

ELA Fifth Grade Schoolwide - Reading Nonfiction



What We Notice About Nonfiction

Reference Nonfiction	Literary Nonfiction	Biography

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Reference Nonfiction	Literary Nonfiction	Biography

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Example From Text

Structures of Nonfiction

Text Structure	Signal Words and Phrases	Example From Text	Text and Page #
Description			
Chronological			
Compare and Contrast			
Problem and Solution			
Cause and Effect			

Nonfiction Structures: Signal Words and Phrases

Text Structure	Signal Words and Phrases
Description	to illustrate, characteristics, an example, such as, to begin with, for instance
Chronological	first, second, next, then, before, after, finally, following, now, soon, later
Compare and Contrast	same as, similar, alike, as well as, both, not only . . . but also, instead of, either . . . or, different from, as opposed to, on the other hand
Problem and Solution	the question is, the dilemma is, to solve this, one reason for the problem is, one answer to this is
Cause and Effect	so, because, since, therefore, if . . . then, as a result of, this led to, this may be due to, consequently, for this reason

Asking Questions While Reading Nonfiction

Before	During	After
How does the title help me know what this text is going to be about?	What do I understand?	What have I learned?
What do I know about this topic or subject?	What is unclear?	What are the important ideas that stuck with me?
What questions do I have?	What new questions do I have?	What new or lingering questions do I have?
What type of nonfiction is this? How does that help me prepare for this read?		
Is there a particular way that the text is structured?		

Asking Questions While Reading Nonfiction

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<p>How does the title help me know what this text is going to be about?</p> <p>What do I know about this topic or subject?</p> <p>What questions do I have?</p> <p>What type of nonfiction is this? How does that help me prepare for this read?</p> <p>Is there a particular way that the text is structured?</p>	<p>What do I understand?</p> <p>What is unclear?</p> <p>What new questions do I have?</p>	<p>What have I learned?</p> <p>What are the important ideas that stuck with me?</p> <p>What new or lingering questions do I have?</p>

Unlocking Meaning

Page #	Unknown Word	Background Knowledge or Clues From the Text	Unlocked Meaning
			011

Unlocking Meaning

Page #	Unknown Word	Background Knowledge or Clues From the Text	Unlocked Meaning
			012

Questions to Figure out the Point

Considering Purpose:

- Why do you think the writer chose to write about this topic?
- What is the writer's main purpose in writing this text?

Considering Point of View:

- What type of nonfiction is this text? Whose point of view is the text told from?
- Why did the writer choose to write from this point of view?

Considering Meaning:

- What is this text really about?
- What does the writer want us to think about and ask questions about while reading this text? Is there anything in this text that points us to that conclusion?

What's the Point?

Topic:	Albatrosses or "gooney birds"
Type of nonfiction and point of view:	Literary nonfiction Third-person point of view
Information the author really wants us to know:	<ul style="list-style-type: none"> • A scientist banded a female Laysan Albatross and followed her for scientific studies. • She survived after hatching in a rookery when many other chicks did not. • She survived shark attacks when swooping down for food in the sea waters. • She survived when other albatrosses died from eating plastic polluting the sea waters. • She survived the danger of longline fishing when other wild birds were caught in the lines and died. • She survived natural disasters like an earthquake and tsunami. • She lived over 60 years, raising dozens of chicks. • She was truly a remarkable bird—the oldest known wild bird.
So what's the point?	<p>Summarize: What message does the author really want us to take away from the text, or what was the author's purpose in writing this text?</p> <p>One particular Laysan Albatross was remarkable and survived for a surprisingly long time despite natural and manmade threats. Wild birds, like Wisdom, should be respected and protected. People need to keep our seabirds' natural environments free from pollution and should stop harmful fishing practices.</p>

Main Idea and Supporting Details

Title of Text or Section: _____

Main Idea			
<hr/> <hr/> <hr/> <hr/>			
Supporting Detail	Supporting Detail	Supporting Detail	Supporting Detail
<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>	<hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/> <hr/>

Main Idea and Supporting Details

Title of Text or Section:

[illegible]

A Reporter's Formula

Summary Word	Questions to Report
WHO	<ul style="list-style-type: none">• Who is the most important person (or people) in the text?
WHAT	<ul style="list-style-type: none">• What is the most important event, thing, or idea in the text?
WHERE	<ul style="list-style-type: none">• Where do the events in this text occur?
WHEN	<ul style="list-style-type: none">• When do the events in this text occur?
WHY	<ul style="list-style-type: none">• Why do the events in this text occur?• Why is this subject important?
HOW	<ul style="list-style-type: none">• How do the events in this text occur?

Name: _____ Date: _____

A Reader’s Puzzle

Text or Subject: _____

What I already know . . .	Questions I have . . .	What I learned . . . New questions I have . . .

Name: _____ Date: _____

A Reader’s Puzzle

Text or Subject: _____

What I already know . . .	Questions I have . . .	What I learned . . . New questions I have . . .

