

2019  
SOUTH MOUNTAIN DISTRICT  
PINEWOOD DERBY® RACE  
RULES



# Contents

Introduction.....	3
District Rules Expectations .....	4
General Rules.....	5
Examples of Prohibited Items:.....	6
Car Weight and Car Dimensions.....	7
Axles Slots and Axles .....	8
Wheels.....	10
Illustrations.....	12
Frequently Asked Questions (FAQ) .....	18
2019 South Mountain District Pinewood Derby® Race Registration and Check-In Checklist .....	24

## Introduction

*The purpose of the Pinewood Derby® Race is to*

- 1) help the Cub Scout build a team relationship with their adult partner,*
- 2) experience the sense of accomplishment and 3) the excitement of competition,*
- 4) learn Win/Lose good sportsmanship, and*
- 5) to have fun.*

Please read the following together.

There are few instances of competition in the Cub Scout program.

And while everyone may be trying to win,

It is always a good idea to always remember the Cub Scout Motto,

**"Do Your Best"**

### *Sportsmanship*

Three skills that the Cub Scout can expect to learn from the Pinewood Derby® are 1) to make a car, and 2) to follow the rules to build that car or any other future project and 3) the proper behavior during the race or any other group competition.

The first expectation is to recognize that everyone's building skills are different. This includes your **parents. Be patient with yourself and others during construction. Don't be afraid to ask for help**, and the experienced racers should offer that help. Make the time and focus on building YOUR car and when it is done you will be proud of the results. Remember, you and your friends are individuals first and racers second. This idea is often called having respect for others.

The second expectation is for everyone to follow the rules *especially* when no one is watching you. Make time to learn the details of the rules. Then follow the rules. If you question a rule, ask the right person for the answer. When everyone follows the intention of the rules then no one will feel they are being treated unfairly. You should be proud for being truthful and moral. This is a demonstration of your honesty.

The third expectation is to remember that there are winners and losers in every competition. You accept this when you choose to compete. Competition makes the Race exciting. There may be times when you win and feel happy, and times when you lose and feel sad. Being a winner is easy, and losing is sometimes hard. If you win, do not brag or gloat. If you lose, do not be jealous or bitter. You should be able to say "I did *my* best" and be satisfied with the results. You should appreciate and be happy for someone else when they run a good race or build a neat car.

This is good sportsmanship.

## District Rules Expectations

The 2019 South Mountain District (SMD) Pinewood Derby® (PWD) Race Committee's underlying goal of the District Race is for everyone to have fun while the Scouts learn about good behavior and good sportsmanship during a friendly competition.

The 2019 SMD PWD Race Rules (District Rules) have been expanded for clarity. The expansion is to give everyone, from the novice to the seasoned racing teams, a clear understanding of the intention of the rules. Details, suggestions, additional diagrams and a FAQ Section are included.

Be aware of differences between your Pack rules and the District Rules. These District Rules are tailored for the racing teams wanting to be competitive beyond the Pack Race.

Every racing team has a goal. The goal may be just to get a car built to enter the Pack race or make sure the car crosses the Pack finish line or to win a Pack specialty trophy or even to earn a speed trophy within the den or rank. There are racing teams that look for more from their experience by being one of the top 5 Scouts of the Pack so they may go to the District Race. There are also a few racing teams that focus on having the fastest car, in order to be more competitive at the District Race and maybe even beyond. (Refer to FAQs section.)

To *compete* for the chance to earn a speed trophy in the SMD PWD Race your car must meet the District Rules. Understand *these* rules. Reach out to the right person(s) to answer your questions. By entering the race *you are* expected to know and to follow the rules and to respect the decisions of the Race Committee. In addition, don't be the team that looks for loop holes in the rules, but instead looks for the intentions of the rules. Work to be fair to all.

If during the District inspection the car is found not to meet the District Rules it can still *participate* in the race. However the car will not be eligible to compete for a trophy. The Race Committee wants every racer to enjoy the Race.

The SMD Activities Chair reserves the right to amend, adjust, omit, and further clarify any section of these rules as needed. Amendments to the rules will be published in as timely a fashion as possible to minimize impact the day of the District Race.

## General Rules

- 1) Have fun and do your best.
- 2) The Scout Law and Oath are the guiding principles for this competition.
- 3) Good behavior and good sportsmanship is expected by all attendees. All decisions of the Race Committee are final. Anyone not following these rules may be asked to leave.
- 4) Each Pack may develop rules, and operate their own PWD race as desired. The SMD PWD Rules only govern the SMD PWD Race.
- 5) Packs may send up to 5 Cub Scouts (racers) and their eligible cars to the District Race.
- 6) Reach out to your Pack PWD Chair for clarification for **your Pack's** race rules. Refer to the FAQ section for expanded explanations for the District Rules. For the final answer to questions about the SMD PWD Race Rules, reach out to the SMD PWD Chair, Chris Van Camp at 513-253-8174 (M) or jcvancamp@yahoo.com. **ASK QUESTIONS WELL BEFORE YOUR PACK'S RACE.**
- 7) To take part in the District Race the youth must be a registered Scout, and have been a Cub Scout with a SMD Cub Scout Pack at some point between January 1, 2019 and March 2, 2019 The Scout must have participated in their 2019 Pack PWD race as a Cub Scout. An Arrow of Light (AOL)/ Webelos II Scout who has transitioned to a Troop is eligible.
- 8) The Cub Scout should substantially, within their own abilities, build the majority of their OWN car. An adult partner is encouraged to supervise, guide, and assist the Cub Scout.
- 9) Your car must be built from scratch during and for the current PWD racing season (November 2018 through March 2019). **The car's pinewood block and the 4 wheels and the 4 nails (unfinished axles) MUST be from an Official BSA Pinewood Derby® Car Kit (Kit) and/or from an official BSA component kit (Wedge and Tubes) from a BSA National Scout Shop (i.e. Minsi Trails Scout Shop) or www.scoutstuff.org. No exceptions.**
  - a) *Primary* Kit: Item # 17006 Copyright ©2012.
  - b) *Alternative* Kit: Item # 17000 Copyright ©2009.
  - c) Additionally only the following 11 component kits are permitted:
    - i) The BSA Pinewood Block Substitute:  
BSA Pre-Cut Pinewood Derby® Wedge Kit: Item # 614417 Copyright ©2011.
    - ii) 4 colored BSA Wheels and 4 BSA Nails contained together in a Tube in the BSA Wheel and Axle Kits with Item #:
 

(1) Black	17553	(6) Glow (White)	647053
(2) <b>Ragin' Red</b>	17554	(7) Green	647054
(3) Screaming' <b>Yellow</b>	17555	(8) Pink	647055
(4) <b>Blazin' Blue</b>	17556	(9) Purple	647056
(5) Outrageous Orange	17557	(10) (Light) Blue	647826
- 10) Finished cars or aftermarket kits or non-BSA kits of cars or components used in whole or in part from a previous year or from another racer, company, internet entity, or other are prohibited.

Cars may not be sent to third party facilities for construction and/or tuning or other performance enhancements.

