

A photograph of a red and blue Pinewood Derby car, shown from a side profile. The car is positioned horizontally across the middle of the page, with its front pointing to the right. It has a red body and blue wheels. A semi-transparent grey banner is overlaid across the middle of the image, containing the title text.

## **Chesapeake Bay District Pinewood Derby Rules and Procedures 2014**

Official Rules. No changes may be made to these rules without the express permission  
of the Chesapeake Bay District Pinewood Derby Rules Committee

# Chesapeake Bay District Pinewood Derby Rules and Procedures 2014

<b>Race Day</b>	Saturday, February 1, 2014
<b>Location</b>	Patrick Henry Mall: Newport News, VA
<b>Car Registration and Inspection</b>	09:30 AM to 10:30 AM
<b>Racing Heats Begin</b>	11:00 AM

**Gentlemen, start your engines!** It's time for the Chesapeake Bay District Pinewood Derby, where Cub Scouts from our District compete on speed, craftsmanship, and originality.

The first Cub Scout pinewood derby was held on Friday, May 15, 1953 by Pack 280c in Manhattan Beach, California. Don Murphy, the Pack's Cubmaster, came up with the idea of racing small, gravity-powered wooden cars built by Cubs, and he organized the first competition. The races quickly gained popularity, and today Pinewood Derbies are considered a Cub Scout tradition.

What follows are the rules that will be followed to help assure that the Chesapeake Bay District Pinewood Derby is fun, fair, and exciting.

See you on race day!

## Rules and Procedures

### I. General

- A. Purpose** The purpose of the Chesapeake Bay District Pinewood Derby is to give Cub Scouts the opportunity to
  - 1. learn basic woodworking and craft skills(hands on),
  - 2. feel a sense of accomplishment in completing a project,
  - 3. practice fair play and good sportsmanship, and
  - 4. have fun.
- B. Official Rules** The rules listed herein are the official rules of the Chesapeake Bay District Pinewood Derby, and will be used to assure fair competition. No changes may be made to these rules without the express permission of the Chesapeake Bay District Pinewood Derby Rules Committee.
- C. Competition Categories** Chesapeake Bay District Pinewood Derby competitions are held in three (3) categories:
  - 1. **Speed** Entrants compete on the basis of how quickly their cars travel down the official district derby race track. First, second, and third place winners are determined by the first, second, and third fastest average racing times over two (2) racing rounds (6 races).
  - 2. **Craftsmanship** Entrants compete on the basis of the overall neatness, detail, and coloring of the car, and the degree to which it is obvious that the Cub did the majority of the work in making the car. A judging committee identifies the first, second, and third place winners in this category.
  - 3. **Originality** Entrants compete on the basis of unique design concept, unique design execution, and the degree to which it is obvious that the Cub did the majority of the

work in making the car. A judging committee identifies the first, second, and third place winners in this category.

**D. Number of Entries Per Competition Category** Each Pack may enter up to three (3) cars in each of the three (3) categories, for a total of nine (9) cars per Pack. These are typically the top three winners in Pack Pinewood Derby competitions. Only one (1) car entry per Cub per category is allowed. Thus, each entrant (Cub) may enter one and only one car, and that car competes in one and only one of the competition categories. Packs must register their Scouts at the BSA office prior to the race.

**E. Participant Eligibility** Participants must be

1. registered Cub Scouts as of the day of the race,
2. members of Packs assigned to the Chesapeake Bay District of the Colonial Virginia Council, and
3. certified by their Pack leadership as having competed in Pack Pinewood Derby competitions.

