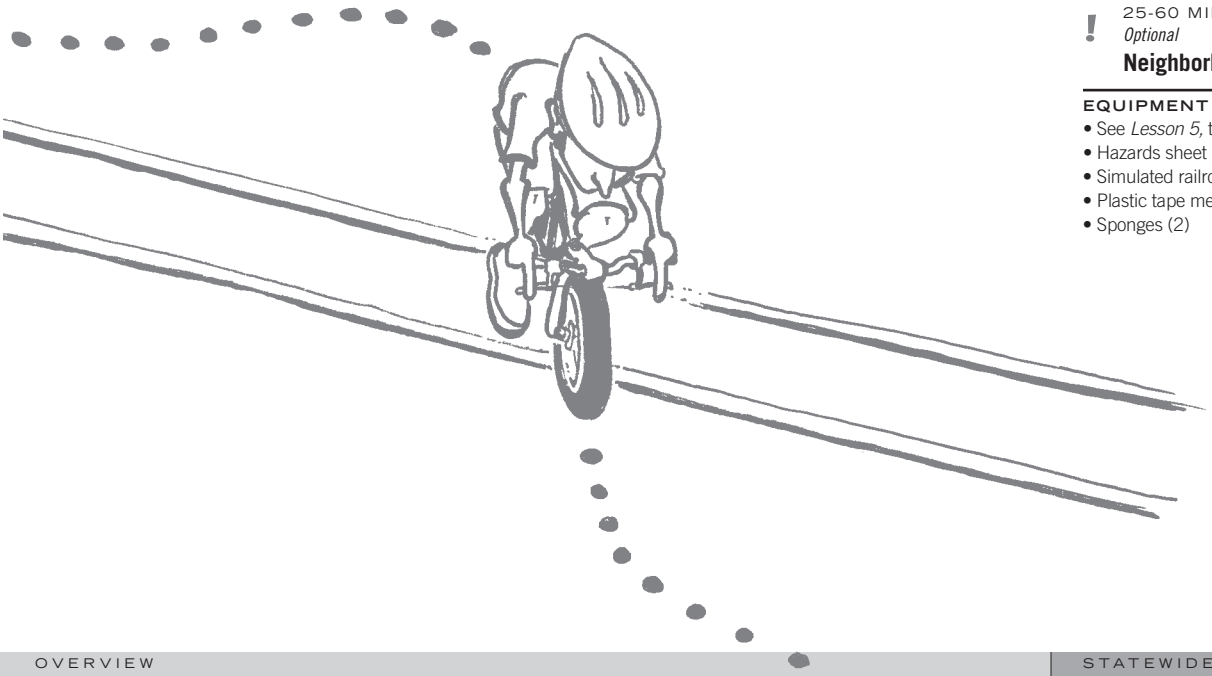
Hazards and emergency avoidance

LESSON 8

EQUIPMENT
- See *Lesson 5,* through "repair kit, tool,..."
- Hazards sheet (revisited, *Lesson 4*)
- Simulated railroad tracks, glass
- Plastic tape measure
- Sponges (2)



OVERVIEW

Purpose:
This lesson discusses the hazards that might be encountered when cycling and techniques to avoid those hazards.

Topics covered:
- Hazards
- Avoidance maneuvers (railroad tracks, rock dodge, emergency stop, and quick turn)
- Neighborhood ride

Preparation notes:
This lesson is taught on the playground/blacktop.

Teachers should consider this lesson optional since emergency maneuver skills are for students with high levels of bicycle skill. Teachers who want to avoid this lesson should take the students for a neighborhood ride, in which case teachers must have volunteers, or can delete the lesson altogether.

STATEWIDE EDUCATION GOALS

Health

Controllable health risks
- Understand and apply prevention and risk reduction strategies
- Apply movement concepts and principles to learning and developing motor skills

Safe and healthy environment
- Understand and apply strategies to improve and maintain health
- Apply injury prevention

Healthy relationships
- Communication to enhance safety

Physical education

Expressive and efficient movement
- Demonstrate movement principles in performing skills related to a team activity and an individual or partner activity
- Detect and correct errors of a critical element of movement

Self-management and social behavior
- Apply rules, procedures and etiquette that are safe and effective for specific activities/situations

Hazards and emergency avoidance

BACKGROUND

WHAT: A discussion / review of the hazards encountered while riding a bicycle.

PURPOSE: To enable students to identify bicycling hazards so they can avoid them.

