PLANNED INSTRUCTION LESSON MATERIALS

6th Grade

DUE DATE: FRIDAY, MAY 22ND

Please complete the following materials by the due date noted above.

Completed materials may be dropped off at the school (1006 West 10th Street) during food distribution Tuesdays and Fridays from 10:00am – 12:00noon, or turned in when the next week's materials are delivered to your home.

If you need assistance in completing the attached materials, please reach out to your classroom teacher via email, the school's website or Facebook page, or Class Dojo. You may also call the school directly Monday – Friday from 9:30-5:30 at 814-520-6468

Mrs. Veronica Will, Principal 814 873-5158

Mr. Aubrey Favors, Interim CEO 814 812-3026

Pete vs. the Python

Some dogs track criminals. Other dogs sniff out quail. In Florida, National Park Service officials are training a beagle puppy, nicknamed "Python Pete," to locate 15-foot pythons.

Photos.com

"Python Pete" is being trained to track pythons, such as this one.

For years, Burmese pythons, which are not native to Florida, have been threatening to overrun Everglades National Park. Exotic pet owners introduced the reptiles to the region by dumping them in the forests of southern Florida.

The beasts have been multiplying quickly, eating native mangrove, fox squirrels, wood storks, and other wildlife. National Park Service officials removed 52 Burmese pythons from the park from the mid-1990s through 2003. In 2004, they captured 61 pythons.

That's where "Python Pete" comes in. The dog's owner, Lori Oberhofer, who works for the National Park Service, has been training Pete to track pythons and to bark when he spots one. Park officials would then spring into action, capturing and removing the reptile. Oberhofer got the idea after reading about Jack Russell terriers that detect brown tree snakes in cargo at an airport in Guam, an island in the South Pacific. "I figured that if a terrier could be trained to sniff out brown tree snakes, then perhaps a beagle could be trained to sniff out pythons," Oberhofer told *National Geographic News*.

Twice a week, Oberhofer puts a live python in a bag and drags it through a field. She then drops the bag and Pete's favorite rope toy. Oberhofer hooks Pete up to a special harness so he knows that it's time to find a snake. "He continues to show improvement each time I take him out to train," she said. "It hasn't taken him long to figure out that smelling a python means playtime for him."

native

na · tive

Definition

adjective

1. being the place of birth of a person, or having to do with a person's place or situation of birth.

   He missed his native country.

   She is a native speaker of English.

2. belonging to a person or persons because of their place of birth.

   Spanish is his native language.

noun

1. a person born or raised in a particular place.

   Mr. Howe is a native of Canada.

Advanced Definition

adjective

1. being the place of birth or origin.

   his native land

2. originating with a person at birth; natural.

   native intellect

3. belonging to a person or persons because of the place or situation of their birth.

   French is his native language.

4. occurring in nature.

   native limestone

5. having origins in a particular country or area.

   native arts and crafts

noun

1. an original inhabitant of a given place, such as the aborigines of Australia.

2. a person born or raised in a given place.

a native of Kansas

3. an animal or plant found naturally in a given place.

Lions are natives of Africa.

Spanish cognate

nativo: The Spanish word *nativo* means native.

These are some examples of how the word or forms of the word are used:

1. Cane toads were brought to Australia in 1935 to eat beetles that were killing crops. It's too bad that they also eat a lot of **native** wildlife.
2. Scientists hoped to unravel the mysteries of an ancient **Native** American culture that had roamed Utah thousands of years ago. Those Native Americans were called the Fremont people.
3. Though most Mexicans speak Spanish today, more than one million still speak the **native** Aztec language, Nahuatl, as their primary language. In fact, even the word "Mexico" comes from the Aztec word "Mexica."
4. Finally, on December 16th, a few dozen colonists snuck onboard the Dartmouth wearing masks. They dressed as **Native** Americans, to make it clear that their loyalty lay with North America, and not England.
5. The vaccination effort has paid off. Today, polio remains endemic (**native**) to just four countries: India, Pakistan, Afghanistan, and Nigeria. Wiping out the disease in those final strongholds has been tough, says Carol Pandak, the manager of polio eradication at Rotary International, another GPEI partner.
6. For one thing, the engineered mosquitoes won't persist in the environment indefinitely. After all, they're designed to die. And in most of the world, *A. aegypti* is a **nonnative** species, he adds. Getting rid of the buzzing pests would actually return those habitats to a more natural state.
7. When the famous naturalist Charles Darwin, who helped develop the theory of evolution, visited the Galápagos Islands in the 1830s, he made an interesting discovery about **native** birds. He noticed that 13 different species of finches were all very similar, but differed in the size and shape of their beak.
8. The cane toad is the Darth Vader of the amphibian world. A **native** of Central and South America, the lumpy toad was turned loose in Australia in the 1930s. Farmers hoped it would eat the beetles that were damaging sugarcane crops. The toad made itself at home, spreading steadily across the land.
9. One of the earliest movies about flying to the moon was made by Georges Méliès and released in 1902. It was called *A Trip to the Moon*. In this movie, the moon was made up of a man's face, covered in cream, and a whole tribe of angry **natives** lived there. That part was not very realistic.

overrun o · ver · run

Advanced Definition

transitive verb

1. to sweep across and dominate quickly, as an invading population, or a plague.

