



Standard #: LAFS.910.RST.1.1

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Cite specific textual evidence to support analysis of science and technical texts, attending to the precise details of explanations or descriptions.

General Information

Subject Area: English Language Arts

Grade: 910

Strand: Reading Standards for Literacy in Science and Technical Subjects 6-12

Idea: Level 2: Basic Application of Skills & Concepts

Cluster: [Key Ideas and Details](#) -

Date Adopted or Revised: 12/10

Content Complexity Rating: [Level 2: Basic Application of Skills & Concepts](#) - [More Information](#)

Date of Last Rating: 02/14

Status: State Board Approved

Related Courses

Course Number	Course Title
2001350:	Astronomy Solar/Galactic (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2000310:	Biology 1 (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2000320:	Biology 1 Honors (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2000430:	Biology Technology (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2000370:	Botany (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2003350:	Chemistry 1 Honors (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2001310:	Earth/Space Science (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2001320:	Earth/Space Science Honors (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2000380:	Ecology (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2002480:	Forensic Science 1 (Specifically in versions: 2014 - 2015, 2015 - 2017, 2017 - 2022 (current), 2022 and beyond)
2002490:	Forensic Sciences 2 (Specifically in versions: 2014 - 2015, 2015 - 2017, 2017 - 2022 (current), 2022 and beyond)
2002400:	Integrated Science 1 (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2002410:	Integrated Science 1 Honors (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2002420:	Integrated Science 2 (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2002430:	Integrated Science 2 Honors (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2000390:	Limnology (Specifically in versions: 2014 - 2015, 2015 - 2018 (course terminated))
2003310:	Physical Science (Specifically in versions: 2015 - 2022 (current), 2022 and beyond)
2003320:	Physical Science Honors (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2003600:	Principles of Technology 1 (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2003610:	Principles of Technology 2 (Specifically in versions: 2014 - 2015, 2015 - 2018 (course terminated))
2002550:	Solar Energy 2 Honors (Specifically in versions: 2014 - 2015, 2015 - 2018 (course terminated))
2002330:	Space Technology and Engineering (Specifically in versions: 2014 - 2015, 2015 - 2018 (course terminated))
2000410:	Zoology (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2000800:	Florida's Preinternational Baccalaureate Biology 1 (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2002340:	Experimental Science 1 Honors (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2002350:	Experimental Science 2 Honors (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
0100340:	Art History and Criticism 2 Honors (Specifically in versions: 2014 - 2015, 2015 - 2021 (course terminated))
0108320:	Creative Photography 2 (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
0400410:	Technical Theatre Design & Production 1 (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
1700370:	Critical Thinking and Study Skills (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
7920015:	Access Biology 1 (Specifically in versions: 2014 - 2015, 2015 - 2018, 2018 and beyond (current))
7920020:	Access Earth/Space Science (Specifically in versions: 2014 - 2015, 2015 - 2018, 2018 and beyond (current))
7920025:	Access Integrated Science 1 (Specifically in versions: 2014 - 2015, 2015 - 2018, 2018 and beyond (current))
2000315:	Biology 1 for Credit Recovery (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2000500:	Bioscience 1 Honors (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2002405:	Integrated Science 1 for Credit Recovery (Specifically in versions: 2014 - 2015, 2015 - 2020 (course terminated))
2002425:	Integrated Science 2 for Credit Recovery (Specifically in versions: 2014 - 2015, 2015 - 2020 (course terminated))

0400407:	Technical Theatre: Design and Production for Scenery and Props (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
0400408:	Technical Theatre: Design and Production for Lighting and Sound (Specifically in versions: 2014 - 2015, 2015 - 2020 (course terminated))
0400409:	Technical Theatre: Design and Production for Costume, Makeup, and Hair (Specifically in versions: 2014 - 2015, 2015 - 2022 (current), 2022 and beyond)
2003836:	Florida's Preinternational Baccalaureate Physics 1 (Specifically in versions: 2015 - 2022 (current), 2022 and beyond)
2003838:	Florida's Preinternational Baccalaureate Physics 2 (Specifically in versions: 2015 and beyond (current))
7920022:	Access Physical Science (Specifically in versions: 2016 - 2018, 2018 and beyond (current))
2001330:	Meteorology Honors (Specifically in versions: 2016 - 2019, 2019 - 2022 (current), 2022 and beyond)

Related Resources

Lesson Plans

Name	Description
Bonefish Genetics:	Recent research has shown that bonefish (<i>Albula vulpes</i>) found all around the Florida Keys, The Bahamas, and many other places across the Atlantic, Gulf, and Caribbean are genetically related. In this lesson, students will learn about what it means to be "genetically related," how genetics are determined, and how this could change how we manage bonefish populations locally and internationally. They will work together in to create a "model treaty" that protects bonefish between countries.
Citizen Science:	Citizen science is a critical component to many different scientific studies, and gives citizen scientists the opportunity to better understand the research and the process. In some studies, citizen scientists assist in major scientific discoveries that can change or create legislature. Students will participate in ongoing citizen science projects to learn more about the scientific method.
Ethical Colonization?:	In this lesson, students will analyze an informational text intended to support reading in the content area. The article discusses ethical issues that may arise when humans eventually travel to and colonize other planets, especially Mars. The article anticipates many of the concerns that will need to be addressed as space colonization becomes more of a reality. This lesson includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.
Say Cheese! Do You Have a Genetic Disease?:	In this lesson, students will analyze an informational text intended to support reading in the content area. The article explains how biotechnology is being used to identify genetic conditions with a phone app that gathers data from a photo to generate a list of possible genetic conditions. This lesson includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.
Many Thrive If the Wolf Survives:	In this lesson, students will analyze an informational text intended to support reading in the content area. The article discusses the interactions of many different species of organisms in Yellowstone National Park. Specifically, the text focuses on the importance of not only the interactions that wolves have with the ecosystem, but how important beavers are to the stability of the whole ecosystem. This lesson includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.
What's Your Type?:	In this lesson, students will analyze an informational text intended to support reading in the content area. The article explains the advancements that scientists have made in understanding blood types. By reading and synthesizing the text, students will explore a real-world example of how scientific knowledge becomes more robust and durable through investigations. This lesson includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.
Helpful Herbivores:	In this lesson, students will analyze an informational text that explains how a smaller species of organisms are filling a niche of larger organisms that have been reduced due to overfishing and disease. These smaller organisms have been shown to reduce algal communities that can lead to the destruction of crucial coral reefs. This discovery may have large, beneficial impacts on endangered coral communities around the world. This lesson is designed to support reading in the content area. The lesson plan includes use of a seed discussion organizer, a vocabulary handout, text-dependent questions, a writing prompt, sample answer keys, and a writing rubric.
These GMO Apples Won't Turn Brown:	In this lesson, students will analyze an informational text intended to support reading in the content area. The article discusses the availability to the general public of GMO apples that take longer to turn brown. The article discusses the techniques utilized to accomplish the apples' genetic modification. A video explains the process of genetic modification and explains how GMOs have already been integrated into society. This lesson includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.
Modeling Moon Craters:	In this lesson, students will analyze an informational text that highlights current research on high impact craters on the moon. Scientists have been studying the largest impact basins on the moon, such as the Orientale basin. Until now, how impact craters with rings form had not been well understood, but scientists have modeled Orientale's formation using data from NASA's GRAIL mission. This lesson is designed to support reading in the content area. The lesson plan includes a vocabulary guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.
ComBATing Extinction:	In this lesson, students will analyze an informational text intended to support reading in the content area. The article explains how Caribbean bat species are uniquely suited for studying the consequences of extinction. By reading this article, students will get a better understanding of geographic isolation and speciation, which are major themes when discussing the theory of evolution. In addition, students will gain an understanding of the devastating effects human impact can have on populations of species.
	In this lesson, students will read an informational text that discusses the spread of White Nose Syndrome in North

Will We See More White Nose Syndrome in Bats?:	American bats and how bat colonies are being affected in both size and number. The article also provides a comparison between European and North American bat colonies suffering with this disease. This lesson is designed to support reading in the content area. The lesson plan includes a note-taking guide, text-dependent questions, and answer keys.
Bad News for Starfish:	In this lesson plan, students will analyze an informational text intended to support reading in the content area. The National Science Foundation article discusses research on the effects of the Sea Star Associated Densovirus, a virus devastating sea star populations. The article further explains the implication of the virus for the tidal ecosystems of the Pacific West Coast. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.
Can Snails Cure Diabetes?:	In this lesson, students will analyze an informational text intended to support reading in the content area. The article addresses an innovative possible treatment for diabetes using cone snail venom. The venom contains a form of insulin that is faster acting than human insulin. Further research shows that the cone snail insulin requires no prep before it is used, therefore explaining its quick response time. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric. Numerous options to extend the lesson are also included.
The Importance of a Baboon's Birthday:	In this lesson, students will read an article from the National Science Foundation that discusses how a drought affected the savannas of southern Kenya during 2009. It further addresses how baboons are affected later in life based on when they are born and the social status they are born into. Based on the research on baboons, the implications on human health are also discussed in the latter portion of the article. This lesson is designed to support reading in the content area. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.
The Dynamic Carbon Cycle:	In this lesson, students will analyze an informational text intended to support reading in the content area. The article explains the dynamic carbon cycle and how human activity contributes to global warming. A second related text builds on that knowledge to discuss the importance of Everglades mangroves as carbon "sinks." By reading and synthesizing both articles, students will learn not only about the specifics of the carbon cycle, but how it applies to Florida and the rest of the world. This lesson includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.
Loss of Sea Ice Leaves Polar Bears in the Cold:	In this lesson, students will analyze an informational text intended to support reading in the content area. The article showcases recent research into the declining Arctic sea ice and its effect on polar bear populations. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric. Numerous options to extend the lesson are also included.
Bee Faithful :	In this lesson, students will analyze an informational text that addresses a study that confirms the impact of removing just one bumblebee species from an ecosystem. The text describes how removing just one bumblebee species from an ecosystem causes less effective pollination and lower seed production. Bumblebees, as most bees do, stick with one species of flower until it's finished blooming. Scientists have found that when one bee species is removed it causes the remaining bee species to "cheat" on their original flower species. This causes a decrease in pollination and in seed production. This lesson is designed to support reading in the content area. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys and a writing rubric.
Forests of the Living Dead:	In this lesson, students will read a National Science Foundation article that discusses a 200-year study into the mortality of forests. The process of decomposition and the importance of decaying wood in a forest are explained in great detail. The research described has altered and changed the management plans for forest ecosystems worldwide. This lesson is designed to support reading in the content area. It includes a note-taking guide, a vocabulary guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.
Looking for the Loris:	In this lesson, students will analyze an informational text intended to support reading in the content area. The article discusses the research and efforts by scientists to save the slow loris from extinction. It discusses the complexity of conservation today and details how there are many different layers that need to be addressed on this issue. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.
Mutualistic Mussels:	In this lesson, students will read an article from the National Science Foundation that discusses how extended droughts have affected salt marsh ecosystems found in the Southeastern part of the United States. The article then describes the mutualistic relationship that was discovered between ribbed mussels and salt marsh grasses and how this relationship is helping the marshes survive and recover from the droughts. This lesson is designed to support reading in the content area. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.
Mercury Levels are Rising!:	In this lesson, students will analyze an informational text that addresses a new method for measuring the amount of mercury in the environment that is formed as a byproduct of human activities. The text describes how scientists were able to develop a method for measuring mercury by using data about phosphate and carbon dioxide levels. This lesson is designed to support reading in the content area. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.
This Dinosaur Can't Sing:	In this lesson, students will analyze an informational text intended to support reading in the content area. The article presents new research that suggests dinosaurs were not able to vocalize or "sing" in a way similar to modern birds. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric. Numerous options to extend the lesson are also included.
Killer Prairie Dogs:	In this lesson, students will analyze an informational text intended to support reading in the content area. The National Geographic article profiles the scientists who discovered that the white-tailed prairie dog is killing ground squirrels in order to eliminate its competition for food. The article further highlights how the squirrel killings benefit the prairie dogs' offspring. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt,

answer keys, and a writing rubric.

[Bees Endangered for First Time:](#)

In this lesson, students will analyze an informational text that addresses a recent listing of yellow-faced bees on the endangered list. This is the first time any type of bee has ever been listed as endangered. The text describes how the yellow-faced bee population in Hawaii has been decimated by invasive species, habitat loss, and climate change. The text also describes an innovative approach by researchers to help bring these bees back from the verge of extinction. This lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.

[Wiping Out Invasive Predators in New Zealand:](#)

In this lesson, students will read an article from National Geographic that discusses the plan of the New Zealand government to eliminate invasive predators from the country by 2050. The article further goes on to discuss the effects the predators have had on the native wildlife. This lesson is designed to support reading in the content area. The lesson plan includes a vocabulary handout, text-dependent questions, a writing prompt, answer keys, and a writing rubric.

[Humans vs. the Superbug:](#)

In this lesson, students will analyze an [informational text](#) intended to support reading in the content area. The article addresses how the United States is addressing the discovery of E.coli that is resistant to colistin, an antibiotic used only as a last resort. The text describes steps to take now that this superbug has reached our country. Scientists from the Vanderbilt University School of Medicine explain why it is so easy for bacteria to share their "knowledge" about antibiotic resistance and discuss how concerned the U.S. citizens should be, as well as what we can do to slow the spread of superbugs.

[Mosquitoes in Miami:](#)

In this lesson, students will analyze an [informational text](#) intended to support reading in the content area. The National Geographic article discusses the problems facing Miami Beach as health officials try to execute a mosquito management program to combat Zika. Because of the high rise buildings, the pesticides being sprayed are not reaching the intended areas. Another concern is that mosquitoes may become resistant to the first choice pesticides being used against them. This lesson is designed to support reading in the content area. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.

[Discovering New Kiwis:](#)

In this lesson plan, students will analyze an [informational text resource](#) intended to support reading in the content area. The article discusses research that proves there are more species and subspecies of kiwi birds than originally thought in New Zealand. The article discusses how scientists believe glaciers isolated kiwi populations. As a result, new genetic lineages were discovered by analyzing the kiwi genome.

[Man vs. Volcano: Who Let the Carbon Out?:](#)

In this lesson, students will analyze an informational text intended to support reading in the content area. The article compares carbon emissions from human activities to those from natural volcanic processes. The authors outline the methods, data collection, and findings of carbon emissions, closing the debate on what releases the most carbon. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric. Numerous options to extend the lesson are also included.