LESSON

HAZARDS, REVISITED

DISCUSSION 10 MINUTES

❶ Hazards can be surface, collision and visual. Can the class name any of the hazards from any three categories? The Hazards handout (*Lesson 3*) depicts many.

- Surface hazards include glass, storm grates, potholes, railroad tracks, rain, ice, leaves, or other obstructions on the road surface.
- Collision hazards include turning cars, other bikers, pedestrians, dogs, and trains. Also included are parked cars with opening doors.
- Visual hazards include obstructions to view such as bushes, fences, other cars, buildings, and too little light at night.

❷ Distribute the Hazards handout sheet (if students have not completed it in a prior lesson). Have each student circle the hazards and list them on the bottom of the sheet.

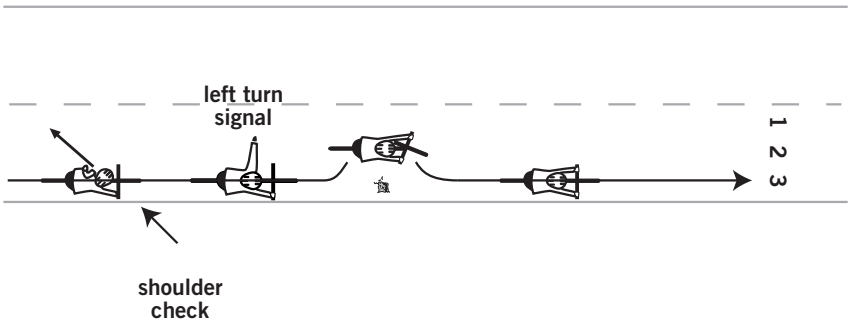
❸ Discuss recognition and avoidance of the hazards with the class.

❹ Demonstrate how Position 2 is used to avoid hazards.

❺ Talk about other problems including:

- Shoelaces caught in the pedals — just stop pedaling and brake. The bike won't fall if the rider stops pedaling.
- Carrying too much — don't carry too much, book bags, etc. because the weight will make it hard to handle the bike.
- Use a backpack, don't put baseball gloves on the handle bars.
- Ride with only one person on the bike!
- Riding at night — bicyclists must use white headlights and red rear taillights and/or reflectors.

❻ Once they are briefed on hazards, it's time to take them on the bikes.



LESSON

RAILROAD TRACKS

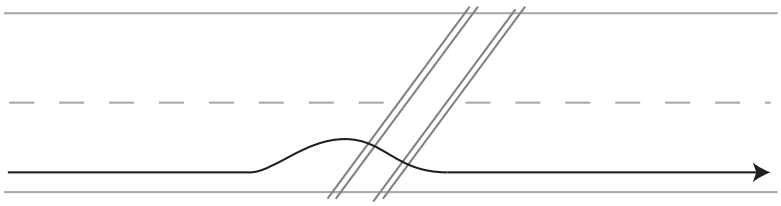
ACTIVITY
5 MINUTES

MATERIALS

- 8 thin, narrow boards for mock railroad tracks
- Chalk for lines on pavement (if needed)

RIDING ACTIVITY LAYOUT

Use the Basic Course Layout. Sixty feet down the course, place two narrow boards parallel to each other at a 45 degree angle to the bicyclists' path on the lines between lanes 1 and 2, 3 and 4, and 5 and 6. Because the boards will be placed between two lanes, each of the three groups will be able to execute the activity using two lanes, no more.



1. Lay the mock railroad tracks at a 45 degree angle to the riding path of the students on the lines between lanes 1-2, 3-4, and 5-6. Form three lines of students. (This activity will go fast).
2. Explain the hazards of railroad tracks and how to avoid them. Explain that a cyclist must control the front tire in order to pull out of tracks or other crashing situations.
3. Line students up in between the lanes that have railroad tracks. Students will ride down the lanes and perpendicularly over the mock railroad tracks. Only one student should go at a time per line.
4. If there is time, students should check over their shoulders before swerving to get perpendicular to the track.
5. When students successfully complete the exercise, remove mock railroad tracks and go on to next exercise.

BACKGROUND

WHAT: A simple exercise teaching how to cross railroad tracks.

PURPOSE: Allows students to be able to identify bicycling hazards so they can avoid them

Railroad tracks are a hazard for bicycles because the tires can get caught in the tracks causing the bicyclist to fall. To avoid this, bicycles must cross railroad tracks at a right angle. So when there are diagonal railroad tracks the bicyclist must do a little swerving to not get caught in the tracks.

