.	Max, Kate, and Charlie go to the friendly giant's house.  Max, Kate, and Charlie go to the wicked witch's house.	
Manny's Animals	Manny plays outside and pretends to be a monkey, an elephant, and a frog.	Manny takes a bath and pretends to be a dolphin.  Manny pretends to be a bird and his grandmother reads to him.	Manny pretends to be a bear and his grandmother tucks him in bed.
Mem and Grandpa at the Farm Stand			



## READ FOR A PURPOSE

**INTRODUCE THE ACTIVITY: Create an Illustrated Story:** Tell students that they will be turning the poem “Five Little Bandits” into a story. Explain that their stories will include the five raccoons and the same setting, but they will add details, events, and—if they choose—characters. In addition they will create illustrations to help readers understand the events and characters.

- Discuss with students how poems and stories look different on the page. Make sure students understand that their stories will not have short lines and look like the poem.
- Read the poem aloud and ask students how the poem sounds different from a story. Make sure students understand that they will not be using rhyme in their stories.
- Help students identify elements in the poem that they will include in their stories, such as the raccoons, the moon, the bear, and the dialogue. Remind students that they will be adding new details and events to these elements.

**RETURN TO THE TEXT:** Explain to students that before they can create their illustrated stories, they must gather information about the characters, events, and setting in “Five Little Bandits.” Distribute the Story Details graphic organizer (p. 14). Work with students to go through the poem and record information from the poem in the organizer. Students should:

- Add details about where and when “Five Little Bandits” takes place.
- Identify the raccoon characters and note any information they learn about them in the poem.
- Divide the events in the poem into beginning, middle, and end.



**APPLY: CREATE AN ILLUSTRATED STORY:** Now that students have made notes about the characters, setting, and events in “Five Little Bandits,” they are ready to turn the poem into a story.

**STEP 1: Plan**

Help students decide the events and details they will add to their stories by making the following suggestions:

- Add dialogue.
- Make the bear a character in the story.
- Divide the events in the poem into beginning, middle, and end.
- Give the raccoons names and personalities.
- Add an event or problem the raccoons must solve.
- Add more description of characters and setting.

**STEP 2: Outline**

Have students use the Story Details graphic organizer they filled out to help them outline their stories. Tell students to make notes on it about events, characters, and details they plan to add to the story.

**STEP 3: Draft**

Give students time to write complete drafts of their stories. Have them edit this draft and then exchange stories with a classmate for feedback.

**STEP 4: Revise**

Have students decide how to incorporate any feedback they received. Then have them create a final draft.

**STEP 5: Illustrate**

Tell students to choose 3-5 places in their stories to illustrate. Provide paper, colored pencils, and markers for students to use.

**STEP 6: Share and Discuss**

When students have completed their illustrations, invite them to share their stories with the class. Create a story corner where stories can be displayed.





## STORY DETAILS

**Setting Details**

**Character Details**

**Beginning**

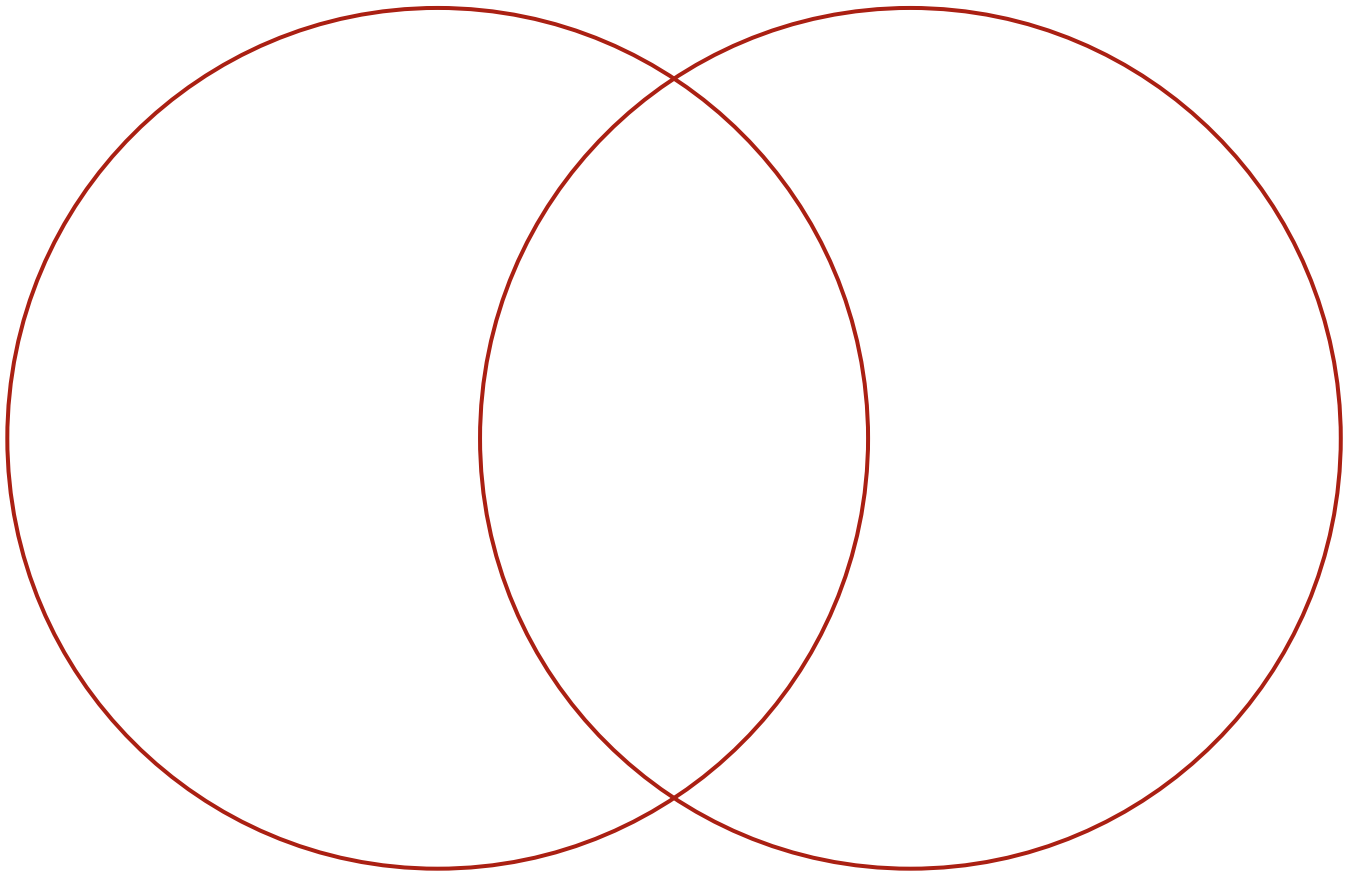
**Middle**

**End**



NAME: \_\_\_\_\_

## VENN DIAGRAM



## 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 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

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

## CRAFT AND STRUCTURE

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

## INTEGRATION OF KNOWLEDGE AND IDEAS

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

## WRITING

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



# CORE INSTRUCTIONAL CONCEPTS: SOCIAL STUDIES

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

**STATE OR  
DISTRICT  
STANDARD**

## CIVICS

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

## ECONOMICS

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

## GEOGRAPHY

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

## HISTORY

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