Name: _____ Date: _____

Touring the Text

Text: _____ Subject: _____

Text Features

What We Learn From Them in the Text



Name: _____ Date: _____

Touring the Text

Text: _____ Subject: _____

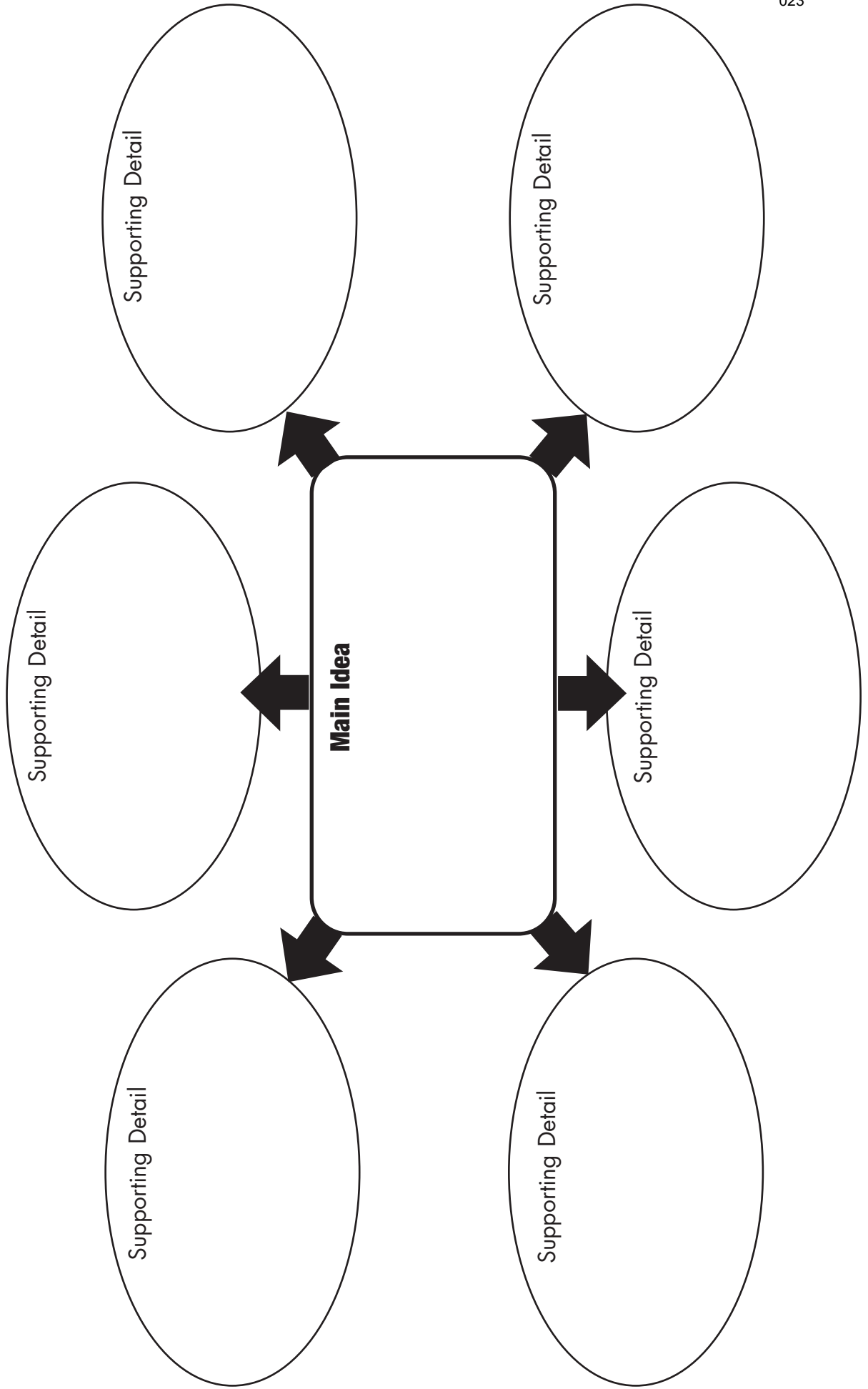
Text Features **What We Learn From Them in the Text**



