

NORTHAMPTON DISTRICT PINEWOOD DERBY® RACE GUIDE

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Introduction

The purpose of the Pinewood Derby® Race is to help the Cub Scout build a team relationship with their adult partner (Akela), to experience the sense of accomplishment and the excitement of competition, to learn Win/Lose good sportsmanship, and to have fun.

Please read the following together.

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

And while each of us wants to see our car win,

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

"Do Your Best"

and practice good

Sportsmanship

Three skills that the Cub Scout can expect to learn from the Pinewood Derby® experience are to build a car (the more creative the better), and to follow the rules to build that car (or any other future project) and the proper behavior expected during the race (or any other group competition).

The first expectation is to recognize that each person's building skills are different. This includes you and your Akela. Be patient with yourself and others during construction. Do not be afraid to ask for help. To the experienced Racing Teams, share your knowledge and skills with less experienced Teams. Make the time and focus on building YOUR car so when it is done you will be proud of the results. Remember, you and your friends/Den/Pack are individuals first and racers second. These ideas can be called having respect for yourself and 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 in a timely manner. When everyone follows the intention of the rules then no one should 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 must 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 Evolution and Expectations

Shortly after the internet's introduction, tips and tricks for excelling at the BSA Pinewood Derby® (PWD) Race spread rapidly beyond the local Pack level. The 2021 restructuring of the 6 former Districts into the now 5 County Districts within our Minsi Trails Council (MTC) brought a more recent change. Not to mention the changes caused by COVID-19 for far longer than expected. These events created the opportunity to introduce new PWD Race Rules for our new Northampton District (ND). These new Rules are designed to limit confusion for the Cub Scout, their Akela, and their Pack. The ND PWD Rules (Rules) are nearly identical to the Stock Division Rules of the NYC World Champion Pinewood Derby® Race (NYC Race Rules), a nearby and leading national race.

Our Northampton District includes Packs from the former Forks of the Delaware, North Valley, and South Mountain Districts as well as Scout Reach. These former Districts' old PWD Rules included the legacy rules found in the BSA PWD Car Kit box. However, each District had a few small variations of non-legacy rules. But overall, the Rules were very similar to one another and fit well with the NYC Race Rules. Thus, our ND PWD Race Rules is the merger of all our former Districts' PWD Race Rules that follows a national Race's Rules.

To further reduce confusion, this ND PWD Guide (The Guide) can be used by the novice to the experienced Racing Team to understand the intentions of the ND PWD Rules. This Guide is not the Rules. This Guide is the expanded details of the Rules with suggestions and hints, 9 pages of illustrations, and 8 pages of questions and answers (Q&A). Also included, for those moving onto the District Race, are the Congratulations form, the actual ND PWD Race Check-In and Inspection Checklist form, and finally the ND PWD Race Operations Rules.

In the past Packs were free to follow their own rules. Most Packs followed their former District Rules with slight modifications for specific needs but still enabling their best cars to advance to their District PWD Race. Today Packs are still free to follow their own rules or to follow the ND PWD Rules with or without modifications. Also, Packs may choose to attend or not attend the ND PWD Race. What this means to you the Racing Team is to be aware of these differences. This Guide will help all skill levels to learn and also have fun at the Pack race while allowing the competitive Racing Team to advance to the ND PWD Race and maybe beyond. After the ND PWD Race and at the discretion of the Racing Team, the 3 fastest cars per Cub Scout Rank are eligible to advance to the NYC Race. In the past it has been held on the last Saturday of June.

On the surface the purpose of a District Race is to determine which cars are the fastest. However, the ND Race Committee's underlying goal is for everyone within the District to come together and to share the fun while the Scouts further learn and practice good sportsmanship during a friendly competition.

To *compete* for the chance to earn a speed trophy at the ND PWD Race your car must meet ND PWD Rules. So, to the competitive Racing Team: learn the rules, understand the rules, and review this Guide. Reach out to the right people to answer your questions. Attend the Champ Camp at the MTC Scout Shop to be held on the first or second Saturday of January. Look for the virtual BSA Champ Camps via www.scoutshop.org/pinewood-derby. The PWD experience is like life, the more you put into it the more you get out of it. By being in any competition, *you are* expected to learn and follow the Rules and to respect the decisions of the Referee.

If during the Inspection the car does not comply with the ND PWD Rules it *MAY* be adjusted to do so. This adjustment(s) is determined on a case-by-case basis by the ND Race Committee. Essentially, if the adjustment(s) does not enhance the car's performance the car *should* pass. However, if the car is unable to comply with the Rules but it is safe to race it can still *participate* in the race. However, the car *is not* eligible to *compete* for a speed trophy. Once you are at the ND PWD Race, the Race Committee wants your car to race so you may experience and still enjoy the District Race.

Overview of the Northampton District (ND) Pinewood Derby® (PWD) Race Rules

To *compete* for a *speed* trophy at the ND PWD Race your car must comply with the ND PWD Race Rules which is the *checklist* on the other side of this paper. All cars during the ND Check-In will be inspected using these Checklist Rules. For the latest info on the ND PWD refer to www.minsitrails.org, & in the blue banner hover over “Districts”, select “Northampton District”, & scroll down the Upcoming Events Listed & select the ND PWD Race.

To learn more, find & attend or even create a PWD workshop, find that experienced Racing Team, attend the Champ Camp at the Council Scout Shop, &/or refer to www.scoutshop.org/pinewood-derby. The more you put into PWD the more you get out of it. But be careful of irrelevant information from the web or in person. SO ...

***** ASK QUESTIONS WELL BEFORE YOUR PACK'S RACE *****

Reach out to your Pack PWD Chair for clarification of your Pack's rules & its race.

Refer to the *ND PWD Guide* for clarification of the ND PWD Race Rules.

For the final answer to questions about the ND PWD Race & its Rules, reach out to the ND PWD Chair, Chris Van Camp at 513-253-8174 (M) or at MTCNCDPWD@gmail.com.

If you are following the Checklist Rules & are alert to the overlooked details listed below, you *should not* have a problem during the Inspection. However, if the car does not pass, the Racing Team (the Cub Scout & their Akela), MAY be allowed, with approval from the ND Race Committee, to adjust the car as needed on a case-by-case basis. If the car still cannot pass the Inspection & it is *safe*, it can *participate* in the ND PWD Race. However, the car is *not* eligible to win a speed trophy, but it *IS* eligible to win a specialty trophy.

Specialty Trophy Categories

Best Cub Scout Theme Most Patriotic Funniest Best Not A Car Most Unique

These overlooked details cause 99% of the violations during the Inspection

- 1) The car must be safe to race. The car cannot interfere with the other cars & cannot have ANY loose, fragile, dangerous parts, etc. An unsafe car, to person or property, cannot even participate in the ND PWD Race.
- 2) The car's "core" MUST be constructed using the components from the Official BSA Pinewood Derby® Car kit box #17006 (2018© &/or 2012©) &/or #17000 (2018© &/or 2009©). The components in these boxes include:
 - The BSA Pinewood Block The 4 BSA Nails The 4 BSA Wheels
 - a) *Alternatives*: Only from a BSA Scout Shop, the BSA Wedge & the BSA Tubes containing Wheels & Nails.
 - b) ONLY go to your Pack PWD Chair &/or a BSA Scout Shop to get a legal Kit or Wedge or a Tube of Wheels & Nails, *EVEN* if a component breaks. Do *NOT* use any other sources, they will *NOT* pass the Inspection.
- 3) You *must* construct your car. No cars &/or components from previous years, prefinished, professional, etc.
- 4) The ND scale is probably more precise than your Pack's scale. So, BE PREPARED to remove a little bit of weight (e.g., by use of putty in a hole) to comply with the maximum weight of 5.00 ounces.
- 5) The ENTIRE car MUST meet all the dimension requirements: heights, lengths, & widths.
- 6) If anything is added to the car's underside it must be no more than 1/8" thick & no more than 1 1/8" wide & centered. AND do **NOT** cover the axle slots. (Try to put weight *inside* or on *top* the back 1/3 of the car.)
- 7) The BSA pinewood block's pre-cut slots MUST be used by the axles. NO OTHER axle slots permitted.
- 8) The 2 axle slots MUST be visible to inspect. Do **NOT** cover the axles. If an adhesive is used, make it clear.
- 9) All 4 wheels MUST be BSA Wheels. Colored wheels are allowed. Only LIGHT SANDING to remove MINOR tread imperfections is permitted. *No alterations!* Nothing removed! Nothing added! No outer/inner coverings!
ALL 4 wheels MUST be in CONTACT with the lane at the same time throughout their full rotation!
- 10) ONLY a graphite-based DRY lubricant is permitted. It cannot be applied after the Inspection.

