BEARCAT DAY 7

GRADE 8
ANDERSON COUNTY SCHOOLS

ANDERSON COUNTY MIDDLE SCHOOL

8TH GRADE BEARCAT DAY 7

LANGUAGE ARTS	SCIENTIFIC AND TECHNICAL TEXTS REVIEW Please go to your Language Arts Google Classroom. Click on the Bearcat Days/NII Days Assignment to enter answers for all of your Language Arts Bearcat Days (NII Days) each day. If you cannot send your Language Arts answers electronically each day, write your answers on notebook paper and bring to school at your earliest convenience. AC staff members will be reaching out to you multiple times a week. Don't hesitate to contact us with questions!
MATH	USING SCIENTIFIC NOTATION REVIEW Read through the Bearcat Day 7 Lesson. Work through the practice problems in the lesson. After completing the lesson, complete the Bearcat Day 7 Google Form that goes with the lesson. This Google Form will be graded and entered into the grade book. Please give your best effort! We have included a Khan Academy video to help you with the content if you are struggling. If you cannot complete the assignment electronically, complete it on notebook paper and return it to the school
SCIENCE	FOSSILS AND SPECIATION Students should complete the assignment in their science class' Google Classroom.
SOCIAL STUDIES	SLAVERY Students should complete the assignment in their social studies' class' Google Classroom. Read the passage. Answer the questions in COMPLETE sentences, restating the questions. Cite line/paragraph from passage.
PE/HEALTH	DREAM JOBS: PATHOLOGIST Students should read the article and answer the questions in Mrs. Wells' Google Classroom.
CAREERS	Dream Jobs: Wildlife Biologist Let's explore some COOL JOBS! Read the article and answer the questions in Mrs. Beasley's Google Classroom.

LESSON 8

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RI.8.4, RI.8.5, RI.8.6, RI.8.7, L.8.6, RST.6–8.1, RST.6–8.2, RST.6–8.3, RST.6–8.4, RST.6–8.5, RST.6–8.6, RST.6–8.7, RST.6–8.8, RST.6–8.9, RST.6–8.10

Scientific and Technical Texts

1 GETTING THE IDEA

Two common nonfiction text types are scientific texts and technical texts. A **scientific text** is an article, textbook, or experiment related to any aspect of science. It may be about a broad field of study, such as biology or astronomy, or a more specific concept, such as volume or mass. A **technical text** provides highly detailed information on a specific topic. It may explain how something works or how to do something. User manuals, how-to guides, instructions, and cookbooks are technical texts.

Structure

By the very nature of their content, scientific and technical texts contain a lot of information. To organize these facts and details, authors use a variety of text structures to make the information easier to understand, follow, and remember.

- A **sequence** structure (often called **chronological order**) presents ideas and concepts in the order in which they happen. The structure may use time-order words and transitions, or it may show a **process** with numbered steps. When the text explains a procedure or gives instructions, it is important to follow the steps in order. Underline the transitions in this sample. Then, number the steps in the order in which you would complete them.

> Once you know that you need to restart the computer, quit all open programs. Then, use a menu item or keyboard button to shut down the computer. After the computer has shut down, wait at least fifteen seconds before restarting the computer.

- A **spatial** structure describes things in terms of where they are and the space they occupy. It uses location words such as *top*, *bottom*, *front*, *back*, *north*, and *west*, as in the example below.

> About 750 different kinds of trees grow in North America. In the Northeast, some common trees are the locust, maple, and oak. The amazing redwoods and sequoias, however, grow well only in the Northwest.

- A **whole-to-part** structure begins with a topic sentence or a general concept—the "whole." Facts and details, the "parts," explain and support the idea or concept. This structure is also called **general to specific**.

> The water cycle is the ongoing movement of water on, over, and below Earth's surface. Water moves through the cycle in one of three forms—liquid, solid, gas. Three repeating processes make the water cycle possible: precipitation, evaporation, and condensation.

- A **part-to-whole** structure is the reverse of a whole-to-part structure. Compare the paragraph about the water cycle below to the structure of the whole-to-part paragraph above.

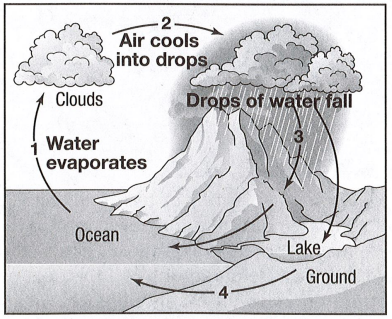
> Last week, a thunderstorm left puddles of water on the streets. During the week, those same puddles vanished under the warm sun. Today, clouds have gathered in the sky and there is a threat of rain. These events illustrate the process known as the water cycle—the continuous movement of water on, over, and below Earth's surface.

