

# 2014 Cycling merit badge requirements

1. Do the following:
  - a. Explain to your counselor the most likely hazards you may encounter while participating in cycling activities and what you should do to anticipate, help prevent, mitigate, and respond to these hazards.
  - b. Show that you know first aid for injuries or illnesses that could occur while cycling, including cuts, scratches, blisters, sunburn, heat exhaustion, heatstroke, hypothermia, dehydration, insect stings, tick bites, and snakebite. Explain to your counselor why you should be able to identify the poisonous plants and poisonous animals that are found in your area.
  - c. Explain the importance of wearing a properly sized and fitted helmet while cycling, and of wearing the right clothing for the weather. Know the BSA Bike Safety Guidelines.
2. Clean and adjust a bicycle. Prepare it for inspection using a bicycle safety checklist. Be sure the bicycle meets local laws.
3. Show your bicycle to your counselor for inspection. Point out the adjustments or repairs you have made. Do the following:
  - a. Show all points that need oiling regularly.
  - b. Show points that should be checked regularly to make sure the bicycle is safe to ride.
  - c. Show how to adjust brakes, seat level and height, and steering tube.
4. Describe how to brake safely with foot brakes and with hand brakes.
5. Show how to repair a flat by removing the tire, replacing or patching the tube, and remounting the tire.
6. Describe your state and local traffic laws for bicycles. Compare them with motor-vehicle laws.
7. Using the BSA buddy system, complete all of the requirements for ONE of the following options: road biking OR mountain biking.
  - a. Road Biking
    - 1) Take a road test with your counselor and demonstrate the following:
      - a) Properly mount, pedal, and brake, including emergency stops.
      - b) On an urban street with light traffic, properly execute a left turn from the center of the street; also demonstrate an alternate left-turn technique used during periods of heavy traffic.
      - c) Properly execute a right turn.
      - d) Demonstrate appropriate actions at a right-turn-only lane when you are continuing straight
      - e) Show proper curbside and road-edge riding. Show how to ride safely along a row of parked cars.
      - f) Cross railroad tracks properly.
    - 2) Avoiding main highways, take two rides of 10 miles each, two rides of 15 miles each, and two rides of 25 miles each. You must make a report of the rides taken. List dates for the routes traveled, and interesting things seen.

- 3) After completing requirement b for the road biking option, do ONE of the following:
  - a) Lay out on a road map a 50-mile trip. Stay away from main highways. Using your map, make this ride in eight hours.
  - b) Participate in an organized bike tour of at least 50 miles. Make this ride in eight hours. Afterward, use the tour's cue sheet to make a map of the ride.
- b. Mountain Biking:
  - 1) Take a trail ride with your counselor and demonstrate the following:
    - a) Properly mount, pedal, and brake, including emergency stops
    - b) Show shifting skills as applicable to climbs and obstacles.
    - c) Show proper trail etiquette to hikers and other cyclists, including when to yield the right-of-way.
    - d) Show proper technique for riding up and down hills.
    - e) Demonstrate how to correctly cross an obstacle by either going over the obstacle on your bike or dismounting your bike and crossing over or around the obstacle.
    - f) Cross rocks, gravel, and roots properly.
  - 2) Describe the rules of trail riding, including how to know when a trail is unsuitable for riding.
  - 3) On trails approved by your counselor, take two rides of 2 miles each, two rides of 5 miles each, and two rides of 8 miles each. You must make a report of the rides taken. List dates for the routes traveled, and interesting things seen.
  - 4) After fulfilling the previous requirement, lay out on a trail map a 22-mile trip. You may include multiple trail systems, if needed. Stay away from main highways. Using your map, make this ride in six hours.

The bicycle must have all required safety features. It must be registered as required by your local traffic laws.