The Northampton District (ND) Pinewood Derby® (PWD) Checklist Rules

Weight/Overall Inspector

_____ Guided by the **Scout Law & Oath**
(Have Fun & Do Your Best)

_____ Car Submitted by **Registered Scout**
(Lions to Current School Year AOLs & Their Racing Team)

_____ **Unaltered** Since Pack Inspection
(ONLY More Graphite & Wheel Cleaning Permitted)

_____ **No Sticky Substance**
(NO: Excess Glue, Wet Paint, Tape, Magnets, Etc.)

_____ **No Moving Weights or Liquids**
(All Parts Solid, Secure, & Safe)

_____ **WEIGHT ≤ 5.00 OUNCES!**
(Not Grams. Up to 5.004 Ounces Permitted. NOT 5.005)

_____ **Cub Scout** shall be in **Class A Uniform**
(Represent Your Pack Well)

_____ **Scout Built This School Year from Scratch**
(NO: Repeats, Repaints, Old Components, Professional, Etc.)

_____ **BODY Component is a BSA PWD BLOCK!**
(NO: Other Material, Blocks, Kits, Prefinished, Professional, Etc.)

_____ **If Lights/Sound Attached, Turned Off**
(However, Lights & Sounds are Encouraged for Creativity)

_____ **No Fragile or Loose Parts**
(No Glass, Mercury, Dangerous Parts, Etc.)

_____ **GRAVITY POWERED ONLY!**
(NO PROPULSION SYSTEM. PERIOD!)

Dimensions Inspector

_____ **OVERALL LENGTH = 7" (Ideally) to 6 3/8"**
(Caution Block's Length, Cutting Ends, Adding Lights, Pipes, Etc.)

_____ **OVERALL WIDTH ≤ 2 3/4"**
(Including Wheels & the Axle Heads & *Fenders*, Etc.)

_____ **Wheels Do Not Extend Beyond Body**
(Wheels MUST Remain Behind PWD Block's Front & Rear Ends)

_____ **WHEELBASE LENGTH = 4 3/8"**
(Do NOT Make New Axle Slots or Extend Wheelbase)

_____ **Underside Attachment Width ≤ 1 1/8"**
(Centered & NO Sharp &/or Abrasive Material)

_____ **Bottom of Nose (Front) ≤ 1" High**
(Up Curved Nose Allowed but Higher is not Better)

_____ Height ≤ 6" (Lower the Better)
(ND PWD BestTrack® Champ Timer Clearance is 6 1/2")

_____ **WIDTH Between Wheels ≥ 1 3/4"**
(Inside Edge *Between Wheels* Using Same Axle Slot)

_____ **No Protrusion Beyond Starting Pin**
(NOTHING May Extend Beyond the Starting Side of the Pin)

_____ **Block End Lengths** are between 1" & 1 5/8"
(From Each Associated Axle Slot to the PWD Block Ends)

_____ **GROUND CLEARANCE ≥ 3/8"**
(NO MORE than 1/8" Thickness Added to Underside of Car)

_____ **Nose (Front) Width ≥ 1/2", Centered**
(No Pointy Nose)

Axles Inspector

_____ **AXLES are 4 BSA PWD NAILS!**
(NO Other Axles. Prefinished, Professional, Etc.)

_____ **2 Wheels & 2 Axles per Axle Slot**
(Each Axle's Pair of Wheels MUST be Across from the Other)

_____ **Smooth** (if Desired) **Unaltered Axles**
(ONLY Filed, Sanded, Polished, & Graphite Permitted)

_____ **NO BEARINGS/BUSHINGS/WASHERS!**
(ONLY Axle, Wheel, PWD Body, & Graphite Permitted)

_____ **ONLY DRY GRAPHITE-Based Lube!**
(NO OIL! No Liquid Lubricant! PERIOD!)

_____ **Both Original Axle Slots Used & Visible**
(ONLY Adjustments Allowed: True Slots. Pre-Drill to Fit Axles)

_____ **Each Axle Shaft is Visible**
(Caution the Clarity of Adhesive If Used)

_____ **NO SPRINGS/SUSPENSION!**
(PERIOD! Not Even the Body)

Wheels Inspector

_____ **WHEELS are 4 BSA PWD WHEELS!**
(Colored Wheels Allowed. NO: "CHINA", *Prefinished*, *Professional*, Etc.)

_____ **Tread is Flat & Parallel to Bore**
(NO Reshaping Tread at ALL. Lattice MUST Face Outward)

_____ Correct **LETTERS/NUMBERS** Intact
(BSA / PINWOOD DERBY®) (OFFICIAL BSA / # / MADE IN USA)

_____ **NO MATERIAL REMOVED IN/OUT!**
(NO: Lathe, Narrow, Lighten, Hub Stepdown Removal, Etc.)

_____ **NOTHING but 4 Wheels Contact Lane**
(Wheels NOT Required to be Flat on Track. Canted Allowed)

_____ **NO WHEEL ALTERATIONS!**
(ONLY Adjustments Allowed. Polish: Bore, Hub, & Tread)

_____ **NO MATERIAL ADDED** Except Graphite
(NO: Inside/Outside Cover, Hubcap, Paint, Nail Polish, Etc.)

_____ **Outside FULLY Intact & UNALTERED**
(Small Dotted Bumps Along Tread & Sidewall. Lattice Also)

_____ **ONLY LIGHT SANDING Permitted**
(ONLY TO REMOVE **MINOR** SURFACE **IMPERFECTIONS!**)

_____ **NO RAISED WHEEL! PERIOD!**
(NO GAP Under Any Wheel. Test on Smooth Rigid Flat Surface)

General Rules Explained

- 1) Have fun and do your best.
- 2) The Scout Law and Oath are the guiding principles for this friendly competition.
- 3) Good behavior and good sportsmanship are expected by all attendees.
All decisions of the ND PWD Race Committee are final.
Any person not following the rules/decisions may be asked to leave along with their respective PWD car.
- 4) Each Pack may develop rules and operate *their* PWD race as desired.
The ND PWD Rules *only* governs cars and Cub Scouts that attend the ND PWD Race.
- 5) Each Pack may send up to 5 Cub Scouts (Racers) and their eligible cars to the ND PWD Race.
- 6) ***** ASK QUESTIONS WELL BEFORE YOUR PACK'S PWD RACE. *****
Reach out to your Pack PWD Chair for clarification of your Pack's rules and its race.
Refer to this *ND PWD Guide* for clarification of the ND PWD Race Rules.
For the final answer to questions about the ND PWD Race and its Rules, reach out to the *ND PWD Chair, Chris Van Camp at 513-253-8174 (M) or at MTCNCDPWD@gmail.com.*
- 7) To take part in the ND PWD Race the youth must be a registered Cub Scout with a ND Cub Scout Pack at some point in the current school year between January 1 and the day of the ND PWD Race. The Scout also must have participated in their own Pack's PWD race during the current school year as a registered Cub Scout with their current school year built car.
- 8) An Arrow of Light (AOL) Cub Scout that raced a car at their Pack race is permitted to race at the ND PWD Race even if they have transitioned as a registered Scout to a BSA Troop by the day of the ND PWD Race.
- 9) The Cub Scout shall, within their own abilities, build most of their OWN car. The Cub Scout's adult partner(s), the Akela, is encouraged to supervise, guide, and assist the Cub Scout. Scout's honor.
- 10) The whole car must be built from scratch using raw components and parts during and for the current PWD racing season which is the current school year. The car's parts are anything that is not the car's components. The car's components are the pinewood block, the 4 nails, and the 4 wheels. Together the components are called the car's "core".
- 11) The car's core **MUST** be from an Official BSA Pinewood Derby® Car Kit (Kit) and/or from Official BSA component kits (Wedge and Tubes) from an approved BSA Scout Shop (e.g., Minsi Trails Council Scout Shop) or through www.scoutshop.org. **No Exceptions.**
 - a) (Illustrations 3 and 4) The 2 **Primary Kits**: Item # 17006 that have copyrights of 2018© or 2012©
 - b) (Illustration 5 and 6) The 2 "**Gift Wrapped**" **Kits**: Item # 17000 that have copyrights of 2018© or 2009©
 - c) Additionally, only the following 11 component kits are permitted:
 - i) (Illustration 7) The BSA Pinewood Block Alternative:
BSA Pre-Cut Pinewood Derby® **Wedge** Kit: Item # 614417 with copyright 2011© or later.
 - ii) (Illustration 8) Any color combination of the BSA Wheels with BSA Nails packaged together in a **Tube** in the BSA Wheels and Axles Kits with Item # (no copyright years):