[El Niño Can Spread Disease:](#)

In this lesson plan, students analyze an [informational text](#) intended to support reading in the content area. The article discusses new research conducted by scientists showing the correlation between El Niño events and the spread of waterborne infectious diseases. The article discusses how the scientists believe Vibrio bacteria are being transported across the ocean during El Niño events, and it discusses the impact this can have on public health. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric. Numerous options to extend the lesson are also included.

[Precision Agriculture Eliminates Over-Fertilizing:](#)

In this lesson, students will analyze an [informational text](#) intended to support reading in the content area. The article addresses an innovative way to determine the age of the nitrogen in corn and soybean fields. Determining nitrogen's age could help make agriculture more precise, because when farmers over-fertilize their fields, the excess can leak into water supplies. Research scientists from the University of Illinois believe they can use this new technology to identify areas that are specifically deficient in nitrogen and therefore eliminate the need to apply it uniformly. This would benefit agriculture and the environment. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric. Numerous options to extend the lesson are also included.

[Biotechnology at Work: GM Mosquitoes Reduce Dengue Fever:](#)

In this lesson, students will analyze an informational text that addresses the release of genetically modified mosquitoes in Brazil to reduce the transmission of dengue fever. The male mosquitoes were modified so that when they reproduce, their offspring die before they can transmit the disease. The article contains a data table that shows a drastic reduction in the number of dengue cases in places where GM mosquitoes were used in addition to conventional control methods. This lesson is designed to support reading in the content area. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.

[Fighting Poaching with Technology:](#)

In this lesson, students will analyze an [informational text](#) from National Geographic that discusses the design of an artificial intelligence technology called PAWS that was designed to prevent poaching. PAWS uses data about previous poaching activities and analyzes the data to create smart and efficient routes for wildlife officers to use while looking for poaching activity. This lesson is designed to support reading in the content area. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.

[Transport of Invasive Species:](#)

In this lesson, students will analyze an [informational text](#) intended to support reading in the content area. The article describes the effects the Panama Canal expansion may have on the number of invasive species introduced to the East Coast and Gulf Coast of the United States. The article explains how ballast water and wet surface areas are the two ways the invasive species can travel from port to port. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.

[Heart Disease: Are You at Risk?:](#)

In this lesson, students will analyze an informational text by the National Institutes of Health that addresses the risk factors for heart disease. The text is broken into three areas: risk factors that can be controlled (like smoking, high blood pressure, and obesity), risk factors that cannot be controlled (like age and family history), and emerging risk factors. This lesson plan is designed to support reading in the content area. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.

[Penguins in Peril:](#)

In this lesson, students will analyze an [informational text](#) from National Geographic designed to support reading in the content area. The article discusses research conducted on the status of the Adelie Penguin population in Antarctica and what might happen to this species by the end of the century. Using statistical models, researchers looked at past and current data and used future climate projections to determine the fate of the Adelie's habitat. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.

[Antibiotic Resistant Wildlife?:](#)

In this lesson, students will analyze an informational text intended to support reading in the content area. The article addresses the possibility that antibiotic resistance is spreading through ecosystems in Botswana because resistance in humans has been shared with many other organisms. Researchers found that antibiotic resistance is significantly higher in water-associated species and carnivores. Scientists believe they can use this information to increase their understanding of why and how species are becoming antibiotic-resistant, with the end goal of stopping the spread of antibiotic resistance in humans. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric. Numerous options to extend the lesson are also included.

[Termites to the Rescue!:](#)

In this lesson, students will analyze an informational text from the National Science Foundation that discusses how termites in semi-arid ecosystems are preventing the process of desertification in these areas. The article also describes how and why scientific models are being used in this research. This lesson is designed to support reading in the content area. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.

[Helping the Honey Bee!:](#)

In this lesson, students will analyze an article that discusses the problem of declining honey bee populations in the United States and lists the possible factors involved. The text then describes the study on African honey bees to determine if there are genetic or physiological causes in their positive response to the Varroa parasite. Researchers are hoping the data they gather will help them improve breeding programs or management practices in U.S. bee populations. This lesson plan is designed to support reading in the content area. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.

[Mapping the Milky Way's Dust:](#)

In this lesson, students will analyze an informational text that addresses how scientists are mapping the dust of the Milky Way. The text describes how interstellar dust can tell astronomers where stars and planets are forming, where a supernova could have occurred and provide other clues to the history of our galaxy and its formation. Using a newly created 3-D mapping tool, astronomers hope to integrate data from this tool with data from other sources in order to learn more about our galaxy than ever before. This lesson is designed to support reading in the content area. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.

[Leptospirosis: A Serious Disease:](#)

In this lesson, students will analyze an informational text intended to support reading in the content area. The NSF article describes current research into the transmission of the bacterial disease leptospirosis, with the ultimate goal of using the research to prevent future outbreaks. The article highlights the environmental conditions that increase the transmission of the disease. The lesson plan includes text-dependent questions with an answer key, a writing prompt with a sample response, and a writing rubric.

[Winter Ecologists Explore Effects of Climate Change:](#)

In this lesson, students will analyze an informational text that addresses the consequences of climate change on living organisms in snow ecosystems, particularly those who live in the subnivium beneath the snow's surface. The text describes a new field of researchers called winter ecologists and their findings that show how climate change is causing lighter snows in some areas, diminishing the amount of insulation in the subnivium that many living organisms need to survive the winter. This lesson is designed to support reading in the content area. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.

[Bird Migration: A Risky Business:](#)

In this lesson plan, students will analyze an [informational text](#) intended to support reading in the content area. The article reports new findings on bird migration patterns. Recent research points to migratory birds conducting a "risk assessment" based on factors like weather and their own amount of body fat. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric. Numerous options to extend the lesson are also included.

[Far From Home: NASA's Year in Space Mission:](#)

In this lesson, students will analyze an [informational text](#) that presents information on a year-long space mission aboard the International Space Station. This lesson is designed to support reading in the content area. The text describes the mission of studying the long-term effects of microgravity on human health. Astronaut Scott Kelly and Cosmonaut Mikhail Kornienko were used in the year-long study, along with Kelly's identical twin brother, Mark Kelly, who remained on Earth and was used as a control subject. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric. Options to extend the lesson are also included.

[Where Did All the Cod Go?:](#)

In this lesson plan, students will analyze an [informational text](#) intended to support reading in the content area. The article describes the effects of climate change on the Gulf of Maine and the cod population found there. Although quotas have been instituted to preserve the cod population, they have not been effective because of the unanticipated effects of global warming. The article explores possible solutions. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric. Options to extend the lesson are also included.

[Making Weather Forecasting More Reliable through MADIS:](#)

In this lesson, students will analyze an informational text that addresses a weather data assimilation system for forecasting weather. This lesson is designed to support reading in the content area. The text describes what weather data is used with this system, where it's coming from, and who can use it. The lesson includes a note-taking guide, text-dependent questions, a writing prompt, answer keys and a writing rubric.

[A Hole in the Ozone:](#)

In this lesson, students will analyze an [informational text](#) intended to support reading in the content area. The article informs readers about the ozone layer and why it was larger and lasted longer in 2015 than in previous years. Although it was unusually large, the practices that have been followed since the Montreal Protocol was enacted have actually resulted in a long-term decrease in the size of the ozone hole. The text explains the aberration and also provides general information about the ozone layer and its function in protecting human life. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric. Numerous options to extend the lesson are also included.

[Evolution and Natural Selection at the Top of the World :](#)

In this lesson, students will analyze an informational text addressing two issues, climate change and evolution. This informational text (designed to support reading in the content area) describes how the changing climate in the Arctic is contributing to evolutionary changing in populations of animals that live there. The lesson plan includes text-dependent questions, a writing prompt, answer keys, and a writing rubric along with ideas for extending the lesson.

[Exploring the Heart of the Atom:](#)

In this lesson, students will analyze an [informational text](#) intended to support reading in the content area. The article explains the strides scientists at Jefferson Lab are making toward revising our view of the atom via an upgrade to their CEBAF particle accelerator. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric. Numerous options to extend the lesson are also included.

[Lionfish: Invasive Predators!:](#)

In this lesson, students will analyze an [informational text](#) intended to support reading in the content area. The text concerns lionfish, an invasive species in the Atlantic, and the environmental and economic damage the species threatens. The lesson plan includes text-dependent questions, a writing prompt, answer keys, and a writing rubric. Ideas for extending the lesson are also included.

[Link to Evolution:](#)

In this lesson, students will analyze an informational text that presents the major discovery of a nearly-intact cranial fossil of an ancient mammal from the Southern Hemisphere. The article discusses the significance of the discovery of this previously unknown mammal, a mammal scientists have named *Vintana sertichi*. This lesson plan is designed to support reading in the content area. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.

[White Ibis: A Feathered Cujo:](#)

In this lesson, students will analyze an informational text that describes the impact that local ibises have on their environment and the impact that humans have on the birds. The study examines how humans are changing the lifestyles of white ibises, which in turn causes the interactions between birds and humans to lead to a greater spread of disease. The author analyzes the positive and negative effects of interactions between organisms in an ecosystem. The lesson plan includes a text coding strategy, text-dependent questions, a writing prompt, sample answer keys, and a writing rubric. Numerous options to extend the lesson are also included.

[Humans: The Leading Cause of Extinction:](#)

In this lesson, students will analyze an [informational text](#) selected to support reading in the content area. The article describes how wildlife is impacted by natural events and by humans, focusing on scientific data gathered in the Caribbean (specifically Abaco Island). It explains how humans impact the populations of species in ecosystems and why it is important for people to understand these interactions. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric. Numerous options to extend the lesson are also included.

[Homestead Farming: Saving Money and Forests in Bangladesh:](#)

This lesson plan is intended to support reading in the content area. In this lesson, students will read an informational text that describes how people in Bangladesh are using homestead farming to provide for their families, while simultaneously contributing to preserving local forests. With the help of USAID, farmers are using higher-yielding seeds and cultivating crops using organic fertilizers and composting. The demand for food grown without pesticides and nourished by compost helps the homestead farmers to make enough money to improve their standard of living, while helping the environment at the same time. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.

[Major Meltdown: Colorado High Peaks Losing Glaciers:](#)

This lesson plan is designed to support reading in the content area. In this lesson, students will read a text that describes the results of a long-term study of the changes in the cryosphere on Niwot Ridge, which lies at the top of the Continental Divide in the Rocky Mountains. The text describes the ways in which the cryosphere has changed due to climate change, and it also describes some of the impacts on the ecosystem and explains how the researchers gathered their data. The lesson plan includes text-dependent questions, a writing prompt, sample answers, and a writing rubric.

[Size Does Matter: Brain Size in Mammalian Carnivores:](#)

This lesson is designed to support reading in the content area. In this lesson, students will analyze an informational text that describes a recent experiment that helps to prove that larger brain size could indicate higher intelligence within carnivorous mammals. The research was conducted at nine U.S. zoos and included 140 animals from 39 mammalian carnivore species. The lesson plan includes text-dependent questions, a writing prompt, sample answers, and a writing rubric.

[Killer Clay!:](#)

This lesson is designed to support reading in the content area. In this lesson, students will analyze an informational text that addresses innovative research to aid in the understanding of how certain clays can be responsible for the killing of some bacterial pathogens. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.

[The Impact of Melting Tropical Glaciers:](#)

In this lesson, students will analyze an informational text that explains how climate change is leading to the melting of tropical glaciers in Peru and how this is negatively impacting the residents there. Students will examine how the United States Agency for International Development (USAID) is assisting the Peruvians in developing strategies to deal with the impact. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric. Numerous options to extend the lesson are also included.

[It's Getting Hot In... Lakes?:](#)

This lesson is designed to support reading in the content area. In this lesson, students will read a text that describes the effect of climate change on the water supply and on ecosystems around the world. The article introduces research from a study spanning six continents that analyzed data to determine the rate at which Earth's lakes are warming. The author then uses this data to connect to the impacts on Earth's ecosystems and on human lives. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.

