

From Producers to Consumers

Grade 5

Module
B

Essential Question

What relationships, systems, and cycles exist within an environment?

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Word Study

Lesson 2

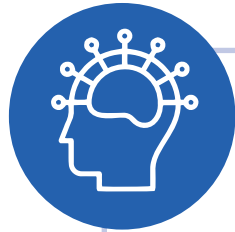
Determining the Meaning of Unknown Words in Informational Texts Anchor Chart

Informational texts require the reader to determine the meaning of technical, topic-specific words. Use the following steps to determine the meaning of unknown words in an informational text.



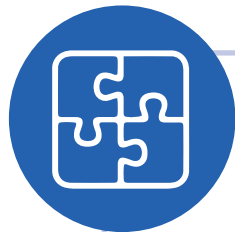
Step 1

Identify and circle unknown words.



Step 2

Ask yourself: Do I know this word from anywhere else?



Step 3

Look for word parts that help you determine the word's meaning.



Step 4

Look for context clues that help you determine the word's meaning.



Step 5

Develop a definition for the word.



Signal Words Anchor Chart

There are several types of signal words. Use them to help you determine the meaning of unknown words, phrases, or ideas.



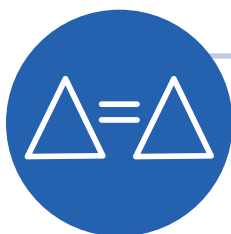
Contradictory Signal Words

- but
- instead
- despite
- although
- however
- in spite of



Agreement Signal Words

- also
- plus
- just like
- similarly
- in addition
- additionally



Definition Signal Words

- or
- like
- as in
- for example
- which means



Reading

Lesson 1

Launching the Module Chalk Talk Posters

DIRECTIONS

As you rotate through each of the stations, read the text and record your reaction using one of the sentence stems.

Example 1

Bladderworts

Brace yourself for a gruesome tale of death. The carnivorous bladderwort has thousands of mouths. They live at the edges of lakes and shallow ponds. Don't let the pretty flowers fool you. The plant has long stems covered in leaf shoots. If you look closely you will find dozens of mouthlike traps. When a creature swims up to the bladder, it sets off the trap. In an instant the bladder sucks it inward, drawing the creature in like a vacuum cleaner! The creature meets a deadly end.



Choose one of the prompts to record your thinking:

☐

I was shocked about . . .

☐

I never thought . . .

☐

I was surprised when . . .

☐

I could not believe . . .



Example 2

Monster Plants

Exciting is probably not what you think of when you think of plants, but there are some weird and exciting plants. Some plants are so shocking they seem like animals, but these murderous, meat-eating, foul-smelling, poisonous plants are really plants. Monster plants may act in strange ways, but they are made of five basic parts just like other plants.



Choose one of the prompts to record your thinking:

☐

I did not know . . .

☐

The author thinks I know . . .

☐

I was confused by . . .

☐

I am wondering . . .

Example 3

Plant Survival

What do plants need to survive? You probably answered sun and water. Almost all plants need five things to survive: light, water, air, space, and nutrients. Most plants get their nutrients through photosynthesis and the soil, but some plants get their nutrients from animals and insects. These plants have leaves and mouths that latch onto lizards and bugs that come too close. The plant digests the food and absorbs the nutrients.



Choose one of the prompts to record your thinking:

☐

At first I thought ____, but I had to rethink ____.

☐

My understanding changed when . . .

☐

I was right/wrong about . . .



Plants That Eat Meat

from Scholastic

MY NOTES

- 1 Most green plants absorb water and minerals from the soil, and oxygen from the air. Using these raw materials, they produce all the food they need. And then there are the carnivorous plants. They get their food from other sources: they eat meat.

Feed Me!

- 2 Carnivorous plants grow mainly in wet areas and poor soils. These soils lack minerals and nutrients. To survive in this environment, carnivorous plants get their nutrients from trapped prey. The plants trap insects and other small animals, and then digest and absorb the nutrients they need from them. This can take hours or even days. When finished, the plant ejects the remains and is ready to trap again.

Types of Traps

- 3 Carnivorous plants use different methods to trap their prey. The Asian pitcher plant has a long, deep tube with a brightly colored rim. The bottom of the tube is filled with a syrupy liquid. Visiting insects slide off the slippery rim and drop into the tube. Stuck in the liquid, the insects drown. With this method, large pitcher plants are capable of capturing lizards and rats.



- 4 Sundews use a flypaper technique to catch their snacks. The leaves of sundews are covered with hairlike tentacles. Sticky nectar oozes from the tip of each tentacle. Insects that land on a leaf get stuck on the nectar and are smothered as the tentacles wrap tightly around them.





- 5 The Venus flytrap snaps shut on its victims. The hinged leaves of the Venus flytrap open wide like a clamshell. Inside, they are covered with short, stiff bristles called trigger hairs. When an insect touches these hairs, the two halves of the leaves snap shut, trapping the insect inside.

Where They Live

- 6 Scientists have identified more than 600 species of meat-eating plants. Most are small in size—less than 1 inch (2.5 centimeters) wide. However, the tubes of pitcher plants can be 1 foot (30 centimeters) long. Carnivorous plants thrive in abundant rainwater and bright sunlight. They are found in bogs and swamps from sea level to the mountains and on every continent except Antarctica. The plants may seem exotic, but more kinds of carnivorous plants grow in North America than on any other continent.