(1) Black	17553	(6) Glow (White)	647053
(2) Ragin' Red	17554 (discontinued 2018)	(7) Green	647054
(3) Screamin' Yellow	17555 (discontinued 2018)	(8) Pink	647055
(4) Blazin' Blue	17556 (discontinued 2018)	(9) Purple	647056
(5) Outrageous Orange	17557 (discontinued 2018)	(10) Electric Blue	647826

- 12) Previous years and/or pre-finished cars are prohibited. Previous years components used for this season's racing in whole or in part are prohibited. Previous years parts should not be reused. Any aftermarket car kit or aftermarket components are prohibited. Cars and/or components cannot be sent to and/or received from third parties for construction and/or tuning and/or performance enhancements.
- 13) The car's appearance must be age and Cub Scout appropriate.
- 14) The car **MUST** be safe to race. The car **MUST** not purposely interfere with the other cars. The car **MUST** not cause injury or damage to persons, the track, and/or the facility.
- 15) The Scout *shall* wear their current Class A uniform to the ND PWD Check-In and Race.
- 16) The Scout and at least 1 adult partner, an Akela, is the Racing Team. The Cub Scout *shall* personally submit the car at the ND Check-In and *shall* be attendance for the ND PWD Race.
- 17) The ND PWD Race is expected to use a 4-lane 42-foot Best Track® aluminum track with a manual spring release starter pin (Illustration 2) in concert with a *The Champ* electric timer (timer) that is managed by the GrandPrix Race Manager™ software (software).
- 18) This rule is for all cars but mostly for the up to 5 cars per Pack that advance to the ND PWD Race. Once your car is accepted by your Pack's Check-In it cannot be altered or modified or fixed or repaired, etc. *This is the reason for asking questions well before your Pack's PWD race.* ONLY the following 3 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 (such as after the Pack race) is permitted.
 - b) You may reapply the graphite, or graphite blend, that was used at your Pack race to the attached racing wheels and racing axles before the ND PWD Race Check-In.
 - c) You may clean debris off the wheels before the ND PWD Race Check-In.
- 19) Finally, the ND PWD Chair reserves the right to amend, adjust, omit, and further clarify the rules as needed. Amendments to the rules will be published in as timely a fashion as possible to minimize impact to the day of the ND PWD Race. For the latest information on all things ND PWD refer to www.minsitrails.org and in the blue banner hover over "Districts", select "Northampton District" and scroll down under the "Upcoming Events" Listed and select the "Northampton District Pinewood Derby Race" link.

Examples of Prohibited Items

- 1) Aftermarket components used for racing: pinewood blocks or axles or wheels.
- 2) Moving weights or liquids.
- 3) Axles and wheels attached to any device that mechanically alters rotation or spin.
- 4) Solid one-piece rod style axles.
- 5) Axle guards. Avoid even clear axle guards.
- 6) Liquid lubricants actively wet or dried.
- 7) Bearings, bushings, nylon shims, washers, etc.
- 8) Springs or suspension systems.
- 9) 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.

- 10) Magnets, propellants, or propulsion systems, starting devices, or finish line devices.
- 11) Wet paint or sticky substances.
- 12) Loose objects on or in the car. All weight (items) must be securely fastened or embedded in or on the car.
- 13) Glass or excessively fragile or dangerous parts.
- 14) Sharp objects or abrasives on the underside of the car.
- 15) Electronic or lighting or sound devices in use during the Race. Lights (Illustration 16) may be physically on the car; however, they need to be turned off. The lights are turned off to avoid possible interference with the LED light at the finish line.

Car Weight and Dimensions Rules Explained (Illustration 9)

- 1) The car's overall weight cannot exceed 5.00 ounces measured on a scale accurate to 1/1,000th of an ounce. An overweight car needs to be reduced to 5.004 ounces or less before being accepted. The official Race Scale is final. The ND PWD Scale is a jeweler scale that is calibrated with weights approved annually by Northampton County Weights and Measures. Big speed hints: weight is the car's "engine". The closer the weight is to 5.00 ounces the better the performance. However, where the weight is concentrated is just as important. Place the bulk of the weight inside the car (or on top) *and* at the back third to quarter of the car. Ideally the finished car's Center of Gravity (COG) should be 1 inch to $\frac{3}{4}$ inch in front of the rear axle slot. Less than $\frac{3}{4}$ inch improves speed but at the cost of control (alignment).
- 2) All weight (components and parts) must be securely fastened on or embedded in the car.
- 3) The car must be freewheeling. The **ONLY** source of power is gravity.
- 4) The car's core consists of the *Components*: the BSA pinewood block (or BSA wedge), the 4 BSA wheels and the 4 BSA nails, everything else is a *Part*. A Part is further defined as, but not limited to, accessories, attachments, cosmetic, decals, details, driver, glue, graphite, Lego®, non-racing nails, non-racing wheels, paint, steering wheels, tape, weights, etc. Parts do not need to be from a BSA source.
- 5) The car and anything added to it must be within the overall weight, heights, lengths, and widths limits.
- 6) The car's overall height cannot exceed 6 inches due to the height of the finish line timer. Note: be aware of the height of your Pack's finish line device which may be lower. Speed hint: the shorter the car's height the better the performance.
- 7) The car's overall length must be no more than 7 inches. Ideally it should be 7 inches. The pinewood block's 2 pre-cut slots set the car's wheelbase at $4 \frac{3}{8}$ inches, center to center. These pre-cut slots also define the underside of the car. One slot is and must be 1 inch from the nearest end of the car. The other slot is and must be no less than 1 inch and no more than $1 \frac{5}{8}$ inches from its nearest end of the car. Also, cutting off part of one end of the car and adding this cut piece to the other end of the car is not permitted. So ...

	1 inch from one end of the car to its nearest axle slot
+	$4 \frac{3}{8}$ inches for the car's wheelbase between the axle slots
+	<u>$1 \frac{5}{8}$ inches (no more than) from the other end of the car to its nearest axle slot</u>
=	7 inches overall (ideally) (Illustrations 4 and 7)
- 8) Either one of the ends of the pinewood block can be the front of the car. Speed hint: the end of the block that measures 1 inch from the axle slot should be the car's rear. The other end that measures $1 \frac{5}{8}$ inches should remain that length for maximum potential energy.

- 9) Wheels cannot extend beyond the front or rear of the “car body proper”. This rule is for the Racing Teams that shorten the car’s overall length below the 7 inches. Refer to the Q&A Section, Q20, Q21, and Q22.
- 10) If side fenders (Illustration 15) are present, they cannot extend beyond the front or rear of the car body proper. For definition of “car body proper” refer to Q&A Section Q22.
- 11) To avoid interfering with the other cars, the car’s overall width, including wheels and axles (including nail heads) and any fenders or cosmetics, or parts must not exceed $2 \frac{3}{4}$ inches.
- 12) To avoid the wheels from rubbing the track, the width between each pair of wheels per axle must clear the width between the top of the lane’s 2 vertical center guide rails which is $1 \frac{5}{8}$ inches (Illustration 1). The width between the *inside* tread edge of each wheel of the front pair as well as the rear pair of wheels cannot be less than $1 \frac{3}{4}$ inches. Speed hint: the width of the pinewood block is already $1 \frac{3}{4}$ inches. So, the less distance between the wheels can result in less back and forth wobble of the car while traveling down the lane thus improving performance.
- 13) To avoid the bottom of the car from rubbing the lane and/or the 2 vertical center guide rails, the car’s minimum underside clearance (height) shall be at least $\frac{3}{8}$ inch between the entire bottom of the car and the bottom of the racing wheels (i.e., the lane) (Illustration 1). If something is added to the underside of the car, ensure that it is not more than $\frac{1}{8}$ inch thick. In addition, any attachment on the underside should be no wider than $1 \frac{1}{8}$ inches and be centered. This gives clearance from the top and the inside portion of the lane’s 2 vertical center guide rails. The width between the top of the 2 center guide rails is $1 \frac{5}{8}$ inches and their outside edge heights are $\frac{1}{4}$ inch while the inside height is $\frac{3}{16}$ inch. And the width between the inside portion of the 2 center guide rails is 1 inch (Illustration 1). Speed hint: put weight inside vs. under the car for better performance. Side fenders may be lower outside the rails but cannot touch the track/lane/rails. Speed hint: fenders can slightly improve performance, but their weight, shape, and placement must be carefully considered and installed. Refer to the Q&A Section Q19.
- 14) The car’s underside must be void of sharp and/or abrasive material so as not to damage the stop section of the track (Illustration 3).
- 15) Nothing of the car may protrude beyond an imaginary line drawn perpendicular to the lane that extends across the top (start) side of the lane’s starting pin.
- 16) The bottom of the front edge of the car must be no more than 1 inch above the lane’s surface. And the front end of the car must be at least $\frac{1}{2}$ inch wide at the center of the car. Speed hint: the lower and wider the nose of the car the better the performance. The BestTrack starting pin drops quickly enough that a car cannot gain a speed advantage with a high front edge (think a body at rest - inertia). Also, if the underside of the nose is a dark color as well as wider than $\frac{1}{2}$ inch the finish line LED sensor “sees” the car “better”.
- 17) Other than the 4 racing wheels, no part of the car or any attachment to the car may be capable of touching the track. Do not have excessive underside weight/attachments. Also, no part of the car or any attachment to the car may be capable of encountering another car.

