

# SR2S Educator Guide

## 2-3



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**Safe Routes  
to Schools**

Alameda County



## What's the Big Idea? 2-3

### Safety

Children between the ages of 5 and 9 are at greatest risk for traffic-related pedestrian accidents and injuries. Young children are still developing their sense of space and their relationship to their environment. They often have trouble recognizing hazards in the street, and can't react as quickly as adults. Safety is at the heart of the Safe Routes to School program and we believe it is important to take the time to teach specific safety precautions.

In *Intersections Galore* students will take a close look at different types of intersections and learn how to approach different situations. They will learn what to look out for and get hands-on practice in making smart decisions about crossing the street.

### Community

Building community is an important part of the Safe Routes to Schools program. *Walk Around the Block* introduces students to the idea of walking as a group with heightened awareness for potential dangers or hazards. Central components of the SR2S program are Walking School Buses and Bike Trains, where groups of students from the same neighborhood walk or roll to school together with adult supervision. *Walk Around the Block* encourages community building and helps students to be responsible, alert and aware pedestrians.

### Environment/Health

Climate change has emerged as one of the most challenging issues of our time. Scientists estimate that the earth's climate has already been raised 1.9 degrees since 1890, and we are already experiencing the effects of these phenomena through longer droughts, more severe storms and melting ice caps. The consequences of drastic global temperature increases are long-lasting and disastrous, which is why many scientists agree that reducing greenhouse gas emissions by 80% by 2050 or sooner is crucial for our sustainability on earth.

Transportation plays a key role in ensuring that this goal is met, and is something that all of us, including our students, can participate in. For every mile driven, one pound of greenhouse gas is emitted. Cars are the number one cause of air pollution in Alameda County. Walking, rolling, carpooling and taking public transit instead of driving all play a key role in reversing serious environmental and health problems connected to climate change.

Air pollution has become a big problem that is leading to serious environmental and health conditions. *Pollution Solutions* introduces students to different types of pollution and how air pollution is related to some of our daily travel choices. Students will look closely at the positive impact of carpooling and why "every trip counts." *Getting Some Air* makes connections between healthy air and healthy bodies. These activities get students thinking about small changes that can make a big difference.

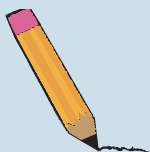


# Intersections Galore!

## Overview

Students will identify different types of intersections and learn how to make smart decisions to be safe in the streets. By viewing the pedestrian safety video *Walk This Way*, reading informational text, performing skits, students will become aware of potential safety hazards and understand the importance of being safe and following the rules of the road.

### Supplies



- ✓ Plastic cones (*optional*)
- ✓ Walk & Don't Walk placards (*in Resource section*)
- ✓ Sidewalk chalk
- ✓ *Walk This Way* pedestrian safety DVD (*included, or use link to video*)
- ✓ Paper and red, green, and yellow markers
- ✓ Info Sheets
- ✓ Chart paper

## Activity: Pedestrian Safety

Time: 20 Minutes

Ask the following questions as a warm up to watching the pedestrian safety video.

- What helps pedestrians, motorists, and bicyclists stay safe?
- What makes it hard for pedestrians, motorists, and bicyclists to stay safe?

- What is an intersection?
- How can people stay safe while crossing at an intersection?

View the video *Walk This Way* about pedestrian safety.

**Video Link:** [saferoutespa.org/pedestrian-safety-videos](http://saferoutespa.org/pedestrian-safety-videos)

- After viewing the DVD, ask students to turn to a partner and share what they learned about intersections, safety, and the rules of the road.

## Discussion Questions

- What were the most important points that you learned from the video?
- Which way should you look first and why? (*You should look left because those are the cars that are closest to you.*)
- How many times do you look and in which directions? (*3 times: left, right and left again. You look left again in case there are any cars that have come while you were looking right.*)
- If you are walking where there are no sidewalks, where is the safest place to walk? (*Walk along the edge of the street facing traffic so that drivers can see you and you can see cars coming.*)
- Ask students if there are any rules or reminders they would like to see added to the videos.



## Activity: Mock Intersections

Time: 30 Minutes

These activities can prepare students for the next section *Walk Around the Block*.

### Controlled Chaos

Time: 15 Minutes

- Set up 4 cones or objects to mark an 8' x 8' square box. Divide the class evenly into 4 groups and have them line up on the outside of each side of the box. At random and WITHOUT making eye contact, they are to enter the box and move in any direction they like: walk, hop, skip, or jump.
- After everyone has entered, stop the chaos and ask students if they would like to establish some rules to help control the chaos. Solicit a few rules and begin another round with everyone obeying the rules.
- To conclude, ask students how the new rules helped. Now apply this to traffic in the street and ask them to imagine what would happen without traffic lights or laws to help direct people when and where to go. Based on their *Controlled Chaos* experience, discuss the importance of following the rules of the road.

Note: The general idea is that without any rules, they are gently bumping into one another.

### Interacting with Intersections

Time: 30 Minutes

- Break students into three groups. Assign each group a type of intersection: Crossing at a Crosswalk, Hidden Driveways, or 4-way intersections. Pass out *Safety at Intersections Information/Interacting with Intersections* sheet and tell them they will use the information to make up a skit to teach their classmates about safety at their type of intersection. Leave time for answering questions on the back.
- Pass out the *Skit Presentation Outline*, to help students organize their ideas for the skit. Once students are ready, have them share their skit with the class.



## Traffic Light: Red Light, Green Light, Yellow Light

Time: 15 Minutes

This favorite children's game, with a few modifications, is a perfect starting point to talk about the importance of traffic lights and pedestrian signals.

- Instead of verbally calling out the traffic light colors, students will hold up red, green and yellow placards
- Select a student to be the Traffic Light. Using red, green and yellow flashcards they will direct the traffic flow of students approaching the light. The first student to arrive at the light becomes the next Traffic Light.
- Do another round with the WALK and DON'T WALK signs, and simulate a flashing WALK sign by shaking the sign.

Note: Make a stop light by drawing a red, yellow, and green circle on separate pieces of paper.

## Safe Routes to Schools: Connections and Extensions

### LIGHTS, CAMERA, ACTION

If you have access to a video camera have students work in groups to create a safety scene and create your own Pedestrian Safety video for your school.



Name: \_\_\_\_\_

# Safety at Intersections Information

## Crossing at a Crosswalk

Crosswalks are the safest places to cross because drivers expect pedestrians to cross there. Cars don't always stop at crosswalks, so it is your job to be sure it is safe to cross.

- Always look left, right, left before crossing.
- Make eye contact with drivers if you can.
- Use your hand to signal a car to "stop" if it is appropriate.

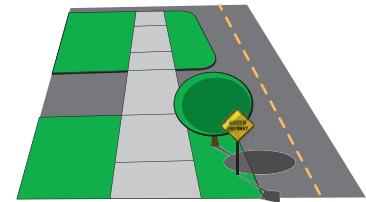


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## Hidden Driveways

Hidden driveways are driveways that are hard to see due to an obstacle such as a bush or fence. They can be dangerous because oftentimes cars backing out have a limited view.

- Always stop when you get to a driveway.
- Always look left, right, left, before crossing the driveway.
- Listen carefully for sounds that might tell you a car is coming such as engines, doors closing, etc.

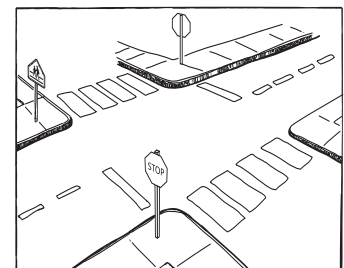


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## 4-Way Intersections

4-way intersections are different than crossing from the middle of a block.

