

SAFE ROUTES TO SCHOOLS
CURRICULUM

BICYCLE SAFETY UNIT

LESSON 1 OF 3: **BIKE SAFETY**



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BIKE SAFETY

4th Grade. Classroom setting.

Bike Safety begins with an introduction to the health benefits of cycling. A safety check and personal fit are demonstrated for both helmets and bikes. The two key phrases for safety “heads-up” and “bubble” are introduced.

Time allowing, a demonstration shows how car trips contribute to air pollution (CA Science Standard 5a) and students role-play the advantage of smaller size in traffic.

OBJECTIVE

1. Name three of the four major benefits of biking.
 2. Identify the steps of an “ABC” check on a bicycle.
 3. Determine whether a bicycle fits them.
 4. Recognize a properly adjusted helmet.
 5. Explain the phrases “heads-up” and “bubble” as they pertain to safe biking.
- +/- Contrast bikes and cars with regards to air pollution.
- +/- Contrast bike and cars with regards to traffic congestion.

ACTIVITIES

30 MINUTE BIKE SAFETY	45-60 MINUTE BIKE SAFETY
Transportation Cards (8 min)	Transportation Cards (8 min)
ABC Bike Check (8 min)	ABC Bike Check (8 min)
Helmet Fit (3 min)	Bike Fit (8 min)
+/- Crash Course (5 min)	Helmet Fit (3 min)
	Crash Course (5 min)
	+/- Air Pollution (6 min)
	+/- Traffic Box (6 min)

MATERIALS

30 - 45 minutes:

- white-board with markers
- “Transportation Cards” with magnetic backs, consisting of four biking and four driving images illustrating pollution, traffic, exercise, and fun
- demonstration bicycle and helmet

60 minute extension

Air Pollution Demonstration

- clear jar nearly filled with water
- brown food dye, unfiltered coffee, or similar solute
- national air quality/pollution map

LESSON PROCEDURE

- Thank the teacher and class for having you as a guest.
- Briefly introduce yourself and your cycling background.
- These classes are offered by Safe Routes to Schools and Transportation Authority of Marin.
- Briefly preview the three upcoming lessons.
 - a. Today: *Basics about the bike.*
 - b. Next: *Riding in the road with traffic.*
 - c. Bike Rodeo: *Fun bike event at your school.*



ACTIVITY:
TRANSPORTATION CARDS

Main Objective: Benefits of biking.

This activity answers the question “why bike?” The advantages of active or self-powered transportation are highlighted. Students who drive or carpool can also use active transportation by utilizing “remote drop-off”, driving only part-way.

Procedure: 5 minutes.



- 1. People use transportation almost everyday to get to work, the store, friends or family, and school.**
- 2. Call on students to create a list of “ways people get to school.” Sort the answers into three columns.**

Ways to School		
bike	carpool	car
walk	bus	truck
scooter	train	
skate		

- 4. What are the benefits or advantages of biking and walking?**

There are many correct answers. Use hints to help students guess the topic of each set of cards. Leave the cards visible on the magnetic white-board.

✓ **NO AIR POLLUTION:** *Walk/bike keeps the air clean. Driving creates air pollution.*

Cards: A picture of exhaust from a tailpipe and a picture of someone cycling.

👁️ **Hints:** *Why is this column in green? What happens when cars burn gas? Is smoke good to breathe?*

NOTE: *How much air pollution would a million bicycles make? Air quality is linked to life expectancy.*

ACTIVITY:
TRANSPORTATION CARDS



- ✓ **EXERCISE:** *Walk/bike is exercising.
Other choices just sit.*

Cards: A picture of Lance Armstrong and a bored girl staring out a car window.

- ☛ **Hints:** What would a PE teacher have to say about walk/biking?

Is it good for you to walk or bike?

Notes: *Exercise is good for your body and your brain!*

Exercise is necessary to be healthy and strong.