   The Tatars overran much of Russia in the thirteenth century.

2. to spread throughout, taking hold, as an infestation, an idea, or a growth of plant life.

   The garden has been overrun with weeds.

3. to run past (a place or limit); overshoot.

   The meeting overran the scheduled time.

4. to overflow; flood.

   The creek overran its banks.

intransitive verb

1. to overflow; flood.

noun

1. an instance in which, or the amount by which, actual costs exceed estimated costs.
2. an instance of overrunning.

These are some examples of how the word or forms of the word are used:

1. The island is **overrun** with wild goats.
2. Besides being creepy, an ecosystem **overrun** by pythons is unhealthy.
3. By 1969, the island had been **overrun** by the puffins' enemies - gulls.
4. For years, Burmese pythons, which are not native to Florida, have been threatening to **overrun** Everglades National Park.
5. For example, if an area is **overrun** with rats, cats may be brought in to eat the rats.
6. The island is **overrun** with wild goats, and Ellis thinks the goats are eating the small blue gum trees.
7. At times, when an area is **overrun** with a certain type of animal, humans will bring in a predator of that animal to keep the population in control.
8. Chances are, however, when you envisioned a swamp (or a marsh or a bog), you conjured up an image of a rather unpleasant place: creepy and shadowy, muddy, **overrun** with snakes and insects.
9. French settlers were not able to dominate their exchanges with the Native Americans of the Pays den Haut in the way the English and Spanish were able to **overrun** the Native American populations they encountered.

threaten

threat · en

Definition

verb

1. to say that you will harm or punish some person or group if something that you demand is not done.

The judge threatened to send him to jail.

Advanced Definition

transitive verb

1. to declare intent to harm or punish.

She threatened to leave him.

The judge threatened him with a jail sentence.

2. to warn of upcoming trouble or harm.

The sky threatened rain.

3. to announce as an action that one might take, such action being considered one that would have an adverse effect on others.

He threatened to blame her if she went to the police.

She threatened to quit if she wasn't offered more money.

intransitive verb

1. to use threats.

He can threaten all he wants, but I don't think he can actually harm you.

2. to warn of danger or mischief.

The storm clouds threatened.

These are some examples of how the word or forms of the word are used:

1. Kids who tease and **threaten** others are bullies.
2. But other forms of pollution **threaten** your well-being too.

3. Does the activity in question **threaten** health, or is it just inconvenient?
4. Invasive pythons aren't the only non-native species that **threaten** the Everglades ecosystem.
5. It wasn't nice of him to say those things or **threaten** to spill the nail polish.
6. Breathing secondhand smoke can **threaten** Bill's health because he is breathing in the same chemicals smokers do.
7. They also argue that wind turbines can be an eyesore and **threaten** birds and other wildlife that fly into the blades.
8. In the case of the Everglades, people are already beginning to work on stopping and reversing the problems that **threaten** the life of the ecosystem with hopes for a healthier future.
9. What is certain is that the First Amendment sought to protect against the creation of a national church and ensure that citizens be free to practice their religion without interference from the government, so long as that practice does not **threaten** peace or the common good.

Name: _____ **Date:** _____

1. What kind of dog is "Python Pete"?

A. bulldog

B. Jack Russell terrier

C. golden retriever

D. beagle

2. The passage describes the problem of Burmese pythons threatening to overrun Everglades National Park. How is Lori Oberhofer trying to solve the problem?

A. She is planning to teach dogs how to scare the pythons out of the park.

B. She is training her dog to track pythons so that they can be removed.

C. She is working with pet owners to stop them from buying pythons.

D. She is trying to catch the pythons and ship them to Guam.

3. After reading the passage, what can you conclude about Burmese pythons?

A. They can be trained to get along well with dogs.

B. They are causing an increase in the number of tourists.

C. They prefer living in Florida to anywhere else.

D. They are having a negative impact on Florida's wildlife.

4. Read this sentence from the passage:

"Oberhofer got the idea after reading about Jack Russell terriers that detect brown tree snakes in cargo at an airport in Guam, an island in the South Pacific."

