

LEVELED BOOK • X

The Super School Bus System

MULTI
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R•U•X

Written by Keith and Sarah Kortemartin

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Focus Question

What are the benefits
of a school bus system?

Words to Know

carbon emissions	resistance
commuting	rural
controversial	school districts
de facto	segregated
entitled	sparsely
mass transit	transportation

Page 3: Children at an army base ride a horse-drawn "bus" to school in 1943. Old-fashioned transportation helped conserve gasoline and tires during World War II.

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Level X Leveled Book
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Correlation

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The Trusty Bus

Sarah walks outside on a freezing winter day. It's so frigid that when she pauses to pull her hood over her head, she can feel strands of hair sticking together. They're not quite dry, and the water from her morning shower has frozen instantly on her head. She shivers and gets moving, heading out to the school bus stop a block from her family's apartment. As cold as it is, though, she's not concerned about standing outside: she knows she won't have to wait for long.

The bus arrives right on time, and she greets the driver as she boards, but in her mind she's busy reviewing material for her science test. She barely notices as the bus pulls out of the stop and rumbles down the road, taking her to school. It's a part of her day she simply takes for granted. In fact, the school bus is such a common sight on the roads that few people stop to think about how that bus system works.

Taxes to Transportation

The school bus system is one of the most important and complex **mass transit** systems in the United States. Busing students to school requires the efforts of a small army of people, including bus drivers, mechanics, and school **transportation** coordinators. The system depends, too, on a well-developed network of roads that connect remote **rural** areas with larger towns and cities. School buses travel on all kinds of roadways, from interstate highways to unpaved rural lanes.

Remarkably, the vehicles, drivers, mechanics, and even the fuel that make the school bus system work are controlled by individual **school districts**. There is no central authority that coordinates school buses; each district works out its own busing solutions. School buses are paid for with taxpayer money that often comes from local property taxes. Those taxes pay for services such as police departments, fire departments, libraries, and schools. In addition, individual states sometimes give schools transportation funds that are used for busing. Buses are crucial to the American public school system, which is based on the principle that everybody is **entitled** to an education.

Mass Transit on a Massive Scale

Coordinating the buses that transport students to and from school is an enormous job. The fleet of public school buses in the United States employs more vehicles and moves more people than any other form of mass transit in the nation. In 2013, about 480,000 buses transported slightly more than half of public school students to school each day. In fact, the American school bus fleet has more than twice as many vehicles as all the other mass transit systems in the country combined. Across the Pacific Ocean, in Hong Kong, 90 percent of all travel is done by mass transit, and seven million people ride daily. Compare this to the twenty-six million students across the United States who used school buses daily in 2013.

The American school bus system is so enormous for several reasons. The country's large geographical size, its large population, and its lack of other public transit options for students in many places make school buses essential. This is especially true in rural areas, which often have no public transit options at all. Rural American school buses tend to have very complex and wide-ranging routes. The rural school bus system in Kingman, Arizona, for example, covers an area larger than the entire state of Delaware.

Math Minute

At 1,954 square miles (5,060 sq km), Delaware is the second smallest of the fifty states. In Arizona, the Kingman Unified School District (KUSD) is more than 3,000 square miles (7,779 sq km). If KUSD is 3,000 square miles, how much larger is it than the state of Delaware?

Answer: 1,046 square miles (2,709 sq km)

In order to make these wide-ranging bus routes work efficiently, school transportation coordinators must examine a number of factors. They must try to ensure that students don't spend too much time **commuting** every day. They must establish bus stops that are not too far away from students' homes (each district determines acceptable "walk ranges" to the bus stop). Many districts offer bus service to any student who lives more than 2 miles (3.2 km) from school. In addition, students who might be placed in dangerous situations by walking to school (such as crossing a highway) are often offered bus service. Coordination of bus routes takes place before each school year begins.



A horse-drawn stagecoach school bus waits in front of a Colorado high school around 1910.

History

American public schools began organizing mass transportation for their students long before the modern school bus existed. In the nineteenth century, many students attended one-room schoolhouses in **sparsely** populated rural school districts. In these situations, some students walked, while others used horse-drawn wagons or sleds to get to school. Over time, school districts discovered that it was efficient to use a system of horse-drawn wagons. The wagons would travel between prearranged collection points, picking up students and transporting them to school.

