

# **ELA**

## **Fourth Grade**

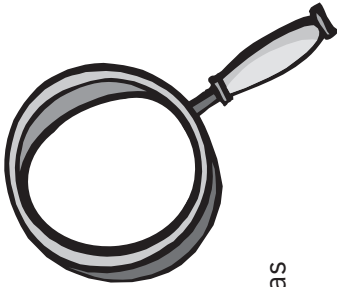
### **Schoolwide - Reading**

### **Nonfiction**





# Nonfiction Scavenger Hunt



There are three types of nonfiction texts:

- **Literary Nonfiction:** tells facts using descriptive story language that entertains and informs the readers.
- **Biography:** is the story of a person’s life written in chronological order.
- **Reference:** tells detailed facts in an organized way using descriptive paragraphs and text features such as illustrations, bold print, photographs, maps, charts, etc.

Title of the Text	Text Type (Literary Nonfiction, Biography, Reference)	Clues From the Text



Name: \_\_\_\_\_ Date: \_\_\_\_\_

# Identifying Nonfiction Text Features

Text Title: \_\_\_\_\_

Page	Text Feature	Purpose of the Text Feature
		005



# Activating Our Prior Knowledge

Here are some ways to activate our prior knowledge and predict what our nonfiction text will be about before we start reading the text. These strategies will help us to better understand the texts that we read.

Strategy	How We Use It	What Features Apply
Preview	To look at something to get an advance idea or impression of what's to come	Table of Contents Overview
Skim	To read a text to get the gist, or the basic overall idea, rather than concentrating on absorbing all the details	Headings Captions Labels
Scan	To read a text to look for specific information rather than trying to absorb all the information	Photographs Maps Diagrams

**K-W-L**

**Text Title:** \_\_\_\_\_

[illegible]



# Common Nonfiction Text Structures and Key Signal Words/Phrases

Text Structure	What is it?	Signal Words/Phrases
<b>Description (Main Idea/Details)</b>	Describes a topic, idea, person, place, or thing and lists its features and characteristics or provides examples	<ul style="list-style-type: none"> <li>• to illustrate</li> <li>• characteristics</li> <li>• an example</li> <li>• such as</li> <li>• to begin with</li> <li>• for instance</li> </ul>
<b>Chronological (Sequence)</b>	Describes items or events in the order they happened or tells the steps to follow to do something or make something	<ul style="list-style-type: none"> <li>• first</li> <li>• second</li> <li>• next</li> <li>• then</li> <li>• before</li> <li>• after</li> <li>• finally</li> <li>• following</li> <li>• now</li> <li>• soon</li> <li>• later</li> </ul>
<b>Comparison (Compare/Contrast)</b>	Shows how two or more things are alike and/or how they are different	<ul style="list-style-type: none"> <li>• same as</li> <li>• similar to</li> <li>• alike</li> <li>• as well as</li> <li>• both</li> <li>• not only . . . but also</li> <li>• instead of</li> <li>• either . . . or</li> <li>• different from</li> <li>• as opposed to</li> <li>• on the other hand</li> </ul>
<b>Problem/Solution</b>	Tells about a problem (and sometimes says why there is a problem) and then gives one or more possible solutions	<ul style="list-style-type: none"> <li>• question is</li> <li>• dilemma is</li> <li>• to solve this</li> <li>• one reason for the problem is</li> <li>• one answer to this is</li> </ul>
<b>Cause/Effect</b>	<p>Cause describes <i>why</i> something happened.</p> <p>Effect describes <i>what</i> happened as a <i>result</i> of the cause. (Sometimes the effect is listed first.)</p>	<ul style="list-style-type: none"> <li>• so</li> <li>• because</li> <li>• since</li> <li>• therefore, if . . . then</li> <li>• as a result of</li> <li>• this led to</li> <li>• may be due to</li> <li>• consequently</li> <li>• for this reason</li> </ul>



Name: \_\_\_\_\_

Date: \_\_\_\_\_

# What Do You See? What Do You Think?

Text Title	What Do You See? (Write down some descriptive details included in the text.)	What Facts Did You Learn?	What Do You Think? (Infer a feeling or thought based upon what you have read.)

Name: \_\_\_\_\_

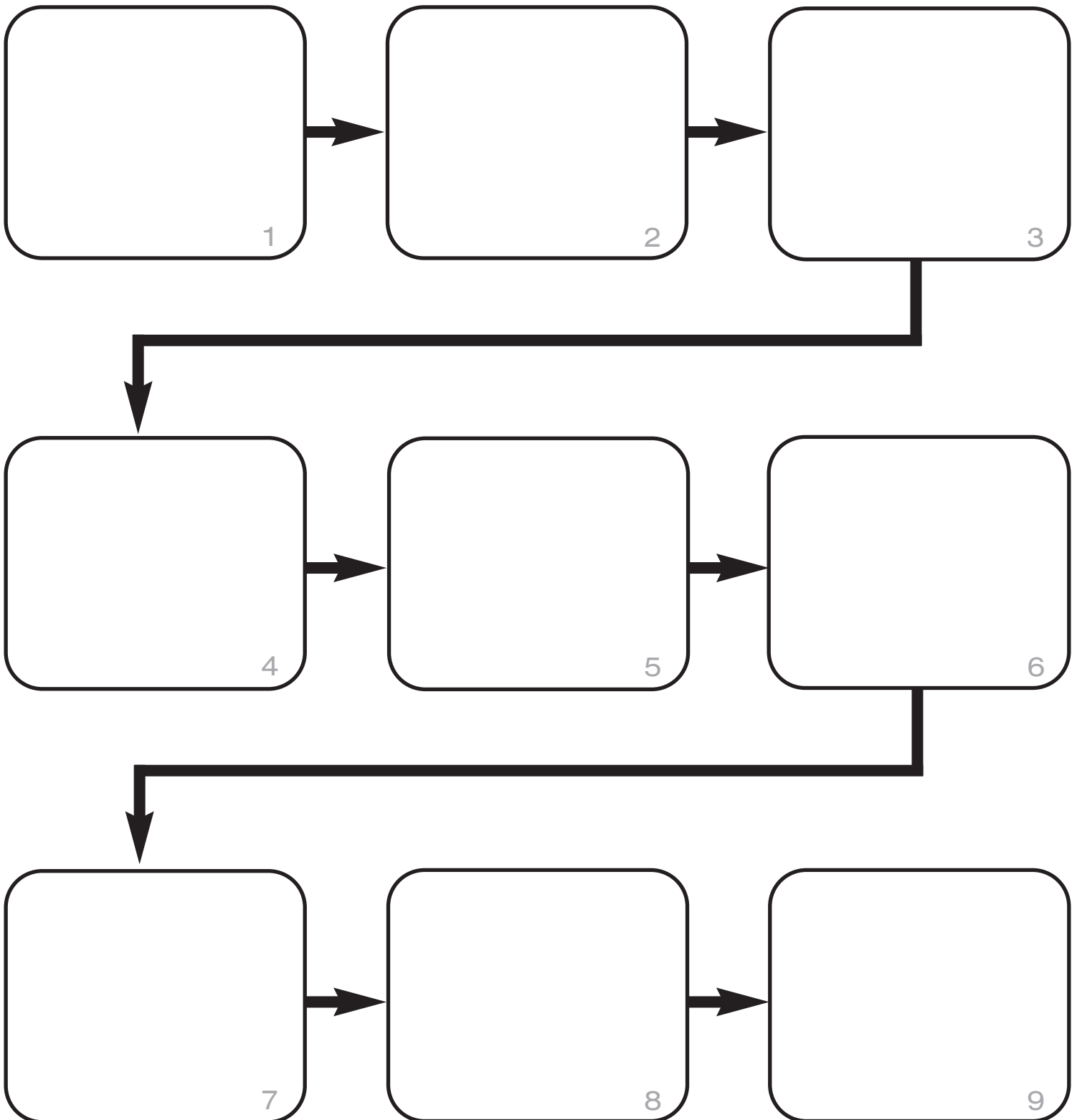
Date: \_\_\_\_\_

# What Do You See? What Do You Think?

<b>Text Title</b>	<b>What Do You See?</b> (Write down some descriptive details included in the text.)	<b>What Facts Did You Learn?</b>	<b>What Do You Think?</b> (Infer a feeling or thought based upon what you have read.)

# Chronological Text Structure<sup>013</sup>

Title of Text: \_\_\_\_\_





Name: \_\_\_\_\_ Date: \_\_\_\_\_

# Description Text Structure

Text Title: \_\_\_\_\_ Topic: \_\_\_\_\_

Main Idea	Supporting Details
	<hr/> <hr/> <hr/>

Main Idea	Supporting Details
	<hr/> <hr/> <hr/>

Main Idea	Supporting Details
	<hr/> <hr/> <hr/>

Name: \_\_\_\_\_ Date: \_\_\_\_\_

# Description Text Structure

Text Title: \_\_\_\_\_ Topic: \_\_\_\_\_

Main Idea	Supporting Details

Main Idea	Supporting Details

Main Idea	Supporting Details



# Cause and Effect

Text Title: \_\_\_\_\_

**Cause**

Why did it happen?

**Effect**

What happened?



**Cause**

Why did it happen?

**Effect**

What happened?



# Cause and Effect

Text Title: \_\_\_\_\_

## Cause

Why did it happen?

## Effect

What happened?



## Cause

Why did it happen?

## Effect

What happened?



# Problem/Solution Text Structure<sup>019</sup>

Book Title: \_\_\_\_\_ Topic: \_\_\_\_\_

Problem

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Attempted  
Solutions

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End Result / Solution

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# Problem/Solution Text Structure<sup>020</sup>