In this sentence, the word **detect** means

A. to lose sight of a goal

B. to teach an animal new tricks

C. to discover the presence of

D. to reward for good behavior

5. The primary purpose of this passage is to describe

A. why pet owners decide to buy Burmese pythons and other exotic pets

B. things to see and do when visiting Florida's Everglades National Park

C. what kinds of dogs can be easily trained to track pythons and other snakes

D. how Florida's National Park officials are trying to solve a python problem

6. How many Burmese pythons did park official capture in 2004?

7. Why, do you think, have exotic pet owners been dumping Burmese pythons in the forests of southern Florida? Cite evidence from the text to support your answer.

8. The question below is an incomplete sentence. Choose the word that best completes the sentence.

_____ Florida, officials are working to remove Burmese pythons from the park.

A. Before

B. For

C. However

D. In

Name: _____ **Date:** _____

1. The main idea of the passage is that

A. park officials have captured over 100 pythons.

B. "Python Pete" plays with the snakes.

C. a park service worker trains her dog to look for pythons.

D. dogs are sniffing out quails.

2. The main idea of the second and third paragraphs is that

A. pythons have multiplied by eating wildlife.

B. Lori Oberhofer got her idea from Jack Russell terriers.

C. Everglades National Park has too many pythons.

D. the beagle tracks the pythons by smell.

3. When the park officials "spring into action," they

A. begin work when warm weather comes.

B. move quickly to start working.

C. begin to work with "Python Pete".

D. dump the pythons into the forests.

4. The beagle is learning to follow a python scent because

A. by following it, he will find his favorite toy.

B. he likes the pythons.

C. he wants to please his owner.

D. he wants to be like a Jack Russell terrier.

5. List one detail that supports the main idea. Explain how it supports the main idea.

Blank Quiz

* Required

The main idea of the passage is that * 5 points

- [ ] park officials have captured over 100 pythons.
- [ ] "Python Pete" plays with the snakes.
- [ ] a park service worker trains her dog to look for pythons.
- [ ] dogs are sniffing out quails.

The main idea of the second and third paragraphs is that * 5 points

- [ ] pythons have multiplied by eating wildlife.
- [ ] Lori Oberhofer got her idea from Jack Russell terriers.
- [ ] Everglades National Park has too many pythons.
- [ ] the beagle tracks the pythons by smell.

When the park officials "spring into action," they * 5 points

- [ ] begin work when warm weather comes.
- [ ] move quickly to start working.
- [ ] begin to work with "Python Pete".
- [ ] dump the pythons into the forests.

The beagle is learning to follow a python scent because * 5 points

- [ ] by following it, he will find his favorite toy.
- [ ] he likes the pythons.
- [ ] he wants to please his owner.
- [ ] he wants to be like a Jack Russell terrier.

Submit

Print

East Africa offers a rugged, beautiful landscape and different climates. The region provides variety, potential, and considerable challenges for economic development.

Land and Water Features

What makes the ecosystem of East Africa diverse?

The region of East Africa consists of 11 countries. Sudan and South Sudan dominate the northern part of the region. Eritrea, Djibouti, Somalia, and Ethiopia are located in the northeast. This area is called the Horn of Africa because it is a horn-shaped peninsula that juts out into the Arabian Sea. Three countries occupy the central and southern parts of the region: Kenya, Tanzania, and Uganda. Finally, in the western sector lie the landlocked countries of Rwanda and Burundi. East Africa offers a rugged, beautiful landscape that has great variety.

Landforms

The Great Rift Valley is the most unusual feature of East Africa's physical geography. Sometimes it is called the Great Rift system because it is not one single valley. Rather, it is a series of large valleys and depressions in Earth's surface. These are formed by long chains of geological faults. The Great Rift started forming about 20 million years ago when tectonic plates began to tear apart from one another. Africa was once connected to the Arabian Peninsula. But as the two rifted apart, or separated from one another, the land in between sank and was filled by the Red Sea. Eventually, all of East Africa will separate from the rest of Africa, and the Red Sea will fill the rift.

The Great Rift system's northern end is in Jordan in Southwest Asia. From Jordan, it stretches about 4,000 miles (6,437 km) to its southern end in Mozambique in southeastern Africa. The rift has an average width of 30 miles to 40 miles (48 km to 64 km).

The rift system has an eastern and western branch in East Africa. The eastern Rift Valley—the main branch—runs from Southwest Asia along the Jordan River, Dead Sea, and Red Sea. It continues through the Danakil plain in Ethiopia. It is one of the hottest and driest places on Earth, and earthquakes and volcanic activity occur here regularly. Long, deep cracks develop in Earth's surface as the tectonic plates rift apart.

As the eastern Rift Valley continues south from the Danakil plain, the conditions are not as severe. It takes the form of deep valleys as it extends into Kenya and Tanzania, and down to Mozambique. The shorter western Rift Valley stretches from Lake Malawi in the south through Uganda in the north through a series of valleys. A chain of deep lakes that includes Lake Tanganyika, Lake Edward, and Lake Albert marks the western rift's northward path.