- Always look left-right-left
- Look over your shoulder in the direction where cars might be coming.
- Some 4-way intersections will have stop signs and some will have stop lights, but as a pedestrian, you still need to look all around before crossing.



# Interacting with Intersections

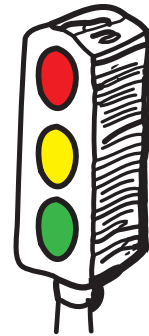
1. Ms. Meyers sped through an intersection at 43 miles per hour. The speed limit was 25 miles per hour. How many miles per hour over the speed limit was Ms. Meyer's driving?

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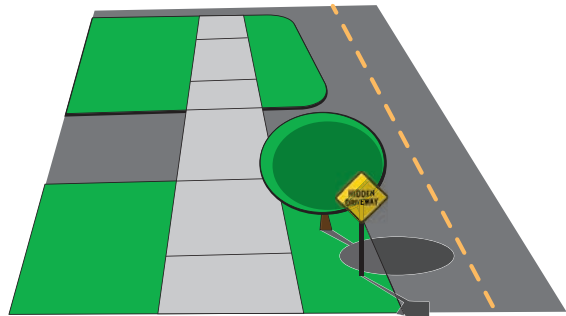
2. Jesse walked up to a 4-way intersection with a stoplight. He waited 36 seconds for the light to change before he crossed straight across the street. Then he waited 35 seconds for the light to change before he crossed left. How many total seconds did Jesse spend waiting for lights to change?

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3. Sabrina and Silas decided to take a survey of the driveways in their neighborhood. They counted 82 total driveways. 25 of the driveways were hidden. How many driveways were not hidden?

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Name: \_\_\_\_\_

# Skit Presentation Outline

Topic: \_\_\_\_\_

Introduction: \_\_\_\_\_

Key Points: \_\_\_\_\_

1. \_\_\_\_\_

2. \_\_\_\_\_

3. \_\_\_\_\_

Concluding Statement or Action:

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# Walk Around the Block

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# Walk Around the Block

## Overview

Students will have hands-on practice in walking across the streets around the school in a variety of situations. Students will review safe crossing procedures such as stopping at the edge, looking carefully before crossing, and listening for cars before crossing the street. Students will also learn about the advantages of walking in groups and become familiar with the SR2S Walking School Bus program.

### Supplies

- ✓ *Walk This Way* pedestrian safety DVD (included, or use link to video)
- ✓ 1-3 adult volunteers for supervision
- ✓ Copies of *Intersections in the Neighborhood* handout for each student,
- ✓ clipboards (optional)

## Activity: Pedestrian Safety Review

Time: 10 minutes

In preparation for your walk, review basic pedestrian safety by watching the pedestrian safety video *Walk This Way* or highlight the following themes:

**Video Link:** [saferoutespa.org/pedestrian-safety-videos](http://saferoutespa.org/pedestrian-safety-videos)

- **Edges and Curbs:** When talking about crossing a road the word edge often means the curb, or the side of the road. It can often be the line between being safe and being in danger. An edge is a safe place to look for cars because you can see that they are coming, but you are far enough away from them to be safe.
- **Using Sidewalks:** Always use the sidewalk if there is one. If there are no sidewalks it is safest to walk along the edge of the road facing traffic, so that you can see drivers and drivers can see you.
- **Looking Left, Right, Left:** Before crossing the street, look left, right and left again. We look left in order to see the traffic, the direction that cars are coming from. We look right to see cars coming in the opposite direction. We look left again because a car might have come from that direction while you were looking to the right. Your goal is to find the moment when the road is clear and safe to cross.
- **Identifying Visual Barriers:** Sometimes things get in the way of seeing danger. Visual barriers include trees, parked cars, garbage dumpsters, trucks, buses, etc. If you can't see cars coming, move to a place with a clear view where you can see if cars are coming.



## Activity: Walk Around the Block

Time: 50 Minutes

Note: Ask for parent volunteers to help with this activity

Prior to this activity, scout out a route in the neighborhood that includes the following:

- Walking on sidewalks
- One basic intersection where students will have to look over their shoulder
- A crosswalk
- A hidden driveway (*a driveway that is difficult to see*)
- An intersection with traffic signal (*if available*)

### Warm-Up

Time: 10 Minutes

- Have each group share one thing they learned about crosswalks, hidden driveways, and 4-way intersections from the *Interacting with Intersections* activity. Tell students that they are going to look for each type of intersection in their school neighborhood.
- Pass out *Intersections in the Neighborhood* handout and explain how students will use tally marks to record how many of each type of intersection they see.

## Neighborhood Walk

Time: 30 Minutes

- Use the *Teaching Points for Each Type of Intersection* on the following pages, to let students and parent volunteers know what to look out for and what to do at each type of intersection.
- Lead students outside to the route you have selected. Disperse the volunteers among the group. As you approach each situation, explain and model what the students should do before they begin crossing. Have students look out for each other. Ask them to watch one another to see that everyone is properly following the safety procedures.

## Scaled Bar Graphs

Time: 10 Minutes

- After the neighborhood walk, students will fill out the second half of the *Intersections in the Neighborhood* handout.
- Review the number of crosswalks, hidden driveways, and 4-way intersections that students recorded in the neighborhood. Record the amounts of each intersection on the board.
- Talk about the idea of a scaled bar graph. Remind students that if they were working with a traditional bar graph, they would fill in one rectangle for each type of intersection. Because they are working with a scaled bar graph (*with a scale of 2 intersections per rectangle*), they will fill in one rectangle for every two intersections.
- Have students fill out the bar graphs independently. When all students have finished, ask students to share what they learned from the bar graph. Ask, “Which intersection appears the most in our school’s neighborhood?” and “Which intersection appears the least in our school’s neighborhood?”



## Teaching Points for Each Type of Intersection

### CROSSWALKS

- Have students cross the street in the crosswalk two at a time with an adult at each end of the crosswalk. Crosswalks are the safest place to cross the street because they are designated for pedestrians and drivers expect people to cross there. Cars don't always stop at crosswalks, which is why it is important to always look left, right and left again. Discuss making eye contact with drivers whenever possible, and putting up a hand that signals "stop" to alert drivers, if it seems appropriate.
- Students can wave at cars that stop for pedestrians, to signal thank you.
- Ask students to practice making eye contact and using hand gestures.

### HIDDEN DRIVEWAYS

- When approaching a hidden driveway, emphasize the need to slow down because of hazards associated with not knowing if a car will be pulling out or not. Ask them how they will know if a car is in the driveway, even if they can not see it. (*Listening for the engine or door slamming.*)
- Have students cross the hidden driveway in pairs and be sure they look left-right-left when crossing.

### 4-WAY INTERSECTIONS

- Ask students to point to all of the places they need to look. Stop to observe the intersection. What do they see? Are there stop signs, yield signs, traffic lights? When crossing, make sure each group looks behind them. Ask students why they should look left two times (*left, right, and left.*) Stress that cars coming from the left are the ones that will be closest to them first.

### TRAFFIC SIGNALS

Discuss when to cross intersections with traffic lights.

- If the light has just turned green, proceed across the street.

- If the light has turned yellow or you see that the countdown pedestrian signal is at a lower number, wait at the corner until the light turns green.
- If the hand or walk sign is flashing and you have already stepped off the curb, proceed across the street, but do not run. If you have not started walking, wait on the curb for the signal to turn green for pedestrians.

## Reflection

Time: 5 Minutes

- Have students turn to a partner and share why it's helpful to walk in groups.
- Share that walking in groups is a safe way to get to school. As a group you are more visible to drivers, there is a smaller chance that bullies or strangers will try to bother you, you have other people looking out for hazards and dangers, and you get to be part of a community.

