OKLAHOMA ALLIANCE FOR GEOGRAPHIC EDUCATION

WORLD GEOGRAPHY ACADEMY

NORMAN, OKLAHOMA

SEPTEMBER 13, 2017

Photo: thesun.co.uk

X-TREME ANIMALS

TOP 10 MOST DANGEROUS ANIMALS

USING CONTEMPORARY GEOGRAPHIC TOOLS- GOOGLE EARTH

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OBJECTIVE

- STUDENTS WILL DISCOVER HUMAN-ANIMAL CONFLICT IN CONNECTION WITH CONSERVATION.
- STUDENTS WILL PRACTICE APPLICATION OF GEOGRAPHIC TOOLS IN UTILIZING GOOGLE EARTH.
- STUDENTS WILL EXPAND UNDERSTANDING IN HUMAN RESPONSIBILITY IN OUR WORLD.

OKLAHOMA ACADEMIC STANDARDS

2012 OAS	2019 OAS
CS.1: The student will analyze data from a geographic perspective using skills and tools of geography.	7.1: The student will analyze data from a geographic perspective using the skills and tools of geography.
CS.5: The student will analyze the interactions of humans and their environment in the eastern hemisphere.	7.4: The student will analyze the interactions of humans and their environment in the Eastern Hemisphere.
5.3: Evaluate the effects of human modification to the natural environment.	7.4.4: Evaluate the effects of human modification of and adaptation to the natural environment through transformation caused by agriculture, the use of modern irrigation methods, industry, demand for energy, and urbanization.

RANKING CHALLENGE:

CHALLENGE QUESTION #1

LIST TEN ANIMALS YOU THINK ARE THE MOST DANGEROUS TO HUMANS. THEN RANK THEM LEAST TO MOST DANGEROUS ON THE LEFT COLUMN ON YOUR HANDOUT.

Image: bing (public domain) whattheteacherwant.blog

Things to Know

VOCABULARY TERMS

- **HUMAN-ENVIRONMENT INTERACTION (THEME):** HOW PEOPLE AFFECT, AND ARE AFFECTED BY THEIR ENVIRONMENT
- **HABITAT**: THE NATURAL HOME OF AN ANIMAL, PLANT, OR ORGANISM
- **ECOSYSTEM:** A GROUP OF LIVING THINGS (PLANTS AND ANIMALS) WHO DEPEND ON EACH OTHER IN THEIR ENVIRONMENT
- **URBAN SPRAWL:** UNCONTROLLED GROWTH OF URBAN AREAS (CITIES)
- **ENDANGERED**: SPECIES IS IN DANGER OF **EXTINCTION** (DYING OUT COMPLETELY)
- **CONSERVATION**: PROTECTION AND SENSIBLE USE OF THINGS FOUND IN NATURE

Source: Holt Social , *World Geography* 2006
Image: techbang.com bing

WARNING!

ALL WILD ANIMALS SHOULD BE REGARDED WITH CAUTION AND RESPECT FOR THEIR ENVIRONMENT, HABITAT, ECOLOGICAL ROLE, AND NATURAL INSTINCTS. IT IS UNWISE TO APPROACH DANGEROUS ANIMALS OR PROVOKE THEM. LEARNING BASIC INFORMATION ON RISKS AND DANGERS ASSOCIATED WITH ANIMALS IN YOUR GEOGRAPHIC AREA IS ADVISED.

Image: pixabay.com (warning)

LET'S SEE HOW WELL YOU DID...

WHILE WE ARE REVEALING OUR TOP TEN LIST, BE SURE TO:

1. CHECK YOUR LIST
2. DISCUSS THE CHALLENGE QUESTIONS IN GROUPS OR WITH YOUR TEACHER.

Image: bing sites.google.com (top 10)

#10 AUSTRALIAN BOX JELLYFISH (CHIRONEX FLECKERI)

Approximately 90 human deaths per year.

- considered most venomous marine animal
- This animal is 95% water and has NO BRAIN!

- Found mostly in Indo-Pacific region and northern **Australia**.

Image and information Source: Australian National Geographic

#9 AFRICAN LION (PANTHERA LEO)

Approximately 150 human deaths per year

- Lions live in the Sub-Saharan region of Africa. They are found in grassland and savannah habitats, scrubland, bush, and open forests.
- They remain inactive about 20 hours a day.
- Considered a Keystone predator. Lion's only predators are crocodiles and HUMANS
- Lions who feel threatened and sick lions will attack humans
- Considered Endangered. Hunted for sport.