## Pre-Ride Check-List

#	✓	Description
1		Frame – Clean and not bent out of shape. No cracks at frame joints.
2		Front Fork – Clean and not bent out of shape. No cracks at fork joints.
3		Headset Bearing – Well lubricated; turns freely with no binding. No perceptible play in the assembly.
4		Bottom-Bracket Bearing – Turns freely with not more than barely perceptible play in the bearing.
5		Crank Arms – Clean and not bent out of shape. Tightened securely on the crankset axle.
6		Chainrings – Clean, not worn, and not bent out of shape. Chainring bolts tightened securely to hold chainrings to crankarms.
7		Pedals – Bearings well lubricated; turn freely with no play in the bearing. Pedals tightly screwed into crankarm. Toe clips functional.
8		Fenders – Clean; tightly attached without rattling or rubbing against the tires.
9		Wheels – Run true and round. Wheel nuts tight. Closed and tight quick-releases. Centered in front of frame members.
10		Wheel Bearings in hubs – Well lubricated and properly adjusted to move freely with no more than barely perceptible play.
11		Spokes – None broken or bent. Tightened to a uniform tension.
12		Tires – Good Tread. Valves completely airtight. Properly inflated to recommended pressure.
13		Rims – Clean of all oil and grime. Free of dents or kinks.
14		Chain – Proper tension, allowing ½ inch of play. No stiff links. Clean, lubricated, and wiped of excess lubrication.
15		Gearing – Clean and oiled. Three-speed gears adjusted to eliminate all slopping. Front 42a and Rear 4b derailleurs adjusted for proper shifting with Shifters 4c.
16		Brakes:
16a		Coaster – Even braking. Operate within a 20-degree back-pedaling motion.
16b		Hand – Even braking. All nuts tight. Front and rear brakes work without binding. Minimum of 1/16 inch of rubber on Brake Pads. Brake pads aligned with rims and contact rims with a minimum of movement of hand controls. No squeal when brakes are used.
17		Cables – No frayed ends. No broken strands. All taut.
18		Handlebars – Tightened securely. Grips not worn; fit snugly, adjusted to comfort of rider, ends plugged, & in line with wheel.
19		Saddle – Height, tilt, and fore/aft position adjusted to rider. All adjustments securely tightened. Seatpost not extended beyond maximum mark on post.
20		Lights – Front light visible for 500 feet. Generator or battery in good operating condition.

21	Rear Red Reflectors/Lights – Visible for 300 feet. Lights/Blinkers function with generator or batteries.
22	Bell or Horn – In good operating condition. All accessories well tightened and securely fastened. No broken frames or fasteners.
23	Bike Registration – If required by local law, must be displayed on frame.
Additional	
A	Water bottle / hydration pack
B	Reflective clothing
C	Tire flat repair kit (tube, air pump, tools)
D	Personal First-aid kit (antiseptic, band aids, rag, wrap, etc) and cell phone
E	Review safety rules:
	<b>YOU</b> are responsible for your own safety. Do not rely on other riders to check traffic before crossing streets. Don't be a blind sheep follower.
	Helmet
	Eye protection (glasses, goggles)
	Hand protection (Gloves)
	Hand signals
	Traffic laws (signals, stop signs/lights, turns)
	Street lane positioning
	Passing parked cars
	Trail / sidewalk edges
	Call-out of hazards to fellow bikers (car up, car back, car right, car left, stopping, slowing, water, gravel, holes, etc)
	Alerting others: pedestrians, joggers, runners. (passing left)
	Group riding rules (2-up/single-file, no overlap of wheels, 2 bike-length separation)
	Keep group together
	Keep EARS open for danger. (no hear plugs, headphones)
F	Planned route & maps
G	Notify others of planned route and schedule

## **BSA Bike Safety Guidelines**

The following guidelines and procedures apply to all BSA unit, council, and national program activities involving bicycling.

### **1. Qualified Supervision**

All unit, district, council, and national event activities must be supervised by a mature and conscientious adult at least age 21 who understands and knowingly accepts responsibility for the safety of children in his or her care, who is experienced with the skills and equipment involved in the activity, and who is committed to compliance with these BSA safety guidelines.