## Safe Routes to Schools: Connections and Extensions

### WALK AROUND THE BLOCK MAP

As a follow up to *Walk Around the Block* have students create a map of their walk. Include:

- School
- Street names
- Major landmarks
- Drop off and pick up zones

After creating and coloring the map have students map the route that they walked in the activity *Walk Around the Block*, in green.

### WHAT'S YOUR OPINION?

Have students write opinion pieces about walking in groups. Get students started by filling in the sentence "*I think walking in groups is \_\_\_\_\_.*" Encourage students to include supporting details and focus on issues of safety in their writing.



Name: \_\_\_\_\_

# Neighborhood Intersections

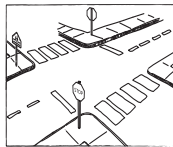
Use tally marks to record each type of Intersection you see.



Crosswalk \_\_\_\_\_

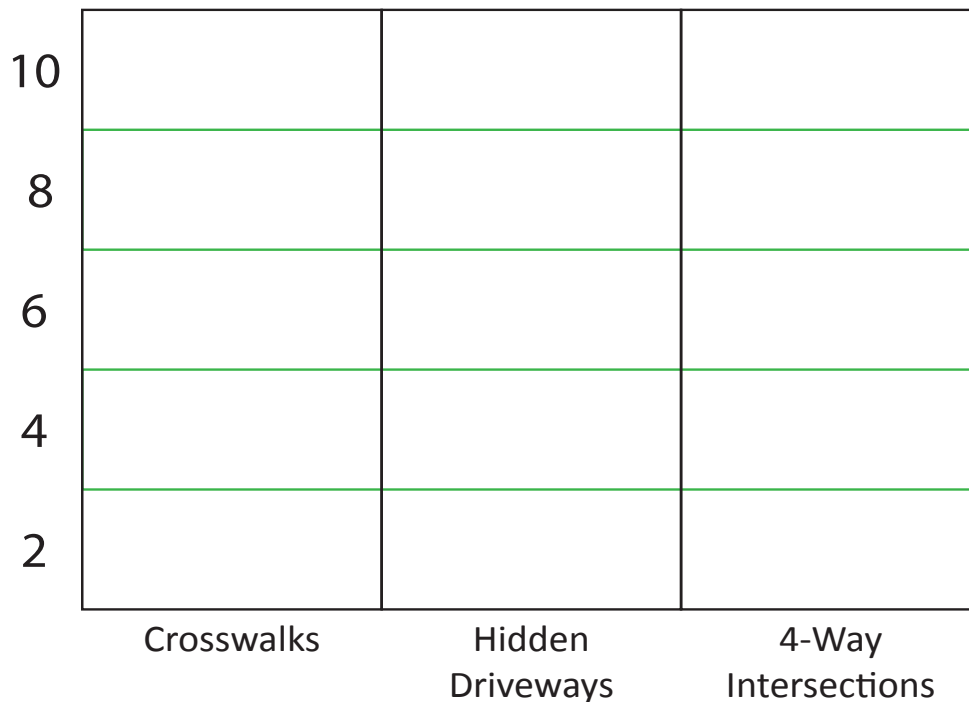


Hidden Driveway \_\_\_\_\_



4-Way Intersection \_\_\_\_\_

After your walk use your tallies to fill in the bar graph below.



Shade in the rectangles for how many Intersections you have seen.

(1) rectangle = 2 tallies

Which type of intersection appears the most in our neighborhood? \_\_\_\_\_

Which type of intersection appears the least in our neighborhood? \_\_\_\_\_





# Active Travel Choices

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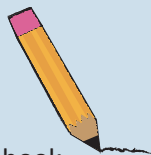
# Active Travel Choices

## Overview

Students will learn about travel options and how their classmates get to school. Students will participate in a travel choice survey and create graphs that reflect their findings. They will collaborate on possible solutions to the barriers that prevent students from walking or rolling to school.

### Supplies

- ✓ *This is the Way we Go to School* book
- ✓ Mode Chart (in Resource section)
- ✓ Double sided copies of *Travel Choice Survey* and *Travel Survey Results* for each student
- ✓ Lined paper
- ✓ Copies of *Exercise Your Addition Skills* handout for each student



Note: Students, especially at this age, may not be deciding how they get to school. So ask students about choices they do make in their lives, such as what game to play at recess or what book to read before going to bed? Emphasize the idea that each day we all have choices to make. Use the following list of benefits to encourage your students, if they have the opportunity, to choose to walk or roll to school.

## Activity: This is the Way we Go to School

Time: 20 Minutes

- Read *This is the Way We Go to School* to the class. Afterwards, solicit from students a list of all of the different ways to go to school mentioned in the book, and write them down on the board or chart paper.

Use the following prompt to begin a class discussion about travel options and the different experiences that children from the book have in getting to school.

- What kinds of things determine how you get to school? *Suggestions: weather, distance from school, where a parent works, after school plans, cost, access to public transportation, cultural values, landscape and geography.*
- Ask which of those things are a factor in how they get to school?
- Ask each student to pick a child from the book. Ask them to close their eyes and imagine using the same mode of transport as that child from the country they picked.
  - What would that be like?
  - Would it be hard?
  - Would it be fun?
  - Would it be fast or slow?
  - How would you feel when you got to school?





## Benefits of Walking or Rolling to School

Time: 10 Minutes

Hand a piece of paper to each student. Have students do a quick write listing the benefits of walking or rolling to school. After writing, have students share in pairs and then as a whole group. If they haven't already come up, share the following benefits:

- Walking and rolling are great ways to get exercise.
- It can count as part of the recommended 60 minutes a day of physical activity.
- It can be a fun way to spend more time with your friends in the morning and afterschool.
- It can help reduce the amount of pollution in the air.
- It helps reduce the amount of morning traffic and congestion around your school.
- It can help you increase endurance, flexibility and strength.
- It can help in reducing stress.
- It can help you do better with schoolwork.
- It can help you sleep better.
- It can help to build strong bones and muscles.
- It can help prevent asthma and diabetes.

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## Exercise Your Addition Skills

Time: 10 Minutes

- Pass out the *Exercise Your Addition Skills* handout. Review the recommendation that children get 60 minutes of physical activity per day. Tell students that this activity will help them practice meeting that goal.

## Activity: Class Travel Survey

Time: 20 Minutes

- Tell students you are going to conduct a survey to find out the class travel patterns and some of the reasons behind their responses. Pass out *Travel Choice Survey* and have each student fill it out.
- Put students into small groups of 3 or 4. Have each group select a reporter. Ask them to discuss their answers. When they are finished have each group report out on their findings.
- After each group reports out, ask: What does this information tell us about our class travel patterns?

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## Student Graphs

Time: 10 Minutes

- Put 2 or 3 of the small groups together so that there are approximately 6-8 students in each group. Each group will create a graph for Question #1: How did you get to school today? Discuss the results.
- Did more students walk, bike, or carpool to school?
- What are some of the challenges that prevent more students from walking or rolling?
- If students are being driven to school, how could they work towards more carpooling?
- Ask if anyone is part of a Walking School Bus or Bike Train. (*Organized groups of students walking or rolling to school with a trained parent.*) If there are students participating, ask what they like about it.
- In their groups have students brainstorm ideas about how to increase the number of students who walk, bicycle or carpool to school. Have them write their ideas in the space provided on the handout.



## Activity: Mode Chart

Time: On-going

This is best done over the course of a week to see if there is a change throughout the week.

