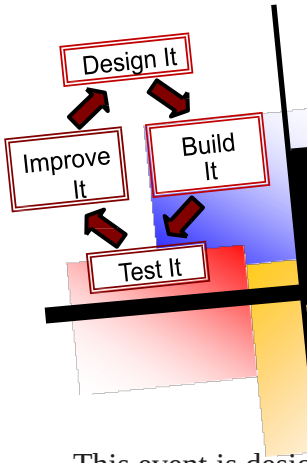



**NATIONAL YOUTH ENGINEERING CHALLENGE**

# Bicycle Rodeo Challenge

**September 24-26, 2017**
**Tippecanoe County Fairgrounds, Lafayette, IN**

This event is designed to provide youth enrolled in youth-based bicycle programs with an educational activity. Contestants will have an opportunity to demonstrate their knowledge of the bicycle and the rules associated with its operation as well as demonstrate their skills in bicycle riding using a road bicycle with a 26 inch (or larger) wheel. The exception will be a 24 inch multi-gear bicycle only when needed to fit the contestant's physical size. Safety will be stressed throughout the event.

Contestants will wear properly fitted Consumer Product Safety Commission (CPSC) or SNELL approved bicycle helmets whenever they are riding a bicycle in the Lafayette, IN area and on the grounds of the national event site.

Contestants are encouraged to bring their own bicycles and helmets for use in this event. The bicycle must properly fit the individual and meet accepted safety standards.

Bicycles will be provided for contestants unable to provide their own. **(Please request a bicycle at least three weeks prior to the event so one can be obtained.)** The Safety Inspection Form on B-9 will be used to inspect a bike.

The event is designed to be a practical safety demonstration and attempts to simulate actual operating conditions. However, in this event situation, the contestants ***must remain seated*** while riding in the skill events. The visual presentation component is to demonstrate an understanding of a science, engineering and technology aspect of bicycling.

Designated judges will preside over the event and their decisions will be final.

This contest will include (time limits as shown):

1. Written examination - 40 multiple choice and true-false questions *(20 minutes)*
2. Parts Identification - Identify 10 parts in 5 minutes *(5 minutes)*
3. Sabotaged Bike Exercise (Identification of maintenance and safety problems) *(5 minutes)*
4. Visual Presentation on STEM (science, technology, engineering or math) topic *(5-10 minutes)*
5. Skill Riding Events
    - Straight-line test
    - Double obstacle test
    - Double zigzag obstacle test
    - Figure eight steering
    - City Street Course

**References**

- State and federal "Rules of the Road"
- 4-H Bicycle Publications, 1-3 and Helper's Guide, National 4-H Bicycle Series
- Additional 4-H literature

**Scoring:** The points-off system will be used with penalty points given for errors. The winning contestant will be the one with the lowest total score.

Contestant's Name _____ State _____ Number _____

# BICYCLE PARTS IDENTIFICATION

**Instructions All Contestants:** Write the tag number on the line to the left of the most correct name for each part.

_____ Adjustable wrench
_____ Axle
_____ Axle nut
_____ Bearings
_____ Bearing, cone
_____ Bell
_____ Bottom bracket
_____ Brake arm
_____ Brake cable
_____ Brake caliper, front
_____ Brake caliper, rear
_____ Brake lever
_____ Brake pad
_____ Cable
_____ Cable cutter
_____ Cable housing
_____ Cable end
_____ Cassette
_____ Chain
_____ Chain ring
_____ Chain stays
_____ Chain rivet extractor
_____ Chain whip
_____ Cone wrench
_____ Crank arm
_____ Crank extractor
_____ Crank set
_____ Cone wrench
_____ Derailleur, front
_____ Derailleur, rear
_____ Down tube
_____ Dust cap
_____ Fender
_____ Fixed cup wrench
_____ Freewheel remover
_____ Front fork
_____ Front reflector
_____ Handlebar
_____ Handlebar stem
_____ Headlamp
_____ Head tube
_____ Headset
_____ Hub
_____ Jockey/idler pulleys
_____ Mirror
_____ Pedal, left
_____ Pedal, right
_____ Pump
_____ Quick release lever
_____ Rear reflector
_____ Rim
_____ Schrader valve
_____ Seat
_____ Seat post
_____ Seat post clamp
_____ Seat stay
_____ Seat tube
_____ Shifting lever
_____ Spoke
_____ Spoke nipple
_____ Spoke wrench
_____ Tire
_____ Tire levers
_____ Tire gauge
_____ Tire patch kit
_____ Top tube
_____ Valve core
_____ Valve stem cap
_____ Wheel

Incorrect _____ x 5 = _____ Penalty Points

# Sabotaged Bike - Identify Maintenance and Safety Issues

(Adapted from the Indiana 4-H Bicycle Program in 2012)

This event will test the bicyclist's knowledge of the bicycle's parts, care and maintenance, and safety considerations.

The event will consist of the following items:

- A bicycle is set up with ten (10) maintenance and/or safety problems.
- The bicycle used for the maintenance/ safety check may be new or used. Numerous maintenance and safety hazards may already exist on a used bicycle.
- The maintenance/safety check is conducted in a secluded area away from the bicycle event and is given to only one contestant at a time.
- Contestants are not allowed to inspect the bicycle prior to the maintenance/safety check.
- During the examination, contestants are not allowed to sit on the bicycle but can touch the bicycle.
- Contestants, using the Bicycle Maintenance and Safety Check Score Sheet, identify the maintenance and/or safety hazards and write them onto the score sheet.
- A penalty of five (5) points is assessed for each maintenance and/or safety item missed or incorrectly listed. A total of 50 penalty points is possible.
- A time limit of five (5) minutes is imposed.