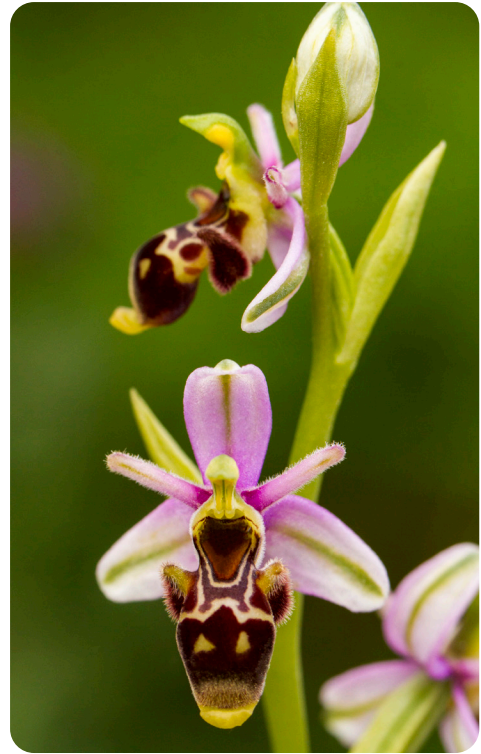


Strange but True: Wacky Plants

by Public Consulting Group

MY NOTES

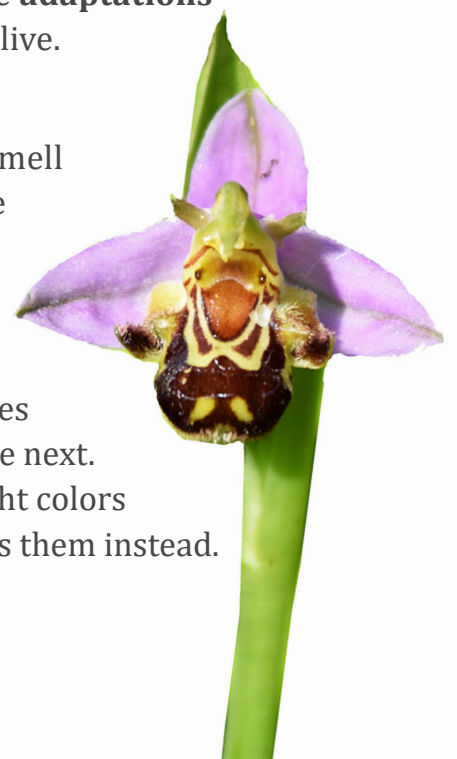
- 1 What words come to mind when you think of plants? Clever? Cunning? I'll bet those are not the first words you think of. Surprisingly, many plants are just that. Look at the picture to the right. From far away, this may seem like a normal plant. But if you look closely, you might notice something. That is not a real bee on the plant! Each flower looks like a bee. This strange plant is a bee orchid and is just one of Earth's many clever and cunning plants.



- 2 Plants are essential to all **ecosystems**. Many animals rely on plants for their food. Other animals eat those animals. Plants keep all of these animals alive. But plants have needs too. They need sunlight, nutrients, air, and water. Some plants live in harsh environments that can make it difficult to get what they need. Some plants have unique **adaptations** to help them grow, reproduce, and stay alive.

Bee Orchids

- 3 The flowers of a bee orchid look and smell just like female bees. This clever disguise helps the plant attract **pollinators**.
- 4 To make new seeds and reproduce, plants need to share their **pollen** with each other. Insects like bees and butterflies help move the pollen from one plant to the next. Most flowers attract pollinators with bright colors and sweet nectar, but the bee orchid tricks them instead.





- 5 Real bees land on the flower thinking they will find a mate. Instead, pollen sticks to their bodies. When they move onto other flowers, the pollen rubs off and the orchid can reproduce.

Pebble Plants

- 6 In the deserts of South Africa, water is scarce. Plants and animals need water to survive. Pebble plants store precious water. When it rains, they absorb the water and swell up, slowly using the water over time. For a thirsty animal, the plant is quite a treat—providing not only food but much-needed water.
- 7 But these clever plants have a unique adaptation to protect themselves—they look like rocks. By disguising themselves as speckled rocks, they hope that a passing animal thinks they are a stone and walks on by!



Pitcher Plants

- 8 Most plants get their nutrients from soil, but in the forests of Borneo, where the pitcher plant lives, plants must find other ways to get what they need. The soil in these forests does not contain many nutrients. Pitcher plants have adapted to get what they need! They attract a tree shrew and use its poop as food!





- 9 A pitcher plant has jug-shaped leaves with an opening on top. The opening is lined with nectar. The sweet smell of the nectar attracts hungry shrews. As the shrew licks the nectar, its droppings (poop!) fall into the plant, giving the plant the nutrients it needs. It is a perfect relationship. The shrew gets sweet nectar and the plant gets nutrients from the waste.

Glossary

ecosystem (n.) – all the living and nonliving things in an environment

adaptation (n.) – a change in a species over time that helps it survive

pollinator (n.) – anything that helps carry pollen

pollen (n.) – tiny particles a plant makes to help it reproduce





Reading Informational Texts Repertoire Chart



Multiple Central Ideas

- Read the text once to get the overall gist.
- Reread the text a chunk at a time. Find the most important big idea(s) of each chunk.
- Record each important idea.
- Group the big ideas.
- After all chunks have been read, review your groups and write a central idea that describes the ideas in that group.



Text Structure

How does the author organize information?

- Description
- Compare and contrast
- Problem and solution
- Sequential order
- Cause and effect



Author's Perspective

Determine the author's perspective:

- What is their outlook on the topic?
- Do they have a clear position?



Word Choice

Look for words that:

- Create strong emotions.
- Leave no room for argument or doubt.
- Create a vivid picture for the reader.
- Emphasize or exaggerate a point.



Numbers and Statistics

Look for:

- Numbers to show amount, size, or scale
- Percentages
- Data or statistics (1 out of 4 people)
- Quantity words (many, most, some, few)



Ask an Expert

Look for:

- Quotes from people who have knowledge about the subject
- People who study or work with the subject



Important Vocabulary

- Determine the meaning of unknown words.
- Pay special attention to words that seem most important for understanding an idea or concept.



Contrasts or Contradictions

Look for:

- A big contrast between what you expected or predicted and what the text says
- A difference between two or more ideas or elements in the text



Friend or Foe? Borneo's Pitcher Plants

by Public Consulting Group

MY NOTES

Borneo's pitcher plants have unique adaptations that make them friends to some animals and foes to others.

- 1 Borneo is a dangerous place for an insect. This large mountainous island is home to dozens of **species** of pitcher plants. Some dangle from trees while others rest on the ground. Any insect that flies near the plants could end up as their next meal.



Borneo is an island in Asia, located in the extreme southwest portion of the Pacific Ocean. It is the third largest island in the world.

- 2 Like all plants, pitcher plants use **photosynthesis** to make their own food. Photosynthesis is the process by which plants use sunlight to change carbon dioxide and water into sugar. But plants need other nutrients, like nitrogen, to survive. Most plants get nitrogen from the soil, using their roots to absorb it. The soil in Borneo is low in nitrogen, so pitcher plants have to find another way to get it—from insects and small animals. Pitcher plants are adapted to attract and digest meat, allowing them to survive in an environment where very few plants would be able to live.
- 3 Pitcher plants have a unique way of attracting their prey. Their beautiful, multicolored, vase-like leaves are filled with sweet nectar. The special colors and tantalizing smell of



the nectar attract the insects. As they walk along the rim, it is easy to fall in. One small misstep and the bug turns into dinner. Additionally, once inside, the insect cannot escape because the walls are so slippery. The liquid inside the plant begins to digest the body of the insect. Despite the dangers, some of Borneo's animals benefit from living with these flesh-eating killers.

