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UNIT

## Engaging in the Fight Against Extinction

Students time travel through Earth's mass extinctions unlocking the Anthropocene Epoch and the idea of human-driven extinction. By researching vulnerable species and their biomes, students discover potential consequences of the species' extinction and propose steps to prevent it. Teams design conservation pamphlets promoting endangered species, and suggest action steps to protect the species and the planet.

**GRADES**

6 - 8

**SUBJECTS**

*Anthropology, Arts and Music, Biology, Ecology, Conservation, Earth Science, Climatology, Geology, Oceanography, English Language Arts, Geography, Human Geography, Physical Geography, Social Studies, Civics, Economics, U.S. History, Storytelling, Photography*

**CONTENTS**

3 Lesson plans

For the complete unit with media resources, visit:

<http://www.nationalgeographic.org/unit/engaging-fight-against-extinction/>

## In collaboration with



## UNIT OVERVIEW

Students research and discover human and environmental drivers of mass extinction and develop an understanding of trophic cascades and how the loss of one species has an effect on other species and biomes. Then, in teams, they select an endangered species on which to focus their conservation efforts and identify factors influencing the species' endangerment, considering steps necessary to prevent extinction.

Students look at ways eco-artists actively advocate for the Earth and its inhabitants and apply the strategies to their own work as planetary stewards. Teams create a three-panel conservation pamphlet that showcases their endangered animal, including infographics or images providing further information, three to four concrete steps people can take to help save this animal from extinction, and information about organizations dedicated to species survival. Finally, student teams look for ways to spread the message beyond their classroom, such as carrying out their conservation action plans within their own community, educating and engaging with other local actors, dividing responsibilities, and urging action on behalf of a vulnerable regional species with the help of knowledgeable and influential sponsors such as zoos, aquariums, and nonprofits.

Use this [unit at a glance](#) to explore a brief outline of the materials included in this resource.

Use this [pedagogical support](#) to inform your teaching of this project-based learning unit.

***Unit Driving Question:*** *How can we, as planetary stewards, take an active role in saving species from extinction?*

## LESSON 1: THE SIXTH MASS EXTINCTION? | 2 HRS 55 MINS



Students collaboratively investigate our planet's five mass extinctions and the possibility of a sixth mass extinction. Then, students explore the Anthropocene Epoch's cultural and environmental complexities and impacts before selecting a biome and endangered species that exist within it to be the focus of their research throughout the rest of the unit. They predict how human activity has impacted these biomes and species. This lesson is part of the [\*Engaging in the Fight Against Extinction\*](#) unit.

# LESSON 2: DRIVERS OF EXTINCTION | 3 HRS 45 MINS



Students explore drivers of extinction across Earth's major biomes, including human-to-environment interactions that threaten biodiversity, and seek solutions to mitigate habitat loss and prevent extinction. As a result, they develop research-based action steps critical to protecting a certain species and incorporate key findings into their culminating conservation pamphlets. This lesson is part of the [Engaging in the Fight Against Extinction](#) unit.

# LESSON 3: SLOWING EXTINCTION | 2 HRS 30 MINS



Students explore the varying roles people can play to save endangered species. Students create an eco-artist social media profile sharing information about artists who encourage conservation through their work. This lesson is part of the [Engaging in the Fight Against Extinction](#) unit.

## BACKGROUND & VOCABULARY

### Vocabulary

Term	Part of Speech	Definition
<b>Anthropocene</b>	<i>noun</i>	period of time during which human activities have impacted the environment enough to constitute a distinct geological change.
<b>apex predator</b>	<i>noun</i>	species at the top of the food chain, with no predators of its own. Also called an alpha predator or top predator.
<b>aquatic</b>	<i>adjective</i>	having to do with water.
<b>biodiversity</b>	<i>noun</i>	all the different kinds of living organisms within a given area.
<b>biome</b>	<i>noun</i>	area of the planet which can be classified according to the plant and animal life in it.