After the Judge has given instructions, contestants will have 5 minutes to look at the bicycle and to write down the items noted as maintenance and/or safety related that should be corrected before the bicycle is ridden.

**Judging**

The contestant will be given instructions, a pen or pencil and the score sheet and be timed by a judging supervisor for 5 minutes. A list of bike parts or systems can be created and given to contestants but it must list at least twice as many items as there are problems on the bicycle. Other resources may be used that satisfy this requirement. Answers should be short – a part name or short problem description.

Use the score sheet on following page.

Resources:

- Use the Bicycle Inspection Sheet as a check list in this event
- Use the Bicycle Parts Identification Sheet as a check list in this event

**Contact person:**

David S. Ross, dsross@umd.edu

Contestant's Name _____ State _____ Number _____

# Bicycle Maintenance and Safety Check

## Score Sheet

In the spaces below, identify the ten (10) maintenance and/or safety hazards on the sabotaged bicycle. The time limit is 5 minutes.
Penalty is 5 points per items missed or incorrectly listed. Maximum of 50 penalty points.

1. _____
2. _____
3. _____
4. _____
5. _____
6. _____
7. _____
8. _____
9. _____
10. _____

Scoring; Number incorrect = _____ X 5 = _____ penalty points

# Visual Presentation on Bicycling on a STEM Topic

Your task is to research and develop a visual presentation based in Science, Technology, Engineering and Math (STEM) on a bicycle/bicycling related topic. Many wonderful products and innovations in the bicycling world have come from science and engineering being used to develop technologies. The goal of this presentation is for you to learn about STEM by selecting a topic, researching it, and making a presentation to tell others what you have learned. It will be a learning experience for both you and the listener. While there are social aspects/considerations to many of these topics, sociology is not a part of STEM in this engineering event.

Instructions:

1. Select a topic from the list provided or find one on your own.
2. Research your area of interest. Gain information from books, the internet, talking to knowledgeable people or other sources. Make notes and document the sources that you use in your presentation. Your research is to focus on science, engineering or technology related to your topic.
3. Demonstrate and/or explain aspects of why your topic of STEM works and how it applies to bicycling, such to the structure of a bicycle, the operation of a bicycle and/or the use of a bicycle.
4. Present your findings. Give the judges a brief outline of your presentation and then make a 5-10 minute presentation using any visual aids (posters, parts, demo of mechanical item) or power point slides. Work toward a 7 minute talk during your preparation plus one minute for judges' questions.
5. Visuals should be easily readable at 20 feet.

The research you collect needs to be applicable to the STEM initiative. To help, here are some definitions:

| | |
|---|---|
| Science: | Observation, identification, description, investigation and experimentation to learn about and explain our surroundings, such as that some materials have friction against other materials. |
| Engineering: | Practical application of the sciences, such as chemistry, physics or biology to construct products such as engines, buildings and medicines, such as developing rubber tread designs that adhere to some road surfaces and thereby roll a bicycle wheel forward. |
| Technology: | The product of science and engineering used to achieve an objective, such as the manufacturing process for mass production of some kinds of bicycle tires with treads. |

**How to begin**:

Think about your area of interest from all three aspects (STEM) and jot down an example of 1 or 2 for each.

Example Topic: brake cables

Science: What materials are used and why (strength, wear, friction)

Engineering: How are individual products used to produce a cable and why (design)

Technology: What are the differences in manufacturing of various brake cables

What makes one brake cable cost more than another (materials, function)

What do bikers/bike mechanics look for most in a good brake cable

From these ideas, decide what topic and approach above you want to further investigate and begin your research. As you research, you may realize that you have changed how you approach your topic. This is okay, and just a part of the learning process. In such case, take your findings (bicycle clothing, carbon fiber, sports medicine, etc.) and see how they influence areas or fields outside of the bicycle world. It is understandable that you may not go on to a career in the bicycle world.

**Suggested Topics for a Presentation:**

1. Mechanics
   - Centrifugal Force
   - Gearing, ratios and satellite gears
   - Types of chain and rod transmissions
   - Braking and changing centers of gravity
   - Balancing and steering through turns
   - Bearings – types (ball, roller) and friction
   - Structural elements
   - Electric circuits
   - Product development and design; CAD
   - Handicap equipment
   - Apparel
   - Navigation, weather and performance software or apps

2. Safety
   - On/off road
   - Personal
   - Pedestrian
   - Automobile
   - Actions and other techniques of safety and riding
   - Visual perceptions of safety, including SIPDA (Scan, Identify, Predict, Decide; Act)

3. Medicine
   - Kinetics and movements of bones and muscles

- General health, brain operation and perception
- Sports
- Rehabilitation
- Trauma

4. Health and Fitness
   - Nutrition and diet
   - Special event preparation
   - Specific needs

5. Planning
   - Bike route development
   - Urban Cycling

**Judging**

A judging sheet follows. Two or more judges should set up a table for any visual displays and a projector and screen for power point presentations. Contestants should present an outline of their presentation to the judges. Contestants should be given 5 to 10 minutes to make their presentation. A specific time limit can be used but must have been given to the contestants before they prepare the presentation. A penalty can be assigned for going over the time limit.