Climate Change: Atmospheric Carbon Dioxide:	In this lesson, students will read and analyze an informational text designed to support reading in the content area. This article describes the rise of carbon dioxide in Earth's atmosphere and its likely effects on the planet, including climate change and ocean acidification. The online version contains an interactive graph that supports the text.
Flexing Their Mussels:	In this lesson, students will analyze an informational text examining scientists' studies of freshwater mussels in an attempt to develop methods for saving threatened species. Students will learn of the researchers' hope to be able to use other species that cohabitate local ecosystems to restore the threatened species. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric. Numerous options to extend the lesson are also included.
Phosphorus: Fertilizer of the Sea:	In this lesson, students will analyze an informational text intended to support reading in the content area. The text explains how scientists worked with the National Science Foundation (NSF) to try and better understand the phosphorus cycle in marine ecosystems. The author points out that although the phosphorus cycle has been studied in the past, the work chronicled in the article has greatly expanded that understanding. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric. Numerous options to extend the lesson are also included.
The Effect of Seasonal Variation, Due to Climate Change, on Grasslands:	In this lesson, students will examine how ecosystems change due to seasonal variations as they analyze an informational text explaining the process scientists used to collect data on daily changes in grasslands. Students will learn of the usefulness of this data in creating a model that allowed the scientists to predict how seasonal variation will change the grassland ecosystem. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric. Numerous options to extend the lesson are also included.
Rats on the Move:	This lesson plan uses an informational text intended to support reading in the content area. The article describes a research project undertaken by Tulane University students, who collected rodents from neighborhoods affected by Hurricane Katrina. The text describes how a mathematical model can be used to simulate how environmental changes affect the populations of rodents that carry pathogens harmful to human health. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.
Where's the Rain? Researching Drier Climates in the Southwest:	This lesson plan is designed to support reading in the content area. In this lesson, students will read a text that describes a study on the climate of the American Southwest. Using 35 years' worth of data, scientists believe a subtle shift in weather patterns is leading to drier conditions in the Southwest. The text goes on to explain the significance of this research and the challenge of connecting drier conditions in the region to climate change. The lesson plan includes text-dependent questions, a writing prompt, sample answers, and a writing rubric.
Empowering Zanzibar to Defeat Malaria:	In this lesson, students will analyze an informational text describing how one woman, Habiba, earned the title as "Zanzibar's Malaria Hunter." Habiba is one of many surveillance officers working to track, test, treat and educate the public to prevent the spread of malaria. Surveillance officers like Habiba, are helping the PMI (US President's Malaria Initiative) and the Zanzibar Malaria Elimination Program quickly respond to cases of malaria, report the data and eradicate the disease from the archipelago. "The prevalence of malaria in Zanzibar has been reduced from 25 percent in 2005 to less than 1 percent today." The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt/scoring rubric, and answer keys.
Seeking the Zika Virus:	In this lesson, students will read an informational text from the National Science Foundation. The text describes current research into the mosquitoes that carry the Zika virus, with the ultimate goal of using the research to predict and possibly prevent future outbreaks. Scientists are studying three towns in Ecuador by collecting data to help them discover the socioeconomic and environmental factors that put people most at risk for diseases carried by the Aedes aegypti mosquito, including the Zika virus. The scientists are also examining how virus transmission by these mosquitoes may be affected by climate change. This lesson is designed to support reading in the content area. The lesson plan includes text-dependent questions with an answer key, a writing prompt with a sample response, and a writing rubric.
It's the Circle of Life...and Water:	In this lesson, students will analyze an informational text intended to support reading in the content area. The article analyzes the hydrologic cycle and touches on its connection to the carbon cycle. This text describes how our understanding about the water cycle has changed over time, particularly due to information gathered in a recent study. The article gives a good representation of the scientific method and the importance of the water cycle. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a rubric. Numerous options to extend the lesson are also included.
Everyday Mysteries: Why Do We Yawn?:	In this lesson, students will analyze an informational text that seeks to answer the question "Why do we yawn?" Students will learn that while many claims regarding the social and physiological functions of yawning have been presented from Hippocrates, 17th and 18th century scientists, and experts today, scientists have yet to reach a consensus about the answer to the title question. All the while, this frequent challenge and re-examination of scientific claims helps to strengthen scientific knowledge. This lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric, as well as options to extend the lesson.
When North Becomes South:	In this lesson, students will analyze an informational text intended to support reading in the content area. The article explains how the National Science Foundation (NSF) is using some of their ships and equipment to study the magnetic properties of the ocean floor. The data they collect will help them better understand the phenomenon known as geomagnetic reversal. The article also includes a brief explanation of what geomagnetic reversal is. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric. Numerous options to extend the lesson are also included.
Bioluminescent Millipedes Spark Bright Ideas!:	In this lesson, students will analyze an informational text by scientist Paul Marek, who re-charted the millipede Motyxia Bistipida's evolutionary tree based on new information about its bioluminescence. This informational text resource is intended to support reading in the content area. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric. Numerous options to extend the lesson are also included.

Investigating Rulers of the Reef: Coral Reef Parasites :	<p>This lesson uses an NSF article to inform the reader about the influence of parasites on damselfish, a coral reef species. The author explains how his team determined the reason for the consistent behavior of damselfish leaving their aggressively guarded territory each morning to go to a cleaning station. He also explains how more questions arose throughout his investigation, questions like "Do these parasites carry other parasites that infect fishes?" and "Do these gnathiid parasites infect other species of fish?" This first-person account creates an interesting view of how marine research is done, including field work, lab work, and collaborating with other scientists. This lesson is designed to support reading in the content area. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.</p>
Innovative Methods: Using Drones to Study Glaciers:	<p>In this lesson, students will read a text that describes new and creative technologies that are being used in climate research to study high-altitude glaciers and map how they are changing. The text describes the ways in which the use of drones with time-lapse thermal camera systems are being used to gather data over the Peruvian Andes more effectively than satellites or planes. The text also describes some of the researchers' early findings based on the data they have gathered through the use of these drones. The text used in this lesson is designed to support reading in the content area. The lesson includes a note-taking guide, text-dependent questions and a writing prompt, sample answer keys, and a writing rubric.</p>
Battle of the Borders:	<p>This resource is about the difficulties of implementing environmental policies and laws that effect human behaviors and land in bordering countries. It uses a reading strategy called SLAM to analyze arguments and identify supporting details in written text.</p>
What Lies Beneath: Coastal Blue Carbon :	<p>In this lesson, students will analyze an informational text that addresses the issue of releasing carbon dioxide into the atmosphere from carbon sink sites located in coastal habitats. This informational text is designed to support reading in the content area. The text describes how carbon that has been stored for potentially thousands of years is getting released into the atmosphere due to coastal habitat destruction of mangrove forests, salt marshes, and sea grass beds. The lesson plan includes text-dependent questions, a writing prompt, answer keys, and a writing rubric.</p>
Cells: Taking out the Trash:	<p>In this lesson, students will analyze an informational text that addresses cellular waste. The article students will read explains the different ways a cell gets rid of waste, including how proteasomes and lysosomes break down cell waste. The article covers another method of letting the waste "pile up." This informational text is designed to support reading in the content area. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.</p>
How El Niño and La Niña Affect the Weather:	<p>This informational text resource is intended to support reading in the content area. In this lesson, students will analyze a text that addresses the weather patterns of El Niño and La Niña and their effect on the varying ocean temperatures in the Pacific Ocean. The text describes the type of weather each produces over North America while explaining the differences between the two. This lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric. Options to extend the lesson are also included.</p>
Digestion...in 3-D!:	<p>This informational text resource is intended to support reading in the content area. In this lesson, students will analyze an informational text that addresses innovative research to aid in the understanding of how the digestive system works. The text describes how the villi in the small intestine work with the contraction of the muscle wall to aid digestion and how a team of researchers are working together to create a 3-D model this process. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric. Options to extend the lesson are also included.</p>
Heart Rate and Exercise: Is there a correlation?:	<p>In this lesson, Algebra 1 students will use supplied heart rate data to determine if heart rate and the amount of time spent exercising each week are correlated. Students will create their own scatter plots and lines of best fit for the data and study correlation using GeoGebra. Students will gather evidence to support or refute statistical statements made about correlation. The lesson provides easy to follow steps for using GeoGebra, a free online application, to generate a correlation coefficient for two given variables.</p>
The Role of Oceans in Climate Change:	<p>Students will use multiple hands-on activities, videos, and text resources to evaluate the ocean's influence on global climate change. Student engagement and investigation are the focus of this lesson with the intent of increasing rigor and creating global citizens. The summative assessment focuses on student application of their new knowledge to answer a scientific question; students present their findings in various mediums.</p>
Land Versus Water Specific Heat Activity:	<p>This activity has been designed as an inquiry lab to introduce weather and weather patterns. The students will explore the concept of weather through one of the factors that causes the weather that surrounds us, wind production.</p>
The Truth about Blue Eyes:	<p>Students work together to understand an article describing how genes cause eye color (and it probably doesn't match what's in your textbook!)</p>
Best Types of Grass to Grow in Florida:	<p>Based on various factors, students will decide the best types of grass (sod) to grow in Florida and the advantages and disadvantages of each.</p>
A Bunch of Hot Air...Balloon Rides That Is!:	<p>This is a 9th grade MEA about weather prediction and limitations thereof. This MEA will ask students to work as a team to design a plan to select the source for weather forecasts for a private hot-air balloon tour company. Students will evaluate information from various weather predictions sources to determine which one is best for a hot-air balloon ride company.</p>
Magnificent Microscope Tradeoffs MEA:	<p>Students will learn about the four types of microscopes (compound, dissection, transmission electron, and scanning electron) and compare them using the Model Eliciting Activity, or MEA, approach. Students act as a materials selection committee who will help a teacher decide which type(s) of microscopes are best suited for his classroom.</p>
Sustainability and Tourism Location MEA:	<p>This MEA gives the students an opportunity to learn about sustainability and then apply that knowledge to help EcoAthletica determine the location for their next sustainable tourism resort. The students will use a variety of criteria and the definition of sustainability and sustainable tourism to create a model for choosing locations.</p>

Marketing for the National Blood Pressure Association:	This MEA supports reading in the content area. Students create a model that the client can use to rank treatments for hypertension (high blood pressure) to choose the subject of their marketing campaign.
Parker County Public Works Project:	Have you ever considered what sort of discussion is done before deciding to build a water park or hospital in your town or county? What about the roads? The schools? This resource is a valuable tool in teaching students about the importance of developing a thought process and about the value in public works. The students will be conducting an MEA that revolves around the premise of deciding on what is the most important public works project for Parker County, FL.
Investigating the pH of Soils:	In this activity students will conduct research then test the effects of adding products to soil. Students will learn about soil pH, what factors affect the pH of soil and how important it is to the growth of plants. Students will learn to use reputable resources to support their findings. Students will be expected to write a detailed lab report that thoroughly explores the concept while integrating the data from their investigation.
MERMAID TAXONOMY:	This MEA is designed to educate students about the use of classification systems and the general characteristics of vertebrates.
CrazyConcrete:	In this MEA students work collaboratively to analyze concrete and cement formulas based on research collected. Students are required to apply knowledge of chemical composition and determine which formula would be best to use in a given situation. In the first letter, students are asked to rank different concrete mixtures. In the second letter, students are asked to analyze a series of cement mixtures. Then, the students must determine which cement mixture is the most appropriate for rebuilding a coastal area. Students must also investigate hurricane building standards to make the most appropriate choices.
HEART HEALTH:	This MEA is designed to educate students about the relationship between fast food choices and heart health. It should give students dietary choices to assist in the prevention of high blood pressure and heart disease.
SUSHI MANIA:	This MEA is designed to educate students about the biomagnification of mercury in aquatic ecosystems.
Current Event Assignment:	Science is ever-changing. Students have the opportunity to see how classroom topics relate to current events and research from around the world. Students will decipher claims and support given by author to evaluate the purpose of the article.
Corn Conundrum:	The Corn Conundrum MEA provides students with an agricultural problem in which they must work as a team to develop a procedure to select the best variety of corn to grow under drier conditions predicted by models of global climate change. Students must determine the most important factors that make planting crops sustainable in restricted climate conditions for the client. The main focus of this MEA is manipulating factors relating to plant biology, including transpiration and photosynthesis.
Coral Reefs Surviving Despite the Odds:	This lesson uses an article from the National Science Foundation to inform the reader about the surprising results of a study done on coral reefs in Palau. The article discusses the effects that ocean acidification normally has on coral reefs and then describes the unique situation encountered in Palau. Scientists discovered coral reefs thriving in waters with a lower pH than normal. The article discusses how scientists are unsure of why these coral reefs are thriving, but future studies could reveal the answers. This lesson is designed to support reading in the content area. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.
Hybrid-Electric Vehicles vs. Gasoline-Powered Vehicles:	Students will be comparing hybrid-electric vehicles (HEV) versus gasoline-powered vehicles. They will research the benefits of owning a HEV while also analyzing the cost effectiveness.
Invasive or Not?:	In this lesson, students will analyze an informational text that discusses new evidence regarding the status of the Arctic ground squirrel. The species was previously thought to be an invasive species on Chirikof Island off the coast of Alaska, but new evidence calls this belief into question. The lesson plan includes a vocabulary note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.
Overfishing Kills Reef Systems!:	In this lesson, students will analyze an informational text that addresses the effects of overfishing on coral reef systems. The text explains how scientists have found that overfishing removes many of the algae-eating fish, and this causes an increase in algae growth, which leads to a microbial increase, and finally leads to coral mortality. This lesson is designed to support reading in the content area. The lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.
Pollution Evolution - A Solution?:	In this lesson, students will analyze an informational text intended to support reading in the content area. The article in this lesson describes how a species of fish has adapted to lethal levels of toxic pollutants due to their high level of genetic variation, which allows them to evolve quickly. Scientists hope to use studies of these fish to understand human reactions to environmental chemicals. This lesson includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.
What's that Smell? Avoiding Peers with Parasites:	In this lesson, students will analyze two informational texts intended to support reading in the content area. The primary article discusses social behavior in mandrills that helps them know when to avoid certain individuals in their community in order to prevent becoming infected with parasites. A second related text discusses adaptations in Atlantic killifish that allow them to survive in water polluted by high levels of toxins. By reading and synthesizing both texts, students will learn about adaptations that enable survival of species. This lesson plan includes a note-taking guide, text-dependent questions, a writing prompt, answer keys, and a writing rubric.

Original Student Tutorials

Name	Description
	Learn how to identify the central idea and key details of a text, as well as how to write an effective summary in this interactive tutorial. This tutorial is the second tutorial in a four-part series that examines how scientists are using drones to explore glaciers in Peru.

[Drones and Glaciers: Eyes in the Sky \(Part 2 of 4\):](#)

This tutorial is part 1 of a four-part series. Click below to open the other tutorials in this series.

- [Drones and Glaciers: Eyes in the Sky \(Part 1\)](#)
- [Drones and Glaciers: Eyes in the Sky \(Part 2\)](#)
- [Expository Writing: Eyes in the Sky \(Part 3\)](#)
- [Expository Writing: Eyes in the Sky \(Part 4\)](#)

Learn about how researchers are using drones, also called unmanned aerial vehicles or UAVs, to study glaciers in Peru. In this interactive tutorial you will practice citing text evidence when answering questions about a text.

This tutorial is part 1 of a four-part series. Click below to open the other tutorials in this series.

[Drones and Glaciers: Eyes in the Sky \(Part 1 of 4\):](#)

- [Drones and Glaciers: Eyes in the Sky \(Part 1\)](#)
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- [Expository Writing: Eyes in the Sky \(Part 4\)](#)

[The Mystery of Muscle Cell Metabolism:](#)

Explore the mystery of muscle cell metabolism and how cells are able to meet the need for a constant supply of energy. In this interactive tutorial, you'll identify the basic structure of adenosine triphosphate (ATP), explain how ATP's structure is related to its job in the cell, and connect this role to energy transfers in living things.

[Diving the Depths of Underwater Life:](#)

Learn how the distribution of aquatic life forms is affected by light, temperature, and salinity with this interactive tutorial.

