



Essential Question

How do natural events and human activities affect the environment?



Go Digital!



Friend or Foe?



We are surrounded by many species of plants and animals that are not native to the area they live in.

- ▶ Beekeeping is not just an agricultural activity. I keep honey bees in the heart of a busy city!
- ▶ Bees can thrive in this unusual setting, and I enjoy the honey they produce.

Talk About It



Write words you have learned about activities that affect an environment. Then talk about an activity you have done that affected the environment.



Vocabulary

Use the picture and the sentences to talk with a partner about each word.



agricultural

Sam and Gina gathered apples and other **agricultural** products for the market.

How do agricultural products make a difference in your life?



declined

Because many businesses closed, the town had clearly **declined** over the years.

What actions can a restaurant take when its profits have declined?



disorder

The veterinarian examined the cow for a stomach **disorder**.

What kind of medical disorder might keep you home from school?



identify

People are able to **identify** my dog not only by his dog tag, but by his smile.

How would you identify your best friend in a crowd?



probable



The **probable** cause of the shattered window was Jake and his soccer ball.

What type of weather is most probable in the winter where you live?



thrive

Some plants manage to grow and **thrive** even in snow.

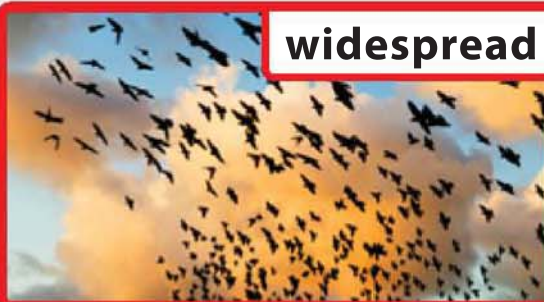
What would you do to help a pet thrive?



unexpected

As the wildebeests drank at the river, the crocodile's arrival was **unexpected**.

How might an unexpected event change your plans?



widespread

Starlings, introduced from England, are now a **widespread** bird species.

What is a good example of a widespread fad?

Your Turn

COLLABORATE



Pick three words. Write three questions for your partner to answer.

Go Digital! Use the online visual glossary



Essential Question

How do natural events and human activities affect the environment?

Read two different views on the arrival of new species into the United States.

It's hard to imagine life without oranges and chickens, which are examples of nonnative species.

Should Plants and Animals from Other Places **Live Here?**



New Arrivals Welcome

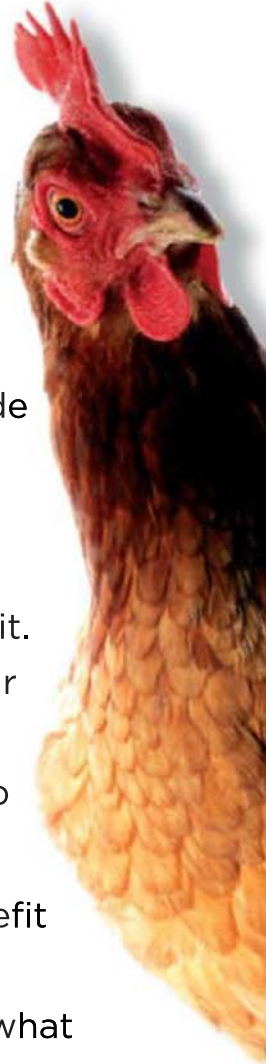
Nonnative species are good for the economy—and they taste good, too!

Some of America's most important immigrants are plants and animals. Called *nonnative species*, these creatures arrive here from other regions or countries. Nonnative species are known as *invasive* when they harm the environment, our health, or the economy. Invasive species often take over a **widespread** area and overwhelm native wildlife. The population of some native species has **declined** because of a few newcomers, but the news is not all bad. We would be a lot worse off without some of them.

In Florida, for example, about 2,000 species of familiar plants and animals are nonnative. These include oranges, chickens, and sugarcane. In fact, 90 percent of farm sales can be traced directly to nonnative species.

Nonnative species help to control insects and other pests that harm crops. Some scientists **identify** a pest's natural enemy and bring in nonnative enemy species, such as insects, to kill the pests. Killing the pests is a good thing, and an even better result is that pesticide use is reduced. Vedalia beetles were transported here from Australia to eat insects that killed citrus fruit. The beetles completed their mission without any side effects. They also help keep citrus farmers in business!

Not all new arrivals benefit humans. However, many nonnative species are just what the doctor ordered. Many of the dogs and cats we love so much originated in other parts of the world. Would you want to ban Labrador retrievers and Siamese cats? Creatures like these surely make our lives and our nation better!





A Growing Problem

Thousands of foreign plant and animal species threaten our country.

Visitors to the Florida Everglades expect to see alligators, not pythons. These huge snakes are native to Southeast Asia. But about 150,000 of the reptiles are crawling through the Everglades. The **probable** reason they got there is that pet owners dumped the snakes in the wild. Now the nonnative pythons have become a **widespread** menace, threatening to reduce the population of endangered native species.

Some nonnative species may be useful, but others are harmful to the nation. It costs the U.S. \$137 billion each year to repair the damage these species cause to the environment. The trouble occurs when nonnative species become invasive. Invasive species are a nuisance just about everywhere in the nation. For example, the

Asian carp, which was introduced unintentionally to the U.S., has been able to **thrive** in the Mississippi River and now threatens the Great Lakes ecosystem. Because of its large appetite, the population of native fish has gone down.





Some germs are also invasive species, and they are especially harmful to humans. One, the avian influenza virus, came to the U.S. carried by birds. This microbe can cause a serious lung **disorder** in infected people.

Some **agricultural** experts have introduced nonnative species on purpose to improve the environment. However, this can sometimes create **unexpected** problems. A hundred years ago, melaleuca trees were brought to Florida from Australia to stabilize swampy areas. Now millions of the trees blanket the land, crowding out native plants and harming endangered plants and animals.

The facts about this alien invasion lead to one conclusion: We must remove invasive species and keep new ones from our shores.

Nonnative Species: Benefits and Costs

Over the years, about 50,000 nonnative species have entered the U.S. These four examples show the positive and negative impacts they can have.

| SPECIES | NATIVE LAND | WHEN AND HOW INTRODUCED TO U.S. | POSITIVE IMPACT | NEGATIVE IMPACT |
|---|------------------------|---|---|--|
|  Horse | Europe | Early 1500s, on purpose | Used for work, transportation, and recreation | Made large-scale wars possible |
|  Kudzu | Asia | Early 1800s, on purpose | Stops soil erosion | Crowds out native plants |
|  Olives | Middle East and Europe | Early 1700s, on purpose, cultivation began in 1800s | Major food and cooking oil source, important industry in California | Most olives must be imported because they do not grow everywhere. |
|  Mediterranean Fruit Fly | Sub-Saharan Africa | 1929 (first recorded), accidentally | May be a food source for creatures such as spiders | Destroys 400 species of plants, including citrus and vegetable crops |

This community is trying to control the invasive melaleuca plant that has taken over this marsh.



Make Connections

Talk about the uses and harmful effects of species introduced into the United States.

ESSENTIAL QUESTION

Would you give up eating or using a species if you discovered it was nonnative? Explain your reasons. **TEXT TO SELF**