**Contact person:**
David S. Ross, dsross@umd.edu

Contestant's Name _____ State _____ Number _____

# Bicycle STEM Presentation Score Sheet

Presentation Title:_____

Start Time:_____ End Time:_____ Time used: _____

Each person evaluating a presentation is to score all items in Division I and II. It is important that each item is scored and additions are double-checked for accuracy. The scoring team should compare scores and arrive at a combined score for each presenter.

| Judge's Comments | Factors for Scoring | Points |
|---|---|---|
| | **I. Subject Matter (60 points)** | |
| | **Presentation Development (10 pts)** Central theme, clear, logical, orderly, time, summarized | |
| | **Subject Matter (20 pts)** Appropriate depth for age (level of content), research & resources explored, references, | |
| | **Speech Value/Effectiveness (10 pts)** Ideas, logic, original thought, current, relevant | |
| | **Accurate Information (10 pts)** Up-to-date, complete, accurate | |
| | **Judges' Questions (10 pts)** Correct answers, keeps composure, exhibits depth of knowledge | |
| | **II. Presentation (40 points)** | |
| | **Voice/Communication (10 pts)** Audible, clear, body language, gestures | |
| | **Manner (10 pts)** Confidence, enthusiasm, handles unexpected happenings well | |
| | **Correctness (10 pts)** Grammar, pronunciation, word selection | |
| | **Visuals/Supplies & Equipment (5 pts)** Attractive, readable, integrated well | |
| | **Physical (5 pts)** Inclusive of all abilities, neat, appropriate appearance | |
| | **Total Point Score** (out of 100 pts) | |

Score in Penalty points = 100 – Total Point Score of _____ = _____.

Contestant's Name _____ State _____ Number _____

# BICYCLE EVENT SAFETY INSPECTION

| | NO | YES |
|---|---|---|
| **SIZE:** | | |
| Driver straddle frame with both feet on ground? | ____ | ____ |
| Driver straightens leg when seated on saddle with one heel on low pedal? | ____ | ____ |
| Seat post at least 2 inches in frame? | ____ | ____ |
| Seat (saddle) level and tight? | ____ | ____ |
| **HANDLEBARS:** | | |
| In line with wheel and symmetrical? | ____ | ____ |
| Adjusted to height below driver's shoulder level? | ____ | ____ |
| Tightly fitted, horizontally and vertically? | ____ | ____ |
| Tubing ends plugged? | ____ | ____ |
| Grips in place and tight? | ____ | ____ |
| **FRAME:** | | |
| Are all tubes in line without bends or kinks? | ____ | ____ |
| **FRONT WHEEL:** | | |
| Wheel runs true, side to side and round? | ____ | ____ |
| Are all spokes in place and properly tuned? | ____ | ____ |
| Rim free from dents or kinks? | ____ | ____ |
| Wheel bearing properly adjusted? | ____ | ____ |
| Tire properly seated on rim? | ____ | ____ |
| Tire properly inflated? | ____ | ____ |
| Tire tread in good condition? | ____ | ____ |
| Wheel centered in fork? | ____ | ____ |
| **REAR WHEEL:** | | |
| Wheel runs true, side to side and round? | ____ | ____ |
| All spokes in place and properly tuned? | ____ | ____ |
| Rim free from dents or kinks? | ____ | ____ |
| Wheel bearing properly adjusted? | ____ | ____ |
| Tire properly seated on rim? | ____ | ____ |

| | NO | YES |
|---|---|---|
| **REAR WHEEL: (Cont.)** | | |
| Tire properly inflated? | ____ | ____ |
| Tire tread in good condition? | ____ | ____ |
| Wheel centered in fork? | ____ | ____ |
| **PEDALS:** | | |
| Pedal bearing properly adjusted? | ____ | ____ |
| Pedals intact and tight? | ____ | ____ |
| Pedal treads intact and tight? | ____ | ____ |
| **CHAIN:** | | |
| Chain tension correct (3/8-1/2 inch play)? | ____ | ____ |
| Sprocket teeth fit properly? | ____ | ____ |
| Chain in good condition? | ____ | ____ |
| If multispeed bike, does gear change operate properly? | ____ | ____ |
| **BRAKES:** | | |
| Brakes operate properly? | ____ | ____ |
| <u>If Hand Brake:</u> | | |
| Cable taut, without frayed ends? | ____ | ____ |
| Brake shoes tight? | ____ | ____ |
| 3/16 inch of rubber on shoe? | ____ | ____ |
| Hand span for handlebar brake correct for individual? | ____ | ____ |
| **OTHER EQUIPMENT:** | | |
| Saddle tight and in good condition? | ____ | ____ |
| All reflectors in place and in good condition? | ____ | ____ |
| <u>If Equipped for Night Riding:</u> | | |
| Front and rear lights operate? | ____ | ____ |
| The lights of proper type? | ____ | ____ |
| Audible warning device? | ____ | ____ |
| Rider wearing an approved helmet? | ____ | ____ |

Special remarks by Inspector (deficiencies to be corrected) _____

_____

Number of "No" Answers _____

x 5 = Total Score _____

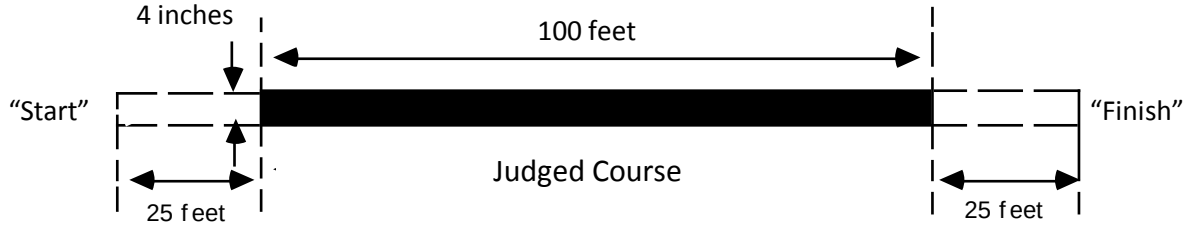
Contestant's Name _____ State _____ Number _____

**Test No. 1 — Straight Line Test**

**Purpose:**

To determine the driver's ability to maintain control of the bicycle while riding a straight line.