Graphic Features

A **graphic feature** is an image that helps you visualize information. Some graphic features clarify the meaning of the text. Others, such as graphs and tables, show a lot of information in a compact way. A **graph** uses bars or lines to visually compare and contrast facts, while a **table** arranges information in rows and columns. Additional graphics common to scientific and technical texts are listed below.

- A **diagram** is a drawing that shows the parts of something or how something works. How does this diagram illustrate the sample paragraphs about the water cycle?

The Water Cycle



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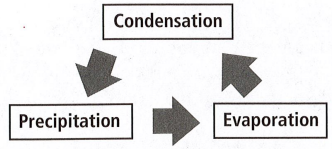
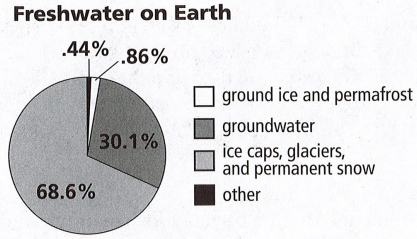
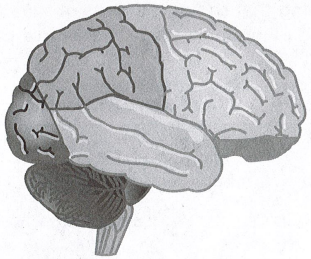
- A **flowchart** shows steps in a process or how things relate, by using arrows, connecting lines, or other symbols. For example, the water cycle might be illustrated like this:



- A **circle graph** or a **pie chart** quickly shows the parts of a whole. This graph shows at a glance the makeup of Earth's freshwater sources.



- A **model** is a picture or object that represents a real-life object. Some models, such as this cross-section of the brain, help readers see and examine something that is not normally seen.



Author's Purpose and Point of View

An author's purpose for writing a scientific or technical text is to inform. Most scientific and technical texts are neutral in **tone** and approach topics in an objective way. Differences in tone may depend on an author's like or dislike of a topic or on the author's intended audience. The paragraphs on the next page, for example, show the same content presented to different audiences. Which one is intended for young readers?

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Paragraph 1: Scientists classify, or group, living things to make them easier to study. The largest groups are called kingdoms. Animals make up one kingdom. Plants make up another kingdom.

Paragraph 2: Classification hierarchy is a system scientists use to organize Earth's organisms into groups. Kingdoms are at the top of this hierarchy. Within a kingdom, organisms are classified into smaller levels by phylum, class, order, family, genus, and species.

Although scientific and technical texts are usually objective, they may contain examples of speculation and reasoned judgment. **Speculation** is a guess about something that is unknown. It may be based on fact or logic, but it has not yet been tested. For example, many scientists speculate that life exists on other planets. Though this idea is based on logic and probability, it will remain a speculation until more evidence is uncovered to support or disprove it.

Reasoned judgment is a logical conclusion based on facts and accepted standards. For example, after study and observation, one might say: "The steeper a ramp is, the farther a ball will travel when it rolls off the bottom of the ramp." However, a reasoned judgment can be disputed because the outcome may change when other factors, such as the surface material a ball rolls on after leaving the ramp, are introduced. As you read, make sure you do not misinterpret speculation and reasoned judgment as fact.

Language Spotlight • Domain-Specific Vocabulary: Scientific and Technical Texts

Scientific and technical texts contain specific vocabulary or symbols that have precise meanings for its domain, or area of study. Sometimes, a word has a common meaning that is different from its scientific or technical meaning. Use context clues, explanations, footnotes, and a glossary to clarify the meaning of domain-specific words.

For example, the word energy in the sample below has a specific meaning in physics. Find other words in the paragraph that are domain specific and circle them. If necessary, use a dictionary to clarify their meaning.

> A rock resting on a hill might not look energetic, but it is. In physics, energy means "the ability to do work." The rock at rest has potential energy, or stored energy. It remains at rest until a force, such as gravity or a push or pull, acts against it. As the rock rolls down the hill, the potential energy becomes kinetic energy, the energy of motion. The rolling rock gains speed and kinetic energy until another force, such as gravity or friction, stops it.

Read the passage.