Book Title: \_\_\_\_\_ Topic: \_\_\_\_\_

Problem

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Attempted  
Solutions

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End Result / Solution

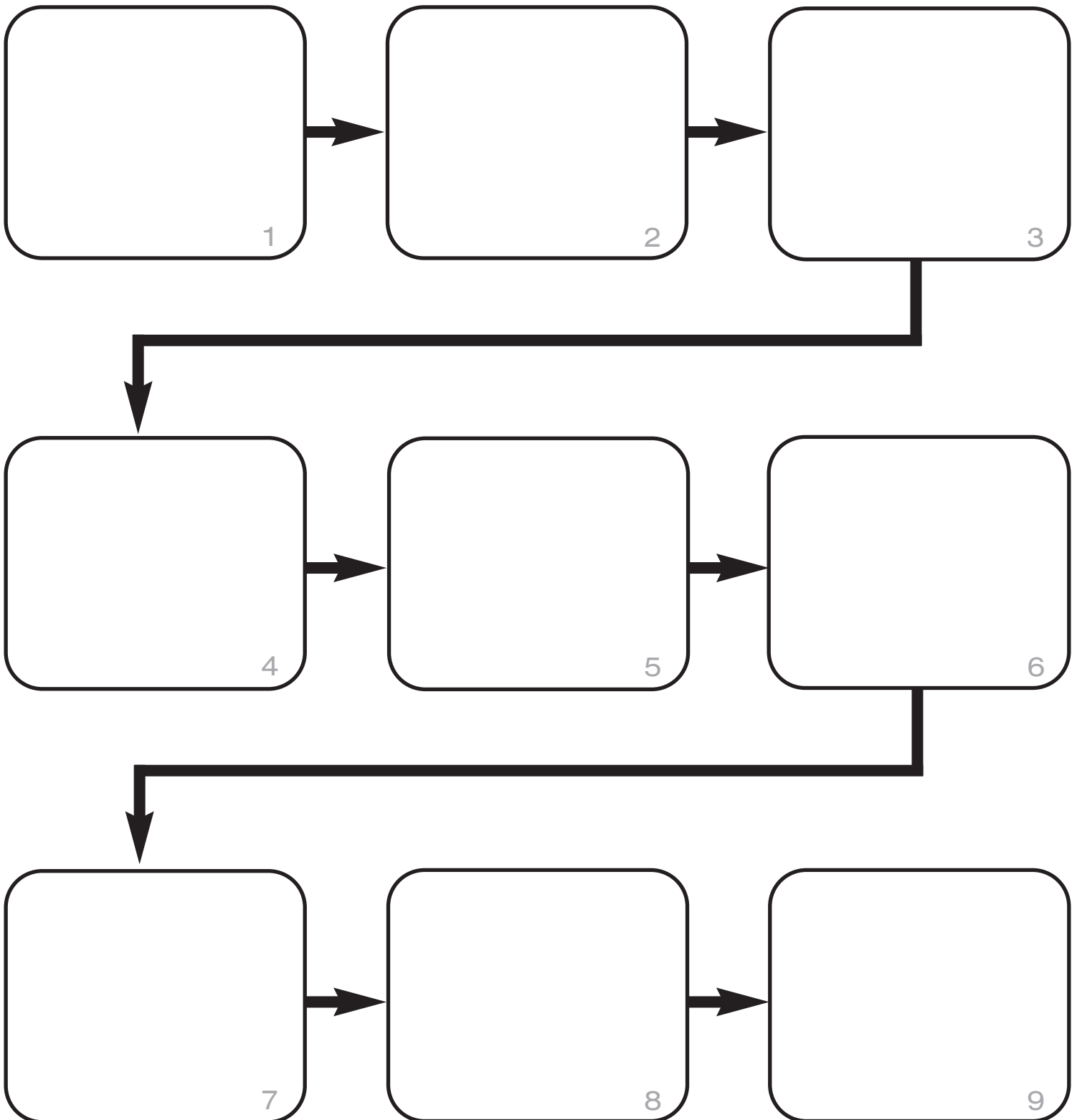
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# Chronological Text Structure<sup>021</sup>

Title of Text: \_\_\_\_\_



Name:

Date:

# Compare/Contrast Text Structure

Text Title:

Subject:

Subject:

Same

022

Name: \_\_\_\_\_ Date: \_\_\_\_\_

# Description Text Structure

Text Title: \_\_\_\_\_ Topic: \_\_\_\_\_

Main Idea	Supporting Details
	<hr/> <hr/> <hr/>

Main Idea	Supporting Details
	<hr/> <hr/> <hr/>

Main Idea	Supporting Details
	<hr/> <hr/> <hr/>

Name: \_\_\_\_\_ Date: \_\_\_\_\_

# Description Text Structure

Text Title: \_\_\_\_\_ Topic: \_\_\_\_\_

Main Idea	Supporting Details
	<hr/> <hr/> <hr/>

Main Idea	Supporting Details
	<hr/> <hr/> <hr/>

Main Idea	Supporting Details
	<hr/> <hr/> <hr/>



# Word Detective Strategies

Strategy	How We Use It
Context Clues	<p>Look at the words around the unknown word to help you figure out the meaning of the unknown word.</p> <ul style="list-style-type: none"> <li>• What words around the unknown word do you know?</li> <li>• What do they mean?</li> </ul>
Background Knowledge	<p>Think about what you already know about the topic.</p> <ul style="list-style-type: none"> <li>• What have you read about this topic?</li> <li>• What have you seen about this topic?</li> <li>• What do you know about the ideas being presented in this sentence?</li> <li>• Have you had personal experiences with this topic/idea? What are they?</li> </ul>
Knowledge of Common Word Parts	<p>Look at the parts of the word (prefix, suffix, root).</p> <ul style="list-style-type: none"> <li>• Are there parts of the word that you recognize?</li> <li>• Do you know their meaning?</li> </ul>
Glossary	<p>If the text has a Glossary, use it to confirm or clarify the definition of the unknown word.</p> <ul style="list-style-type: none"> <li>• Is the word in the back of the text?</li> <li>• Is the word in bold on the page with the definition on the side of the page?</li> <li>• Is the word highlighted in the text?</li> <li>• Is the word in a different color font?</li> </ul>

# Solving the Mystery Using Word Parts

Word Part	What It Means	How the Word Part Helps Us Solve the Mystery
Photo	Light	When we see this word part, we will know that the word has something to do with light.
Micro	Small	When we see this word part, we will know that the word has something to do with objects or ideas that are small in size.
Sub	Under	When we see this word part, we will know that the word is “under” something else.
Bio	Life	When we see this word part, we will know that the word has something to do with life.

# I Think It Means . . .

Text Title: \_\_\_\_\_

Unfamiliar Word	Which strategy helped me? CC for Context Clues BK for Background Knowledge WP for Word Parts G for Glossary	Clues I used to help me define the word	What I think it might mean
			027

# I Think It Means . . .

Text Title: \_\_\_\_\_

Unfamiliar Word	Which strategy helped me? CC for Context Clues BK for Background Knowledge WP for Word Parts G for Glossary	Clues I used to help me define the word	What I think it might mean
			028

Name: \_\_\_\_\_

Date: \_\_\_\_\_

# What’s the Purpose?

Text Title	Author’s Purpose (to entertain, to persuade, to inform/teach)	Information from the text that led me to think that

Name: \_\_\_\_\_

Date: \_\_\_\_\_

# What’s the Purpose?

Text Title	Author’s Purpose (to entertain, to persuade, to inform/teach)	Information from the text that led me to think that

# A Reporter's Formula

Summary Word	Questions to Ask and Report
WHO	<ul style="list-style-type: none"> <li>Who are the important people in this text?</li> </ul>
WHAT	<ul style="list-style-type: none"> <li>What are the most important facts and events in this text?</li> </ul>
WHERE	<ul style="list-style-type: none"> <li>Where do the events in this text occur?</li> </ul>
WHEN	<ul style="list-style-type: none"> <li>When did the events in this text occur?</li> </ul>
WHY	<ul style="list-style-type: none"> <li>Why is this subject important?</li> </ul>
HOW	<ul style="list-style-type: none"> <li>How was this problem caused? How can it be addressed?</li> </ul>





Name: \_\_\_\_\_ Date: \_\_\_\_\_

# K-W-L Chart

Text Title: \_\_\_\_\_ Topic: \_\_\_\_\_

<div><b>K</b></div> <div>What I <b>Know</b> about the topic</div>	<div><b>W</b></div> <div>What I <b>Want</b> to know about the topic</div>	<div><b>L</b></div> <div>What I <b>Learned</b> about the topic</div>

Name: \_\_\_\_\_ Date: \_\_\_\_\_

# K-W-L Chart

Text Title: \_\_\_\_\_ Topic: \_\_\_\_\_

<div><b>K</b></div> <div>What I <b>Know</b> about the topic</div>	<div><b>W</b></div> <div>What I <b>Want</b> to know about the topic</div>	<div><b>L</b></div> <div>What I <b>Learned</b> about the topic</div>



# A Text's Map

**Text Title:** \_\_\_\_\_

[illegible]



# A Text's Map

**Text Title:** \_\_\_\_\_

[illegible]

Name: \_\_\_\_\_ Date: \_\_\_\_\_

# Learning From Nonfiction Text Features

Text Title: \_\_\_\_\_

Page	Text Feature	Specific Example	What We Learned From the Text Feature

Name: \_\_\_\_\_

Date: \_\_\_\_\_

# Learning From Nonfiction Text Features

Text Title: \_\_\_\_\_

Page	Text Feature	Specific Example	What We Learned From the Text Feature

Name: \_\_\_\_\_ Date: \_\_\_\_\_

# Description Text Structure – Main Idea

Text Title: \_\_\_\_\_

Main Idea	Supporting Details
	<div></div> <div></div> <div></div>

Main Idea	Supporting Details
	<div></div> <div></div> <div></div>

Main Idea	Supporting Details
	<div></div> <div></div> <div></div>

Name: \_\_\_\_\_ Date: \_\_\_\_\_

# Description Text Structure – Main Idea

Text Title: \_\_\_\_\_

Main Idea	Supporting Details
	<div></div> <div></div> <div></div>

Main Idea	Supporting Details
	<div></div> <div></div> <div></div>

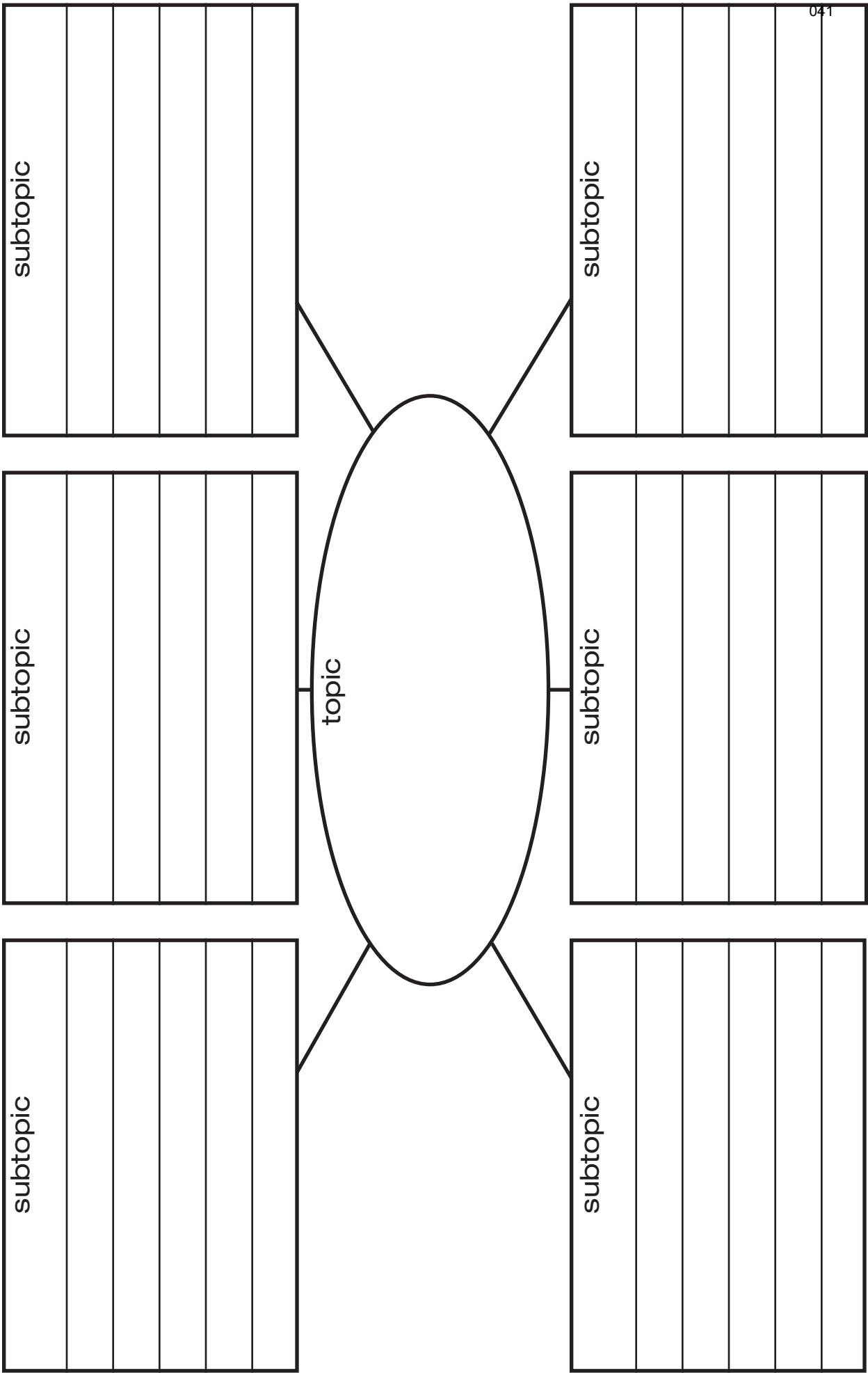
Main Idea	Supporting Details
	<div></div> <div></div> <div></div>