- 11) **The car's appearance must be** age and Scout appropriate.
- 12) The Cub Scout with an adult partner (the racing team) shall be present during the District Race and must use the same unaltered and complete car that was built and raced for their 2019 Pack PWD race. The Scout is expected to wear the **Class "A" uniform**.
- 13) This rule is for the up to 5 cars per Pack that move on to the District Race: Once your car is **accepted by your Pack's inspection committee it cannot** be altered or modified or fixed or repaired, etc. *This is the reason for asking questions well before your Pack race.*

ONLY the following 2 exceptions are allowed.

- a) If your car was damaged *during* your Pack race, it may be repaired, only to fix the damage, and only in the time given *during* the Pack race. Thus NO further repair after the Pack race is permitted.
- b) You may reapply the graphite, or graphite blend, which was used for the Pack race to the attached wheels and axles prior to the SMD PWD Race inspection. You may also may clean any debris off of the wheels prior to race inspection.

## Examples of Prohibited Items:

- 1) Aftermarket: pinewood blocks or axles or wheels.
- 2) Axles and wheels attached to any device that mechanically alters rotation or spin.
- 3) Solid one-piece rod style axles.
- 4) Axle guards.
- 5) Liquid lubricants actively wet or dried.
- 6) Bearings, bushings, nylon shims, washers, etc.
- 7) Springs or suspension systems of any type.
- 8) Wheel weights, wheel well weights, inner wheel air dams (also known as air deflectors or air shields), inner or outer wheel covers – clear or otherwise, or any item internal or external to a wheel.
- 9) Moving weights or liquids.
- 10) Magnets, starting devices, finish line devices, propellants, or propulsion systems.
- 11) Wet paint or sticky substances.
- 12) Glass or excessively fragile parts.
- 13) Loose objects on or in the car.
- 14) Electronic or lighting devices. If lights are physically on the car they must be turned off. The lights are turned off to avoid possible interference with the LED light at the finish line.

## Car Weight and Car Dimensions

- 1) **The car's overall weight** must not exceed 5.00 ounces measured on a scale accurate to 1/1000th of an ounce. An overweight car must be reduced to 5.00 ounces or less before being entered. The official race scale is final.
- 2) All weight must be securely fastened or embedded in or on the car.
- 3) **The car's overall height** cannot exceed 6 inches. Note: Your Pack may require a lower height.
- 4) **The car's overall length** must be 7 inches. **The pinewood block's pre-cut slots set the car's wheelbase** at 4 3/8 inches center to center. The slots also define the underside/belly of the car. One slot must be 1 inch from one end of the car. The other slot must be 1 5/8 inches from the other end of the car. **Thus ...**

$$\begin{array}{r}
 1 \text{ inch from one end of the car is a slot} \\
 + \quad 4 \text{ 3/8 inches for the car's wheelbase between slots} \\
 + \quad \underline{1 \text{ 5/8 inches for the other end of the car is the other slot}} \\
 = \quad 7 \text{ inches overall}
 \end{array}$$

- 5) Either end of the pinewood block may be the front of the car.
- 6) If side fenders are present, they cannot extend beyond the front or rear of the car.
- 7) **The car's overall width**, including wheels and axles and any fenders or cosmetics, must not exceed 2 3/4 inches.
- 8) Each pair of wheels must clear **the lane's center guide rail** width of 1 5/8 inches. The width between the inside edge of each wheel of the front pair as well as the rear pair of wheels cannot be less than 1 3/4 inches.
- 9) **The car's minimum underside clearance (height)** shall be at least 3/8 of an inch between the entire bottom of the car and the bottom of the wheels. **This gives clearance for the lane's 2 center guide rails.** The width between the 2 guide rails is 1 5/8 inches and their heights are 1/4 inch. Side fenders may be lower outside the rails. Refer to the diagrams and FAQs Sections.
- 10) No part of the car may protrude beyond where the car rests against the starting pin. The bottom of the front edge of the car must be no more than 1 inch above **the lane's surface.** **The front end** of the car must be at least 1/2 inch wide at the center of the car.
- 11) Other than the BSA pinewood block (or wedge), the 4 wheels and the 4 nails, everything else is defined as accessories, cosmetic, details, weights, etc. These do not need to be from a BSA source. Anything added to the car must be within the overall weight, height, length, and width limits.
- 12) Other than the 4 wheels, no part of the car or any attachment to the car may be capable of coming into contact with the track. No part of the car or any attachment to the car may be capable of coming into contact with another **Scout's** car.
- 13) The car must be freewheeling. The **ONLY** source of power is gravity.

## Axles Slots and Axles

- 1) **The pinewood block's pre-cut slots** must be visible and may be trued and/or straightened. The pre-cut slots may be drilled out slightly to allow for easier axle insertion. The remainder of the axle slot must be left untouched except to correct construction errors, (repair cracked or broken wood with glue, putty, etc.).
- 2) Only raw nails from the BSA Kits and/or the BSA Tubes from a BSA National Scout Shop or [www.scoutstuff.org](http://www.scoutstuff.org) (approved sources) are permitted to make axles. If any nail is replaced for any reason use an approved source BSA nail from the BSA Kits and/or the BSA Tubes.
- 3) Nails may only be filed, sanded, polished, and/or lubricated and must otherwise be left untouched.
- 4) The following is prohibited in the further preparation of a nail shaft and/or nail head.
 

Reducing the diameter.	Grooving.
Bending.	Straightening.
Beveling.	Tapering.
- 5) It is recommended to file each nail with a metal file. ONLY the following may be removed.
  - a) The 2 burrs under the nail head, where the outer hub of a wheel will ride.
  - b) The 5 crimp marks around the nail shaft, where the wheel bore will ride.
  - c) The rough surface along the nail shaft, where the wheel bore will ride.
  - d) The sharp edges leading to the **nail's** tip.
- 6) Lubrication:
  - a) Graphite or a dry graphite blend is the ONLY lubricant allowed.
  - b) No lubricating oil or liquid lubricant of any kind may be used.
  - c) If graphite is not present or oil is suspected, graphite may be applied at Check-In.
- 7) The axle may be canted (angled) for alignment purposes. (The axle does not need to be parallel to the track.)
- 8) The racing nail must be inserted into the axle slot. Four separate nails must be used. No nail used as a racing axle can be inserted into the car body proper.
- 9) Each axle must be adjusted to ensure that its wheel will be in contact with the lane surface at all times. The Inspectors will place the car on a smooth, level surface and gently roll the car to verify that each wheel continually touches the surface throughout an entire revolution. **NO RAISED WHEELS.**
- 10) You may secure the axle with glue, putty, tape, etc. However the axle tip must be visible within the axle slot to allow the Inspectors to verify that an approved nail is being used as an axle. Do not cover the axle slot.
- 11) The Inspectors may use a magnet to ensure BSA nails are being used.

- 12) If an axle is suspect, the racing team will be asked to pull it for inspection and that racing team will be responsible to re-install it.