Name: _____ Date: _____

Main Idea and Supporting Details

Text: _____ Subject: _____



Name: _____ Date: _____

Problem and Solution Text Structure

Text: _____ Subject: _____

Problem	Solution

Name: _____ Date: _____

Problem and Solution Text Structure

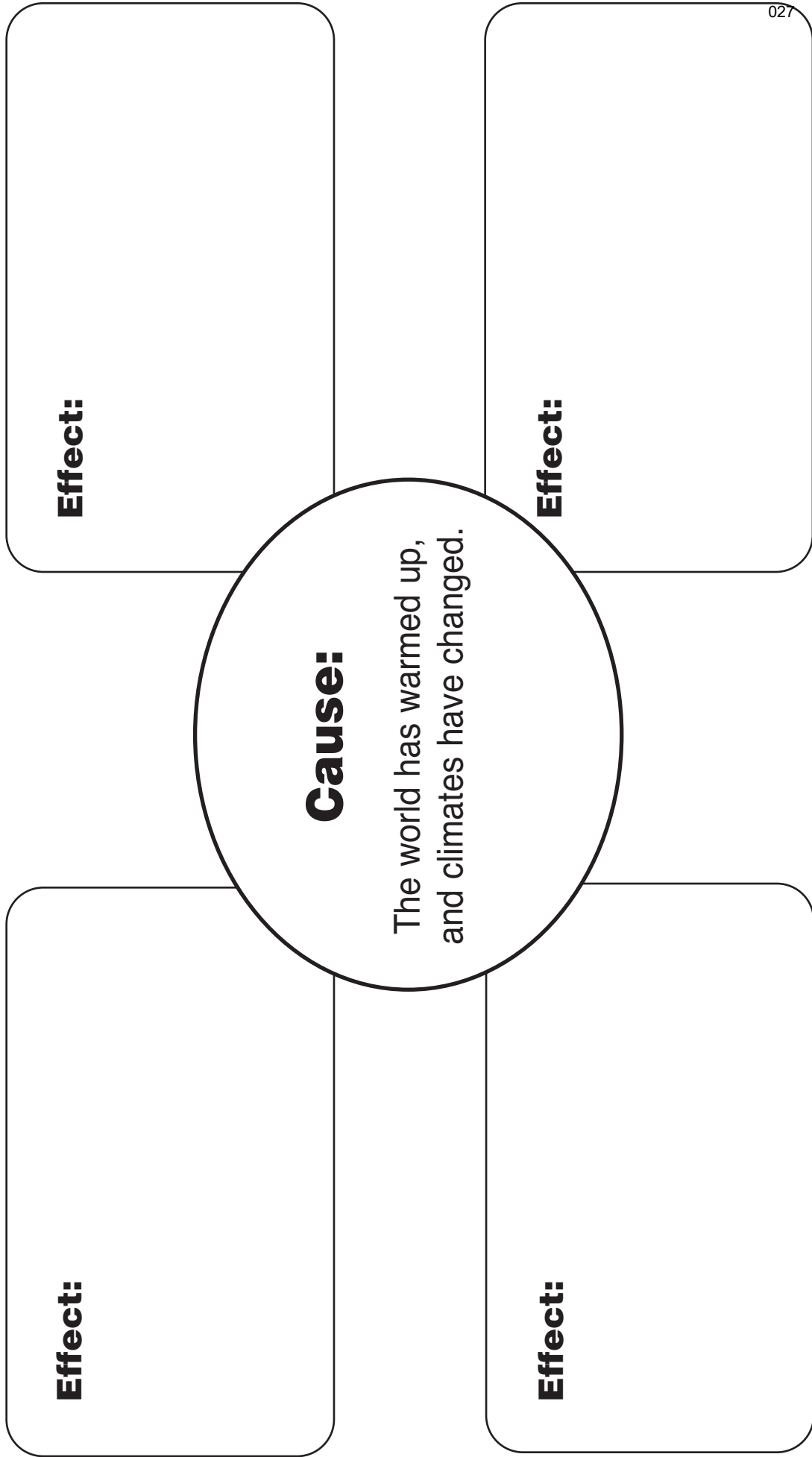
Text: _____ Subject: _____

Problem	Solution

Name: _____ Date: _____

Cause and Effect Text Structure

Text: _____




Name: _____ Date: _____


Chronological Structure

Text and Page #: _____

1.




2.




3.

4.



5.



6.

Name: _____ Date: _____

Fact vs. Fiction

Text: _____

Fact – What is true?	Fiction – What is part of the made-up story?

Name: _____ Date: _____

Fact vs. Fiction

Text: _____

Fact – What is true?	Fiction – What is part of the made-up story?

Name: _____ Date: _____

Building Vocabulary

Text: _____

Vocabulary Word	Sentence From the Text	Definition
		033

Name: _____ Date: _____

Building Vocabulary

Text: _____

Vocabulary Word	Sentence From the Text	Definition
		034

Name: _____

Date: _____

Dealing With Difficulty in Nonfiction Texts

Questions to Stop and Ask Myself

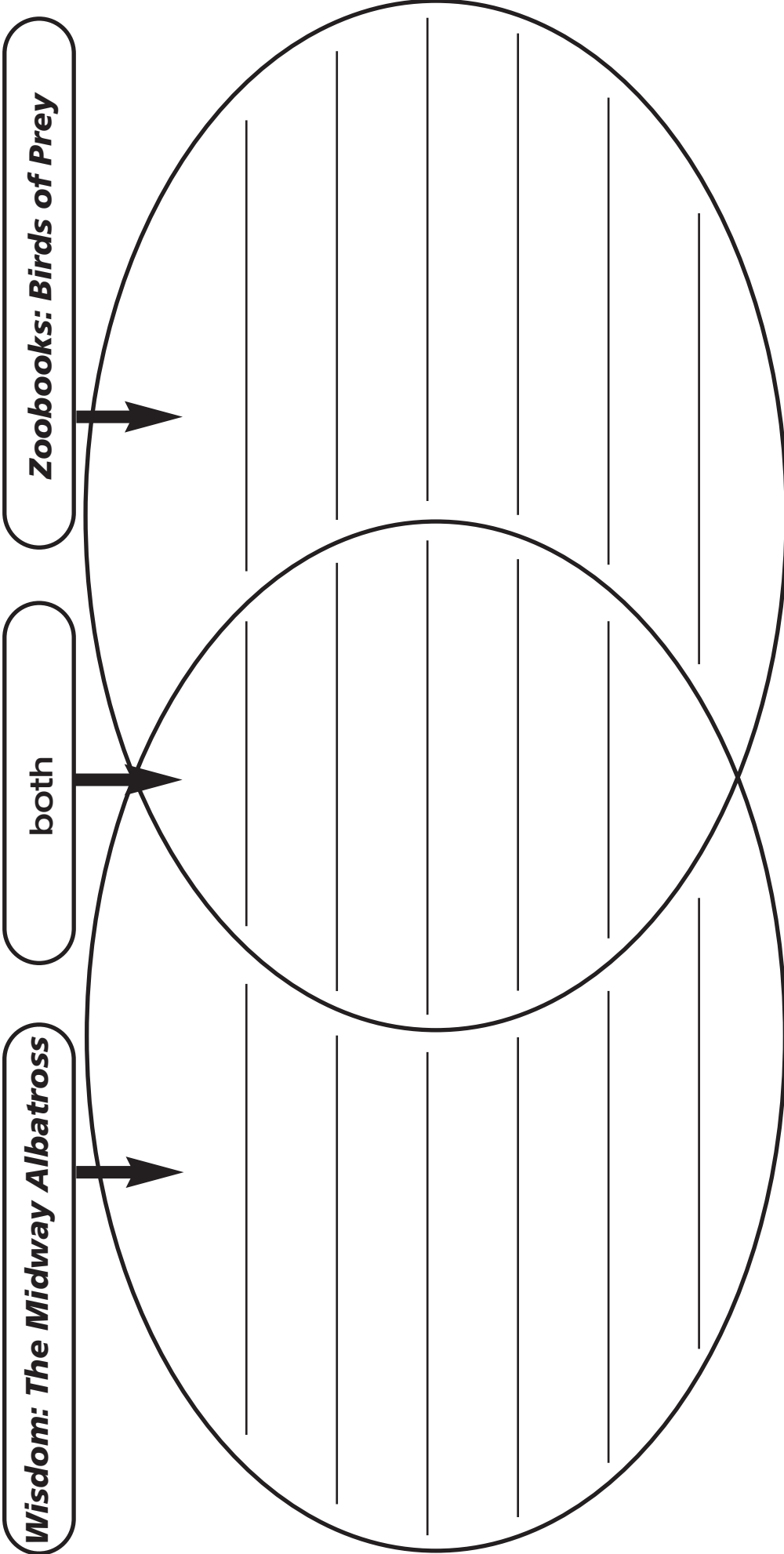
- Does this make sense so far?
- Where have I gotten lost or confused?
- Do I understand the information being presented?
- Do I understand the content vocabulary?
- Do I understand the background of the text?