Name: \_\_\_\_\_ Date: \_\_\_\_\_

# Description Text Structure – Topic-Subtopic

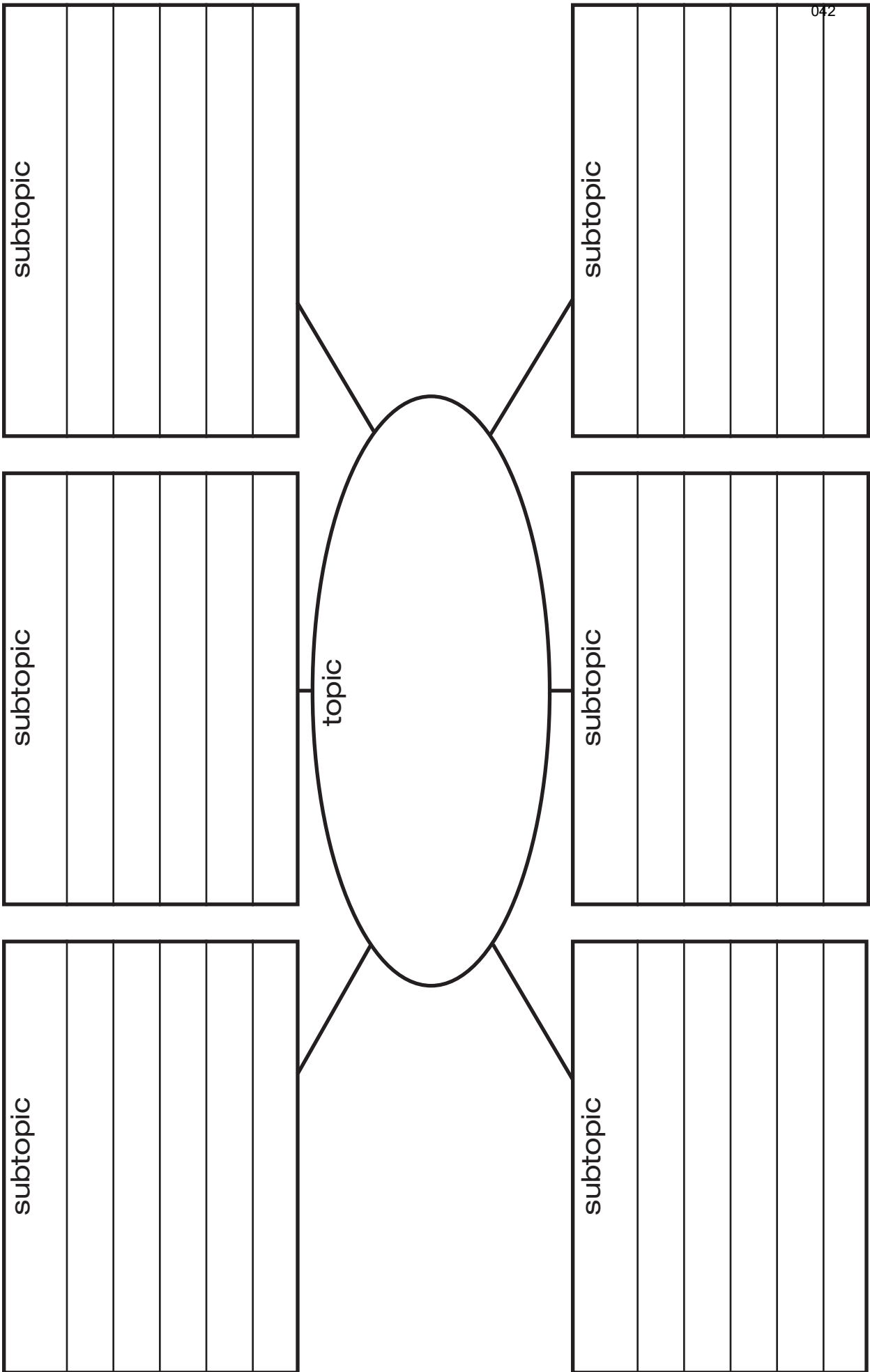
Text Title: \_\_\_\_\_



Name: \_\_\_\_\_ Date: \_\_\_\_\_

# Description Text Structure – Topic-Subtopic

Text Title: \_\_\_\_\_



Name: \_\_\_\_\_ Date: \_\_\_\_\_

043

# Problem and Solution Text Structure

Text Title: \_\_\_\_\_

Problem(s)



Attempted Solution(s)



End Result or End Solution

Name: \_\_\_\_\_ Date: \_\_\_\_\_

044

# Problem and Solution Text Structure

Text Title: \_\_\_\_\_

Problem(s)

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Attempted Solution(s)

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End Result or End Solution

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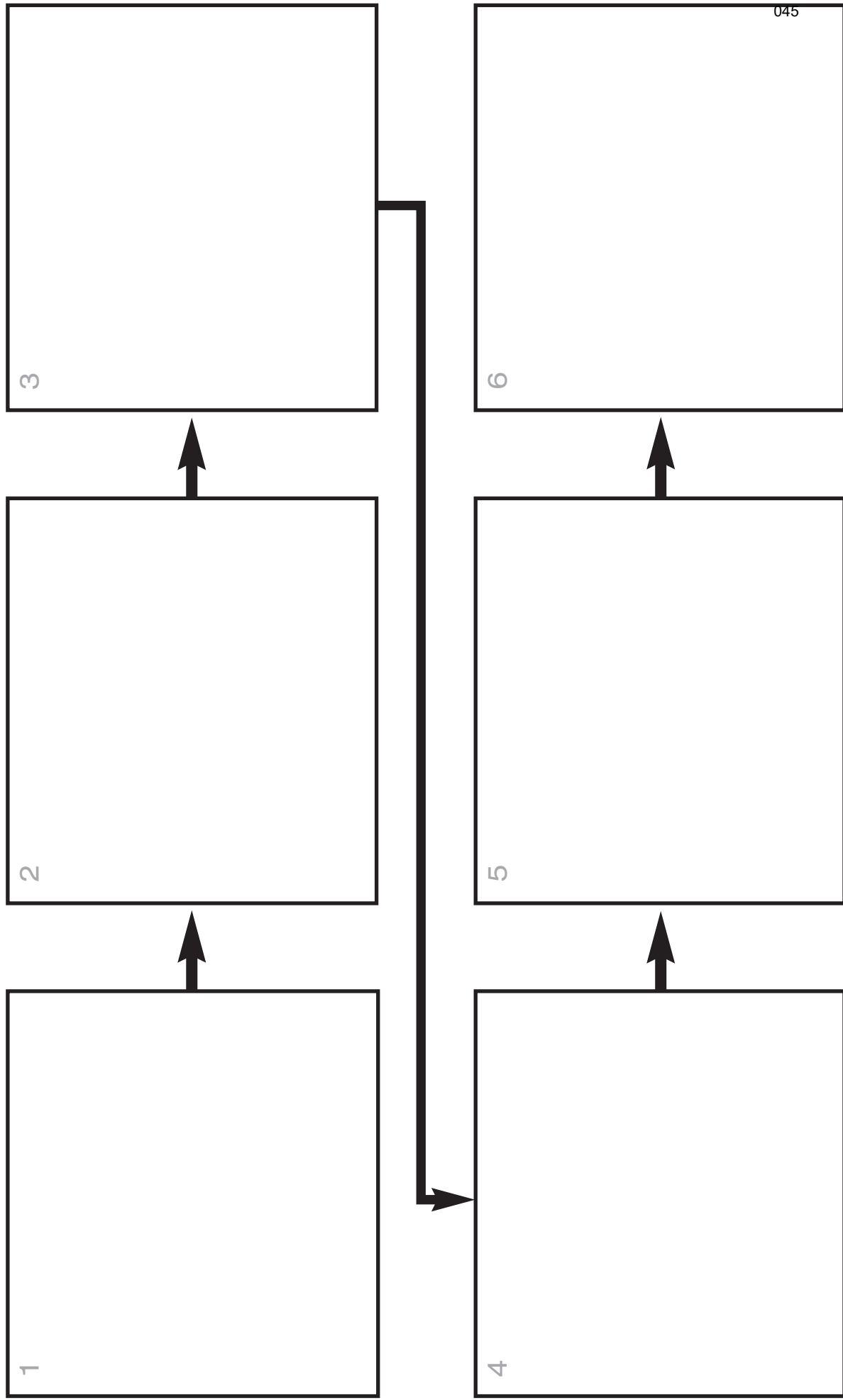
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Name: \_\_\_\_\_ Date: \_\_\_\_\_

# Chronological Text Structure

Text Title: \_\_\_\_\_



Name:

Date:

# Compare/Contrast Text Structure

Text Title:

Subject:

Subject:

Same

046

# New Word Parts: Prefixes and Suffixes

Prefixes	
re-	Again
fore-	Before or previous

Suffixes	
-y	Characterized by
-ly	Having the characteristics of
-ous	Having the qualities of
-ness	State of or condition of
-ify	Make similar to, or become
-ize	Become or become like

Name: \_\_\_\_\_ Date: \_\_\_\_\_

# Together They Mean . . .

Word	Prefix or Suffix	Root Word	Together They Mean . . .
re-freeze			
milkiness			
jungly			
forewarn			
vandalize			
wondrous			



Name: \_\_\_\_\_ Date: \_\_\_\_\_

# Have a Go! It Might Mean . . .

New Word	Word Part Clues (prefix, suffix, and/or root word)	Context Clues	It Might Mean . . .