### **2. Physical Fitness**

Biking is strenuous. Long treks and hill climbing should not be attempted without training and preparation. For Scouting activities, all participants must present evidence of fitness with a complete health history from a physician, parent, or legal guardian. The adult supervisor should adjust all supervision, discipline, and protection to anticipate any potential risks associated with individual health conditions. In the event of any significant health conditions, proof of an examination by a physician should be required by the adult leader.

### **3. Helmets and Clothing**

All cyclists must wear a properly sized and fitted helmet approved by either the Snell Memorial Foundation, CPSC, or ASTM standard. Layer your clothing for warmth on cool days so you can avoid chilling or overheating. Cover up for sun protection on clear days.

### **4. Buddy System**

When the program activity is a bicycle expedition or trek, the buddy system must be used. When a program element emphasizes individual performance skills, one buddy observes while the other takes his turn. In competitive activity where the buddy concept cannot be applied practically, all activity must be directly observed by the adult supervisor. (Youth members should be taught that biking with a buddy is best. When biking alone, apart from Scouting activities, youth members should be encouraged to tell someone their route, schedule, and destination before departing.)

### **5. Position in Traffic**

Ride with the traffic flow, as far to the right as is safe. Avoid curbs, storm drains, soft or loose gravel on shoulders, and other hazards.

### **6. Safety Rules**

Obey all traffic laws, signs, signals, and street markings. Watch for changes in road conditions. Ride only one to a bike. Do not ride after dark. No stunts – trick riding is only for professionals who use special equipment. Yield to motor vehicles even if you think you have the right-of-way. Never hitch a ride on another vehicle. Keep your head and ears open and do not wear headphones while riding.

## **7. Turns and Intersections**

Look left, right, back, and ahead before turning. Stop and search all directions when entering a street from a driveway, parking area, sidewalk, or alley. Signal all turns using universal hand signals. Walk your bike through or across busy intersections.

## **8. Equipment**

Ride only a bike that fits you. Select a bike that permits you to put both feet on the ground while standing over the top tube. The handgrips should be no higher than your shoulders or lower than your seat.

## **9. Bicycle Accessories**

Every bike needs a horn or bell and reflectors (front, back, and sides). Items should be carried only in baskets,, in saddlebags, or on a rear carrier rack. If you must ride in traffic, a bike or helmet-mounted mirror is recommended. For long trips, a bike-mounted container for drinking water is recommended.

## **10. Maintenance**

Keep your bike clean and well maintained, especially the brakes and drive chain.

## **11. Racing**

Open street racing is dangerous. Race only with supervision on marked courses that have been set up to exclude other vehicle or pedestrian traffic, to eliminate fall hazards and minimize collision risks. Clearly define “start” and “finish” points.

## **12. Planning**

Plan both the route and timing of bike trips to avoid heavy traffic and hazardous conditions. Biking is unsafe on wet pavement and on windy days. Plan for at least hourly rest stops and a maximum of approximately six hours on the bike per day.

## **13. Discipline**

All participants should know, understand, and follow the rules and procedures for safe biking, and all participants should conscientiously and carefully follow all directions from the adult supervisor.

