

SuperCroc

Magazine Article by Peter Winkler

VIDEO TRAILER



KEYWORD: HML6-898

Are MONSTERS real?



READING 10A Summarize the main ideas and supporting details in text, demonstrating an understanding that a summary does not include opinions. **12B** Interpret factual, quantitative, or technical information presented in maps, illustrations, and timelines. **RC-6(E)** Summarize texts in ways that maintain meaning and logical order within a text.

Monsters have always existed in the world of the imagination. Yet fierce, deadly creatures that could be considered monsters exist in reality as well. In fact, scientists have discovered a prehistoric creature so terrifying that even dinosaurs may have feared it.

CHART IT Make a chart that shows your favorite monsters. In one column, list imaginary creatures from stories you've read and movies you've seen. In the other, list some of the dangerous creatures from the real world that you have learned about from books, television programs, and nature magazines. Share your chart with your classmates. Which list is more frightening?

Imaginary	Real
Godzilla	Komodo dragon

● ELEMENTS OF NONFICTION: TEXT FEATURES

Text features are design elements that present information visually. They highlight key ideas and provide additional information. Some common text features are

- **subheadings**, or section titles, which hint at the main idea or topic of the section that follows
- **graphic aids**, such as maps, photographs, or timelines
- **captions**, which provide information about a graphic aid

As you read “SuperCroc,” identify the text features it contains, and notice the information they present.

● READING STRATEGY: SUMMARIZE

When you **summarize**, you use your own words to restate the main ideas and significant supporting details of a spoken or written work. A summary is generally no more than one-third the length of the original work and includes just the facts—not your personal opinions.

As you read “SuperCroc,” use a chart like the one shown to record the most important information from each section of the article. You will use this information later when you write your summary.

<i>Section</i>	<i>Key Information</i>
<i>Introduction</i>	<i>scientists studying dinosaur fossils in Niger</i>
<i>What Makes This Croc So Super?</i>	

▲ VOCABULARY IN CONTEXT

Peter Winkler uses the boldfaced words to help tell about the discovery of a real-life monster from the past. To see how many words you know, substitute a different word or phrase for each of the boldfaced words.

1. Paul Sereno is a dinosaur **expert**.
2. Dinosaurs have been **extinct** for millions of years.
3. His team found more than just one **fossil**.
4. This **species** of crocodile was previously unknown.
5. The **predator** could have eaten anything it wanted.

Peter Winkler

born 1963

Adventure School

Peter Winkler is a freelance writer from Long Island, New York. He once realized he was in over his head—literally—when he was unable to climb back into an overturned kayak in the cold waters of the Pacific Ocean. He ended up having to swim to shore. Winkler’s assignment had been to cover the Presidio Adventure Racing Academy. He realized later that although the experience was frightening, “somehow I’d still learned the key lesson of adventure school: Stretch yourself, and life will take shapes you never imagined.”

National Geographic Writer

Peter Winkler has been writing for the National Geographic Society since 1987. His writings include Web features, science articles for young people, television scripts, educational materials, and three books. He has also written about movies for CineFan, an online movie database.



Complete the activities in your **Reader/Writer Notebook**.

Author Online



Go to thinkcentral.com. KEYWORD: HML6-899



SUPERCROC

PETER WINKLER

Out of Africa comes a giant reptile that lived with dinosaurs—and ate them.

“We’re stuck again!” Scientist Paul Sereno and his team said those words many times as they drove into a rugged part of Africa. Desert sand kept stopping their vehicles.

It took 10 hours to go just 87 miles.

That long crawl ended at Gadoufaoua,¹ a dry region in the country of Niger.²

To most eyes, the place looked empty.

10 There was sand. There was wind. There was nothing else. Or so it seemed.

But Sereno saw much more. He saw a chance to find dinosaurs. Sereno, a paleontologist, knew that the region contains countless **fossils** from ancient dinosaurs. Gadoufaoua is one of



The country of Niger is in West Africa. **A**

fossil (fös'əl) *n.* the remains of a living thing, preserved in soil or rock

A TEXT FEATURES

Identify three things this map tells you about Gadoufaoua. What information does the map present that the text does not?

1. **Gadoufaoua** (ge-dōō'fä'wö'h).

2. **Niger** (nī'jər).

Africa's richest sources of dino fossils.

Sereno found some fossils there in 1997. He came back in 2000 to seek more. The team spent four months in the desert. Crew members woke at 6:00 each morning, then explored the sand dunes for about 12 hours. They worked even when the temperature hit 125°F.

