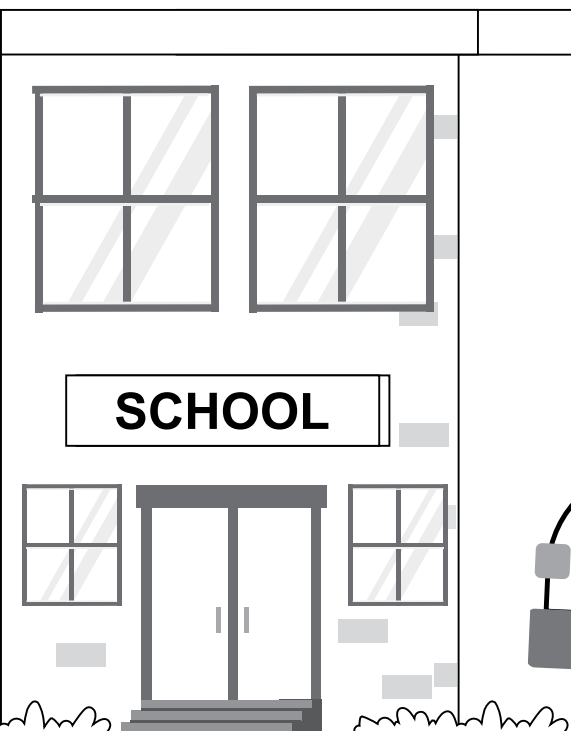




EPA CLEAN SCHOOL BUS

Tomorrow's Buses for Today's Children

Electric School Bus
Activity Book



Scan this QR code to access a printable copy of this activity book along with teacher and parent guides.

epa.gov/cleanschoolbus



Office of Transportation and Air Quality

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EPA CLEAN SCHOOL BUS

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of the text is acknowledged with thanks.**

**To view and download these activities, please visit:
epa.gov/cleanschoolbus**

Tomorrow's Buses for Today's Children

Welcome to the U.S. Environmental Protection Agency's Clean School Bus Program! This is an exciting time for our country's thousands of school buses. Our bus fleets are transitioning from traditional, older diesel buses that emit pollution to new, clean, low-emission and zero-emission models. School buses have always been the safest way to get children to and from school. The Clean School Bus Program is making these buses even safer by reducing and even eliminating the amount of exhaust released into the air. Protecting the health of our children and communities is the top priority of the EPA. Cleaner school buses lead to cleaner air, which keeps all of us healthier.

Join us in exploring the difference between older, diesel buses and new, cleaner buses. This activity book focuses on electric school buses. Future activity books will cover other alternative fuels. You will learn more about the health and environmental benefits of electric school buses and their role in addressing climate change and environmental justice. One day, you too may see or even ride an electric school bus within your community!

To learn more about how your school district can participate in this program, visit <https://www.epa.gov/cleanschoolbus>.



Clean School Bus Vocabulary

Asthma: A health condition of the lungs that makes it hard to breathe.

Atmosphere: The layer of gas that surrounds the Earth and provides the air that we breathe.

Community: A group of people living, playing, or working together in the same area.

Electrical/power grid: The system that provides the electricity that we use in our homes, schools, and other buildings.

Exhaust: Leftover material that comes out of the tailpipe of a vehicle when an engine burns fuel.

Fossil fuels: A source of energy found deep in the ground that is used to power vehicles, like buses. Diesel fuel and gasoline are types of fossil fuels.

Greenhouse gases: Gases in the Earth's atmosphere that trap heat. They act like a blanket to keep our Earth warm and livable. Too many of these gases, however, can cause the Earth to warm up more and faster than it should.

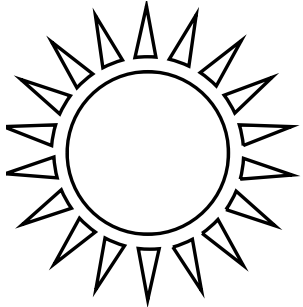
Health: A person's physical, mental, and social well-being.

Pollutant: Any substance that causes health problems for people and nature.

