LESSON 8: MAP READING & BIKE ROUTE PLANNING

TEACHING STYLE: Adult, parent led, teen led
CLASS SIZE: 4-12 students
COMPETENCY OBJECTIVES:

Students will be able to:
- read a map including symbols, scale, direction, and legend
- use road maps to obtain bike route planning and other information
- use mileage scale to accurately determine distance between map points
- use simplified topo maps to perform orienteering tasks in a natural setting
- assess relative traffic risk of various roads
- synthesize a variety of information about road, traffic, travel resources, and weather conditions to select optimum bike route
- justify route selection orally and in writing
- broadly speaking, this lesson will develop critical thinking skills and establish a general understanding of the nutritional, economic, and cultural aspects of bike route planning.

TIME REQUIRED: 2 hours classroom and a minimum of 2 hours on-road
MATERIALS NEEDED:
- maps including local city maps, county maps, bikeways maps, simplified topographic/landmark maps, and personal maps from previous lesson.
- index cards, pencils, notebook paper

ACTIVITY SUMMARY:

Students added depth to their understanding of mapping and spatial orienteering in the previous mapmaking lesson. This lesson will intensify students' commitment to bike safety and to the overall bike program. It will motivate students through use of an adventure learning component involving use of maps to find real world destinations, incentive awards, and/or optimally safe neighborhood bike routes. Ideally, this lesson can be used to culminate a 25-hour or 50-hour bike mechanics and safety training program.

INSTRUCTIONAL ACTIVITIES

1. Work in small groups of 2-4. Hand out maps, cards, and pencils. Each group should have an example of a roadmap and a topo/landmark map.

2. Starting with the roadmap's legend, have the students find various symbols on the map. Ask them to locate various landmark buildings on a city map or parks or physical landmarks such as

rivers, lakes, and parks on a county map. Discuss various road types and surfaces and their relevance to a biking trip.

3. Discuss what makes a bike route safe or unsafe. Study the 15 key bike safety messages (see Exhibit A.) Discuss especially items 1-3 (Know the Street) and 10-12 (Stay Legal).

4. Discuss the design of topo/landmark maps. If students have their personal maps from previous lesson, survey the landmarks on each student's map. A variety of breakout activities can be used at this point including:

a. Take students to the actual site covered by a simplified topo/landmark map of any small natural environment such as a park, woods, or even a large schoolyard. Use a site covered by a student's personal map if that site is accessible. If time or transportation options are limited, you can use virtually any space including an indoor space. Mark various points on the maps and ask students in groups of 2-4 to find those locations and retrieve a token from them.

b. Using topo/landmark maps as in item a. above, hold a contest to see which group can locate target locations the fastest.

c. Ask student groups to estimate time required to travel between various points on the topo/landmark maps. Test student estimates and chart results by groups.

5. Discuss all topics to be considered in the planning of a fun, safe bike trip. Trip distances can range from a few blocks long to a couple hundred miles depending on the riding ability of the class group as a whole. Include discussion of equipment selection and care, assessment of rider abilities, nutrition and meal planning, economic aspects, political and cultural aspects (even within a single city, these elements can be vitally important), weather, and time availability.

Ask students to plan a route for a bike trip individually. Have them mark the route on a map and also write it on paper. Students can calculate mileage using scales on the maps in combination with the index cards and pencils. Ask students to copy the scale to one edge of the index card and them measure each straight road segment on the map using the moveable scale on the index card. Mileage on roads with many winding turns may have to be estimated.

6. Ask students to explain the route they selected, giving their reasons based on their riding resources and needs, geographical area, and traffic flow.

7. Ask other students to provide feedback and suggestions for each route plan.

8. If time allows, ask groups of students to select a route for a 2-5 mile group ride. Ask the class to select a single route by voting and plan a group bike trip for that route. If students need guidance, make any adjustments necessary to ensure a reasonably safe route. After the ride, discuss the safety aspects of the trip.

ADDITIONAL RESOURCES

Local bicycling clubs are good sources of volunteers to help with the on-road portions of this lesson. Also, club members can frequently have good stories to tell. If your local club has a certified Effective Cycling Instructor (ECI), that person can be an excellent resource for teaching any aspect of bicycle safety. Finally, members of your local police mountain bike patrol are especially good at providing safety instruction to young people in an urban setting. The maneuvers that bike police are trained in more closely the resemble the types of handling situations that young cyclists encounter on urban streets with their BMX-style bicycles.

EXHIBIT A

THE 15 KEY SAFETY MESSAGES (developed by YBEN/LAB/NHTSA)

KNOW THE STREET

1- Check oncoming traffic before entering any street or intersection.
2- Ride at least 3 feet from parked cars to avoid getting hit by a door.
3- Be constantly aware of other street users and road hazards like potholes.

TALK TO TRAFFIC

4- Brightly colored clothes let other traffic know you're there.
5- Hand signals let other street traffic know where you're headed.
6- Riding straight, without weaving, tells others you know where you're going.

CONTROL YOUR BIKE

7- Ride a bike that fits you and works right.
8- No stunts while riding in traffic.
9- Don't weave in and out of parked cars.

STAY LEGAL

10- Ride the right side of the road, with traffic.
11- Bicycles are vehicles, like cars. Obey all traffic laws.
12- Ride in a single file when you're in a group.

SAVE YOUR BRAIN

13- Wear a helmet at all times. Use one that fits securely.
14- Wear a brightly colored helmet for visibility.
15- Professional bikers - racers, bike police - always wear helmets.