

# Drivers of Extinction

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. Then, students develop a better understanding of trophic cascades and research organizations that are working toward species and environmental preservation. As a result, they develop research-based action steps critical to protecting a certain species and incorporate key findings into their culminating conservation pamphlets.

**GRADES**

6, 7, 8

**SUBJECTS**

*Biology, Ecology, Conservation, Earth Science, Climatology, Geology, Oceanography, Geography, Human Geography, Physical Geography, Social Studies, Civics, Economics*

**CONTENTS**

3 Activities

## ACTIVITY 1: CAUSES AND EFFECTS OF EXTINCTION | 1 HR 15 MINS

### DIRECTIONS

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

**The Sixth Mass Extinction? Lesson Driving Question:** *How have humans impacted the Earth for better and for worse?*

**1. Engage students in the analysis of a photograph.**

- Display the photograph at the start of the [Hurricane Katrina Explained](#) article which shows the combined human and environmental impacts on the environment.
- Guide students in an analysis of the photograph by asking:
  - *What is the first thing you notice in this photograph?*
  - *What destructive elements of this environment have been caused by humans, and what destructive elements have been caused by nature?*
  - *Should elements like the homes be considered destruction? Why or why not?*
  - *How are these destructive elements impacting animals and people living in the area?*

## **2. Have students create a *Know and Need to Know* chart to address the lesson's driving question.**

- Share with students the *Drivers of Extinction* lesson driving question: *Why is it important to prevent species extinction?*
  - Solicit responses from students.
  - Select and share key facts from this activity's Background Information section being sure to address both human and environmental drivers of extinction to support student understanding of both types of drivers of extinction.
- Initiate question generation by asking: *What else do we need to know in order to really understand why it is important to prevent species extinction?*
- In their research teams, have students generate a *Drivers of Extinction Know and Need to Know* chart to help them respond to this question. Have teams share with the class the question from the list that they are most curious to answer in this lesson.

## **3. Use a video on climate and the oceans to facilitate a discussion about the differences between environmental and human drivers of extinction.**

- Provide a quick overview of the difference between environmental and human factors and ask students to pay close attention to examples of each while watching the video.
- As a class, watch the [Climate 101: Oceans video](#) (2:38). After watching the video, have student teams discuss the following questions:
  - *What did you notice in the video that was an environmental factor influencing the ocean's biome? (Possible answer: volcanic eruptions)*
  - *What did you notice in the video that was an example of a human factor influencing the ocean's biome? (Possible answers: greenhouse gas emissions causing the*

greenhouse effect because of more carbon dioxide in the atmosphere.)

- *Can environmental and human drivers overlap? Can a source be both a human and an environmental factor? If so, provide an example.* (Possible answer: climate change is influenced heavily by human factors like greenhouse gas emissions, which fuel stronger and more frequent storms.)
- Have teams share out their responses. Chart responses on a board or chart paper for student reference.
- Distribute a copy of the *Investigating an Endangered Species and its Biome* handout to each student. Use student responses to demonstrate how students should record their information in Step 1 and Step 2 of the handout.
- Distribute copies of the relevant version (see below) of *Biomes and Endangered Species Curated Resources* to appropriate groups to prepare students to begin their research.
  - *Biomes and Endangered Species Curated Resources: Aquatic Biome*
  - *Biomes and Endangered Species Curated Resources: Desert Biome*
  - *Biomes and Endangered Species Curated Resources: Forest Biome*
  - *Biomes and Endangered Species Curated Resources: Grassland Biome*
  - *Biomes and Endangered Species Curated Resources: Tundra Biome*
- In the next step, half of the research teams will be researching environmental drivers of extinction, and the other half will research human drivers of extinction specific to their biome and focal species.
- Suggest students begin with the first sources provided in the biome section and the species section of *Biomes and Endangered Species Curated Resources* and move onto additional resources if they need additional information or have extra time.