Try It: Roller Coaster Design

The Challenge

Riding a roller coaster can be thrilling, scary, and fun. The exciting drops, loops, and turns are based on scientific principles—gravity, energy, friction, and more. You can explore these concepts by building and testing a model roller coaster. Try this challenge: If a roller coaster has a loop of a certain size, what minimum height for a hill is needed so that a marble will circle the loop? That is, can you find the shortest hill that will still allow a marble to complete the loop?

Planning

- **Time:** 60 minutes
- **Materials:** foam pipe insulation, glass marbles, utility knife or sharp scissors (with teacher supervision), heavy-duty tape, ruler or yardstick, heavy-duty gloves (recommended)
- **Safety Notes:** Utility knives and scissors are sharp. When using them, take precautions such as wearing heavy-duty gloves.

Background

The first hill of a roller coaster ride is always the tallest. The momentum gained in the first downward descent propels cars up the next hill. Cars move fastest at the bottoms of hills and slowest at the tops. When roller coasters have loops, cars must have enough speed to reach the top of a loop and begin another downward descent rather than falling backward.

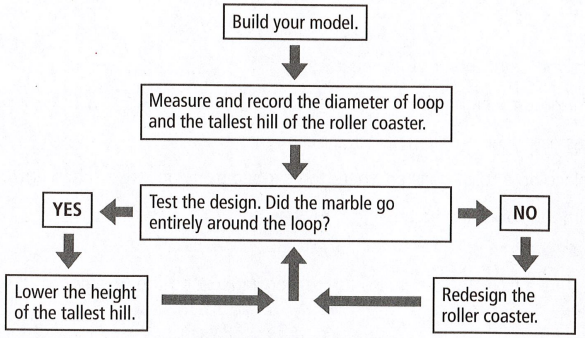
In this experiment, you will calculate the diameter (length of the straight line that passes through the center) of loops in a model roller coaster. Then, you will figure out the number and height of hills needed for an object to successfully pass through the loop(s).

Before the Activity

1. With a partner or small group, discuss a roller coaster design. Consider the following:
   - What will be the diameter of the first loop?
   - If you include a second loop, what should its diameter be? Why?
   - How many hills should the design have? How tall will they be?
   - Where will the loop(s) and hill(s) be located?
2. Draw the design.
3. Cut the foam insulation in half lengthwise to use as the track.

During the Activity

Follow the steps in the flowchart to complete the activity.



Here is a sample recording sheet (yours might be different):

Scientists: Anna, Boris, Cameron		
Loop Diameter: 18 inches		
Run	**Hill Height (inches)**	**Loop Completed?**
1	12	no
2		
3		

After the Activity

1. Draw conclusions from the results. What minimum hill height was needed to make the marble go around the loop?
2. Present your results. Write a report, make a poster, or find another way to show what you found.

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Answer the following questions.

1 Read all parts of the question before responding.

Part A

What does the word momentum mean?

A. the maximum height of a roller coaster ride

B. the fastest speed a roller coaster car can reach

C. the place on a roller coaster where the car begins its downward descent

D. the amount of motion a moving body has

Part B

Which sentence from the text helps the reader understand the meaning of the word momentum?

A. If a roller coaster has a loop of a certain size, what minimum height for a hill is needed so that a marble will circle the loop?

B. The first hill of a roller coaster ride is always the tallest.

C. Cars move fastest at the bottoms of hills and slowest at the tops.

D. When roller coasters have loops, cars must have enough speed to reach the top of a loop and begin another downward descent rather than falling backward.

Hint Look for a phrase or sentence near the word *momentum* that gives an explanation or provides context clues that explain its meaning.

2 What is the author's purpose for including the section called "Background"?

Write your answers on the lines provided.

Hint Reread the section and identify its main idea. How is this information useful for starting the activity?

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3 The following question has two parts. First, answer Part A. Then, answer Part B.

Part A

During the activity, which step happens immediately **after** measuring and recording the diameter of the loop and the height of the hill?

A. Build the model.

B. Test the design.

C. Redesign the model.

D. Lower the height of the hill.

Part B

How does the flowchart indicate which step follows measuring and recording?

A. An arrow points from the box above into the measuring/recording step.

B. An arrow points from the measuring/recording step to the box below.

C. Arrows point to boxes for both Yes and No.

D. One arrow points back to the "Test the Design" step.

Hint The boxes in the flowchart are connected by arrows. Follow the direction of the arrows to get from one step to the next.

4 Experiments use a sequence structure. Which of the following devices does the author use to convey sequence in this experiment? Choose **all** that apply.

A. numbered steps

B. graphic feature

C. a table

D. section headings

E. a list of materials

Hint A sequence structure has events or steps organized in order. Any text feature or text element that helps the reader follow those steps is a device that conveys sequence.