**Diagram:**




**Procedure:**

From a riding start at slow or average speed, the rider travels the entire length of the line at all times.

**Scoring:**

| | No. times | | Penalty points |
|---|---|---|---|
| 1. Having either tire leave the course | _____ | x 2 | _____ |
| 2. Tire stays off course for major part of 5 foot interval | _____ | x 3 | _____ |
| 3. Touching foot to the ground | _____ | x 5 | _____ |
| 4. Sliding wheel | _____ | x 5 | _____ |
| 5. Standing up | _____ | x 5 | _____ |
| 6. Unsafe/disruptive activity** | | 20-500 | _____ |
| | | Total number of penalty points | _____ |

*(Examples: failure to follow instructions; riding, not walking bike; failure to use helmet)
At judge's discretion, consultation with event coordinator/superintendent required.

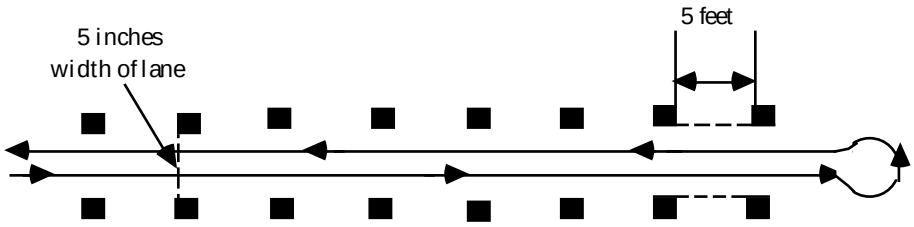
Contestant's Name _____ State _____ Number _____

**Test No. 2 — Double Obstacle Test**

**Purpose:**

To determine the driver's ability to gauge limited space on a straight line.

**Diagram:**




**Procedure:**

From a riding start, the driver maneuvers slowly between the pairs of obstacles without either tire touching any obstacle. When the driver has gone the entire distance, he or she turns and repeats the performance in the opposite direction.

**Scoring:**

| | No. times | | Penalty points |
|---|---|---|---|
| 1. Touching foot to ground | _____ | x 5 | _____ |
| 2. Having either tire touch an obstacle | _____ | x 2 | _____ |
| 3. Not passing between every pair of obstacles – either or both tires | _____ | x 5 | _____ |
| 4. Skidding wheel | _____ | x 5 | _____ |
| 5. Standing up | _____ | x 5 | _____ |
| 6. Unsafe/disruptive activity* | | 20-500 | _____ |
| | | Total number of penalty points | _____ |

*(Examples: failure to follow instructions; riding, not walking bike; failure to use helmet)
At judge's discretion, consultation with event coordinator/superintendent required.

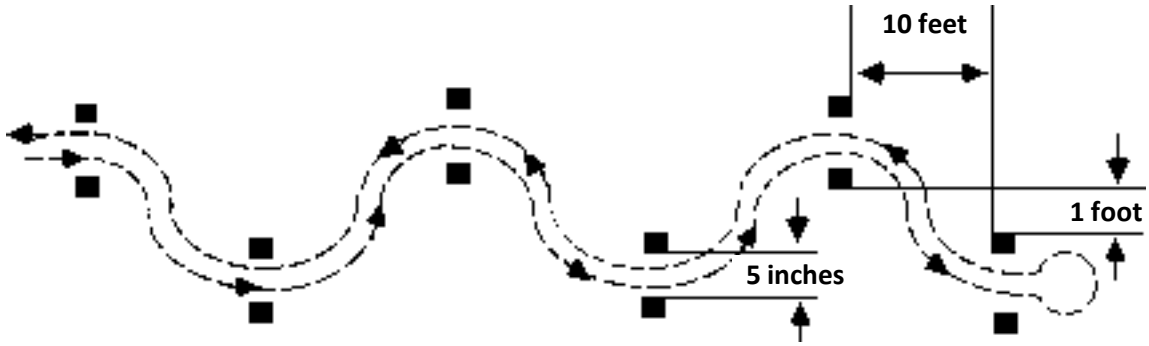
Contestant's Name _____ State _____ Number _____

**Test No. 3 — Double Zigzag Obstacle Test**

**Purpose:**

To test the driver's ability to maneuver and gauge limited space on a zigzag line.

**Diagram:**




**Procedure:**

From a riding start, the driver zigzags at a slow rate of speed between the pairs of obstacles without either tire touching an obstacle. When the driver has traveled the entire distance, he or she turns and repeats the performance in the opposite direction.

**Scoring:**

| | No. times | | Penalty points |
|---|---|---|---|
| 1. Touching foot to ground | _____ | x 5 | _____ |
| 2. Having either tire touch an obstacle | _____ | x 2 | _____ |
| 3. Not passing between every pair of obstacles – either or both tires | _____ | x 5 | _____ |
| 4. Skidding wheel | _____ | x 5 | _____ |
| 5. Standing up | _____ | x 5 | _____ |
| 6. Unsafe/disruptive activity* | | 20-500 | _____ |
| | | Total number of penalty points | _____ |

*(Examples: failure to follow instructions; riding, not walking bike; failure to use helmet)
At judge's discretion, consultation with event coordinator/superintendent required.