Important concept — if your front tire gets caught in tracks, or if you hit a big pot hole, curb, etc., your only chance of not crashing is to keep control of the front wheel. Hold tightly onto the handle bars and try to force yourself out of the tracks by turning your tire sideways to the track, then pedal out!

Bringing the students to real tracks during the street rides (if possible) is beneficial for reinforcement.

Hazards and emergency avoidance

BACKGROUND

WHAT: An activity to teach students to stop quickly in order to avoid a crash.

PURPOSE: Emergency stopping is used in situations when you need to stop fast. This activity will introduce youths to emergency stopping so they may avoid a car, people or hazards.

Many hazards can be avoided by good planning. Usually you avoid a crash at an intersection by following the laws and going through it slowly. But other times the hazards are very sudden, and to avoid them you must apply an emergency maneuver. These include the emergency stop, rock dodge and quick turn.

The emergency stop is often useful when a car unexpectedly pulls out of a driveway and can not be avoided via swerving. The emergency stop is not the end-all maneuver to avoid accidents. We will cover other important maneuver in the following exercises.

LESSON

EMERGENCY STOP

MATERIALS (OPTIONAL)

- Tape measure
- Stopping distance sheet
- Chalk
- Pencil

RIDING ACTIVITY LAYOUT

Use the same lane setup as for the railroad tracks exercise, except have only two groups go at a time. Place a perpendicular line halfway down the cycle lane as an indicator to where students should start their stop. The stopping line should be placed between 80 and 150 feet from the start depending on the size of the blacktop area. There should be at least 20 feet after stop line.

Teacher instructions

1. Discuss stopping, emergency stopping and basic hazard avoidance.
2. Demonstrate stopping distance using three types of stops:

   Normal stop — when we stop our bikes, we should apply 3 times greater force to the front brake than the back (pull brake lever 3 times harder). Why? Because the front slows us down the fastest!

   Hard stop with skidding — if we stop by using only the back brake, we tend to skid. Why do you think it is so easy to skid on a bike with coaster brakes? (Because they only have back brakes.)

   Emergency stop — to stop faster you have to apply more front brake. The best emergency stop will use a lot of front brake pressure and little back brake pressure. If we skid with our back brake we are pressing too much on our back brake. BUT, DON'T APPLY ONLY FRONT BRAKE OR YOU WILL FLIP OVER YOUR HANDLE BARS! So be careful. Also, to stop well you must drop your body and shift your weight to the back over the rear wheel.

3. Have a student with a tape measure to measure how many feet it takes to stop for each different type of stop, and record it on a record sheet. The emergency stop should be the fastest. *(Optional)*

Student instructions

1. Line two groups on lines in between lanes 1–2 and 5–6. Have two groups start and pedal to gain some speed.
2. At the stopping line have the students apply the brakes to try to stop quickly.
3. Don't allow students to intentionally skid their back tires.
4. Have the left lane of students return to their lines to the left and right lane return to the right.

Note: Students with coaster brakes on their bikes should not use them for this exercise. Have them share bikes with another group.

LESSON

ACTIVITY
15 MINUTES

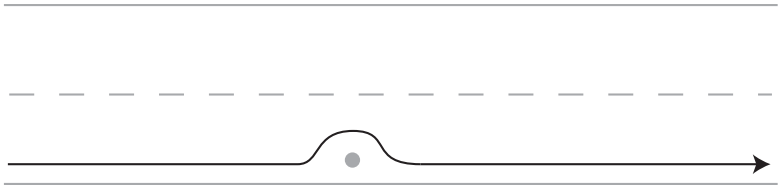
ROCK DODGE

MATERIALS

- 8 sponges

RIDING ACTIVITY LAYOUT

Use same layout as in Emergency Stopping. Place sponges at the 80 feet mark in between lanes 1 - 2 and 5 - 6.



1. First demonstrate the physics of turning, that turning doesn't just happen with the handle bars but with a transference of weight from the seat area.
2. Place the sponge at the 80 foot line so that students can get up a little speed before this exercise.
3. Demonstrate while riding and have students in two lines.
4. Have students walk their bike a short distance first in a straight line while holding the seat (this may take a little practice) then practice turning by tilting the bike in the opposite direction and jerking it back.
5. Lastly, practice the activity on the bike, ensure that groups have adequate room between each other and that each student points the rock to communicate rock in the way.
6. Have left lane peel back left and right lane peel back right (have volunteers standing at the end of the exercise directing this).