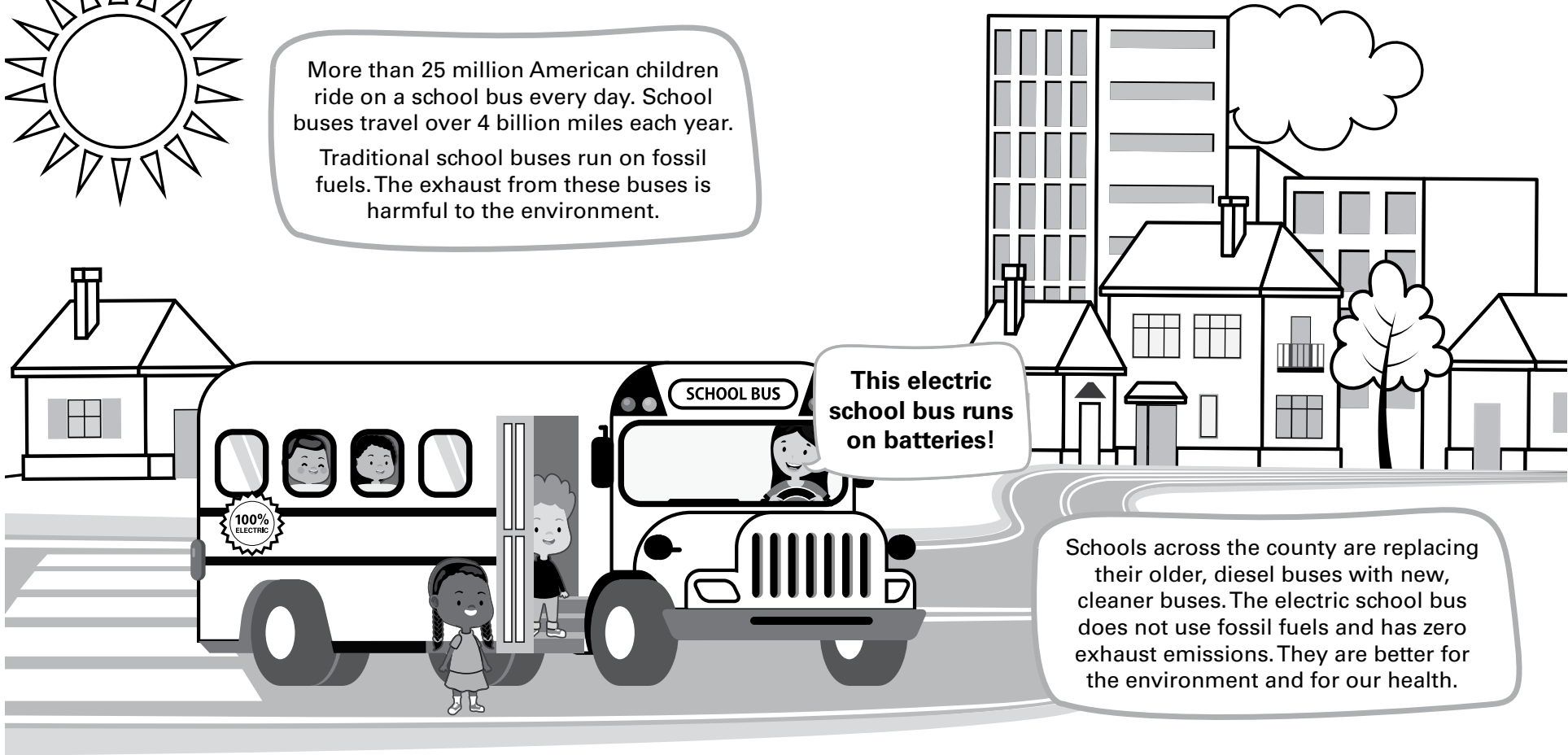
Vehicle: A structure that uses a motor or engine to move people or things from one location to another location. School buses, cars, and even boats are all types of vehicles.

Technology: A collection of tools, including machines, developed to achieve a goal or solve a problem.