Name: \_\_\_\_\_ Date: \_\_\_\_\_

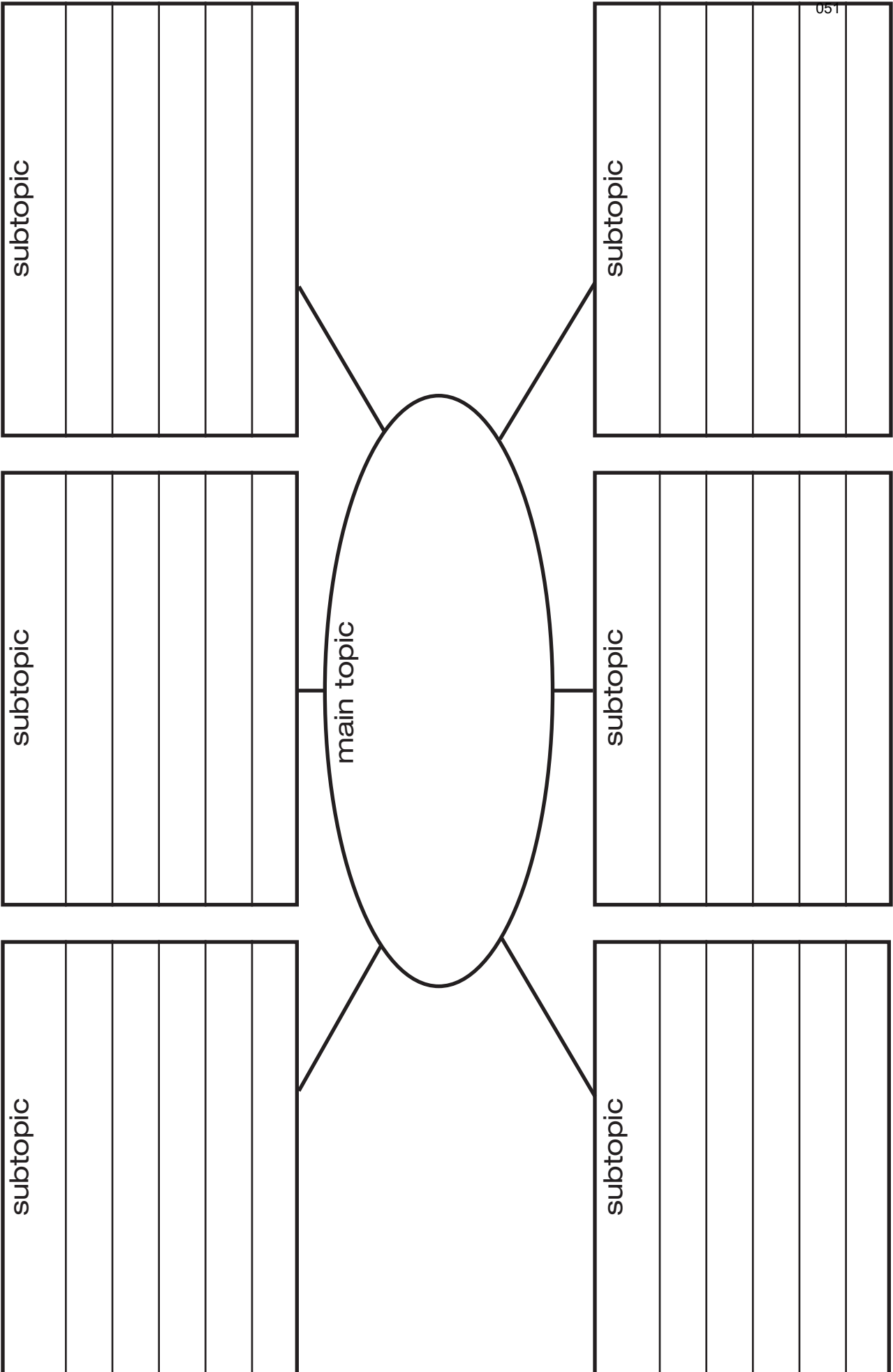
# Have a Go! It Might Mean . . .

New Word	Word Part Clues (prefix, suffix, and/or root word)	Context Clues	It Might Mean . . .

Name: \_\_\_\_\_ Date: \_\_\_\_\_

# Summary Graphic Organizer

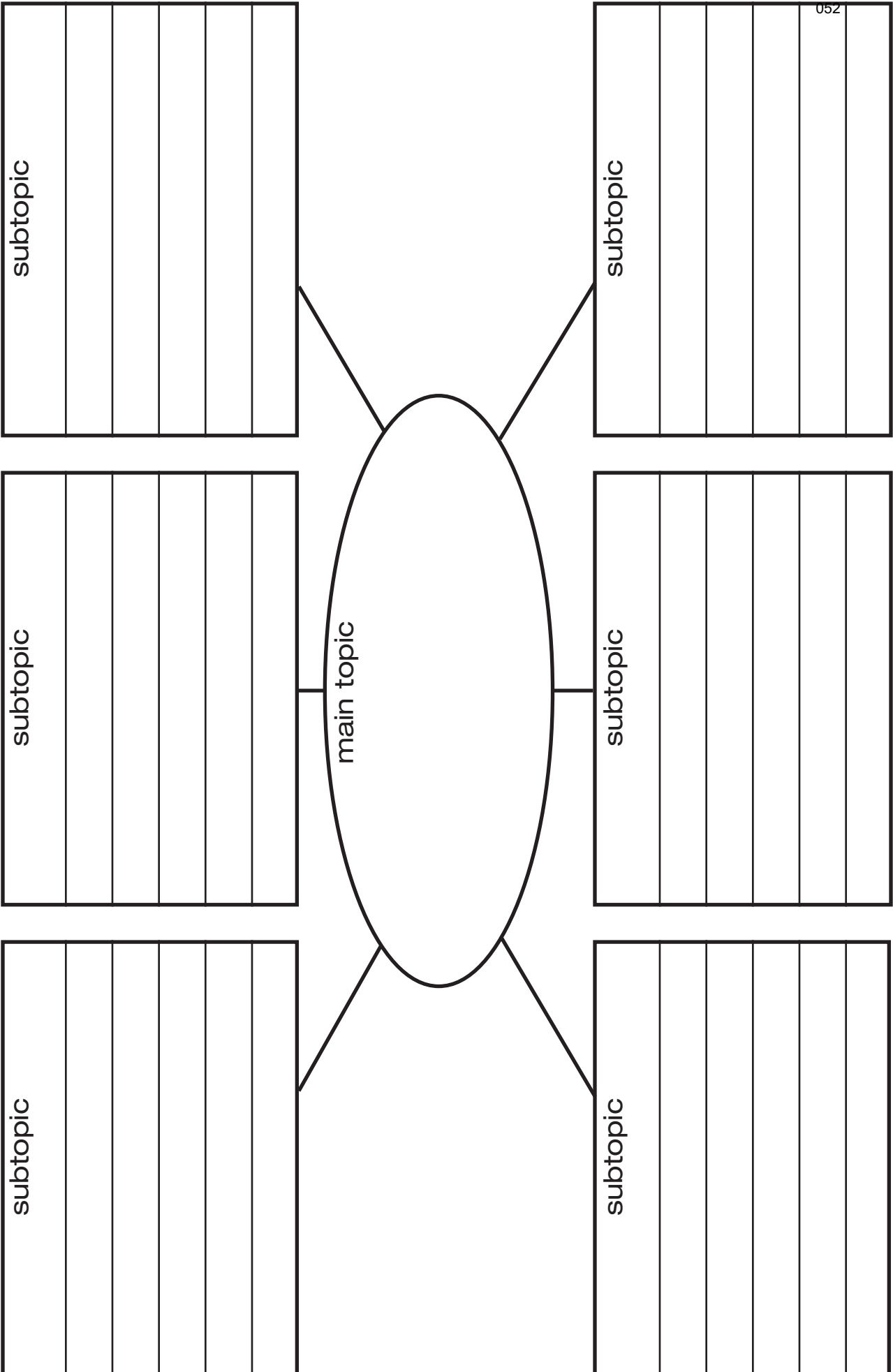
Text Title: \_\_\_\_\_



Name: \_\_\_\_\_ Date: \_\_\_\_\_

# Summary Graphic Organizer

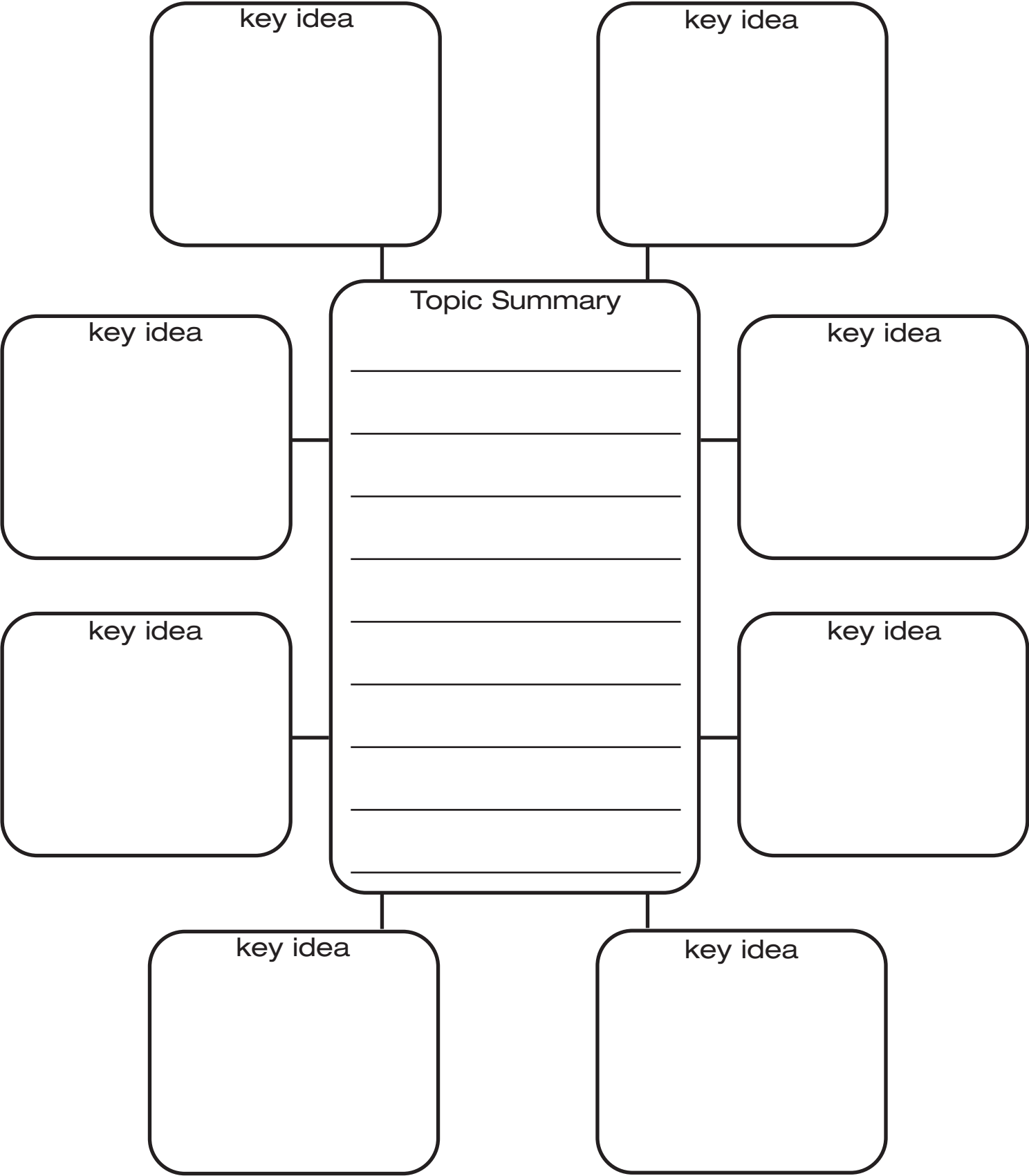
Text Title: \_\_\_\_\_



# Summarizing One Topic From Two Texts

Title of Text 1: \_\_\_\_\_

Title of Text 2: \_\_\_\_\_





## Multiple-Choice Main Idea Test Questions for “Snakes”

### Part A

Which sentence **best** states a main idea of this article?