#### **4. Engage students in researching the drivers of extinction facing their species and its biome.**

- Split research teams into two focus groups: human drivers of extinction and environmental drivers of extinction.
  - Environmental drivers focus group: Using the appropriate resources, have students gather evidence of environmental drivers' impact on their species and its biome and record their response in Step 1 of *Investigating an Endangered Species and its Biome*.
  - Human drivers focus group: Using the appropriate resources, have students gather evidence of human impact on their species and its biome and record their response in Step 2 of *Investigating an Endangered Species and its Biome*. (While many

environmental factors, such as increased storms and rising temperatures, are linked to human impact, students should still list these as environmental drivers.)

- In their research teams, have students choose a role for this portion of the activity. The roles are:
  - Facilitator: Responsible for keeping the group on task and productivity flowing within the allotted time.
  - Presenter and Fact Checker: Responsible for sharing the group's information with the class and settling any fact disputes through additional research.
  - Recorder: Responsible for writing the group's ideas on group documentation.
- Bring focus groups back together to share their findings with their full research group so all students have recorded evidence of both human and environmental drivers of extinction.
- Remind students that their project will be suggesting an action that individuals can take to prevent the extinction of their group's focal species. Have students look through their two lists to identify and highlight drivers of extinction that might be beneficial to include in their project pamphlets.

#### **5. Guide students in debriefing the activity by adding to their *Know and Need to Know* chart based on their research.**

- Have students return to their *Drivers of Extinction Know and Need to Know* charts started in Step 2 and add to it as necessary to represent their learning during the activity.
- As a class, discuss the most interesting and important things learned from their research today.

## Modification

Step 4: For advanced or older students, require quotes or paraphrasing with source citations.

## Modification

Step 4: For younger grades, reduce the number of websites on the curated list.

## Modification

Step 4: The curated list of resources covers a range of Lexile levels and a variety of multimedia information (such as text, infographics, and videos). To better match students to their needs, assign students who may need reading support with resources that have less text.

# Informal Assessment

*Investigating an Endangered Species and its Biome:* Students will complete the environmental and human influences portion of their handout in this activity.

## OBJECTIVES

## Subjects & Disciplines

### **Biology**

- Ecology
- Conservation

### **Earth Science**

- Geology
- Oceanography

### **Geography**

- Human Geography
- Physical Geography

### **Social Studies**

- Civics
- Economics

## Learning Objectives

Students will:

- Distinguish between environmental and human drivers of extinction and identify drivers of extinction for their focal biome and species.
- Identify various drivers of extinction and explain the driver's effects on the focal biome and species.

## Teaching Approach

- Project-based learning

# Teaching Methods

- Reading
- Research
- Self-directed learning

## Skills Summary

This activity targets the following skills:

- 21st Century Student Outcomes
  - Information, Media, and Technology Skills
    - Information Literacy
    - Media Literacy
  - Learning and Innovation Skills
    - Communication and Collaboration
    - Critical Thinking and Problem Solving
  - Life and Career Skills
    - Initiative and Self-Direction
    - Leadership and Responsibility
    - Productivity and Accountability
- 21st Century Themes
  - Environmental Literacy
  - Global Awareness
- Critical Thinking Skills
  - Analyzing
  - Applying
  - Evaluating
  - Understanding

## National Standards, Principles, and Practices

COMMON CORE STATE STANDARDS FOR ENGLISH LANGUAGE ARTS  
& LITERACY

- CCSS.ELA-LITERACY.RI.6.7:

Integrate information presented in different media or formats (e.g., visually, quantitatively) as well as in words to develop a coherent understanding of a topic or issue.

- CCSS.ELA-LITERACY.WHST.6-8.9:

Draw evidence from informational texts to support analysis, reflection, and research.&nbsp;

## THE COLLEGE, CAREER & CIVIC LIFE (C3) FRAMEWORK FOR SOCIAL STUDIES STATE STANDARDS

- D2.His.14.6-8:

Explain multiple causes and effects of events and developments in the past.

### Preparation

## BACKGROUND & VOCABULARY

# Background Information

Environmental drivers, such as natural disasters, impact biodiversity because of habitat disruption. Earthquakes, landslides, wildfires, floods, droughts, volcanic eruptions, tsunamis, and other environmental drivers change the face of the Earth's surface. While human drivers may play a part in an increase in natural disasters, changing the course of this chain reaction is difficult once it has begun.