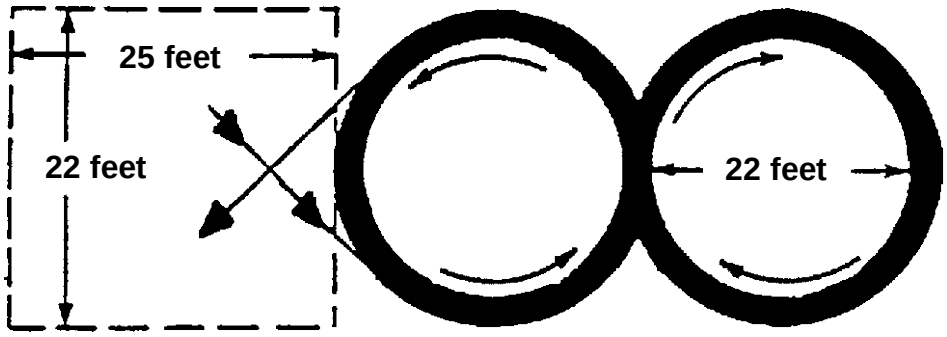
Contestant's Name _____ State _____ Number _____

**Test No. 4 — Figure Eight Steering**

**Purpose:**

To evaluate the driver's ability in steering and balance.

**Diagram:**




**Procedure:**

The driver takes a moving start with both hands on the handlebars and makes *three* complete figure eights.

**Scoring:**

| | No. times | | Penalty points |
|---|---|---|---|
| 1. Touching foot to ground | _____ | x 5 | _____ |
| 2. Not using both hands on the handlebars | _____ | x 5 | _____ |
| 3. Having either tire touch/cross any border line (per 5 foot interval) | _____ | x 2 | _____ |
| 4. Off course – either or both tires (per 5 foot interval) | _____ | x 3 | _____ |
| 5. Standing up or skidding wheel | _____ | x 5 | _____ |
| 6. Unsafe/disruptive activity* | | 20-500 | _____ |
| | | Total number of penalty points | _____ |

*(Examples: failure to follow instructions; riding, not walking bike; failure to use helmet)
At judge's discretion, consultation with event coordinator/superintendent required.

**Test No. 5 — City Streets Skills**

The **purpose** of the **city streets skills event** is to provide bicyclists an opportunity to demonstrate the necessary life skills to safely navigate a bicycle through a simulated traffic environment. The course should not be considered an equal substitute for a real street environment, but does attempt to meet certain cognitive and motor skills necessary for real life situations. Bicyclists are scored on scanning, turning, stopping, and how they react to hazards in traffic. **Bicyclists are bicycle drivers** who must follow rules of the road for **vehicle drivers**.

**City Streets is designed to include three streets and two intersections**, but event planners can easily adapt local courses to fit the local environment. The layout of the actual course is not as important as ensuring the necessary skills are fairly tested. Bicyclists should learn, practice, and build their skills by bicycling in various real street conditions. City Streets can be used by the instructor to teach; however, students should be aware that distances and hazards are substantially less than in real street dimensions and situations.

**Materials for laying out course:** You will need a large area such as a parking lot, a section of street that can be controlled, or the inside of a large building such as a fairgrounds building or warehouse. Look for asphalt or concrete surfaces when possible. Depending on the selected site, a variety of materials may be needed to lay out the course. Multi-colored tapes, softball field markers (remember to use flour rather than lime) chalk, old garden or fire hoses and lawn chair webbing are all forms that have been used in the past. Signs can be made or purchased. Cones or other items can be used to simulate street hazards.

**City Streets Course/Score Sheet:** The course layout and score sheet have been combined to make it easier for the judges to score each contestant. (A separate score sheet is included if the layout is changed locally.) In the upper right hand corner is a place for name or number and state or county. In the upper left hand corner are instructions and explanations where you will find dimension recommendations for course layout. These will vary depending on your site. It is not required to put intersections and streets at the same angle as found on the score sheet. This was done in order to include all possible information on the score sheet. However, if you find you have limited physical space to work with, you may need to do something similar. Two judges are the minimum number required; more would be better for larger layouts. The bicyclist will move quickly through the course and judges must see the action and record points quickly.

**Judges for City Streets:** Although City Streets is considered a safety skills event, it is also about evaluating an individual's ability to handle a bicycle in traffic environments. Judges should not only have knowledge of safe handling but also a practical competency of street and highway riding. Judges are often chosen from law enforcement agencies that normally would be expected to be knowledgeable of traffic rules. If they do not have first-hand experience at riding in traffic environments, it is suggested you pair the officer with someone from a bicycling organization or club who has street skills.

## Set of Performance Skills and Scoring Procedure

The skills to be tested while riding a bicycle are grouped into five categories:

1. Scanning, or looking back for oncoming traffic while riding straight ahead
2. Turning for lane changes and at intersections
3. Stopping by planting foot, which is separate from slowing or braking
4. Unexpected car or other hazard, maneuvering safely around it
5. Railroad crossing for which a cyclist has a choice of walking or riding across tracks

In addition, bicyclists must show signaling and general handling control at all times.

**Scoring is via penalty points,** and thus better bicyclists earn few points (as with golf). The course can be divided into two zones for judging. Both judges will have a score sheet and should check error location directly on the course/score sheet. The occurrence of the penalty is noted on the separate scoring lines, multiplied and added accordingly. Each set of performance skills is weighted by multiples of five points. Both score sheet totals are combined. The sum of all weighted errors will be the score for the City Streets event.