Grade 8 Day 7 Math

Unit: Exponents and Scientific Notation
Student Handout 5

Notes

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SCIENTIFIC NOTATION

SCIENTIFIC NOTATION

- Scientific notation is a shorthand way of writing really large or really small numbers.
- Scientific notation is written as a product of two numbers:
  -The first number must be between 1 and 10
  -The second number must be a power of 10

CONVERTING STANDARD TO SCIENTIFIC

1. Create a number between 1 and 10 by moving the decimal.
2. Count the number of times that you moved the decimal. This number will be your power of 10.
3. If your number is greater than one, the exponent will be positive.
4. If your number is less than one (like a decimal), the exponent will be negative.

Complete the following problems.

1. Convert the number to scientific notation. 1,850,000 1.85×10^6	2. Convert the number to scientific notation. 42,000 4.2×10^4
3. Convert the number to scientific notation. 0.007826 7.826×10^{-3}	4. Convert the number to scientific notation. 0.00001 1×10^{-5}

9a

Grade 8 Day 7 Math

Unit: Exponents and Scientific Notation
Homework 4

Practice Set

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SCIENTIFIC NOTATION

Calvin practiced converting standard notation to scientific notation by completing the 10 problems in the table shown. Unfortunately, his teacher noticed Calvin made mistakes on 7 out of the 10 problems. Find his mistakes and correct them in the second table below.

STANDARD NOTATION	SCIENTIFIC NOTATION
1) 76,450,000	7.645×10^8
2) 0.000327	3.27×10^4
3) 34,000	3.4×10^4
4) 116,000,000,000	1.16×10^9
5) 0.024	24×10^{-2}
6) 2,800	2.8×10^3
7) 100	1×10^3
8) 0.0000099	9.9×10^{-6}
9) 900,000	9×10^{-5}
10) 0.00633	63.3×10^{-3}

PROBLEM	EXPLAIN CALVIN'S MISTAKE	CORRECTED ANSWER (SCIENTIFIC NOTATION)

10.

p1of4

Chapter 7 • Lesson 36

Fossils and Speciation

Key Words • fossil • radioisotope dating • relative dating • extinction • mass extinction • biodiversity • speciation • gene flow • geographic isolation • reproductive isolation • adaptive radiation • gradualism • punctuated equilibrium

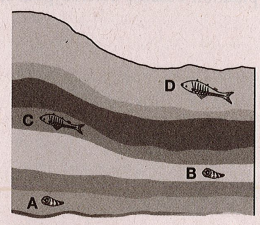
Getting the Idea

Natural selection explains how populations and species can change over time. What has happened to species that once existed? How do new species come about? This lesson explains how species die out and new species form.

Fossil Evidence of Evolution

Much of the evidence for changes in life on Earth comes from **fossils**, the preserved remains or traces of organisms that lived in the past. Fossils also provide clues about when different species lived. Scientists can estimate the age of a fossil through radioisotope dating or through relative dating. **Radioisotope dating** measures the age of a fossil (or the surrounding material) by measuring the amount of a radioactive isotope present in the material. That amount is compared with the amount of the isotope's decay product or with the amount of a stable isotope of the same element. (Radioactive decay is discussed in Lesson 7.) The decay process happens at predictable rates, so radioisotope dating allows scientists to determine age within a certain number of years. Uranium-235 and carbon-14 are two commonly used isotopes.

Relative dating is another, less exact method for determining when a fossil organism formed. This method identifies the age of a fossil by comparing it to other fossils. Earth's surface consists of layers of different types of rock. In undisturbed layers, the newest layer is the one closet to the surface, while older rock layers are deeper. Scientists can compare the rock layers with the fossils they contain to determine the approximate age of a fossil. For example, the diagram below shows fossils in undisturbed layers of sedimentary rock. The fossil shown in Layer B of the illustration is older than the rocks and fossils in the shallower rock layers (C and D), and younger than the rocks and fossils below it (Layer A). Other fossils found elsewhere in Layer B are about the same age.



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Loss of Species through Extinction

Species that cannot adapt to a changing environment may die out, or become extinct. **Extinction** is the permanent loss of a species. Some scientists estimate that as many as 99.9 percent of all species that have ever lived on Earth are now extinct. Although extinction is the end of the existence of a species, it is an important part of evolution.