Clean School Buses Are the Future of Student Transportation



More than 25 million American children ride on a school bus every day. School buses travel over 4 billion miles each year. Traditional school buses run on fossil fuels. The exhaust from these buses is harmful to the environment.

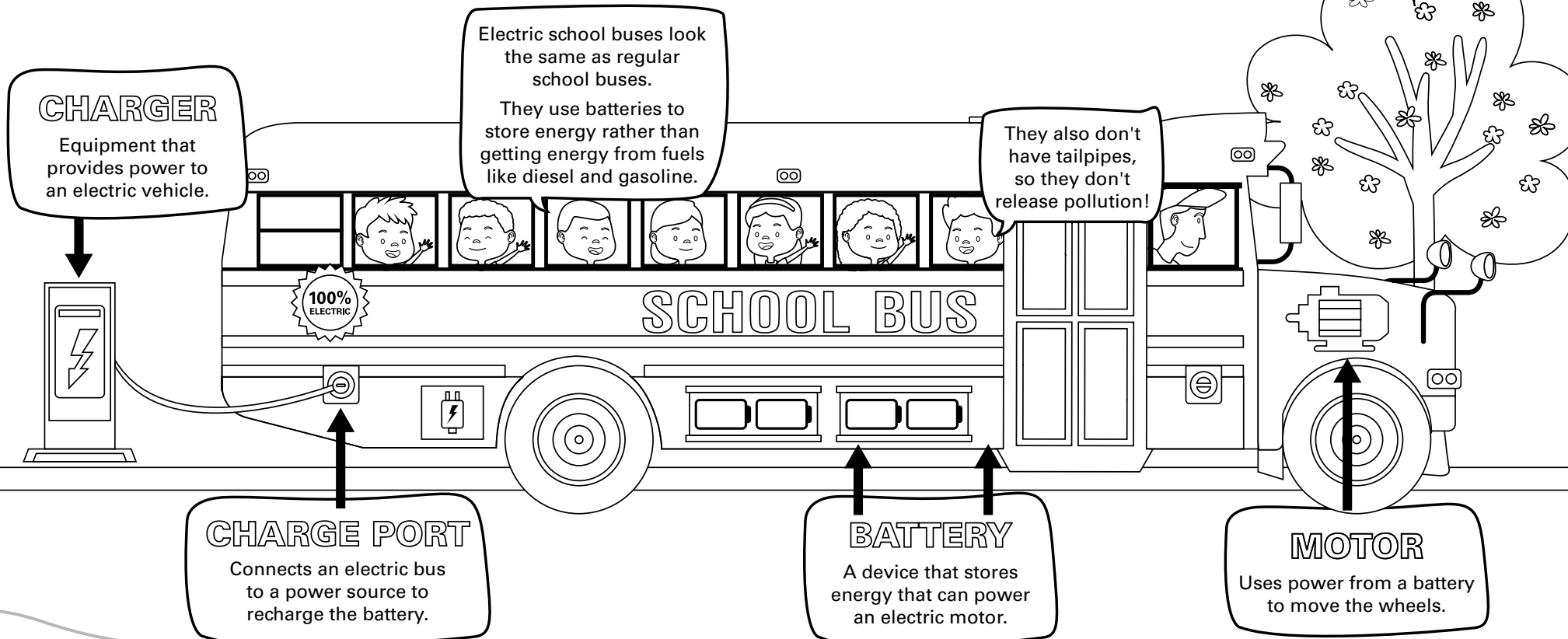
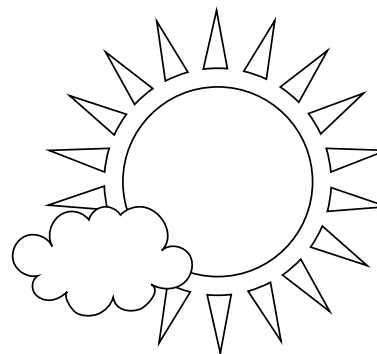
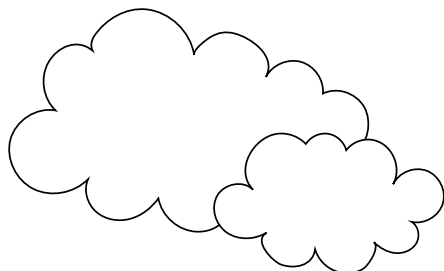


Schools across the county are replacing their older, diesel buses with new, cleaner buses. The electric school bus does not use fossil fuels and has zero exhaust emissions. They are better for the environment and for our health.