BACKGROUND

WHAT: An activity where students learn to make a quick emergency maneuver that will help them avoid debris lying in their path.

PURPOSE: Rock dodges are used to avoid hazards on the road that can puncture your tire or make you fall. The need for a dodge will usually occur if you haven't seen the hazard until you are very close to it. This maneuver must be practiced and will help prevent accidents.

The concept behind a rock dodge is that you move your bike not by turning the handle bars but by distributing weight properly on your bike frame. Demonstrate while holding the bike seat — to avoid a hazard quickly, one must get the bike to swerve quickly. Just before you reach a hazard, your are going to turn your handle bars away from the object (say right) — this forces the rider in the opposite direction, and quickly snap the handle bars back straight — this puts the bicycle under you and around the object. If your rear wheel hits the object it is o.k., because it is the loss of control of your front wheel which makes you wipe out.

When riding in groups, the first person should point to a rock or other debris on the road so the other cyclists know it is there.

Hazards and emergency avoidance

BACKGROUND

WHAT: Quick turn is a similar activity to rock dodge but the rider doesn't continue in a straight line, rather turns with the automobile.

PURPOSE: This difficult maneuver is vital in a situation where a car unexpectedly takes a right turn in front of the bicyclist. There is often not time to stop so the bicyclist must follow the path of the car (see diagram).

Making a quick turn is similar to making a rock dodge. If the rider wants to turn hard right, they must snap their wheel left to get their body leaning right, then after a 1/10 of a second or so turn back right and you will take a right turn. The main difference here is that the cyclist aims to turn right instead of keeping straight.

LESSON

ACTIVITY
15 MINUTES

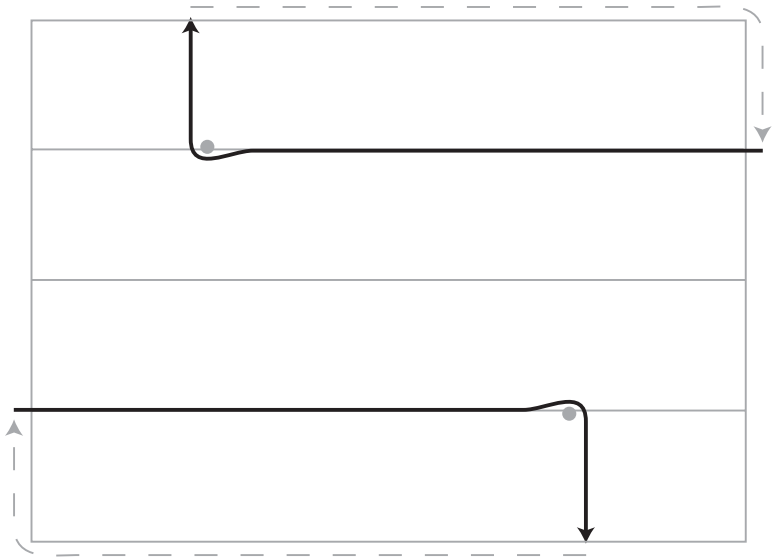
QUICK TURN

MATERIALS

- See Rock Dodge activity

RIDING ACTIVITY LAYOUT

Use same layout the Basic Course Layout, as in Rock Dodge. If there is ample space to conduct two simultaneous activities, have two rows that run in opposite directions. Therefore leave one sponge at 80 feet and move the other to 25 feet from start line. Then move the group whose sponge is at 25 feet to begin at the finish line. If there is not ample room for two simultaneous activities, have only one lane to avoid collisions.



1. Leave one sponge (e.g. between lanes 1-2) at 80 feet and move other sponge (e.g. between lanes 5-6) to 25 feet so the two groups of students can do the activity going in opposite directions.
2. Explain and demonstrate the turn; practice the turn only to the right.
3. Move one group of students to the finish. Students will ride down lines where the sponge is, execute the quick turn by turning right and ride back to beginning of the line.
4. If the teacher desires, move sponges so students can try left turns.

LESSON

ACTIVITY
25-60 MINUTES

NEIGHBORHOOD RIDE

Optional

Run a neighborhood ride if time permits or if students do not have the cycling skill level to perform emergency maneuvers.

MATERIALS

- Bright safety vests for leaders and sweeps
- Bicycles
- Watch for each group ride leader
- Pump (1 per group)
- Repair tools (1 per group)
- Helmets
- Patch kits (1 per group)
- Safety kit (1 per group)
- Cell phone/walkie talkies

❶ Have students organized in groups for riding. Each must have a helmet and a bike. Ride leaders must have safety vests and one adult per group wears a pack with tools and a safety kit.