- ✓ **TRAFFIC:** *Small walk/biking beats traffic.
Other large choices create jams.*

Cards: A picture of a massive traffic jam and cyclists on an open bike path or lane.

- ☛ **Hints:** *What happens when everyone drives at the same time, you get stuck in -----?*

Notes: *Traffic jams around the world are getting worse (city populations rising).*

Cars uses lots of space for roads and parking, especially in cities.

- ✓ **FUN:** *This is a personal choice with no wrong answers.*

Who enjoys walk/biking?

Cards: A picture of a person experiencing "road rage" and a happy cyclist.

Notes: *Road rage happens due to lack of face-to-face communication.*

Walk/bike allows interaction with your community.

- 5. Is it possible to combine walk/biking with a car trip? Anyone can walk/bike part of the way.**

Ask someone who combines walk/biking with a car or bus trip to describe their commute.

- 6. Review the benefits of walking or biking; clean air, beat traffic, exercise, and fun!**

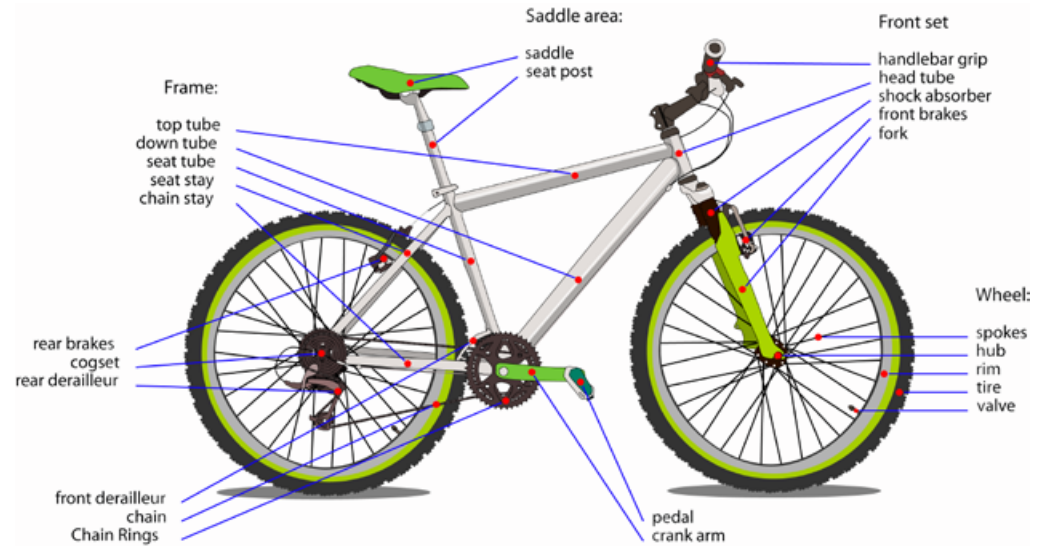


ACTIVITY: ABC BIKE CHECK

Main Objective: "ABC" bike check

The bike is composed of parts. Before each ride, the bike must pass the ABC check.

Procedure: 5 minutes.



1. Stand with your bike, make sure the students are facing you.

The bike is becoming more and more popular for transportation because of the benefits for health, traffic, and it is cheaper than building more and more roads.

Call on students to name parts such as tires, wheels, and brakes. What parts do you touch while riding? (saddle, pedals, handlebars)

2. Do an "ABC" check every time you ride your bicycle to ensure all parts are working.

Write "A" "B" and "C" on the board vertically.

A is something you breath, A is? **(Air)**.

- Squishy tires can cause a crash or a flat. Pump tires regularly.

B stops the bike, B is? **(Brakes)**.

- Test your brakes by pulling each lever and pushing the bike.

C stands for **(Check)**, look and listen before making a final decision.

- Do a visual check, and gently bounce the bike and listen for rattling.
- Final check, thumbs up or down?



3. This check only takes a few seconds and students will be responsible for checking their own bike during the Rodeo.

4. Restate the three steps (air, brakes, check) while demonstrating on the bike.

ACTIVITY: BIKE FIT

Main Objective: Bikes, like shoes, must fit.