Axle Slots and Axles Rules Explained

- 1) The BSA pinewood blocks’ 2 pre-cut slots need to be visible (Illustration 4, 7, and 9). These slots are also called the axle slots or grooves. These pre-cut slots may be trued and/or straightened. They may also be drilled out slightly to allow for easier axle insertion. The remainder of the pre-cut slot must be left untouched except to correct construction errors, (repair cracked or broken wood with glue, putty, etc.). Speed hint: Truing the axle slot (if needed or desired) and drilling the axle slots should be THE first step of

construction. Using the BSA PWD Axle Guide Tool (# 17076) available at the BSA Scout Shop is great for proper axle insertion. Big speed hint: alignment is paramount to achieve top performance.

- 2) Only raw nails (Illustration 4, 8, and 11) from the BSA Kits and/or the BSA Tubes are permitted to create racing axles (Illustration 12). These nails must be sourced only from a BSA Scout Shop (e.g., Minsi Trails Council Scout Shop) or www.scoutshop.org. Only the Racing Team may improve the nails. Do not acquire any BSA nail improved or raw through a third party. If any racing nail is replaced for any reason, the replacement nail **MUST** still be from an approved source (BSA) & from the BSA Kits and/or the BSA Tubes.
- 3) All the Axles Rules below are to ensure everyone understands what is and is not permitted in the preparation of the axles. The proper preparation of the BSA nails into racing axles takes time and patience. Nails used as racing axles may **ONLY** be filed, sanded, polished, and/or lubricated and must be otherwise left unaltered. The average raw nail's shaft diameter is 0.088 inch. Speed hint: remove as little material as possible from the nail. Refer to Axles Rule 6) and 7) below for allowances and Illustration 12 for a finished racing axle example. Speed hints: order of steps: file, sand, polish then lubricate while not flattening any part of the nail shaft.
- 4) The following examples, but not limited to, are prohibited in preparation of a nail shaft and/or nail head.
 - a) Reducing the diameter, except as permitted in Axles Rule 6) and 7) below.
 - b) Bending.
 - c) Beveling.
 - d) Grooving.
 - e) Straightening
 - f) Tapering.
- 5) *No machined axles!* A machined axle does not happen by accident. It usually has at least 2 distinctly different diameters along the shaft with usually the smaller diameter being hidden under the width of the wheel's bore.
- 6) Speed hints. To reduce friction, it is highly recommended to file each nail with a small metal file. Do not remove any more material than needed. Thinner axles mean more wheel wobble. Also keep the shaft round. Do not reduce any part of the shafts' diameter. **ONLY** the following may be removed (Illustration 11):
 - a) The 2 burrs under the nail head, where the outer hub of a wheel rides.
 - b) The 5 crimp marks around the nail shaft, where the wheel bore rides.
 - c) The rough surface along the nail shaft, where the wheel bore rides.
 - d) The sharp edges leading to the nail's tip which pass through the wheel bore.
- 7) Speed hints. To reduce friction, it is highly recommended to sand each nail with ever finer and finer sandpaper. Do not remove any more material than needed. Thinner axles mean more wheel wobble. Also keep the shaft round. Do not reduce any part of the shafts' diameter except as permitted in Axles Rule 6) above. After filing, begin sanding with 400 grit sandpaper and work up from there. Your patience, resources, and time determine how high a grit to use.
- 8) Lubrication:
 - a) Dry graphite-based lubricant is the **ONLY** lubricant allowed.
 - b) Any lubricating oil or liquid lubricant of any kind is **PROHIBITED!**
 - c) During the Inspection, if a lubricating liquid is suspected, the Car Inspection Team may apply graphite.
- 9) If desired, any number of the 4 racing axles may be canted (angled, **NOT** bent) for alignment purposes or skill level. This means that the axle does not need to be parallel to the track.
- 10) Note: the BSA PWD Axle Guide Tool (# 17076) from a BSA Scout Shop does not help create canted axles but it does *help* in getting each racing wheel to stay in contact with the lane, reduces the chance of splitting the wood while inserting the axle into the axle slot, and leaves enough friction between the axle shaft and pinewood so that an adhesive is not needed. Speed hint: canted axles will reduce the amount of contact the wheel has with the lane thus reducing friction as well as aid in perfecting the alignment.

- 11) Each nail used as a racing axle for a racing wheel must be inserted into the BSA pre-cut slot, the axle slot. Four separate BSA nails must be used. No substitutions. No nail used as a racing axle can be inserted into the car body proper. In other words, no new axle slots; no new axle placement.
- 12) You may secure the racing axle with clear glue, tape, etc. However, if the BSA Axle Guide Tool (# 17076) from a BSA Scout Shop is used and the instructions are followed, friction between the pinewood and the axle should be enough to secure the axle in the axle slot.
- 13) The racing axle shaft (nail) (not just the tip) must be visible within the axle slot (which also needs to be visible) to allow the Inspectors to verify that an approved BSA nail is being used as an axle in the axle slot. DO NOT cover the axle slot or axle shaft! Examples to avoid: BSA Axle Guide Cover (# 17107) or any other type, a long weight on the bottom, putty, etc.
- 14) To ensure fairness for all Racers, each racing axle MUST be adjusted to ensure that its racing wheel is always in contact with the lane surface through its full rotation. Refer to Q&A Section Q40 for examples. The Inspector will test the car on a smooth, level surface (e.g., glass or track) and gently roll the car to verify that each racing wheel continually touches the surface throughout its full rotation.
Allow extra time to ensure this requirement is met.
NO RAISED WHEELS. NO GAP UNDER THE WHEEL. NO EXCEPTION!
Speed hint: the racing wheel's tread is NOT required to be flat on the lane, thus less friction and less frustration. Racing wheels via the racing axles can be canted. The racing axles *cannot* be purposely bent. Experienced speed hint: to simulate the rail riding technique, the former raised front wheel should carry less than its fair share of the car's weight compared to the other front wheel while still always touching the lane throughout its full rotation. The weight that the rear wheels carry should be as equal as possible.
- 15) The Inspectors may use a magnet to help ensure BSA nails are used.
- 16) If a racing axle is suspect, the Racing Team may be asked to pull it for further inspection. If the racing axle (nail) passes this inspection, the Racing Team is responsible to re-install it. If the racing axle does not pass this inspection, it cannot be used to compete in the ND PWD Race. The ND Race Committee will determine the next step on a case-by-case basis.

Wheels Rules Explained

- 1) Only raw wheels (Illustrations 4 and 8) from the BSA Kits and/or the BSA Tubes from a BSA Scout Shop (e.g., Minsi Trails Council Scout Shop) or www.scoutshop.org (the 2 types of approved sources) are permitted to be racing wheels. Only the Racing Team may improve the wheels into racing wheels. Do not acquire any BSA wheel, improved or raw, through a third party. If any racing wheel is replaced for any reason, the replacement wheel MUST still be from an approved source and from the BSA Kits and/or BSA Tubes.
- 2) Any color combination of the BSA colored wheels is permitted. Colored BSA Wheels with 4 BSA Nails are contained in a Tube in the BSA Wheels and Axles Kits with Item # (no copyright years):

a) Black	17553	f) Glow (White)	647053
b) Ragin' Red	17554 (discontinued 2018)	g) Green	647054
c) Screamin' Yellow	17555 (discontinued 2018)	h) Pink	647055
d) Blazin' Blue	17556 (discontinued 2018)	i) Purple	647056
e) Outrageous Orange	17557 (discontinued 2018)	j) Electric Blue	647826