- A. “Snakes form one of the world’s most successful groups of animals.” (paragraph 1)
- B. “The body of a snake seems odd when you first look at it.” (paragraph 3)
- C. “Secretive by nature, snakes stay away from people as much as they can.” (paragraph 1)
- D. “Most snakes are brightly colored and come in a variety of patterns that often help them blend into their surroundings.” (paragraph 2)

### Part B

Which detail from the article supports the answer to Part A?

- A. “Most of these live on or under the ground but some live in trees, and some spend all or part of their lives in the water.”
- B. “They live on every continent but Antarctica and number 3,000 different kinds, or species.”
- C. “When you learn about snakes you discover how interesting they are.”
- D. “Snakes are also some of the most beautiful creatures on Earth.”

# Multiple-Choice Main Idea Test Questions for “Snakes” with Annotations (Teacher Reference)

(Based on EngageNY August 2014 Released Questions with Annotations)

## Part A

This question measures CCLS: RI.4.2 because it requires students to determine a main idea of the text and select a sentence from the article that best states this main idea.

Which sentence **best** states a main idea of this article?

- A. “Snakes form one of the world’s most successful groups of animals.” (paragraph 1)
- B. “The body of a snake seems odd when you first look at it.” (paragraph 3)
- C. “Secretive by nature, snakes stay away from people as much as they can.” (paragraph 1)
- D. “Most snakes are brightly colored and come in a variety of patterns that often help them blend into their surroundings.” (paragraph 2)

Correct answer: **A**

**Choice A** is correct because it states a main idea from the article. The details in the text explain, both explicitly and implicitly, why the author considers snakes to be successful.

Why the other choices are incorrect:

**Choice B** provides a detail that piques readers’ interest about the way snakes look, but it is not a main idea or the author’s message.

**Choice C** provides a supporting detail that may imply why snakes are successful at staying alive (they stay away from people who may be predators) or why they are interesting creatures (they are secretive by nature).

**Choice D** provides a detail that also may imply why snakes are successful at staying alive (they can camouflage themselves to protect themselves from predators).



# Tips for Taking the Test

(Quoted from the 2017 Common Core English Language Arts tests published by the New York State Education Department.)

Here are some suggestions to help you do your best:

- Be sure to read all the directions carefully.
- Most questions will make sense only when you **read the whole passage**. You may read the passage more than once to answer a question. When a question includes a quotation from the passage, be sure to keep in mind what you learned from reading the whole passage. You may need to review **both** the quotation and the passage in order to answer the question correctly.
- Read each question carefully and think about the answer before choosing your response.



## Sample Written Response (Teacher Reference)

You read the articles "Butterflies" and "The Gray Wolf: An Endangered Species Success Story." Write an essay comparing and contrasting key details presented in the two articles about how humans have positively and/or negatively affected the balance of nature. Use specific details and examples from both articles to support your ideas.

Humans have affected the balance of nature in positive and negative ways. The articles "Butterflies" and "The Gray Wolf: An Endangered Species Success Story" both provide evidence to prove this point.

Both tropical butterflies and gray wolves were once in danger because humans changed the environments where these creatures lived. I learned in the article "Butterflies" that humans changed the home of the butterflies by cutting down the trees in the rain forest. The butterflies had no place to live and grow and began to disappear. The second article, about the gray wolf, explains that humans changed the land where the wolves lived. When more and more people moved into the wild places where wolves lived and built farms and ranches, the wolves started eating farm animals. Then people started killing the wolves to protect their farm animals. Soon there were hardly any wolves left. In addition, without the wolves, other animals and plants were affected. The wolves weren't around to eat the elk, so there were more elk roaming around. Elk liked to eat aspen trees, and with more elk, more aspen trees were eaten. The balance of nature was thrown off.

In both articles, humans learned that these changes were not good. Humans needed to positively affect the balance of nature. Both articles explain what people did to help the animals recover. In the tropical rain forests, people began learning to make a living without hurting the trees. In addition, they made butterfly gardens to raise more butterflies. I learned from the gray wolf article that people started to save the wolves from extinction by doing something different. They passed laws that made it illegal to hunt wolves and also brought wolves from Canada to live in parts of the United States.

In conclusion, humans have affected the balance of nature by changing the environments where animals were living and by even killing some of the animals. The changes caused animals to begin disappearing until people realized how important it was to restore the balance of nature.



# Snakes

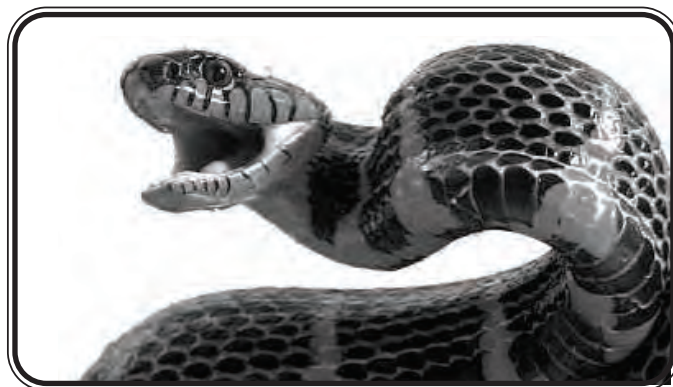
by John Bonnett Wexo  
from *Zoobooks®: Snakes*

Snakes form one of the world's most successful groups of animals. They live on every continent but Antarctica and number approximately 3,000 different kinds, or species. Most of these live on or under the ground but some live in trees, and some spend all or part of their lives in the water. Secretive by nature, snakes stay away from people as much as they can.

Most snakes are brightly colored and come in a variety of patterns that often help them blend into their surroundings. Many snakes are venomous, many are not, and all play an important role in nature. When you learn about snakes you discover how interesting they are. Snakes are also some of the most beautiful creatures on Earth.

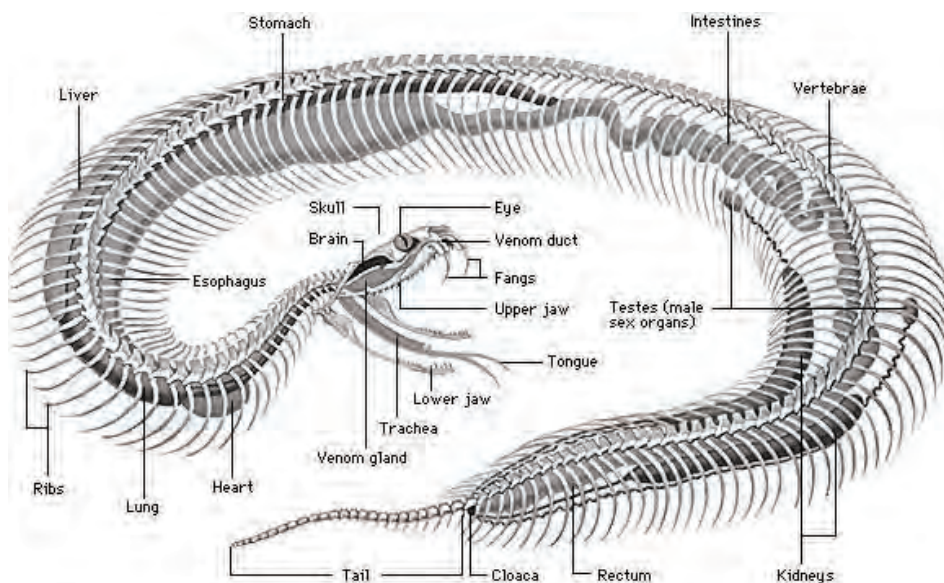


———— **Northern Copperhead** ————



———— **Mangrove Snake** ————

The body of a snake seems odd when you first look at it. But it has many of the same parts that the human body has—a backbone, a heart, a stomach, and so forth. These are arranged differently, of course, but they perform the same kinds of jobs for the snake that they do for us. As with all creatures in nature, the snake has a body that is adapted for the life it leads. The sheer number of different kinds of snakes that live in the world today is proof that the design of the snake is successful.



Because the body of a snake is long and thin, the organs must also be long and thin. The available space is limited and, as a result, some organs are reduced in size or missing. Most snakes, for example, have one large lung and one tiny lung. Sometimes they have only one lung.

Many people think that snakes are “all tail,” but only a part of the snake is actually a tail. In some primitive types, the tail is very short—no more than a few inches long. Even the longest snakes rarely have a tail that is more than one-third the total body length.

Unlike human beings, snakes keep growing until they die. The rate of growth is much faster when they are young and slows down as they age. An old snake may grow only a little bit, but it will still grow.

## **How a Snake Gets Out of Its Skin**

The snake begins by rubbing its head against something hard until the skin splits open.

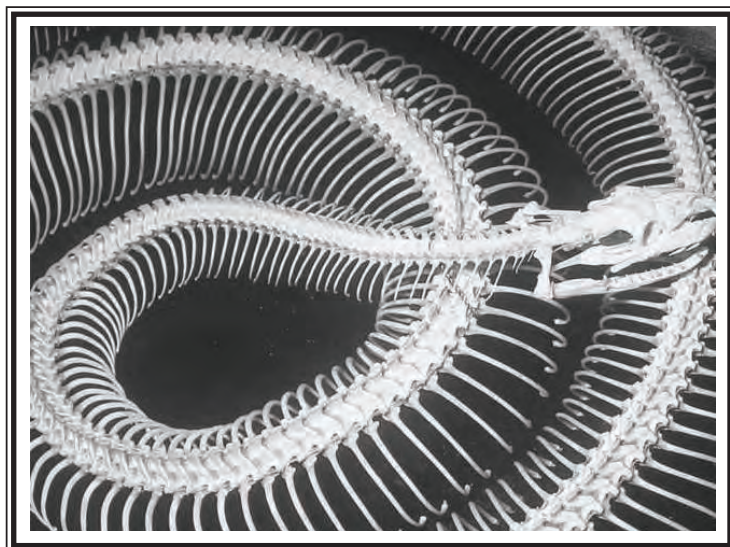
Then, by rippling the muscles of its body, the snake stretches the outer layer of skin and begins to wriggle out of it.

In the process, the outer layer of skin is turned completely inside out. It is usually shed in one piece.



Every snake is strong for its size. Pound for pound, snakes have more muscles than many other kinds of animals. They must literally “muscle their way” along the ground. Many types of snakes also use their muscles to squeeze their prey, or “constrict” it.

Humans typically have only 33 vertebrae in their backbones. Some of the larger snakes can have as many as 500. In general, the more bones a snake has in its backbone, the more agile it is. The symmetry of a snake skeleton is one of nature’s beautiful designs.





by Fran Downey  
from *National Geographic Kids*®

What was the most important event in U.S. history? Was it the Pilgrims landing at Plymouth Rock? How about the American Revolution? Or was it the Civil War?

It's hard to decide. They're all important. Yet the founding of Jamestown may have been the most important. After that, everything in America changed—even worms.

You're probably wondering what worms have to do with history. We'll get to that later. First, we have to learn about Jamestown.

## A Dangerous Land

On May 14, 1607, three ships full of colonists came to shore along the banks of the James River in what is now Virginia. The people on board had sailed from England to a new colony. They called it Jamestown.

The colonists couldn't have chosen a worse place to settle. It was marshy and filled with mosquitoes. There was little drinkable water. Worse yet, the area was in a drought.