A bicycle that does not fit will be uncomfortable and extremely tiring. Correct and incorrect fit are modeled before the students role-play both extremes.

Procedure: 5 minutes.



Incorrect Fit

1. Bicycles, like shoes, must fit. Could you run a mile in a pair of tiny shoes or giant boots?

- *An ill fitting bike will be uncomfortable and tiring.*
- *You must be able to stand over the bike frame (demonstrate).*

2. Demonstrate and then role-play riding an ill-fitting bike and a perfect fit.

Classroom setting: Students run in place for 1 minute each.

Outdoor/gym setting: Students run the distance of a basketball court.

- Many people ride with low saddle/seat height, or straining to reach the handlebars.



Correct Fit

INCORRECT FIT: run while squatting low, arms fully extended to the handlebars.

CORRECT FIT: run with a regular posture, arms/elbows slightly forward to the handlebars

3. On most bikes, proper saddle height makes it difficult to touch the ground with your feet while seated. This means getting on or off the saddle by using a pedal as a step. This will be covered during the Bike Rodeo.

4. Review that bikes, like shoes, must fit to be comfortable and easy to ride.

ACTIVITY: HELMET FIT

Main Objective: The three helmet adjustments.

Styrofoam helmets can reduce the chance of injury from impacts to the head. Helmets must be in good condition and properly fit in order to work as designed.

Procedure: 5 minutes.

1. **Helmets are required until age 18 by California state law.**
2. **What are helmets made of beneath the plastic cover?**
 - Helmets are composed of Styrofoam, often used to protect fragile packages.
 - Styrofoam is easily damaged. Helmets are disposable and only good for "one hit".
3. **If a helmet is in good condition the next step is to adjust it for fit.**

Model the three fit adjustments with your helmet.



1. **Straps, buckle:** buckle the chin strap, with no more than two fingers between chin and strap.
NOTE: Sometimes other straps must be adjusted such as ear-sliders (two fingers in a "V" around the ear) or internal retention systems.



2. **Level on brow:** place helmet brim 2 fingers above the eye-brow.
3. **Final decision:** shake your head, the helmet should not move. Thumbs up or down?



4. **Inform students that they will perform these adjustments during the Bike Rodeo.**
5. **Review three helmet fit adjustments: chin buckle, level, shake check.**



ACTIVITY: CRASH COURSE

Main Objective: Three key phrases for safe riding

Most crashes for cars and bikes do not involve other traffic and can be avoided. Remember safety phrases “heads-up” (pay attention) and “bubble” (leave space).

Procedure: 5 minutes.

“Heads-up”



“Bubble”



All modes of transportation crash. Crashing can result in injury.

Most crashes are people crashing by themselves and can be avoided.

Write the key phrases “Heads-up” and “Bubble”.

Use physically exaggerated movements associated with heads-up and bubble.

1. Heads-Up: Watch out, pay attention. You keep your head up.

- What distracts drivers? (cell phones, stereo)
- What do you need to see when riding your bike?

2. Bubble: You leave empty space around your bike.

- We have a personal space around us, our bikes, and our cars.
- Being “cut-off” or “tailgating” is when drivers drive too close.

3. There is a third category. “Fast / tricks”

- You are more likely to crash if you’re going fast or doing tricks.

4. You can avoid crashing by riding smart, keep you head-up and space around your bike!

5. Lead students in repeating “heads-up” and “bubble” with gestures.

+/- ACTIVITY: AIR POLLUTION DEMONSTRATION

Main Objective: Unlike bikes, smoke/exhaust from cars pollutes the air.

The problem of vehicular air pollution is illustrated by adding brown food-dye to water, each drop representing a single trip. Unlike slow changes to the earth, air pollution is a fast change.

California Standard: Fourth Grade Science.