Fix-Up Strategies If I Get Lost

- Reread the sentences slowly to myself and perhaps aloud, but in a whisper.
- Read ahead a sentence or two to see if new information clears up confusion.
- Identify the text structure and use a graphic organizer to take notes that will help me sort through information.
- Use the Glossary.
- Use text features.
- Read the Author's Note.
- Do some quick secondary reading to bolster knowledge (e.g., look up background information of a setting, time, event, etc.).

Name: _____ Date: _____

Comparing and Contrasting Nonfiction Texts



Big ideas that stick in my mind . . .

Penguins on Parade

by Tamar L.

Behold the humble penguin. These flightless black-and-white birds aren't much to look at, really. Short and squatty with wings like flippers, they waddle around awkwardly on land and certainly can't soar like eagles! But there is more to the penguin than meets the eye.

They Come in All Sizes

Think penguins all look the same? Think again. There are more than a dozen different kinds of penguins, and they come in all shapes and sizes. Well, all sizes, anyway. The largest is the emperor penguin, which stands about three-and-a-half feet tall and tips the scale at 90 pounds! The smallest is the fairy penguin, which averages about 16 inches tall and a mere two pounds.

They Are Black and White for a Reason

The penguins' white bellies and black backs serve as camouflage (cam-uh-flahj), which makes it harder for other animals to see them. Underwater predators, such as the sea lion, have trouble seeing the penguin's white belly against the sunlit sky. Airborne predators, like the Australian sea eagle, have a hard time making out the penguin's black back against the dark ocean water. As a result, their coloring is like protective armor!

They Are Not Just Black and White

True, penguins are mostly black and white, but some have brilliant plumes of feathers that look like fancy hats. Others have bright patches of color around their cheeks and ears that make it seem as if they had their faces painted at the county fair. For example, rockhopper penguins and macaroni penguins have golden crests on their heads. King penguins and emperor penguins have bright orange patches around their ears.



The light-colored shapes on the sides of these king penguins' heads are bright orange, just like those on the emperor penguin.

They Are World-Class Swimmers

Penguins can't fly in the air, but they sure can fly in the water! Their flipper-like wings and torpedo-shaped bodies are perfect for swimming. With speeds up to 20 miles per hour, penguins can swim faster and dive deeper than any other bird. In fact, they are so comfortable in the water that they spend as much as 75 percent of their time swimming, diving, and floating. They can even take naps floating on the ocean surface!

They Like Company

When penguins aren't swimming around in the ocean, they live in giant penguin "cities" called colonies, with thousands—or even millions—of other penguins. Like us, penguins are warm blooded and must take measures to stay warm in cold climates. Their layers of blubber and fluffy feathers help, but their huge colonies allow them to huddle together for warmth. So, being together is quite useful.

Penguins are also very fair. They rotate from the inner part of the huddle to the outer part so all the penguins get some time in the warm center. Their fairness would make them a great addition on the playground during recess!



These rockhopper penguins patiently wait their turn for a dive into the chilly water—their version of Disneyland!

They Know How to Have Fun

Penguins like to have fun as much as we do. They slide around the ice on their bellies. They go surfing through the ocean waves. They dive off of cliffs into the water. In fact, they might like having fun too much. Sometimes you will see long lines of penguins patiently waiting for their turn to jump off of a certain cliff. They dive into the water, jump back onto the land, and get back in line again. It's almost like they have their own Disneyland!

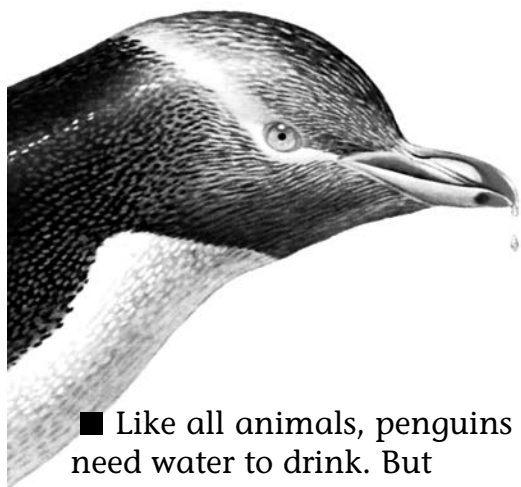
As you can see, penguins have a lot going for them. Aside from their camouflage coloring, they are diverse, resourceful, and playful. That's why, despite their rather dowdy appearance, penguins are among the most popular and beloved creatures in the animal kingdom.