And they found fossils. By the end of the expedition, Sereno and his team had collected 20 tons of bones. Most of the fossils came from dinosaurs, including types never seen before. Others came from turtles, fish, and crocodiles.

One of those crocodiles was *Sarcosuchus imperator*,³ a name that means “flesh crocodile emperor.” Sereno’s team nicknamed it “SuperCroc.”



Using SuperCroc’s jaw bone and their own bodies, Sereno (fourth from front) and his team demonstrate SuperCroc’s estimated length. **B**

What Makes This Croc So Super? **C**

In a word, size. The skull alone was six feet long. Sereno says it’s “about the biggest I’ve ever seen.”

Naturally, Sereno wondered how big SuperCroc was overall. The team found only part of its skeleton, so Sereno had to make an estimate. To do that, he looked at crocodiles that live today. He and other **experts** compared the animals’ skull and body sizes.

Based on his research, Sereno concluded that an adult SuperCroc could grow to be 40 feet long and probably weighed as much as 10 tons. That’s heavier than an African elephant.

Those measurements make SuperCroc one of the largest crocodiles ever to walk Earth. Today’s biggest crocs grow to about 20 feet. **D**

3. *Sarcosuchus imperator* (sär'kō-sōō'kīs ĩm-pir'ā-tōr).



TEKS 12B

B TEXT FEATURES

Information that is related to the amount, number, or measurement of something is called **quantitative information**. For example, the fact that twelve inches equals one foot is quantitative information. Explain how the photo and its accompanying caption present quantitative information in a way that is easy to understand. In what ways is this visual presentation of SuperCroc’s size more effective than simply providing the measurements in the text?

C TEXT FEATURES

Preview the article’s subheadings. What do you think the article will tell you about SuperCroc?

expert (ĕk'spŭrt') *n.*
one who is skilled in or knowledgeable about a particular thing

D SUMMARIZE

What is the main idea of this section of the article? What supporting details would you include in a summary of the article? Record this information in your chart.

extinct (ĭk-stĭngkt') *adj.*
no longer existing

predator (prĕd'ĕ-tĕr) *n.*
an animal that feeds
on other animals

species (spĕ'shĕz) *n.*
a variety or type
of something

E SUMMARIZE

Reread lines 55–67.
What have you learned
about SuperCroc's
appearance? Add this
information to your
chart. What information
would you include in a
summary of the article?

Language Coach

Context Clues Science
articles often include
unfamiliar terms, so
writers will often include
context clues such
as restatements and
definitions. According
to the definition context
clue in lines 65–66, what
are *scutes*?

F SUMMARIZE

Reread lines 68–90.
Note what you learned
in this section in your
chart.

A Different-Looking Beast

SuperCroc's long head is wider in front than in the middle. That shape is unique. No other croc—living or **extinct**—has a snout quite like it.

At the front of SuperCroc's head is a big
60 hole. That's where the nose would be. That
empty space may have given the ancient
predator a keen sense of smell. Or perhaps
it helped SuperCroc make noise to
communicate with other members of its **species**.

SuperCroc wore serious armor. Huge plates of bone, called scutes, covered the animal's back. Hundreds of them lay just below the skin. A single scute from the back could be a foot long! **E**

When Did SuperCroc Live?

Estimating a fossil's age is a challenge. Sereno and his team looked
70 carefully at the group of fossils they had found. They compared the
fossils to others whose ages the scientists did know. Based on those
comparisons, Sereno
believes SuperCroc
lived about 110 million
years ago.

Gadoufaoua looked
a bit different in those
days. What is now a
desert was a land of
80 winding rivers. Plenty
of trees grew along the
banks. Huge fish swam
the rivers, while various
dinosaurs lived in the
forests.