- 3) Any mold number combination of the BSA wheels is permitted. Speed hint: thus, all wheels can have the same mold number.
- 4) All the Wheels Rules below are to ensure everyone understands what is and is not permitted in the preparation of the wheels. BSA Wheels as of 2009 are factory designed to require little preparation. This is the main reason for using BSA PWD Kits 2009© and later. In short, the preparation of a wheel is limited to the possible permissible LIGHT sanding, polishing, and lubricating.
Weight and dimensions of the AVERAGE raw wheel.
 - a) Weight 2.70 grams (0.095 ounces). Pre 2009 wheels were heavier at 3.60 grams, a disadvantage.
 - b) Overall diameter is 1.185 inches.
 - c) Overall width (sidewall to cone) is 0.375 inch.
 - d) Tread width (small dotted bumps to inner tread) is 0.313 inch.
 - e) Tread surface thickness is consistently 0.036 inch.
- 5) All lettering and numbering, both inside and outside, must remain complete and UNALTERED from the factory diecasting, and must be completely visible with NO obstruction of any kind.
 - a) The letters/words and symbol on the outside sidewall of each wheel is and must show.
(Illustration 14): “BSA” and “PINWOOD DERBY®”.
NO other symbols/font/orientation are permitted.
 - b) The letters/words and number on the inside below the sidewall of each wheel is and must show
(Illustration 13): “OFFICIAL BSA” and a mold number of 1 through 16 and “MADE IN USA”.
NO other symbols/font/orientation are permitted. Example: “CHINA”.
- 6) The following markings on the outside wheel area must remain visible and UNALTERED.
(Illustration 13 and 14):
 - a) The small dotted bumps (i.e., decorative fluting) along the edge between the vertical outside sidewall and the horizontal outer tread.
 - b) On the outside of the wheel the lattice design inside the sidewall.
 - c) The inner tread edge that will touch the pinewood block, which is opposite of the small dotted bumps.
 - d) Exceptions: refer to Wheels Rule 8).
- 7) The weight of the wheel MUST not be increased or decreased. Refer to Wheels Rule 8) for exceptions.
 - a) NOTHING can be added to any wheel (i.e., decal, fingernail polish, glue, hubcap, paint, tape, etc.).
Speed hint: do not attach wheels until the end of assembly to avoid contamination from overspray of paint, sawdust/wood shavings entering the wheel bore, etc.
 - b) The wheel bore CANNOT be filled and re-drilled thus altering the bore diameter.
The wheel bore cannot be sanded or tapped or grooved.
 - c) Coning the inner hub IS PROHIBITED.
The inner hub must be intact and unaltered. It is already coned (Illustration 13).
 - d) Removal of the outer hub 2 step down design IS PROHIBITED.
The two steps must be intact and unaltered (Illustration 14).
 - e) NO material may be removed from the inside wheel surfaces at ANY point. No exception! Again, any wheel with ANY material removed from the inside of the wheel IS PROHIBITED. PERIOD! A wheel with ANY excessive flex to the tread or sidewall when squeezed or twisted during this inspection cannot pass the Inspection. The flex is a guaranteed sign that the wheel has been altered (lathed and/or shaved) to reduce weight.

- 8) The ONLY 3 permissible weight changes (if any) are:
- a) The outer tread area may be LIGHTLY sanded (if even needed) ONLY (not lathed) to remove MINOR surface imperfections caused during wheel production. The outer tread area may be polished (if desired). The wheel diameter cannot be reduced. The outer tread surface MUST not be reshaped or have the contour changed in any way. If it is, this will be assumed as an attempt to minimize tread contact or alter aerodynamics (Illustrations 10).
 - b) The inner edge of the tread may be LIGHTLY sanded (if even needed) ONLY (not lathed) to remove MINOR surface imperfections caused during wheel production. The inner edge of the tread may be polished (if desired). The tread width cannot be reduced. The roundness of the small lip of the inner edge of the tread MUST not be reshaped or have the contour changed in any way. If it is, this will be assumed as an attempt to minimize edge contact or alter aerodynamics (Illustrations 13).
 - c) The addition of ONLY a dry graphite-based lubricant may be applied. Again, NO lubricating oil or liquid lubricant of any kind is permitted.
- 9) The outer tread surface must be (remain) flat and parallel to the wheel bore. Reshaping the tread and/or wheel IS PROHIBITED! (Illustration 10).
- 10) Again, ANY ALTERATION of the wheel is PROHIBITED. Including, but not limited to, narrowing of width or diameter, lathe cutting, or reshaping of wheel tread (inside or outside)! (Illustrations 10).
- 11) Other than the possible LIGHT sanding of the outer tread area and the inner tread edge and the later lubrication the only other real preparation of the wheels is polishing, if desired. Polish areas of the wheel that contact something else. The following areas of the wheel can be polished:
- a) The outer hub, where the wheel contacts the underside of the axle head.
 - b) The wheel bore, where the wheel contacts the axle shaft.
 - a) The cone of the inner wheel bore, where the wheel contacts the car body.
 - b) The inner edge of the tread, where the wheel contacts the car body and/or guide rails.
 - c) The wheel tread, where the wheel contacts the lane surface.
- 12) Wheels cannot extend beyond the front or rear of the “car body proper”. This rule is for the Racing Teams that shorten the car’s overall length below the 7 inches. Refer to the Q&A Section, Q20, Q21, and Q22.
- 13) No wheel covers of ANY type or any name, inside or outside, may be used. This includes but is not limited to cardboard, decals, hubcaps, 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. Fenders (Illustration 15) are allowed and encouraged for appearance and performance. Thus, a fender that is in front of and/or over top of and/or behind a wheel is allowed. The fender, or anything else, cannot cover the lattice side and/or the inside of the wheel, PERIOD.
- 14) Each wheel must be mounted with the lattice design facing outward from the car body.
- 15) To ensure fairness for every Racer, ALL 4 racing wheels MUST be in CONTACT with the lane at the same time throughout their full rotation. Each racing axle MUST be adjusted to ensure that its racing wheel complies. Refer to Q&A Section Q42 or examples. The Inspector will test the car on a smooth, level surface (e.g., glass or track) and gently roll the car to verify that each racing wheel continually touches the surface throughout its full rotation.

Allow extra time to ensure this requirement is met.

NO RAISED WHEELS. NO GAP UNDER THE WHEEL. NO EXCEPTION!

Speed hint: the wheel’s tread is not required to be flat on the lane. Wheels via the axles can be canted. Experienced speed hint: To simulate the rail riding technique, the former raised front wheel should carry

less than its fair share of the car's weight compared to the other front wheel while still always touching the lane.

- 16) Inspectors may measure the wheel as needed to verify compliance. If a racing wheel is suspect, the Racing Team may be asked to pull it for further inspection. If the wheel passes this inspection, the Racing Team is responsible to re-install it. If the wheel does not pass this inspection, it cannot be used to compete in the ND PWD Race. The ND Race Committee will determine the next step on a case-by-case basis.

Please note:

- There are aftermarket modified wheels available that have been LIGHTENED. *Any* aftermarket wheel and/or lightened wheel IS PROHIBITED.
- This lightening of the wheel is usually done by turning the wheel on a lathe and removing material from the inside of the wheel. These wheels are NOT allowed and can be RECOGNIZED at inspection. Cars with third party manufactured or modified wheels ARE NOT permitted to compete for a speed trophy. A lightened lathed wheel is not something that happens by accident or well with simple tools. The ND Race Committee will determine the next step on a case-by-case basis.



Illustrations

Illustration 1

The ND PWD Race is scheduled to use a 4-Lane 42-Foot Best Track® Track
www.besttrack.com

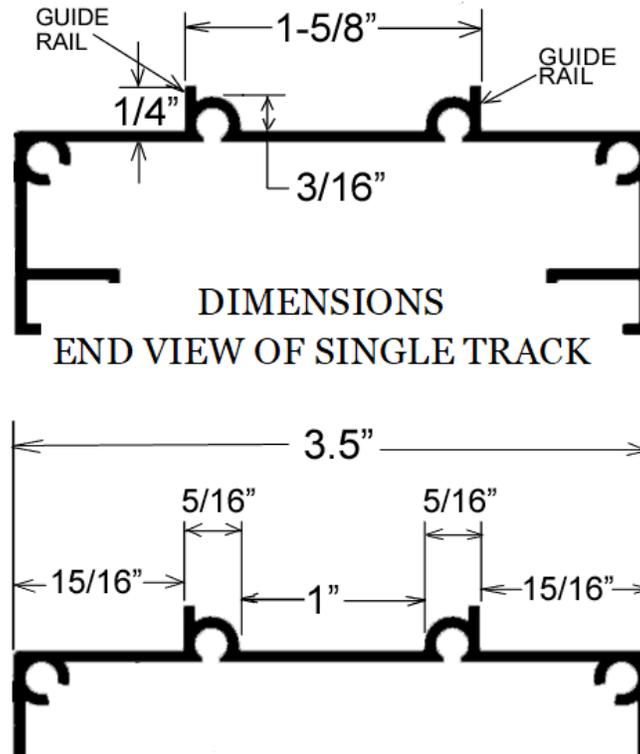


Illustration 2

Profile view of a Best Track® track

Racing distance from the start gate to the middle timing hole is 36 feet 10 inches