Along the branches of the Great Rift Valley, much volcanic and seismic activity occurred. The largest volcanoes are located on the eastern Rift. These include Mount Kenya and Kilimanjaro. Kilimanjaro is on the border between Kenya and Tanzania. With a summit of 19,341 feet (5,895 m), Kilimanjaro is the tallest mountain in Africa. Its summit is covered with snow year-round, even though the mountain is near the Equator.

Sudan is home to vast plains and plateaus. The northern part of the country is desert covered in sand or gravel. Somalia lies in the eastern part of the region, along the Indian Ocean.

Somalia is also an extremely dry area. The country is made up largely of savanna and semidesert. To the north of Somalia lies the small country of Djibouti. Located on the coast between the Red Sea and the Gulf of Aden, Djibouti displays a highly diverse landscape. It has rugged mountains and desert plains.

South of Sudan, at the western edge of Uganda, the Ruwenzori Mountains divide that country from the Democratic Republic of the Congo. These peaks are sometimes called the "Mountains of the Moon." Mountains give way to hills in small, landlocked Rwanda. It is known as the "land of a thousand hills" for its beautiful landscape.

Bodies of Water

The longest river in the world is the Nile (4,132 miles or 6,650 km). The Nile Basin includes parts of many countries in the East African region: Tanzania, Burundi, Rwanda, Kenya, Uganda, Ethiopia, South Sudan, and the Sudan. Beginning in the 1800s, European explorers made numerous expeditions in attempts to find the source of the Nile River. The great river was discovered to have two sets of headwaters. One of them, the Blue Nile, rises in the northern highlands of Ethiopia. The other source, the White Nile, begins in Lake Victoria and runs through Lake Albert. The White Nile then passes through the swampy wetlands of central South Sudan, a huge area called the Sudd.

In northern Sudan, the Blue Nile and the White Nile meet at the city of Khartoum. The great river then runs northward through Egypt and empties into the Mediterranean Sea. Other than the Nile, East Africa has few important rivers. This is due to the intermittent rainfall and the high temperatures in many areas of the region.

In the late 1970s, the swampy Sudd was the focus of a huge construction project called the Jonglei Canal. This channel was designed to avoid the Sudd. The goal was to allow the headstreams of the White Nile to flow more freely. Instead of the water spreading across the Sudd and slowly moving through it, the canal would allow more water to flow downstream and reach Sudan and Egypt. That would support more agriculture and better city services in those countries. But it would also damage the wetland environment of the Sudd.

Fisheries could collapse and go extinct. Construction was suspended in 1983. The project could not continue because civil war in Sudan made it too dangerous.

Many of the lakes in East Africa are located near the Great Rift Valley. The largest lake on the continent of Africa is Lake Victoria. This lake lies between the western and the eastern branches of the Great Rift. The lake stretches into three countries: Uganda and Kenya in the north and Tanzania in the south. With an area of 26,828 square miles (69,484 sq. km), Lake Victoria is the second-largest freshwater lake in the world, after Lake Superior in the United States. For such a large body of water, Lake Victoria is relatively shallow. Its greatest known depth is about 270 feet (82 m). The lake is home to more than 200 species of fish. Of these, tilapia has the most economic value.

Another important lake in the region is Lake Tanganyika. This long, narrow body of water is located south of Lake Victoria, between Tanzania and the Democratic Republic of the Congo. The lake is only 10 to 45 miles (16 km to 72 km) wide, but very long. Measuring 410 miles (660 km) north to south, it is the world's longest freshwater lake. With a maximum depth of 4,710 feet (1,436 m), it is also the second deepest. Only Lake Baikal in Russia is deeper than Lake Tanganyika.

Farther south is Lake Malawi. It is the third-largest lake in the East African Rift Valley. The lake lies mainly in Malawi and forms part of that country's border with Tanzania and Mozambique.

Identifying What caused the striking physical features of the Great Rift Valley in East Africa?

Climates of East Africa

How does climate vary in East Africa?

Climate varies widely in the East African region. Temperature and rainfall can be quite different from one local area to another. The major factors explaining these variations include latitude, altitude, distance from the sea, and the type of terrain, such as mountains, highlands, desert, or coastal plains.

Temperatures

The diverse physical features of East African geography are matched by an extremely varied climate. In general, temperatures tend to be warmer toward the coast and cooler in the highlands. Sudan, Djibouti, and Somalia have high temperatures for much of the year. High mountains such as Kilimanjaro and the peaks of the Ruwenzori Range have had glaciers for thousands of years. Due to climate change, however, these glaciers are melting. Some experts predict that the glaciers of Kilimanjaro will completely disappear over the next 20 years.