Diving Ants

- 4 The diving ant calls the **stalks** of the pitcher plant home. Able to walk along the slippery rims, the ants wait for the plant to attract and trap an insect. Once an insect is trapped inside, these ants dive into the digestive juices and feed on the insect. Although it may appear they are stealing the pitcher plant's food, these ants are giving the pitcher plant something in return—their poop! Scientists have discovered that when diving ants feast on the trapped insect, they leave their nitrogen-rich poop behind and the plant absorbs the nitrogen. They have noticed that plants with ants on them live longer than pitcher plants with no ants. Also, when an ant living on the pitcher plant dies, its body tumbles into the pitcher and the plant digests it.



A Home for Bats

- 5 One species of pitcher plant has given up its meat-eating habits and makes its living as a home for bats. As the woolly bat flies through the jungles of Borneo, it lets out high-pitched squeaks. Using **echolocation**, the bat looks for a place to rest in the dense, leafy jungle. When the bat calls out, the pitcher plant reflects the sound, inviting the bat to **roost** inside.





- 6 The pitcher plant is adapted to reflect the bat's call. Following the plant's echo, the bat finds a great place to rest free from the weather and parasites. Just like the diving ants, the bat poops inside the pitcher, giving the plant the nitrogen it needs.
- 7 The plant is so well adapted to attract bats that it is no longer good at catching insects. These plants contain very little digestive fluid and instead of attracting bugs, they keep their bat friends safe and protected while getting the nitrogen they need to survive.
- 8 While insects, ant poop, and bat poop may seem like disgusting meal choices, these foods provide Borneo's pitcher plants with the nitrogen they need. These interesting animal friends reveal just how well these plants have adapted to their surroundings.

Glossary

species (n.) – a classification given by scientists to a group of related living things

photosynthesis (n.) – the process by which a plant uses sunlight to make food

stalks (n.) – the main stems of a plant

echolocation (n.) – the process of using sound waves to locate objects

roost (v.) – settle down to rest



Who Are You Calling Ugly?

by Jennifer Li Shotz

Scientists say it's important to protect even the most unusual-looking creatures.

- 1 How would you describe the koala on the cover of the magazine? Cuddly? Adorable? Chances are you wouldn't describe the animal next to it in the same way. That's a type of lemur called an aye-aye. With its oversized ears and bony fingers, the creature is often described as bizarre—or even ugly.
- 2 Though the two animals look very different, they have something important in common: They're both in trouble in the wild. But, experts say, most people are more eager to help koalas and other animals that make us go *aww*.
- 3 “Unattractive animals get a lot less attention,” says scientist Charlie Debenham. “We overlook them or are even **repulsed** by them.”
- 4 Debenham is trying to change that. She works with the EDGE of Existence program at the Zoological Society of London, in England. Its goal is to celebrate and protect even the creepiest and weirdest creatures.

Who Gets Protected?

- 5 Nearly 14,000 animal species are known to be endangered. Conservation groups spread the word about the dangers



MY NOTES



many animals face. These groups raise money to try to help them survive.

- 6 But not all animals get the same treatment. A 2012 study found that conservation groups usually focus on the most attractive ones. It's easier to persuade people to help those animals.
- 7 That's why you probably know that tigers, giant pandas, and some types of penguins are endangered. But you don't hear much about the importance of protecting vultures or proboscis (pruh-BAH-suhs) monkeys.

Why Looks Matter

- 8 The things we may find unattractive in animals are often **adaptations** that help them survive. For example, the aye-aye uses its huge ears to locate insects moving inside trees. It then scoops them out with its extra-long middle finger and eats them.
- 9 But the aye-aye's appearance is also a big reason it's endangered. In the past, many local people considered it a sign of bad luck. They killed it on sight.
- 10 "The aye-aye is an animal that truly suffers for its ugliness," says Debenham.

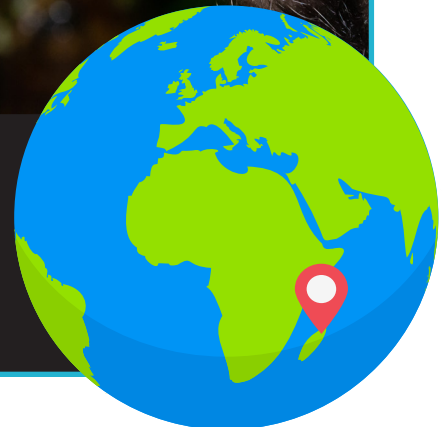
Why the Aye-Aye Matters

Like every animal, the aye-aye plays a key role in its ecosystem. For example, it's one of the only animals that can reach the larvae of beetles that bore, or dig, into dead trees. Without aye-ayes...

There would be more beetles.

The beetles might eat through the wood faster.

Small animals that use the wood for shelter might lose their homes.



Vultures

Vultures are nature's cleanup crew. They're scavengers, meaning they eat the bodies of dead animals. The rotting meat often carries bacteria that would make other animals sick. But vultures have extra-strong stomachs.



Range: Deep areas of oceans worldwide



Range: Found only on Borneo, an island in Southeast Asia





Ugly but Important

- 11 Every animal serves an important purpose, says Debenham, no matter how odd or scary it might seem to us. Snakes feast on rats and other pests. Bats eat mosquitoes, which spread disease. Wasps pollinate flowers and plants. And the aye-aye's forest home on the island of Madagascar would be a different place without it (see "Why the Aye-Aye Matters").
- 12 Debenham hopes people will learn to appreciate the world's many not-so-cuddly animals. And she hopes people will try to help them.
- 13 "Weird and wonderful species deserve to be protected from extinction as much as the more 'attractive' animals do," she says. "If they disappear, there will be nothing else like them on Earth."

Words to Know

repulsed (v., past tense) – felt strong dislike or disgust for something

adaptations (n., plural) – changes in the body or behavior of a species over time that make it better able to survive

by Lauren Tarshis

MY NOTES

-
- A large crocodile, likely a Nile crocodile, is shown in a shallow body of water surrounded by tall reeds. The crocodile's head is severely injured, with its snout split open, revealing internal organs and a large amount of blood. The crocodile's body is covered in characteristic scaly patterns, and its long tail extends into the water. The water is dark and still, reflecting the surrounding vegetation.



been warning that Burmese pythons were living and **breeding** in the park. They worried that these large snakes could bring harm to the environment. The wrestling match got the world's attention. But was it already too late?

