In this unit, you’ll read about how building roads can help human beings but can harm plants, animals, and the habitats they live in. Before you read, answer the questions below.

**What Do You Know?**

How are roads and highways helpful? How can they be harmful?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

**What Do You Think?**

How would your life and your community be different without paved roads?

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

________________________________________________________________________

Each time you read the text, return to what you wrote here to see if new information changes or adds to your answers.
How do you get to school most days? Do you ride the bus, or do you have someone drive you? Maybe you ride your bicycle or walk. No matter how you get there, chances are you travel on a paved road at least part of the way.

Sure, this may seem like no big deal. But if you lived over 100 years ago, it would have been a different story. Before 1900 most kids in the United States walked to school. Roads were made of dirt and were a pretty lousy way to get around. They were rocky, full of ruts, and they turned to mud when it rained. Roads also didn’t take you very far. You could only go around the neighborhood or to the nearest train station. Anyone who wanted to travel farther took a train, but people mostly stayed near home. This meant that any place you wanted to go every day had to be within walking distance.
In general, people walk three to four miles an hour. So before 1900 this meant your school wasn’t more than four miles away. One hour to walk to school and another hour to trek home seemed about right. Grade schools were built with walking in mind. High schools were a different story. There weren’t too many around. If you wanted to go to high school, you had to be lucky enough to live near one. Most kids just stopped going to school after eighth grade.

**Ye Olde Dirt Path Gets a Makeover**

Around 1900 things began to change. Bicycles were all the rage, and riders demanded better roads. So dirt roads started getting a makeover. New roads were paved with crushed stones, pressed smooth with steamrollers. These roads were smoother and easier to clean than dirt or cobblestone. This is important when you consider that horses in a city could produce about a million pounds of manure a day! Farmers quickly discovered...
their horses and wagons traveled more easily over these smoother surfaces, too. In no time at all dirt roads looked old fashioned, even in rural areas.

By 1915 people started ditching wagons and bicycles for automobiles. But automobiles were awfully rough on new roads. Tires dug up the surface and left giant ruts that filled with water when it rained. Drivers needed an even harder, smoother surface. So towns and cities began trading in their stones for concrete.

By 1925 there were 17 million cars zooming over 20,000 miles of paved concrete roads. Even roads that weren’t paved were improved. Most roads were now raised for water to run off. This prevented them from turning to mud when it rained.

Sped Up and Spread Out

By the 1930s car companies were building even faster cars. Drivers demanded a speedier way to travel between cities, and truckers wanted a faster way to deliver their goods. So in 1940, the Pennsylvania Turnpike opened for travel. It was America’s first **interstate highway**. For the first few months, it didn’t even have a speed limit. People zoomed from one place to the next, sometimes as fast as 90 miles per hour.

The Pennsylvania Turnpike marked the beginning of a new era. All over America, businesses started springing

**interstate highway**: a highway that connects two or more states
up wherever there was traffic. Business owners found that if they built a business along the highway or put up a billboard pointing to it, drivers stopped to spend money. Before long, businesses began spreading from cities and into suburbs. People no longer needed to stay close to home. They could just hop in their cars and drive wherever they wanted to go. Communities began to move farther and farther away from each other.

**Slowed Down and Split Up**

Of course, the story doesn’t end here. Just as communities started spreading out, wildlife habitats started getting split up. The same roads that made travel so much easier for people had become deadly barriers for wildlife.

Many species simply won’t cross an obstacle as wide as a road. Others get stuck. Roads cut species off from important food sources, shelter, and other members of their population. The more roads we build, the worse it gets.

**habitats**: the places where animals or plants normally live and grow

**barriers**: things that stop movement from one place to another

**species**: groups of similar animals or plants that can produce young

**obstacle**: something blocking a path that is difficult to get around
Roads are especially bad news for animals that need a lot of space to roam. Take the black bear, for example. It needs at least 10,000 acres of land to meet its survival needs. Even for such a big animal, a road can be a dangerous obstacle. Maintenance workers in Vermont once reported following a black bear that got stuck on a road because it couldn’t find a gap in the guardrail.

More highways also means more development. Wildlife habitats are cleared every day to make room for grocery stores, shopping malls, and other places for people. Roads also create obstacles for roaming predators such as wolves and mountain lions. Often, they must make dangerous trips through neighborhoods and other developed areas to hunt and to look for mates. These predators scare people when they roam through a community, and the animals are often killed as a result. The worst part is that many of these species are already endangered. In fact, one new study shows that 60 percent of the nation’s most endangered species live in developed areas near cities.

**maintenance**: keeping property or equipment in good condition  
**development**: the act of making buildings on an area of land  
**predators**: animals that hunt other animals
A Bad Road for Wildlife

Even worse, some species are simply drawn to roadways. Remember how roads were raised to drain rainwater? When that rainwater drains off the pavement, it soaks into the ground along its edges. As a result, plants that need more water grow along the edges of roads and highways. These water-loving plants grow dense and create great hiding places for rabbits and small mammals. Deer like the plants for grazing.