## Quick Cycling Safety Review

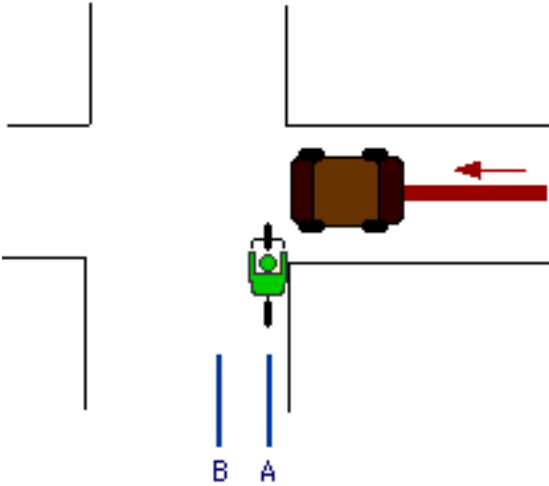
1. Biking hand signals
  - a. Left turn
  - b. Right turn
  - c. Stop
  - d. Group stop signal
2. Clothing
  - a. Wear a helmet at ALL times when cycling
  - b. Wear bright colors
  - c. Use reflective tape, etc.
  - d. (Suggestion) Wear gloves
3. Bike safety
  - a. Front and rear reflectors
  - b. Side reflectors (wheels / spokes)
  - c. Lights (front & rear)
  - d. Brakes
  - e. Mirror
  - f. Bell / horn
  - g. DO NOT wear headphones (keep ears open for traffic)
4. Group cycling
  - a. BE RESPONSIBLE for YOUR OWN SAFETY (don't just be a FOLLOWER)
  - b. Keep safe distance between bikes
  - c. Keep safe distance between bike and car
  - d. Communicate VERBALLY
    - i. Verbally indicate intentions (turns, stopping, etc)
    - ii. Verbally identify hazards (road hazards, traffic, pedestrians)
    - iii. Verbally notify pedestrians (early) when passing
5. Street Riding
  - a. Lane positioning (ride with traffic, right lane, in right side of lane)
  - b. Passing parked vehicles
  - c. Maintain safe speed (be prepared to stop)
  - d. Watch for:
    - i. Sand / gravel on road
    - ii. Uneven pavement or pot holes
    - iii. Cracks in pavement where tire might get trapped
    - iv. Trash / debris on road
  - e. Stop at all stop signs / lights
  - f. Signal your intentions (hand signals)
  - g. Make eye contact with car drivers
  - h. Do not weave in/out of parked cars. (Harder for drivers to see you)
6. Trail Riding
  - a. Keep safe distance from bike in front of you
  - b. If you go off the trail, DO NOT try to immediately return to trail.



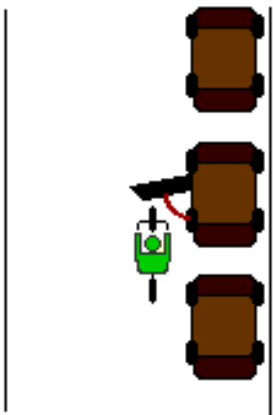


## How to NOT GET HIT by Cars

This is the most common way to get hit (or almost hit). A car is pulling out of a side street, parking lot, alley, or driveway on the right.

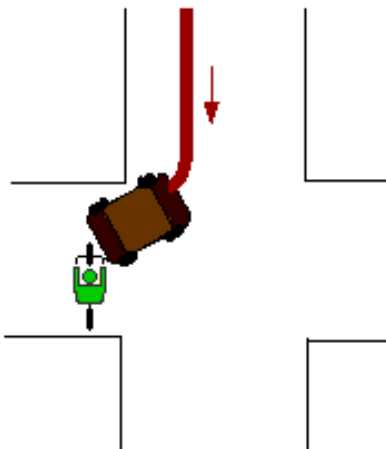


**The Right Cross**



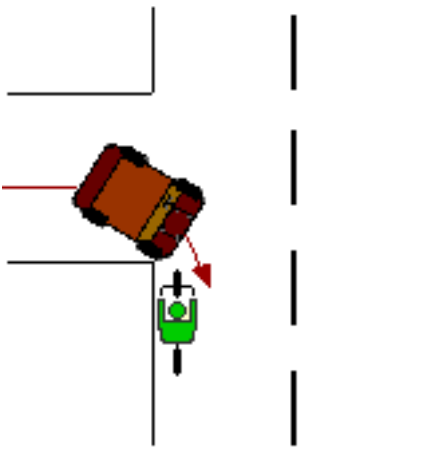
A driver opens his door right in front of you. You run right into it if you can't stop in time.