Meet the Electric School Bus

Instructions: Locate and color the charger, charge port, battery, and motor.



A Day in the Life of an Electric School Bus

Instructions: Trace the route of the electric school bus.

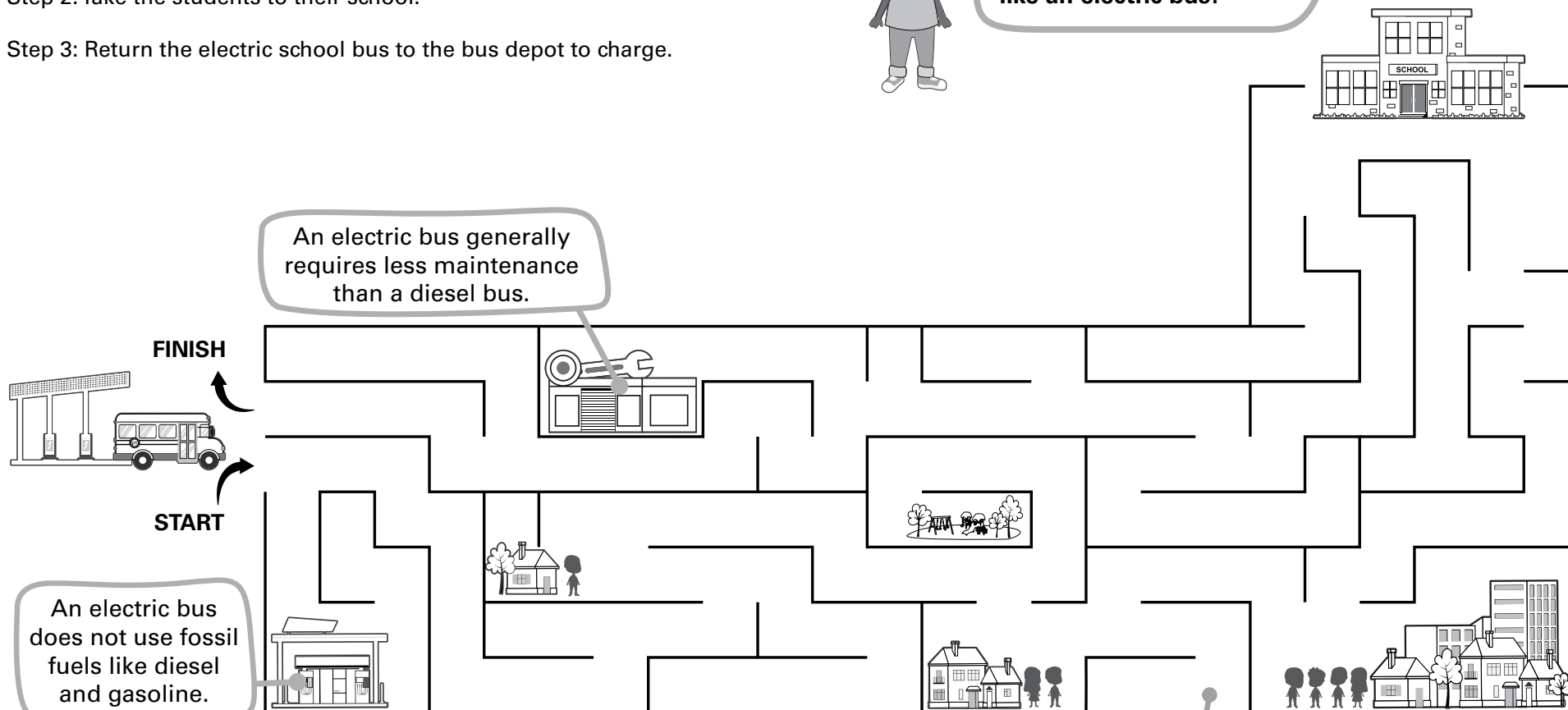
Step 1: Pick up all the students.