The Arrival

- 7 Burmese pythons were first brought into the US as pets. Some Americans have always kept strange and even dangerous creatures in their homes. Many people think that this is unwise and cruel. Yet thousands of Americans own exotic pets: animals that are wild or don't normally live in the US. Want a white tiger? How about a baboon? Or maybe you'd like a mamba—a snake whose bite can kill a grown man in minutes. Unfortunately, all of these animals can be bought legally in the US.
- 8 Burmese pythons became popular as pets in the early 1990s. They were cheap, just \$20–\$30 a snake. They are not **venomous** or likely to attack humans. As tiny, curled-up babies, they look quite cute.
- 9 But then these little **hatchlings** grow. And grow. And grow and grow and grow. An adult Burmese python can be more than 20 feet long. That's LeBron James times three! Plus, these snakes like to eat live animals. It's no surprise that many buyers soon regret their purchases.
- 10 And then what? Many owners end up setting their snakes loose in the wild.

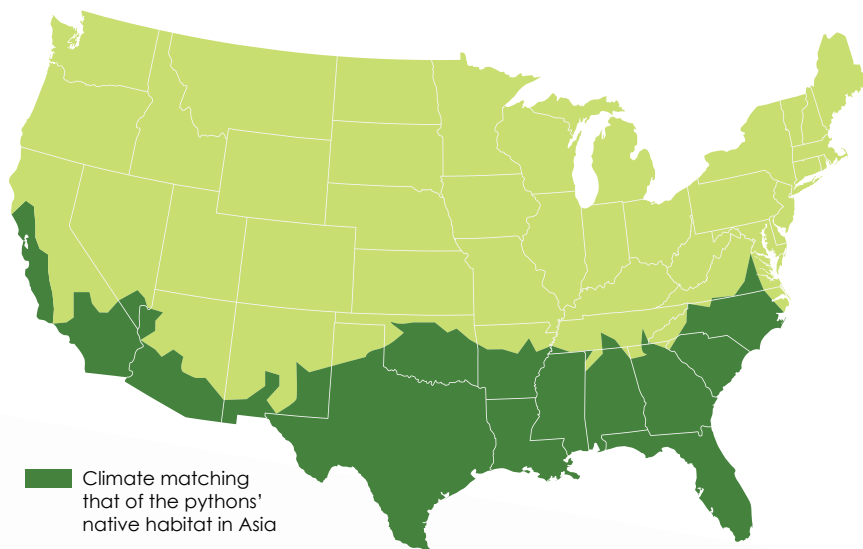




- 11 In many areas of the US, a snake left on its own would die of cold or hunger. But not in Florida. The weather is just right for pythons. And no place in Florida is more perfect for them than the **tropical** Everglades.

Carried by Winds

- 12 Pythons were first spotted in Everglades National Park in the mid-1990s. How did they get there? No one was sure.
- 13 Some people blamed Hurricane Andrew, which hit Florida in 1992. The storm was a whopper: a Category 5, the strongest. It killed 65 people and destroyed thousands of homes and businesses. One of the wrecked buildings was a warehouse full of exotic reptiles—including hundreds of baby Burmese pythons.



- 14 Most of those babies died in the storm. But a few of the tiny snakes could have been carried away by the winds. Did some of the babies get blown into the park?





- 15 At this point, it no longer matters how the snakes got to the Everglades. Today, their numbers are out of control. Some experts think there could be 100,000 pythons in the park. It's hard to know for sure how many there are. The snakes' green and brown scales help them blend into the wetlands. This makes it nearly impossible to count them. But one thing is certain. Pythons pose a big threat to the Everglades.

Invasive Species

- 16 Burmese pythons are an invasive species—a plant or an animal that is brought to a new place and damages the species already living there. There are around 5,000 invasive species living in the United States. More are reported each year.
- 17 In some cases, these invaders cause great damage. A decision made long ago in Hawaii still affects birds to this day.
- 18 In 1883, sugarcane farmers wanted to get rid of the rats that were harming their fields. So they brought in 73 Indian mongooses. They hoped the weasel-like animals would eat the rats. The plan failed. But the mongooses thrived. Their numbers grew and grew. Before long, the mongooses had eaten tons of bird eggs, rodents, and reptiles. They ended up threatening many species. The mongoose **infestation** continues even today. On some Hawaiian islands, the songs of birds once filled the air. Now, you're lucky to hear a few chirps.
- 19 Experts fear this kind of **ecological** disaster will soon happen in the Everglades. Burmese pythons breed quickly and easily. A female can lay up to 100 eggs during mating season. The snakes have **adapted** to the different areas of the park—the salty rivers, the freshwater ponds, the thick forests. They eat large amounts of almost anything, including reptiles and bird eggs. Sometimes they even eat large mammals like deer. As their numbers grow, pythons threaten many kinds of animals, including endangered species.
- 20 And what eats pythons? Rodents eat python eggs. But full-grown pythons are the kings and queens of the Everglades.



Invaders

America is being taken over by invasive species! Here are some of the biggest pests.

Starling

These birds settle in groups of up to 1 million. Flocks have been known to eat up to 20 tons of potatoes in one day. Their droppings can spread diseases.



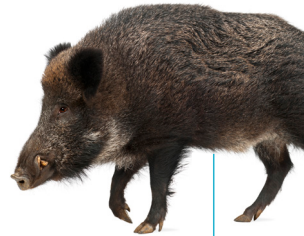
Medfly

These tiny bugs feed on 250 different kinds of fruit—which is a nightmare for farmers in places like California.



Wild Pig

About 6 million pigs run wild in states such as Texas, where they cause \$400 million a year in damage. They gobble up entire crops and feast on deer, lambs, and calves. They settle in parks. They'll even munch through your lawn and threaten your pets!



Asian Carp

Asian carp have invaded rivers across Mississippi and Illinois. They can grow to be up to 100 pounds. They eat 20–40 percent of their body weight every day. That means there isn't enough food left for other fish.





What Can Be Done?

- 21 It is now against the law to bring Burmese pythons to the US to sell. That means fewer pet snakes will be set loose in the wild. But the python invasion of the Everglades is already a crisis.
- 22 Teams of scientists are working to track and trap the snakes. And every year in Florida, there is a Python Challenge: Hundreds of hunters compete to catch Burmese pythons. But it's not clear if these efforts have helped cut back the python population.
- 23 As one park ranger puts it, "We are at war." Right now, the battle looks like that wrestling match between the alligator and the python. The struggle will go on for a long time. So far, nobody can say who will win.