**F. Vehicle Eligibility** Cars racing in the Chesapeake Pinewood Derby must meet the following requirements:

1. **Date of Construction** Car entries must be built on or after **September 1, 2013**.
2. **Participation in Pack Pinewood Derby Competitions** Car entries must have competed in Pack Pinewood Derby competitions.
3. **Car Construction** Cars must be constructed from the official "Grand Prix Pinewood Derby Kit" as sold by the local Boy Scouts of America (BSA) Scout shop. Cars may use any official Cub Scout Pinewood Derby car items, including but not limited to wheels, as sold by the local BSA Scout shop.
4. **Specifications** The following weight and dimensions apply to all cars participating in the Speed competition. Cars in the Craftsmanship and Originality competitions are exempt from the length and height requirements:
  - a. **Weight** The weight of the vehicle will not exceed five (5) ounces.
  - b. **Width** The width of the vehicle will not exceed 2 3/4 inches. The intent is to ensure that the car does not interfere with an adjacent car.
  - c. **Length** The length of the vehicle will not exceed seven (7) inches
  - d. **Height** The height of the vehicle will not exceed three (3) inches. The intent is so the car will clear the finish line hardware of most tracks.
  - e. **Bottom Clearance** The clearance between the lowest point of the car and track is not less than 3/8 inches. This will prevent the car from bottoming out on the track. The minimum clearance between the inside of the wheels is 1 3/4 inches. This will prevent the cars' wheels from rubbing on the side of the tracks' center riser guide. The 3/8 inch measurement will only be enforced between this 1 3/4 inches as well; therefore, fenders and side panels will not be cause for the car to fail inspection as long as the front to back clearance is upheld.

**G. Attendance** The Cub Scout must enter his own car on the day of the race; the Cub Scout must be present at "Inspection and Registration" to enter his car into competition.

**H. Impoundment, Registration and Inspection** All cars are impounded by a Pack representative following the completion of the Pack Pinewood Derby, and kept secure and unaltered until the District race day. All cars must be registered for District Pinewood Derby competition and pass official inspection on race day. The Derby Flag ceremony and the racing for the Speed competition may not begin until registration and inspection are complete.



1. **Impoundment** Each participating Pack will impound entrant cars that will immediately following the conclusion of the Pack Pinewood Derby.
  - a. **No alteration following Pack Pinewood Derby** Cars may not be altered following the completion of the Pack Pinewood Derby
  - b. **Responsibility for Impoundment** Packs will select one (1) adult leader who will be responsible for impounding the cars and assuring their security. This adult will also bring the cars to the District Pinewood Derby.
  - c. **Cars Not Impounded Will be Disqualified from Competition** Cars must be brought to the race by the assigned Pack leader. Cars not impounded by the Pack will be declared ineligible to compete.
2. **Time of Registration and Inspection:** Registration and Inspection opens at 9:00 AM and ends at 10:30 AM. Entrants in line for registration and inspection at 10:30 AM will be processed. Once the registration and inspection station is closed it may not be reopened.
3. **Registration** All cars competing in any category will be registered, recorded as participating, and assigned a car number and label.

**Inspection** All cars will be inspected to see if they meet the design standards listed in Section II. Assigned Race Officials will conduct the inspection. Cars will be weighed, measured, and subjected to visual review. Axles will be inspected fully immediately following the race to insure that the axles are not bought or modified by machining. One or more wheels will be removed for this inspection.

- a. **Passing Inspection** Cars that pass inspection will be allowed to complete the registration process and compete.
  - b. **Failing to Pass Inspection** Cars that do not pass inspection are disqualified and cannot compete for official placement in the District Pinewood Derby. Entrants will be notified of the reason why the car did not pass.
  - c. **Inspection Decisions/Car Design Rules Interpretations** The interpretation of the rules described in Section II as it concerns the eligibility of car entries is at the sole discretion of the Inspection Committee staff present during the Registration and Inspection process.
  - d. **Failing to Pass the Axle Inspection**, at the end of the race will not be announced, the car will just be eliminated from the official results.
- I. **Race-Day Rules Interpretation** On Race-Day, the Cub Scout must make all questions of rules interpretations and procedures to the Pinewood Derby Rules Committee or Race Officials promptly. Decisions of Race Officials on questions of rules interpretations and procedure may be appealed to the Pinewood Derby Rules Committee. All decisions of the Rules Committee are final.
- J. **Participant and Spectator Conduct** All participants and spectators are expected to follow generally accepted standards of polite conduct and sportsmanship. Failure to follow commonly accepted standards of conduct and sportsmanship, as determined by Race Officials, may result in participant disqualification from competition, spectator expulsion from the raceway area, or other appropriate action necessary to maintaining event fairness and order.