Professional Developments

Name	Description
Cultivating Literacy: Reading Skills and Standards:	<p>Click "View Site" to open a full-screen version.</p> <p>By the end of this module, teachers should be able to:</p> <ul style="list-style-type: none">• Name the key instructional shifts in English Language Arts and Literacy• Label the College and Career Readiness, also known as CCR, anchor standards for Reading• Use the language of the Reading Standards for Literacy in Science and Technical Subjects to identify what students should know and be able to do• Arrange and sequence the Reading Standards for Literacy in Science and Technical Subjects• Distinguish the changes in rigor as a Reading standard progresses from one grade band to the next <p>This is Module 1 of 4 in the series, "Literacy across the Content Areas: Reading and Writing to Build Content Knowledge."</p>
Digging Deeper with Text-Dependent Questions:	<p>Click "View Site" to open a full-screen version.</p> <p>By the end of this module, teachers should be able to:</p> <ul style="list-style-type: none">• Define text-dependent questions• Frame and create text-dependent questions• Design a text-dependent question that could be used as a writing prompt• Differentiate questions that use basic or lower-order thinking skills from those that require more abstract or higher-order thinking skills <p>This is Module 4 of 4 in the series, "Literacy across the Content Areas: Reading and Writing to Build Content Knowledge."</p>

Teaching Idea

Name	Description
The Birthday Paradox:	<p>The exercise detailed in this resource poses a paradox regarding birthdays. The question raised: how large does a group have to be in order to have a 50% or better probability that two or more people in the group share the same birthday? Intuitions about probability are challenged as students use their calculators to simulate random values to represent the birthdays and reach an answer.</p>

Text Resources

Name	Description
When Humans Begin Colonizing Other Planets, Who Should Be in Charge?:	<p>This informational text resource is intended to support reading in the content area. The article asks the reader to ponder the ethical issues that may arise as we travel to and colonize the rocky inner planets in our solar system. The article questions what country or organization will make the guidelines that answer these ethical questions.</p>
Yellowstone Ecosystem Needs Wolves and Willows, Elk and... Beavers?:	<p>This informational text resource is designed to support reading in the content area. The article discusses the effects of the wolf population in Yellowstone National Park, as well as how other organisms are linked in this food web. As the wolf population decreases, the elk population increases due to lack of predation. The larger elk population decimates the willow population, a prime source of food and building for the beaver. As beaver population decreases, streams no longer deposit enough sediments. This then changes the willow population, because they are no longer able to take root in the stream.</p>
Against the Tide: Fish Quickly Adapt to Lethal Levels of Pollution:	<p>This informational text resource is designed to support reading in the content area. The article describes the evolution of a type of fish who can survive in a human-altered, toxic environment. The text discusses possible reasons for this successful evolution and what the implications are for other species, including humans.</p>

This App Uses Facial Recognition Software to Help Identify Genetic Conditions:	This informational text resource is intended to support reading in the content area. The article describes a new tool (Face2Gene) that is being used by geneticists to help identify genetic disorders. The app uploads a picture and searches databases for specific facial measurements and characteristics common to specific genetic conditions. The app sends out a list of possible conditions, as well as a metric of their likelihood.
The Invasive Squirrel That Wasn't:	This informational text resource is designed to support reading in the content area. This article describes the discovery of evidence that contradicts the notion that a specific species of squirrel was introduced to an Alaskan ecosystem. It further discusses the implication of the new evidence and challenges the current meaning of invasive species.
Gut Check: Mandrills Sniff Poop to Avoid Peers with Parasites:	This informational text resource is intended to support reading in the content area. The text describes a mechanism of behavioral avoidance to help maintain health between mandrills. Mandrills use their olfactory senses in order to determine which of their peers to avoid due to parasitic infections. Quantitative
The Mystery of Human Blood Types:	This informational text resource is intended to support reading in the content area. Blood types such as the ABO group have been inherited for at least 20 million years. Despite how ancient blood groups are, scientists are still unclear as to their purpose. The ABO blood group, the most well-known of the blood groups, has enabled scientists to understand a link between blood groups and the immune system; discoveries over the last century suggest a link between blood groups and disease. Even with these findings, scientists are still unclear as to why such blood antigens evolved in the first place.
These Itsy-Bitsy Herbivores Could Stage a Huge Coral Reef Rescue:	This informational text resource supports reading in the content area. The article implies that human interactions that raise the global temperature (climate change) can have disastrous effects on coral reefs (coral bleaching). The article explains how a discovery of other organisms filling a previously occupied niche may help to rebuild and sustain coral reefs.
Analysis of Fossilized Antarctic Bird's 'Voice Box' Suggests Dinosaurs Couldn't Sing:	This informational text resource is intended to support reading in the content area. Scientists have presented new findings on the fossilized voice box called a syrinx -- and its apparent absence in non-avian dinosaur fossils of the same age. This may indicate that other non-avian dinosaurs were not able to make noises similar to the bird calls we hear today.
Polar Bears Across the Arctic Face Shorter Sea Ice Season:	This informational text resource is intended to support reading in the content area. Polar bears are among the animals most affected by the seasonal and year-to-year decline in Arctic sea ice, because they rely on ice for essential activities such as hunting, traveling, and breeding. A new research study has confirmed this finding.
Born During a Drought: Bad News for Baboons:	This informational text resource is designed to support reading in the content area. The article discusses how a drought affected the savanna ecosystem found in southern Kenya during 2009. It further addresses how baboons are affected later in life based on the conditions when they are born and the social status they are born into. Based on the research on baboons, the implications on human health are discussed in the latter portion of the article.
Virus Fingered as Top Suspect in West Coast Sea Star Wasting Disease:	This informational text resource is intended to support reading in the content area. The National Science Foundation article discusses research on the identification and the effects of the Sea Star Associated Densovirus. The article further explains the importance of research on this virus because of its impact on the tidal ecosystems on the Pacific West Coast.
Cone Snail Venom Reveals Insulin Insights:	This informational text resource is intended to support reading in the context area. The text describes how cone snail venom, a simpler form of insulin than human insulin, works more rapidly. Diabetes is a disease that occurs when the body is no longer to control the glucose levels in the bloodstream. Cone snail venom could help scientists develop a better, more efficient way of treating diabetes.
Hibernation Season Over, Will Disease-Ridden Bats Emerge from Caves and Mines This Spring?:	This informational text resource supports reading in the content area. The article discusses the spread of White Nose Syndrome in North American bats and how bat colonies are being affected in both size and number. The article also provides a comparison between European and North American bat colonies suffering with this disease.
NASA Moon Mission Shares Insights into Giant Impacts:	This informational text resource supports reading in the content area. The GRAIL mission is a research project tasked with studying large impact basins. Orientale basin is a giant, ringed impact crater on Earth's moon. Until now, how impact craters with rings form had not been well understood. Scientists have reconstructed Orientale's formation using data from NASA's GRAIL mission.
The First Non-Browning GMO Apples Slated to Hit Shelves Next Month:	This informational text resource is intended to support reading in the content area. The article discusses newly developed apples that have lower levels of PPO enzyme, thus keeping them from turning brown quickly.
Caribbean Bat Species Need 8 Million Years to Recover from Recent Extinction Waves:	This informational text resource is intended to support reading in the content area. The article discusses how Caribbean bat species are ideal for understanding the implications of extinction and its effects on species. The article suggests that the geographic isolation of these species helps scientists to understand the causes of extinction and how long species may need to recover from natural and human impact.
How New Zealand's Glaciers Shaped the Origin of the Kiwi Bird:	This informational text resource is designed to support reading in the content area. The article discusses research conducted by scientists that proves there are more species and subspecies of kiwi birds than originally thought in New Zealand. The article discusses how scientists believe glaciers isolated populations and how new genetic lineages were discovered by analyzing the kiwi genome.
Zika's Accidental Ally: Miami's Luxury High-Rises:	This informational text resource is designed to support reading in the content area. The article discusses the problems that are being encountered in Miami Beach as health officials try to execute a mosquito management program. Because of the high rise buildings, the pesticides being sprayed are not necessarily reaching the intended areas. Not only are mosquitoes staying alive, but they may become resistant to the first-choice pesticides being used against them.
	This informational text resource is intended to support reading in the content area. The text describes how colistin-

What the New Superbug Means for the US:	resistant bacteria have reached the United States, which is cause for great concern. There are currently some strains of bacteria that are resistant to all types of antibiotics. Scientists will have to develop new antibiotics if we are to continue our mostly successful fight against bacterial disease.
New Zealand Announces Plan to Wipe Out Invasive Predators:	This informational text resource is designed to support reading in the content area. The text explains the new Zealand government's plan to eliminate invasive predators from the country by 2050 and the challenges that may be involved in reaching this goal. The article also describes the effects the predators have had on the native wildlife to date.
For the First Time, Bees Declared Endangered in the U.S.:	This informational text resource is designed to support reading in the content area. The text describes how for the first time bees have been declared endangered in the United States. Seven species of Hawaiian yellow-faced bees have been decimated by invasive species and habitat loss and are now federally protected. The text goes on to describe an innovative way scientists want to help the bees.
Prairie Dogs Are Serial Killers That Murder Their Competition:	This informational text resource is designed to support reading in the content area. The article discusses the discovery of the white-tailed prairie dog murdering ground squirrels in cold blood in order to eliminate the competition for food. The article further highlights how the killings of the squirrels benefit the prairie dog offspring.
What's Good for Crops Not Always Good for the Environment:	This informational text resource is designed to support reading in the content area. The article describes a recent development that will allow scientists to help farmers determine the precise amount of nitrogen needed for their corn and soybean fields. The research was conducted by two scientists at the University of Illinois. If farmers can pinpoint the exact amount of fertilizer needed, reducing the amount that runs off or leaches into the water supply, the better for all living organisms on Earth.
Cholera-Like Disease 'Piggybacking' on El Nino to Reach New Shores:	This informational text resource is designed to support reading in the content area. The article discusses the research conducted by scientists showing the correlation between El Niño events and the spread of infectious disease. The article discusses how the scientists believe Vibrio bacteria are being transported across the ocean and the impact this can have on public health.
GM Mosquitoes Succeed at Reducing Dengue, Company Says:	This informational text resource is designed to support reading in the content area. The article describes a recent study that allowed researchers to prove the benefits of releasing GM mosquitoes in Brazil in order to decrease disease transmission. At first, research showed that the mosquito population had dropped, but then the research also showed that diseases like dengue fever had dropped dramatically in comparison to areas with conventional mosquito control.
Panama Canal: Superhighway for Invasive Species?:	This informational text resource is designed to support reading in the content area. The article describes the effects the Panama Canal expansion may have on the number of invasive species introduced to the East Coast and Gulf Coast of the United States. The article explains how ballast water and wet surface areas are the two ways the invasive species can travel from port to port.
Rangers Use Artificial Intelligence to Fight Poachers:	This informational text resource is designed to support reading in the content area. The text discusses the design of an artificial intelligence (AI) technology called PAWS that was designed as a tool to help wildlife officials stop poachers. PAWS uses data about previous poaching activities and analyzes the data to create smart and efficient routes for wildlife officers to use while looking for poaching activity.
Antarctica Could Lose Most of Its Penguins to Climate Change:	This informational text resource is designed to support reading in the content area. The article discusses the research conducted on the status of the Adelie penguin population and what might happen to it by the end of the century. Using statistical models, researchers looked at current data and used future climate projections to determine the status of the Adelie's habitat.
Wildlife Species Provide Clues to Spread of Antibiotic Resistance in Africa:	The informational text resource describes how researchers from Virginia Tech and the University of Sydney tested for resistance to 10 antibiotics among 18 wildlife species and cattle in Botswana. The results from the tests showed that antibiotic resistance is being transferred to mostly carnivores at the top of the food web. Animals that show multi-drug resistance are crocodiles, leopards, hyenas, hippos, baboons, and warthogs. There also seems to be a correlation to drug resistance and aquatic life, but only certain species. Further research should be conducted in order to understand how the resistance moves across landscapes.
Who Is at Risk for Heart Disease?:	This informational text resource is designed to support reading in the content area. The text, written by the National Institutes of Health, describes the many risk factors for heart disease. The text is broken into three areas: risk factors that can be controlled (like smoking, high blood pressure, and obesity), risk factors that cannot be controlled (like age and family history), and emerging risk factors.
Which Emits More Carbon Dioxide: Volcanoes or Human Activities?:	This informational text resource is intended to support reading in the content area. This article answers the question of whether volcanic activity or human activities contribute more to global warming. With evidence and support, they easily conclude human activities are the heaviest contributor
Dirt Mounds Made by Termites in Africa, South America, Asia Could Prevent Spread of Deserts:	This informational text resource is designed to support reading in the content area. The article discusses the impact termite mounds are having on semi-arid ecosystems and the surprising realization that scientists have come to in regards to the effects of these termite mounds. The text also describes the importance of scientific modeling to predict plant growth while having termite mounds present.
Protecting the Honey-Bearers:	This informational text resource is designed to support reading in the content area. The article discusses the problem of declining honey bee populations in the United States and lists the possible factors involved. The text then describes the study on African honey bees to determine if there are genetic or physiological causes in their response to the Varroa parasite. Researchers are hoping the data they gather will help them improve breeding programs or management practices in U.S. bee populations.
All We Are is Dust in the Interstellar Wind:	This informational text resource is designed to support reading in the content area. The article describes cosmic dust and the effects it leaves on the galaxy when it comes in contact with astronomical phenomenon. The interstellar dust can cause a distortion of astrological observations, called reddening. This can cause false data being reported because, for one, color is used to determine the age of a star. The article addresses how astronomers have produced a 3-D map of interstellar reddening for three-quarters of the visible sky.