Glossary

species (n.) – a group of related living things

breeding (v.) – producing offspring

venomous (adj.) – poisonous

hatchlings (n.) – recently hatched animals

tropical (adj.) – having a hot and humid climate

infestation (n.) – invasion of insects or animals in a place

ecological (adj.) – related to an ecosystem

adapted (v.) – when an animal or organism has changed to improve their chance for survival

by Public Consulting Group

-
- A large snake with a blue collar and a blue stick in its mouth. The snake has a patterned body with black, yellow, and grey. It is lying on green grass. The blue stick is held in its mouth, and the blue collar is around its neck.

- ## All About the Everglades

- ## MY NOTES



- 4 The Everglades is home to many native species, including the American alligator, Florida panther, manatee, and bald eagle. However, the Everglades is also home to many invasive species. An invasive species is a nonnative species that is harming the environment of an area.

An Unexpected Problem

- 5 The Burmese python is one of those invasive species. Burmese pythons are not native to Florida. Most of these snakes were first brought to Florida as exotic pets. People thought it would be exciting to have a python as a pet. However, most pet owners didn't realize the Burmese python can grow up to 20 feet long and weigh up to 200 pounds! Many python parents realized they could not continue to keep their beloved pets, so they released them into the wild. These smart snakes made their way to the Everglades, which provided them with a safe environment to live and multiply.
- 6 No harm done, right? Not quite! Burmese pythons can lay 50–100 eggs per year and they have no natural predator in the Everglades since they are not native to the area. The pythons quickly multiplied until thousands—probably closer to tens or hundreds of thousands—began living in the Everglades region. They have caused major damage to the ecosystem of the Everglades. They have disrupted the food chain by removing many of the small mammals that formerly lived there.

A Rewarding Challenge

- 7 To help solve the problem, the Fish and Wildlife Foundation of Florida started the Florida Python Challenge. Participants can sign up to hunt the Burmese python in the Everglades. It's a dangerous and difficult challenge, but it has a pretty impressive prize. Winners can win thousands of dollars, with a grand prize of \$10,000!
- 8 It's easy to participate. All participants must register for the weeklong event and take an online training course. They also must learn how to humanely kill a python, which is a requirement to win a prize. Participants don't need much else



besides a little knowledge and a lot of courage!

- 9 Python hunting isn't an easy task. It can be dangerous, especially because pythons can be quite large. People often join the competition in teams so they can work together to wrangle these massive snakes. Past participants believe the challenge is worth it. Not only could participants win a great prize, but they also could have the pride of capturing such a problematic predator.





Lesson 6

Text Structure Exit Ticket: "The Florida Python Challenge"

DIRECTIONS

Use the text "The Florida Python Challenge" along with your knowledge of informational texts and text structures to answer the following questions.

1. The author uses a descriptive text structure in the section **All About the Everglades** to communicate which important idea?
 - A. The Florida panther is the best animal in the Everglades.
 - B. The Everglades has a unique and fragile ecosystem that includes many native species.
 - C. Draining the Everglades is destroying manatee habitats.
 - D. The Burmese python is an invasive species.
2. In the passage, how does the structure of the section **An Unexpected Problem** affect the meaning of the passage?
 - A. The sequential structure tells the life cycle of a python.
 - B. The descriptive structure explains different types of exotic pets.
 - C. The cause-and-effect structure shows what happened when people released their pet pythons into the wild.
 - D. The compare-and-contrast structure describes how pythons are different from other invasive species.
3. How does the section **A Rewarding Challenge** develop the idea that people are trying to solve the Florida python problem in unique ways?
 - A. It explains the Florida Python Challenge.
 - B. It says that hunting pythons is hard work.
 - C. It says that people sometimes work in teams to hunt pythons.
 - D. It explains how the reader can sign up to hunt pythons.
4. Which **two** sentences from the text best show that the overall text structure is problem and solution?
 - ☐ The event has two purposes—to raise awareness about the invasive Burmese python that is harming the ecosystem of the Everglades and to reduce the number of pythons in the Everglades.
 - ☐ Burmese pythons are not native to Florida.
 - ☐ The Everglades is home to many native species, including the American alligator, Florida panther, manatee, and bald eagle.
 - ☐ To help solve the python problem, the Fish and Wildlife Foundation of Florida started the Florida Python Challenge.



Texts for Evaluation

DIRECTIONS

Read and review your assigned text. Then complete the Evaluating Text Tool for your text to determine whether it is valid and reliable.

AMAZING DOLPHINS

They do something called breaching—
jumping into the air up to 150 feet!!!!

They are social and
live in pods with
about 1,000 other
dolphins.

Length:
1–100 feet

Weight:
20–40,000 lbs.

Great swimmers,
they can go as fast as
96 miles per hour!!

They have to come to the surface to
breathe but can hold their breath
underwater for 30 seconds.

From:
"Amazing Dolphins" by Alex Miro
www.myanimalwebsite.net/kqna-95604 May 8, 1990



More Unwanted Guests

An estimated 4,300 invasive species live throughout the US. Here are three of the biggest pests.



Emerald Ash Borer

The invasion: These half-inch-long beetles arrived from Asia in 2002, probably in packing materials on cargo ships. They've since killed tens of millions of ash trees in 35 states by boring, or digging, under the bark.

Damage Control: Experts have cut down tens of thousands of infected trees to try to stop these pests from spreading to other trees. Also, in some areas, the US government has released a type of wasp that is a natural predator to the beetle but harmless to humans.



Burmese Python

The invasion: In the 1970s, these giant snakes were imported from Asia to be sold as pets. But many owners eventually set the snakes free, and now up to 100,000 may be living in the Florida Everglades. They feast on native animals like rabbits and deer.

Damage Control: Wildlife officials capture and kill hundreds of pythons each year. In January, officials held the Python Bowl, giving cash and other prizes to the teams that caught the most snakes.



Nutria

The invasion: Starting in the late 1800s, traders brought these 20-pound rodents from South America to sell for their fur. But once nutria escaped or were released, they started eating enough vegetation to disrupt entire ecosystems. They've been spotted in about 20 states.

Damage Control: Some states, like Delaware, seem to have completely gotten rid of the rodents. Others are still trying. In Louisiana, people can earn \$6 for each nutria they catch.

From:
"How This Little Goldfish Can Cause Big Trouble" by Jennifer Li Shotz
Scholastic News, vol. 88, no. 14, February 17, 2020 p. 4–5.



Evaluating Text Tool

DIRECTIONS

Use the following tool to determine whether your assigned source is reliable and valid.