Step 2: Take the students to their school.

Step 3: Return the electric school bus to the bus depot to charge.



There are nearly 500,000 school buses in the United States. Imagine the environmental and health benefits if most of them were zero-emission buses, like an electric bus!



An electric bus generally requires less maintenance than a diesel bus.

An electric bus does not use fossil fuels like diesel and gasoline.

The average electric school bus can travel 100 miles or more when fully charged.



Cruising for Words

Instructions: Find the hidden words and draw a circle around them.



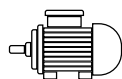
AIR



BUS



CLEAN



MOTOR



ASTHMA



HEALTH



PLANET



SCHOOL



BATTERY



CHARGER



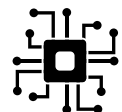
COMMUNITY



ELECTRIC



POLLUTION



TECHNOLOGY

| | | | | | | | | | | | |
|---|---|---|---|---|---|---|---|---|---|---|---|
| R | S | C | H | O | O | L | K | Y | G | O | F |
| P | U | V | O | H | X | W | D | T | D | H | T |
| C | O | E | E | M | O | T | O | R | A | E | E |
| N | Y | L | W | T | M | M | R | C | C | A | T |
| A | B | E | L | V | H | U | G | H | N | L | C |
| S | A | C | B | U | S | C | N | N | B | T | H |
| T | K | T | J | H | T | O | G | I | A | H | A |
| H | P | R | V | E | L | I | R | L | T | C | R |
| M | A | I | R | O | M | E | O | P | T | Y | G |
| A | H | C | G | T | P | L | A | N | E | T | E |
| K | V | Y | C | L | E | A | N | T | R | Y | R |
| M | H | P | A | I | F | S | K | D | Y | C | L |

Did you know that an electric school bus can be used to store energy? They can return energy to the electrical grid or a building, or even provide power during an emergency.



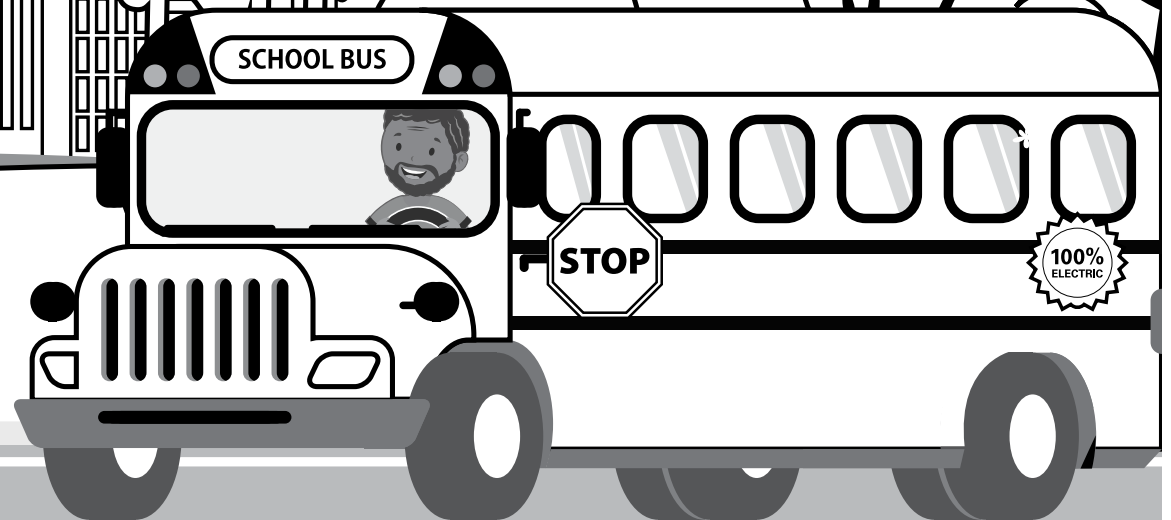
Clean Bus, Good Health, Happy Planet

Air is essential to life on our planet. We breathe in air through our nose and mouth and into our lungs. Our body needs clean air.