13)

## Wheels

- 1) Only the wheels from the BSA Kits and/or the BSA Tubes from a BSA National Scout Shop or [www.scoutstuff.org](http://www.scoutstuff.org) (approved sources) are permitted. If any wheel is replaced for any reason use an approved source BSA wheel from the BSA Kits and/or the BSA Tubes.
- 2) All lettering and numbering and details on the wheels, both inside and outside, must remain complete and unaltered from the factory and must be completely visible with NO obstruction of any kind.
- 3) No wheel covers of ANY type or any name, inside or outside, may be used.
- 4) The letters and number on the inside below the sidewall of each wheel is and must show:  
**"OFFICIAL BSA" and a mold number (1-16) and "MADE IN USA"**.  
NO other lettering is permitted. Example: CHINA.
- 5) The Letters on the outside sidewall of each wheel must show:  
**"BSA" and "PINWOOD DERBY®"**.
- 6) The details on the outside of the wheel must be visible:  
  
The fluting (small decorative dots or bumps) along the edge between the outside sidewall and the outer tread must remain complete and unaltered.  
  
The lattice design inside the sidewall must remain complete and unaltered.
- 7) A black wheel (out of the kit or tube) weighs about 2.70 grams. A colored wheel (out of the tube) weighs about 2.60 grams. The weight of the wheel must not be increased or decreased. NO material such as glue, fingernail polish, tape, etc. may be added to the wheel increasing its weight.
  - a) Only the following 2 exceptions are allowed.
    - i) Light sanding, per Wheels Rule 13) below.
    - ii) The addition of graphite may be applied for lubrication.
- 8) NO alteration, narrowing, lathe cutting, or reshaping of wheel (inside or outside) is allowed!!!
- 9) NO material may be removed from the inside wheel surfaces at ANY point.
- 10) Removal of the outer hub step down is prohibited. The two steps must be intact.
- 11) The wheel bore cannot be sanded or tapped. The wheel bore cannot be filled and re-drilled to alter the bore diameter or to achieve a better fit with the axle.
- 12) The outer tread surface must be flat and parallel to the wheel bore.
- 13) The outer tread area may be LIGHTLY sanded and/or polished ONLY to remove minor surface imperfections and/or mold casting burrs; but total wheel diameter may not be reduced below the fluting. (Refer to Wheels Rule 2) e)) above. The outer tread surface must not be reshaped or have the contour changed in any way in an attempt to minimize tread contact or alter aerodynamics. A wheel with ANY flex to the tread or sidewall when squeezed or twisted during inspection will not pass.
- 14) You may polish the following areas.

The wheel bore, where the wheel contacts the axle shaft.

The outer hub, where the wheel contacts the underside of the axle head.

The coning of the inner wheel bore, where the wheel will contact the car body.

The inner edge of the tread, where the wheel will contact the car body.

15) NO wheel can be mounted with the lattice design facing the car body.

16) ALL 4 wheels must contact the lane surface at all times.

17) Inspectors may measure the wheel to verify compliance. If a wheel is suspect, the racing team will be asked to pull it for inspection and that racing team will be responsible to re-install it.

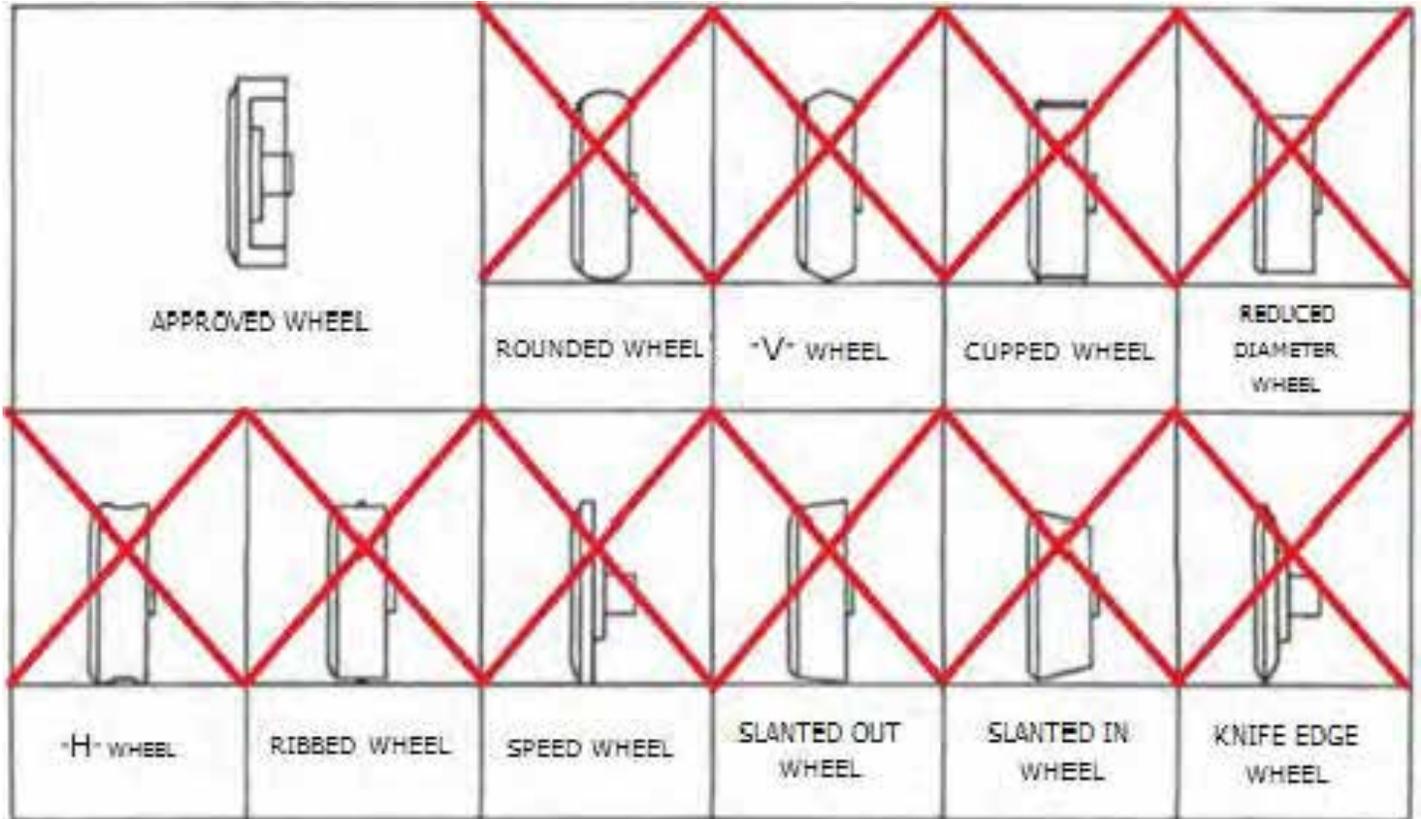
Please note:

- There are after-market modified wheels available that have been LIGHTENED.
- This is usually done by turning the wheels on a lathe and removing material from the inside of the wheel. These wheels are NOT allowed and can be EASILY RECOGNIZED at inspection. Cars with third party manufactured or modified wheels WILL NOT be permitted to compete for a speed award.