■ The Jamestown colonists reached the shores of the James River 13 years before the Pilgrims landed at Plymouth Rock.

They also faced other hardships. They had to protect themselves from two enemies. First, they were fearful that ships from Spain would attack them. England and Spain were fighting each other at that time.

Second, they were afraid that a Native American group, the Powhatan, would attack them. To protect themselves, the colonists built a fort. It was triangle-shaped. Inside the fort, the colonists thought they would be fairly safe. They were wrong.

The new environment threatened the colonists even more than the Native Americans did. Indeed, it nearly wiped them out.

## Heading Home?

The drought caused many hardships. Water was scarce. Crops wouldn't grow. Animals couldn't find plants to eat. The colonists were often hungry and thirsty.

Out of food, the colonists started to eat anything they could find. They wolfed down cats, dogs, horses, and rats. They even boiled starch from some of their clothes to make a thick soup. Still, they starved.

Thirsty, the colonists drank water from the James River. That was bad. The river water was often muddy and salty. It made the

colonists very ill. Many died from drinking the water. Others died from starvation. They called this period “the starving time.”

Nearly two years after the colonists founded Jamestown, they decided to head home. Worn out, they loaded a ship and got ready to leave.

In the nick of time, supply ships arrived. The colony was saved.

Things now started to get better for the colonists. More colonists moved from England to Jamestown. One of them was a man named John Rolfe.

## A Better Life

John Rolfe settled in Jamestown three years after the colony had been founded. Things were finally starting to look up. Soon the drought ended.

Things continued to get better. In 1614, Rolfe married Pocahontas. She was the youngest daughter of Chief Powhatan, the leader of the Powhatan. The marriage brought peace between the colonists and the Powhatan.

Rolfe also got a shipmaster to bring tobacco seeds to Jamestown. Before long, the colonists were growing and selling tobacco. A plant grown to be sold is called a cash crop.



John Rolfe's marriage to Pocahontas meant the colonists no longer had to fear being attacked by the Powhatan. Soon the Jamestown colony began to grow.

More and more people moved to Jamestown. Many wanted to come. Others were forced. Kidnappers brought people from Africa to Jamestown. There they were forced to work. After a few years, some of these Africans were freed. Others remained slaves.

Slaves worked in the tobacco fields. They built houses for their owners. They did much of the work to build the colony. Yet they were never paid. For them, Jamestown and America did not offer a better life.

## A Changing Land

The colonists changed the land around Jamestown in many ways. For starters, they cut down forests and grew crops.

The colonists also brought new animals and plants to America. Domestic cattle,



chickens, goats, horses, and pigs all made the journey to Jamestown. None of these species lived in the Americas before the colonists brought them.

The colonists chopped down trees to clear the land in order to plant and grow tobacco and other crops. The sale of the tobacco helped the colony survive and grow.





- The animals the colonists brought from England provided additional sources of food, such as milk, eggs, and meat. The Native Americans had never seen some of these animals before.

Some of the smallest alien animals brought by colonists made the biggest changes. Take worms and honeybees, for example.

Before 1607, worms didn't exist in some parts of America. Nightcrawlers and red earthworms didn't crawl through the soil.

These tiny worms made big changes. They ate leaves that littered forest floors. Those leaves fertilized and protected the soil. Without the leaves, rainwater washed away nutrients. That made it harder for some native plants to grow.

While worms made it harder for some native plants to grow, bees made it easier for some alien plants to take root. Busy bees helped pollinate watermelon, apple trees, and peach trees. Without bees, these plants would never have survived in America.

## True Survivors

The Jamestown colonists weathered some tough times, but they survived. Jamestown was the first English colony to succeed in America. More colonies followed.

The people in these colonies changed the land in many ways. So did the plants and animals they brought. Together, these colonies, plants, and animals helped make America what it is today.



# Getting Back Up With Lindsey Vonn<sup>067</sup>

by Andrew D.

Lindsey Vonn knows all about falling. It's an unavoidable part of skiing as fast as you can down a snow-covered mountain. But what made Lindsey the most successful female ski racer in United States history was learning how to get back up again.

"Setbacks help you to concentrate," she says. "When successes fall into your lap, you lose sight of your goals."

Downhill skiers like Lindsey Vonn sometimes reach speeds of up to 75mph on the slopes—faster than the speed limit on most U.S. highways.



Lindsey started setting goals at a young age. When she was 10, she set a goal of winning an Olympic medal after champion skier Picabo Street showed her the silver medal she won in 1994. Lindsey knew that winning the Olympics would take a lot of work, but that didn't bother her.

"If you work hard," Lindsey says, "it will pay off in the end."

Her hard work started paying off almost immediately. First, Lindsey became the first American girl to win an

important youth race in Italy. Then she won three Junior World Championships and two U.S. titles. By the time she was 17, Lindsey was on the 2002 U.S. Olympic team. She didn't win any medals, but she gained valuable experience.

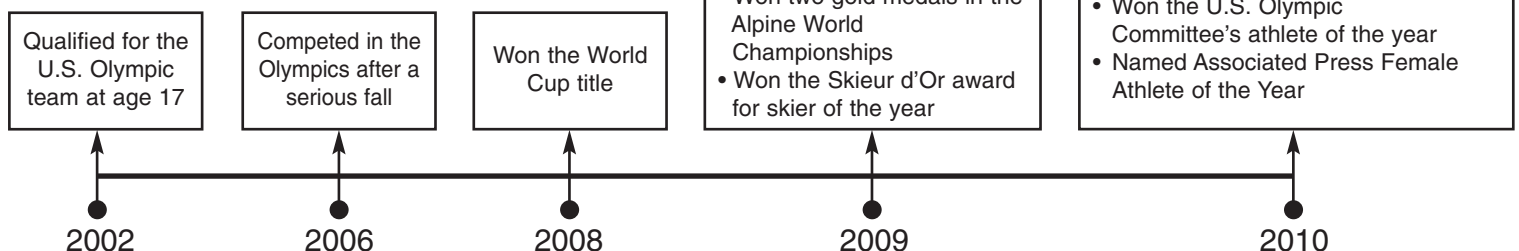
Four years later, Lindsey was on track to achieve her goal in the 2006 Olympics. Then, during a practice run, Lindsey suffered a terrifying fall. Some people thought she might never be able to ski again. But after a trip to the hospital, Lindsey was back on the slopes.

Skiing through terrible pain in her legs and back, Lindsey failed to win a medal. Although disappointed, she was able to see the bright side. "That happened for a reason," she said. "It was a missed opportunity, but it gave me the fuel and motivation that I needed." Lindsey set a new goal for herself: to win a medal in the 2010 Olympics.

It would not be easy. In late 2009, Lindsey severely bruised her right arm in another crash. Then, as she was training for the 2010 Winter Olympics, yet another crash left her with a deep shin bruise. But amazingly, Lindsey never lost sight of her goals and remained focused on the Olympic Games ahead of her. Despite her painful injury, Lindsey became the first American woman to win a gold medal in a downhill event. What an unbelievable triumph!

Much can be learned from looking at Lindsey's course in life and the challenges she overcame. With her 2010 Olympic victory, Lindsey had proven, once again, the value of her lifelong motto: "When you fall down, just get up again." Who can't learn a lesson from Lindsey?

## Lindsey Vonn's Achievements 2002–2010



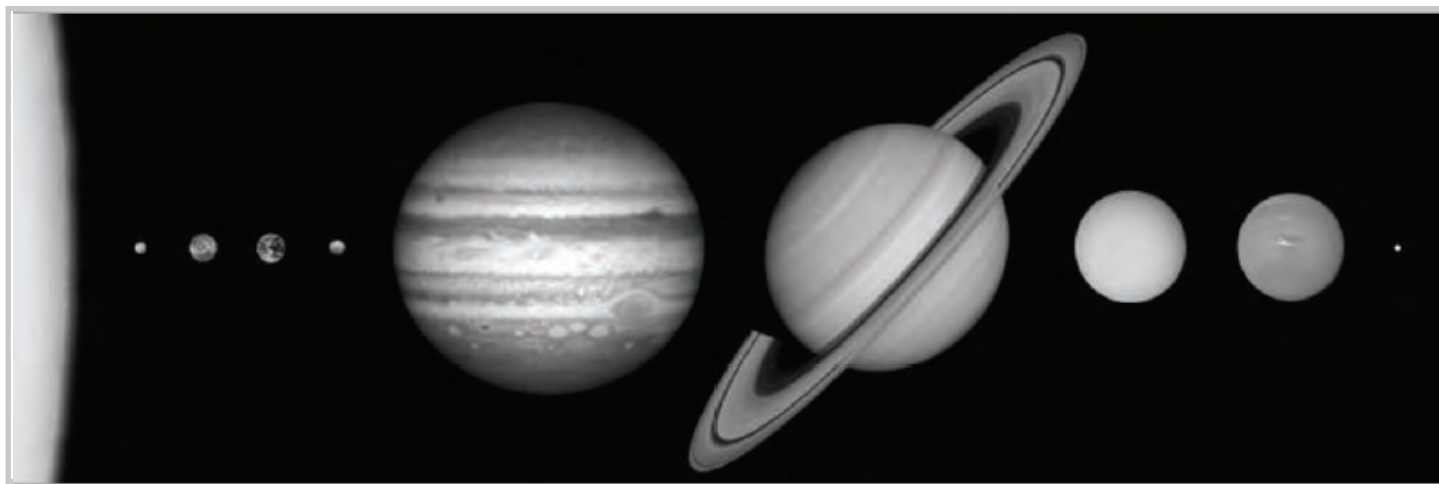


# Why Pluto Is No Longer a Planet

by Karen Smith and Carey Moore

On February 18, 1930, Clyde Tombaugh looked through his telescope and discovered Pluto. Pluto was then considered the ninth planet from the sun. An 11-year-old girl named Venetia Phair from Oxford, England, came up with the name Pluto.

At that time scientists believed that Pluto was larger than it actually is. Pluto is light brown in color with a little yellow in it. It is mostly rock and ice.



■ Pluto is smaller than Earth's moon and is farther away from the sun than the planets—approximately 3.67 billion miles! (Image courtesy of NASA)

Astronomers, who are scientists who study the stars and planets, argued for over 10 years about whether or not to keep Pluto as a planet. Finally, on August 24, 2006, the International Astronomical Union, or IAU, voted Pluto out as a planet.

Pluto is now in a new category called *plutoids* and is considered a dwarf planet. The term *plutoid* is the name astronomers decided to use for all dwarf planets like Pluto.

The IAU decided to downgrade Pluto to a dwarf planet by creating a new definition for the word *planet*. There are three main requirements an object must have to be called a "planet."

The first requirement is that it must orbit around the sun—which Pluto does. The second requirement is that it must have enough gravity of its own to keep itself in a sphere (a ball or globe)—which Pluto does. The third requirement is that a planet must have a clear neighborhood or area surrounding it—which is where Pluto fails to meet the requirements of being a planet. Pluto has many icy and rocky objects floating around in its orbit and surrounding neighborhood.