	Group A “Amazing Dolphins”	Group B “More Unwanted Guests”
Who? Who is the author of the text?		
What? What information is the text providing?		
Where? Where did you find this text?		
When? When was the text written?		
Why? Why was this text written?		
Is the text reliable and valid?	yes no	yes no



Animal Defenses Text Set and Prompt

WRITING PROMPT

Animals have unique and interesting ways to protect themselves and to survive. The following sources discuss different animal adaptations. Read each source to gather information to respond to the following prompt:

Write an expository essay that informs others about how animals use adaptations and defenses to help them survive in their environment.



In order to respond to the prompt you will:

- ✓ Read the passages.
- ✓ Plan your response.
- ✓ Write your response.
- ✓ Revise and edit your response.

Source 1: Common Animal Defenses

by Public Consulting Group

- 1 Insects that look like leaves, snakes that play dead, fish that fly, and toads with poisonous skin—these animals are among the many creatures that defend themselves in fascinating ways. Almost every animal is hunted as food by some other kind of animal and many have developed ways to defend themselves against **predators**. Common animal defenses include camouflage, physical features, chemical features, mimicry, and trickery.

Camouflage

- 2 Animals that use camouflage change their appearance to look exactly like their surroundings—making them very difficult to spot! They use camouflage to hide their location and identity, particularly from predators. However, some predators also use



Being approached by a predator can cause chameleons to change their colors or patterns to blend in with their surroundings



camouflage to sneak up on their prey. If the **prey** has no idea they're there, it makes it much easier to hunt!

Physical Features

- 3 Some animals have spines, **protrusions**, or other physical characteristics that make them hard to attack and eat!
- 4 A turtle's shell serves as armor and protection from the dangers of the world. When scared, turtles tuck into their hard shells, making them harder to bite and attack. Porcupines also defend themselves using distinct physical characteristics. They are covered in large, stiff, very sharp hairs called quills. If a predator tries to attack a porcupine, it will encounter a spiky situation!



When they feel threatened, porcupines can make their quills stand up. This makes them look larger and warns predators to stay away.

Chemical Features

- 5 Have you ever smelled the unpleasant scent of a skunk? Although they look adorable, those striped creatures seriously stink! If a skunk feels threatened, it releases a smelly oil that can spray up to 10 feet. This defense mechanism deters other animals (and people) from getting too close.
- 6 Other animals, like the poison dart frog, have chemical toxins that harm predators that get too close. The frog's body is covered in small glands that **excrete** a poison, making whoever tries to eat it very sick. Other animals such as snakes, insects, and octopuses have venomous bites or stings, releasing toxins into the animal they bite or attack.

When skunks feel threatened, they can spray a smelly oil up to 10 feet!



Mimicry and Trickery

- 7 Some clever animals defend themselves by outsmarting their predators, imitating another animal's appearance, actions, or even sounds. This disguises them and keeps them safe from predators.
- 8 One example of mimicry can be seen with the king snake and coral snake. King snakes are totally harmless. However, they look a lot like coral snakes, which are deadly. King snakes mimic the appearance of coral snakes so predators stay away. Biologist Hanna Ruiz explains, "Animals who want to avoid getting killed



by the coral snake's lethal venom will stay away from both snakes, just to be sure."

- 9 Animals can also use trickery to defend themselves. The opossum is known for its ability to "play dead." When threatened, it lays down, sticks out its tongue, and secretes a substance to make it smell like it is dead! Since the opossum looks and smells dead, other animals stay away.

- 10 Animals have many defenses they can use to protect themselves from predators. These strategies won't help an animal live forever, but they might prolong the "eat or get eaten" cycle a little longer.



King snakes do not have any venom, but they look just like the highly venomous coral snake.

Glossary

predators: animals that live by eating other animals

prey: an animal that is killed by another animal for food

protrusions: parts of the body that stick out

excrete: to release or eliminate from the body

Source 2: Stinky Animals: What's That Smell?

by Public Consuling Group

- 11 If you're someone with a sensitive sniffer, then you would not like these stinky animals! In the animal kingdom, there aren't very many animals that smell good. After all, most animals don't have access to a bubble bath! But some animals take the stink to a whole new level! Skunks, millipedes, stink bugs, and even stinkbirds all have special smelly **defense mechanisms**.

Skunks

- 12 When you think of stinky animals, the first animal that comes to mind is probably a skunk. A skunk has a special **gland** under its tail that produces, stores, and sprays a stinky oil that contains sulfur, a substance that smells like rotten eggs.
- 13 Spraying is not their first defense. When a skunk feels threatened, it gives a warning by stomping its feet,



It can take skunks up to 10 days to produce a supply of their stinky spray, so they try to scare predators away before using the spray.



arching its back, and lifting up its tail as if to say, “Stop now, or I’ll spray!” But if it still feels threatened, it’s time to release its stinky spray, which can travel up to 10 feet!

Millipedes

- 14 Millipedes are known for being creepy crawlers, but most people don’t get close enough to know that they stink too! If they are frightened, they release a poisonous and foul-smelling liquid from their glands. It can even shoot out of them if they are scared enough! People usually only smell this if they try to touch or hold a millipede. But millipedes use this defense to deter spiders, centipedes, and other predators. In addition to the stinky smell, the liquid is also poisonous and can cause allergic reactions on eyes and skin.



In addition to their smelly defense, millipedes also will curl up into a little ball to protect their fragile legs when threatened by a predator.

Stink Bugs and Stinkbirds

- 15 Stink bugs, insects named for their smell, release their smelly odor only if they are frightened, protecting them from danger. They also stink if they are accidentally (or intentionally!) squashed.
- 16 While stink bugs may be familiar, have you ever heard of the stinkbird? The hoatzin is a bird that lives in South America. Unlike skunks, millipedes, and stink bugs, these birds don’t actually spray a stinky smell—they just stink! They smell terrible because of their strange diet and digestive system, digesting their food through a process called fermentation, just like cows. “Hoatzins, in effect, are flying cows,” the Cornell Lab of Ornithology says. “As their food digests, it creates methane gas that they burp up, meaning that hoatzin burps smell like cow manure.” Even though they don’t spray anything, this terrible scent helps keep predators away.

Stink bugs release different types of stinky smells depending on their species, sex, and age. There are more than 4,700 species—that’s a lot of unique bad smells!



Unlike other animals that emit a bad smell when they are scared, hoatzins smell bad all the time because of their diet and digestion.



Don't Scare Me like That!

Scaring one of these animals will also result in a bad smell being unleashed!

Common Musk Turtle or Stinkpot

If you scare a common musk turtle, also known as a stinkpot, it will secrete a bad-smelling musk scent from a small gland in its underside. This will usually scare a predator away!