Human beings have been changing the Earth at an ever-increasing rate since the Industrial Revolution. Advancements in agriculture have especially impacted biomes and habitats that many species call home. In fact, up to one million plant and animal species face extinction, many within decades, because of human activities. Without drastic action to conserve habitats, the rate of species extinction will undoubtedly increase. While agricultural activities have had the largest impact on ecosystems due to the use of fertilizers and the conversion of areas such as tropical forests to grow crops or raise livestock, the next biggest threats to nature are the exploitation of plants and animals through harvesting, logging, hunting, and fishing; climate change; pollution; and the spread of invasive species.

## Prior Knowledge

# Recommended Prior Activities

- None

## Vocabulary

Term	Part of Speech	Definition
biodiversity	noun	all the different kinds of living organisms within a given area.
biome	noun	area of the planet which can be classified according to the plant and animal life in it.
chain reaction	noun	series of events where the previous event causes the next event.
climate	noun	all weather conditions for a given location over a period of time.
conservation	noun	management of a natural resource to prevent exploitation, destruction, or neglect.
driver	noun	any natural or human-induced factor that directly or indirectly sets a change to an <u>ecosystem</u> in motion.
endangered species	noun	organism threatened with extinction.
extinct	adjective	no longer existing.
natural disaster	noun	an event occurring naturally that has large-scale effects on the environment and people, such as a volcano, earthquake, or hurricane.

## ACTIVITY 2: UNDERSTANDING KEYSTONE SPECIES | 1 HR 15 MINS

### DIRECTIONS

**From Pandas to Polar Bears: Hope for Earth's Imperiled Species Unit Driving Question:** How can we, as planetary stewards, take an active role in saving species from extinction?

**Drivers of Extinction Lesson Driving Question:** Why is it important to prevent species extinction?



## 1. Prepare students for a take a stand activity about the importance of funding research for species that are on the brink of extinction.

- To begin, survey the class by asking: *How many of you have ever seen a live sea star?* and *What do you know about sea stars?*
- If not mentioned by a student, explain that a large portion of the sea star population has been mysteriously dying.
- Show the video [Why Are So Many Starfish Dying?](#) After watching, have students turn and talk to respond to the question: *Why does it matter that sea stars are dying?* Select a few students to share their partners' ideas about the question.
- Tell students that a congressman from Olympia, Washington, wanted Congress to set aside \$12 million dollars to coordinate research among federal agencies and create a marine disease emergency fund that would accept public donations for efforts to address starfish wasting disease.
- Brainstorm with students how Congress currently spends money. (Possible answers: military, highways, Social Security, and schools.) Then ask: *Should Congress take \$12 million from their budget, or away from these other things, and prioritize sea star research?*
- Identify one side of the room as the *For* side and the opposite side as *Against*. Have students move to the side of the room that represents their opinion.
- Once students are on their self-selected side, have them pair up with another student in the group to discuss their reasoning.
- Call on several students who are for and ask for their reasoning, and then do the same for students who are against.

## 2. Students watch a video on trophic cascades and keystone species.

- Distribute a copy of the [Keystone Species and Trophic Cascades](#) handout to each student. As a class, watch this video from Howard Hughes Medical Institute (HHMI), [Some Animals Are More Equal Than Others: Keystone Species and Trophic Cascades](#) (19:28). Have students complete the handout while watching the video.
- After watching the video, have students revisit the original question: *Should Congress take \$12 million from their budget and prioritize sea star research?*
- Again, have students choose the side of the room that represents their opinion, for or against, now that they've seen the video. Count the number of students on each side of the room.

- Call on several students who changed their minds to explain what information helped them change their thinking.

### 3. Students use what they learned to describe the impact of the loss of their species on other species and the biome.