<b>Term</b>	<b>Part of Speech</b>	<b>Definition</b>
<b>bottom-up trophic cascade</b>	<i>noun</i>	ecological phenomenon in which a producer or primary consumer is removed from the environment.
<b>chain reaction</b>	<i>noun</i>	series of events where the previous event causes the next event.
<b>citizen</b>	<i>noun</i>	member of a country, state, or town who shares responsibilities for the area and benefits from being a member.
<b>climate</b>	<i>noun</i>	all weather conditions for a given location over a period of time.
<b>conservation</b>	<i>noun</i>	management of a natural resource to prevent exploitation, destruction, or neglect.
<b>conservation ecology</b>	<i>noun</i>	study of Earth's biodiversity, with the goal of protecting species, habitats, and ecosystems. Also called conservation biology.
<b>consumer</b>	<i>noun</i>	organism on the food chain that depends on autotrophs (producers) or other consumers for food, nutrition, and energy.
<b>decomposer</b>	<i>noun</i>	organism that breaks down dead organic material; also sometimes referred to as detritivores
<b>desert</b>	<i>noun</i>	area of land that receives no more than 25 centimeters (10 inches) of precipitation a year.
<b>driver</b>	<i>noun</i>	any natural or human-induced factor that directly or indirectly sets a change to an <u>ecosystem</u> in motion.
<b>ecology</b>	<i>noun</i>	branch of biology that studies the relationship between living organisms and their environment.
<b>ecosystem</b>	<i>noun</i>	community and interactions of living and nonliving things in an area.
<b>endangered species</b>	<i>noun</i>	organism threatened with extinction.
<b>epoch</b>	<i>noun</i>	particular period of time in history marked by an event that begins a new period.
<b>extinct</b>	<i>adjective</i>	no longer existing.
<b>extinction</b>	<i>noun</i>	process of complete disappearance of a species from Earth.
<b>food chain</b>	<i>noun</i>	group of organisms linked in order of the food they eat, from producers to consumers, and from prey, predators, scavengers, and decomposers.
<b>forest</b>	<i>noun</i>	ecosystem filled with trees and underbrush.
<b>grassland</b>	<i>noun</i>	ecosystem with large, flat areas of grasses.
<b>Green World Hypothesis</b>	<i>noun</i>	idea that the number of herbivores must be controlled by both the bottom up and the top down for producers, plant life, to survive.

<b>Term</b>	<b>Part of Speech</b>	<b>Definition</b>
<b>habitat</b>	<i>noun</i>	environment where an organism lives throughout the year or for shorter periods of time.
<b>Holocene</b>	<i>noun</i>	having to do with the present geological time period. The Holocene Epoch began at the end of the last glacial period, about 10,000 years ago.
<b>keystone species</b>	<i>noun</i>	organism that has a major influence on the way its ecosystem works.
<b>mass extinction</b>	<i>noun</i>	extinction event in which a large number of species go extinct in a relatively short period of time.
<b>natural disaster</b>	<i>noun</i>	an event occurring naturally that has large-scale effects on the environment and people, such as a volcano, earthquake, or hurricane.
<b>Permian</b>	<i>adjective</i>	last geologic period of the Paleozoic Era.
<b>predator</b>	<i>noun</i>	animal that hunts other animals for food.
<b>prey</b>	<i>noun</i>	animal that is hunted and eaten by other animals.
<b>producer</b>	<i>noun</i>	organism on the food chain that can produce its own energy and nutrients. Also called an autotroph.
<b>public policy</b>	<i>noun</i>	course of actions, beliefs, and laws taken by a government having to do with a specific issue or concern.
<b>scavenger</b>	<i>noun</i>	organism that eats dead or rotting biomass, such as animal flesh or plant material.
<b>species</b>	<i>noun</i>	group of similar organisms that can reproduce with each other.
<b>stewardship</b>	<i>noun</i>	responsible management to ensure benefits are passed on to future generations.
<b>top-down trophic cascade</b>	<i>noun</i>	ecological phenomenon in which a top predator is removed from the environment.
<b>trophic cascade</b>	<i>noun</i>	ecological phenomenon triggered by the addition or removal of predators from an environment.
<b>tundra</b>	<i>noun</i>	cold, treeless region in Arctic and Antarctic climates.