5a. Students know some changes in the earth are due to slow processes, such as erosion, and some changes are due to rapid processes, such as landslides, volcanic eruptions, and earthquakes

Procedure: 5 minutes.



1. Begin the demonstration by highlighting the "pollution" Transportation Card as a transition.

DIALOGUE:

- a. Ask the students, "What goes into the air when you have a fire?" Smoke.
- b. Cars use gas by burning it, creating smoke or "exhaust."
- c. Is smoke good for us to breathe? Is car exhaust good for us to breathe? No.
- d. Changes on earth happen slowly or quickly.
 - Some changes take thousands of years, like erosion on a mountain.

- Some changes happen in a day, like earthquakes.
- Does it take thousands of years to make air pollution or just a day?
- EXAMPLE. Spare the Air Days: air pollution happens on a daily basis before being blown away by winds (considering dumping water down a drain at the end, is the pollution "gone"?).
- e. Reveal the glass jar filled with water, explain that the water represents clean air.
- f. Ask the class, "Would you breathe this air?" Have the class take a deep breath.
- g. Reveal the dark solute, explain this represents air pollution from car exhaust.

+/- ACTIVITY:
AIR POLLUTION DEMONSTRATION



- h. One at a time, have the students suggest a destination for a driving trip.
 - i. For each trip add a drop of pollution and ask, "Would you breathe this?"
 - NOTE: Add the same amount of pollution for all car trips, cars pollute the most during the first few minutes (catalytic converter warming up). The current air quality is not perfect, after a drop or two state "You are breathing this!"
 - j. Stop when the "air" becomes very dark. Have the class take another deep breath.
 - k. Sometimes air becomes unhealthy. Display the national air quality map.
- l. *Transportation is the leading source of air pollution in Marin County.*
 - m. *How much air pollution would a million bikes make?*
 - **EXTENSION:**
What happens when air is not safe to breathe? (thousands of people get sick every year from polluted air)
 - *What else produces smoke or air pollution? (fireplaces, airplanes)*
- 2. Review that each car trip adds pollution to the air. Bike/walk creates no air pollution at all.**

+/- ACTIVITY: TRAFFIC BOX

Main Objective: Bicycles reduce traffic because they are small.

Role-play traffic jams as cars, bicycles, and walkers.

Procedure: 5-10 minutes.

1. Organize the class into a large square around an area with unobstructed paths to the opposite side.

2. RULES: Students must *make it to the opposite side as a car, bike, and walker without bumping anyone. Set behavioral expectations (stay on feet, volume level).*

CAR:

- *arms straight out to the sides (expand the square as necessary)*
- *move straight forward, no turning sideways*
- *arms should not overlap when passing*

BIKE:

- *elbows tucked to the side with hands forward*
- *bike may turn and move in any direction*

WALKER:

- *walk and move in any appropriate manner*

3. Extensions

- *mix cars/bikes/walkers at same time, consider prioritizing walkers*
- *add obstacle such as desks or chairs to further restrict movement*



4. Review that *biking and walking takes up less space and therefore avoids traffic jams.*



BIKE SAFETY: LESSON CONCLUSION

1. Briefly review the main objective of each activity:
 - Name three of the four major benefits of biking.
 - Identify the steps of an “ABC” check on a bicycle.
 - Determine whether a bicycle fits them.
 - Recognize a properly adjusted helmet.
 - Explain the phrases “heads-up” and “bubble” as they pertain to safe biking.
 - +/- Contrast bikes and cars with regards to air pollution.
 - +/- Contrast bike and cars with regards to traffic congestion.
2. Ask the audience for questions or comments. What did they find important or interesting?
3. Briefly preview the next lesson, “Traffic Safety.”
4. Thank the students and teacher for having you as a guest.



Safe Routes to Schools is a program of the Transportation Authority of Marin.

This curriculum was created by James Sievert and edited by Wendi Kallins.

Special thanks to all those who contributed to the development of this curriculum over the years: Chris Davis; Melanie Grubman; Jason Agar; Frances Barbour; Heather Crawford.