Air can become dirty with pollutants from tailpipe exhaust. These pollutants can irritate our lungs and lead to long-term health problems like asthma.

Clean school buses are better for the planet and for our health. Especially electric school buses that have no emissions!

Electric school buses keep the air that students, drivers, and community members breathe clean. These buses also reduce greenhouse gas emissions, a major cause of climate change.



Moving Toward a Cleaner Planet

Instructions: Find eight differences between the two images below.



This electric bus is so quiet! I can speak with my friends using my indoor voice. I don't have to cover my ears because of the loud noises.



Answers: Bottom image has: charge port on bus, electric bus sticker, no tailpipe, no fumes, recycling bin, no one coughing, no one covering their ears, and trees.

Keeping the Wheel Turning

Instructions: Solve the brain teasers below.

1. I am yellow, transport children, and use batteries. What am I?

2. I have a lot of energy, but I do not move. I transfer my energy to buses and cars using a cord. What am I?

3. I transfer air from our atmosphere to the body and you use me to breathe. What am I?

4. You cannot see me. I keep our planet warm, which is essential for life. Too much of me, however, causes our climate to change. What am I?

5. The motor of a new school bus runs on batteries. How many pollutants are released when the bus is running?

6. A bus driver starts her morning pickup route in the country, where she makes five stops. Four students get on at each stop. On the way into town, she makes another six stops, picking up seven students at each stop. The bus driver does her final pickup near the elementary school. If 75 elementary students get off her bus, how many students got on her bus during the final pickup?

7. An electric school bus battery takes eight hours to fully charge. If the battery is charged halfway, how many hours does it need to charge all the way?

8. If one electric school bus can travel 100 miles when it is fully charged, how many 30-mile routes can it complete?

9. A third grader takes about 20 breaths in a minute. A teacher takes about 14 breaths in a minute. How many more breaths does a third grader take an hour in comparison to the teacher?

10. The distance around the Earth at the equator (its circumference) is 24,901 miles. School buses travel more than 4 billion (4,000,000,000) miles each year. How many trips around the Earth's equator do buses take each year?



Did you know that kids breathe faster than adults? That means they take in more air.

Tickle Me Green Fill in the Blank

Instructions: Choose your own words to complete the story below. Be as silly and creative as you would like.

Jayden's New School Bus

Jayden is ready to start his school day. Before heading to the bus stop, he double checks to make sure his



_____ homework is in his _____ backpack. At the bus
(school subject) (color/pattern)
stop, Jayden says hi to his four friends. Jayden and his friends see

the bus coming around the corner. " _____," says
(expression of excitement)

_____, "I have never seen a _____ bus before."
(name of friend 1) (color)

"Neither have I!" says Jayden. "This must be our new electric bus."

" _____," says the bus driver. "Welcome aboard our new
(greeting)

electric school bus! Do you know what makes an electric bus

different from a diesel bus?" asks the bus driver. Everyone shakes

their heads no. "This bus is different because it uses batteries rather

than diesel or gasoline," says the bus driver. "Rather than stopping

at _____ for fuel, we recharge our bus at a charging
(name of gas station)

station." "Does that mean it's faster than a regular bus?" asks

_____. "No," says the bus driver. "It's not faster, but it is
(name of friend 2)
much quieter."

"Is it true that some school buses can power a(n) _____?"
(electronic device)

asks Jayden. The bus driver smiles and says, "You are correct that

some electric school buses can store energy. That energy can be

returned to the power grid or a building, or even provide power

during an emergency."

"The most important benefit of an electric school bus is that it is

much better for our planet because it does not emit pollution," says

the bus driver. "Does pollution cause _____?" asks
(illness)

_____. "Pollution can irritate our lungs, which can make
(name of friend 3)

us cough or lead to conditions such as asthma," explains the driver.