Five or more
crocodile species lurked
in the rivers. SuperCroc,
Sereno says, was “the
90 monster of them all.” **F**

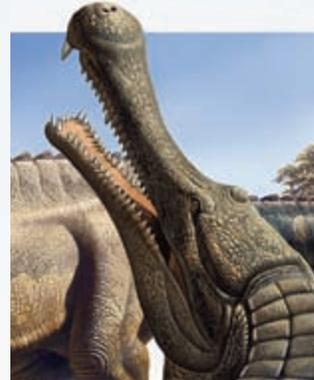
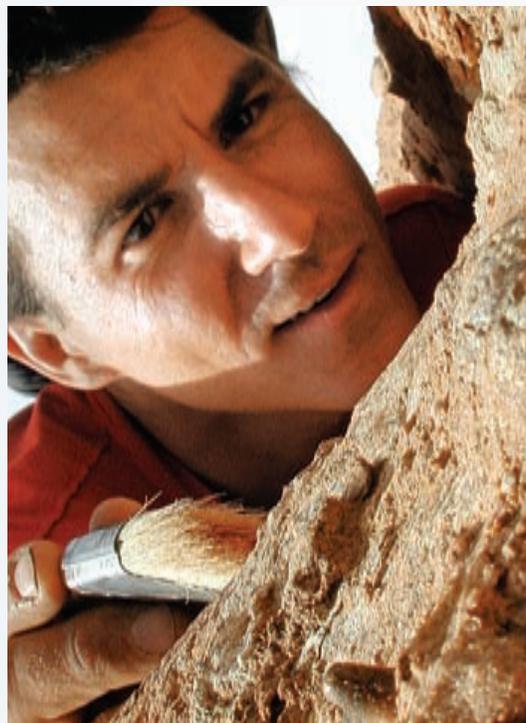
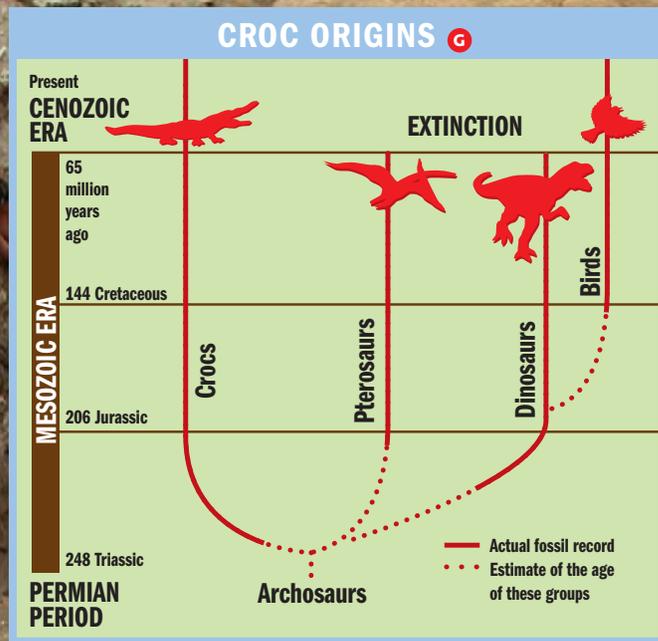


Illustration of SuperCroc



Paul Sereno brushes sand from “sabercroc,” another of several species of crocodile fossils found at Gadoufaoua.



TEKS 12B

G TEXT FEATURES

Graphic aids like maps, charts, timelines, and graphs present factual, quantitative, or technical information that you have to interpret. A **timeline** shows events in chronological order (the order in which they happened). It may use symbols, lines, and numbers to explain or to display information. This timeline covers vast time periods that are expressed as eras. According to this timeline, what is one big difference between crocs and dinosaurs? What is the relationship between crocs and birds? Identify two other things you can interpret about crocodiles from the information presented in this timeline.

H TEXT FEATURES

What information does this photograph and its caption add to the article? What important factual information does the caption provide? What would you be able to interpret from the photograph if it did not have a caption?

Sereno's team carves out the skulls of two giant crocs found facing each other. H

I SUMMARIZE

Reread lines 91–101. What does this section tell you about SuperCroc? What information would you include in a summary of this article?

1 TEXT FEATURES

What does the caption help you understand about the photograph?

◆ GRAMMAR IN CONTEXT

Look at the subheading of this section. All of the words in the title are capitalized except *to*. This is because, in titles, prepositions of fewer than five letters (such as *to*, *in*, or *on*) are not capitalized. Prepositions such as *between* and *within* are capitalized in titles.

K SUMMARIZE

Why didn't SuperCroc survive? Add this information to your chart.