As populations expanded and technology advanced, transit systems transitioned to using motor vehicles. The basic concept of public transportation for students, however, remained the same. Using large passenger vehicles, school districts designed routes, circulated vehicles, fetched students before school, and delivered them home (or near home) at day's end.

Yes to Yellow

The big yellow school bus familiar to today's American students developed over time. The first motorized vehicles that transported students didn't look much like modern buses. A school bus from the 1920s, for example, resembled an extra-long Model T. Buses gradually grew larger to accommodate more and more students. The yellow color of modern school buses was adopted because it was highly visible. Educators and parents wanted the school buses to stand out on the road so that motorists could easily see them and stop in time to allow students to board safely. Today, American school buses are required by federal law to be painted a color called "National School Bus Glossy Yellow" and to be identified with the label "School Bus" in letters at least 8 inches (20 cm) high. These regulations are designed to make school buses instantly recognizable.



a school bus in 1925

In the second half of the twentieth century, school districts attempted to coordinate the existing school bus system to achieve a new goal: school integration. *School integration* refers to the process of bringing African American and white students together in schools. Prior to 1954, many American schools were **segregated**, meaning that black students and white students were sent to separate schools. These segregated schools were not equal. White students usually received better educational opportunities and more resources than black students did. Then came a landmark decision by the U.S. Supreme Court in 1954 called *Brown v. Board of Education*. The Supreme Court declared that school segregation discriminated against African American students, and the process of integration began.

While integration met fierce **resistance** in the South, in Northern and Western states segregation was **de facto**. That is, black and white students already lived in separate neighborhoods—as a result, they went to different schools. This is where school buses played an important role. In the 1970s and 1980s, schools collaborated to bus black students to white schools and vice versa in a practice called *desegregation busing*. This practice was **controversial**, however, and by the 1990s most school districts had stopped it.



White children ride a bus from a North Carolina suburb to Charlotte's inner city in 1973 (left). Black children and their moms ride a bus across Cleveland, Ohio, as part of a desegregation plan in 1979 (right).

In recent years, school transportation coordinators have faced new challenges as they plan school bus routes for districts that have consolidated schools. *Consolidation* is a process in which several smaller schools combine in one larger building. Consolidation can cut education costs since many students can share resources in a larger school. However, consolidation also requires some students to travel much farther to school. This makes the bus system extremely important in these districts, and it makes bus routes larger and more complex. One of the country's longest school bus routes, in rural Texas, transported some students roughly 100 miles (160 km) each way in the mid-1990s. These students spent more time on the bus than they did in school!

Safety

School transportation coordinators work closely with drivers and mechanics to ensure school bus safety. In fact, the American public school bus system is the safest transportation option for students. According to the National Safety Council, school buses are forty times safer than private cars. School districts require bus drivers to undergo intensive safety training, and buses are examined frequently for mechanical issues. In addition, school buses have a number of built-in safety features, such as emergency exits, reinforced roof structures, and a seat layout that helps keep students safe in the event of a crash. Seats are spaced closely together, and seat backs are constructed to absorb an impact. This structure places passengers in a type of protective box. Interestingly, in most states, safety belts are not required on school buses, though a few (such as Texas, New York, and California) have passed bus safety belt laws.

Other bus safety features may include flashing stop signs to alert drivers that students are getting off or on the bus and cameras that help drivers see what's happening inside the bus and outside. We can expect to see additional safety upgrades in the school bus system as technology advances.

Do You Know?