- Prepare a large wall mode chart by using the *Mode Chart* template in the Resources section.
- Pick a week when you can spend a few minutes each morning recording how students came to school.
- Using the class Mode Chart, allow a few minutes each morning for students to mark the chart with a sticker or marker indicating how they came to school. At the end of the week look at the chart and analyze the data with the class.

Are there more students who walk, carpool, or who come by car?

Are there more students who walked or took the bus?

Look at the differences between the days and ask students why they think there are differences on different days of the week.

What are some of the challenges that prevent more students from walking or biking?

## Safe Routes to Schools: Connections and Extensions

### MODE CHART COMPARISON

Do the Mode Chart activity twice, with a month in between each survey. Compare the results and review the benefits of walking or rolling to school. Challenge the class to see if they can improve their results.

### SHOW AND TELL

Have students write a narrative describing how they get to school. Encourage students to use descriptive details and a clear sequence.



Name: \_\_\_\_\_

# Exercise Your Addition Skills

Let's practice getting 60 minutes of exercise in one day!  
Help Paulo pick the activities he could do to meet this goal on Monday.

On Monday Paulo did a combination of the following activities.  
Circle the minutes below that add up to **60 Minutes**.



Hi, I'm Paulo

Walking to school	15 minutes
Walking home from school	15 minutes
Biking to school	10 minutes
Biking home from school	15 minutes
Walking around the neighborhood	20 minutes
Biking in the park	22 minutes
Playing basketball	18 minutes
Rollerskating	14 minutes
Skateboarding	30 minutes

Total minutes \_\_\_\_\_

Write a number sentence to show how many minutes of exercise Paulo gets on Monday.

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Name: \_\_\_\_\_

# Travel Choice Survey

## 1. How did you get to school today?

- I walked.
- I rolled. (Bicycling/Scooter/Skateboard)
- I took the bus.
- I drove in a car alone or with a sibling and a parent or other adult.
- I carpooled. (Carpooling means sharing the ride with people from another household.)
- Other (please describe)\_\_\_\_\_.

## 2. If you walked or rolled, why did you?

- It's good exercise.
- It helps the environment.
- It's fun and I enjoy it!
- It gives me more time to spend with my friends.
- My parents encourage me because I live close to the school.
- Other (please describe)\_\_\_\_\_.

## 3. If you did not walk or roll to school, why not?

- It's too far.
- My parents say that it's not safe enough.
- We're in too much of a hurry in the morning.
- We have to drop off a brother/sister at another school.
- The school is on the way to my parents' work.
- I take the bus.
- Other (please describe)\_\_\_\_\_.

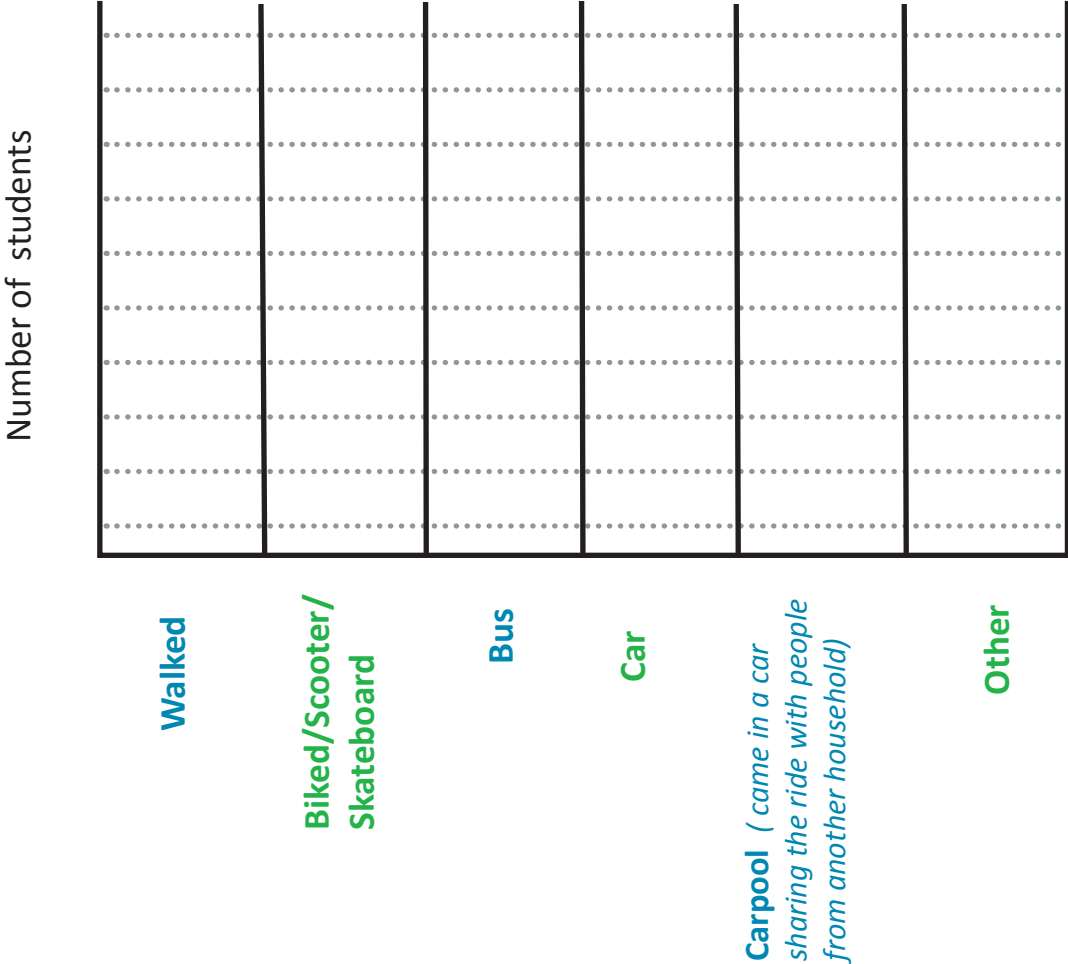
## 4. What would help you to start walking or rolling to school?

- I don't live close enough, but if my parents parked a few blocks from the school I could walk a little bit.
  - If I had other kids to walk with in the neighborhood we could all walk together.
  - If we found a safer route my parents would let me walk to school.
  - I could try to get up earlier in the morning.
  - Other ideas (please describe)\_\_\_\_\_.
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# Travel Choice Survey Graph



Fill in this graph based on Question # 1 from your group's Travel Survey results.



Write down your ideas that would help increase the bars that represent the number of students who walk, roll, take the bus or carpool to school.

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# Pollution Solutions

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# Pollution Solutions

## Overview

Students will learn about the various ways humans pollute the environment, with solids, liquids and gases. Pollution Solutions will connect ideas about pollution directly to modes of transportation, and will have students explore the idea of “sharing your ride.” They will also learn about the positive benefits of getting exercise while getting around.

### Supplies

- ✓ Copies of *What is Pollution?* for each student
- ✓ Double sided copies of *Every Trip Counts* for each student
- ✓ Large sheets of paper and pens
- ✓ Tape or glue
- ✓ Index cards, post-its, and chart paper
- ✓ Copies of *Transportation Word Problems* for each student



## Activity: What is Pollution?

Time: 30 Minutes

- KWL Chart: On one piece of chart paper, write “What do you know about pollution?” Have students answer this question on Post-its and post their answers on the chart paper.
- On another piece of chart paper, write, “What do you want to know about pollution?” Have students answer this question on Post-its and post their answers on the chart paper.
- Review the concept of Pollution with students: products in the environment, such as car exhaust, that are dirty and unhealthy for humans and other living things. Emphasize these are mostly waste products from human activity such as burning things for fuel or discarding things when we are done with them.
- Using the *What is Pollution?* handout, have students work in pairs or small groups to identify pollutants that take the form of solids, liquids or gases. Students should cut the pictures of solids/liquids/gases and paste them in the correct sections of the worksheet.
  - Liquids: Chemicals, detergents, oils, gasoline
  - Solids: Scrap metals, solid waste, plastics
  - Gases: Smoke, fumes, exhaust
- Discuss how these different pollutants affect the air, water and the earth.
- Connect this information to the air and carbon dioxide cycle. Review the human respiration process (breathing in oxygen and out carbon dioxide) and how plants do the opposite. Show students the illustration of the CO<sub>2</sub> Cycle. Talk about how when this balance is good, the air is clean. CO<sub>2</sub> is not by nature “bad” and is needed to keep the planet cool and plants alive.