Sources: http://kids.nationalgeographic.com/animals/lion/#ww-wild-cats-lion.jpg
Map: Tripsavy.com;Photo: trueacti vists.com

LIONS VS. MAN

- ONLY 32,000 LIONS REMAIN, COMPARED TO APPROXIMATELY 100,000 ROAMING AFRICA IN 1960.
- BIGGEST THREATS TO LIONS:

  HABITAT LOSS POACHING

  HUMAN-LION CONFLICT
- PROJECTED TOTAL EXTINCTION BY THE YEAR 2050

CHALLENGE QUESTION #2: (MATH) WHAT IS THE DIFFERENCE IN THE WORLD'S LION POPULATION BETWEEN 1960 AND NOW?

Image: https://blogs.scientificamerican.com/extinction-countdown/african-lions-face-extinction-by-2050-could-gain-endangered-species-act-protection/
Source: national geographic.com

#8 CAPE BUFFALO

SYNCERUS CAFFER

Approximately 200+ human deaths per year.

- CONSIDERED VERY DANGEROUS, BELIEVED TO HAVE KILLED MORE BIG-GAME HUNTERS THAN ANY AFRICAN ANIMAL
- VERY AGGRESSIVE IF THREATENED OR WOUNDED. IF PROVOKED, THE CAPE BUFFALO MAY STALK AND CIRCLE ITS PREY BEFORE "HORNING" IT.
- HAS THE POTENTIAL TO CHARGE UP TO SPEEDS OF 35MPH
- NICKNAME: BLACK DEATH
- CAN REACH UP TO 6 FEET AND 2,100 LBS.
- HABITAT IS THE OPEN SAVANNAH, WOODLANDS AND RAINFOREST IN AFRICA
- IN EAST AFRICA, BUFFALO MAY BREAK FENCES, RAID CULTIVATED CROPS, AND THEY MAY EVEN SPREAD DISEASES TO LIVESTOCK.
- HABITAT IS THREATENED BY FRAGMENTATION, WHICH IS CAUSED WHEN LAND IS FENCED OFF; THE AMERICAN WILDLIFE FEDERATION IS WORKING FOR SOLUTIONS WHICH MAY PROTECT THE WILDLIFE WHILE MAXIMIZING FOOD SECURITY AND INCOME FOR PEOPLE.
- THERE ARE OVER 1,000,000 CAPE BUFFALO IN AFRICA, BUT ITS POPULATION IS IN DECLINE

Photo: Mark Boulton—The National Audubon Society Collection/Photo Researchers

Sources: http://www.awf.org/wildlife-conservation/buffalo; http://www.ultimateungulate.com/Artiodactyla/Syncerus_caffer.html; huntercourse.com; Map: After IUCN Antelope Specialist Group, 2008

#7 ELEPHANT LOXODONTA AFRICANA (AFRICAN), ELEPHAS MAXIMUS, (ASIAN)

Approximately 500 human deaths per year

- ELEPHANTS ARE HIGHLY INTELLIGENT WITH A BRAIN STRUCTURE SIMILAR TO HUMANS
- AVERAGE ADULT MAY BE 13 FEET TALL AND WEIGH OVER 7,000 LBS.
- LIVE IN SAVANNAHS, FORESTS, SWAMPS AND DESERTS IN REGIONS OF AFRICA AND ASIA
- ELEPHANTS USE THEIR TRUNKS TO PICK UP OBJECTS, EAT, HUG, APPLY (DIRT) SUNSCREEN, AND SEND WARNINGS
- THEY ARE VERY SOCIAL AND OFTEN AFFECTIONATE IN THEIR HERD. THEY HAVE BEEN FILMED RESCUING OTHER ELEPHANTS
- ELEPHANTS CAN BE VENGEFUL IF YOUNG ARE THREATENED OR ARE ATTACKED. IF PROVOKED, THEY MAY ATTACK VILLAGES OR GO ON KILLING RAMPAGES. THEY ALSO HAVE A GREAT MEMORY.
- AS A WARNING, ELEPHANTS WILL FLAP THEIR EARS AGGRESSIVELY, STAMP, AND MAKE A LOUD "TRUMPET" SOUND

Huntercoursecom; nationalgeograohickids.com; photo: storify.com

IN WHICH REGIONS ARE ELEPHANTS FOUND?