## II. Car Design Standards

- A. **Car Construction and Materials** The following rules apply to the construction of the Pinewood Derby Car.

1. Cars must be constructed from the official "Grand Prix Pinewood Derby Kit" as sold by the local BSA Scout shop.
2. Cars may use any official Cub Scout Pinewood Derby car items, including but not limited to wheels, as sold by the local BSA Scout shop.
3. Cars may be shaped in any fashion as long as they adhere to the weight and dimension requirements listed in these rules.
4. Cars may include any decorative elements (e.g., paint, windshield, toy drivers) as long as those elements do not conflict with other car design requirements listed in this document.
5. Cars with pre-fabricated bodies (purchased car designs or kits), non-nail or BSA axles, non-BSA approved tires, or any other items/material deemed by Race Officials to be unsuitable for the competitions are prohibited.

**B. Car Weight** Race Officials will use a standard scale to weigh all car entries and determine if the entries meet the standards listed below:

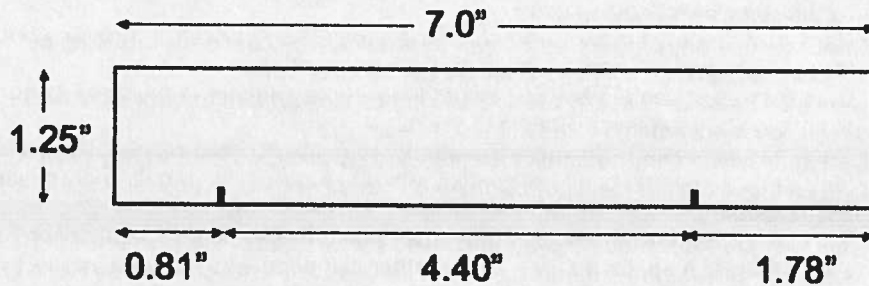
1. The weight of the vehicle will not exceed five (5) ounces.
2. Weight attachments (e.g., metal plate attachments, nails, screws, coins) may be added to the car to add heft up to five ounces. Attachments will be considered part of the car for purposes of all measurements. Any weight attachment must be securely fastened to the car and be non-moveable, non-electric, or otherwise inappropriate for competition. If added to the bottom of the vehicle, the attachment must allow sufficient bottom clearance with the track.

**C. Length, Height, Width, and Car Clearance** Race Officials will use standard gauges to measure vehicles and determine if they meet the standards listed below:

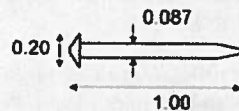
1. **Width** The width of the vehicle will not exceed 2 3/4 inches
2. **Length** The length of the vehicle will not exceed seven (7) inches
3. **Height** The height of the vehicle will not exceed three (3) inches,
4. **Bottom Clearance** The clearance between car and track is not less than 3/8 inches in the center of the car front to back, not side to side.

**D. Wheels and Axles** Race Officials will visually inspect all car entries and determine if the entries meet the standards listed below:

1. The car must roll on wheels (tires) provided in the Grand Prix Pinewood Derby kit, or with BSA-approved wheels
2. Wheels must be from the official pinewood derby car kit (BSA Part #17006) or from the optional colored Cub Scout derby wheels & axle kit (BSA Parts #17553, 17554, 17555, 17556 and 17557). Wheels may be lightly sanded only to remove bumps, burrs and ridges. They may not be shaved or reduced in diameter or width. Wheels may not be beveled, tapered or in any other fashion modified from the original size and shape. Wheels may not be painted. Wheel covers, bearings, washers and bushings are strictly prohibited.
3. Wheels shall turn about the axle nails provided in the Grand Prix Pinewood Derby kit, and must be placed in the original axle grooves in the wooden block supplied in the kit.