- Explain that too much CO<sub>2</sub> is bad for the planet and can create changes in the climate. Discuss ways we can reduce CO<sub>2</sub> emissions in the air. These can include: burning less fuel, driving less and sharing your ride.

## Activity: Every Trip Counts

Time: 20 Minutes

- Make a list of all of the different ways to get around town with other people. Make sure that buses, BART and carpooling are listed. Discuss that when we share our ride with others, we put less pollution in the air. Also, when we use BART, because it runs on electricity, it really helps keep the air clean.
- Distribute *Every Trip Counts/Share Your Ride* handout. Review the first page which outlines on average how many people can fit in each mode of transportation most common in Alameda County. When they finish have students complete the word problems. Discuss the answers as a class.
- Discuss how sharing our ride impacts the CO<sub>2</sub> in the air and resulting pollution. Have students discuss what they could do differently getting to and from school to reduce the CO<sub>2</sub> in the area. If your school is in an area with little public transportation, discuss the benefits of carpooling.

## Activity: Getting Some Air

Time: 10 Minutes

- List all the different ways that people get around without using anything but their bodies. The list can include all “kid activities” such as riding a scooter, skateboarding, roller-skating, etc. Connect this to the previous exercise by reminding students that these forms of transportation put zero CO<sub>2</sub> in the air.
- Remind students that it is recommended they exercise at least 60 minutes a day. Lead a discussion about the health benefits of daily physical activity. Some of these benefits can include:
  - Increased endurance, flexibility and strength
  - Doing better on schoolwork
  - Better sleep
  - Builds strong bones and muscles
  - Helps with asthma and diabetes

- Many schools have high rates of students with asthma, and many students are familiar with the condition. Ask students to raise their hands if they know someone with asthma (*note: don't ask who has asthma, because this is considered a private medical issue.*) Explain that asthma is a condition of the lungs in which the airway passages get inflamed making it difficult to breath. Lead a discussion about staying active and its positive affects on asthma.

## Reflection

Time: 10 Minutes

- On a third piece of chart paper, write “What did you learn about pollution and transportation choices?”
- Have students answer this question on Post-its and post their answers on the chart paper. Circle back to the What do You Want to Know? list.

## Safe Routes to Schools: Connections and Extensions

### TRACK YOUR PROGRESS

Use one of the following websites to set up a class account for students to track and calculate the amount of CO<sub>2</sub> they conserve by sharing a ride or walking or rolling to school.

[fireupyourfeet.org](http://fireupyourfeet.org)

[www.active4.me](http://www.active4.me)





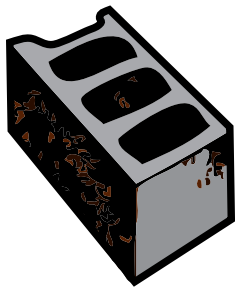
Name: \_\_\_\_\_

# What is Pollution?

Cut out the pictures of pollutants and paste them in the appropriate category below:

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## Solids



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## Liquids



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## Gases

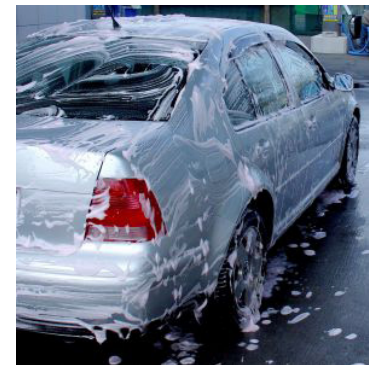




Name: \_\_\_\_\_

## Pictures of Pollutants:

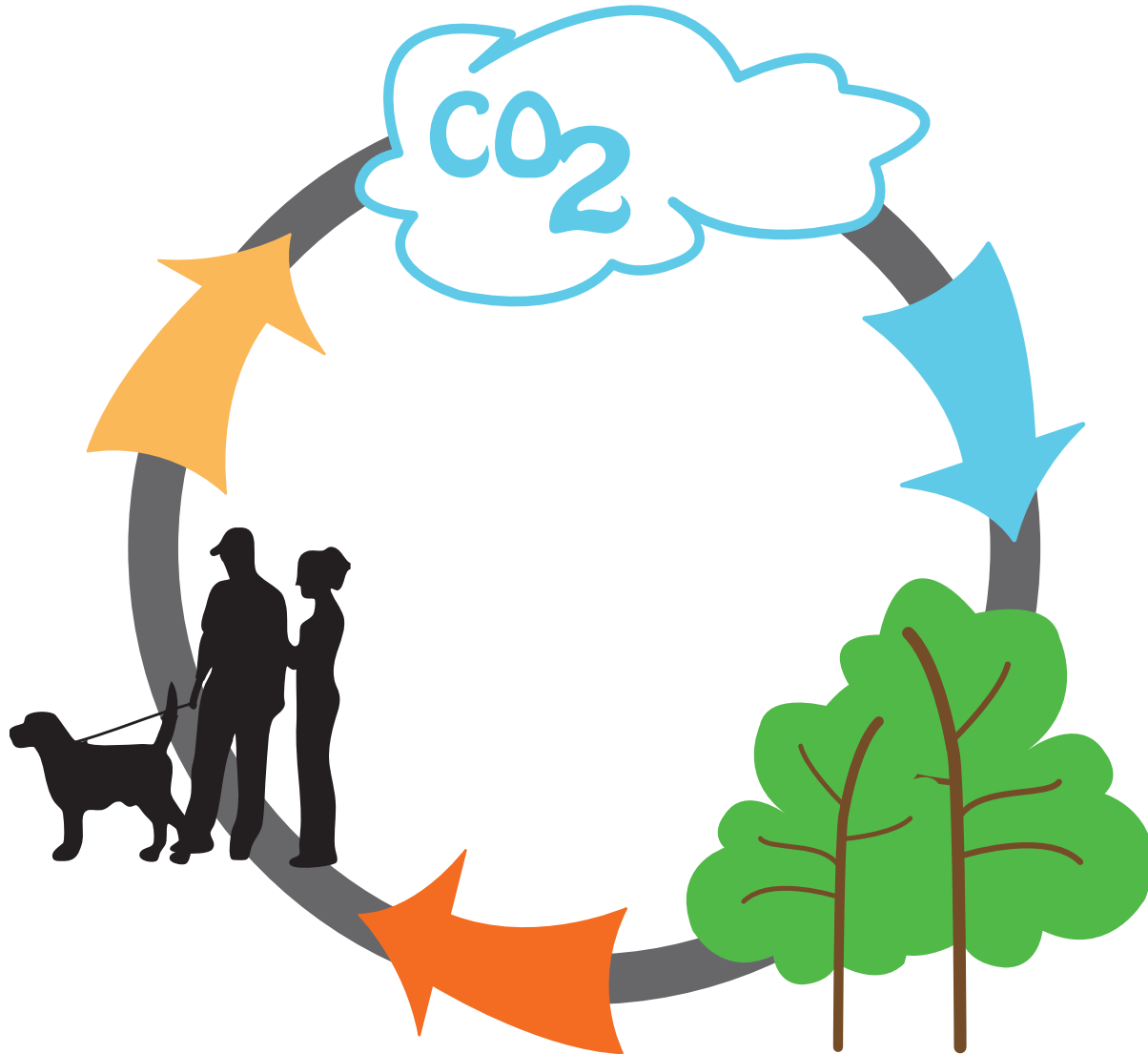
Liquids - Solids - Gases





Name: \_\_\_\_\_

## CO<sub>2</sub> CYCLE



All living things are made of carbon. Carbon is also a part of the ocean, air, and even rocks. Because the Earth is a dynamic place, carbon does not stay still. It is on the move!