The climate is always spring-like in the highlands of Kenya and Uganda. As a whole, however, Kenya and Uganda display considerable variations in climate. These variations depend on factors such as latitude, elevation, wind patterns, and ocean currents.

Rainfall

In many parts of East Africa, rainfall is seasonal. This is especially true close to the Equator. Wet seasons alternate with dry ones. For example, on the tropical grasslands, or savannas, of Kenya and Tanzania, two rainy seasons occur in most years. These are the "long rains" of April and May and the "short rains" of October and November. The months in between these periods are dry, with little or no rainfall.

Rainfall in the region, however, can be unpredictable. Sparse rainfall can result in severe drought. In 2011, for example, Somalia suffered one of the worst droughts in its history. Political instability in that country made the effects of the drought especially severe. Observers estimated that 13 million people struggled to survive in the countries of Somalia, Ethiopia, Djibouti, and Kenya.

Another urgent issue in the region is desertification, or the process by which agricultural land is turned into desert. This process occurs when long periods of drought and unwise land use destroy vegetation. The land is left dry and barren. During the past half century, desertification has affected much of the Sahel. The Sahel is the "edge," or border area, between the Sahara and the countries farther to the south. Two such border nations in East Africa are Sudan and South Sudan.

Determining Central Ideas What generalization can you make about the variations in temperature in East Africa?

Resources of East Africa

Which natural resources are important in East Africa?

The natural resources of a region are closely linked to its economy and people's way of life. Settlement patterns in a geographical area have often been shaped by that area's natural resources. Important resources in East Africa are minerals, energy sources, landscapes, and wildlife. The ability of some countries to exploit these resources, however, has been hampered by political issues.

Mineral Resources

Mineral resources in East Africa include small gold deposits along the rifts in Kenya, Uganda, and Tanzania; gemstones like sapphires and diamonds in Tanzania; and tin in Rwanda. Ethiopia and Uganda produce lumber. Lake Assal in Djibouti, located about 500 feet (152 m) below sea level, is the world's largest salt reserve, with more than 1 billion tons of salt. This lake is located at the lowest point in Africa.

Energy Resources

Energy resources in East Africa include coal in Tanzania, as well as petroleum in Uganda, South Sudan, and northwestern Kenya. East Africa's energy potential has yet to be realized, though. For example, Sudan has the opportunity to develop hydroelectric power, or the production of electricity through the use of falling water. Hydroelectric power is already used in Kenya and Tanzania.

Likewise, Kenya and Djibouti are favorable locations for the development of geothermal energy. This type of energy comes from underground heat sources, such as hot springs and steam. In Kenya, an international group of companies is working with the government to develop geothermal energy sources. If they are successful, 30 percent of the country's energy needs could be met by geothermal energy by the year 2030.

In East Africa, management of energy resources and energy use often has been inconsistent and uneven. Major cities gobble up much of the energy that is produced. Energy is often unavailable in rural areas.

Land and Wildlife

Besides mineral and energy resources, East Africa's land and wildlife are important assets. The soils in the region are not especially rich for agriculture, and farming is challenging. The breathtaking scenery of the Great Rift Valley, however, is an important tourist resource.

East Africa is also home to the greatest assemblage of wildlife in the world. Many national parks and wildlife sanctuaries are found in the region. Perhaps the most well-known wildlife reserves are located in Kenya and Tanzania. An outstanding example is the Serengeti Plain; this vast area, larger than the state of Connecticut, consists of tropical savanna grasslands. Two internationally famous national parks are located in East Africa—Serengeti National Park in Tanzania and the Masai Mara National Reserve in Kenya. These parks harbor lions, leopards, cheetahs, giraffes, zebras, elephants, and dozens of species of antelope.

Every year, thousands of tourists pour in from all over the world to see the marvel of the Great Migration. In this mass movement, more than 1 million animals travel hundreds of miles in search of fresh grazing land. The spectacular wildlife of East Africa makes an important contribution to the economy of the region.

Identifying What two promising alternatives might help improve energy supplies in the East African region?

LESSON 1 REVIEW

Reviewing Vocabulary

1. What causes the process of *desertification*?

Answering the Guiding Questions

2. *Describing* What are the differing characteristics that make Lake Victoria and Lake Tanganyika noteworthy bodies of water, both in East Africa and in the world as a whole?

3. *Analyzing* How might desertification affect the economy in a region?

4. *Identifying* How are energy supplies distributed in East Africa?

5. *Informative/Explanatory Writing* Write a letter to a friend or a relative explaining why you want to visit East Africa to see the region's wildlife.

Vocabulary: Week of May 18-May 22:

DIRECTIONS: Please define your vocabulary terms for the week ahead in the space provided.