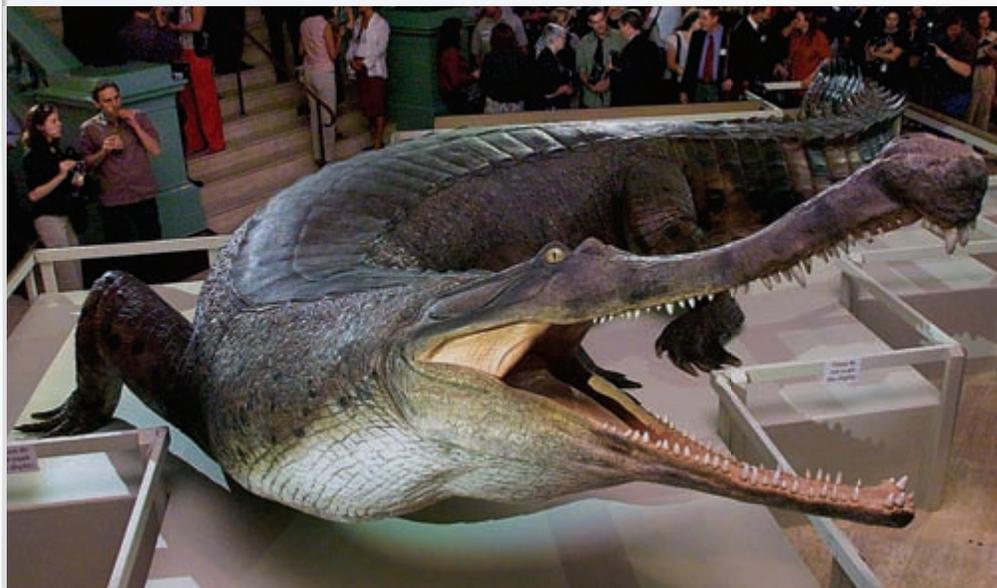
What Did SuperCroc Eat?

“Anything it wanted,” Sereno says. SuperCroc’s narrow jaws held about 130 teeth. The teeth were short but incredibly strong. SuperCroc’s mouth was “designed for grabbing prey⁴—fish, turtles, and dinosaurs that strayed too close.”

SuperCroc likely spent most of its life in the river. Water hid the creature’s huge body. Only its eyes and nostrils poked above the surface.

After spotting a meal, the giant hunter moved quietly toward the animal. Then—*wham!* That huge mouth locked onto its prey.

100 SuperCroc dragged the stunned creature into the water. There the animal drowned. Then it became food. **I**



A crowd gathers around the first life-sized model of SuperCroc at the Australian Museum in Sydney, Australia. **J**

What Happened to SuperCroc? **◆**

The giant beast probably lived only a few million years. That raises a huge question: Why didn't SuperCroc survive?

Sereno suspects that SuperCrocs were fairly rare. After all, a monster that big needs plenty of room in which to live. Disease or disaster could have wiped out the species pretty quickly. But no one knows for sure what killed SuperCroc. That's a mystery for future scientists. **K**

4. **prey**: animals that become the food of another animal.



READING 10A Summarize the main ideas and supporting details in text, demonstrating an understanding that a summary does not include opinions. **10C** Explain how different organizational patterns develop the main idea and the author's viewpoint. **12B** interpret factual, quantitative, or technical information presented in maps, illustrations, and timelines. **RC-6(E)** Summarize texts in ways that maintain meaning and logical order within a text.

Comprehension

- 1. Recall** Why are Paul Sereno and his team interested in Gadoufaoua?
- 2. Recall** What length does Sereno estimate SuperCroc could have grown to be?
- 3. Clarify** What did Sereno and his team find in Gadoufaoua other than crocodile fossils?

Critical Analysis

- 4. Summarize** Review the chart you completed as you read “SuperCroc.” Clarify your understanding of the article by writing a brief summary. Remember that a summary should include only the facts, not your own personal opinions.

- 5. Analyze Organizational Patterns** Notice the writer’s use of the compare-and-contrast organizational pattern in lines 49–58. According to this passage, what are two ways that SuperCroc differs from crocodiles of today? Use a chart like the one shown to list your responses.

<i>SuperCroc</i>	<i>Crocs Today</i>

- 6. Examine Text Features** Review the article’s photographs and captions. What kind of information can photographs and captions provide that the regular text usually cannot?
- 7. Draw Conclusions** Reread the section subtitled “When Did SuperCroc Live?” on page 902. Judging by the way Sereno and his team estimated the age of SuperCroc’s fossils, what conclusions can you draw about how scientists determine the age of ancient creatures?

Extension and Challenge

- 8. Inquiry and Research** Paleontologists like Paul Sereno don’t just dig for fossils in the desert. Conduct some research to discover how a person becomes a paleontologist. Find out what a paleontologist might have to do in order to prepare for an expedition, and what happens after the expedition is finished. Present your findings to the class.