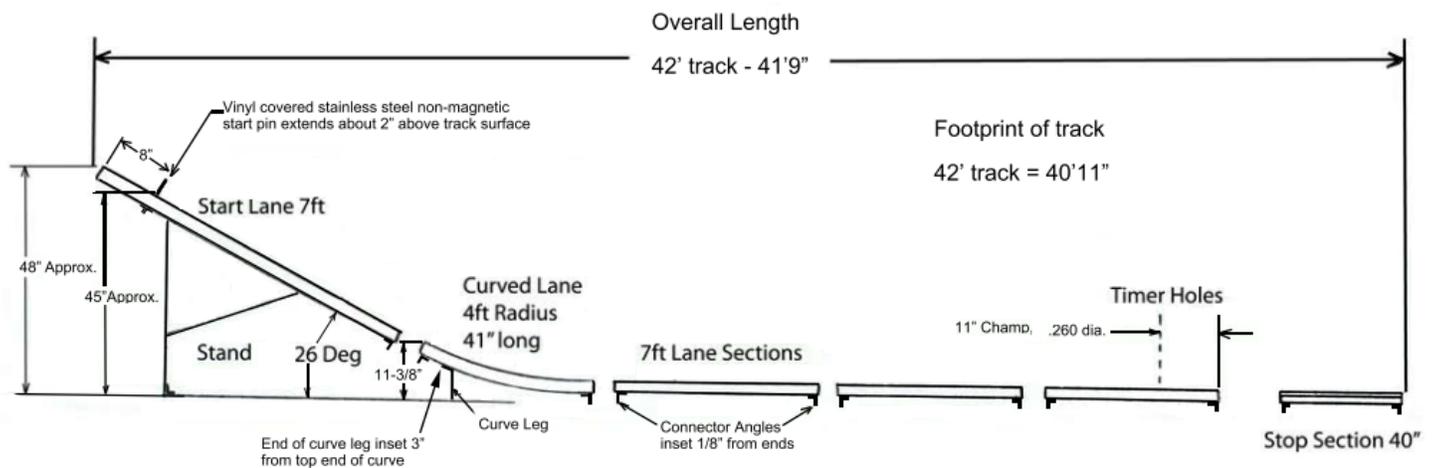


Illustration 3

Primary Approved BSA Pinewood Derby® Box Kit #17006 2018©
Items in this box are the same as in the #17006 2012© (Illustration 4)



Illustration 4

Primary Approved BSA Pinewood Derby® Box Kit #17006 2012©
with the components which include the pinewood block, 4 wheels, and 4 nails
with the numbers decal. Not pictured is the BSA instructions/rules sheet. (The Legacy Rules)



Illustration 5
“Gift Wrapped” Approved BSA Pinewood Derby® Box Kit #17000 2018©
Items in this box are the same as in the #17006 2012© (Illustration 4)



Illustration 6
“Gift Wrapped” Approved BSA Pinewood Derby® Box Kit #17000 2009©
Items in this box are the same as in the #17006 2012© (Illustration 4)



Illustration 7

The only alternative to the Approved BSA Pinewood Block outside of the 4 Kits is the BSA Pinewood Derby® Wedge Kit #614417 2011©



Illustration 8

The only alternative Approved to the BSA Pinewood Wheels and Nails outside of the Kits are ALL the BSA Approved Colored Wheels and Nails in the BSA Approved Tubes. Due to discontinuation, the 4 other (older) colored wheels and axles kits are not shown.

Electric Blue #647826



Purple # 647056



Pink # 647055



Green # 647054



Black # 17553



Glow (White) # 647053

Illustration 9
ND PWD Car Dimensions

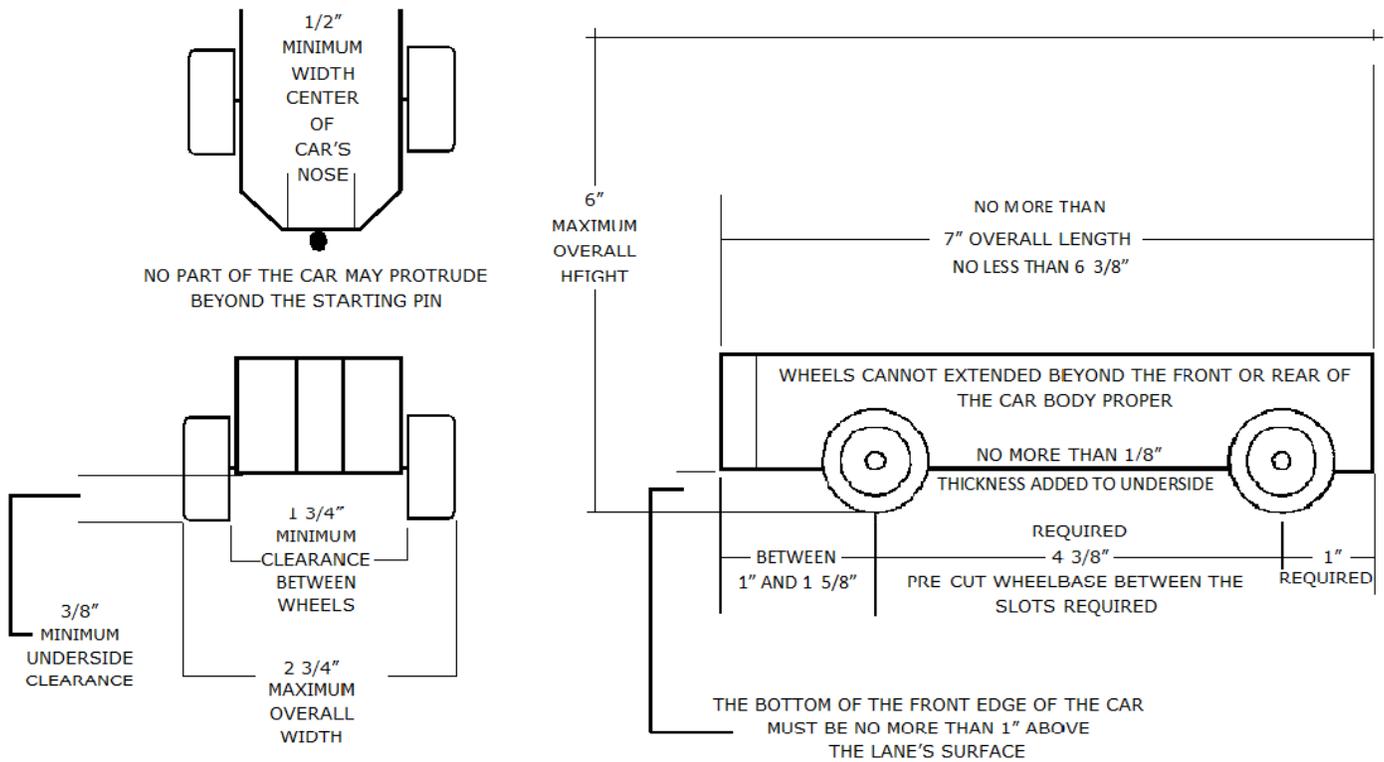


Illustration 10

The following diagram shows examples of disqualifying wheel modifications. These are reshaped (contoured) wheels.

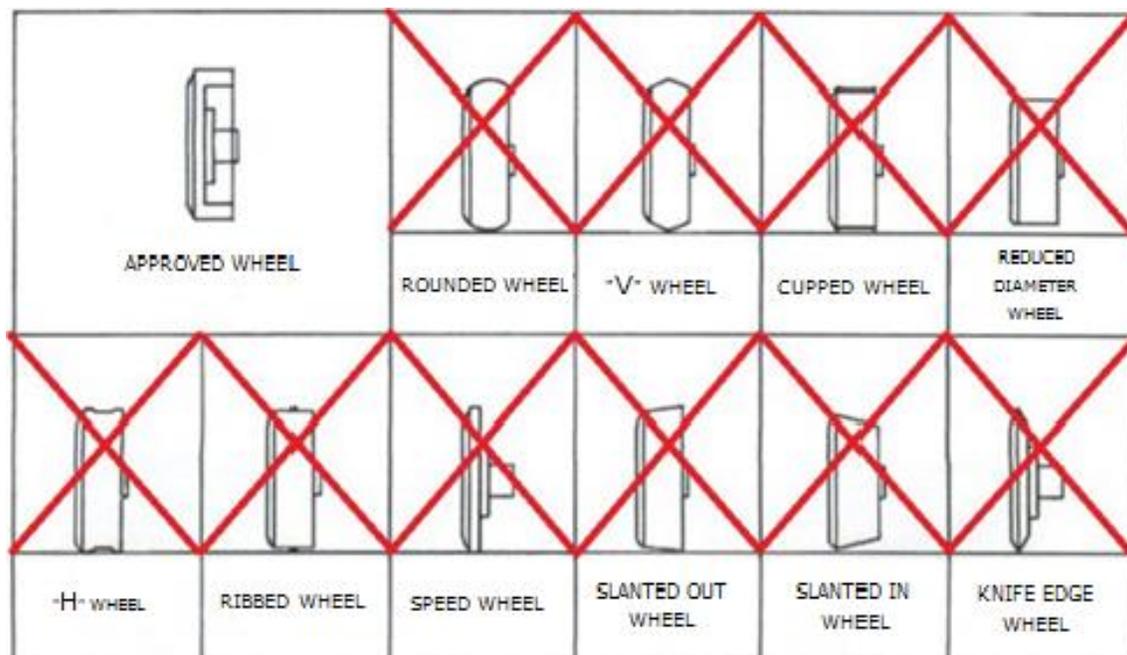


Illustration 11

Out of the Kit/Tube BSA Pinewood Derby® Raw Nails

The shaft of the nail has 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 passes through the wheel bore.