Roads themselves also lure certain species. Deer show up during winter to lick the safety salt used to melt snow and ice. Snakes, lizards, and other reptiles find the warmth of the blacktop a comfortable place to rest in the cool evening hours. But these roadway ecosystems are death traps. The Humane Society estimates that millions of animals are struck and killed by vehicles every week in the U.S.

With roads also comes pollution. When rainwater drains off roads, gasoline, oil, and even salt come with. This polluted runoff ends up in our drinking water and threatens plants and animals that live in water.

**Questions**

- **lure**: strongly attract
- **ecosystems**: communities of living and nonliving things that interact with each other in an area
- **estimates**: makes a good guess at the size, value, or cost of something
Connected by More Than Roads

Today, there are over 164,000 miles of highways in the U.S. connecting smaller roadway systems. Roads have changed almost everything about how we live. Now over 90 percent of American households own at least one car. About 85 percent of people drive to work. Highways have made it faster and easier to transport goods, which makes them cheaper for us to buy. Parents and children can drive across the country on family vacations. Like veins delivering blood to every cell in the body, our massive network of roadways carries travelers to every corner of the country.

The impact roads have on our world is not a simple case of humans versus nature. In fact, humans are part of nature. All living things and the environment we share are connected in very important ways. Habitats help keep our climate steady, prevent droughts and floods, and provide us with the resources we need to live. Every time one species disappears, many others feel the effects, including humans. We literally cannot survive without the natural world and all it provides. So as we trade in natural habitats for developed ones, we might think about where our world ends and their world begins.

massive: huge
1. How have highways changed human communities?
   A. Highways have allowed communities to spread out.
   B. Highways have become paved for travel.
   C. Highways have become dangerous obstacles.
   D. Highways have allowed people to build more schools.

2. Which of these is a species that is affected by roads?
   A. ecosystems
   B. black bears
   C. high schools
   D. automobiles

3. What is the main idea of this text?
   A. Animals that will not cross roads can become endangered.
   B. Roads make life easier for people but harder for wildlife.
   C. Life was simpler before there were paved roads.
   D. People began building highways to deliver goods faster.

4. Which detail from the text supports your answer to question 3?
   A. “The same roads that made travel so much easier for people had become deadly barriers for wildlife.” (p. 121)
   B. “People zoomed from one place to the next, sometimes as fast as 90 miles per hour.” (p. 120)
   C. “Before 1900 most kids in the United States walked to school.” (p. 118)
   D. “Roads cut species off from important food sources, shelter, and other members of their population.” (p. 121)
1. Go back and reread “Roads Take a Toll on Wildlife” on pages 118–124. As you read, mark a **P** in places where a road **helps people**. Mark a **W** in places where a road **harms wildlife**.

2. After you finish reading, look at the places you marked with a **P** and a **W**. Use what you marked to help you write an answer to this focus question:

   **Are the benefits of roads worth the negative effects they have on wildlife?**

   __________________________________________
   __________________________________________
   __________________________________________
   __________________________________________

3. Give two pieces of evidence to support your answer above.

   One piece of evidence that supports your answer:

   __________________________________________
   __________________________________________
   __________________________________________
   __________________________________________

   Another piece of evidence that supports your answer:

   __________________________________________
   __________________________________________
   __________________________________________
   __________________________________________

**Your evidence can be:**
- A detail from the text, like a fact or a quote
- A detail from a photo, chart, or other text feature

**CHECK YOUR PROGRESS**

After you reread, make notes, and complete this page, check the box above. When it’s time for the discussion, go to the next page.
1. Use the answer and evidence you wrote on the previous page to participate in the Shared Inquiry discussion.

2. After discussion, think about whether your answer changed or stayed the same. Write it below. Then write a piece of evidence that changed or strengthened your answer.

Your answer to the focus question after discussion:

Evidence you found or that someone else used that helped you (circle one) change your answer / make your first answer stronger:
Write your answer to the assigned essay question, and write three pieces of evidence that support your answer.

**Essay question:**

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**Your answer:**

---

**Evidence #1:**

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**How this evidence supports your answer:**

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Your evidence can be:

• A detail from the text, like a fact or a quote
• A detail from a photo, chart, or other text feature
• A fact about the topic (and where you learned it)
Evidence #2:

How this evidence supports your answer:

Evidence #3:

How this evidence supports your answer:

Use these notes to draft your essay. Then use the Writer’s Checklist on page 131 to make sure your draft is ready to turn in.
Look at the questions you wrote in the margins and the class list of questions. Think about questions that came up during your discussion, too. Are there any you still want to know more about?

Write your questions below, along with some ideas about how you might get started if you wanted to answer them. (For instance, you might look for an answer online, read a book on the topic, or ask an expert.)

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<th>Questions you still want answered:</th>
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