Field Fever, Harvest Fever, Rat Catcher's Yellows: Leptospirosis by Any Name Is a Serious Disease:	This informational text resource is intended to support reading in the content area. The text describes current research into the factors that increase the rate of transmission of the bacterial disease Leptospirosis. Scientists are using research to provide tools to prevent future transmission. Scientists are studying three communities in Chile and determining what factors in each setting are contributing to the spread of the disease.
Peering into the Secret World of Life Beneath Winter Snows:	This informational text resource is designed to support reading in the content area. The text describes a new field of researchers called winter ecologists who are examining the effects of warmer winters caused by climate change. The text describes how snow creates an insulating layer for the living organisms below the snow. When that insulating layer is thinner, due to increased global temperatures, the organisms suffer colder temperatures, stress, and even death. Winter ecologists are trying to learn more about this layer, which is called the subnivium, and how organisms are responding to these changes.
Warming Waters Contributed to the Collapse of New England's Cod Fishery:	This informational text resource is intended to support reading in the content area. The article discusses the decline in the population of cod found in the Gulf of Maine. The author writes that fishery managers have set strict quotas on cod, with little positive change. Research indicates climate change has been a major factor in the steady decline of cod, and the text explains why.
Ten things to know about Scott Kelly's #YearInSpace:	This informational text resource is designed to support reading in the content area. The article describes an ongoing NASA research project where astronaut Scott Kelly and cosmonaut Mikhail Kornienko are being tested for the effects of a year-long spaceflight. However, the science of their mission spans three years: one year before they left, one year in space, and another upon their return. In addition, part of the research also includes the Twin Study; Scott's identical twin brother, and a former astronaut, served as a human control on the ground during Scott's year-long stay in space.
Risk Assessment, for the Birds:	This informational text resource is intended to support reading in the content area. Bird migration patterns have shown to be much more complex than once thought. Birds change their patterns based on a variety of factors, recent research indicates. The article refers to this as risk assessment; it includes the availability of food, strength, and even weather. The research was completed using three different species of songbird. Researchers are hoping that understanding of these patterns will help us in our conservation efforts.
Too Much Algae – and Too Many Microbes – Threaten Coral Reefs:	This informational text resource is designed to support reading in the content area. The article describes a recent study that helped researchers prove a link between overfishing to increased growth of fleshy algae to microbialization. This increase in microbes causes a depletion of the amount of oxygen dissolved in the water. In addition, the increase in microbial growth can spread disease. In conclusion, microbialization is found to be a major contributing factor to the destruction and decline of coral reef health.
Coral Reefs Defy Ocean Acidification Odds in Palau:	This informational text resource is designed to support reading in the content area. The article discusses the impact that ocean acidification typically has on coral reefs in water with low pH. The text goes on to describe the surprising results of a study done on coral reefs in Palau that are thriving despite living in water with low pH. Researchers must conduct further tests to determine why this is happening, but it gives them hope that some coral reefs might be able to withstand future levels of ocean acidification.
Annual Antarctic Ozone Hole Larger and Formed Later in 2015:	This informational text resource is designed to support reading in the content area. The text provides information about 2015's ozone hole, showing why it is larger this year and lasted longer than previous years. The article shows how the protective ozone layer changes with the seasons and is different each year. Although the hole is large this year, the practices that have been followed since the Montreal Protocol was enacted have allowed the ozone hole to slowly decrease, and it should be back to 1980 levels by 2070.
NOAA's Growing Weather Observations Database Goes into Full Operations:	This informational text resource is designed to support reading in the content area. This text describes NOAA's new (established in 2015) weather collecting database system that is able to assimilate weather data from 64,000 different sources. This new system is usable by federal, state and local agencies, universities, and private companies to forecast and prepare for different kinds of weather.
Environmental Pressures at the Top of the Earth Produce Evolutionary Impacts:	This informational text resource is designed to support reading in the content area. The text presents a picture of how and why animals and people living at the Arctic will start to change (due to changing climate with melting sea ice) in order to keep surviving.
Exploring the Heart of Matter:	This informational text resource is intended to support reading in the content area. Under the direction of the Department of Energy, the Jefferson Laboratory is making strides in its development of a new high-speed particle accelerator. This accelerator promises to operate at double the maximum speed of existing accelerators, and it will reveal more details about the forces which bind subatomic particles inside an atom, as well as the very nature of those particles. These discoveries will help us refine our ideas about atoms and nuclei.
Invasive Lionfish Diet Could Impact Native Coral Reef Fishes:	This informational text resource is intended to support reading in the content area. The article explains how lionfish, an invasive species in Atlantic waters, is threatening ecosystems there. The voracious diet of the lionfish will likely affect native species and the commercial fishing industry.
Scientists Discover Fossil of Bizarre Groundhog-Like Mammal on Madagascar:	This informational text resource is designed to support reading in the content area. This article describes a new research discovery of the fossil remains of a groundhog-like mammal found in Madagascar. The article details the methodology scientists employed to unearth the fossil skull and explains the insights it offers into early mammalian evolution in the Southern Hemisphere.
Organic Fruit and Veggies Help This Farmer-Mom Save Money and Forests in Bangladesh:	This informational text resource is designed to support reading in the content area. The text describes how people in Bangladesh are using homestead farming to provide for their families, while simultaneously contributing to preserving local forests. With the help of USAID, farmers are using higher-yielding seeds and cultivating crops using organic fertilizers and composting. The demand for food grown without pesticides and nourished by compost helps the homestead farmers to make enough money to improve their standard of living, while helping the environment at the same time.
	This informational text resource is designed to support reading in the content area. The text describes the results of

Colorado High Peaks Losing Glaciers as Climate Warms:	a study that show declines in ice—glaciers, permafrost, subsurface ice, and lake ice—at the Niwot Ridge in the Rocky Mountains over the past thirty years. The text describes that the researchers attribute the declines in ice to climate change. Using the results of their study, the scientists also make a startling prediction that the Arikaree Glacier in the Rocky Mountains will disappear in twenty years.
Ancient Fossils Show Effect of Humans on Caribbean Wildlife:	This informational text resource is intended to support reading in the content area. The article focuses on scientific data gathered in the Caribbean (specifically Abaco Island). The authors describe how wildlife is impacted by natural events and by humans, and why it is important for people to understand these interactions.
Feeding Birds in Your Local Park? If They're White Ibises in Florida, Think Twice:	This informational text resource is designed to support reading in the content area. The text describes the interactions between local wildlife (white ibises in Florida) and humans, and the impact that these interactions have on both species. The article presents both benefits as well as potential drawbacks to the close proximity of humans and white ibises. The article also describes how scientists are studying these interactions and their effects.
Do Bigger Brains Make Smarter Carnivores?:	This informational text resource is designed to support reading in the content area. The text describes an experiment that helps to confirm that larger brain size could indicate higher intelligence within carnivorous mammals. The experiment involved 140 animals and each was given the same task of retrieving food from a locked box within 30 minutes. The results of the test show that having a larger brain really does improve an animal's ability to solve a problem it has never encountered before.
In Grasslands, Longer Spring Growing Season Offsets Higher Summer Temperatures:	This informational text resource is designed to support reading in the content area. The article describes the process the researchers use to develop a detailed model of how they predict climate change will occur in the future and what effect this will have on North American grasslands. The author explains how climate change impacts ecosystems while also providing an example of using models in science to predict future events/outcomes.
Genetics Provide New Hope for Endangered Freshwater Mussels:	This informational text resource is designed to support reading in the content area. The article explains the impact of scientists' studies on a number of freshwater mussel species and their genetic makeup. The intent of the research was to find ways of protecting threatened and endangered species of mussels. The article explains that the genetic similarities of species that cohabitate a river could lead to development of new methods of protecting mussel species.
Revealing the Ocean's Hidden Fertilizer:	This informational text resource is designed to support reading in the content area. The text explains how scientists are working with the National Science Foundation (NSF) to explore the role of phosphorus, and specifically the phosphorus cycle, in marine ecosystems. The author explains what is known about the topic, what research was done, what conclusions were drawn, and the importance of the scientists' findings.
Peru's Melting Glaciers Teach Community "to Be Strong in the Face of the Changes":	This informational text is resource designed to help support reading in the content area. The article discusses the impact of climate change (global warming) on the tropical glaciers in Peru. It focuses on providing a description of how Peruvians depend upon the glaciers and the impact that the melting of the glaciers could have in the future. The author also emphasizes USAID's role in working with Peruvians to help them develop plans to deal with the possible loss of the glaciers
Where Do Rats Move in After Disasters?:	This informational text resource is designed to support reading in the content area. The article describes how a mathematical model can be used to simulate how environmental changes affect populations of pathogen-carrying rodents. A "capture" program undertaken by researchers at Tulane University allowed them to capture rats in post-Katrina neighborhoods in order to determine how rats migrate after natural or man-made disasters.
Lakes Around the World Rapidly Warming:	This informational text resource is designed to support reading in the content area. This article describes the effect of climate change on the water supply and on ecosystems around the world. The article introduces research from a study spanning six continents that analyzed data to determine the rate at which Earth's lakes are warming. The author then uses this data to connect to the impacts on Earth's ecosystems and on human lives.
Scientists Discover How Blue and Green Clays Kill Bacteria:	This informational text resource is designed to support reading in the content area. This text describes how researchers unearthed a natural clay deposit with antibacterial characteristics. The text also discusses exactly how the two elements in the clay cause the destruction of the bacteria. The end of the article addresses how this discovery could provide possible solutions to bacteria that are antibiotic-resistant, like MRSA.
Text Resource - Climate Change: Atmospheric Carbon Dioxide:	This informational text resource is designed to support reading in the content area. The article describes the possible effects on the planet due to the rise in carbon dioxide in the atmosphere, especially the implications for climate change.
Geomagnetic Reversal: Understanding Ancient Flips and Flops in Earth's Polarity:	This informational text resource is designed to support reading in the content area. The article discusses how the National Science Foundation (NSF) has been using one of their ships to gather information which scientists can use to explore the process of geomagnetic reversal. The article explains the basic concept of geomagnetic reversal and how the information gathered can help in understanding it. Finally, the article discusses several different roles that scientists have taken on in the NSF's ongoing operations.
Southwest Sliding into a New Normal: Drier Conditions:	This informational text resource is designed to support reading in the content area. The text describes a study on the climate of the southwestern United States. Using 35 years' worth of data, scientists believe a subtle shift in weather patterns is leading to drier conditions in the Southwest. The text goes on to explain the significance of this research and the challenge of connecting drier conditions in the region to climate change.
Seeking Zika: Where and When Will Zika-Carrying Mosquitoes Strike Next?:	This informational text resource is designed to support reading in the content area. The text describes current research into the mosquitoes that carry the Zika virus, with the ultimate goal of using the research to predict and possibly prevent future outbreaks. Scientists are studying three towns in Ecuador by collecting data to help them discover the socioeconomic and environmental factors that put people most at risk for diseases carried by the Aedes aegypti mosquito, including the Zika virus. The scientists are also examining how virus transmission by these mosquitoes may be affected by climate change.
Parasites: Rulers of the Reef:	This informational text resource is designed to support reading in the content area. The text informs readers about the influence of parasites on damselfish, a coral reef species. The author explains how his team determined the reason for the consistent behavior of damselfish leaving their aggressively guarded territory each morning to go to a cleaning station. Through the scientist describing how his research lead to new observations that lead to new

questions and research, the text is a good example of how scientific investigations are conducted, including working collaboratively and communicating important results.

[Why Do We Yawn?:](#)

This informational text resource is designed to support reading in the content area. The article seeks to answer the question, "Why do we yawn?" Scientists have yet to reach consensus about the function of yawning. Social and physiological claims about why we yawn are presented from Hippocrates, 17th and 18th century scientists, and scientists today.

[Where Does Water Go When It Doesn't Flow?:](#)

This informational text resource is intended to support reading in the content area. The article describes how scientific thoughts about the water cycle have changed over time, particularly due to information gathered in a recent study. The article gives a good representation of the scientific method and the importance of the water cycle.

[Zanzibar's Malaria Hunter:](#)

This informational text resource is designed to support reading in the content area. The article is about a woman, Habiba, who uses a motorbike to travel to families in the villages of Zanzibar to track, test, and treat malaria patients. After receiving a text message about the location of a malaria patient, she travels to the patient and tests the patient's family to see if other family members have malaria. Then, she treats any infected family members with medicine, giving them extra medicine and insecticide-treated mosquito nets, while educating them about prevention of the disease and its transmission.

[What are El Niño and La Niña?:](#)

This informational text resource is designed to support reading in the content area. The article explains what El Niño and La Niña are in terms of meteorology. It also explains the weather effects of both and a brief history of their names.

[Coastal Blue Carbon:](#)

This informational text resource is designed to support reading in the content area. The text describes different ecosystems that store carbon, like forests, and goes into how carbon is stored more efficiently in coastal ecosystems. The text goes on to advocate for conserving and protecting our coastal ecosystems to keep the carbon stored and prevent the carbon from being released into the atmosphere to further impact the planet through climate change. The text also explores other benefits for conserving coastal ecosystems.

[Gut Reaction: Digestion Revealed in 3-D:](#)

This informational text resource is designed to support reading in the content area. The article describes how villi in the small intestine and muscle contraction work together to digest food and provide nutrients to the body, using the metaphor of coral working with an ocean current to circulate nutrients in the sea. A team of scientists plans to use technology to create 3-D imaging of digestion, and their research is described in the article along with the specific physiology and function of the villi within the digestive tract.

[Three Miles High: Using Drones to Study High-Altitude Glaciers:](#)

This informational text resource is designed to support reading in the content area. This text describes new and creative technologies that are being used in climate research to study high-altitude glaciers and map how they are changing. The text describes the ways in which the use of drones with time-lapse thermal camera systems are being used to gather data over the Peruvian Andes more effectively than satellites or planes. The text also describes some of the researchers' early findings based on the data they have gathered through the use of these drones.

[How Cells Take Out the Trash:](#)

This informational text resource is designed to support reading in the content area. The text focuses on cellular waste and describes different ways a cell gets rid of waste. The text also briefly addresses how further study of the ways cells dispose of waste could lead to new approaches for preventing or treating disease.

[Shedding Light on Millipede Evolution:](#)

This informational text resource is designed to support reading in the content area. The author tells of his success in locating and reclassifying a species of millipedes known as **Motyxia bistipita**. Until his rediscovery these millipedes were not known to show bioluminescence. Once he discovered this trait he was then also able to trace their evolutionary lineage and determine the reasons for the development of this ability in **bipista's** relatives. This article also discusses bioluminescence in other species and its important medical applications.

[Avogadro: Voice in the Wilderness:](#)

This informational text resource is intended to support reading in the content area. The article explains how Avogadro's hypothesis, proposed prior to the publishing of Dalton's atomic theory, was initially rejected. But his hypothesis turned out to be the key to solving many problems facing chemistry in the 1800s. The article describes how the later acceptance of his original idea changed the subject forever and even allowed for the creation of the periodic table.

[Why Tau Trumps Pi:](#)

This informational text resource is intended to support reading in the content area. The author tries to convince the reader that two pi, or tau, occurs more often in mathematics than pi by itself. The author provides several examples and indicates the history behind society's choice of pi rather than tau.