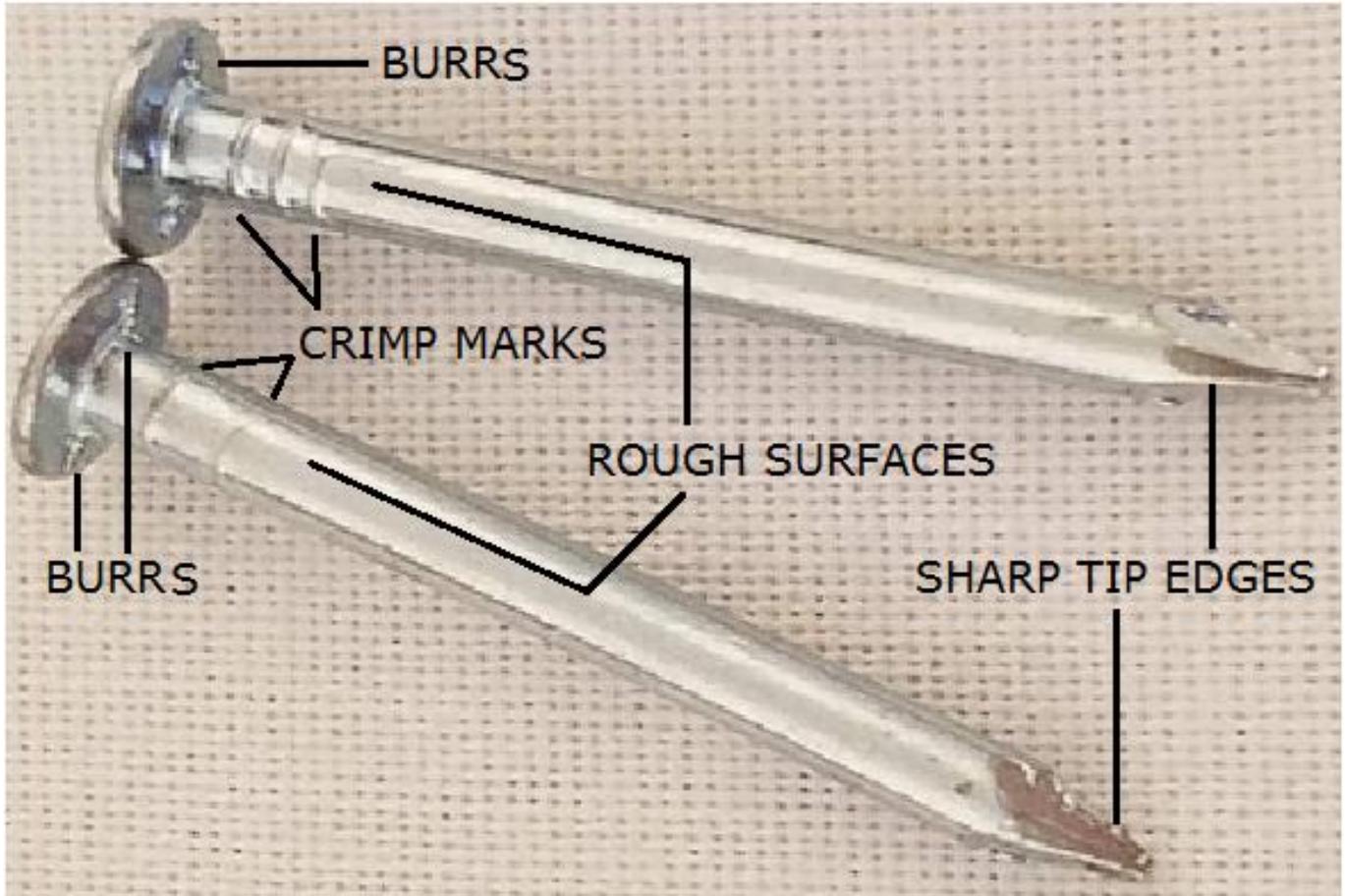


Illustration 12

BSA Pinewood Derby® Nail finished and ready to be an Axle for the ND PWD Race



Illustration 13
 Out of the Kit/Tube Official BSA Pinewood Derby® Raw 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 tread edge.
- 3) The thickness and texture of the tread underside.
- 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 (circle dots) 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).

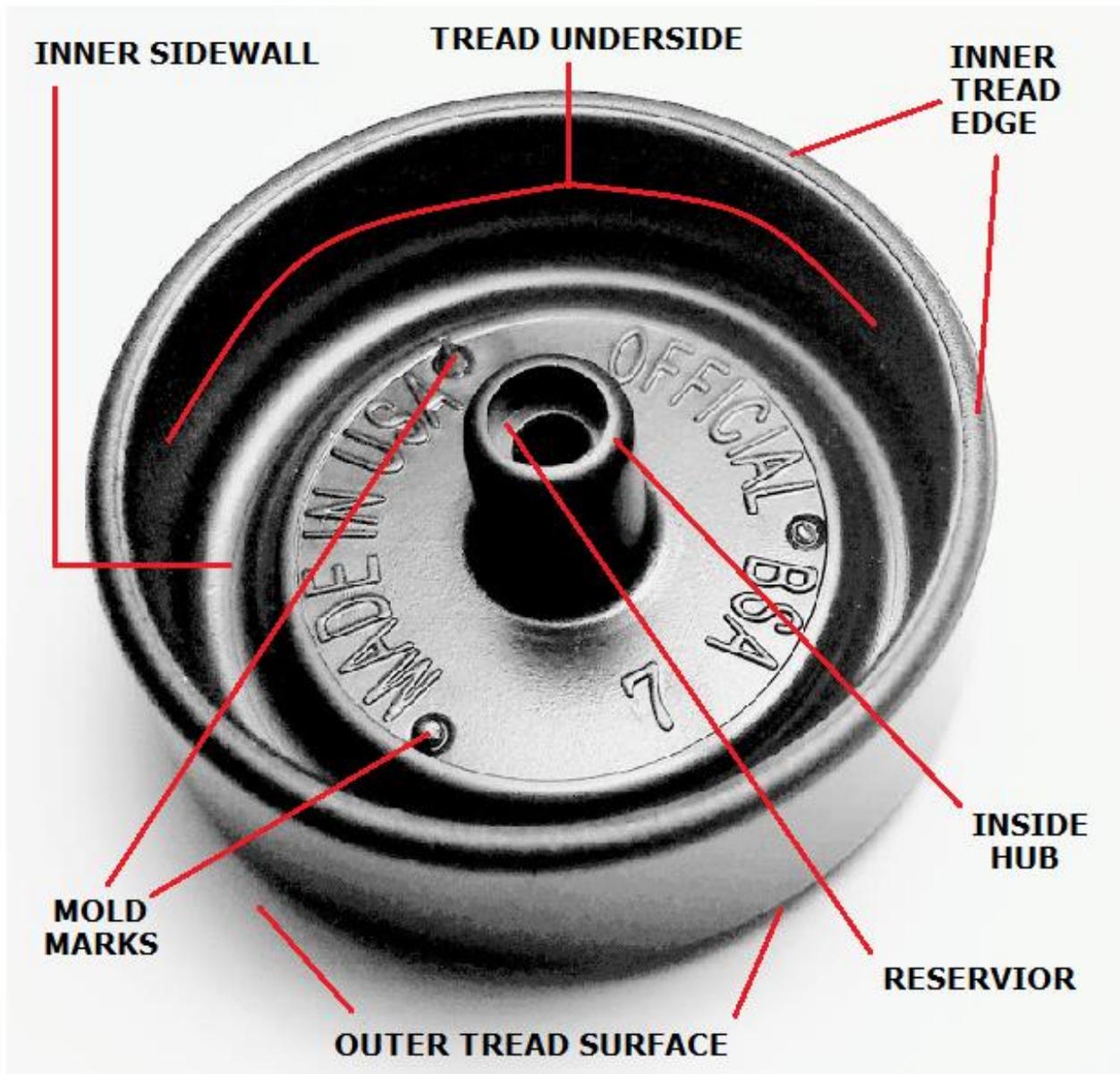


Illustration 14
 Out of the Kit/Tube Official BSA Pinewood Derby® Raw Wheel
 Outside View

- 1) The fully intact small dotted bumps (decorative fluting) around the circumference of the wheel.
- 2) The smoothness and convex shape of the outer sidewall.
- 3) The intact raised lettering used as well as the font used and the orientation around the outer sidewall.
BSA PINWOOD DERBY®
- 4) The lattice design between the sidewall and outside hub.
- 5) The 2 step down design of the outside hub.