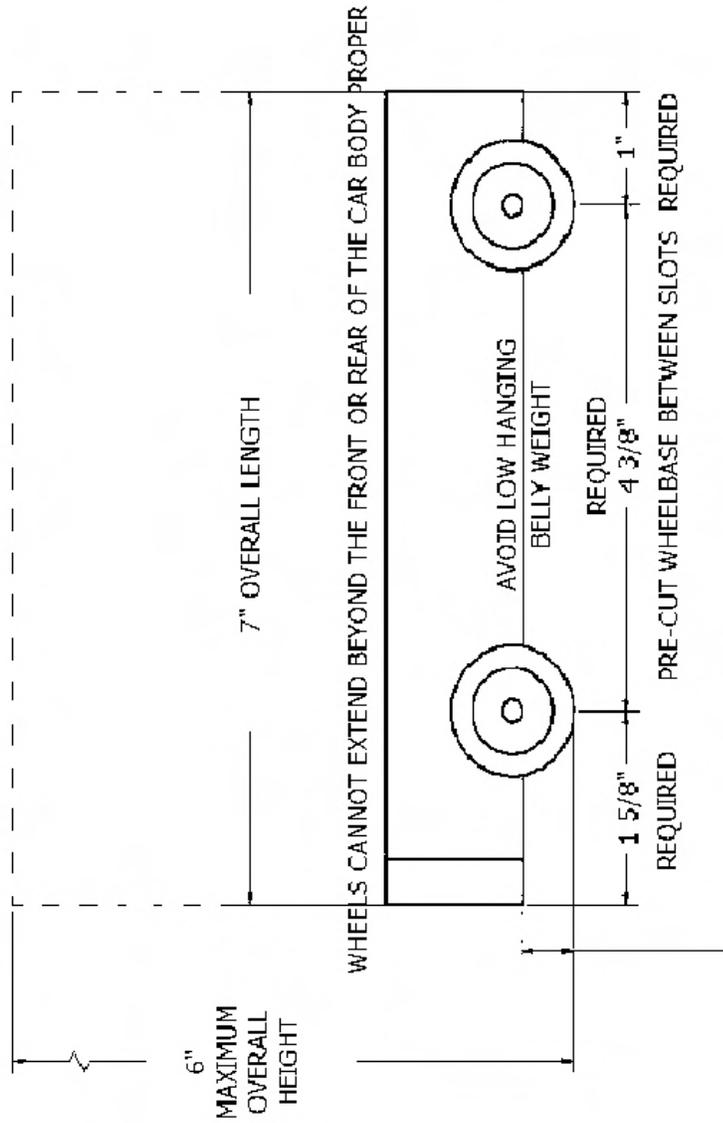
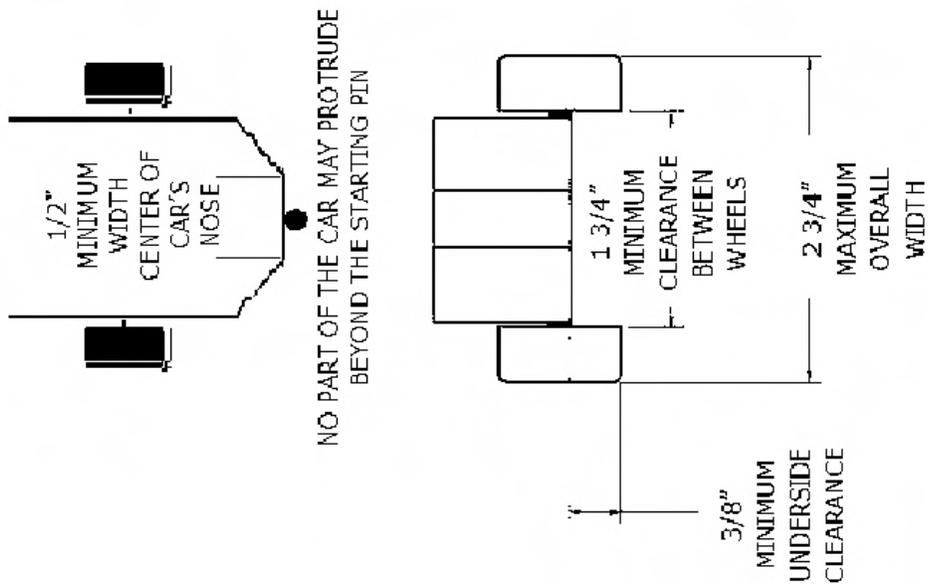
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## Illustrations

The following diagram offers examples of disqualifying wheel modifications.