A **mass extinction** is the extinction of very large numbers of species in a fairly short period. The fossil record shows that Earth's history has undergone several mass extinctions. At the end of the Permian period, about 250 million years ago, about 96 percent of all ocean invertebrates became extinct. Fossils of these animals do not appear in rock younger than this. Another mass extinction marked the end of the Cretaceous period, about 65 million years ago, when between 60 and 75 percent of ocean species became extinct. Dinosaurs, the dominant land animals, also became extinct during this period.

Biodiversity and Speciation

Although mass extinctions can be extremely destructive, in the long term they help increase Earth's biodiversity. **Biodiversity** is the variety of organisms living on Earth or in a specific area, as indicated by the number of species. The extinction of many species at the same time makes it possible for new species to develop and thrive. For example, the extinction of the dinosaurs allowed mammal species to flourish and diversify. The formation of one or more new species from an existing species is called **speciation**. According to the fossil record, there are periods in which a lot of speciation occurs, and others in which it is relatively rare.

Recall that a species is a group of organisms that can breed and produce fertile offspring. A new species can form when one population is isolated in some way from the rest of the species. Each population has its own gene pool, or set of alleles. **Gene flow**, the exchange of alleles between gene pools, occurs when members of different populations breed and produce offspring. A population becomes isolated when gene flow between it and other populations is blocked. The population's gene pool can change independently of the rest of the species, making the population different. Eventually, the differences can prevent organisms from being able to breed with members outside the population.

One type of isolation is **geographic isolation**, meaning that a physical barrier prevents members of a population from breeding with individuals outside the population. Physical barriers can result from natural changes to the land, such as earthquakes or flooding, or from changes caused by humans, such as building a highway through an area.

A second type of isolation is **reproductive isolation**. This happens when some members of a population do not breed with other members. For example, frogs breed at a certain time each year. If some members of a frog population breed earlier than usual each year, they prevent gene flow outside this early-breeding group. Eventually, the early breeders may form a new species. Or consider an insect species that breeds and lays eggs on a particular tree species. If some of the insects begin to breed on a different species of tree, they will form a distinct breeding population. Reproductive isolation happens as a result of geographic isolation, but it can also occur in organisms inhabiting the same area.

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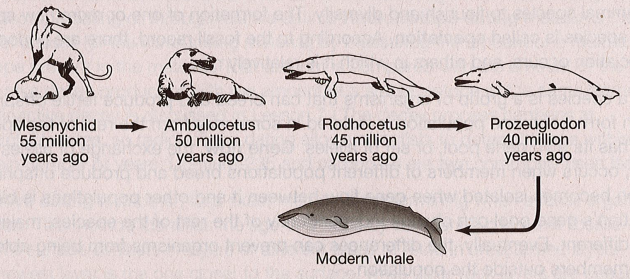
Speciation events can result from the extinction of competing species or from the sudden availability of new food sources and habitats. For example, recall that the extinction of dinosaurs allowed mammal species to diversify. Different mammal populations adapted in different ways to this change, and the number of mammal species increased rapidly. The evolution of many new species from a single ancestor is called an **adaptive radiation**. In the Galápagos Islands visited by Darwin, many species of finches formed after a few members of one species arrived on the islands from the mainland. The new environments, along with the geographic isolation of each island, allowed the adaptive radiation of the original finch species into the multiple species found there today.

Changes in Species

Organizing similar fossils by age helps scientists understand how species have changed through time. Although only some species form fossils, scientists have found some *transition fossils* that show the changes in traits as species evolve. One group of organisms for which transition fossils are known is whales. Modern whales live in the ocean, but their history goes back to hoofed mammals that lived on land. Fossils show that the ancestors of whales walked on land and could also swim. Later fossils suggest that over time, the hind limbs of the whales' ancestors shrank. Their forelimbs became flippers, and they evolved a powerful tail-like fluke.



The illustration shows one possible sequence of stages in the evolution of modern whales. However, it is important to understand that species do not just form, one from another, in a straight line. The pattern of speciation is more like a branching tree. Millions of species that exist today are descended from one ancestral species. In the next lesson, you will learn more about how organisms are related to each other.

Rates of Evolution

There are two main views about the rate of evolution: gradualism and punctuated equilibrium. **Gradualism** is the idea that evolutionary change occurs slowly and steadily over a long period of time. This is how Darwin thought natural selection worked. In contrast, **punctuated equilibrium** states that evolution occurs in spurts. A period of rapid speciation will be followed by a long period of little or no change. The periods of rapid change may occur because of drastic, sudden changes in the environment.

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Discussion Question

Why is it difficult to tell whether a fossil is the direct ancestor of a living organism?