Bombardier Beetle

The bombardier beetle has chemicals stored in its body. When it gets scared, these chemicals mix. The mixing causes them to get very hot—around 212°F—and then the beetle shoots them out of its body. The mixture can kill small insects and is painful to human skin.



Glossary

defense mechanisms: an animal's natural reactions designed to defend themselves

gland: an organ that releases a chemical for use in the body or released into the environment

Source 3: The Art of Blending In

by Public Consulting Group

- 17 Dr. Seuss, a well-known children's book author, famously said, "Why fit in when you were born to stand out?" In today's society, children and adults alike are encouraged to embrace their uniqueness and be themselves. However, in the animal kingdom, that's not always the safest option.



Can you spot the rattlesnake, moth, and owl? All three naturally look a lot like their surroundings, making it easy for them to blend in to avoid predators.



- 18 For many animals, survival depends on blending in, not standing out. Animals use defense mechanisms such as camouflage to blend in with their surroundings.
- 19 But how do animals camouflage themselves? It might seem like a magic trick, but it's actually a natural process. Some animals naturally have skin or fur coloration that blends in with their **habitat**. One example is the diamondback rattlesnake. According to Dr. Sarah Miro of The Snake Institute, "The diamondback's coloration looks very similar to the sandy, rocky ground it lives on."
- 20 Owls and moths are other types of animals that naturally blend in with their environments. These animals have speckled or spotted patterns that can blend in with the tree bark where they live, making it hard for predators to spot them. According to the Owl Research Institute, "Snowy owls have white feathers that help them hide in their snowy habitat. Flammulated owls have dark feathers that help camouflage it when tucked up against a tree. Grassland species have light brown feathers to match the tan grasses and the brown earth."
- 21 In contrast, some animals change their appearance through specialized cells. For example, octopuses have special cells called chromatophores. These cells are made up of tiny sacs that are filled with different colored pigments. As the octopus stretches the sacs, they can change the color and brightness of their body. This allows them to quickly change color to blend in with their surroundings. "Octopuses do not have a hard shell or sharp claws or teeth to protect themselves, so camouflage is the best way for them to avoid predators," says James Flores, a professor of marine biology. Chameleons and squids—along with some species of fish and frogs—are other animals that use chromatophores to change colors.
- 22 Camouflage is an important defense mechanism that helps protect animals from predators. Although animals use many different types of camouflage, any method that helps animals stay hidden and blend in with their surroundings also helps them stay safe.



An octopus uses its chromatophores to blend into the ocean floor.

Glossary

habitat: the home or environment of an animal



WRITING PROMPT

Animals have unique and interesting ways to protect themselves and to survive.

Write an expository essay that informs others about how animals use adaptations and defenses to help them survive in their environment.

Your expository essay must be based on this prompt and topic, and it must incorporate ideas and information found in the sources provided.



Use your best writing to complete an essay that

- ✓ is focused on your central idea,
- ✓ combines evidence from multiple sources with your own elaboration to develop your ideas,
- ✓ is organized and includes transitions within and among ideas,
- ✓ provides citations for quoted material and source ideas, and
- ✓ demonstrates correct use of grammar and language appropriate to the task.

Your response should be in the form of a multiparagraph essay.



Lesson 11 Text Questions

DIRECTIONS

Use the Animal Defenses Text Set and your annotations to answer each question below. For each question, explain why you choose the answer you did.

This question has two parts. First, answer Part A. Then, answer Part B.

1. **Part A:** What is the central idea of the text “Common Animal Defenses”?
- A. The predator-prey relationship is a part of every ecosystem.
 - B. Animals have spines or other characteristics that make it harder to eat them.
 - C. Many animals have defenses to protect themselves from being killed.
 - D. Opossums protect themselves by playing dead.

Explain why you chose your answer.

2. **Part B:** Which **two** details best support your answer in Part A?
- ☐ “However, some predators also use camouflage to sneak up on their prey.” (paragraph 2)
 - ☐ “Some animals have spines, protrusions, or other physical characteristics that make them hard to attack and eat!” (paragraph 3)
 - ☐ “When scared, turtles tuck into their hard shells, making them harder to bite and attack.” (paragraph 4)
 - ☐ “Have you ever smelled the unpleasant scent of a skunk?” (paragraph 5)
 - ☐ “King snakes are totally harmless.” (paragraph 8)

Explain why you chose your answers.



This question has two parts. First, answer Part A. Then, answer Part B.

3. **Part A:** What sentence best explains why some animals, like skunks and millipedes, smell?
- A. Some animals don't take baths.
 - B. Some animals get frightened and release a foul-smelling scent.
 - C. Some animals dig in trash cans and the trash rubs on their fur.
 - D. Some animals eat plants that cause them to smell.

Explain why you chose your answer.

4. **Part B:** Which **two** details explain the cause-and-effect relationship in question 3?
- ☐ "Spraying is not their first defense." (paragraph 13)
 - ☐ "If they are frightened, they release a poisonous and foul-smelling liquid from their glands." (paragraph 14)
 - ☐ "In addition to the stinky smell, the liquid is also poisonous and can cause allergic reactions on eyes and skin." (paragraph 14)
 - ☐ "Stink bugs, insects named for their smell, only release their smelly odor if they are frightened, protecting them from danger." (paragraph 15)
 - ☐ "As their food digests, it creates methane gas that they burp up, meaning that hoatzin burps smell like cow manure." (paragraph 16)

Explain why you chose your answers.



This question has two parts. First, answer Part A. Then, answer Part B.

5. **Part A:** What is the central idea of the text “The Art of Blending In”?

- A. People and animals are encouraged to embrace their differences.
- B. Some animals naturally blend into their surroundings.
- C. Octopuses have many interesting defenses to protect themselves.
- D. Many animals rely on camouflage, or blending in, for survival.

Explain why you chose your answer.

6. **Part B:** Which **two** details best support your answer in Part A?

- ☐ “In today’s society, children and adults alike are encouraged to embrace their uniqueness and be themselves.” (paragraph 17)
- ☐ “One example is the diamondback rattlesnake.” (paragraph 19)
- ☐ “These animals have speckled or spotted patterns that can blend in with the tree bark where they live, making it hard for predators to spot them.” (paragraph 20)
- ☐ “‘Octopuses do not have a hard shell or sharp claws or teeth to protect themselves, so camouflage is the best way for them to avoid predators’ . . .” (paragraph 21)
- ☐ “Chameleons and squids—along with some species of fish and frogs—are other animals that use chromatophores to change colors.” (paragraph 21)

Explain why you chose your answers.