4. Cars should be constructed so that it is clear based on visual inspection that grooves; nail axles, and wheels meet the requirements outlined in these rules.
5. Single axles and other non-nail axles are prohibited.
6. Axle sleeves, bearings, and washers are prohibited.
7. Axles may be polished using files, sandpaper, etc. or by using the pinewood derby high performance kit (BSA Part 16988) to remove burrs, scratches and ridges. The axles may not be machined or reduced in diameter anywhere along the axle shaft. The head of the nails shape may not be altered.



8. BSA axle guards are allowed. However, officials reserve the right to ask that guards be removed to determine if the cars are within regulation.

**NOTE:** At the conclusion of racing, one or more wheels will be pulled from the top three cars to enforce this rule.

**E. Gravity Locomotion** The following rules apply to car movement during a race.

1. The car must rely on gravity to travel down the racetrack.
2. Any mechanism that powers the vehicle other than by means of gravity is prohibited.
3. The racecar may not be constructed or treated in such a way that the track's starting mechanism imparts momentum to the car. Magnets, adhesives, protrusions, or any other method that causes the car to connect to the starting pin to gain starting power is prohibited.

**F. Lubricants**

1. Cars may use dry lubricants to reduce wheel/axle friction.
2. Both graphite and powdered Teflon "white lube" are acceptable lubricants.
3. Lubricants are not allowed to spill on or otherwise foul the track.
4. A "pit stop" station will be provided at the race, where Cub Scouts only will be allowed to apply lubricant prior to registering the car for racing. With the exception of race officials, no adult is allowed in the pit area.

### **III. Race Procedure**

#### **A. Race Officials**

1. Race officials will be designated and are responsible for the proper conduct of the races.
2. Decisions made by the Pinewood Derby Rules committee are final.
3. Only race officials may enter and leave the track area.

**B. Race Day Lubrication** As mentioned in section II, a "pit stop" table will be set up to allow scouts to lubricate their cars. The lubrication must be applied prior to registration. No car lubrication is allowed after registration.

**C. Car Handling Responsibility** The Cub Scout shall be responsible to present their own cars at the "pit stop" station to lubricate the cars, and to place the car on the starting state of the racetrack. Cars should be returned to the impoundment area at all other times, until the race ends.

**D. Number of Heats** Cars will race in two (2) Rounds. The number of Heats is determined by the track at the district race. If the track has 3 lanes, each participant will race 6 Heats

**E. Lane Assignment:** For each round, cars will randomly put into each lane.

#### **F. Track and Car Problems**

1. **Car Leaves Lane or Track** If a car leaves its lane or the track during a race the heat will be restaged and rerun.
2. **Repeat car failure** Any car that has multiple problems may be disqualified.
3. **Car Repair (Without Fault)** If, during the race, a wheel falls off or the car losses another part, the Cub Scout may, to the best of his ability perform the repair.
4. **Car Repair (With Fault)** If a car is damaged due to track fault, or damage caused by another car or person, then the pit crew official may be allowed to assist in the repair.
5. **Track Fault** If it is not apparent that a car leaves the track due to the fault of the car, the Track Master will inspect the track and and fix the problem or clean off the track.

**G. Call to Race** Competitors will be called by name to the staging area for racing. Scouts will be racing or "on deck" waiting to race. Cubs must watch the scoreboard and listen to the Track announcer to identify their time to race

**H. Race Champions** For speed competitions, the overall champion will be the car with the fastest average recorded time on the track. Second and third place winners are the determined by the next fastest and third fastest average times, respectively.

### **IV. Judging Procedures for Craftsmanship and Originality**

#### **A. Judging Committee**

1. The District Pinewood Derby Rules Committee will identify five (5) judges to impartially and independently review Craftsmanship and Originality entries, based on the criteria identified in section I.