[Cholera: Tracking the First Truly Global Disease:](#)

This informational text resource is intended to support reading in the content area. The article describes London in the mid-19th century as a filthy, foul place for an ever-increasing population as families relocated to the city hoping for work. Open reservoirs and use of the nearby Thames for raw sewage disposal was commonplace. Outbreaks of disease thrived in these environments but no causal association was made until Dr. John Snow hypothesized that cholera was transmitted by contaminated food or water. He mapped cholera deaths to sources of contaminated water, ultimately leading to improved sanitation and public health.

[In the Valley of Wolves: Reintroduction of the Wolves:](#)

This informational text resource is intended to support reading in the content area. The reintroduction of wolves into Yellowstone has resulted in many changes in the ecosystem. Before the wolves were reintroduced, large elk populations destroyed aspen and willow trees, preventing their reproduction. Since wolves were reintroduced, elk have had to change their browsing behavior, allowing some vegetation to recover in certain areas. This has affected many other species, including beavers, birds, fish and insects.

[World record for compact particle accelerator: Researchers ramp up energy of laser-plasma 'tabletop' accelerator:](#)

This informational text resource is intended to support reading in the content area. Using one of the most powerful lasers in the world, researchers have accelerated subatomic particles to the highest energies ever recorded from a compact accelerator. The team used a specialized petawatt laser and a charged-particle gas called plasma to get the particles up to speed. The setup is known as a laser-plasma accelerator, an emerging class of particle accelerators that physicists believe can shrink traditional, miles-long accelerators to machines that can fit on a table.

This informational text resource is intended to support reading in the content area. Many people are confused about the concept of correlation versus causation. To help demonstrate the misconception in a light and humorous way, this

Does Sour Cream Cause Bike Accidents?:	article describes the work of Tyler Vigen. The Harvard student graphs data that are highly correlated but clearly unrelated. The "spurious correlations" help debunk the myth that if there is a correlation, then there is a causal relationship. The article emphasizes that rational human thought is essential to process the relationships and is necessary for studying statistics.
Immune System:	This informational text resource is intended to support reading in the content area. The immune system's job is to defend against pathogens and keep our bodies healthy. There are a number of cell types, tissues, and organs that play a role in the immune process. The article discusses the three types of immunity: innate, adaptive, and passive. Finally, the article discusses various immune system disorders and diseases that are associated with each one.
Periodic Table of the Elements:	This informational text resource is intended to support reading in the content area. This simple text explains the basics of how the periodic table is organized and summarizes the information that the table includes about each element.
Climate's Troublesome Kids:	This informational text resource is intended to support reading in the content area. Did you know that climate has two not-so-nice children? Meet El Niño and La Niña, the "boy" and "girl" spawned by the global climate every 3-7 years. They can give the world a climate that's quite troublesome, depending on which one is causing the disturbance.
Scientists See the World Differently:	This informational text resource is intended to support reading in the content area. Pew Research Center surveyed scientists and the general public on 12 science oriented issues, including genetically modified foods, vaccines, nuclear power and evolution. Results of the survey showed large discrepancies between the thoughts, causes and recommendations on the issues of the scientists and the general public. Sample sizes and margins of errors are given on the survey results which are represented in percent form. The overall survey showed that the public and the scientists see the world very differently.
A Living Fossil:	This informational text resource is intended to support reading in the content area. In 1996, a team of scientists discovered a species of rodent in Laos that was new to science. In a recent study, DNA analysis places the rodent in a mammal family that was previously thought to have gone extinct over 10 million years ago. Therefore, the rodent is a "living fossil."
Ultracold Atoms:	This informational text resource is intended to support reading in the content area. Most students are familiar with the four most common states of matter, but what about the 5th state of matter, the Bose-Einstein condensate (BEC for short)? This article explains what a BEC is and how researchers are exploring this unique state of matter.
Oxidation-Reduction Reactions -- Real-Life Implications:	This informational text resource is intended to support reading in the content area. Oxidation-reduction reactions are one of the main types of reactions students are taught in chemistry class, but what are some real-life examples of this often awe-inspiring reaction? This article looks at the science behind some real-life oxidation-reduction reactions, including explosions (in cars and trains), space shuttle fuel, and many uses of metals. The importance of these reactions in limiting systems is also covered.
The Importance of Wastewater Treatment :	This informational text resource is intended to support reading in the content area. Wastewater is being dumped into rivers, streams, and oceans, affecting not only the marine environment but also water quality in general. Better treatment processes are needed before this contaminated waste reaches our waterways. The article points out the problems faced by specific countries and their need for better management.
The Dark Side of the Universe:	This informational text resource is intended to support reading in the content area. The article describes how scientists discovered dark energy and dark matter. The article details the role gravity and the study of supernova played in this scientific discovery. It also explains the problems that scientists encountered in the process and the conclusion they were able to reach. The article further explains WIMP, a weakly interacting massive particle and its connection to gamma rays. It also explains how studying supernova helped scientists estimate the age of the universe. Finally, the article summarizes that dark energy still remains a mystery.
Peru Billboard Doubles Up as an Air Purifier:	This informational text resource is intended to support reading in the content area. Students at a university in Peru have erected a billboard near a construction site that filters air. It uses water to rid the air of pollutants like dust, bacteria, and even metal particles. This innovative billboard purifies the same amount of air as 12,000 trees! The billboard uses recycled air and takes little energy to work. The embedded video shows the impact on the construction workers who are near the billboard.
Humans and Squid Evolved Same Eyes Using Same Genes:	This informational text resource is intended to support reading in the content area. The text discusses the evolution of the eye across different types of organisms. Eyes have evolved independently several times (such as in squid vs. humans), though all animals with eyes share the Pax6 gene, which is responsible for organizing the formation of a simple eye. The evolution of the Pax6 gene, particularly in how its RNA product is spliced, is responsible for the diversity of eye types, such as the camera eye in squid.
Polar Bears and Climate Change:	This informational text resource is intended to support reading in the content area. Polar bears are highly specialized to living on sea ice in the Arctic including their dependence on two species of seals. Therefore, scientists expect polar bears to be greatly affected by climate changes due to their habitat (reduced sea ice) and prey availability. These effects include increased movement, fewer den areas, and decreased prey access, which are predicted to have a variety of negative consequences on polar bears in the future.
How Nuclear Power Works:	This informational text is intended to support reading in the content area. Nuclear power has become a suggested solution to the issue of energy dependence, but what exactly is nuclear power? This article focuses on the many aspects of nuclear power including how it's created through fission and harnessed for electricity. Discussion of the pros and cons of nuclear energy and storage methods is also covered.
Gentoo Penguins Thrive, While Adelies and Chinstraps Falter in a Climate-Changed World:	This informational text resource is intended to support reading in the content area. The article describes various species of penguins that are affected by warming climates in Antarctica. Tracing the penguins' genetic ancestry back to the last ice age suggests that some species' populations are increasing, while other species' populations are diminishing. This is likely due to the effects of climate change on the penguins' main food sources.
	This informational text resource is intended to support reading in the content area. Researchers have found a

Sun's Activity Triggers Lightning Strikes:	correlation between solar wind and an increase in the number of lightning strikes near England, as much as 32% after a month-long period. They believe solar wind causes a greater number of strikes because it delivers streams of high-speed solar particles that strike Earth's atmosphere. This contrasts an earlier hypothesis that solar wind decreases lightning strikes because it deflects cosmic rays.
Plant Detectives Dig into How Cells Grow:	This informational text resource is intended to support reading in the content area. Moss is being used as a model system that may hold the key to understanding how all plant and animal cells grow. This article shows how a deeper understanding of cell growth is being established: specifically, how the cytoskeleton directs growth.
Male Faces May Have Evolved to Be Punch-Resistant:	This informational text resource is intended to support reading in the content area. The article describes new research suggesting that human ancestors, particularly males, evolved stronger jaws that were resistant to punches. (Females, perhaps less prone to fighting, do not show this same adaptation). This contradicts earlier hypotheses, which suggested that larger jaws evolved to better consume food resources.
The Cell's Protein Factory in Action:	This informational text resource is intended to support reading in the content area. The ribosome, the site of protein synthesis, is the focus of this article. The text describes how a problem-some antibiotics are targeting the ribosomes of both harmful and beneficial bacteria-is being solved by studying the movement of ribosomes during translation.
Black Holes :	This informational text resource is intended to support reading in the content area. This article describes black holes: what they are, how they are formed, where they are located, what evidence there is for their existence, and what scientists still do not know about them.
History Of Chemistry/Famous Chemists:	This informational text resource is intended to support reading in the content area. This article describes the history of chemistry through the scientific findings and major contributions of several important chemists. These chemists, including Joseph Priestly, Dmitri Mendeleev, and Niels Bohr, discovered properties of gases and other materials, developed the Law of Conservation of Mass and the periodic table, and contributed to the development of atomic theory.
The Certainty of Climate Change:	This informational text resource is intended to support reading in the content area. Our Earth's temperatures have increased over time and scientists are attributing this to human activities.
Pesticides Spark Broad Biodiversity Loss:	This informational text resource is intended to support reading in the content area. This article is about how agricultural pesticides are contributing to the biodiversity loss of invertebrates. Research teams examined streams in broad regions to study the effects of pesticides in those ecosystems. Up to 42% fewer species were discovered in streams that were highly contaminated. In another study, it was found that neonicotinoid insecticides accumulate in the soil at levels that kill soil invertebrates.
Heaviest Named Element is Official:	This informational text resource is intended to support reading in the content area. The article describes the addition of copernicium, the heaviest named element, to the periodic table. It discusses the process of validation required for elements to be named and added to the periodic table.
Does the Rotation of the Earth Affect Toilets and Baseball Games?:	This informational text resource is intended to support reading in the content area. This article examines the Coriolis effect-how the Earth's rotation affects moving objects-and its relationship to baseball, weather...and toilets. The author is concerned with dispelling some myths about the influence of the Coriolis effect on everyday things.
Artistic Chemistry: A Beautiful Collaboration:	This informational text resource is intended to support reading in the content area. Chemistry can be an important part of creating art. This article discusses two examples of this: the presence of redox reactions in making Raku pottery, and the use of cleaning agents when creating stained glass. The process of making both types of art is described, along with the chemical reactions involved.
Polar Bear Evolution Was Fast and Furious:	This informational text resource is intended to support reading in the content area. New evidence shows that polar bears split off from their closest ancestors, brown bears, less than 500,000 years ago. This is a very short time for a large mammal to evolve. In that time, polar bears have evolved many adaptations to their specialized lifestyle, including the ability to process the large amount of fat in their seal-based diet. This is shown by their unique DNA sequence of genes related to fat processing and heart development.
Robots Will Steal Your Job: Exponential Growth:	This informational text resource is intended to support reading in the content area. The text sets out to provide the reader with a clear understanding of the concept of exponential growth. Stories and examples tied to the stories are used to clarify the concept of exponential growth. Readers are offered various scenarios where exponential growth applies to everyday life, and opportunities are given to practice their grasp of the concepts.
What Happens to Shipping Containers Lost at Sea?:	This informational text resource is intended to support reading in the content area. This article examines how the marine environment is affected by shipping containers that accidentally fall to the seafloor. It explores how the containers can be harmful but can also be a benefit to the ecosystem depending on factors such as what the containers are carrying and what the containers are made of.
Watching Our Seas Rise:	This informational text resource is intended to support reading in the content area. The collective efforts of many scientists enable us to measure how fast Earth's sea levels are rising, past and present. Presently, satellites are measuring sea levels and have showed significant increases in the last 20 years due to glacial melting and the expansion of sea water. Evidence from the past shows sea levels have risen and fallen steadily with the ice ages, until a sudden spike around the beginning of the Industrial Revolution. Coastal areas and islands are expected to be most affected by rising sea levels.
Undead-End: Fungus that Controls Zombie-Ants has own Fungal Stalker:	This informational text resource is intended to support reading in the content area. Zombies may seem like science fiction, but that's exactly what scientists are calling the behavior in some species of ants. This article looks at the parasitic relationship between a form of fungus and carpenter ant that causes this zombie-like behavior. It also looks at a further complication to the process as the parasitic fungus has a parasite of its own.
	This informational text resource is intended to support reading in the content area. The text explains that changing