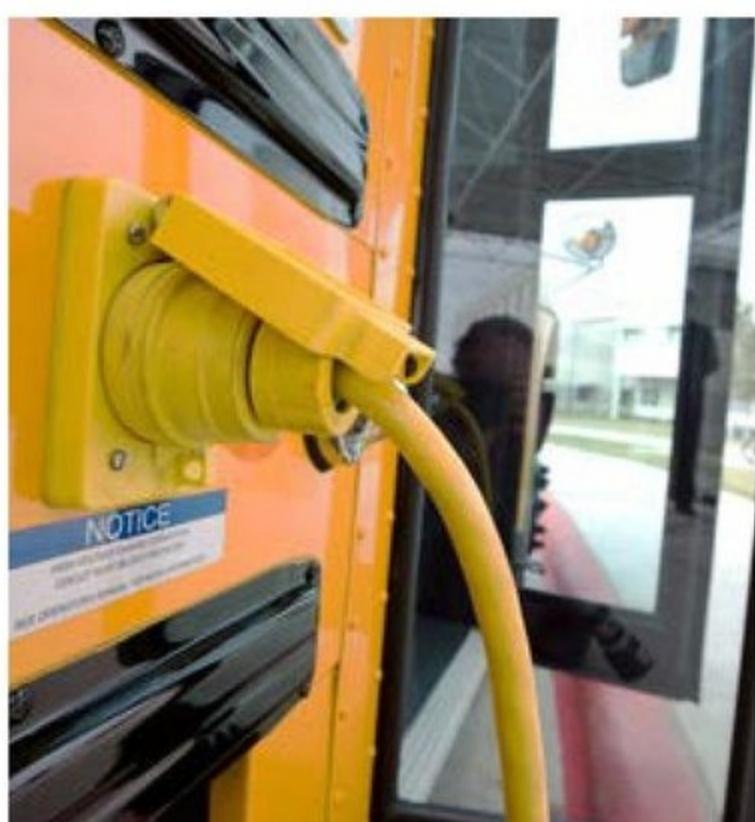
The Houston Independent School District added 44 new buses to its 1,100-vehicle fleet at the beginning of the 2016 school year; these buses now include full three-point safety belts for every passenger. Though seat belts make passengers in private cars much safer, there is some debate about whether this holds true for school buses, which are designed according to much more rigorous safety standards. In addition, it's hard for school bus drivers to supervise correct seat belt use since buses often hold more than fifty students at a time, which limits the effectiveness of the safety belts.

Yellow Buses Go “Green”

Some school districts are also beginning to make environmentally friendly upgrades to buses. A school district in New York, for example, introduced a fully electric school bus in 2016 with zero **carbon emissions**, which means the electric

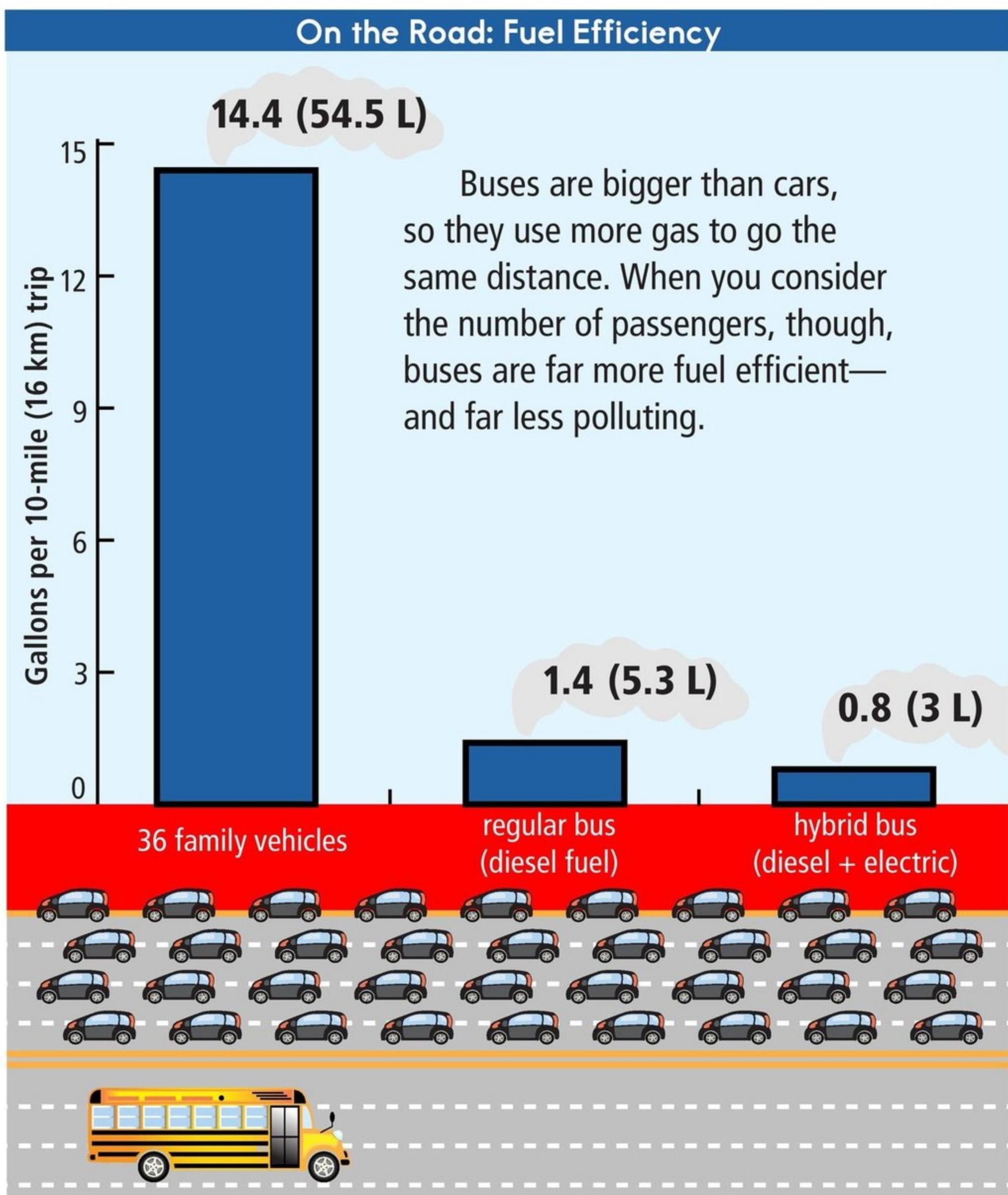
engine doesn't put pollutants into the air. The bus can travel for about 120 miles (190 km) before it needs to be recharged.