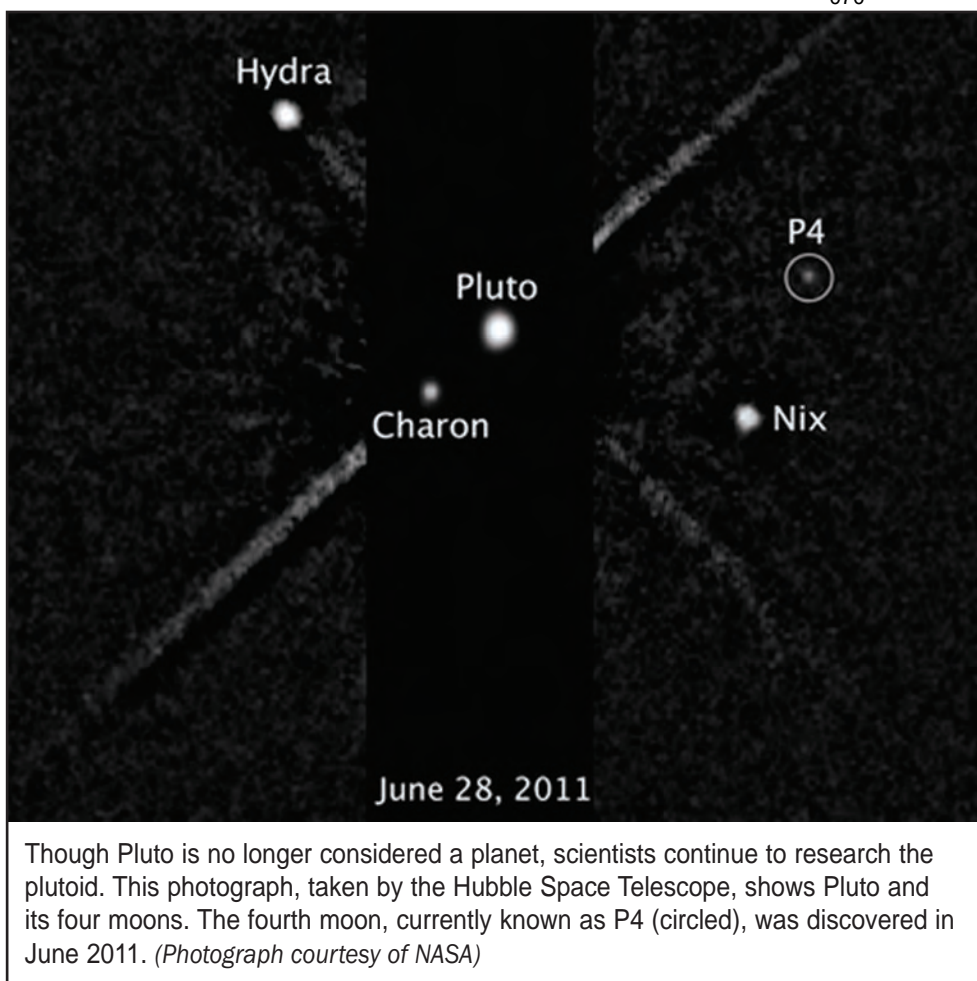
Many scientists and astronomers argue about Pluto's rank as a planet. Some say that Earth, Mars, Jupiter, and Neptune all have asteroids as their neighbors in space.

Another argument is that many astronomers did not get to vote on Pluto's ranking as a planet. Only 424 astronomers were allowed to vote on whether to keep Pluto a planet or not, but there are over 10,000 professional astronomers in the world.

In addition to these two arguments between astronomers and other scientists is the public's opinion. One scientist, Mike Brown, said, "The public is not going to be excited by the fact that Pluto has been kicked out." He also added that even though classroom textbooks and charts will have to be revised and changed, this did not matter to the astronomers because they did what they felt they needed to do.

Many feel this is an exciting time in science. Students can learn why scientists first thought Pluto was a planet and now why it isn't.

The Discovery Channel Store conducted a survey from August 30 through September 6, 2006, about whether or not to keep Pluto as the ninth planet. Over 15,000 people took the survey. More than 13,000 were in favor of



Pluto staying in the solar system as a planet. Less than 2,000 people voted to give Pluto the boot.

The survey conducted by The Discovery Channel Store will not change Pluto's rank, or status, in the solar system. But it does show that kids and adults have a strong opinion about Pluto.

**What do you think?**

**Resources:**

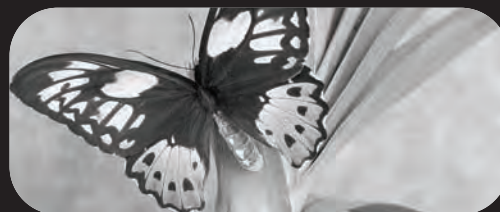
[www.msnbc.msn.com/id/14489259/](http://www.msnbc.msn.com/id/14489259/)

International Astronomical Union Press Release #IAU0804



# Butterflies

by Beth Wagner Brust  
from *Zoobooks®: Butterflies*



**The future of tropical butterflies** and other tropical species is linked to the future of the rain forest. While butterfly farms in many parts of the world help to conserve butterflies, they don't do much to save rain forest habitat. But in Costa Rica, a program called *Proyecto de Mariposas*, or "Butterfly Project," does help the rain forest.



**For many years,** the villagers of Barra del Colorado, Costa Rica, lived by fishing. Now, there are few fish for them to catch. Commercial fishermen from a neighboring country overfished the area by using large nets called *gill nets* that trap great numbers of fish at one time. With no fish, the people of Barra del Colorado became very poor. Today, they are learning to use some resources of the rain forest in a way that won't deplete them. This is called *sustainable resource* use. It allows people to benefit from nature and encourages them to be its caretakers.

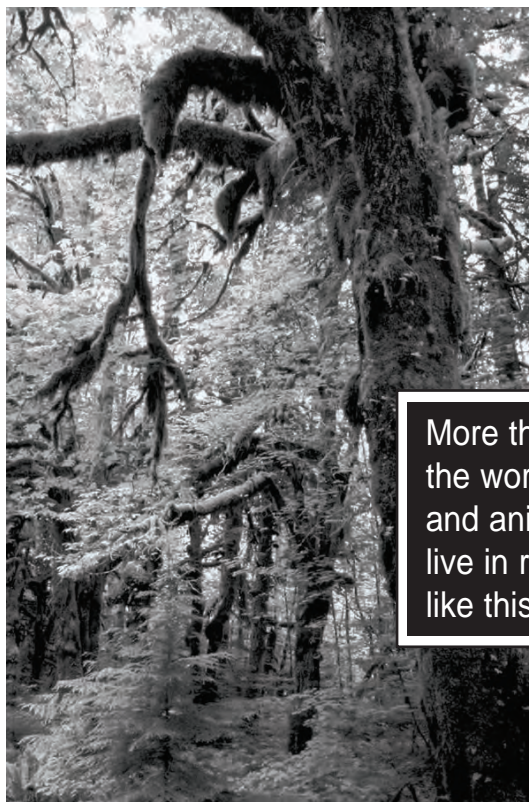
**The rain forest of Barra del Colorado** was logged 50 to 75 years ago. Its beautiful hardwood was made into furniture and wall paneling for people in other parts of the world. After a rain forest has been cut down, the soil erodes and loses its nutrients. It takes many years for the forest to grow back. Now there is strong regrowth in this rain forest. Villagers are being taught how to make a living from the forest without hurting it. They will farm butterflies to earn money and preserve the forest that is the source of the butterflies.

### **The children of Barra del Colorado**

convinced their parents that butterflies could improve their lives. A team from the Zoological Society of San Diego suggested *Proyecto de Mariposas* as a science project for the local school, which goes to the fourth grade. First, villagers cleared a garbage dump next to the school for the butterfly farm. Then they planted vegetation that would attract butterflies to lay their eggs and give caterpillars plenty to eat. The butterfly garden and nectar garden will benefit the community instead of enriching just a few.



The Monarch is one of 1,300 species of butterflies that live in Costa Rica.



More than half of the world's plant and animal species live in rain forests like this one.

**The people of Barra del Colorado** now sell their butterflies to exporters in San Jose, the capital of Costa Rica. The children of Barra del Colorado have shown that with projects like these, people can live in harmony with nature.



# Being Squirrely

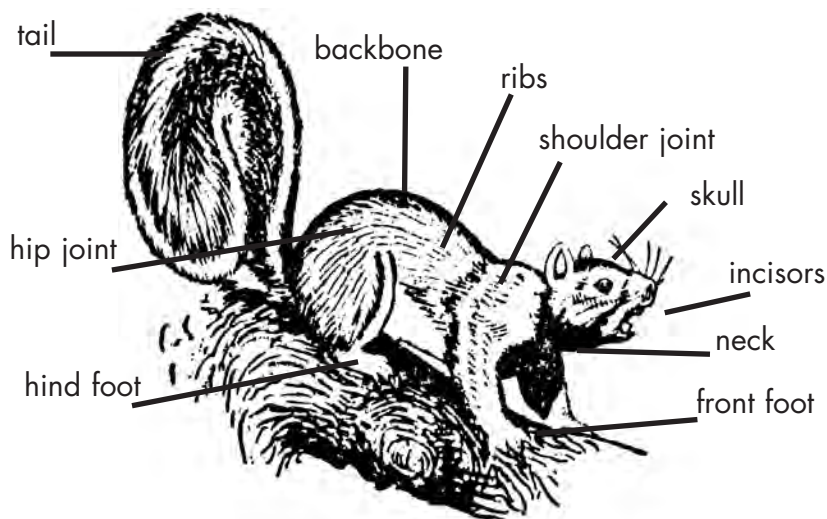
by Diana Vela



Flying Squirrels (left), Golden Mantled Squirrels (center), and Tassel-Eared Squirrels (right) are only three of the many species of squirrels found in different parts of the world.

Did you know there are more than 300 kinds of squirrels? Did you know that the smallest kind of squirrel weighs about half an ounce and is 3 inches long, and the largest can weigh up to 20 pounds and grow as long as 30 inches? It is true! But, let's find out about the kind of squirrel that we see most often: the tree squirrel.

■ Squirrels' tails serve several purposes, such as helping them maintain their balance when jumping from tree to tree or doing a high-wire act on telephone lines.



## Where do they live?

Squirrels often have two homes. The first one is a place where they can always go to stay warm. This home is probably a place in a hollow tree trunk, or maybe a nest built on a branch. A tree squirrel's home is called a den. The squirrels cover their home with dry leaves and bark strips. They live in this home during the winter. They also sometimes live in people's attics!

The tree squirrel's second home is usually a **temporary** one that is usually built from a loose pile of twigs and leaves in the branch of a tree. This home is cool on those hot summer days. These homes fall apart and often need to be rebuilt during the summer.

**temporary:**  
lasting for  
only a short  
time

## What do they eat?

Squirrels eat berries, corn, fruits, nuts, mushrooms, and seeds. They spend a lot of their time looking for food. A squirrel gathers food during the autumn and then hides it, or stores it, to eat during the winter. Squirrels store this food in holes in the ground, in trees, or in their dens.



There are 10 different species of tree squirrels. The Fox Squirrel is the most common species found in North America.

## How do they communicate?

Squirrels **communicate** using both sounds and their tails. They make chattering and screeching noises and sound like they are fussing at each other. They move their tails sideways, up and down, and in circles—and both the vocal and tail signals give the same basic message: go away. Squirrels are typically telling other squirrels to leave their food alone or to go away and leave their homes alone, or they are sending an alarm.

### **communicate:**

to exchange information;  
to talk

## Fun Facts

### What is a group of squirrels called?

Squirrels are typically solitary animals, so no group name has been given to them.