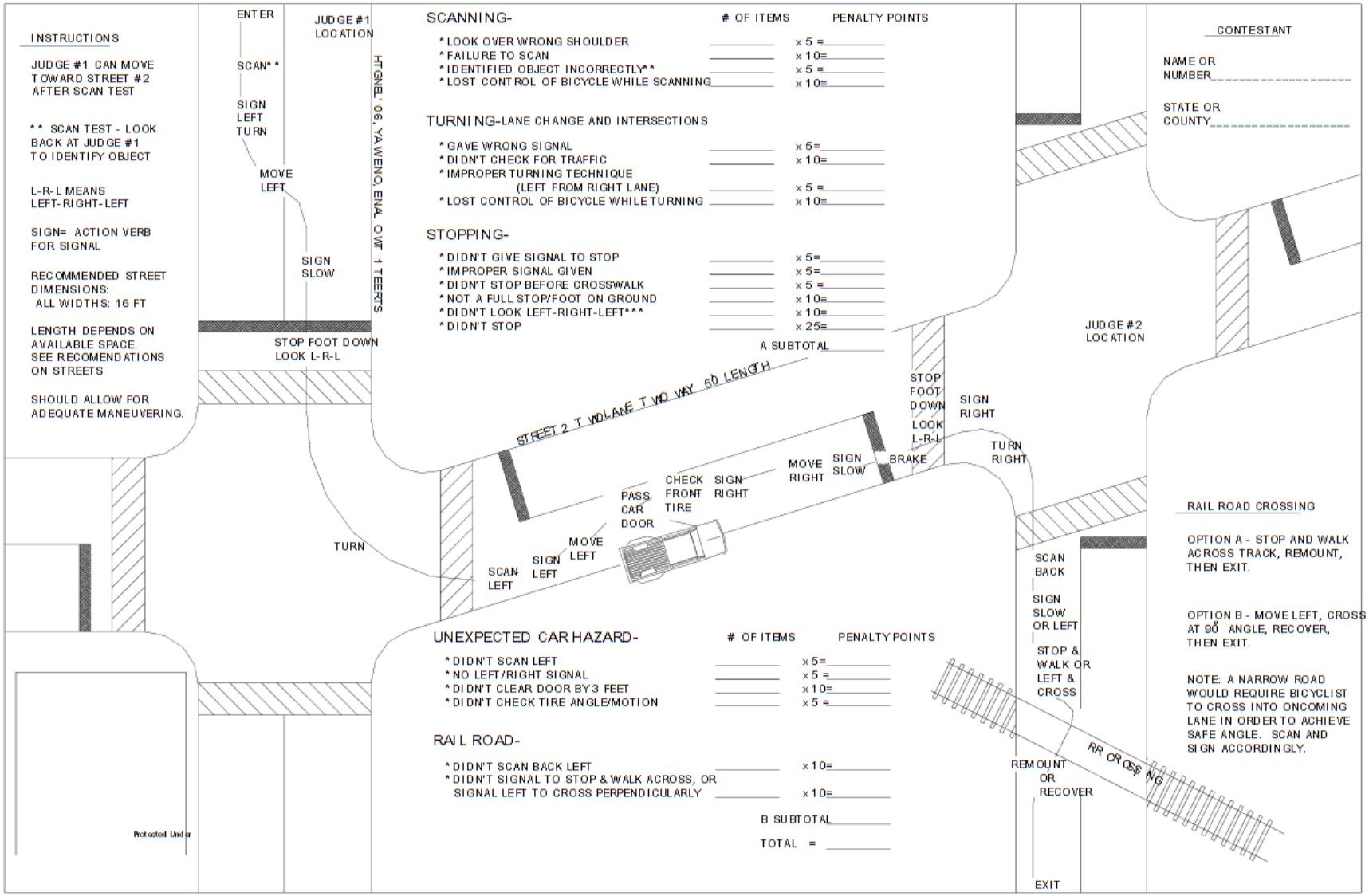
**Locations for judges** are recommendations only, as individual judges may prefer to walk behind the cyclist although the bike moves quickly or observe the contestant from other angles. Judge #1 is responsible from the start to the "scan front tire" of the unexpected car hazard. Judge #2 starts immediately at the "sign right" after the car through the end of the course.

## History of City Streets

In the early 1990s, Indiana 4-H adopted for the state fair a bicycle event called City Block from Minnesota 4-H. A few years after Purdue University began hosting the National Youth Engineering Challenge the Bicycle Event Chairs worked with the host Indiana to introduce the City Block as a pilot program. Two of the original six skill events used for many years were removed to add this more realistic road skill event. After several years of testing and alterations, City Streets emerged in September 2002. In September 2003, the City Streets Event was included with four other skill events as the riding portion of the national bicycle safety event.

Committee members: Dr. David S. Ross, Chairman, University of Maryland Cooperative Extension; Richard Vonnegut, Indiana 4-H Bicycle volunteer; Eric Blank, Indiana 4-H Bicycle Volunteer, and Cheryl D. Wyatt, University of Kentucky Cooperative Extension Service. May 2003.