- Have students read the *Role of Keystone Species in an Ecosystem* article at the appropriate reading level.
- Using this reading and their notes from *Keystone Species and Trophic Cascades*, ask students to determine the role of their species in the biome (such as predator, herbivore, keystone mutualist, umbrella species). Have research teams meet and discuss the role of their species and predict the potential impact of the loss of their species.
- Students record their ideas in Step 3 of their *Investigating an Endangered Species and its Biome* handout.
- Based on what they have learned, direct teams to respond to the lesson driving question: *Why is it important to prevent species extinction?*
  - Instruct teams to discuss the question and compile their responses on a piece of chart paper that is titled with the driving question.
  - Have one person from each team share their responses with the class.

## Tip

Step 1: If students are unable to answer the question about federal funding, help them identify other things the government spends money on, like highways, schools, the military, or other relevant services. Then ask: *Should Congress take money away from one of these other priorities so they can protect sea stars?*

## Tip

Step 2: Watch the video ahead of time and mark appropriate moments to pause the video to allow students to ask clarifying questions and record answers on the *Keystone Species and Trophic Cascades* worksheet.

## Tip

Step 3: If students are having difficulty understanding the impact of the loss of their species, encourage students to argue with research team's predictions related to the potential loss of a species. Encourage students to ask questions or make counterpoints that would force a group to reconsider their thinking.

## Informal Assessment

*Investigating an Endangered Species and its Biome:* Review the investigation document as students are working or by collecting at the end of class to ensure that students are gathering the type of information that will lead them to understand their species' place in the food web, drivers causing the species' demise, and the potential consequences of the species loss, as well as ideas for preventative measures.

## Extending the Learning

Civics Extension: Look at information about the federal budget and what \$12 million looks like relative to everything else. *How much do we spend on the military? Healthcare? Education? Is \$12 million "a lot"?*

## OBJECTIVES

## Subjects & Disciplines

### Biology

- Ecology
- Conservation

### Earth Science

- Climatology
- Oceanography

### Social Studies

- Civics

## Teaching Approach

- Project-based learning

## Teaching Methods

- Discussions
- Multimedia instruction
- Writing

# Skills Summary

This activity targets the following skills:

- 21st Century Student Outcomes
  - Information, Media, and Technology Skills
    - Information Literacy
    - Information, Communications, and Technology Literacy
    - Media Literacy
  - Learning and Innovation Skills
    - Communication and Collaboration
    - Critical Thinking and Problem Solving
  - Life and Career Skills
    - Leadership and Responsibility
- 21st Century Themes
  - Environmental Literacy
  - Global Awareness
- Critical Thinking Skills
  - Analyzing
  - Applying
  - Evaluating
  - Understanding

## National Standards, Principles, and Practices

### COMMON CORE STATE STANDARDS FOR ENGLISH LANGUAGE ARTS & LITERACY

- **CCSS.ELA-LITERACY.SL.7.1:**

Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on Grade 7 topics, texts, and issues, building on others' ideas

and expressing their own clearly.

• CCSS.ELA-LITERACY.WHST.6-8.9:

Draw evidence from informational texts to support analysis, reflection, and research.&nbsp;

## THE COLLEGE, CAREER & CIVIC LIFE (C3) FRAMEWORK FOR SOCIAL STUDIES STATE STANDARDS

• D4.6.6-8:

Draw on multiple disciplinary lenses to analyze how a specific problem can manifest itself at local, regional, and global levels over time, identifying its characteristics and causes, and the challenges and opportunities faced by those trying to address the problem.

### Preparation

## BACKGROUND & VOCABULARY

### Background Information

To understand potential trophic effects, one must understand the different levels within a food chain. A food chain outlines who eats whom. A food web is multiple food chains within an ecosystem. Each organism in an ecosystem occupies a specific trophic level or position in the food chain or web. Producers, who make their own food using photosynthesis or chemosynthesis, make up the bottom of the trophic pyramid. Primary consumers, mostly herbivores, exist at the next level, and secondary and tertiary consumers (omnivores and carnivores) follow. At the top of the system are the apex consumers: animals who have no predators other than humans.

A trophic cascade is an interaction in the food web triggered by the addition or removal of top predators and involves changes in the relative populations of predators and prey in that food chain. This often results in dramatic changes in an ecosystem's structure and balance. For example, in a three-level food chain, an increase (or decrease) in carnivores causes a decrease (or increase) in herbivores and an increase (or decrease) in primary producers such as plants and phytoplankton.