Warming Arctic May Be Causing Jet Stream to Lose Its Way:	weather patterns can be linked to a weakening of the jet stream. It is known that the jet stream is responsible for changeable weather patterns, and the weakening of the stream is causing weather conditions to stay in locations for longer periods of time. The article concludes that the fuel source of the jet stream (the differences in temperature between the tropics and the arctic) is becoming less dramatic, which in turn is weakening the winds.
Harvard-Smithsonian Astrophysicist Discovers New Method to Weigh Some Distant Stars:	This informational text resource is intended to support reading in the content area. Astrophysicist David Kipping has discovered a new method for weighing distant stars without relying on computer models. For the method to work, a star must have a planet with an orbiting moon cross in front of it, a circumstance not yet known to scientists, but it shows promise for future solar discoveries.
Molten Salts Could Improve Fuel Economy:	This informational text resource is intended to support reading in the content area. This text describes a new technology that might a boost car engine's efficiency by 2% by adding ionic liquids called "molten salts" to lubricating engine oil. The addition of the molten salts has the potential to reduce millions of barrels of oils from being imported into the United States annually.
Wave Power:	This informational text resource is intended to support reading in the content area. New Jersey-based company Ocean Power Technologies has gained a permit to launch PowerBuoys, which will convert ocean wave energy into power for human consumption. The benefits and concerns of harnessing the ocean's energy by this method are discussed in the article.
Newly Discovered Paddle Prints Show How Ancient Sea Reptiles Swam:	This informational text resource is intended to support reading in the content area. Scientists have found fossils in seabeds in China that are tracks left by nothosaurs, ancient sea reptiles. These tracks provide evidence that these reptiles moved by rowing their forelimbs in unison, answering a long-standing question about how they propelled themselves.
Brewing a New Fuel Source:	Mano Misra at the University of Nevada has proposed the use of old coffee grounds to make a biodiesel fuel. The benefits include the reduction of harmful emissions that trap greenhouse gases. Misra suggests ways in which the hurdle of gathering grounds for fuel production can be overcome.
The Infinite Struggle Against Invasive Species in the Galapagos:	The Galapagos Islands provide some of the most unique flora and fauna in the world, and the islands have served as a hot spot for modern evolutionary theory, thanks to the work of Charles Darwin. However, the island's unique biodiversity is threatened by invasive species. This article delves into the struggle we face to preserve the species which are native to the islands.
What is the Electromagnetic Spectrum?:	This informational text resource is intended to support reading in the content area. This article describes the entire range of light waves which constitute the electromagnetic spectrum. Excellent graphics aid in illustrating the differences in types of light. The article also uses the electromagnetic spectrum to explore the universe, from visible light to X-rays and gamma rays.
Debate Tests Accuracy of Tree Ring Data :	This informational text resource is intended to support reading in the content area. The article explains the controversy surrounding the research of scientists Mann, Fuentes, and Rutherford, whose work suggests that tree rings may not be as accurate a record of past climate changes as once thought. The author explains how the reliance on one type or form of data is a limitation in science and discusses the other information available to reconstruct climates of the past.
The Weird, Wild World of Citizen Science is Already Here:	This informational text resource is intended to support reading in the content area. This article describes the collision course between citizens and scientists as "makers" and "hobbyists" begin aiding and supplementing the scientific community more and more. The article gives many examples of amateurs helping out on active projects, especially when science cannot dedicate the hours or money necessary to complete them.
Meteorites May Have Sparked Life on Earth:	This informational text resource is intended to support reading in the content area. Scientists have formulated and tested another theory to explain how life began on Earth: meteorites crashing into the surface of the ancient planet brought with them the elements of life's building blocks. The results of the scientists' simulations are promising.
Space Weather: Sunspots, Solar Flares & Coronal Mass Ejections :	This informational text resource is intended to support reading in the content area. This text describes three kinds of solar phenomena: sunspots, solar flares, and coronal mass ejections. Each is explained in relation to its effect on the weather, climate, and technology of Earth. NASA programs that monitor the activity of the Sun are also described.
A Fuel Cell for Home: Tested in Private Households:	This informational text resource is intended to support reading in the content area. Scientists at the Fraunhofer Institute in Dresden have developed an energy-efficient fuel cell superior to combustion engines and other traditional ways of heating homes. The stacked fuel cells convert natural gas directly into electrical energy without resulting in energy loss. The fuel cell prototypes are being tried in homes and signal promise for the future.
The Big Bang: What Really Happened at Our Universe's Birth?:	This informational text is intended to support reading in the content area. This article explains the current prevailing theory of the Big Bang by breaking it up into a timeline. At each moment after the Big Bang, the author discusses what happened and what evidence exists for it. The text also explores the mystery of what—if anything—existed before the Big Bang.
The Unexplained Mystery of Why Hot Water Freezes Faster than Cold:	This informational text resource is intended to support reading in the content area. The article describes the Mpemba Effect - the odd phenomenon that causes hot water to freeze faster than cold water. The author discovers how a high school student brought the Mpemba Effect to the attention of a physicist and explores potential hypotheses for the cause of the phenomenon. The author goes on to discuss some experiments that have sought to explain the Mpemba Effect, but none have done so conclusively.
Math for Hungry Birds:	This informational text resource is intended to support reading in the content area. A new study indicates that the flying patterns of hunting albatrosses may resemble mathematical designs called fractals. This article describes the basics of fractals and why scientists think the albatross may hunt in such patterns. As it turns out, many animals may use math to find food!
Evolution Made Ridiculous Flightless Birds Over and Over:	This informational text resource is intended to support reading in the content area. This article focuses on the evolution of ratites—large, flightless birds like the ostrich—and how they evolved to become flightless birds. New research shows that ratites evolved from common flying ancestors and that the evolutionary process occurred over and over again.
Demystifying Gross Stuff:	This informational text resource is intended to support reading in the content area. From pimples to bad breath to passing gas, this article clears up the science behind some of the gross things our bodies do—acne, bad breath, and flatulence—in an attempt to make the gross seem a little less so.

The Human Immune System and Infectious Disease:	This informational text resource is intended to support reading in the content area. The text explains the importance and function of the human immune system with a detailed discussion of non-specific versus specific immunity. The text features an embedded animated component showing how vaccines work.
Cool Jobs: Planet Protectors:	This informational text resource is intended to support reading in the content area. Scientists are looking into newer, futuristic technologies to help humans do less damage to our environment. This article focuses on three very exciting solutions—leafy walls, water conservation, and solar cells—that are close to becoming realities.
Will Seafloor Carpets Be the Key to Harvesting Wave Energy?:	This informational text resource is intended to support reading in the content area. The article describes how scientists have discovered a method of transferring wave energy into electrical energy by the use of manmade seafloor "carpets." After the article explains how the process works, it lists the potential benefits of utilizing this method on a large scale.
World Cup Raises Epidemic Questions:	This informational text resource is intended to support reading in the content area. Tropical areas such as Brazil can be hotspots for communicable diseases due to warm temperatures and crowded urban spaces. There is a concern that when Brazil hosts the World Cup, mosquito-borne dengue fever may spread to its visitors. The article explores methods of pathogen transfer in a variety of venues (pilgrimages, airplanes, cruise lines) and compares these to conditions at the World Cup.
NASA Hits Jackpot With Discovery Of 715 New Exoplanets:	This informational text resource is intended to support reading in the content area. The article describes the methods scientists have used to discover a large range of planets that exist outside of our solar system. It then details how the technology and techniques involved in planetary identification have evolved to become more efficient. The article also explains that scientists are constantly looking for planets in a "Goldilocks Zone" that could contain liquid water, and therefore sustain life.
Animal Clones: Double Trouble?:	This informational text resource is intended to support reading in the content area. Would you want to eat "clone chops?" This article discusses the possibility of food products derived from cloned animals appearing on our plates in the future. Also included is a brief history of cloning and the methods by which it is executed. In addition, the ethical and health arguments surrounding this development are discussed.
How & Where Hurricanes Form:	This informational text resource is intended to support reading in the content area. This article could be called "the life and times of hurricanes," as it explains not only the formation but also the characteristics of hurricanes, including how they gain and lose strength.
Tornadoes Strike Again. How Do They Work?:	This informational text resource is intended to support reading in the content area. Tornado events seem to be increasing over the years. Computer simulations and high-resolution satellite imagery are a few of the emerging technologies that have helped us to predict and respond more rapidly to this deadly force of nature. The article gives a solid discussion of the role of latent heat and moving air in tornado formation. It also reviews energy transformations and gives an overview of several ways that people can more safely live in Tornado Alley.
"Greener" Energy Needed Now, Group Warns:	This informational text resource is intended to support reading in the content area. This article is based on a climate change report published by the Intergovernmental Panel on Climate Change (IPCC). It provides another perspective on climate change from the IPCC and includes evidence and possible solutions to the problems caused by manmade pollution.
Chemists Expand Nature's Genetic Alphabet:	This informational text resource is intended to support reading in the content area. This article provides some of the newest and most exciting information relating to the DNA in living things. It is a synopsis of a recent experiment in which scientists were able to successfully add two new "letters" into DNA and have the cell replicate these new bases. This could lead to advances in genetics, medicine, and various other fields of study.
"Designer" Chromosome for Brewer's Yeast Built from Scratch:	This informational text resource is intended to support reading in the content area. Scientists have been able to create a synthetic functioning chromosome (<i>Saccharomyces cerevisiae</i>) found in yeast. With this breakthrough, they might be able to create customizable bio-fuels, vaccines, or even synthetic organisms in the future.
Urban Bees Respond to Littering by Adopting Innovative Nest-Building Techniques:	This informational text resource is intended to support reading in the content area. The text explains how some bees living in an urban environment have started to build their nests out of human-made materials such as plastics. Furthermore, the bees seem to prefer the materials to plants! Scientists theorize that these nests may actually prove to be safer for the bees, as they are stronger and protect against parasites.
Could Common Earthly Organisms Thrive on Mars?:	This informational text resource is intended to support reading in the content area. This article asks the question: could life exist on Mars? The research depicted specifically applies to a simple, single-celled organism called a methanogen, which is in the kingdom Archaea. So far, studies have shown that these types of organisms are able to survive in manipulated environments similar to the harsh conditions on Mars.
The Calamitous Climate Responsible for Florida's Record Rainfall:	This informational text resource is intended to support reading in the content area. This article introduces extreme rainfall as an effect of climate change that is both measurable and personal - as it occurred in our own back yard. The article discusses the storm in Pensacola before heading into information about climate change.
Birds Have Clever Solution for a Cuckoo Conundrum:	This informational text resource is intended to support reading in the content area. The text describes how Australia's superb fairy wrens have developed a solution to the parasitism of the cuckoos that lay their eggs in their nests. The wrens' adaptation of singing to incubating eggs allows the unborn babies to learn the call as a password. Once born, the babies repeat this call to the mother so she can feed them and not the parasitic cuckoos.
Blood Does a Body Good:	This informational text resource is intended to support reading in the content area. This article describes the components of blood (red blood cells, white blood cells, platelets, and plasma) including their functions and origins, along with a novel medical application for the rare blood-producing stem cells.
The Weather on the Moon Is Wonderful! Except for One Small Thing...:	This informational text resource is intended to support reading in the content area. This article highlights the dangers that solar flares pose to moon colonization and how humans might deal with them. It is a brief article that grabs the reader's attention and leaves him/her thinking.
How to Win at Rock-Paper-Scissors:	This informational text resource is intended to support reading in the content area. This article describes a new study about the game rock-paper-scissors. The study reveals that people do not play randomly; there are patterns and hidden psychology players frequently use. Understanding these potential moves can help a player increase their winning edge. As part of interpreting the results of the study, the article references the Nash equilibrium and the "win-stay lose-shift" strategy.
Invasive Pythons Put Squeeze on Everglades' Animals:	This informational text resource is intended to support reading in the content area. This interesting article about Burmese pythons in the Everglades showcases the effect one invasive species has on a local ecosystem and habitat. This is a great way to discuss invasive species in the classroom and explore the causes and effects on biodiversity.

How Tumbleweeds Spread Radiation from Old Nuclear Sites:	This informational text resource is intended to support reading in the content area. The article describes how radioactive materials can be spread by biological vectors, such as tumbleweeds and rabbits, from decommissioned nuclear sites and nuclear waste storage facilities.
International Research Team Close Human Evolution Gap with Discovery of 1.4 Million-Year-Old Fossil :	This informational text resource is intended to support reading in the content area. Scientists discover a fossil which dates back 1.42 million years and shows the development of a bone not found in human fossils prior to this date.
How Plants Evolved to Cope with Cold:	This informational text is intended to support reading in the content area. The article reports on recent research into the evolution of plants in cold climates.
New GPM Video Dissects the Anatomy of a Raindrop :	This informational text resource is intended to support reading in the content area. This article by NASA explains the physical reasons why the shape of a raindrop is more bun-shaped than tear-shaped.
The Sloth's Busy Inner Life:	This informational text resource is intended to support reading in the content area. The article is about how scientists sought to understand why some sloths descend from trees, risking their lives, to defecate on the ground. Their research results suggest that the behavior is to increase the benefit gained from the sloth's mutualists: moths and algae.
Introduction to Sedimentary Rock:	This informational text is intended to support reading in the content area. The article describes how sedimentary rocks are destroyed and created through the rock cycle via the processes of weathering, transportation, sorting, and deposition.
Cultured Beef: Do We Really Need a \$380,000 Burger Grown in Petri Dishes?:	This informational text resource is intended to support reading in the content area. The text describes the way scientists have created the first lab-grown meat and the possible implications of this new technology. An infographic and video are included that add significantly to the content.
Errors in the Movie "Jurassic Park":	This informational text resource is intended to support reading in the content area. A group of teachers asked for scientific comments on the film Jurassic Park. The article is an edited compilation of these responses--the paleontological, ecological, and biological "errors" found in the movie. The article attempts to correct many inaccuracies and misconceptions and demonstrates how scientists' backgrounds influence their interpretations.
Will Snakes Inherit the Earth?:	This informational text resource is intended to support reading in the content area. The author discusses the effects that invasive animals can have on an ecosystem. She initially writes about the Burmese python's effect on the Everglades and follows with the effects of other non-native species on native species. Finally, she exposes the reader to the debate about whether something should be done to control invasive species.
Tencent: China's Hottest Tech Company:	<p>The article describes a successful, China-based company, Tencent, and how the company's product strategy is different than similar U.S.-based companies. Additionally, the article briefly speaks on the challenges and benefits of being a business in China.</p> <p>This article is also aligned with CTE standards:</p> <ul style="list-style-type: none"> • IIT Standard 04.02: Explore and demonstrate an awareness of current trends in business and the employee's role in maintaining productive business environments in today's global workplace. • The International Business Program CTE Standard 26.03: Discuss the reasons why international business is important.
How the Ingenious Mushroom Creates Its Own Microclimate:	This informational text resource is intended to support reading in the content area. The article explains the mushroom's ability to make its own microclimate. Through convection caused by the release of water vapor, mushrooms can efficiently disperse spores.
Deforestation: Facts, Causes & Effects:	This informational text resource is intended to support reading in the content area. This article explains the causes and locations of deforestation and explores the environmental consequences that occur because of the practice.
What is the Difference Between Linux and Windows?:	This informational text resource is intended to support reading in the content area. This article describes the difference between Linux and Windows. This article aligns with IIT Standard 13.04: Explain the history and purpose of various operating systems (e.g., DOS, Windows, Mac, and Unix/Linux).
The Hidden World under Our Feet:	This informational text resource is intended to support reading in the content area. The article discusses the contribution that soil biodiversity has to the larger ecosystem. It addresses the consequences of the loss of soil biodiversity resulting from human activity.
Why Did Penguins Stop Flying? The Answer Is Evolutionary:	This informational text is intended to support reading in the content area. This news article describes evidence from a recent study of seabirds that may help explain why penguins lost the ability to fly.
Some Ducks Let Young Be Raised by Relatives:	This informational text resource is intended to support reading in the content area. This text is a news article describing three reproductive strategies of goldeneye ducks. The text provides evidence regarding the reasons for such behaviors and also notes how the hypotheses regarding them have changed over time.
Swine Flu Goes Global:	This informational text resource is intended to support reading in the content area. This article is about the swine flu. It explains where and how the virus originated, what countries it can be found in, facts about the virus, and whether a vaccine might be developed.
Fireworks!:	This informational text is intended to support reading in the content area. The article describes the composition and workings of fireworks. Details are also given as to how the colors, lights, sounds and propulsion are produced by fireworks' components.
Life's Little Essential:	This informational text resource is intended to support reading in the content area. The article explains why water is so essential and the properties of water that make it critical for life on Earth.
Monster Sunspot Larger Than Jupiter Stars in Amazing Sun Photos:	This informational text resource is intended to support reading in the content area. This text describes a large sunspot on the sun. It also briefly mentions some characteristics of the sun as well as the effects of the sunspots on earth.
Probing Question: What is a Molecular Clock?:	This informational text resource is intended to support reading in the content area. The article explains what molecular clocks are and how they are used to calculate evolutionary divergence and other evolutionary events.
Seahorse Heads Have a 'No Wake Zone' That's Made for Catching Prey:	This informational text resource is intended to support reading in the content area. The article explains how seahorse heads are specialized to eliminate vibrations in the water, which might alert prey to their presence.