#### **B. Judging Procedure**



1. During the first heat, the judges will visually review all cars submitted for Craftsmanship and for Originality.
2. Judges will independently identify the first, second, and third selections for each of the two competition categories.
3. Judges will then confer and agree on a committee decision of first, second, and third-place winners for Craftsmanship and for Originality.
4. Judges will notify the Rules Committee of the decisions.
5. Winners are announced prior to the beginning of the second heat.

**V. Recognition and Awards** Racers will be recognized as follows

- A. Every participating Scout will receive a Pinewood Derby patch
- B. Trophies will be awarded for the top three winners in each competition category.

**VI. Order of Program** Following the closing of registration and inspection operations, Racing and Judging events occur in the follow order:

- A. Flag Ceremony
- B. Opening Remarks
- C. Trackmaster/Track Operator Overview of Racing Procedures
- D. First Round Heats for Speed Competition/Craftsmanship and Originality Competition Judging
- E. Break/Announcement of Craftsmanship and Originality Winners
- F. Second Round Heats
- G. Break/Analysis of Racing Results
- H. Announcement of Speed Competition Winners

**VII. Reference:**

Some illegal parts and machining

Speed Axles



Machined groove



Cut groove near head



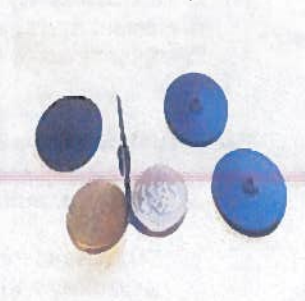
Machined inner hub



Turned inner wheel



Obviously wrong





## BSA PINEWOOD DERBY WHEEL RULES CLARIFICATION OF DISQUALIFYING / ALTERED WHEELS

No alteration, narrowing, lathe cutting, or re-shaping of wheels (inside or outside) is allowed!!!

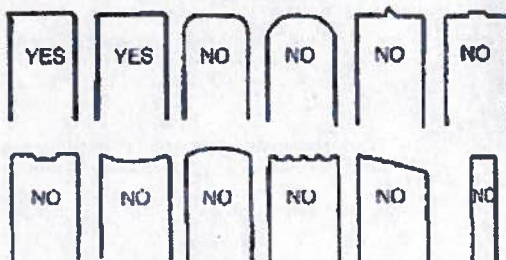
<p>STANDARD WHEEL</p>					
		ROUNDED WHEEL	"V" WHEEL	CUPPED WHEEL	REDUCED DIAMETER
"H" WHEEL	RIBBED WHEEL	SPEED WHEEL	SLANTED OUT	SLANTED IN	KNIFE EDGE

### NO LIGHTENING OF THE WHEEL IS ALLOWED

LIGHT SANDING OF WHEEL TREAD TO REMOVE IRREGULARITIES IS PERMISSABLE. WHEEL TREAD MUST BE FLAT!

MINIMUM WHEEL DIAMETER ALLOWABLE IS 1.170 INCHES  
MINIMUM WHEEL WEIGHT OF EACH WHEEL IS 2.45 GRAMS.

#### Wheel Profile Illustration:



Don't be fooled, These are legal BSA wheels

**1999 Wheel Mold**

**1999 2009**

**2009 Wheel Mold**

**Wheel Weight:**  
3.6g

**Mold Sprue Mark:**  
(1 mark) Outer Tread Surface

**Hub Face:**  
Flat

**Bore Diameter:**  
.093" - .098"

**Rotational Inertia:**  
5.16g/cm<sup>2</sup>

**Wheel Diameter:**  
1.187" - 1.192"

**Outer Hub Face:**  
Single Step Recess

**Wheel Weight:**  
2.6g

**Mold Sprue Mark:**  
(3 marks) Inner Rim Face

**Hub Face:**  
Coned

**Bore Diameter:**  
.094" - .098"

**Rotational Inertia:**  
3.66g/cm<sup>2</sup>

**Wheel Diameter:**  
1.184" - 1.187"

**Outer Hub Face:**  
Double Step Recess