ELEPHANT POPULATION DISTRIBUTION MAP

image: bloglondolozi.com

ILLEGAL HUNTING OF ELEPHANTS

Elephant habitats are under threat and their ivory becomes more valuable every year. Photograph: Athit Perawongmetha/Reuters

Greatest predator: Humans, however elephant calves may fall prey to lions, hyenas, crocodiles and leopards

ENDANGERED due to poaching for their ivory tusks and the destruction of their habitat. Today there are about 50,000 Asian elephants and around half a million African elephants in the world.

There are many organizations working to save endangered species around the world such as The World Wildlife Fund (WWF), The Elephants and Bees Project, Project AWARE Foundation and Panthera.

Challenge Question #3: Name a wild animal which might be poached (hunted illegally) in your area.

Source: http://www.poachingfacts.com/pelephant-poaching-statistics/oaching-statistics

#6 HIPPOPOTAMUS (HIPPOPOTAMUS AMPHIBIOUS)

- SECOND LARGEST LAND ANIMAL IN THE WORLD, WEIGHS AROUND 1 ½ -3 TONS
- EAT 80 LBS. OF GRASS A DAY! CAN RUN AS FAST AS A HUMAN SHORT DISTANCES
- SEMI-AQUATIC ANIMAL KNOWN AS THE "RIVER HORSE," LIVES ALONG THE RIVERS, SWAMPS, AND LAKES THROUGHOUT SUB-SAHARAN AFRICA. THEY DEPEND ON ABUNDANT WATER AND MUD TO KEEP COOL.
- CONSIDERED ONE OF THE WORLD'S MOST AGGRESSIVE AND TERRITORIAL MAMMALS
- ENDANGERED! THERE ARE ABOUT 125,000 COMMON HIPPOS LEFT IN THE WILD, AND ONLY 3000 PYGMY HIPPOS!

Approximately 500+ human deaths each year

Photo: frontierpartisians.com
Source: African Wildlife federation

HIPPOS AND HUMANS

- HUNDREDS OF HIPPOS ARE SHOT EACH YEAR. HIPPO FAT AND IVORY TUSKS ARE VALUABLE TO HUMANS.
- AS HUMAN POPULATIONS GROW, THEY MOVE ON WILDLIFE HABITATS AS THEY BUILD NEW SETTLEMENTS, INCREASE FARMING, AND CONSTRUCT NEW ROADS. THE HIPPO ONCE RANGED FROM THE NILE DELTA TO THE CAPE, BUT NOW IT IS MOSTLY CONFINED TO PROTECTED AREAS.
- THE AFRICAN WILDLIFE FOUNDATION HELPS COMMUNITIES CONSTRUCT ENCLOSURES, FENCES, AND DITCHES TO PROTECT AGRICULTURE AND FARMLAND FROM GRAZING HIPPOS, ATTEMPTING TO MINIMIZE HUMAN-WILDLIFE CONFLICT
- URBAN SPRAWL IS A MAJOR FACTOR WHICH IS CAUSING ENCROACHMENT ON WILDLIFE HABITATS SUCH AS HIPPO

CHALLENGE QUESTION #4: DEFINE URBAN SPRAWL? WHY DOES IT CAUSE HABITAT LOSS AND INCREASED USAGE OF NATURAL RESOURCES?

Source: African Wildlife Foundation http://www.awf.org/wildlife-conservation/hippopotamus
Image: http://lists10.com/wp-content/uploads/2014/06/environment.jpg

HUMAN POPULATIONS AT GROWING!

Image: Islamabad Scene (google): Graph: Word Press.com

X-TREME Quick Check

HOW ARE YOU DOING SO FAR?