There are seventeen species of penguins worldwide. The dark gray areas indicate where the various species live: Antarctica, the surrounding islands, New Zealand, Australia, South America, and Africa.

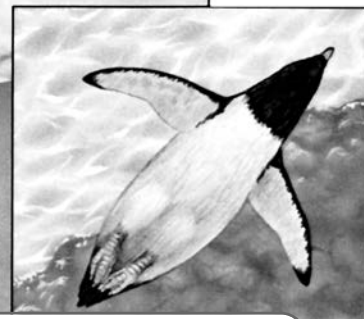
Penguins are at home in the ocean. They spend most of their time in the water, looking for food. And they seem to feel much more comfortable in water than they do on land.

Some penguins stay close to the shore and never swim too far from their breeding colonies. They fish during the day and come back to the shore every night. Other species may take long journeys across the open ocean. They even sleep in the water. Some kinds of crested penguins may stay at sea for five months or more. They may swim thousands of miles, and never come within sight of land the whole time.



■ Like all animals, penguins need water to drink. But when they are at sea, the only water they can get is salt water. For this reason, they have special glands that remove salt from the water they drink. The salt is removed in a liquid form. It flows down grooves in a penguin's beak and drops off the end.

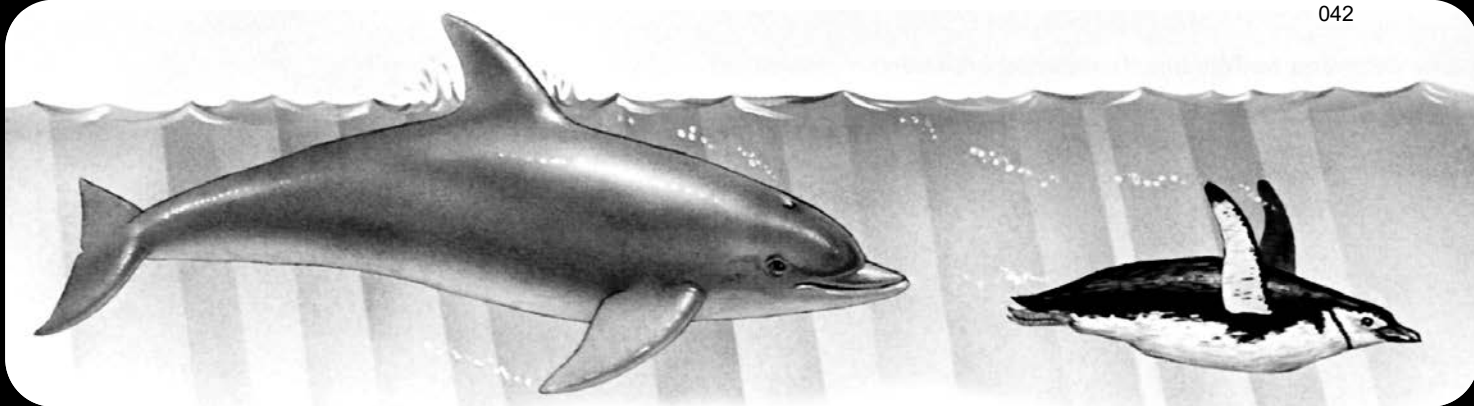
The black-and-white "suit" of a penguin is more than just cute. It helps to hide the penguin from predators when it is swimming in the ocean. When a penguin is swimming near the surface, its white underside makes it hard for Leopard seals or other predators below the penguin to see it.



The white underside of the penguin blends with the bright light coming from above, as shown above.

Penguins are wonderful long-distance swimmers. They often travel in large groups. As they swim, they pop out of the water to gulp air and then plunge back in again. By doing this, they can get the air they need without slowing down. This kind of swimming is called "porpoising" because porpoises swim in a similar way.





The normal swimming speed of most penguins is about 15 miles per hour. This is equal to the speed of the fastest human runner and four times faster than the fastest human swimmer. Penguins swim about as fast as the bottlenose dolphins that many people have seen streaking around pools at oceanariums.



■ The ocean can be a dangerous place for penguins. Many predators in the sea hunt penguins, including sea lions, fur seals, and killer whales. The most dangerous predator of all is probably the Leopard seal. Leopard seals like the one above may eat more than 15 Adelie penguins a day. But they usually catch only weak or sick penguins. A healthy penguin can often swim faster than a Leopard seal and get away.



Penguins get all of their food from the sea. They dive to catch fish, squid, and small shrimp-like animals called krill. When they have a choice, each kind of penguin seems to prefer one kind of food. For example, Adelie penguins like krill, and Blackfooted penguins like fish. But if they can't get their favorite food, all penguins will usually eat whatever happens to be available.



Krill



Fish



Squid

The favorite foods of penguins are found at different depths in the ocean. So different kinds of penguins usually dive to different depths to find the food they like best. Adelies stay close to the surface, where krill is plentiful. Some crested penguins dive deeper to find fish. And Emperor penguins may dive almost 900 feet down to catch large squid. Emperors dive deeper than any other bird.



Brace Yourself

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by Edward C.

You need braces.

I can still hear those words as clearly as the day they were first spoken to me. I remember thinking, "This is going to be miserable." That night as I tossed sleeplessly, the names I expected to be called coursed through my brain. Brace Face. Tin Teeth. Metal Mouth.