Lesson Review

1. Which of these can scientists learn from relative dating of fossils?
   - **A.** the exact age of a fossil
   - **B.** the age of an organism when it died
   - **C.** the age of a fossil compared to that of another fossil
   - **D.** the exact age of a rock layer

2. How does isolation lead to a population becoming a new species?
   - **A.** It increases gene flow in and out of the population.
   - **B.** It decreases gene flow in and out of the population.
   - **C.** It increases the genetic variation within the population.
   - **D.** It decreases the genetic variation within the population.

3. How can mass extinction lead to an increase in biodiversity?
   - **A.** It can prevent the flow of alleles between different species.
   - **B.** It can allow surviving species to undergo adaptive radiations.
   - **C.** It can increase gene flow between populations of surviving species.
   - **D.** It can reduce the ways that species can adapt and survive in the environment.

4. Which of the following involves periods of rapid speciation and periods of relatively little change in species?
   - **A.** gradualism
   - **B.** mass extinction
   - **C.** reproductive isolation
   - **D.** punctuated equilibrium

Grade 8 Day 7 Social studies P 1 of

Schomburg Center for Research in Black Culture, The New York Public Library

Left: This engraving from *Harper's Weekly* shows enslaved African Americans on a plantation. Right: Enslaved people were held and sold in this building.

Slavery

The issue that most divided North and South was slavery. By 1860, there were about four million enslaved people who lived in the South.

African Americans who escaped from slavery told about hard work, cruel treatment, pain—and a longing for freedom.

Living Conditions

Some enslaved people lived in cities or on small farms. But most of them lived on large plantations. Enslaved people were put to work early in life. Enslaved children as young as six years old worked in the fields, carrying water. They continued to work throughout their lives until they were too old to do so.

Enslaved people depended on their owners for food, clothing, and a place to live. The food was usually the same week after week. Their meals were usually made up of cornbread and bacon or salt pork. Some enslaved people were allowed to raise vegetables in small gardens. Others trapped raccoons or opossums for meat.

Clothes for enslaved people rarely fit. Men and women were given the same kind of shoes. They complained that their shoes made their feet burn and blister in the summer. In the winter, the shoes became stiff from the cold.

Daily Life

Most enslaved families lived in crowded one-room cabins, or "slave quarters." The cabins often had no windows. A bell woke people at four o'clock in the morning. Thirty minutes later, they were on their way to the fields. Another bell rang in the afternoon, signaling a short break for lunch. After lunch, the work began again and went on until it was too dark to see.

Men, women, and children worked in the fields together. Trees had to be cut and fields plowed. Crops had to be planted, weeded, and harvested.

After leaving the fields, enslaved people still had work to do. Animals were fed. Wood was chopped. Often, it was midnight before they ate their supper and lay down to sleep. All too soon, the morning bell rang again.

Not all enslaved people worked in the fields. Some were house servants. Others worked as carpenters or dressmakers. Whatever their work, most worked from dawn to darkness. Only on Sunday could they rest.

Looking Back

1. What were living conditions like for most enslaved people?
2. What daily schedule did most enslaved people have to follow?

NEWSELA Grade 8 Day 7 Health & PE Health & P.E.

Dream Jobs: Pathologist p 1 of 5

By Mark Tran, The Guardian, adapted by Newsela staff on 10.19.16
Word Count **692**

A pathologist looking through a microscope. Getty Images

Stephen Abbs is a pathologist, or someone who studies bodily fluids and tissues. He is head of a molecular genetics laboratory in London, and leads a team of scientists specializing in genes. He and his co-workers spend their time extracting DNA from blood samples. DNA is the blueprint of human life. It carries information about who we are, what we look like and what diseases we might get.

The labs and offices are full of people looking closely at computer screens. They have 90,000 DNA samples. Some of the samples go back 20 years, and some are from people who are now dead. The samples are kept in tubes the size of a thumb. They sit on trays and are stored at below-freezing temperatures.

Most Of The Work Benefits Living Patients

Many people believe pathology is the study of dead bodies and organs. However, most of the work that pathologists do benefits living patients.

Every time someone has a blood test or a lump removed, it is a pathologist who looks at the material to determine if the patient has a disease. While few pathologists see patients directly, they provide the information doctors need to identify a problem and decide on treatment. Not all pathologists are doctors. Most are scientists.

Abbs Specializes In Clinical Muscular Genetics

Abbs, 46, specializes in clinical molecular genetics. This means he studies DNA. Sometimes, there are changes to DNA and a patient develops a disease. Abbs is especially interested in a disease called muscular dystrophy. It is an inherited condition that causes muscles to weaken over time. There is no cure, but molecular geneticists can still help these patients and others.