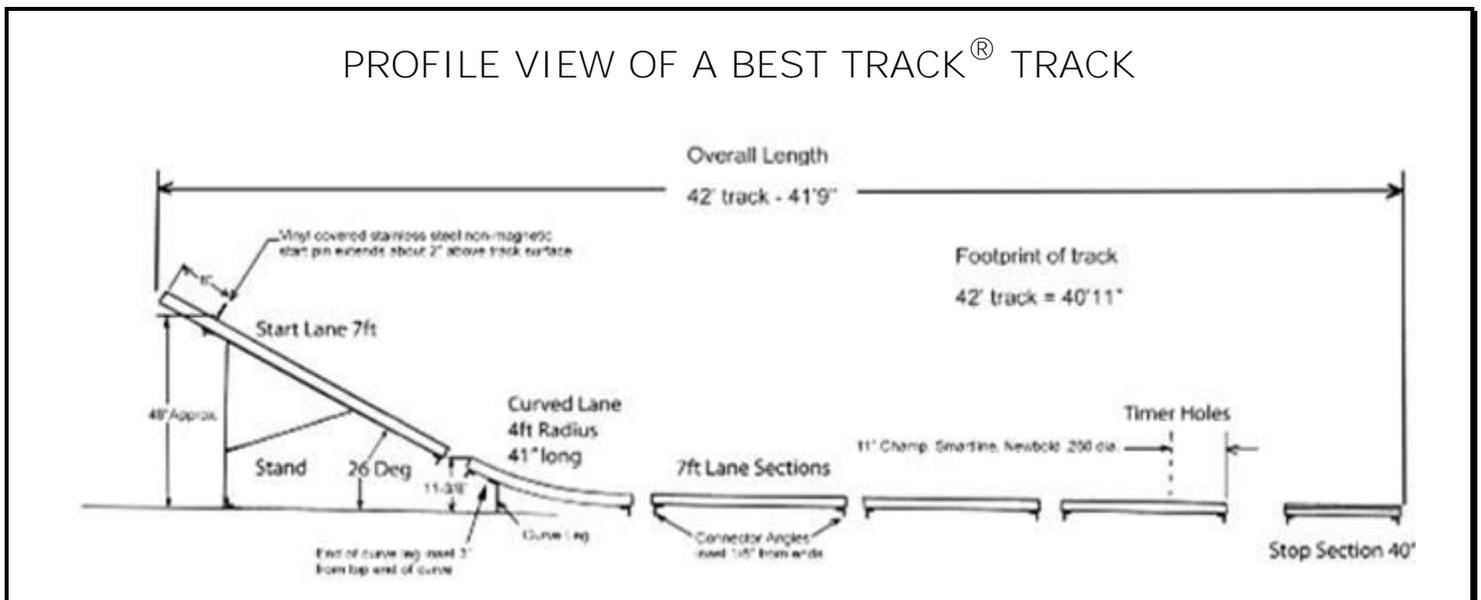
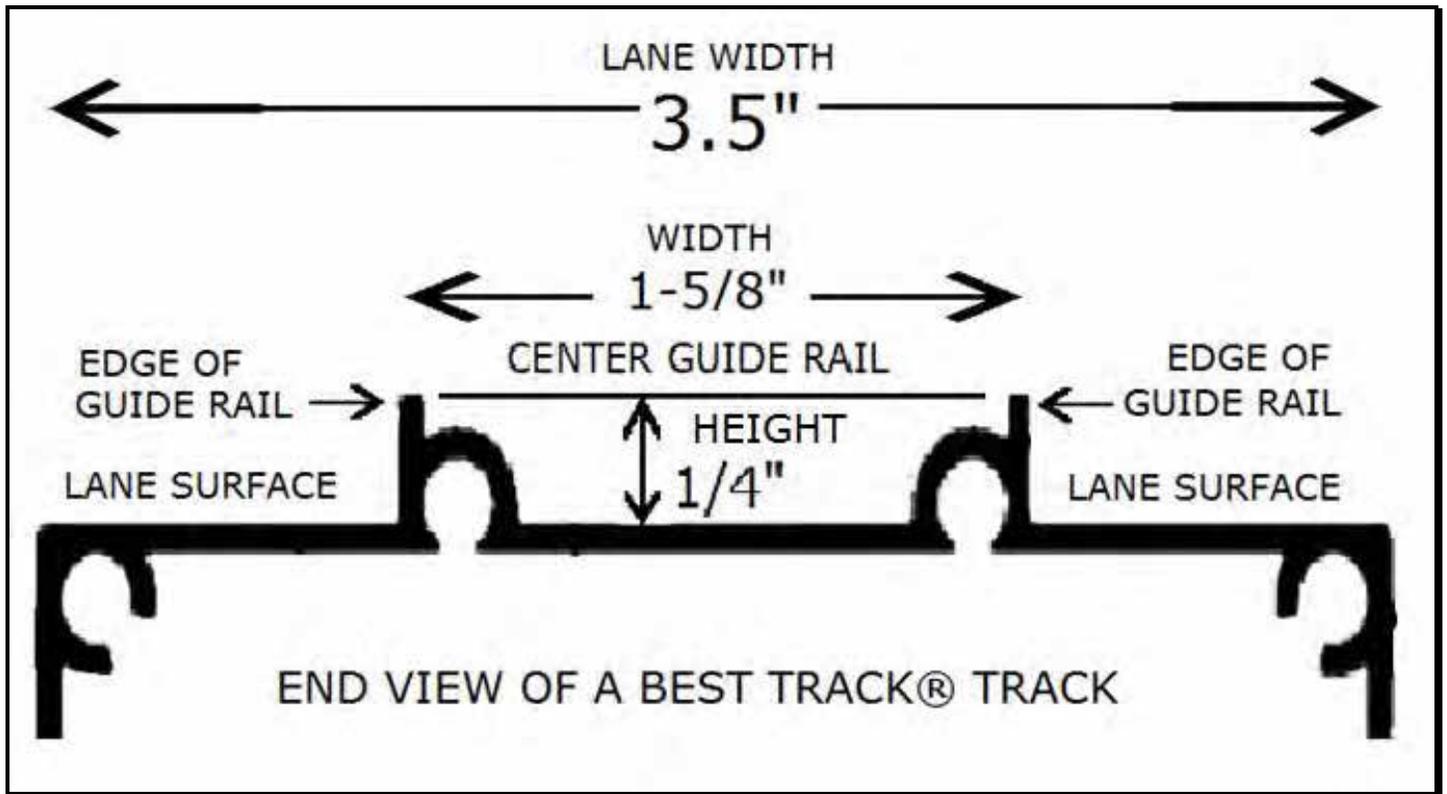


**SOUTH MOUNTAIN DISTRICT PINEWOOD DERBY CAR DIMENSIONS**



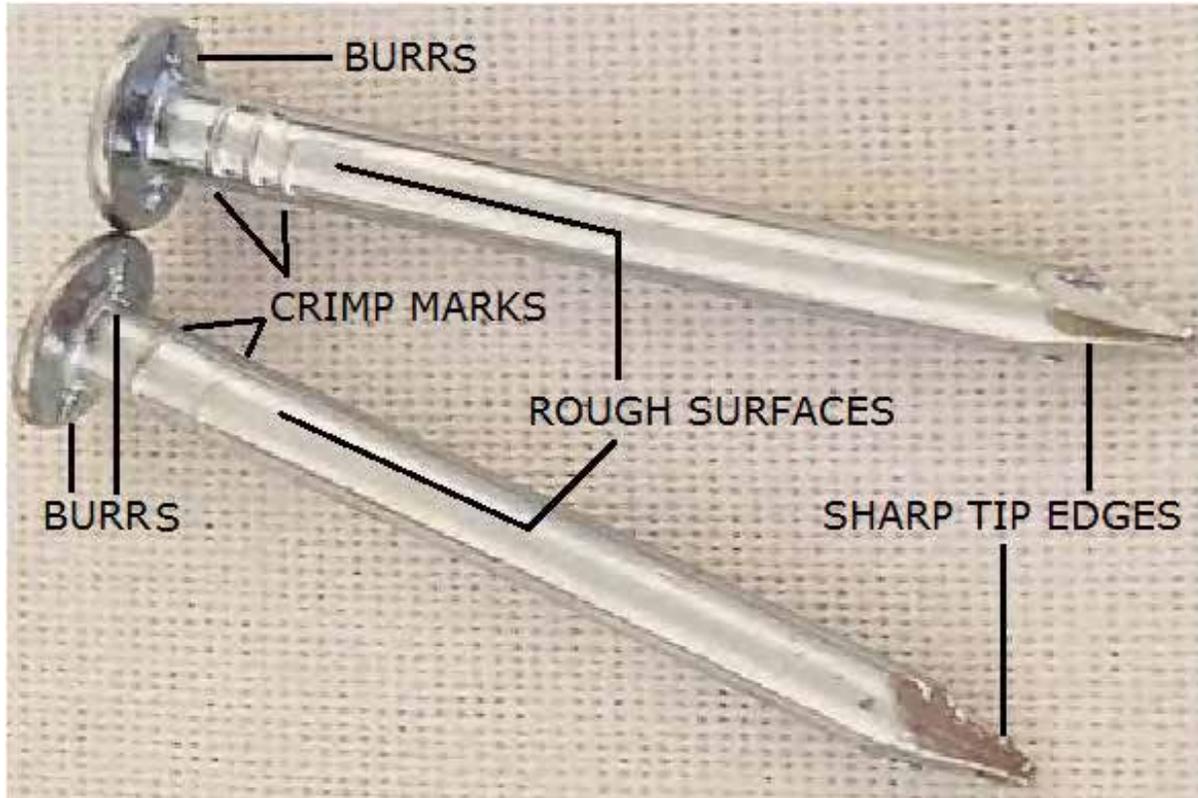
THE BOTTOM OF THE FRONT EDGE OF THE CAR MUST BE NO MORE THAN 1" ABOVE THE LANE'S SURFACE.