Lesson 12

Animal Defenses Text Structures Organizer

DIRECTIONS

Reread the texts in the Animal Defenses Text Set to determine how the authors use each structure or feature and record an example from the text. Then, explain how it helps you to better understand the text.

"Common Animal Defenses"		
The author . . .	Example from text	This helps me understand . . .
Describes different types of defenses that animals use to protect themselves.	"Common animal defenses include camouflage, physical features, chemical features, mimicry, and trickery."	There are many different ways that animals protect themselves.
Describes how a skunk behaves when it is frightened.		
Uses cause and effect to explain how a turtle behaves when it is scared.		



“The Art of Blending In”		
The author . . .	Example from text	This helps me understand . . .
Describes why animals use camouflage.		
Uses pictures to show what an animal that is blending into its surroundings looks like.		
Describes how animals can change colors.		

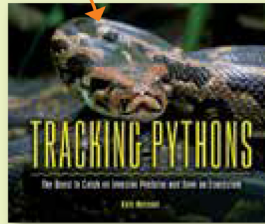


INFORMATIONAL TEXT

TRACKING PYTHONS

To research her new book, author **Kate Messner** joined a team of snake scientists—and ended up on a wild adventure. Here, she shares her story with *Storyworks*.

Why was I in the wilds of southwestern Florida, searching for pythons? I'd come to do research for my book *Tracking Python: The Quest to Catch an Invasive Predator and Save an Ecosystem*. It's about a group of scientists who are working to solve Florida's python crisis. I was lucky enough to join them on several research trips.



HIDE AND SEEK

To reduce the python population, the scientists try to capture female snakes and collect their eggs. It's difficult to find female pythons. The snakes are expert hiders. But male pythons are good at finding females. That's because the females give off special chemicals to attract mates.

Since 2013, the scientists have caught more than 60 pythons and **implanted** them with radio transmitters. These tiny gadgets give off signals that help scientists find male snakes in the wild. The scientists then follow the males as they search for

females. Over the past seven years, this group has removed more than 500 Burmese pythons and 3,000 eggs from the wild.

RESEARCH ADVENTURE

I joined the scientists as they tracked signals from the snakes' transmitters. We soared over the swamps in a small plane. We hiked through the brush to find pythons hidden in deep holes. We waded into a muddy lake, keeping an eye on a nearby alligator.

The researchers point out that even though pythons are causing damage, this problem was created by people—not the snakes. "They're just doing what snakes do best," says the project leader.

The scientists know their project won't fully get rid of Florida's pythons. But they're hoping to keep the population under control. They want to learn more about this invasive species too.

For me, I got an up-close look at snake science—and a reminder of what an adventure research can be. ■



Above: The author with scientist Ian Easterling; **Right:** Scientist Ian Bartoszek holds a captured python.





Lesson 1

Cursive Anchor Chart

Cursive Alphabet

Aa Bb Cc Dd

Ee Ff Gg Hh

Ii Jj Kk Ll

Mm Nn Oo

Pp Qq Rr Ss

Tt Uu Vv Ww

Xx Yy Zz

TCR 7688 © Teacher Created Resources



Animal Defenses Infographic

Animal: _____

Camouflage

Physical Features

Chemical Features

Mimicry and Trickery

Lesson 4

Ways to Introduce an Informational Text

DIRECTIONS

For each of the introductions you learned about, draw a symbol and write a short phrase that will help you remember how to write each introduction.

 Quality Questions	
 Fascinating Fact	
 Paint a Picture	
 Background Information	



Lesson 6

Informational Writing Checklist

DIRECTIONS

Read each element. Review your writing and check the appropriate box.

In my text . . .	Not yet ☒	In Progress ☒	Yes ☒
Purpose and Organization Did I develop a central idea that is original and clear? Did I group related information into subtopics that support my central idea?	Not yet ☐	In Progress ☐	Yes ☐
Text Structure Did I write each section according to the organizational plan I created?	Not yet ☐	In Progress ☐	Yes ☐
Lead Did I craft an introduction that introduces my central idea in an engaging, interesting way?	Not yet ☐	In Progress ☐	Yes ☐
Transitions Did I use transition words and phrases to connect ideas?	Not yet ☐	In Progress ☐	Yes ☐
Conclusion Did I write a conclusion that summarizes my information and offers a final thought or question for my reader to consider?	Not yet ☐	In Progress ☐	Yes ☐
Elaboration Did I use elaborative techniques (facts, details, examples, and other information) to support my central idea?	Not yet ☐	In Progress ☐	Yes ☐
Conventions Did I effectively follow spelling, punctuation, and capitalization rules? Did I check my work for run-on sentences?	Not yet ☐	In Progress ☐	Yes ☐



Informational Writing Checklist: Triple I Article

DIRECTIONS

Use the following checklist to evaluate your Triple I Article. For any items you cannot check off, make a note as to what revisions need to be made.

Purpose and Structure	Yes ☒
Did I clearly introduce the central idea and maintain its focus throughout my article?	Yes ☐
Did I group related information into subtopics that support my central idea?	Yes ☐
Did I craft an introduction that introduces my central idea in an engaging, interesting way?	Yes ☐
Did I include information from two sources to support my central idea?	Yes ☐
Did I use transition words and phrases to connect ideas?	Yes ☐
Development	Yes ☒
Did I craft a conclusion that summarizes what was learned, provides the reader with a sense of closure, and concludes in an interesting way?	Yes ☐
Did I cite the source when using evidence to support my central idea?	Yes ☐
Did I elaborate using facts, details, examples, and other information to support my central idea?	Yes ☐
Did I elaborate on the evidence using elaboration techniques, including reflection and extension?	Yes ☐
Language	Yes ☒
Did I include domain-specific vocabulary to teach the reader about my topic?	Yes ☐
Did I effectively follow spelling, punctuation, and capitalization rules?	Yes ☐



Lesson 16

The Power of Punctuation: The Comma

DIRECTIONS

1. Read each example in the Comma Gallery Walk.
2. Record the comma rule in your own words to describe when and how it is used.
3. Add an example of a sentence that correctly follows each comma rule.

		
	When and How It Is Used	Example Sentence
Comma Rule 1		
Comma Rule 2		
Comma Rule 3		
Comma Rule 4		

Acknowledgments

Barron, Michael. n.d. Python Ingested Alligator and Split. Image. National Park Service.

Cursive Alphabet. n.d. © Teacher Created Resources.

Girish HC. n.d. [Burmese python close-up image.] Image used under license from Shutterstock.com.

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Second Edition

Module B