In the atmosphere, carbon is attached to some oxygen in a gas called carbon dioxide. Plants use carbon dioxide and sunlight to make their own food and grow. The carbon becomes part of the plant. Plants that die and are buried may turn into fossil fuels made of carbon like coal and oil over millions of years. When humans burn fossil fuels, most of the carbon quickly enters the atmosphere as carbon dioxide.

Carbon dioxide is a greenhouse gas and traps heat in the atmosphere. Without it and other greenhouse gases, Earth would be a frozen world. But humans have burned so much fuel that there is about 30% more carbon dioxide in the air today than there was about 150 years ago, and Earth is becoming a warmer place. In fact, ice cores show us that there is now more carbon dioxide in the atmosphere than there has been in the last 420,000 years.

**Credit:** <http://eo.ucar.edu/kids/green/cycles6.htm>

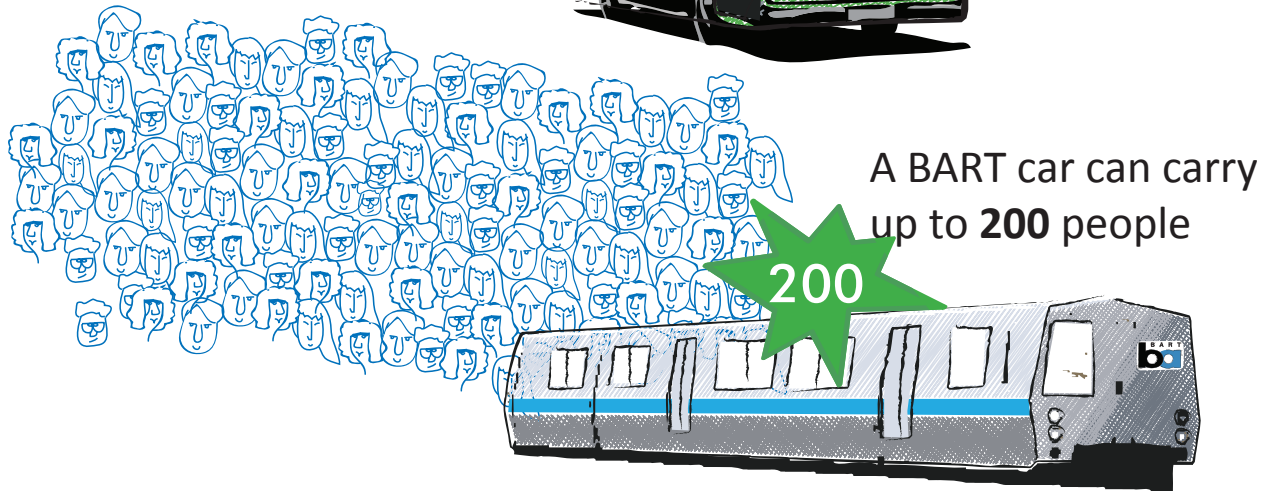
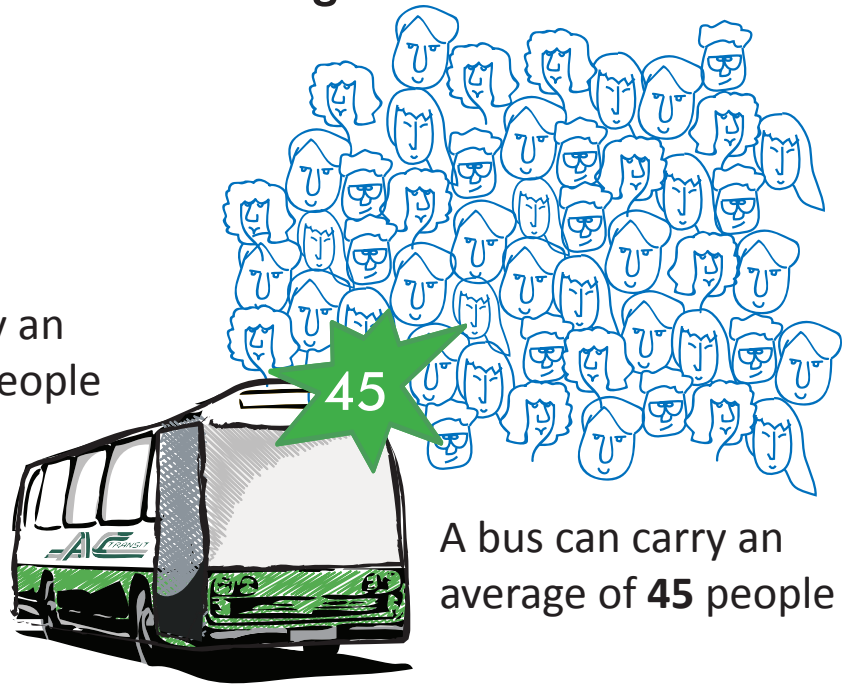
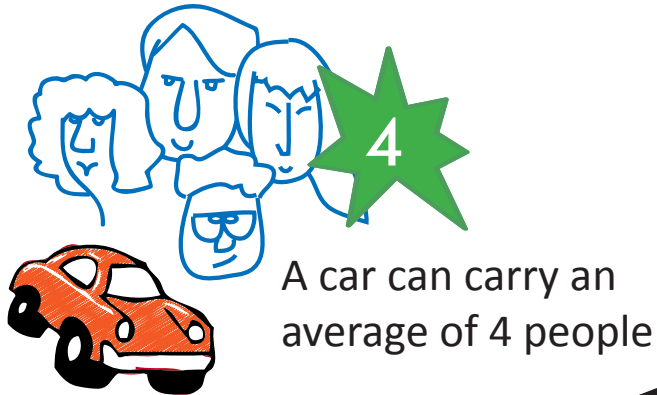




Name: \_\_\_\_\_

# Every Trip Counts

With your team look at the following facts:



**Answer with your team:**

Which of these modes of transportation is the greenest choice? Why?