1. CONSIST-

2. DESERTIFICATION-

3. HYDROELECTRIC POWER-

4. RIFT-

5. GEOTHERMAL ENERGY-

Since there are only five this week, please list THREE countries that make up East Africa.

Chapter 20 Lesson 1: Pgs. 614-615

DIRECTIONS: Use the pages provided to answer the questions given.

1. In East Africa, climate varies widely! Using the text, what does that means happen with the temperature and rainfall?

2. What are TWO of the factors that help influence climate?

3. Where do temperatures tend to be warmer?

4. Why are some of the glaciers melting on Kilimanjaro?

5. What are the 4 months that it rains in Kenya? (4 Answers)

6. The Drought in Somalia in 2011 caused a lot of problems. How many people struggled to survive as a result?

7. According to the text, what are TWO reasons that cause desertification to occur?

Ch 20 Lesson 1 Quiz

Week of May 18-22

Ethiopia and Somalia are part of the Horn of Africa. 1 point

- ◯ TRUE
- ◯ FALSE

Kilimanjaro is the tallest mountain in Africa. 1 point

- ◯ True
- ◯ False

The source of the Nile River is still unknown. 1 point

- ◯ True
- ◯ False

In many parts of East Africa, wet and dry seasons alternate. 1 point

- ◯ True
- ◯ False

The soils in East Africa are ideal for farming. 1 point

- ◯ True
- ◯ False

To which of the following landforms was East Africa once connected? 1 point

- Mesopotamian Plain
- Deccan Plateau
- Arabian Peninsula
- Anatolian Peninsula

Which of the following statements about Lake Victoria is accurate? 1 point

- It is the largest freshwater lake in the world.
- It is the largest lake in Africa.
- It is one of the deepest lakes in the world.
- It supports no fish life.

In what way might climate change affect Mount Kilimanjaro? 1 point

- Kilimanjaro will probably erupt within the next 20 years.
- Its climate may change from highland to tropical over the next 20 years.
- New glaciers are likely to form in the highest mountain valleys.
- Kilimanjaro's glaciers may melt away over the next 20 years.

Which alternative energy source comes from sources like hot springs in Kenya and Djibouti? 1 point

- Geothermal
- Hydroelectric
- Solar
- Wind

Which of the following events draws thousands of tourists to East Africa each year? 1 point

- ◯ Northern Lights
- ◯ Great Migration
- ◯ Harvest Moon
- ◯ Mardi Gras

Send me a copy of my responses.

Submit

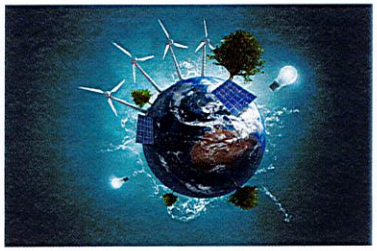
Energy Transformations and Conservation

May 18th - May 22nd
6th Grade Lesson
Adapted from Pearson

Energy Transformations

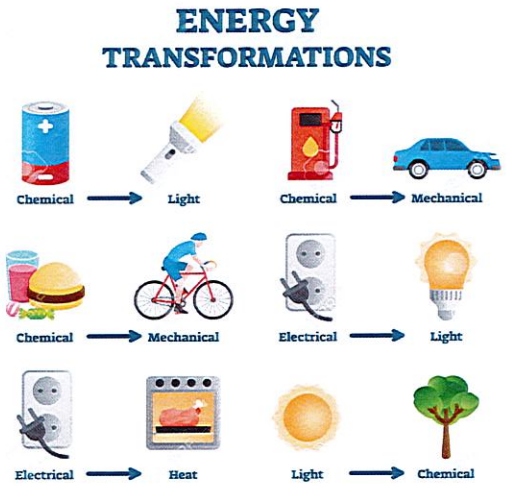
How are different forms of energy related?

- Key Idea: All forms of energy can be transformed into other forms of energy
- A change from one form of energy to another is called an energy transformation
  - Some energy changes involve single transformations, while others involve many transformations



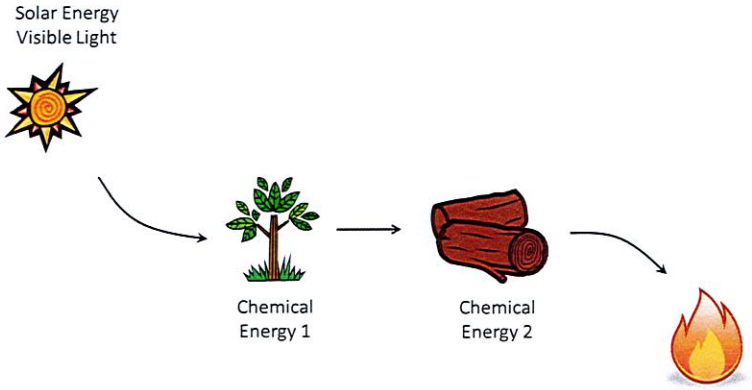
Single Transformation

- Single transformation is when one form of energy transforms into another to get work done
- Examples
  - A toaster transforms electrical energy to thermal (heat) energy
  - A cell phone transforms electrical energy to electromagnetic energy
  - Your body transforms chemical energy in food to mechanical energy
  - A lamp transforms electrical energy into light energy