First, they can confirm the presence of the disease and tell the patient which kind of muscular dystrophy they have. This helps to determine their treatment.

Second, they can test a person's DNA to see if they are at risk for a disease. If so, patients can make medical decisions about their future.

Third, pregnant women can be tested to see if their fetuses might be abnormal or carry harmful DNA. If they do, parents must decide whether to continue with the pregnancy.

Pathologists Talk To Doctors, Doctors Talk To Patients

An important part of the work is the use of clear, direct language to pass on information. Pathologists talk to doctors, and then doctors talk to patients. A pathologist's report must be written clearly and be simple to understand.

Many people believe that molecular geneticists spend their days peering at DNA cells through microscopes. This is not true. When blood samples arrive, the DNA is pulled out by a DNA extraction machine. The special machine is the size of a small coffeemaker. It separates different parts of the blood and pulls out the DNA. The DNA contains a person's genes. A tiny amount is taken for testing.

It is true that thousands of DNA samples are kept for a long time in big refrigerators, even from people who have died. This is because relatives might someday want to have the DNA tested. Perhaps they want to see if they are at risk for a disease, or see if their children might be. All patients must agree to let their DNA be used by relatives.

Work Is Not Glamorous Like TV

There are currently several TV shows that feature pathologists working to help solve crimes. Their work is made to look glamorous. Abbs says a forensic pathologist recently told him that the work was actually quite repetitive and boring.

Abbs replied that "some of the work is boring and repetitive here, as well, but we have

Job Stats

Pay: A clinical scientist after four years of college and extra training starts at £25,000 ($31,000) and can climb to £90,000 ($114,000).

Hours: Abbs starts at 7:30 a.m. and leaves early. He works a usual 37.5-hour week, Monday to Friday, but most people work longer hours.

Work-life balance: Abbs is able to work flexible hours.

Highs: Bringing in new technology successfully. This means Abbs can better help patients.

Lows: "When we confirm a disease such as muscular dystrophy. That really hits you."

Quiz

1 What is the main idea of the section "Most Of The Work Benefits Living Patients"?

(A) Pathology is mainly the study of dead bodies and organs.

(B) Some pathologists help living people, but many do not.

(C) Pathologists help living patients by studying blood or lumps for diseases.

(D) Pathologists help living patients by working with patients directly to cure diseases.

2 Which selection from the text BEST summarizes a main idea of the article?

(A) DNA is the blueprint of human life. It carries information about who we are, what we look like and what diseases we might get.

(B) While few pathologists see patients directly, they provide the information doctors need to identify a problem and decide on treatment.

(C) Many people believe that molecular geneticists spend their days peering at DNA cells through microscopes.

(D) Abbs says a forensic pathologist recently told him that the work was actually quite repetitive and boring.

3 Read the following sentence from the section "Abbs Specializes In Clinical Muscular Genetics."

Third, pregnant women can be tested to see if their fetuses might be abnormal or carry harmful DNA.

Which word from the text helps the reader understand the meaning of fetuses?

(A) pregnant

(B) woman

(C) tested

(D) abnormal

4 Read the following sentence from the section "Work Is Not Glamorous Like TV."

Abbs says a forensic pathologist recently told him that the work was actually quite repetitive and boring.

Which word would BEST replace the world "repetitive" above?

(A) exciting

(B) routine

(C) dangerous

(D) meaningful

5. Write a short paragraph that explains the central idea of the article. Use at least 2 details from the article to support your response.

Dream Jobs: Wildlife Biologist

By National Geographic, adapted by Newsela staff on 10.13.17
Word Count **838**
Level **950L**

Wildlife biologists work with animals like the lion in this photo. Sergio Silva, who is not pictured, also works on big cat conservation efforts. Photo by AP

Sergio Silva is a wildlife biologist with Sky Island Alliance (SIA). The organization protects and restores native species and habitats in the southwestern United States and northwestern Mexico.

Early Work

Silva was born in Mexico City and raised in Mexico's Zacatecas state. Both of his parents are doctors, and they helped Sergio and his brother develop an appreciation of nature and geography.

"We spent a lot of time outdoors, and I grew up feeling a connection with the land," Silva says. "From a young age, I loved animals, especially predators, and cats were the group I most preferred. I used to dream that I had a lion."

High school was a turning point for Silva. "I had a teacher who made me see I could expand my interest in nature by studying science."