If you have recently heard those words, you probably have a ton of questions. I sure did. But now, 4 years later, not only do I have perfect teeth, but I also have the answers to all your questions. Getting braces may seem scary and overwhelming, but the benefits will far outweigh the challenges. You just need the full scoop!

Why Do I Need Braces?

People get braces to straighten crooked teeth or to correct the alignment of their upper teeth with their lower teeth. These conditions are called malocclusion (mal-uh-clue-shun), a Latin word that means "bad bite." Braces use strong wire and rubber bands to put constant pressure on your teeth. Over time, this pressure moves your teeth into the proper position.

Most people go to an orthodontist (or-thuh-don-tist), a dentist who has special training in braces. Your orthodontist will help you understand why you need braces and answer any questions that you have.



If you could take your teeth out after you got your braces, this is what they'd look like!

Aren't Braces Hideous?

Today's braces are much less noticeable than the ones your parents might have worn. The wire is much thinner, and the braces come in many colors, including clear. Some braces even go behind your teeth where no one can see them.

What's It Like to Wear Braces?

It definitely takes some getting used to. First, it even feels weird to talk and eat with your braces. It's like you're not sure where to put your tongue! Second, you're going to be brushing and flossing a lot. Braces have lots of places for food to get stuck, so you have to be careful to get it all out. Third, you will also have to avoid certain foods such as popcorn, candy, chewing gum, and sweet drinks. It takes a while, but soon you forget what it was like to not have braces.

Do Braces Hurt?

You're going to have to get used to what your orthodontist will probably call "discomfort." (People with braces call it torture!) And every time your teeth stop hurting, your orthodontist will tighten your braces so you can experience more "discomfort." My orthodontist, Dr. Valentine, said, "Orthodontists don't enjoy inflicting pain but know that the tightening is the key to shifting your teeth."

After your braces are removed, your work is not over! You will probably wear a retainer for a year or two to make sure your teeth stay straight. A retainer is a hard piece of plastic formed to fit the roof of your mouth with a metal wire that goes around your upper teeth. Some people have to wear their retainers all the time for a year or two. Others only have to wear them at night for six months or so.

I hope these answers make you feel better about getting braces. It's okay to be nervous and to have even more questions! But once you know what you are in for, braces really aren't that bad. A few years down the road, when you get a look at your beautiful new smile, you'll realize—as I did—that it was worth every minute of "discomfort." And then you will be free to eat as much popcorn as you want!

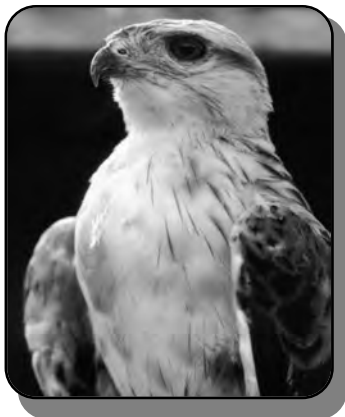


This guy is probably smiling because he knows how great his teeth will look once the braces are removed!



Birds of prey are important to the environment. They hunt and eat the rats, mice, insects, and other pests that destroy farmers' crops. They clean the countryside of dead and dying animals that can spread disease and parasites. They are protected by law. They are in danger.

Pesticides caused an alarming decrease in the populations of some birds of prey. Birds of prey are at the top of their food chain, which means that when they eat an animal, they take in all the poisons that every animal below them has eaten. This buildup of pesticides can keep the birds from reproducing.



November 2000, two pairs of condors of breeding age were released near the Grand Canyon. Since then, more have been released and some are breeding. In 2003 and 2004, three chicks hatched. There are now 53 condors soaring over the Grand Canyon. If no one shoots them, and if no one puts out poisoned bait, condors may continue to survive.

Every time humans move into rural areas, wildlife habitat decreases. But if there is enough open space around communities, with enough trees, you may be able to walk through your neighborhood and see a hawk, a falcon, or even (if you're lucky) an eagle.

The bald eagle is the national bird of the United States of America. It once ranged throughout the United States from Alaska and Canada to Baja California and northern Mexico. Many years ago, partly because of pesticides, its numbers dwindled and it wound up on the Endangered Species List. Now, because of environmental protection programs, the bald eagle population is growing and reclaiming some of its former range. It is no longer endangered, but still receives protection as a threatened species, so it will probably continue to recover.

The California condor, a bird that has survived since before recorded history, battles extinction because it was shot at and because it ate poisoned bait. Condors are scavengers. If they find a poisoned carcass that has been left to attract a predator, they will eat it. And they will die. Condors have been found loaded with buckshot and dead from lead poisoning. In an attempt to save the few remaining California condors, they were all taken into captivity. In zoos they managed to reproduce and their young have been released into safe places in the wild. In

All the birds of prey help to protect the world we live in. We need to do our best to protect the birds of prey.



The Case for Space

by Mark Haverstock

Humans are curious beings; we like to explore the unknown. Christopher Columbus, Lewis and Clark, Ferdinand Magellan, and other early explorers introduced us to new places we'd never seen. But today, people have visited or settled nearly every part of the globe. So what's left?

In 1961, President John F. Kennedy challenged the people of the United States to begin the exploration of space. He declared, "This nation should commit itself to achieving the goal, before the decade is out, of landing a man on the moon and returning him safely to the earth." Eight years later, the whole world heard astronaut Neil Armstrong say, "That's one small step for a man, one giant leap for mankind," when he became the first person to walk on the moon.