#10 AUSTRALIAN BOX JELLYFISH

9 AFRICAN LION

#8 CAPE BUFFALO

#7 ELEPHANT

#6 HIPPOPOTAMUS

#5 SALTWATER CROCODILE CROCODILECROCODYLUS POROSUS

Approximate Human deaths per : 1,000+

- EARTH'S LARGEST LIVING CROCODILIAN (COLD BLOODED)
- AVERAGE-SIZE MALES REACH 17-20 FEET AND 1,000 POUNDS
- THEY INHABIT THE MANGROVE SWAMPS, COASTAL MARSHES, RIVER MOUTHS, AND OCEANS IN WESTERN AUSTRALIA. THEY ARE WIDESPREAD IN SOUTH-EAST ASIA, NEW GUINEA AND SOME OF THE PACIFIC ISLANDS.
- THEY ARE OPPORTUNISTIC PREDATORS, THEY LURK PATIENTLY BENEATH THE SURFACE NEAR THE WATER'S EDGE, WAITING FOR POTENTIAL PREY TO STOP FOR A SIP OF WATER. THEY'LL FEED ON ANYTHING THEY CAN GET THEIR JAWS ON, INCLUDING WATER BUFFALO, MONKEYS, WILD BOAR, AND EVEN SHARKS. WITHOUT WARNING, THEY EXPLODE FROM THE WATER WITH A THRASH OF THEIR POWERFUL TAILS, GRASP THEIR VICTIM, AND DRAG IT BACK IN, HOLDING IT UNDER UNTIL THE ANIMAL DROWNS.
- ILLEGAL HUNTING, HABITAT LOSS, AND FEAR TOWARD THE SPECIES, BECAUSE OF ITS REPUTATION AS A MAN-EATER, CONTINUES TO PUT PRESSURE ON THE POPULATION.

Source: nationalgeographic.com
Photo: Gunter Schmida

COULD THEY SWITCH?

CHALLENGE QUESTION #5

DO YOU THINK A SALTWATER CROCODILE COULD SURVIVE IN A POLAR REGION SUCH AS THE ARTIC OCEAN? WHY OR WHY NOT?

Image: Polar_bear_range_map.png

#4 BUTHIDAE FAMILY OF SCORPIONS

Approx. human deaths per year:
3,250

- THE BUTHIDS ARE COMMONLY REFERRED TO AS THE THICK-TAILED SCORPIONS AND ARE GENERALLY VENOMOUS TO PEOPLE, THE MOST POISONOUS GENERA BEING *PARABUTHUS* AND *BUTHOTUS*. THIS IS A LARGE AND WIDESPREAD FAMILY WITH OVER 500 SPECIES, BUT UNDER 20 ARE MEDICALLY SIGNIFICANT (DEADLY).
- REGIONS: OCCURRING ON ALL CONTINENTS EXCEPT ANTARCTICA.
- Natural habitats: wide range of habitats such as grasslands, deserts, forests, etc.
- Unknowingly transported with luggage, cargo BOXES, CONTAINERS, OR SHOES.
- SCORPIONS ARE NOCTURNAL AND TYPICALLY NOT AGGRESSIVE. STINGS MOST USUALLY OCCUR ON HANDS AND FEET WHEN SCORPIONS ARE TOUCHED IN THEIR HIDING PLACES.

Sources and photo: http://www.biodiversityexplorer.org/arachnids/scorpions/buthidae/index.htm
http://emedicine.medscape.com/article/168230-overview

#3 INDIAN COBRA (NAJA NAJA)

Approximately 50,000 deaths per year

- AVG. LENGTH 3-5 FEET
- 10% OF BITES TO HUMANS RESULT IN DEATH DUE TO LACK OF PROMPT TREATMENT
- DIET INCLUDES BIRD EGGS, LIZARDS, FROGS, RODENTS AND OTHER VENOMOUS SNAKES
- INHABIT PLAINS, DENSE OR OPEN FORESTS, ROCKY TERRAIN OR WETLANDS, IT'S ONLY ABSENT FROM DESERT REGIONS FOUND IN ITS RANGE. THEY ARE FOUND IN SEVERAL COUNTRIES INCLUDING INDIA, PAKISTAN, SRI LANKA, MYANMAR, SOUTHERN NEPAL, BANGLADESH, AND BHUTAN
- THE INDIAN COBRA BITES QUICKLY, INJECTING THEIR PREY WITH THE HIGHLY TOXIC VENOM AND WAITING UNTIL IT PARALYZES OR KILLS THE PREY (TAKING FROM 15 MINUTES TO TWO HOURS) . JUST LIKE ALL OTHER SNAKE SPECIES, THEY SWALLOW THEIR PREY WHOLE.
- HUNTED FOR CONSUMPTION, HARVESTED FOR MEDICINES/SKINS, KILLED IN FEAR

Source and image: http://snake-facts.weebly.com/indian-cobra.html

WHY ARE SNAKES AN IMPORTANT PART OF AN ECOSYSTEM?