Are **MONSTERS** real?

Examine the monster chart you created before reading “SuperCroc,” and look at the list of creatures you chose as the most frightening. How has reading “SuperCroc” affected your choice? Explain.

Vocabulary in Context

▲ VOCABULARY PRACTICE

Choose the letter of the word that is not related in meaning to the other words.

1. (a) skeleton, (b) fossil, (c) bone, (d) alive
2. (a) expert, (b) inexperienced, (c) authority, (d) knowledgeable
3. (a) kind, (b) species, (c) type, (d) desert
4. (a) extinct, (b) living, (c) active, (d) breathing
5. (a) slayer, (b) admirer, (c) predator, (d) killer

ACADEMIC VOCABULARY IN SPEAKING

• adequacy • authority • concept • purpose • structural

With a partner, decide if Sereno and his team have the necessary **authority** to declare SuperCroc “the monster of them all.” Use at least two Academic Vocabulary words in your discussion.

VOCABULARY STRATEGY: WORD ORIGINS

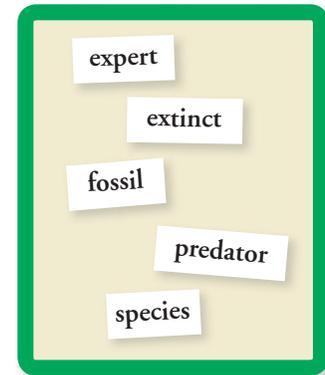
Many common words in the English language have fascinating histories, going all the way back to ancient Greek and Latin words. You will find many words with Greek and Latin origins in scientific writing. For example, the vocabulary word *fossil* comes from the Latin word *fossilis*, which means “dug up.” It makes sense, then, that a fossil is something that is uncovered, or dug up, from rock or earth.

Information about a word’s origin can be found in most dictionaries. Understanding the **etymology**, or history of a word, can help you connect the word’s meaning to something you already know. An example of an etymology is shown here:

argue (är'gyōō) *v.* to disagree or quarrel [from Latin *argutare*, to babble, chatter]

PRACTICE Look up the etymology of each word in a dictionary. Write the word’s origin, and explain how knowing the word’s history can help you remember its meaning.

- | | | |
|---------------|---------------|--------------|
| 1. dinosaur | 3. expedition | 5. predator |
| 2. extinction | 4. monster | 6. crocodile |



READING 2A Determine the meaning of grade-level academic English words derived from Latin, Greek, and other linguistic roots. **2E** Use a dictionary to determine the meanings of words.

Interactive Vocabulary **THINK** central

Go to thinkcentral.com.
KEYWORD: HML6-906

Conventions in Writing

◆ GRAMMAR IN CONTEXT: Capitalize Correctly

The **titles** of magazine articles, books, poems, and short stories must all be **capitalized** correctly. When writing a title, capitalize the first and last words, any important words, and all verbs. Do not capitalize conjunctions, articles, or prepositions of fewer than five letters.

Original: Finding Fossils **In The** Desert Dunes

Revised: Finding Fossils **in the** Desert Dunes

PRACTICE Rewrite each title by correcting any capitalization errors.

1. Monsters of The Past, The Present, and The Future
2. The day Godzilla met the gila monster
3. Silent Predator Of The African Waters
4. the scientist and the giant fossil

For more help with capitalizing titles, see page R51 in the *Grammar Handbook*.



ORAL AND WRITTEN CONVENTIONS 20A Use appropriate capitalization conventions. **20C** Use proper mechanics including italics and underlining for titles of books.

READING-WRITING CONNECTION



Demonstrate your understanding of “SuperCroc” by responding to the following prompts. Then use the **revising tips** to improve your writing.

WRITING PROMPTS	REVISING TIPS
<p>Short Response: Write a Description Imagine that you could go back in time and see SuperCroc with your own eyes. Write a one-paragraph description of the prehistoric monster and his surroundings.</p>	<p>Check to see that you used capitalization correctly throughout your evaluation. If not, revise your writing.</p>
<p>Extended Response: Evaluate an Article Decide whether “SuperCroc” is a well-written article. Does the author present his information clearly and in a style that holds your interest? Write a two- or three-paragraph evaluation of the article.</p>	<p>If you cited specific subheadings in the article, be sure that you did not capitalize any conjunctions, articles, or prepositions of fewer than five letters.</p>

Interactive Revision **THINK central**
Go to thinkcentral.com.
KEYWORD: HML6-907