

Academic Adventures – Conservation

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- Subject(s):** Wildlife Conservation - Virtual
- Topic or Unit of Study:** Science: Six Flags Great Adventure & Safari
- Grade / Level:** 9-12
- Time Allotment:** 4 videos (5-7 minutes each)
- Behavioral Objective:** SWBAT recall criteria to be an ENDANGERED SPECIES and explain the I.U.C.N. RED LIST
- SWBAT compare/contrast ENDANGERED SPECIES vs. EXTINCT SPECIES vs. FUNCTIONALLY EXTINCT and provide examples of each
- SWBAT explain THE GREENHOUSE EFFECT and why it is contributing to GLOBAL WARMING.
- SWBAT give 3 examples of actions they can take at home to help save the environment and reduced their carbon footprint
- SWBAT describe the three R's and give examples of each
- SWBAT explain in their own words what makes up an ECOSYSTEM
- SWBAT define HABITAT DESTRUCTION and provide 2 examples
- SWBAT define PRODUCERS and CONSUMERS and provide examples of each
- SWBAT label all TROPHIC LEVELS in a food pyramid with types of organisms found at each level
- SWBAT explain how energy flows through and ecosystem and why
- SWBAT recall 2 examples of RENEWABLE ENERGY
- SWBAT define CONSERVATION OF WILDLIFE in their own words and explain how it is different from general conservation
- SWBAT define BIODIVERSITY and why it is so important to an ecosystem
- SWBAT construct their own FOOD CHAIN and explain what happens if an animal is removed from the chain

SWBAT recall 2 FACTORS OF EXTINCTION

SWBAT define APEX PREDATOR

SWBAT explain 2 reasons humans have a negative impact on animals and their habitats

SWBAT identify 1 way they can help fight CLIMATE CHANGE in their own community

SWBAT give 1 example of POLLUTION

SWBAT in their own words define INVASIVE SPECIES and explain why they are problematic to certain ecosystems

SWBAT compare/contrast RENEWABLE vs. NON-RENEWABLE RESOURCES

SWBAT recall 1 way zoological facilities are at the forefront of animal conservation

SWBAT list 2 government agencies that were formed to help combat extinction

SWBAT explain how the pet trade has a negative impact on wild populations of animals

Standards:

New Jersey State Learning Standards

Subject: **SCIENCE Grades 9-12**

- **HS-LS2: Ecosystems: Interactions, Energy, and Dynamic**
 - HS-LS2-1: Use mathematical and/ or computational representations to support explanations of factors that affect carrying capacity of ecosystems at different scales
 - HS-LS2-2: Use mathematical representations to support and revise explanations based on evidence about factors affecting biodiversity and populations in ecosystems of different scales.
 - HS-LS2-7: Design, evaluate, and refine a solution for reducing the impacts of human activities on the environment and biodiversity
- **HS-LS2.C: Ecosystem Dynamics, Functioning, and Resilience**
 - HS-LS2-7: Moreover, anthropogenic changes (induced by human activity) in the environment - including habitat destruction, pollution, introduction of invasive species, overexploitation, and climate change – can disrupt an ecosystem and threaten the survival of some species
- **HS-LS2.D: Social Interactions and Group Behavior**
 - HS-LS2-7: Biodiversity is increased by the formation of new species (speciation) and decreased by the loss of species (extinction)

- **HS-LS4: Biological Evolution: Unity and Diversity**
 - HS-LS4-5: Evaluate the evidence supporting claims that changes in environmental conditions may result in: (1) increases in the number of individuals of some species, (2) the emergence of new species over time, and (3) the extinction of other species
 - HS-LS4-6: Create or revise a simulation to test a solution to mitigate adverse impacts of human activity on biodiversity
- **HS-ESS3: Earth and Human Activity**
 - HS-ESS3-3: Create a computational simulation to illustrate the relationship among management of natural resources, the sustainability of human populations, and biodiversity

Summary:

Conservation videos 1-4 build upon each other to introduce students to the context that follows. The virtual lessons are conveyed with the help of an Animal Educator and various safari animals. The recorded content begins with an educator defining conservation as a whole. We then explore how all ecosystems are interconnected and how energy flows through them. We identify producers and consumers and explain all aspects of an energy pyramid.

Types and factors of extinction will be discussed with the help of animal examples. How and why human activity both directly and indirectly is the number one cause of earth's 6th mass extinction event will be explored. The three most common types of pollution will be defined and examples are given. We will discuss how these three types are directly leading to global warming.

Other contributing factors of extinction introduced are the concepts of poaching, over-hunting, invasive species, and the pet trade. Conservation efforts currently underway are discussed on a global, national, and local scale. Examples of all of these are provided.

Next we will explore what zoological facilities like Six Flags are doing to be at the forefront of conservation. We will discuss various topics such as the species survival plan, solar energy, and the World Conservation Network.

Lastly we will discuss what actions students can take at home to help the environment and lessen their carbon footprint. This will be done by introducing the three R's.

Differentiated Instruction:

Students with special education/physical needs:

Follow I.E.P.s, B.A.P.s, and 504 plans exactly as written with directions and requirements given to S.F.G.A. Education Staff by the teacher or school nurse at least 1 day prior to scheduled session.

All presentations can be provided in written, visual, and verbal formats.

Students that are underserved and at risk for failure:

The entire program will provide students with a new foundation of knowledge to create a schema that may help to increase standardized testing abilities and intrinsic motivations.

English Language Learners:



E.L.L. teachers are encouraged to join for interpretation.

Advanced Learners:

Advanced information and activities can be discussed further with education staff.

**Instructional Materials /
Resources/ Assessments:**

Instructional Materials & Resources:

Virtual lesson necessities, animals, downloadable content, animal facts and information. Concept mastery will be determined by educator and teacher observations of questions and answering abilities throughout the classroom experience.

Assessments:

Presentations are in line with New Jersey State Learning Standards. Teachers are encouraged to review material as it correlates to their own curriculum.