❷ Communicate to the class the riding activity and the riding rules (see *Background* column).

❸ Assign groups of students to adults (see *Background* column for strategies).

❹ Allow each group to go for at least 20-minute ride. If there is plenty of staff, the rides can be longer (or to a destination where we stop and play, get ice cream, etc).

❺ Upon returning, debrief.

WHAT TO BRING ON A RIDE

- Cell phone / walkie-talkies
- First aid kit
- Water

BACKGROUND

WHAT: This activity combines all the skills of safe bicycling and puts them into practical application in a neighborhood setting.

PURPOSE: To give the students exposure to cycling in traffic and enforces proper cycling technique.

On-street ride

The on-street ride is preferred to a bicycle rodeo because students practice skills while gaining confidence of proper on-road cycling. To coordinate rides, teachers must obtain prior approval by administration and parents using normal field trip procedures. Teachers should also recruit volunteers ride leaders. A ratio of one adult to five students is ideal, but adults can usually handle seven student cyclists.

When planning group rides, one of two basic riding strategies should be taken:

Small groups – each adult leads as small a group as possible. The adult either rides in front or back of the group, communicating with students to keep right, hand signal and facilitating communication among each other. In small groups, adults should allow each student to negotiate intersection movements independently. At stop signs, adults can stand to the left of students, coaching them through intersections. Students should be told to wait a couple of hundred feet up the road for the rest of the group. The advantage of small groups is that students learn a more realistic sense of cycling in traffic.

Large groups – classes are broken into groups of 10-15 children and two or three adults per group. Students negotiate intersections as individuals but often are waived on by automobiles, or fail to properly stop at stop signs because the cyclist before them just went through. Adults should be spread out among the group.

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Hazards and emergency avoidance

BACKGROUND

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Combo groups – A good method is to combine the two styles. Small groups of students, each supervised by one adult, ride the same routes but are separated by a few moments and remain in eyesight of each other. This will give teachers more ability to supervise their entire class while allowing youth the ability to negotiate intersections in small groups. The drawback is that front groups often have to wait for rear groups.

Ride leaders and sweeps

Each ride should have a leader who knows the route and is an expert at bicycling and managing the large group of students. The ride leader's responsibility is to ensure that the groups of riders do not get lost behind. The rider leader must wait when later groups are not in sight. A general rule is that the ride leader should be able to see at least half the class.

Ride sweeps should carry a cell phone, emergency equipment and repair tools. The ride sweep is often the lead teacher or responsible bicycle advocate. The ride sweep is responsible for managing any problem that arises including injuries and mechanical failures. Having walkie-talkie communication for sweeps and the ride leader is useful to avoid separation.

Routes and logistics

Rides should begin on low to medium traffic streets around the community, distance depending on time. Rides can be led on higher traffic streets as students improve in skill. Teachers will want to consider routing and meet with volunteers at least 15 minutes before class to discuss routes (maps are helpful) and group riding strategy. Teachers should also have reflective vests, patch kits and medical kits for adults to carry.

Teachers may have pre-marked the riding course with signs such as "Bicycle Event" placed around the course. Another idea on long rides is to recruit parents to stand at important intersections and guide groups, ensuring that they keep on the designated course and acting a check-in posts. If you do this, make sure to tell the volunteers how many groups they should expect to see passing.

LESSON

NEIGHBORHOOD RIDE GUIDELINES

Laws

- All riders must wear an approved helmet, fitted properly.
- Bicycles are vehicles and must follow same laws that apply to motor vehicles.
- When riding on the roadway, ride as far to the right as is safe.

Group Riding Techniques

- Take responsibility for yourself. Don't just follow the leader, especially when crossing streets, driveways or intersections. If a traffic light turns yellow and half of the group rides through, you should stop and they will wait.
- Ride single file and ride on the right, pass on the left. (Limit passing on group ride).
- Communicate with other riders verbally and with hand signals (left and right turns, stops, hazards, slowing, passing).
- Ride as a group, but leave at least one bike length between you and the next rider. When passing another rider, give verbal warning "PASSING" or "ON YOUR LEFT".
- For left turns, consider traffic volume and skill levels to decide the best technique.
- The first and last rider (leader and sweep) wears retro-reflective material.
- Everyone pulls off to the right side of the roadway for discussions and rest stops.