Food Web in Grasslands Ecosystem

CHALLENGE QUESTION #6:

WHAT WOULD HAPPEN TO THE POPULATIONS OF THE NATURAL PREY (BIRD, BIRD EGGS, LIZARDS, FROGS, RODENTS AND OTHER VENOMOUS SNAKES) IF SNAKES WERE TO GO EXTINCT? HOW WOULD THAT AFFECT PEOPLE?

Chart: (food web) Christine Liou quizizz.com, teaching portfolio (google)
Ecosystem: images)http://www.sskalski.com/biomes-and-ecosystems.html

#2 TSETSE FLY (GLOSSINA)

- THE TSETSE FLY IS AN INSECT THAT BELONGS TO THE HOUSEFLY FAMILY. THERE ARE 23 SPECIES OF TSETSE FLIES THAT ARE IN THE MID-CONTINENTAL AFRICA. TSETSE FLIES LIVE IN OPEN WOODLANDS. THEY WERE ON THE PLANET AT LEAST 34 MILLION YEARS AGO! TSETSE FLIES TRANSMIT PARASITES THAT INDUCE FATAL DISEASES IN BOTH HUMANS AND ANIMALS. PEOPLE FIGHT AGAINST THESE INSECTS WITH PESTICIDES, THROUGH STERILIZATION OF MALE FLIES AND BY CLEARING AND BURNING THE WOODLANDS WHERE THEY LAY EGGS.
- TSETSE FLY LARVA EXCRETES A POWERFUL TOXIN THROUGH PORES IN ITS SKIN. A SINGLE DROP IS POWERFUL ENOUGH TO KILL A HUMAN! SWOLLEN LYMPH GLANDS, HEADACHE, FEVER AND EXTREME WEIGHT LOSS ARE TYPICAL SYMPTOMS OF THE SLEEPING SICKNESS. THIS DISEASE KILLS 250.000 TO 300.000 PEOPLE EACH YEAR.
- TRAPS AND SCREENS ARE USED TO REDUCE NUMBER OF FLIES AROUND HUMAN POPULATIONS
- THEY SUCK THE BLOOD OF HUMANS AND ANIMALS

Sources: http://www.softschools.com/facts/animals/tsetse_fly_facts/1250/
https://tsetseflydotorg.wordpress.com/2012/03/03/tsetse-fly-facts/

#1 MOSQUITO (CULICIDAE)

Approximately 2,000,000 (two million) human deaths per year!

- THERE ARE 100 TRILLION MOSQUITOS ON EARTH FROM 3,450 DIFFERENT SPECIES!
- THEY ARE AN ANCIENT SPECIES! THEY HAVE REMAINED UNCHANGED SINCE 46 MILLION YEARS AGO!
- MOSQUITOS HIBERNATE DURING WINTER MONTHS
- MOSQUITOES MAY CARRY A NUMBER OF DEADLY DISEASES, INCLUDING MALARIA, WEST NILE FEVER, DENGUE FEVER, YELLOW FEVER, ZIKA, AND ENCEPHALITIS. MOSQUITOES ALSO CARRY HEARTWORMS, WHICH CAN BE LETHAL TO YOUR DOG.
- ONLY FEMALE MOSQUITOS BITE HUMANS AND ANIMALS. SHE NEEDS THE PROTEIN IN BLOOD FOR HER EGGS. MALES EAT FLOWER NECTAR
- THEY RELY ON WATER TO LAY EGGS! A FEW INCHES OF WATER IS ALL IT TAKES FOR A FEMALE TO DEPOSIT HER EGGS. TINY MOSQUITO LARVA DEVELOP QUICKLY IN BIRD BATHS, ROOF GUTTERS, AND OLD TIRES DUMPED IN VACANT LOTS. MOSQUITOES CAN LIVE IN ALMOST ANY ENVIRONMENT, WITH THE EXCEPTION OF ANTARCTICA AND A FEW SUB POLAR REGIONS SUCH AS ICELAND. THEY FAVOR FORESTS, MARSHES, TALL GRASSES AND WEEDS, AND GROUND THAT IS WET AT LEAST PART OF THE YEAR.

Sources: https://www.thoughtco.com/fascinating-facts-about-mosquitoes-1968300
http://www.mosquitoworld.net/about-mosquitoes/habitats/

HOW DO HUMANS BATTLE THE DEADLIEST ANIMAL ON EARTH?