# 4-H BICYCLE SKILLS "CITY STREETS"




## SCANNING-

| | # OF ITEMS | PENALTY POINTS |
|---|---|---|
| * LOOK OVER WRONG SHOULDER | | x 5 = |
| * FAILURE TO SCAN | | x 10= |
| * IDENTIFIED OBJECT INCORRECTLY** | | x 5 = |
| * LOST CONTROL OF BICYCLE WHILE SCANNING | | x 10= |

## TURNING-LANE CHANGE AND INTERSECTIONS

| | | |
|---|---|---|
| * GAVE WRONG SIGNAL | | x 5= |
| * DIDN'T CHECK FOR TRAFFIC | | x 10= |
| * IMPROPER TURNING TECHNIQUE (LEFT FROM RIGHT LANE) | | x 5 = |
| * LOST CONTROL OF BICYCLE WHILE TURNING | | x 10= |

## STOPPING-

| | | |
|---|---|---|
| * DIDN'T GIVE SIGNAL TO STOP | | x 5= |
| * IMPROPER SIGNAL GIVEN | | x 5= |
| * DIDN'T STOP BEFORE CROSSWALK | | x 5 = |
| * NOT A FULL STOP/FOOT ON GROUND | | x 10= |
| * DIDN'T LOOK LEFT-RIGHT-LEFT*** | | x 10= |
| * DIDN'T STOP | | x 25= |
| | | A SUBTOTAL |

## UNEXPECTED CAR HAZARD-

| | # OF ITEMS | PENALTY POINTS |
|---|---|---|
| * DIDN'T SCAN LEFT | | x5= |
| * NO LEFT/RIGHT SIGNAL | | x 5 = |
| * DIDN'T CLEAR DOOR BY 3 FEET | | x 10= |
| * DIDN'T CHECK TIRE ANGLE/MOTION | | x 5 = |

## RAIL ROAD-

| | | |
|---|---|---|
| * DIDN'T SCAN BACK LEFT | | x 10= |
| * DIDN'T SIGNAL TO STOP & WALK ACROSS, OR SIGNAL LEFT TO CROSS PERPENDICULARLY | | x 10= |
| | | B SUBTOTAL |
| | | TOTAL = |

Contestant's Name _____ State _____ Number _____

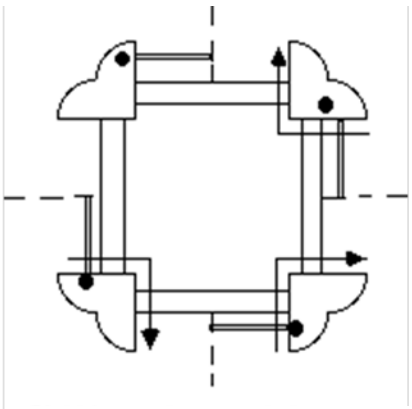
# BICYCLE "CITY STREETS" SKILLS

| | *# of Items* | | *Penalty Points* |
|---|---|---|---|
| **SCANNING** | | | |
| Look over wrong shoulder | _____ | x 5 = | _____ |
| Failure to scan | _____ | x 10 = | _____ |
| Identified object incorrectly | _____ | x 5 = | _____ |
| Lost control of bicycle while scanning | _____ | x 10 = | _____ |
| **TURNING – LANE CHANGE AND INTERSECTIONS** | | | |
| Gave wrong signal | _____ | x 5 = | _____ |
| Did not check for traffic | _____ | x 10 = | _____ |
| Improper turning technique (left from right lane) | _____ | x 5 = | _____ |
| Lost control of bicycle while turning | _____ | x 10 = | _____ |
| **STOPPING** | | | |
| Did not give signal to stop | _____ | x 5 = | _____ |
| Improper signal given | _____ | x 5 = | _____ |
| Did not stop before crosswalk | _____ | x 5 = | _____ |
| Not a full stop/foot on ground | _____ | x 10 = | _____ |
| Did not look Left-Right-Left | _____ | x 10 = | _____ |
| Did not stop | _____ | x 25 = | _____ |
| **UNEXPECTED CAR HAZARD** | | | |
| Did not scan left | _____ | x 5 = | _____ |
| No left/right signal | _____ | x 5 = | _____ |
| Did not clear door by 3 feet | _____ | x 10 = | _____ |
| Did not check tire angle/motion | _____ | x 5 = | _____ |
| **RAILROAD** | | | |
| Did not scan back left | _____ | x 10 = | _____ |
| Did not signal to stop and walk across, or signal left to cross perpendicularly | _____ | x 10 = | _____ |
| | | **TOTAL** = | _____ |

**Test No. 5 City Streets Skills Event — Instructions for Scoring and Teaching**

The following activities may be included in the Event. Instructions are given below for both teaching the activity and for scoring the activity. The course will involve one-way and two-way roads and proper turns from intersections. Note the illustrated examples given below and the instructions for each. Bicyclists are bicycle drivers who must obey vehicle traffic laws.

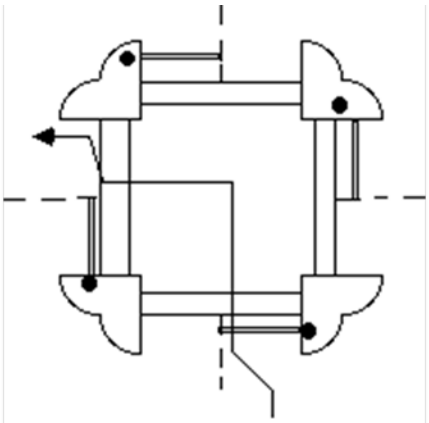
1. ***Right Turn (two-way to two-way)*** — Bicyclists should signal by giving a right turn signal (left arm pointing upward at elbow, upper arm horizontal or right arm fully extended parallel to ground). Before turning, the biker needs to scan for traffic. Scan Left, Right, and Left.