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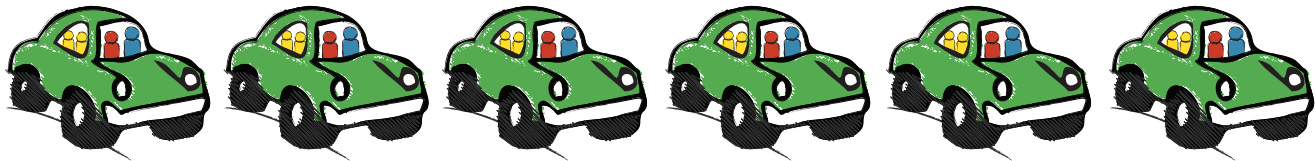
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# Share Your Ride

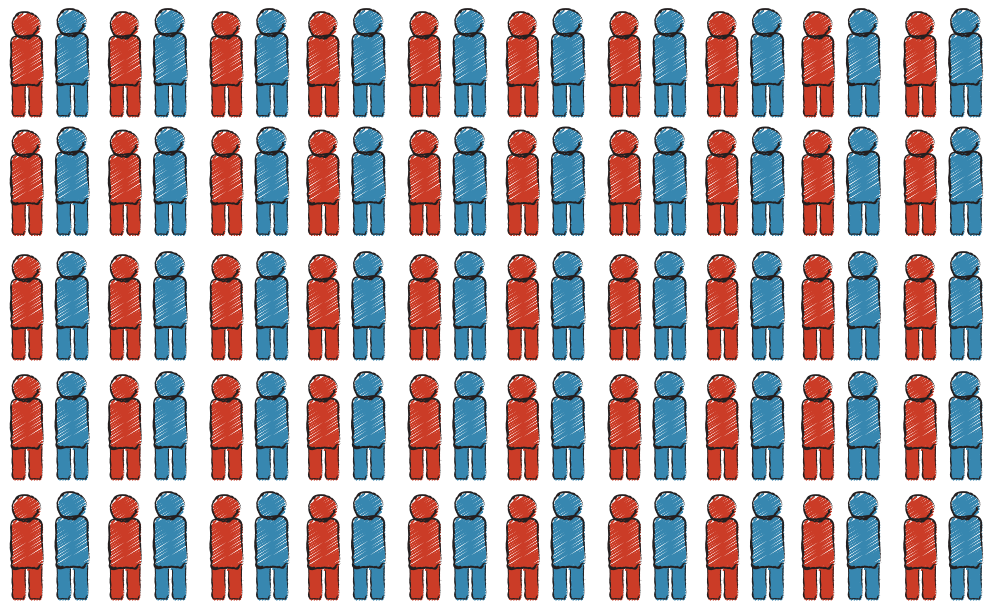
1. 16 people want to carpool to the zoo. They have 6 cars and 4 people can fit in each car. What is the “greenest” way for the people to carpool? \_\_\_\_\_

How many cars would they need? \_\_\_\_\_



2. Challenge: 90 students are going on a field trip. Their teachers can get four buses to take the students on the trip. 45 students fit in one bus.

What is the least amount of buses that the teachers will need to get? \_\_\_\_\_



Sharing your ride  
can make a green  
difference!

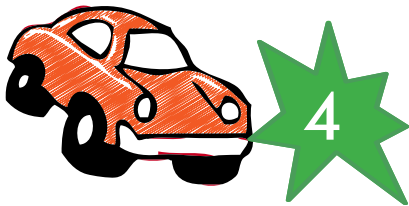
Name: \_\_\_\_\_

# Transportation Word Problems

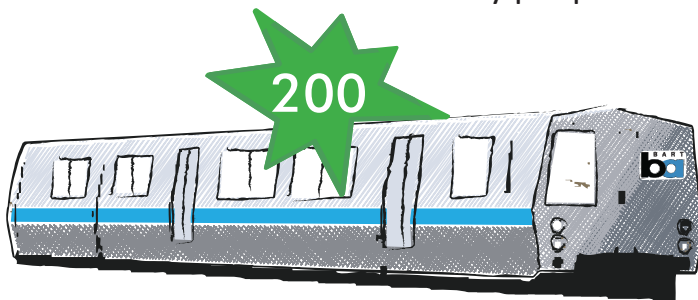
If a bus can carry 45 people, how many people can three buses carry? \_\_\_\_\_



If a car can carry 4 people, how many people can 8 cars carry? \_\_\_\_\_

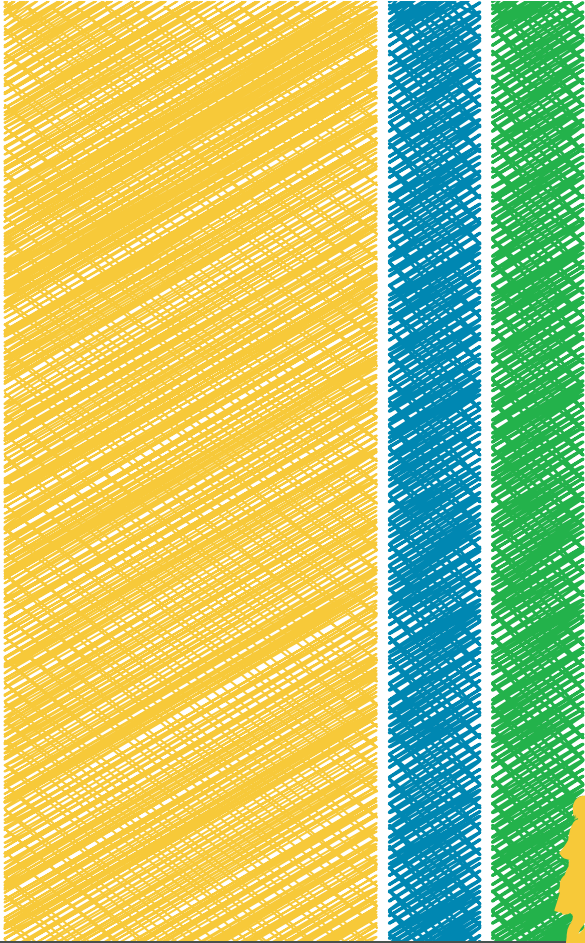


If a BART car can carry 200 people,  
how many people can 2 BART cars carry? \_\_\_\_\_



**Bonus:** Make up your own transportation word problems on the back of this page. When you are done with your word problem, trade pages with a partner to solve each other's challenge problems. Talk about how you solved each other's problems.





# Green Heroes

SR2S Educator Guide

2-3

# Green Heroes

## Overview

Students will learn about the human causes of pollution and take a close look at their own actions and impact on the environment. They will learn how to make changes in their daily lives to help prevent pollution and support one another with pollution prevention pledges.

### Supplies

- ✓ Copies of *Green Heroes* for each student
- ✓ Copies of *Be a Green Hero*
- ✓ Chart paper, markers
- ✓ Internet access (*optional, but helpful for research*)
- ✓ Chart paper (4 pieces)



## Activity: Green Heroes

### Chalk Talk

Time: 20 Minutes

- Write one of the following questions on each piece of chart paper:
  - What kinds of things do we do that cause pollution?
  - What can we do to prevent pollution?
  - What is pollution?
  - Why is pollution bad?
- Divide students into four groups. Spread the four pieces of paper around the classroom. Have each group start at a different piece of paper. After students read the questions on their chart paper, have them jot down their answers to the questions. Rotate each group through each of the four questions.
- Call the class back together to debrief the answers they wrote on the chart paper.

### Be a Hero

Time: 15 Minutes

- Pass out the *Green Heroes* handout. Have students read the passages and answer the questions.
- Ask students to think about how they can be Green Hero at home and at school.



## Activity: Who is a Green Hero?

Time: 20 Minutes

- Have students think about how they can be a Green Hero. Brainstorm ideas on chart paper.
- Make these three signs and put them up in different parts of the room: I Do This, I Might Do This and I Couldn't Do This.
- Read out loud the list of Pollution Prevention Actions on the next page and ideas that students brainstormed. Instruct students to stand by the appropriate sign after they hear each action.
- After each action, discuss their responses and why they made that choice. Consider these questions: Why would I choose to do this activity? Is it easy to do? Why wouldn't I do this activity and what is stopping me from doing it?
- Pass out the *Be a Green Hero* coloring page and ask students how they can be a Green Hero. Ask them to choose a pledge or pledges from the list or come up with one of their own. Ask them to commit to doing this action over the next week.
- Assign each student a pledge buddy. For that week give them a few minutes to check in with their buddy to see how their pledge is going. They can color in the page and share their pledge with their classmates and families.

- Turn off lights when you leave the room and turn off the TV when you are finished watching it.
- If you see trash on the ground, toss it in the trash or recycling bin.
- Talk a walk in your neighborhood or play outside instead of watching TV or playing video games.
- Talk to your friends and family about what they can do to drive less and help protect the environment.