Explainer: The Difference Between Radioactivity and Radiation:	This informational text resource is intended to support reading in the content area. This text explains the difference between radioactivity (including radioactive decay, half-life, etc.) and radiation, and the connection between the two.
Skull Fossil Suggests Simpler Human Lineage:	This informational text resource is intended to support reading in the content area. This article discusses the discovery of "Skull 5" and the traits that have led scientists to the conclusion that early Homo was a more diverse genus than realized before.
What are the Differences between MS-DOS and Windows?:	This informational text resource is intended to support reading in the content area. This article explains the difference between MS-DOS and Windows.
New Housecat-Size Feline Species Discovered:	This informational text is intended to support reading in the content area. The article discusses how scientists have discovered a species of <i>Oncilla</i> (little tiger cats) in Northeastern Brazil, which are a genetically different species than those in the rest of South America.
How Lightning Strikes Erode Mountains:	This informational text resource is intended to support reading in the content area. This article explains how lightning impacts a mountain's shape and magnetic charge.
Cannibalistic Mantis Invades New Zealand, Eats Natives:	This informational text is intended to support reading in the content area. The article describes a species of invasive South African Mantis. These insects have invaded New Zealand and the female of the species makes a habit of eating males that try to mate with them. Scientist are trying to uncover the reason for this attraction to the invasive species.
The Real-Life Neuroscience Behind Zombies:	This informational text resource is intended to support reading in the content area. This text discusses the possible real-life brain disorders that could contribute to fictional zombie behavior. There is also a TED Talk video that explains these disorders further.
Pimp Your PowerPoint:	This informational text resource is intended to support reading in the content area. This text is an online article which gives suggestions to presenters on how to create a PowerPoint presentation that is not the same-old, boring list of bullets. This article is aligned with IIT Standard 03.0- Use technology to enhance the effectiveness of communication skills and Standard 03.01- Use database, spreadsheet, and presentation software, scheduling, and integrated software packages to enhance communication.
Easy Mobile Payments are Almost Here:	This informational text resource is intended to support reading in the content area. This text is about the emerging technology to use smart phones to pay for common purchases like meals, coffee, and transportation. Note: This article aligns with IIT Standard 21.03--Compare and contrast emerging technologies and describe how they impact business in the global marketplace (e.g., wireless, wireless web, cell phones, portables/handhelds, smart appliances, home networks, peer-to-peer, etc.).
Bacteria Learn New Trick:	This informational text resource is intended to support reading in the content area. This article shows how, through experimentation, bacteria evolve over a short period of time. The E.coli bacteria show the ability to eat a new food, citrate, after 13,000 generations of gene mutation.
Teen Reported to Police after Finding Security Hole in Website:	This informational text resource is intended to support reading in the content area. This is an article about a teenager who found a security hole in a web site so reported it as a good deed; however, he was then reported to the police. It also mentions others who have been in the same situation. Note: This article aligns with IIT Standard: 18.03-- Explain the emergence of a paperless society.
F-16 Accident Investigation Complete:	This informational text resource is intended to support reading in the content area. Investigators give their final conclusion of what caused an F-16 crash after making scientific observations.
Thermometers:	This informational text resource is intended to support reading in the content area. This text classifies the different types of thermometers, the history of each, and the advantages and disadvantages of each type.
Bacteria and Fungi Together: A Biofuel Dream Team?:	This informational text resource is intended to support reading in the content area. The text describes use of bacteria and fungi to share the process of changing cellulose in corn husks to isobutanol. In contrast to current methods of producing biofuels, this process requires a simple, one bioreactor process.
The Electromagnetic Spectrum:	This informational text resource is intended to support reading in the content area. The text explains the source of electromagnetic waves and surveys the types, including examples of each.
Noble Gas Molecule Discovered in Space:	This informational text resource is intended to support reading in the content area. The article discusses how the noble gas compound was discovered along with suggestions on how it might have formed and some of its properties.
In a Grain Of Golden Rice, A World of Controversy Over GMO Foods:	This informational text resource is intended to support reading in the content area. This text discusses the origins of, and controversy surrounding, Golden Rice, a genetically modified food that could potentially provide beta-carotene to millions in Africa and Asia.
Are There Mysterious Forces Lurking in Our Atoms and Galaxies?:	This informational text resource is intended to support reading in the content area. This article discusses a physicist's search for a new universal force, along with details regarding the four fundamental/universal forces (gravity, electromagnetism, strong nuclear force and weak nuclear force).
Slug-Inspired Glue Can Heal a Broken Heart:	This informational text is intended to support reading in the content area. The article describes a new glue, mimicking the sea slug, that can be used to mend heart defects.
New Problem Linked to 'Jet Lag':	This resource is intended to support reading in the content area. Scientists have discovered that when they disrupt waking and sleeping times in mice, their immune systems responded in a harmful way causing disease, asthma, allergies and maybe even immune disorders.
Tiles May Help Shrink Carbon Footprint by Harnessing Pedestrian Power:	This informational text resource is intended to support reading in the content area. The text describes the development of floor tiles that provide a green, alternative energy source. These tiles work on the principle that pressure (footsteps) generates an electric current from certain crystals in an application of the piezoelectric effect.
Incredible Technology: How to Bring Extinct Animals Back to Life:	This informational text resource is intended to support reading in the content area. The article discusses possible ways in which an extinct animal might be revived, as well as the potential consequences of de-extinction.
The Surprisingly Scientific Flash Behind the Fireworks:	This resource is intended to support reading in the content area. Chemists create pyrotechnics to give viewers the most spectacular fireworks show that they can by using basic chemistry concepts and physics. Readers of this article might be surprised to learn that conserving energy, preventing explosions, and cooling-down reactions are part of this process.
Fancy a Balloon Ride to the	This informational text is intended to support reading in the content area. The article describes a new mini spacecraft

Stratosphere?:	that allows individuals to rise peacefully by balloon into the stratosphere.
What is Chemiluminescence?:	This informational text resource is intended to support reading in the content area. The text defines chemiluminescence as an exothermic chemical process. It contrasts endothermic and exothermic reactions. To better understand chemiluminescence, the author compares the process to incandescence and gives examples of chemiluminescence in everyday life and in nature.
How Phase Change Materials Can Keep Your Coffee Hot:	This informational text resource is intended to support reading in the content area. The article discusses the concept of phase change materials (PCM) and how they can be used to maintain constant temperatures through application of the Law of Conservation of Energy and energy transfer.
The Story of Serendipity:	The article explains how some famous scientific discoveries that happened "by accident" more accurately resulted from scientific habits of mind, which allowed researchers to take full advantage of these serendipitous moments.
Graphene: The Next Wonder Material?:	This informational text resource is intended to support reading in the content area. The article places special attention on the properties of graphene and its future potential uses.
Snowflake Science: How it Snows for Days in the Arctic:	This informational text resource is intended to support reading in the content area. The purpose of this text is to explain how a conceptual model for snowfall in the Arctic is useful in explaining how snow falls for days on end in relatively clean atmospheric conditions.
Open-Cycle:	This informational text resource is intended to support reading in the content area. This text describes the open cycle method of converting the energy of warmed, surface seawater into electricity and the benefits of using this method.
Discovery of New Enzyme Could Yield Better Plants for Biofuel:	This informational text resource is intended to support reading in the content area. The text describes the discovery of a new gene that produces an enzyme that controls lignin production in plants. Withholding the gene results in less lignin in plants and makes it easier to extract sugars used in the production of biofuels.
What We Learned about Human Origins in 2013:	This informational text is intended to support reading in the content area. The article summarizes the gains in the understanding of hominid evolution to include comparative archaeology and biology, DNA and tool analysis.
Spider Webs More Effective at Snaring Electrically Charged Insects:	This informational text resource is intended to support reading in the content area. The text describes how negatively charged spider webs attract positively charged insects. The article includes a link to an optional video and two good pictures of insects interacting with spider webs. This resource also includes text-dependent questions.
The Lingering Clouds:	This informational text resource is intended to support reading in the content area. Pollution can cause thunderstorms to leave behind larger, deeper, and longer lasting clouds. This may have important effects on climate change.
X-ray 'Eyes':	This informational text resource is intended to support reading in the content area. Scientists have discovered that X-rays can be used to photograph the movement of atoms and molecules in chemical reactions (i.e., photosynthesis).
Clue to How the Circulatory System is Wired:	This informational text resource is intended to support reading in the content area. The text describes the discovery of an enzyme's role in blood vessel growth and development. The enzyme may be essential for advances in cancer research.
Oil Found in Gulf Beach Sand, Even after Cleanups:	This informational text is intended to support reading in the content area. This article discusses the unseen effects from the Gulf oil spill which lie beneath the surface of the "clean" sand along the Gulf Coast of the United States.
Tidal Energy:	This informational text resource is intended to support reading in the content area. The text proposes the advantages and disadvantages of three methods of converting tidal energy into electricity. The text includes links to outside information and key vocabulary words are highlighted with blue print.
Paintball: Chemistry Hits its Mark:	This informational text is intended to support reading in the content area. The article discusses how the concept of paintball originated and how it has changed into the sport of today. It also describes how the different states of matter are all present in the components of paintball.
Blood Made Suitable For All:	This informational text resource is intended to support reading in the content area. The text explains how blood is classified into types based on the presence of antigens. It describes a process whereby antigens can be removed by an enzyme to make all blood types the same as the universal donor.
Animal Cells Can Communicate by Reaching Out and Touching, UCSF Team Discovers:	This resource is intended to support reading in the content area. Scientists have discovered that animal cells can communicate by sending out thin tubes of cytoplasm called cytonemes that extend across many cells to reach a cell that will receive the signal, much like neuron communication.
Do Diamonds Really Come from Coal?:	This resource is intended to support reading in the content area. This article debunks a popular Superman myth. Even though diamonds and coal are both different forms of carbon, and pressure is a key part of turning carbon into diamonds, the author explains why Superman cannot crush coal to make diamonds. The article goes on to explain how diamonds are actually formed.
Illuminating the Perils of Pollution, Nature's Way:	This informational text resource is intended to support reading in the content area. This article explores the work of Dr. Edith Widder in researching animals that make light. Specifically, she has found a way to use bioluminescence to fight pollution in the Indian River Lagoon.
How Sinkholes Form:	This informational text is intended to support reading in the content area. This article discusses how sinkholes form, ways to recognize impending sinkholes, and ways to prevent them.
Threatened Coral Get Fishy Rescue:	This informational text resource is intended to support reading in the content area. This article describes an experiment that was done by scientists to show how corals are being destroyed by a certain type of seaweed and how goby fish rescue the coral.
Meet the Oldest Member of the Human Family:	This informational text is intended to support reading in the content area. This article from Scientific American describes a fossil skull of a new genus and species of hominid thought to be 7 million years old, which was found in central Africa.
A Century of Melaleuca Invasion in South Florida:	This informational text is intended to support reading in the content area. This article deals with the invasive exotic species of tree known as melaleuca, which is mainly an issue in Southern Florida and Everglades National Park.
New Fossils Reveal Older Human Ancestor:	This informational text resource is intended to support reading in the content area. This text is about the finding of a hominid fossil that is 1.5 million years older than other hominid fossils found to date.
	This informational text resource is intended to support reading in the content area. The article presents experimental

[Climate Change Affects Forest Floor Ecosystem:](#) results from an investigation of how the amount of rainfall, predicted by climate change models, affects fungal decomposition on the forest floor. It discusses how spiders, springtails, and fungi form an important part of the nutrient-cycling food web in a forest ecosystem and how decomposition rates are influenced by precipitation in unique ways.

Tutorial

Name	Description
Infectious Evidence:	Click "View Site" to open a full-screen version. This tutorial is designed to help secondary science teachers learn how to integrate literacy skills within their science curriculum. This tutorial focuses on using specific textual evidence to support students' responses as they analyze science texts. The focus on literacy across content areas is designed to help students independently build knowledge in different disciplines through reading and writing.

Student Resources

Original Student Tutorials

Name	Description
Drones and Glaciers: Eyes in the Sky (Part 2 of 4):	Learn how to identify the central idea and key details of a text, as well as how to write an effective summary in this interactive tutorial. This tutorial is the second tutorial in a four-part series that examines how scientists are using drones to explore glaciers in Peru. This tutorial is part 1 of a four-part series. Click below to open the other tutorials in this series. <ul style="list-style-type: none"> • Drones and Glaciers: Eyes in the Sky (Part 1) • Drones and Glaciers: Eyes in the Sky (Part 2) • Expository Writing: Eyes in the Sky (Part 3) • Expository Writing: Eyes in the Sky (Part 4)
Drones and Glaciers: Eyes in the Sky (Part 1 of 4):	Learn about how researchers are using drones, also called unmanned aerial vehicles or UAVs, to study glaciers in Peru. In this interactive tutorial you will practice citing text evidence when answering questions about a text. This tutorial is part 1 of a four-part series. Click below to open the other tutorials in this series. <ul style="list-style-type: none"> • Drones and Glaciers: Eyes in the Sky (Part 1) • Drones and Glaciers: Eyes in the Sky (Part 2) • Expository Writing: Eyes in the Sky (Part 3) • Expository Writing: Eyes in the Sky (Part 4)
The Mystery of Muscle Cell Metabolism:	Explore the mystery of muscle cell metabolism and how cells are able to meet the need for a constant supply of energy. In this interactive tutorial, you'll identify the basic structure of adenosine triphosphate (ATP), explain how ATP's structure is related to its job in the cell, and connect this role to energy transfers in living things.
Diving the Depths of Underwater Life:	Learn how the distribution of aquatic life forms is affected by light, temperature, and salinity with this interactive tutorial.