A keystone species is an organism that helps define an entire ecosystem. It is often, but not always, a predator. Without its keystone species, the ecosystem would be dramatically different or cease to exist altogether. Sea otters, for instance, are a keystone species in their aquatic biome. Sea urchins, the spiky organism carried by this sea otter, eat kelp. Sea otters

eat sea urchins, preventing the overpopulation of urchins from destroying the ecosystem. If sea otters cease to exist in this biome, kelp will eventually die out as well, because there will be an increase in sea urchins that will eat the kelp until it is gone.

## Prior Knowledge

## Recommended Prior Activities

- None

## Vocabulary

<b>Term</b>	<b>Part of Speech</b>	<b>Definition</b>
<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>bottom-up trophic cascade</b>	<i>noun</i>	ecological phenomenon in which a producer or primary consumer is removed from the environment.
<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.
<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>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>keystone species</b>	<i>noun</i>	organism that has a major influence on the way its ecosystem works.
<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>scavenger</b>	<i>noun</i>	organism that eats dead or rotting biomass, such as animal flesh or plant material.

Term	Part of Speech	Definition
top-down trophic cascade	noun	ecological phenomenon in which a top predator is removed from the environment.
trophic cascade	noun	ecological phenomenon triggered by the addition or removal of predators from an environment.

## ACTIVITY 3: PROMOTING ACTIONS TO PREVENT EXTINCTION | 1 HR 15 MINS

### DIRECTIONS

**From Pandas to Polar Bears: Hope for Earth's Imperiled Species Unit Driving Question:** *How can we, as planetary stewards, take an active role in saving species from extinction?*

**Drivers of Extinction Lesson Driving Question:** *Why is it important to prevent species extinction?*

**1. Ask students to brainstorm examples of ways that people take action to protect the environment.**

- Project the key image or another image of people taking action to protect the environment. As a class, brainstorm ways that individuals take action to protect the environment.
- Have student teams discuss the following:
  - *Which of these actions might benefit your focal species?*
  - *Would these actions on their own be enough to save your focal species and their biome?*

**2. Engage students in a guided reading of an article to build a strong case for conservation advocacy.**

- Provide students with access to [Half of All Land Must Be Kept in a Natural State to Protect Earth](#), and read it aloud.

- As you read, stop frequently and ask students to identify examples of how citizens and organizations work together to act as environmental advocates.
- Lead a discussion to address the following questions:
  - *Why does this article suggest that global leaders should care about protecting the land outside of their own countries?*
  - *What kinds of things can happen over time if action is or is not taken toward climate stabilization?*
  - *What are some local and global actions that the article suggests?*
  - *What are the different roles that people can have in taking those actions?*
  - *What are some of the challenges and opportunities involved in taking those actions?*

### **3. Engage students in further investigation into organizations that act as environmental advocates.**

- Provide teams with the [Planetary Heroes](#) handout, so they may take a deeper dive into one of the organizations listed and identify action steps organizations are taking to protect the Earth.
- Instruct each member within the research team to select and read about a different organization.
- Upon completion of their reading, each student creates a Planetary Hero trading card on a 3x5 index card or cardstock that identifies the organization, its logo, its mission, and 2-3 examples of how it advocates for the environment or specific species.

### **4. Have student research teams discuss their findings and develop research-based action steps critical to preventing extinction for their focal species.**

- Prompt students to share their trading cards with their research teammates, highlighting the types of actions their selected organization takes to prevent extinction.
- Ask teams to review what they have learned so far in the unit about the risks facing their focal species. Have students identify the most critical risks and match those risks to specific actions that can be taken and record their thinking in Step 4 of [Investigating an Endangered Species and its Biome](#).
- Prompt teams to collaborate to develop a group response for the unit's driving question: *How can we, as planetary stewards, take an active role in saving species from*



extinction?