Since then, billions of dollars have been invested in the space program. But the question remains: Why explore space? With the need for funding efforts on our planet and in our neighborhoods in order to address poverty, illiteracy, homelessness, and medical research, why invest money in a world beyond our own? We should invest our resources because space is our next frontier—a place we should learn more about.

Cooperation

Space exploration has brought people together. During the 1960s, the former Soviet Union and the United States were rivals, competing to put the first astronaut on the moon. But today, we're sharing the International Space Station with them—and with astronauts and cosmonauts from a total of 15 different countries. They're conducting experiments in biology, physics, astronomy, and other fields. As NASA gears up to return to the moon in the near future, the organization will depend on Japan, India, China, and Russia to participate in missions.

The Big Questions

Space exploration will eventually help us find answers to the big questions: How did the universe begin? How was our world created? How did life begin? Are we alone? We're curious—and we've been asking these questions since the beginning of human existence. Exploring other planets, whether in person or by using robots, helps us understand more about our solar system and its origins.

Even non-astronauts may have their chance to travel in space. Private companies like Virgin Galactic and Space.com are now taking reservations for near space and space flight. It's likely that travel destinations like the moon will be available to visit in your lifetime and that permanent bases will be constructed there.

Wider Benefits

Money that goes to space exploration is well spent. Some people complain that the \$18 billion that NASA spends on space exploration each year is too much. But to put it into perspective, for every dollar in the federal budget, NASA gets a little over half a cent. Space creates jobs. The majority of the space exploration budget goes to pay thousands of skilled American workers who build the spacecraft, rovers, and other vehicles for exploration. And then there are the programmers, engineers, and scientists who collect data from the missions and help everything run smoothly.

There are many inventions we use every day that come from space program research. If you've ever used a cordless tool, you can thank NASA. Cordless power drills and vacuum cleaners were used to drill for and collect moon samples. The joystick on video games was first used on the Apollo Lunar Rover. When NASA engineers designed Space Lab in the 1970s, they realized astronauts needed to know quickly if a fire ever started on board. This led to the invention of the first adjustable smoke detector.

We're learning how to live outside of Earth's atmosphere thanks to lessons learned from trips to the moon, Space Shuttle missions, and life on the International Space Station. In the future, more trips to the moon or nearby planets like Mars will provide the best opportunity to demonstrate that humans can live for extended or even permanent stays away from Earth.

Once we get into space on a regular basis, we'll find new resources. It's clear that we're running out of oil, coal, metals, and other materials we need. Materials that could be mined or extracted in space include iron, nickel, and titanium—as well as water and oxygen to sustain the lives of prospector-astronauts while they're on site. We wouldn't have to travel far since many of these elements can be found on nearby asteroids.

Preparing for the Future

We can't stay on Earth forever. The population of Earth continues to grow, and someday we may not have the resources to support our growing population. Many years in the future, our sun will die, swallowing Earth when it turns into a red giant. With that in mind, humans should begin looking for other alternatives now. Space exploration will help us discover new, habitable worlds, which would allow humans to survive beyond the lifespan of this planet. It may seem like a long way off, but someday our survival may depend on our ability to permanently survive elsewhere.

There are many good reasons to continue space exploration. Considering the benefits we've received and will receive in the future, we're getting a real bargain.

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Why We Need to Use More Renewable Energy Sources

By Molly Feeney Wood

In New York State, about 89% of our energy consumption in 2012 was from nonrenewable sources, or natural resources that cannot easily be replenished. However, we can do something to reverse this troubling trend. Renewable energy has enormous benefits for our communities and overall well-being. Renewable sources never run out, they are less harmful to the environment, and they can be less expensive than nonrenewable sources in the long run.

Never Run Out

If we use a renewable energy source like wind to provide electricity, it will never run out. There are many usable wind sites in New York State, which happens to be the fifteenth windiest state in the country. If we incorporate this source of energy, we can satisfy more than half of our state's electricity needs with a renewable resource. In doing so, we would not have to worry about depleting the wind! To sum up, we should use more renewable energy sources because, unlike nonrenewable ones, they will never run out.

Less Harmful to the Environment

Renewable energy sources are also less harmful to the environment. For instance, biofuels, which are fuels produced from plant materials or animal waste, can burn more cleanly than fossil fuels. Even though biofuels do produce some CO₂ when we burn them, they are lower in carbon intensity and are made from plants that are grown sustainably, or in a way that allows for continual use of a natural resource without depleting it or causing environmental damage. New York State even has available farmland to produce plants that can be turned into biofuels. Thus, biofuels—and other renewable energy sources—should be used more readily in New York State because they are less harmful to the environment than fossil fuels and other nonrenewables.

Less Expensive Over Time

Further, renewables can be less expensive than nonrenewables in the long run. For example, when solar panels are placed on the rooftops of homes and buildings, they trap the sun's energy into the neighborhood's power network. When more energy is stored than a home or building needs, the extra goes into the network and provides energy for everyone else to use. Sometimes utility companies will pay you if your solar panels produce extra energy! Additionally, since solar panels can be expensive to purchase and install, New York State and the federal government offer rebates and tax credits that help pay for the cost of installing on-grid panels.

In conclusion, we need to use more renewable energy sources than we currently do. Think about how often you use electricity. You use it almost all day! Now imagine that same electricity came from the wind, water, or sun. The planet would be protected, and you would never have to worry about running out of energy. New York possesses special resources—specifically wind, biofuels, and solar power—that can be turned into renewable energy sources. Talk to your government officials, educate people in your town about alternatives, and work with your neighbors to create a renewable energy plan. The New York State Energy Research and Development Authority (NYSERDA) is one source for New Yorkers that provides information on energy options in our area. Hopefully, one day soon, all of our communities will be able to get energy from a variety of renewable sources, not just nonrenewable ones.