**The Door Prize**



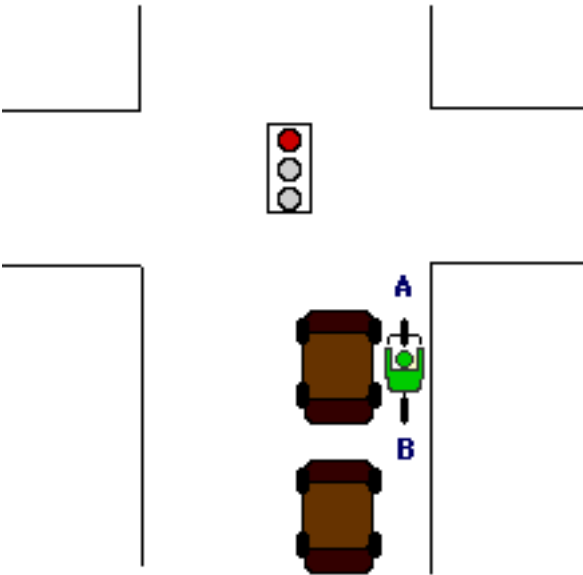
You're riding on the sidewalk, you cross the street at a crosswalk, and a car makes a right turn, right into you.

**The Crosswalk Slam**



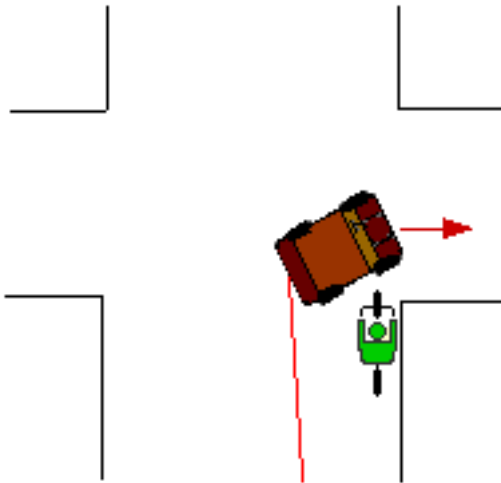
You're riding the wrong way (against traffic, on the left-hand side of the street). A car makes a right turn from a side streets, driveway, or parking lot, right into you. They didn't see you because they were looking for traffic only on their left, not on their right. They had no reason to expect that someone would be coming at them from the wrong direction.

### The Wrong-Way Wreck



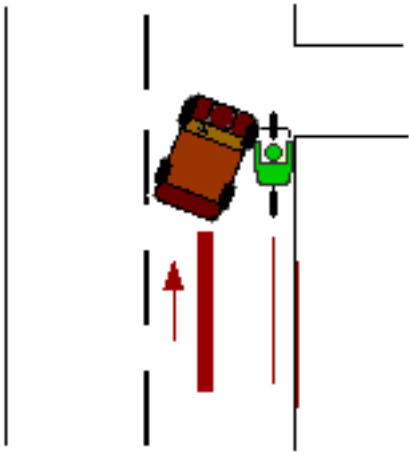
You stop to the right of a car that's already waiting at a red light or stop sign. They can't see you. When the light turns green, you move forward, and then they turn right, right into you.

### The Red Light of Death



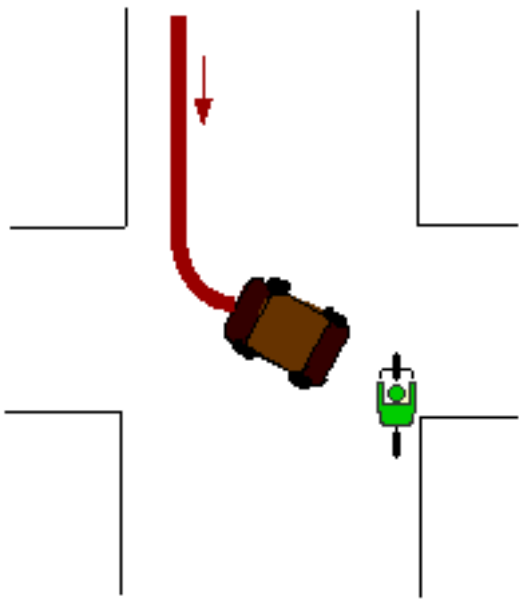
A car passes you and then tries to make a right turn directly in front of you, or right into you.