- Invite teams to share their actions and identify actions they have in common with other groups.
- Return students' attention to the whole-class generated *Know and Need to Know* chart from the *Endangered Species and Their Biomes* activity. Review the list with the class; strike questions that have been answered at this point and add information students have shared to the Know column.

## Modification

Step 3: Allow students to trade their cards with other groups to expand the number of actions that can be taken to prevent extinction.

### Tip

Step 3: Prior to the activity, create a model of a trading card.

### Tip

Step 3: Preview the organizations and support students in selecting organizations that are related to protecting the biome that students are focused on.

## Informal Assessment

*Investigating an Endangered Species and its Biome*: Monitor students' responses to Step 4 for accuracy or to redirect research if necessary.

## OBJECTIVES

## Subjects & Disciplines

### Biology

- Ecology

### Earth Science

- Climatology
- Geology

- Oceanography

Geography

Social Studies

# Learning Objectives

Students will:

- Evaluate potential human-based solutions to prevent the extinction of their focal species.
- Collaborate with group members to expand their understanding and make suggestions to prevent species extinction.

# Teaching Approach

- Project-based learning

# Teaching Methods

- Brainstorming
- Research
- Self-directed learning

# Skills Summary

This activity targets the following skills:

- 21st Century Student Outcomes
  - Information, Media, and Technology Skills
    - Information Literacy
    - Information, Communications, and Technology Literacy
    - Media Literacy
  - Learning and Innovation Skills
    - Communication and Collaboration
    - Creativity and Innovation
    - Critical Thinking and Problem Solving

- Life and Career Skills
  - Initiative and Self-Direction
  - Leadership and Responsibility
  - Productivity and Accountability
- 21st Century Themes
  - Civic Literacy
  - Environmental Literacy
  - Global Awareness
- Critical Thinking Skills
  - Analyzing
  - Applying
  - Evaluating
  - Remembering
  - Understanding
- Geographic Skills
  - Acquiring Geographic Information
  - Analyzing Geographic Information
  - Answering Geographic Questions
  - Organizing Geographic Information

# National Standards, Principles, and Practices

## COMMON CORE STATE STANDARDS FOR ENGLISH LANGUAGE ARTS & LITERACY

### • CCSS.ELA-LITERACY.SL.7.1:

Engage effectively in a range of collaborative discussions (one-on-one, in groups, and teacher-led) with diverse partners on Grade 7 topics, texts, and issues, building on others' ideas and expressing their own clearly.

### • CCSS.ELA-LITERACY.WHST.6-8.9:

Draw evidence from informational texts to support analysis, reflection, and research.&nbsp;

## THE COLLEGE, CAREER & CIVIC LIFE (C3) FRAMEWORK FOR SOCIAL STUDIES STATE STANDARDS

### • D4.6.6-8:

Draw on multiple disciplinary lenses to analyze how a specific problem can manifest itself at local, regional, and global levels over time, identifying its characteristics and causes, and the challenges and opportunities faced by those trying to address the problem.

## Preparation

# BACKGROUND & VOCABULARY

## Background Information

There are several organizations that are dedicated to preventing extinction. These organizations work in different ways. They engage the science, collecting data, and making the scientific case for action. They work to raise public awareness of endangered animals through a variety of methods, including producing photos and videos and using social media. They also lobby governments to create policies that prevent extinction. While organizations may have a particular lens on how they take action, they are all focused on protecting the environment and preventing extinction.

## Prior Knowledge

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## Recommended Prior Activities

- None

## Vocabulary

Term	Part of Speech	Definition
apex predator	<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.
bottom-up trophic cascade	<i>noun</i>	ecological phenomenon in which a producer or primary consumer is removed from the environment.
consumer	<i>noun</i>	organism on the food chain that depends on autotrophs (producers) or other consumers for food, nutrition, and energy.
decomposer	<i>noun</i>	organism that breaks down dead organic material.

<b>Term</b>	<b>Part of Speech</b>	<b>Definition</b>
<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>keystone species</b>	<i>noun</i>	organism that has a major influence on the way its ecosystem works.
<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>scavenger</b>	<i>noun</i>	organism that eats dead or rotting biomass, such as animal flesh or plant material.
<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.



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