Control measures used to kill mosquitos: mosquito nets, clothing that reduces skin exposure, pesticides, insecticides, repellents, screens, air condition, draining or impounding water, and environmental management (maintenance of urban infrastructure)

Challenge Question #7: What might be the environmental risks of the widespread use insecticides used to kill mosquitos? What do you think is the best way to combat this deadly insect?

Photo: http://nationwideradiojm.com/mosquito-pestilence/
Source: World Health Organization
http://www.who.int/denguecontrol/control_strategies/environmental_management/en/

TOP 5 MOST DANGEROUS ANIMALS TO HUMANS

X-TREME Quick Check

#5 SALTWATER CROCODILE

#4 BUTHIDAE FAMILY OF SCORPIONS

#3 INDIAN COBRA

#2 TSETSE FLY

#1 MOSQUITO

SURPRISED? THE SMALLEST CREATURE ON THE LIST IS THE MOST DANGEROUS!!!

List information based on *Top 10 for Boys by*: Paul Terry

SURPRISING TWIST

AS OF 2014, THE WORLD HAS LOST OVER HALF ITS WILDLIFE IN 40 YEARS (CNN.COM)

Figure: http://www.cnn.com/2014/09/30/business/wild-life-decline-wwf/index.html

Sources: World Wide Fund for Nature; cnn.com

DANGERS TO WILDLIFE

CNN/INEZ TORRE

WHO IS THE TOP DANGER TO HUMANS, NOT ON OUR LIST?

WE ARE! IF WE ADDED ALL THE HUMAN LOSSES TOGETHER CAUSED BY THESE ANIMALS, IT WOULD NOT COME CLOSE TO THE DESTRUCTION CAUSED BY OUR OWN KIND.

A DANGER TO EARTH IS A DANGER TO US.

WE MUST CHANGE OUR WAYS!

CHALLENGE QUESTION #8:

LIST THREE WAYS YOU CAN PARTICIPATE IN WILDLIFE CONSERVATION IN THE TOWN OR STATE IN WHICH YOU LIVE.

CONCEPT TO REMEMBER

Humans interact with the other living things (animals, plants) and non living things (natural resources, water, air, sun) in our ecosystems to survive. Although we must protect ourselves from dangerous animals and utilize our resources in our environments, we must learn to change our approach to respect, value, conserve, and restore our planet's natural resources and wildlife. This is the only way to ensure a healthy planet for future generations.

Diagram: https://www.quora.com/Can-we-live-without-animals-If-we-wiped-out-all-the-other-species-on-the-planet-could-we-still-exist; Image: clip4art.com (public domain) Google

ENDANGERED SPECIES IN THE U.S.

For more information on current endangered species by state, go to the Endangered Species Map – on the Fish and Wildlife Service link. https://www.fws.gov/endangered/map/index.html

GEOGRAPHY AND GOOGLE EARTH

TECHNOLOGY OFTEN PROVIDES A VARIETY OF WAYS TO EXPLORE GEOGRAPHY AND USE GEOGRAPHIC TOOLS. WE ARE GOING TO USE GOOGLE EARTH TO EXPLORE MORE ABOUT CONSERVATION IN AFRICA. TO CONTINUE THIS LESSON, CLICK THE LINK BELOW.

HTTPS://WWW.GOOGLE.COM/EARTH/EDUCATION/

OBJECTIVE WRAP-UP

- DID STUDENTS DISCOVER HUMAN-ANIMAL CONFLICT IN CONNECTION WITH CONSERVATION?
- HAVE STUDENTS EXPLORED GEOGRAPHIC TOOLS WHILE UTILIZING GOOGLEEARTH (2017)?
- DID STUDENTS EXPAND UNDERSTANDING IN HUMAN RESPONSIBILITY IN OUR WORLD?

GOALS ACCOMPLISHED

WORKS CITED

ALL WORKS CITED ARE INCLUDED IN THE POWERPOINT, INCLUDING BUT NOT LIMITED TO:

WWW.GOOGLE.COM/EARTH/EDUCATION

GOOGL

E WWF.

CREATIVE COMMONS

NATIONALGEOGRAPHIC.COM

NATIONAL WILDLIFE FEDERATION

WORLD HEALTH ORGANIZATION *TOP TEN FOR BOYS* BY: PAUL TERRY