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Renewable and Non-Renewable Energy

Renewable Energy

We know that energy never disappears, it only changes form. But it has to come from somewhere. Some energy sources are easily replaced and can be used over and over again. These are called renewable energy sources. The Sun, wind, and water are renewable sources. Just as in the library, when we want to keep a book longer, we renew it. We have all of these renewable energy sources in plentiful supply. As we use them, there are more for us to use.

Solar Energy – Renewable

Solar energy is an example of a renewable source because the Sun shines all the time. Solar collector panels constantly capture and store or transfer the Sun's energy. Since solar energy is everywhere, solar panels can be anywhere that there is direct sunlight. The Sun shines on the solar panels. The panels absorb the Sun's energy and change it to heat or electricity.



Non-Renewable Energy

A lot of the energy we use to heat our homes and drive our cars comes from energy sources that are hard to replace once they are used. It takes millions of years to replace oil, coal, and gas—non-renewable energy sources. To get these sources we have to do some work. We have to locate them underground, get them out of the Earth, and transport them to where they can be used. Sometimes we have to process them to make them usable.

Gasoline is an example of a non-renewable fuel that takes a lot of work to use. It is also non-renewable because once it is used, there is no more.

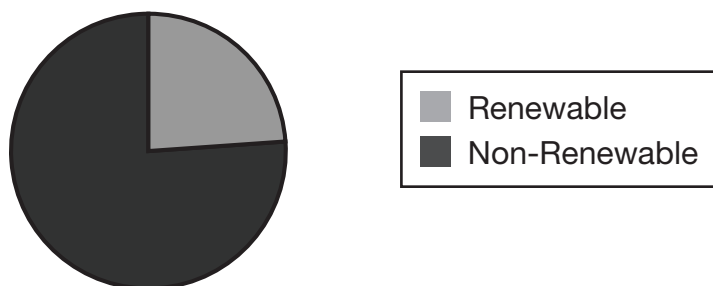
- Gasoline starts as oil.
- Oil isn't everywhere, so we need to find it.
Some places where large deposits of oil have been found are: the Middle East, Alaska, and off the shore in the Gulf of Mexico.
- Oil is deep underground, so we need to drill a very deep well.
- The oil is then put in a ship or in a very long pipeline and transported to a refinery.
- At the refinery, the oil is processed to become gasoline.
- The gasoline is then trucked to gas stations for use in our cars and lawn mowers.



Which Energy Type Does the World Use Most?

Look at the pie chart below. Which type of energy does the world use most—renewable or non-renewable? About how much more? Estimate the ratio of use between renewable and non-renewable energy. Why do you think the world relies so heavily on one kind of energy? Talk about this with friends, decide on your answer, and create a list to support your answer.

World Energy Use by Type of Energy



SPIGOT Source: Renewables 2007 Global Status Report, Renewable Energy Policy Network for the 21st Century



Beware: Is Nonrenewable Energy Running Out?

By Eileen Hodrinsky

Did you know that more than 90% of the world's energy comes from nonrenewable sources? That uses up a lot of Earth's natural resources that can never be replenished! Are we in danger of running out of energy to fuel our cars, heat our homes, and light our world? Should we be concerned that the world's population is growing, and more and more people are using nonrenewable energy sources every day?

We Need Energy

Energy is an important part of our daily lives. We rely upon electrical energy to heat, cool, and light our homes and to run our appliances like stoves, televisions, and hairdryers. Did you know that about 22% of all of the energy in the world is used by people in their homes? Another 20% of the world's energy is used by businesses or workplaces like offices, libraries, hotels, and stores. Manufacturing industries, which make goods such as computers, cars, and clothing for us to buy, use about one third of the world's energy resources. The remaining percentage of energy, about 25%, is used in planes, trains, trucks, boats, cars, and buses to move and transport people and goods.

Problems with Nonrenewable Sources of Energy

Fossil fuels, such as oil, gas, and coal, are currently providing over 60% of the world's electrical power, yet they are nonrenewable energy sources. They cannot be replaced. They are called "fossil fuels" because they were actually formed from fossils, or the remains of prehistoric plants and animals. It is important to understand that these resources were formed over millions of years, and there is only a certain amount of them available in the earth. So if we use coal, for example, to provide electricity, then the total amount of coal available to us to use in our lifetime decreases. As the population on Earth continues to increase, our storehouse of fossil fuels will decrease at an even greater rate.

Even if we had enough fossil fuels to last forever, there are other problems with this popular energy source. The use of fossil fuels is actually hurting our planet! When fossil fuels burn, they produce carbon dioxide and other greenhouse gases, which trap heat in Earth's atmosphere and raise the average temperature of the planet. This phenomenon is called global warming. Fossil fuels also pollute the air and water and may cause harm to the environment when they're mined or transported from place to place.

Looking to the Future

We need to use sources of energy other than fossil fuels, sources that can be replenished to meet our growing needs. There are many renewable sources of energy that will never run out. Energy that comes from the sun, the wind, and moving water are already successfully being used in many parts of the world. The power of the wind is used to turn large fans or turbines to power generators to make electricity. Solar panels on the roofs of homes and solar power plants are used to capture the energy from the sun to produce electricity. Some places use renewable hydroelectric power. Water is collected behind dams, and when it is forced to flow through, the moving water pushes turbines, sending power to generators to make electricity. Nonrenewable energy is indeed running out. Renewable energy sources must be the wave of the future—the safety of our planet is at stake!

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