Another “green” trend in school bus technology is the use of propane fuel. Propane is much less expensive than traditional diesel fuel, and it helps to reduce emissions as well.



Hybrid buses like this one use both electric power and diesel fuel. In 2007, drivers of hybrid buses reported better mileage—almost twice the mileage of regular school buses.

School buses can also reduce carbon emissions by replacing private vehicles on the road. The average school bus can transport fifty-four students. That eliminates about thirty-six private vehicles that would otherwise be used to drive students to school. This fact, along with newer, greener technology, can help keep the air cleaner.





Conclusion

As the school bus slows to a stop, Sarah opens her eyes, startled to find that she's dozed off. She hastily gathers her things and follows the other students off the bus. The driver calls out, "Have a good day!" Sarah and the other students wave as they head into the school building.

The bus pulls away from the curb, its job done for now. At the end of the day, it'll be waiting for them, ready to start the whole journey again in reverse.

Glossary

carbon emissions (<i>n.</i>)	carbon dioxide released into the atmosphere (p. 13)
commuting (<i>v.</i>)	traveling from one place to another on a regular basis, often for school or work (p. 7)
controversial (<i>adj.</i>)	causing much disagreement (p. 10)
de facto (<i>adj.</i>)	existing in practice but not officially accepted or recognized (p. 10)
entitled (<i>adj.</i>)	deserving of or having a right to something (p. 5)
mass transit (<i>n.</i>)	a public transportation system that moves large numbers of people using buses, subways, or trains (p. 5)
resistance (<i>n.</i>)	the act of fighting or opposing something (p. 10)
rural (<i>adj.</i>)	of or relating to the country rather than the city (p. 5)
school districts (<i>n.</i>)	areas or regions containing all the schools managed by local school authorities (p. 5)
segregated (<i>adj.</i>)	kept apart based on group differences, such as race (p. 10)
sparsely (<i>adv.</i>)	in small numbers or amount; thinly spread out (p. 8)
transportation (<i>n.</i>)	the act of moving things or people from one place to another (p. 5)

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Connections

Writing

Research a system that another country uses to get students to school. Use a Venn diagram to compare that system with the U.S. system. Then, write a paragraph about how they are the same and different.

Social Studies

Create a timeline about the history of the school bus in the United States that includes facts and pictures. Use the book and outside resources.

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