The 2019 SMD PWD Race uses a 4-Lane 42 Foot Best Track® Track  
[www.besttrack.com](http://www.besttrack.com)



## TWO BSA PWD NAILS BEFORE FILING

The shaft of the nail is actually a rough surface. There are 3 half circle and 2 more half circle crimp marks on the nail shaft near the nail head where the wheel bore rotates. There are 2 burrs on the underside of the nail head where the outside hub of the wheel rotates. Finally there are the 4 rough edges leading to the sharp nail point that will pass through the wheel bore.



## FINISHED BSA PWD NAIL READY TO BE AN AXLE FOR THE SMD PWD RACE



## AN OUT OF THE KIT/TUBE OFFICIAL BSA PINEWOOD DERBY® WHEEL OUTER TREAD SURFACE AND INSIDE VIEW

- 1) The texture of the outer tread surface. (possible imperfections)
- 2) The roundness and small lip of the inner edge of the tread.
- 3) The thickness and texture of the inside tread.
- 4) The thickness and texture of the inner sidewall.
- 5) The intact raised lettering and number used as well as the font used and the orientation to the inner hub:

MADE IN USA

7 (Mold #)

OFFICIAL BSA

- 6) The 3 mold marks alongside the lettering.
- 7) The roundness (coning) on the rim of the inside hub.
- 8) The reservoir that leads into the bore (hole in the middle of the wheel).



## AN OUT OF THE KIT/TUBE OFFICIAL BSA PINEWOOD DERBY<sup>®</sup> WHEEL OUTSIDE VIEW

- 1) The fully intact fluting (bumps) around the circumference of the wheel.
- 2) The smoothness of the outer sidewall.
- 3) The intact raised lettering used as well as the font used and *the* orientation around the outer sidewall.

BSA                      PINEWOOD DERBY<sup>®</sup>

- 4) The intricate lattice work between the sidewall and outside hub.
- 5) The 2 step down design of the outside hub.



## Frequently Asked Questions (FAQ)

- 1) Where and when and how long is the SMD PWD Race?

The District Race will be at the First Baptist Church at 3235 Linden St. in Bethlehem, PA on Saturday, March 2, 2019. Check-In begins at 8:00 A.M. The Race begins about 9:30 A.M. and usually ends **in the 12 o'clock hour**. Following the Race, the speed and specialty awards are determined. The Awards Ceremony ends about 1:30 P.M. The actual duration depends on the number of cars (up to 95), technical difficulties, appeals, etc. during the Race.

- 2) How much is the SMD PWD Race entry fee? What does the fee pay for?

The 2019 SMD PWD Race registration fee is \$7.00 per registered Cub Scout. Payee of the registration fee is determined by each Pack's **Committee**. The fee is used to cover the cost of the official patches given to all the registered Cub Scouts and volunteers as well as the speed and specialty trophies presented to the winners.

- 3) Will food be available?

YES. The hosting Pack and Charter Organization will have for purchase hot food and snacks and drinks for sale beginning at 8:00 A.M.

- 4) May I volunteer to help at the SMD PWD Race?

The hosting Pack and SMD PWD Race Committee would be grateful for volunteers. The SMD encourages at least one volunteer per Pack. However due to conflict of interest if you have a child in the Race you will not be able to be a Race Official. Reach out to SMD PWD Chair, Chris Van Camp at 513-253-8174 (M) or jcvancamp@yahoo.com.

- 5) Why are the District Rules even longer than last year?

The 2019 Rules have been expanded for clarity for the novice and the seasoned racing teams looking towards the District Race. Several rules have been given a greater emphasis due to misunderstandings from prior years. More diagrams and pictures have been added as well as this FAQ Section. The format and order of the Rules has been updated to follow the steps of construction as much as possible.

- 6) Are Lions and girls eligible to participate?

YES. Lions and girls are eligible to participate.

They will follow the same rules as the other ranks and Cub Scouts.

- 7) **What does from "scratch" mean?**

**From "scratch" means that the** racing team performs the construction of the Pinewood Derby® car from the beginning with components and parts not used in previous years or from pre-made car kits.

- 8) **What are the car's components and parts?**

**The Car's Components are:**

- a) The official BSA Pinewood Block or Wedge from the Kits.
- b) The 4 official BSA Wheels from the Kits or Tubes.
- c) The 4 official BSA Axles from the Kits or Tubes.

The parts are anything else added to the car.

9) How do we know if we have an official BSA Pinewood Derby® Car Kit?  
 The Official BSA Pinewood Derby® Car Kit is available in 2 different boxes. The current primary **box's** front is blue and yellow with a red and white car pictured and is Item #17006 Copyright ©2012. The less used alternative **box's front** is Christmas "gift wrapped" and is Item #17000 Copyright ©2009. Most Scouts will receive their Kit from their Pack Leaders who usually purchase the Kits in bulk from the Minsi Trails Scout Shop.

10) We purchased our car kit (or components) **from Michael's, Lowe's,** etc. And it said it was an official BSA Pinewood Derby® Car Kit (or components).

Will this qualify?

NO. These are aftermarket kits and they may have **the words "Pinewood Derby®"** because the words are copyrighted by the BSA but this does not indicate that the kit is the same as an official BSA Pinewood Derby® Car Kit. Not all the parts within the box may be official BSA components. To maintain fairness for all Cub Scouts the components of their car needs to be sourced directly from BSA.

In short, even if the kit is an official licensed kit- it is NOT permitted.

11) Can we use the Official BSA pre-cut Pinewood Derby® Wedge instead of the pinewood block in the Official BSA Pinewood Derby® Car Kit?

YES. Beginning this racing season, 2018-2019, the official BSA Pre-Cut PWD Wedge may be used. However NO other block/wedge is permitted. The Wedge is available at the Minsi Trails Scout Shop and at [www.scoutstuff.org](http://www.scoutstuff.org).

12) Can we use the Official BSA colored wheels instead of or along with the wheels in the Official BSA Pinewood Derby® Car Kit?

YES. Colored wheels are highly encouraged to promote creativity. However, ONLY the wheels in the list below may be used instead of or along with the wheels from the Official BSA PWD Car Kit. Any color combination of the Official BSA wheels may be used. Again NO other non-BSA wheels or any aftermarket BSA wheels are permitted. PERIOD. The following wheels (with Item #) are available at the Minsi Trails Scout Shop and/or [www.scoutstuff.org](http://www.scoutstuff.org).

a) Black	# 17553	Original
b) <b>Ragin' Red</b>	# 17554	Limited
c) <b>Screaming' Yellow</b>	# 17555	Supply
d) <b>Blazin' (Dark)Blue</b>	# 17556	due to
e) <b>Outrageous Orange</b>	# 17557	discontinuation
f) Glow (White)	# 647053	These are
g) Green	# 647054	new and
h) Pink	# 647055	glow under
i) Purple	# 647056	a Black
j) (Light) Blue	# 647826	Light

13) Can we use the axles included in the Tubes with the Official BSA colored wheels instead of or along with the axles in the OFFICIAL BSA Pinewood Derby® Car Kit?