"My grandpa sounds like a/an _____ when he coughs!" says
(animal)

Jayden. "Clean technology helps everyone breathe clean air," says

the bus driver. "This bus is so _____!" says
(expression of excitement)

_____.

(name of friend 4)

Charging Your Knowledge

Instructions: Read the following statements. Cross out the statements that are FALSE and make them true.

1. An electric school bus is faster than a diesel school bus.
2. Electric school buses make less noise than diesel school buses.
3. Electric school buses are more expensive to maintain than diesel and gasoline school buses.
4. Electric school buses can power your community in an emergency.
5. A typical school bus can transport up to 80 students. One bus carrying all of these kids is better for the environment than everyone having their parents drive them to school every day.
6. An electric school bus can't complete a 60-mile route when fully charged.
7. Old diesel buses release pollutants that can make us sick.
8. Kids breathe in more pollutants because they have a faster breathing rate than adults.
9. Electric school buses improve local air quality.
10. The EPA's Clean School Bus Program provides funding to replace existing school buses with low-emission and zero-emission models.

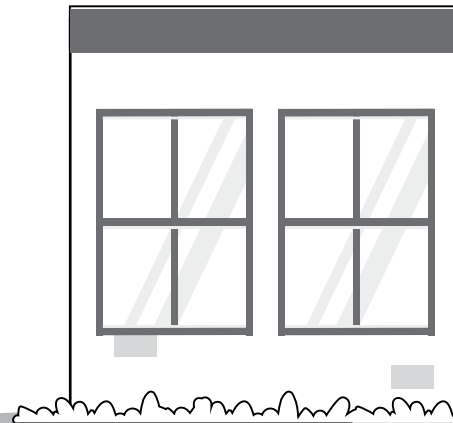
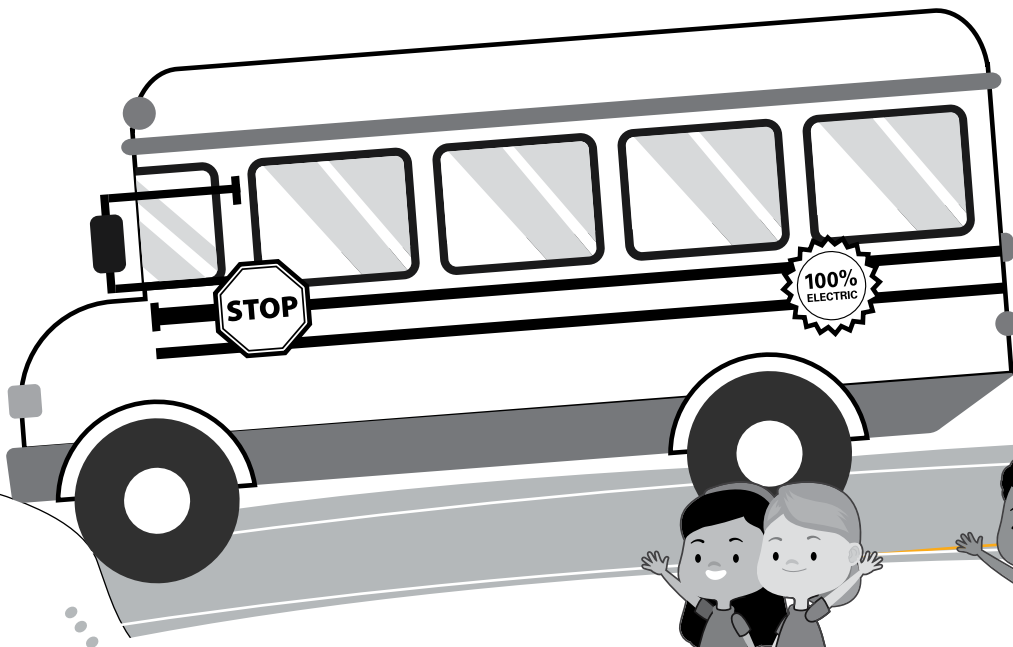




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