## Safe Routes to Schools: Connections and Extensions

### LETTER CAMPAIGN

Have students write a letter to their parents, asking them to make a Pollution Prevention Pledge. They should be prepared to explain to their parents why they should make a pledge.

### RESEARCH PROJECTS

Have students research an endangered species. What is its habitat? Why is it endangered? How has climate change had an impact on this species? What can be done to help the animal before it becomes extinct?

### READ ALOUD

Read *Earth's Fever* by Stephen Aitken. Discuss climate change and add to the list of what students can do to prevent pollution and climate change.

## Pollution Prevention Actions

- Walk or roll to school.
- Walk, ride the bus or bike to destinations like the park, or your friend's house on the weekends.
- Carpool whenever possible.
- Recycle cans, bottles and paper at home and at school.
- Encourage your parents to eliminate a car trip at least once a week by walking, riding the bus, or rolling on a bike, skateboard or scooter.







Name: \_\_\_\_\_

# Green Heroes

Read the passage and answer the questions.

## The Plastic Patrol

When Merit Leighton and Marlowe Peyton were five and seven-years-old, they were watching TV and saw a show about all the plastic polluting the planet's oceans. Both girls were shocked and sad. They knew they had to do something!



Merit and Marlowe started The Plastic Patrol. They wanted to tell kids all around the world how they could help. Merit and Marlowe taught other kids how to recycle, reuse, and pick up trash. They made sure kids knew that the planet needed to be free of plastic pollution.

### QUESTIONS:

Why did Merit and Marlowe start The Plastic Patrol? \_\_\_\_\_

How did Merit and Marlowe help other kids take care of the planet? \_\_\_\_\_

## Getting Rid of e-Waste

When Alex Lin was a teenager, he read about how e-waste (electronic waste) was being dumped and causing pollution. Old computers, phones, and printers are examples of e-waste. Alex knew he had to do something to stop the problem. He helped to create a law to stop the dumping of e-waste.

Alex wanted people to learn about the dangers of dumping e-waste. He taught people to reuse instead of buying new things. If people need to get rid of e-waste, they should bring it to a special recycling center.

### QUESTIONS:

What is e-waste? \_\_\_\_\_

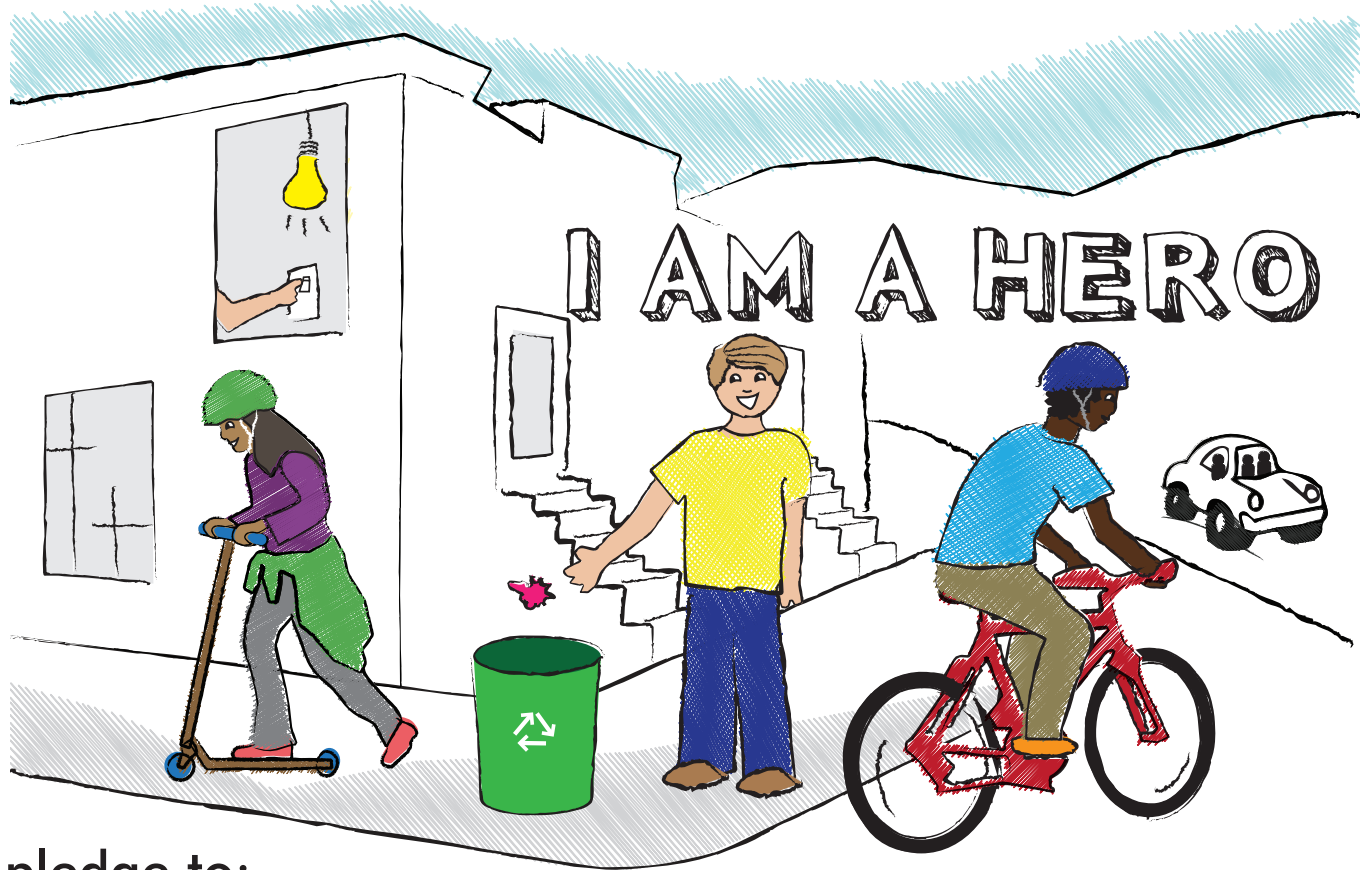
What should people do with e-waste? \_\_\_\_\_



Name: \_\_\_\_\_

# Be a Green Hero!

Color in the rest of the picture and select some actions from the list below for ways you can contribute to saving the planet and reducing pollution:



## I pledge to:

- Walk or ride my bike to and from school as much as I can.
- Walk, take transit or bike to destinations like the park or a friend's house on the weekends.
- Ask my parents to eliminate a car trip at least once a week by walking, taking transit or riding a bike.
- Reduce, reuse or recycle my waste whenever possible.
- Turn off the lights when I leave the room and turn off the TV when I'm finished watching it.
- Pick up trash I see on the ground and toss it in the recycling bin or trash can.
- Take a walk in my neighborhood instead of watching TV or playing video games.
- Talk to my family or friends about what they can do to drive less and help protect the environment.
- Add your own:  
\_\_\_\_\_  
\_\_\_\_\_

# I am a Hero Chart

Name: \_\_\_\_\_

Date Started: \_\_\_\_\_

Put a smiley face in the box if you fulfilled your pledge on that day, and make a note of what you did to fulfill your pledge.



	Monday	Tuesday	Wednesday	Thursday	Friday
<b>Week 1</b> <i>Getting Stronger</i>					
<b>Week 2</b> <i>Gaining Superpower</i>					
<b>Week 3</b> <i>Flying High</i>					
<b>Week 4</b> <i>I'm a Hero!</i>					

## Reflection:

How are you doing? Is it easy or hard to fulfill your pledge?

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