Right turn – two-way to two-way

2. ***Scanning Exercise —*** The bicyclist is expected to scan to the rear before moving left in the lane and in preparation for making a turn. In the riding event, the bicyclist should identify the letter on a card held by a judge to indicate scanning was done. The bicyclist should look over the left shoulder.

3. ***Stop - Left Turn (two-way to two-way)*** — Bicyclists are to stop before the crosswalk, yielding right of way to any pedestrians. While approaching the intersection and before moving to the center of road, the bicyclist should signal a left turn (left arm fully extended parallel to ground), and scan to the rear for motor vehicles. After getting to the road's center, the bicyclist should signal his or her intention to stop (left arm bent down at the elbow). Before turning, the bicyclist should scan for traffic. This scanning is to look Left, Right and Left again. After making the turn, the bicyclist should move to the center of the road. The bicyclist should signal a right turn (left arm bent upward at elbow in a right angle or right arm fully extended parallel to ground) before moving from the center to right side of the road).

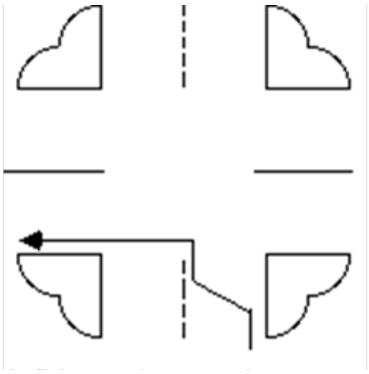


Left turn – two-way to two-way

4. ***Parked Car (or other hazard)*** — Bicyclist should ride in a straight line and stay at least three feet from parked vehicles when passing them. Bicyclist should not weave between parked vehicles. The bicyclist should look at the front tire of an occupied parked car while passing to detect any motion and to note the direction the car would move into traffic. The front tire shows any motion and direction.

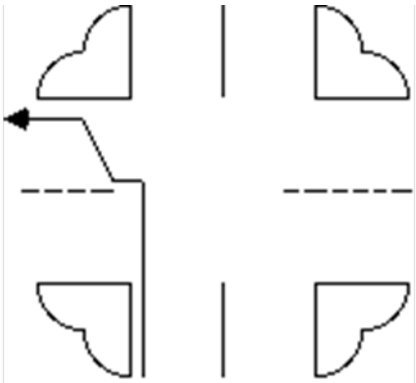
5. ***Left Turn (two-way to one-way)*** — A bicyclist should signal a left turn by fully extending left arm parallel to ground. The left turn signal must be given before moving to the center of two-way street. An additional left turn signal may be given after moving to the center of street but prior to making the left turn.

   **Note:** The second left turn signal is optional and the biker will *not* be penalized for failing to give the signal. Before turning (moving left), bicyclist should **scan** for traffic.



Left turn – two-way to one-way

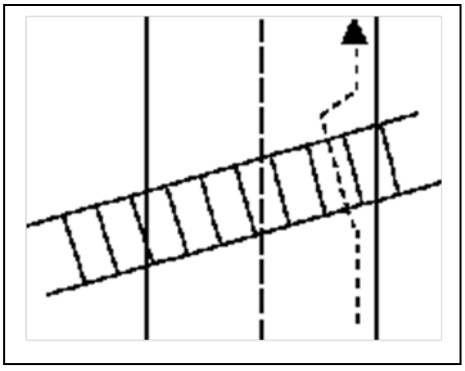
6.



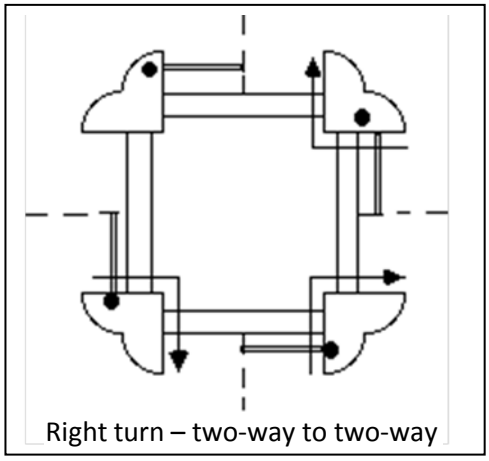
Left turn – one-way to two-way

***Stop - Left Turn (one-way to two-way)*** — For teaching purposes, draw a crosswalk or use an existing one. The bicyclist must stop before the crosswalk, yielding right of way to any pedestrians. While approaching an intersection, the bicyclist should signal a left turn (left arm extended parallel to ground) to indicate the intention to turn left at the intersection. The bicyclist must come to a complete stop. Before turning, the bicyclist should scan for traffic (Left, Right, Left). After making the turn, the bicyclist should signal a right turn (left arm bent upward in a right angle or right arm fully extended parallel to ground) before moving from the center to the right side of the road.

7. ***Railroad Tracks*** — Approaching a railroad crossing, the bicyclist should give the slowing down (left arm bent down at elbow) signal. Two ways of crossing a railroad track are: a) dismount bike and walk across tracks, or b) slow down and ride bike across tracks at a 90-degree angle to the rails (see below).



The biker must look both directions for a train prior to crossing the railroad track. The biker also should look behind, prior to crossing the tracks, to ensure the biker does not weave in front of a motor vehicle while crossing.



Right turn – two-way to two-way

8. ***Right Turn (two-way to two-way)*** — Bicyclist should signal a right turn (left arm bent upward in a right angle or right arm fully extended parallel to ground). Before turning, the bicyclist should scan for traffic (Left, Right, and Left).