### The Right Hook



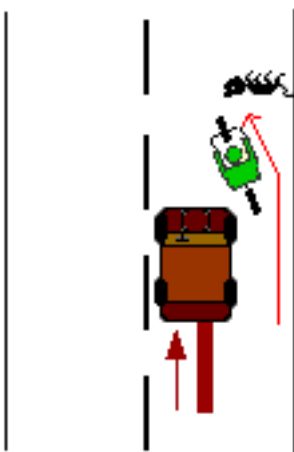
You're passing a slow-moving car (or even another bike) on the right, when it unexpectedly makes a right turn right into you, trying to get to a parking lot, driveway or side street.

### The Right Hook, Part 2



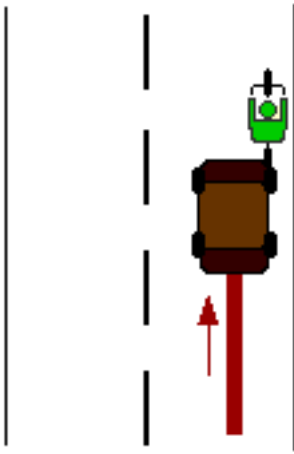
A car coming towards you makes a left turn right in front of you, or right into you. This is similar to "The Right Cross", above.

### The Left Cross



You innocently move a little to the left to go around a parked car or some other obstruction in the road, and you get nailed by a car coming up from behind.

### The Rear End



A car runs into you from behind. This is what many cyclists fear the most, but it's actually not very common, comprising only 3.8% of collisions. However, it's one of the hardest collisions to avoid, since you're not usually looking behind you.

## The Rear End, Part 2

## How to NOT GET HIT by Cars

(Answer Key)

### **The Right Cross**

1. Get a headlight. (flashing mode in daytime). Maybe helmet mounted.
2. Wave. Make yourself seen.
3. Slow down. Be able to stop.
4. Ride further left. This makes you more likely to be seen and also more room to maneuver to avoid a collision.

### **The Door Prize**

1. Ride to the left far enough to avoid any doors.

### **The Crosswalk Slam**

1. Get a headlight.
2. Slow down.
3. Don't ride on the sidewalk in first place. Sidewalks are twice as dangerous as road riding.

### **The Wrong-Way Wreck**

1. Don't ride against traffic. Statistics show that riding against traffic is 3 times as dangerous.

### **The Red Light of Death**

1. Don't stop in the driver's blind spot. (Simply stop behind the car)

### **The Right Hook**

1. Don't ride on the sidewalk.
2. Ride to the left. Taking the lane makes it unlikely motorists will pass you and cut you off.
3. Glance in your mirror before approaching an intersection. Be aware of traffic around you.

### **The Right Hook, Part 2**

1. Don't pass on the right. Only pass on right.

### **The Left Cross**

1. Don't ride on the sidewalk..
2. Get a headlight.
3. Wear something bright, even during the day.
4. Don't pass on the right.
5. Slow down. (try to make eye contact with driver)

### **The Rear End**

1. Never, ever move left without looking behind you first.
2. Don't swerve in and out of the parking lane if it contains any parked cars.
3. Use a mirror.
4. Signal. Never move left without signaling. (look behind you before signaling)

### **The Rear End, Part 2**

1. Get a rear light. (especially at night, use flashing red tail light(s))
2. Wear a reflective vest or safety a triangle
3. Choose wide streets

4. Choose slow streets
5. Use back streets on weekends
6. Get a mirror
7. Don't hug the curb.

### **General Tips**

- Avoid busy streets.
- Light Up
- Take the whole lane when appropriate.
  - If cars are passing you too closely (using part of your lane)
  - Cars are parked on right-hand side of the road.
  - If multiple lanes in your direction
- Signal your turns (intentions)
- Re-think music players and mobile phones (NO headphones!)
- Ride as if you were invisible. (ASSUME they DO NOT SEE YOU)
- Be responsible for your own safety