Silva received a degree in biology from the University of Aguascalientes. Biology is the study of living organisms. Silva then spent nearly a year living with the Tarahumara people in Chihuahua, Mexico. He studied the local wildlife in order to help protect the area from the effects of logging.

"I learned more about biology in that time than I did in four years of college," he says. "I first learned about tracking there. The Tarahumara are master trackers. They can even track individual people and are able to point to footprints and say, 'That is my cousin.' They also taught me about the medicinal properties of specific plants."

Silva earned a master's degree from the University of Baja California. After completing a college degree, some students continue studying for a master's degree. A master's degree is needed for some careers.

What Is The Most Exciting Part Of Your Work?

Spotting or finding evidence of wildlife, especially species that are at risk, is the most exciting part of Silva's job, he says. In January 2010, the SIA photographed a jaguar 30 miles south of the border between the United States and Mexico. These were their first pictures of the animal in the region.

Silva also finds it exciting to see the results of specific projects. "It is so rewarding to visit areas that were damaged and see the return of the native landscape," Silva says.

What Is The Most Demanding Part Of Your Job?

Silva likes getting people to think beyond "Is it useful to me?" and "Should I be afraid of it?" when it comes to wildlife. He tries to help people see the value of protecting land and wildlife. "Newer generations know a lot," Silva says. "We have to teach what to do with that knowledge." Also, politicians must be convinced to support conservation efforts, because they make laws dealing with the environment, he says.

How Do You Define Geography?

Geography is the science of describing or showing the Earth and all its features, both living and not living, Silva says.

Geo-Connection

Silva is involved in conservation projects in the Madrean Archipelago in the southwestern U.S. and northern Mexico.

This article is available at 5 reading levels at https://newsela.com.

He monitors the presence of mammals, including big cats like mountain lions, ocelots and jaguars. This sort of research requires tracking skills. Silva needs to know what paw prints belong to what animal, how far animals travel, and what their preferred den or shelter is. Also necessary is knowing whether an animal is active during the day or at night. Silva works to protect, preserve and restore the cats' habitat in this ecosystem.

Silva must communicate with different groups of people on both sides of the border. He educates the public and enjoys talking to students and other groups about the area's southwestern sky islands and his organization's work.

Sky islands are not surrounded by water. They are mountains surrounded by valleys. The mountains are so isolated from each other that each mountain develops its own unique ecosystem, making it a sort of "island" rising from the valley.

Even though the area's sky islands cover a large geographic region, many people haven't heard of them.

As the northern Mexico program coordinator for SIA, Silva educates ranchers and farmers about the value of conservation and using the land in a sustainable way. "I do not tell them they should not ranch," Silva explains.

"It may be what has always been done and is part of the culture. I just provide information about the benefits of allowing land to return to its natural state. This can include financial benefits from ecotourism, such as a bird-watching group paying to visit the ranch."

How Do You Become A Wildlife Biologist?

Besides studying science, Silva suggests learning about conservation and the challenges surrounding it.

Silva tells would-be biologists to work hard. "You have to look for opportunities and go where the job takes you. Don't do something just because it may be convenient."

Quiz

1 Which section of the article highlights the idea that Silva is very prepared for his job?

(A) Introduction [paragraph 1]

(B) "Early Work"

(C) "Geo-Connection"

(D) "How Do You Become A Wildlife Biologist?"

2 The following sentence from the section "What Is The Most Exciting Part Of Your Work?" helps prove the claim that Silva values preserving nature.

"It is so rewarding to visit areas that were damaged and see the return of the native landscape," Silva says.

Which sentence from the article provides further support for this claim?

(A) Silva likes getting people to think beyond "Is it useful to me?" and "Should I be afraid of it?" when it comes to wildlife.

(B) He tries to help people see the value of protecting land and wildlife.

(C) He monitors the presence of mammals, including big cats like mountain lions, ocelots and jaguars.

(D) Silva must communicate with different groups of people on both sides of the border.

3 Read the section "Geo-Connection."

What does this section explain that others do NOT?

(A) the details of Silva's conservation work

(B) the most challenging parts of Silva's job

(C) how Silva got a job with SIA

(D) how Silva convinces politicians to support conservation

4 Read the selection from the section "Early Work."

High school was a turning point for Silva. "I had a teacher who made me see I could expand my interest in nature by studying science."

How does this selection contribute to the article as a whole?

(A) It provides an example of Silva's love for science.

(B) It explains why Silva loved animals.

(C) It describes what kind of student Silva was.

(D) It highlights Silva's early interest in wildlife.