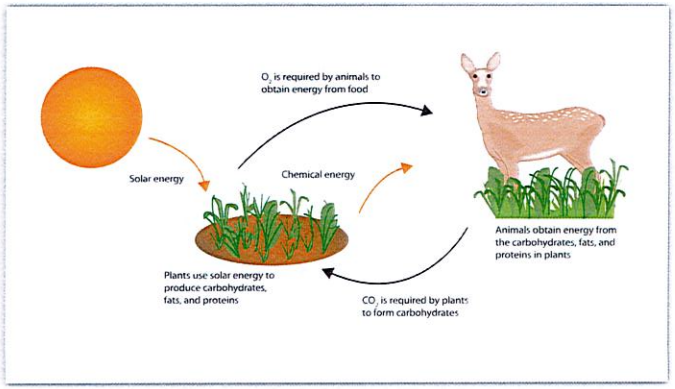


Multiple Transformations

- Multiple transformations occurs when a series of energy changes is needed to do work
- Examples
  - The mechanical energy used to strike a match is transformed first to thermal energy. The thermal energy causes the particles in the match to release stored chemical energy, which is transformed to more thermal energy and then to light energy
  - In a car engine, electrical energy produces a spark. The thermal energy of a spark releases chemical energy in the fuel. The fuel expands and creates pressure. The increased pressure causes the wheel to turn, transforming chemical energy into mechanical energy.



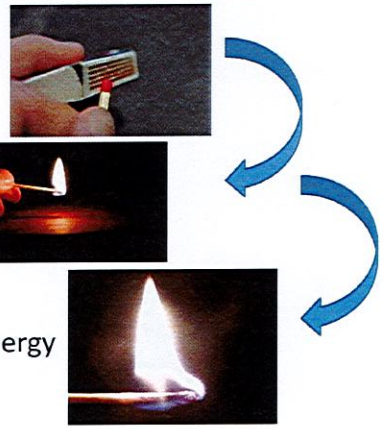
Solar energy (light energy) → Chemical energy (tree growing) → Chemical energy (burning wood) → Thermal energy (flame)



Solar energy (light) → Chemical energy (plants growing) → Chemical energy (animal breaks down plants as food) → Mechanical energy (animal moves)

Multiple transformations

- Mechanical energy
- Thermal energy
- Electromagnetic energy



Energy Conservation

Law of Conservation of Energy

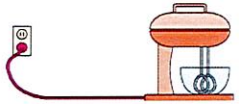
- The Law of Conservation of Energy states that when one form of energy is transformed into another, no energy is lost in the process
- Key Idea: According to the law of conservation of energy, energy CANNOT be created or destroyed
  - The total amount of energy is the same before and after any transformation. If you add up all of the new forms of energy after a transformation, all the original energy will be accounted for!

An automobile engine changes chemical energy to mechanical and heat energy.

A tree changes radiant energy to chemical energy.

Hammering a nail changes mechanical

A thermonuclear reaction changes nuclear energy to radiant and heat energy.

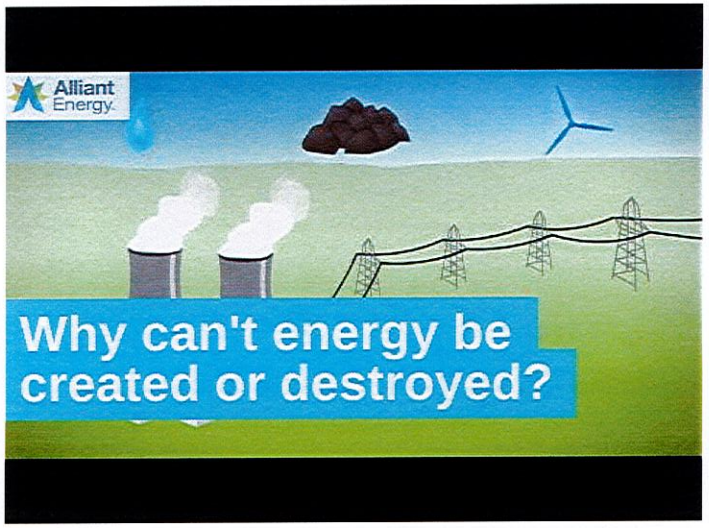


An electric mixer changes electrical energy to mechanical and heat energy.