YES. Only the axles included with the colored wheels listed above may be used instead of or along with the axles from the Official BSA PWD Car Kit. Again NO other non-BSA axle or any aftermarket BSA axles are permitted.

14) Are aftermarket axles allowed?

NO. Again aftermarket non-BSA or aftermarket BSA axles are NOT permitted.  
The Cub Scout and adult partner(s) must prepare **their car's** nails.

15) Can we bend any and/or all of the axles?

NO. Bent axles are NOT allowed. A bent axle has change in angle somewhere along its length.

16) Can any and/or all of the axles be canted?

YES. Any and/or all axles are allowed to be canted at a slight angle, but the axles themselves must be straight.

17) What is a canted axle?

A canted axle a straight axle throughout its length. It is inserted into the axle slot at a slight angle up or down in reference to the side of the car while viewing the car from behind or in front. Canting the axle can be used to have all four wheels touch the track.

18) Do the inspectors pull axles and/or wheels for inspection?

NO. Inspectors do not pull axles or wheels for inspection. But if axles or wheels are suspect, the racing team will be asked to pull the axles out for inspection of the axles and/or wheels.  
The racing team will be responsible to re-install the axles.

19) Can we secure the axles within the axle slot(s) with glue or some kind of cover(s)?

Ideally the entire axle within the axle slot will be visible for inspection. At least the tip of all 4 axles within the 2 axle slots must be visible for inspection.

MAYBE. The Inspector(s) need to be able to verify that 4 approved axles are in use on the car.  
The axles may be secured within the axle slot using a light application of a clear glue or a clear gel glue. The gel is less likely to move down the axle shaft towards the wheel.  
Make sure no sticky substance remains on the wheels

NO. COVERS are NOT permitted. If an axle guard is used to insert the nails then remove the guard and secure the axles with a clear adhesive. Also make sure no sticky substance remains.

20) Are air deflectors or air shields or weights allowed inside any wheel cavity?

NO. Nothing may be inside or cover the inner wheel cavity, even if the part is clear. For **inspection each wheel's inside cavity must have nothing within it.** Common names for the air deflector or air shield **include but are not limited to "Air Dam", "Air Guide", "Air Shields", "Wind Jammer" etc.** These all fall under the category of inner wheel air dams or wheel covers.

21) Can wheel treads be lathed?

NO. The wheel's outer treads CANNOT be lathed for the SMD PWD Race.  
This is contrary to the 2018 NYC World Championship PWD Rules.  
The wheels may only be LIGHTLY sanded, and/or polished to remove imperfections.

22) Is there any allowable tolerance for wheels extending beyond the front and/or rear of the body of the car?

NO. By using the factory wheelbase, and not removing either end of the car, no wheel will be able to extend beyond the front or rear of the car body proper.

23) Can the end(s) of the block be removed?

YES. You *may remove* the end(s) of the car but something must be added back to meet the overall 7 inch length requirement. Do not remove so much of the block that a wheel would extend beyond the length of the now shortened block, the new *car body proper*. This new shortened block is the car body proper.

24) What is the car body proper?

The *car body proper* is defined as the contiguous wood body itself and excludes attached wood parts, accessories of any material, or decorations. As an example, a bumper shaped from the original wood block that has *not* been dissected from the block is part of the car proper. However if an end of the car is cut away from the pinewood block thus shortening the block and then something is later reattached to that end of the car then that something is not part of the car body proper.

*This is a new rule that follows the 2018 NYC World Championship PWD Rules.*

25) Can we have a raised wheel?

NO. RAISED WHEELS ARE PROHIBITED.

26) Do any or all wheels have to be flat on the track?

NO. None of the wheels have to be FLAT on the track.

**This means that each wheel may be resting on the inner (or outer) edge of the wheel's tread.** To do this the axle of the desired wheel will be inserted into the axle slot at a slight angle up or down in reference to the side of the car while viewing the car from behind or in front.

27) Do all of the wheels have to be touching the lane surface?

YES. To compete at the SMD PWD Race all wheels **MUST** be TOUCHING the track through a full revolution. This is easier said than done. To ensure that all wheels are touching place the car on a smooth, level surface, then gently and without applying downward pressure move the car back and forth. If a wheel is not touching place a flat toothpick (or card stock) under the raised wheel. Sand ½ inch of the toothpick down until the raised wheel is just touching the toothpick. Then reinsert the axle along with the ½ inch long flat toothpick (or card stock) into the axle groove with the toothpick (or card stock) between the axle and the top of the axle slot.

28) What are the allowable wheel dimensions?

Typical Dimensions of a standard wheel (out of the kit or tube):

- a) The outside diameter is about 1.184 inches.
  - i) The overall diameter must not be less than 1.170 inches.
- b) The tread thickness is 0.068 inch.
- c) The tread width (fluting to inner edge) is about 0.320 of an inch.
  - i) The tread width must not be less than 0.310 inch.

Are lights allowed on the car?

YES. Lighting accessories are encouraged to promote creativity. Be cautious not to exceed the car dimension rules. In addition make sure the accessory is definitely secure, with no fragile or loose parts. If the lights are on the belly be aware that the car is stopped quickly after the finish line by a skid strip which could damage the light strip. Also remember to maintain the 3/8 inch belly clearance.

29) Are side fenders allowed?

YES. Side fenders are highly encouraged to promote creativity. Remember not to exceed the car weight and dimensions rules. Also make sure the fenders will not touch any part of the center guide rail, lane surface or the wheels.

30) Can material (weight) be added directly to the bottom of the car?

YES. WITH CAUTION.

The ideal placement of the **main bulk of the car's weight is in the back of the car and *within*** the car body. Placing weight *into* the car is advantageous for many performance reasons. If weight cannot be placed into the car body 3 concerns appear.

- a) Very little material (weight) can extend below the bottom of the car before interfering with the 3/8 of an inch belly clearance limitation. This clearance is to ensure that no part of the car except the wheels touch the center guide rail.
- b) If a long continuous flat weight and/or an axle guard(s) is used then the axle slots will be covered and interfere with the axle inspection.
- c) The car is stopped quickly by a skid strip, so the smoother the belly the more likely the car will remain on the track after the finish line.

31) Can oil be used instead of graphite to lubricate axles?

NO. Oil is prohibited. If graphite is not evident, or oil is suspected, graphite will be applied to all wheels by the Inspectors.

32) How can we make sure that the car does not weigh too much or too little?

Decide on the parts that will be added to the components of the car. Then take these items as an unfinished car to a commercial scale that measures ounces, like a grocery store self check out. Have the items total about 4.85 ounces. The remaining 0.15 ounce is for paint and graphite. Also using putty (ideally tungsten putty) **in a prepared reservoir on the car's belly is a good way to add or remove weight as needed.** FYI - the District scale reading is final and is calibrated by the Northampton County Division of Weights and Measures.