### Where are the most squirrels?

In the United States, the biggest **population** of squirrels is in Washington, D.C. in Lafayette Park, across from the White House. Some people call the park "Squirrel Capital."

### How long do they live?

Most squirrels die within their first year due to being hit by cars. If they can avoid cars, they can live for up to 6 or 7 years. Squirrels in **captivity** will live much longer.

### **population:**

the number of people or animals who live in a place

### **captivity:**

being held in a certain area against nature or will



# Recycling

by Linda Haynie

075

**Recycling is the reprocessing of used materials into new products. It means taking a product or material at the end of its useful life and turning it into a usable, raw material to make another product.**

The goal of recycling is preventing the waste of **potentially** useful materials, reducing the **consumption** of fresh raw materials, reducing energy usage, and reducing air and water pollution by reducing the need for conventional waste disposal.

Recycling shrinks the amount of waste that ends up in landfills and pollutes the environment.

Although Americans only make up 5% of the world's population, we create 30% of the world's garbage.

America's recycling rate is about 28%. Eighty percent of what we throw away could and should be recycled.

It is important for everyone to recycle!

## Recyclables

Recyclable materials are also known as recyclables. They may originate from home, industry, or business. Recyclables include paper, plastics, glass, electronics, metals, and textiles.

There are three major steps in the recycling process: 1) collecting recyclable materials, 2) manufacturing recycled-content products, and 3) purchasing recycled products. These three steps create a circle or loop that ensures the overall success and value of recycling.

Within the next three years, Americans will be throwing away 130 million cell phones per year.



## Collecting

The methods of collection vary from one community to another. There are four primary methods: drop-off centers, curbside pick-up, buyback centers, and deposit/refund programs.

Recyclables are sent to a material recovery facility to be sorted and prepared into marketable commodities for manufacturing.

In 1988, there were only 600 curbside recycling programs available in the U.S. Today, there are more than 9,340 programs, over 12,000 drop-off centers, and 480 material recovery facilities.

## Manufacturing

Once cleaned and separated, the recyclables are ready to undergo the second step in the recycling loop. More and more of today's products are being manufactured with total or partial recycled content.

## Purchasing

Purchasing recycled products completes the loop or process.

By buying recycled products, businesses, governments, and individual consumers each play an important role in making the recycling process a success. As consumers demand more environmentally sound products, manufactures will continue to meet that demand by producing high-quality recycled products.

Recycling gives us approximately 6 times as many jobs as running landfills and employs more than 2.5% of manufacturing workers.

Recycling and remanufacturing could account for 1 million manufacturing jobs and more than \$100 billion in revenue.

## Recycled Products

Most of the items we put in garbage cans can and should be recycled. There are more than 4,500 recycled-content products available, and the number continues to grow. The list on the right presents just a sampling of products that can be made with recycled content.

### Recycled Products

- Aluminum cans
- Carpeting
- Cereal boxes
- Comic books
- Egg cartons
- Electronics
- Glass containers
- Laundry detergent bottles
- Motor oil
- Newspapers
- Paper towels
- Steel products
- Trash bags



## Plastic

Americans are using about 70 million disposable plastic bottles each day. Sixty million of these bottles end up in landfills and incinerators each day. Many more end up in our streets, parks, waterways, oceans, and beaches.

## Aluminum

In the early 1960s the U.S. started to use aluminum beverage cans. By 1968 metal companies found that in recycling these cans, they could save up to 95% of the energy it takes to mine and refine the metal from the ore.

Also, 95% of the environmental emissions associated with can production were eliminated. The most productive can recycling year was 1997, when 66.5% of all cans produced were recycled. In 2005, the recycling rate had slipped to 52%, and some estimate that we are putting 900,000 tons of cans in landfills each year.





## Paper

About 80% of what Americans throw away is recyclable. Our recycling rate in 2000 was only 45.4%. Recycling one ton of paper saves:

- 17 trees
- 2 barrels of oil (enough to run an average car for 1,260 miles)
- 4,100 kilowatts of energy (6 months of power for an average home)
- 3.2 cubic yards of landfill space (the size of an extended-cab pickup truck)
- 60 pounds of air pollution

You can make 20 recycled aluminum cans with the energy it takes to make one new can from bauxite ore.

You can save enough energy to run a TV for 3 hours simply by recycling one aluminum can.

Paper makes up 40% of a landfill's content. Making paper from recycled content rather than trees creates 35% less water pollution.

In 2006, Americans recycled only 20% of the glass containers we use.

## Glass

Glass is used to package many food products: juices, jellies, vegetable oils, baby food, and many more. The best way to deal with glass trash is to recycle it. Using recycled glass to make new glass products requires 40 percent less energy than making it from all new materials. Glass jars and bottles can be recycled over and over again. The glass doesn't wear out. Glass takes one million years to decompose in our landfills. Glass must be sorted by color because once glass has been colored the color cannot be removed.



## Keep Our Earth Clean

Recycling is very easy to do. By recycling, we are able to help keep the environment we live in clean and safe for many years to come.

If everyone does his or her part, we can save our planet for future generations. By recycling, we save energy, natural resources, water, and clean air. Do your part!

Encourage your family, friends, and school to recycle and to buy recycled products. It's your Earth. Help take care of it. If you don't, maybe someone else will, or maybe they won't.

What a waste! These cardboard boxes could be recycled into other safe, everyday materials such as paper bags, cereal boxes, paper towels, and new cardboard.



This is the international symbol for "recycle." So, no matter where you are in the world, before you throw that aluminum can, plastic or glass bottle, or cardboard container in the trash, look for this symbol and save our planet!



# **The Gray Wolf: An Endangered Species Success Story**

**by Ed Combs**

For thousands of years, gray wolves roamed in packs throughout North America, living on large game like deer and elk and smaller animals like beavers and rabbits. They were the undisputed kings of their world, but by the mid-1800s, their world had begun to change dramatically.



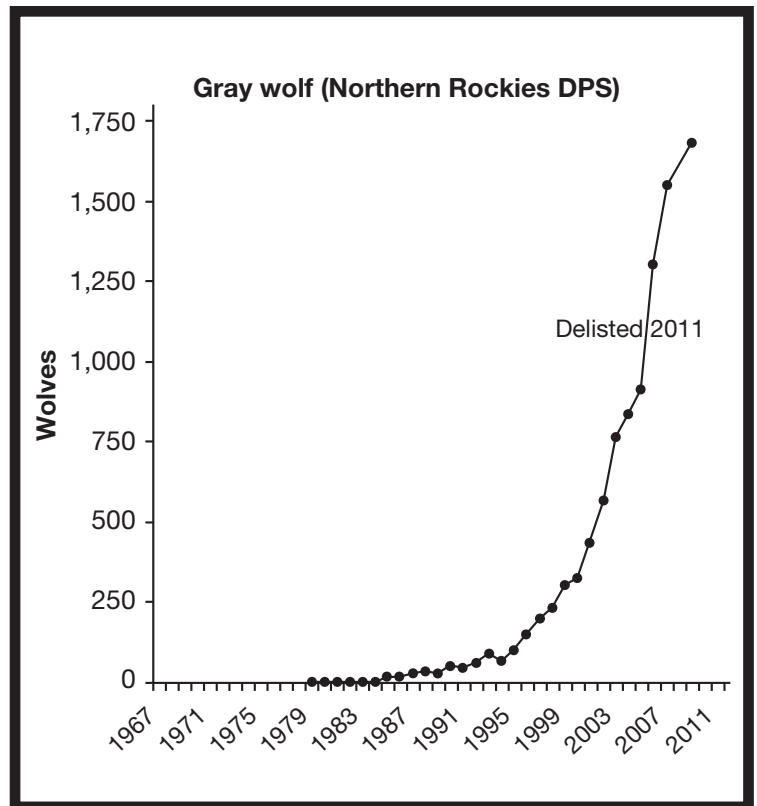
More and more people moved into the wolves' habitat, starting cities and farms and ranches. The people fenced off pastures for their cows and sheep and competed for the wolves' food supplies. Wolves, making no distinction between elk and cows, resorted to hunting domesticated farm animals. Not surprisingly, this didn't sit well with the farmers and ranchers—or with the federal government. To help protect the domestic animals, the government offered bounties—cash rewards—for killing wolves.

The bounties led to a radical reduction of the wolf population. Scientists estimate that before people began crowding them out and hunting them down, there were about two million wolves in the United States. By 1973, the actions of humans had nearly wiped the species off the map, leaving only small packs in northern Minnesota and Isle Royal, Michigan.

That's when people started trying to save the gray wolf instead of killing it off. The federal government began protecting gray wolves under the newly enacted Endangered Species Act. Hunting, trapping, and poisoning were prohibited. Then, in the early 1980s, scientists began reintroducing Canadian wolves into the northern Rocky Mountains. In the mid-1990s, wolves were reintroduced into Yellowstone National Park and Idaho.

At first, the recovery was slow. In the mid-1980s, Montana, Wyoming, and Idaho reported barely more than a dozen wolves each. By 2000, the numbers had grown to 65 in Montana, 118 in Wyoming, and 141 in Idaho. By 2009, the wolf population had grown to 1,679 in the protected Rocky Mountain states. Gray wolf packs had also been spotted in Oregon, Washington, and Utah. Two years later, the gray wolf was removed from the endangered species list.

As the wolves recovered, scientists began to compare the biodiversity of wolf habitats with and without wolves. They noticed some surprising things. Without wolves, the elk population skyrocketed. Since elk love to eat young aspen trees, aspen groves began disappearing. That led to a reduction in the population of the songbirds that nested in aspen limbs and the beavers that built dams with aspen trunks. Since the wolves have been reintroduced, scientists have noticed a drop in the elk population and a corresponding increase in aspens, songbirds, and beavers. With the wolf back in its natural habitat, the balance of nature has been restored.




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## References

110 Success Stories for Endangered Species Day 2012. (2012). *Center for Biological Diversity*. Retrieved from [http://www.esasuccess.info/rocky\\_mountains.shtml#thumb](http://www.esasuccess.info/rocky_mountains.shtml#thumb)

Basic Facts About Gray Wolves. (2013). *Defenders of Wildlife*. Retrieved from <http://www.defenders.org/gray-wolf/basic-facts>

Endangered Species Act. (2013). *National Wildlife Federation*. Retrieved from <http://www.nwf.org/wildlife/wildlife-conservation/endangered-species-act.aspx>

Levy, Sharon. (2003, October 1). A Top Dog Takes Over. *National Wildlife Federation*. Retrieved from <http://www.nwf.org/News-and-Magazines/National-Wildlife/Animals/Archives/2003/A-Top-Dog-Takes-Over.aspx>

Restoring the Gray Wolf. (n.d.). *Center for Biological Diversity*. Retrieved from [http://www.biologicaldiversity.org/campaigns/gray\\_wolves/index.html](http://www.biologicaldiversity.org/campaigns/gray_wolves/index.html)

Species Profile: Gray wolf (*Canis lupus*). (2012, February 8). *U.S. Fish and Wildlife Service*. Retrieved from <http://ecos.fws.gov/speciesProfile/profile/speciesProfile.action?spscode=A00D>

Wolf: *Canis lupus*. (2013). *National Geographic*. Retrieved from <http://animals.nationalgeographic.com/animals/mammals/wolf/>