A lamp changes electrical energy to radiant

In all of these examples the energy is changing from one form to another but none of the energy is being destroyed.

YouTube video to help explain the Law of Conservation of Energy

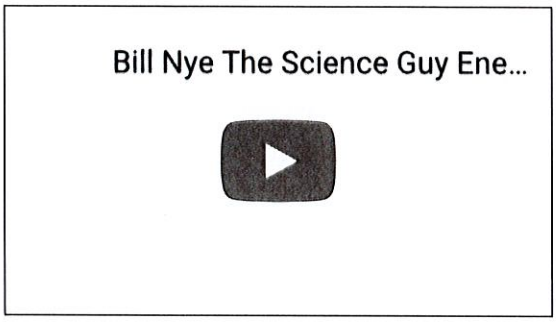


YouTube Video Questions- Bill Nye The Science Guy Energy

After watching the video, answer these questions! The video is also included in the assignment in case you need to rewatch the video!

* Required

YouTube Video



When we do something like open a door, we use_____. * 1 point

- food
- energy
- electricity

Sound, heat, falling things and _____ are all forms of energy. * 1 point

- electricity
- can
- burned

Energy cannot be changed from one form to another. * 1 point

- ◯ True
- ◯ False

The energy of lifting water about our heads is stored as _____ energy in the water. * 1 point

- ◯ kinetic
- ◯ potential

Baking soda and vinegar cause a _____ reaction that releases energy. * 1 point

- ◯ electrical
- ◯ burning
- ◯ chemical

Kinetic energy can never be greater than the potential energy in a pendulum. * 1 point

- ◯ True
- ◯ False

Electricity can be made by _____ steam or by falling water used to turn a generator. * 1 point

- ◯ heating
- ◯ cooling

A _____ beam is heat converted from electricity and can burn through a piece of plywood. * 1 point

- food
- laser
- sun

We can _____ energy in a bungee cord. * 1 point

- store
- heat
- ignore

A _____ can convert falling water into electricity. * 1 point

- laser
- fan
- generator

When fossil fuels like oil or coal are combined with oxygen, or froze, energy is released. * 1 point

- True
- False

The energy stored in food is really stored light energy from the _____. * 1 point

- moon
- sun

Most of the energy in _____ is converted into heat by our bodies. * 1 point

- ◯ electricity
- ◯ chemicals
- ◯ food

Energy can be changed from one form to another, but a little bit of it is converted into heat so there is always some loss. * 1 point

- ◯ True
- ◯ False

Potential energy is converted into kinetic energy when bungee cords are _____. * 1 point

- ◯ compressed
- ◯ released

Submit

Lesson Check- Energy Transformations and Conservation

Take your time!

* Required

All forms of energy can be transformed into other forms of energy. * 1 point

- ◯ True
- ◯ False

Describe energy transformation in your own words. * 2 points

Your answer

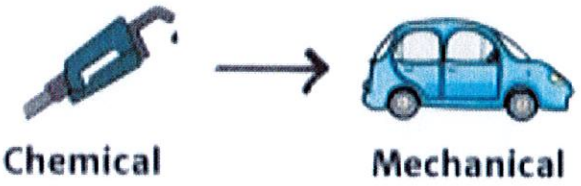
A cell phone transforms electrical energy into _____ energy. * 1 point

Your answer

Your body converts chemical energy into mechanical energy * 1 point

- ◯ True
- ◯ False

Is this image showing a single transformation or multiple transformations? 1 point
*

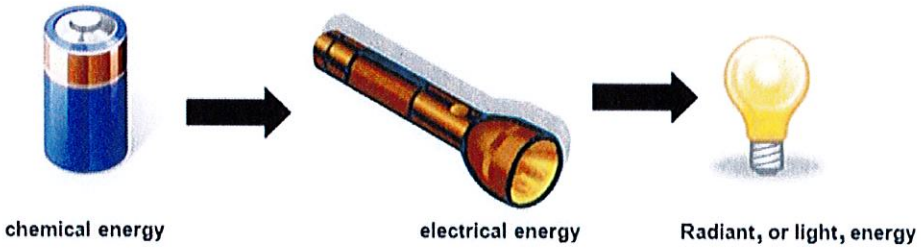


- ◯ Single transformation
- ◯ Multiple transformations

Multiple transformations occur when a series of energy changes are needed to do work. * 1 point

- ◯ True
- ◯ False

Is this image showing a single transformation or multiple transformations? 1 point
*



- ◯ Single transformation
- ◯ Multiple transformations

In your own words, explain what the Law of Conservation of Energy is. * 2 points

Your answer

Energy CAN be created or destroyed. * 1 point

- ◯ True
- ◯ False

Submit