33) Why must the car not be altered once entered at the pack level?

The reason is to maintain fairness to *all* the Cub Scouts throughout the District.

The intention is for the car to perform at the District Race as it did at the Pack race.

a)

34) Where else could we race our Pinewood Derby® car beyond the SMD PWD Race?

Minsi Trails does not have a Council Race.

However, the three Cub Scouts in each Rank with the fastest cars (who receive the speed certificates) at the SMD Race are qualified to participate in the NYC World Championship Pinewood Derby® Race (NYC Race). The NYC Race has historically been held the last Saturday of June in New York City. Cars mostly from the Northeast compete, but eligible cars from as far as California attend and compete. The NYC Race is a national level race sponsored by the NYC Council.

On June 30, 2018, Minsi Trails Council was represented by 18 Scouts and their families at the 4<sup>th</sup> annual NYC Race. 16 of the Scouts were in the Stock Division which included 6 Scouts from SMD.

In addition, the Mid-America Council National Pinewood Derby® Race is scheduled for Saturday, April 27, 2019. The rules are different for this Race. There are no pre-qualification requirements. There are 6 Race Divisions covering Cub Scouts and Kids and Adult including graphite and oil lubrication. You may enter a new car for each Division. You do not have to attend the race. You can mail the car(s) in and then watch live on the web. Find out more at <http://www.mid-americaderby.com/>

## 2019 South Mountain District Pinewood Derby® Race Registration and Check-In Checklist

**Scout's** Name: \_\_\_\_\_

**Scout's** Rank: \_\_\_\_\_

**Car's** Name: \_\_\_\_\_

**Scout's** Pack: \_\_\_\_\_

Welcome racing teams to the 2019 South Mountain District (SMD) Pinewood Derby® (PWD) Race! Congratulations Racers. Of the over 600 Cub Scouts District-wide you are one of 90 Cub Scouts competing today. Remember that we are all Scouts first and racers second. Ultimately, we are all here to HAVE FUN, share the excitement of competition, and to support one another, win or lose. In other words, foster good sportsmanship!

A big thanks goes out to ALL the volunteers making our District Race possible, including our hosts Cub Scout Pack 346, and First Baptist Church, our hosting Charter Organization. Also thank you to the Order of the Arrow Car Inspection Team. In return, we appreciate your patience with the inspection and race operation processes.

A note about safety: no car may pose a hazard to the other cars, the track, people, or the facility. Please be respectful to one another. Follow the Scout Law and encourage others to do the same. Remember the **inspectors' decisions and ultimately the SMD Activities Chair's decisions are final.**

Copies of the Race Operation rules are on the Pre-Check-In table with this form. While waiting in line, review how the race will operate and get to know your fellow Scouts. The Church has a policy of no food or drink allowed in the gym.

We all need to do our best, including being fair with one another and racing by the rules. You may remember seeing the *No Modifications* paper at the end of your Pack race. So to compete in the SMD PWD race, your car needs to pass the District rules, which are usually the same as your Pack PWD rules.

On the back of this form is a checklist with a summary of the 2019 SMD PWD Build Rules. It is needed by the inspectors to approve the car to compete for a Speed Trophy. Should the car have an issue you will be informed. For the most part, only the reduction of **weight and the addition of graphite are permitted. Don't** stress. A limited Pit Stop Station is available on the other side of the gym for necessary adjustments, though you will need to go back through the inspection line.

Once your car is given an ID Number to race no one except the Car Inspection Team or the Race Operation Crew may handle the car. Should a car become damaged, you and your Racing Team will be given about 6 minutes for repairs. Refer to the Race Operation rules.

If the car does not meet the 2019 SMD PWD Rules, it MAY still participate and is still eligible to win one of the Specialty Trophies, just not a Speed Trophy. So, we HIGHLY encourage you to race. You, as a racing Cub Scout, will be able to vote for your favorite of each of the Specialty Trophies. You will also receive a SMD PWD Patch.

HAVE FUN and enjoy the Race!!

Car Inspection Team Use

Scout Registered? \_\_\_\_\_

Car ID Number: \_\_\_\_\_

On Back Top of Car

Car Registered? \_\_\_\_\_

Car's Pack Standing: \_\_\_\_\_

SPEED / SPECIALTY

SPECIALTY

## To Be Completed by Car Inspection Team

## Overall Car &amp; Weight Inspectors

- |                                   |   |
|-----------------------------------|---|
| _____ Car Presented by Cub Scout  | _____ Cub Scout in Class <b>"A" uniform</b> |
| _____ Racing Team Present         | _____ Scout Built This Season from Scratch  |
| _____ <u>BSA PWD PINEWOOD</u>     | _____ Unaltered Since Pack Inspection       |
| _____ <u>WEIGHT ≤ 5.00 OUNCES</u> | _____ No Moving Weights or Liquids          |
| _____ If Lights, Turned Off       | _____ No Fragile or Loose Objects           |

## Dimensions Inspectors

- |   |  |                   |
|---|--|-------------------|
| _____ LENGTH = 7"                       | _____ OVERALL WIDTH ≤ 2¾"                        | _____ Height ≤ 6" |
| _____ WIDTH (Between Wheels) ≥ 1¾"      | _____ Original Wheelbase 4 3/8" Used             |                   |
| _____ No Protrusion Beyond Starting Pin | _____ <b>Wheels Don't Go Beyond</b> Car Body     |                   |
| _____ Front & Back Lengths 1" & 1 5/8"  | _____ GROUND CLEARANCE ≥ 3/8"                    |                   |
| _____ Bottom Front of Car ≤ 1" High     | _____ Nose ≥ ½" <b>Wide</b> , Centered Front     |                   |
| _____ No Sticky Substance/Wet Paint     | _____ <u>GRAVITY ONLY</u> / No Propulsion System |                   |

## Axles Inspectors

- |  |  |
|--|--|
| _____ <u>4 BSA PWD AXLES</u>                 | _____ All 4 Axle Tips (at least) Visible |
| _____ 4 Smooth but Unaltered Axles           | _____ <u>GRAPHITE POWDER ONLY</u>        |
| _____ 2 Wheels & 2 Axles per Side in Grooves | _____ 2 Axle Grooves Visible             |

## Wheels Inspectors

- |   |  |
|---|--|
| _____ <u>4 BSA PWD WHEELS</u>           | _____ 4 Flat Treads Parallel to Bore   |
| _____ No Wheel <u>ALTERATIONS</u>       | _____ No Inside/Outside Wheel Covers   |
| _____ All 4 Correct Lettering/Numbering | _____ All 4 Sidewalls Intact (Fluting) |
| _____ No Material Added/Removed Wheels  | _____ ONLY Light Sanding of Wheels     |
| _____ ONLY 4 Wheels Contact Track       | _____ <u>NO RAISED WHEEL</u>           |
| _____ No BEARINGS/BUSHINGS/WASHERS      | _____ No SPRINGS/SUSPENSION            |