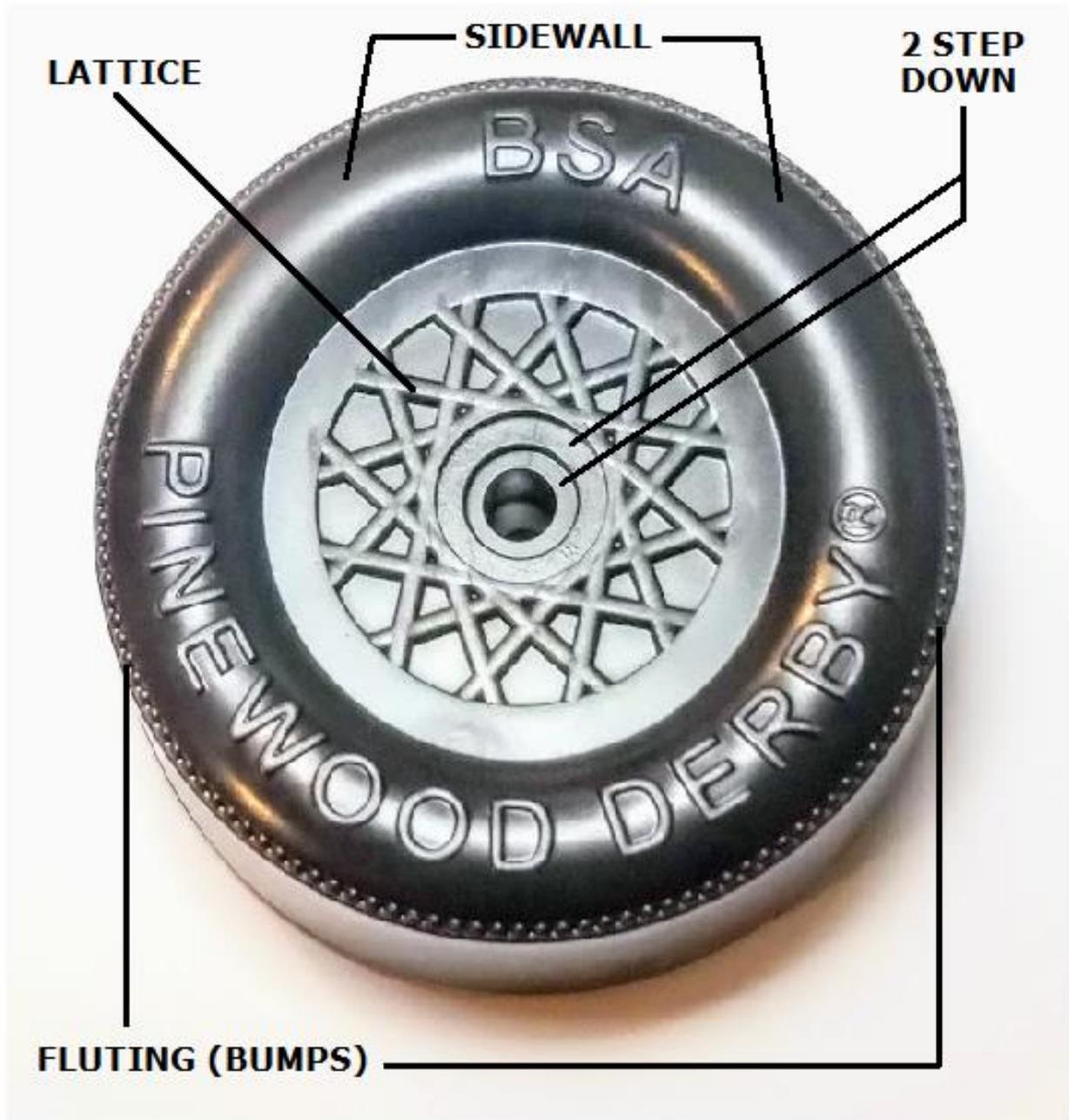


Illustration 15
Fender Examples

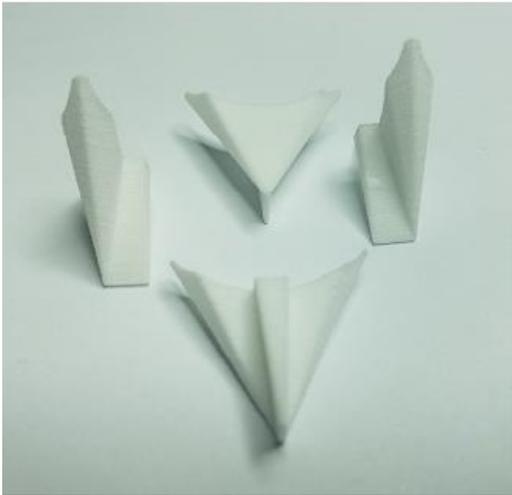


Illustration 16
Lighting Kit Examples



Questions & Answers (Q&A)

1) **Where and when and how long is the ND PWD Race?**

- a) The ND PWD Race date is usually the third Saturday of March. The ND PWD Race will be held at a public location within Northampton County (centrally located ideally). Check-In and Inspection begins at 9:30 A.M. The Race is planned to begin about 11:30 A.M. The Race usually lasts 2 hours. A short recess follows the Race to tally the results for the speed and specialty awards. The events actual duration depends on the number of volunteers, number of cars, technical difficulties, appeals, etc.
- b) For the latest information on all things ND PWD refer to www.minsitrails.org and in the blue banner hover over “Districts”, select “Northampton District” and scroll down under the “Upcoming Events” Listed and select the “Northampton District Pinewood Derby Race” link.

2) **To avoid the long line during Check-In on Race Day can we Check-In before the day of the ND PWD Race? If available, what should I be aware?**

MAYBE Families might be able to Check-In their Racer’s car up to weeks before Race Day. But families must be comfortable with the following requirements.

- 1) First, your Pack’s PWD Chair (or designee) must register your Racer and car.
- 2) The Racing Team must surrender the car to the ND PWD Chair until after the Race.
- 3) Once the car begins this early Check-In it is committed to finishing at that time. It cannot be later prepared.
- 4) Racing Teams *shall* still attend the ND PWD Race.
- 5) For more information and to reach the PWD Chair refer to www.minsitrails.org and in the blue banner hover over “Districts”, select “Northampton District” and scroll down under the “Upcoming Events” Listed and select the “Northampton District Pinewood Derby Race” link.

3) **If inclement weather (or another unforeseen event) occurs before the Race, how do I find out? Is there a make-up date for inclement weather, etc.?**

- a) First, expect the Race to be a go unless you learn otherwise. If inclement weather (or other unforeseen event) occurs just prior to the start of the ND Race, the lead ND Race Committee members will determine the continuation, delay, or cancelling of the Race. By 8 A.M. Race Day, the District Director, or designee, via email will advise the Cubmaster and/or Committee Chair of each Pack who will then inform the Pack’s PWD Chair and their Pack’s attending families. Ideally to save time, families will be contacted directly via their email and/or mobile phone if this information was included with their registration.
- b) There is no *planned* make-up date for the ND PWD Race due to timing of resources (manpower, location, equipment, etc.).

4) **How much is the ND PWD Race registration fee? Who pays the fee? How is the fee paid? What does the fee pay for?**

- a) The ND PWD Race registration fee is \$7.00 per racing Cub Scout. All other attendees are free.
- b) If the Scout is registered by the Pack’s designee, then *generally* the Pack covers the cost.
- c) The fee is paid to Minsi Trails Council by mail, by phone, or in person. Payment via the web or text or smoke signals is not available.
- d) The fee is used to cover the ND costs as well as the cost of the patches given to all the racing Cub Scouts and volunteers and finally the speed trophies and/or certificates and specialty trophies and/or certificates.

- 5) **Are Webelos II/Arrow of Lights (AOL) Scouts that have moved on to a Troop eligible to participate in the ND PWD?**
Are Lions and girls eligible to participate?
Are new Scouts too?
 YES. Current school year former AOLs, Lions, girls, and new Cub Scouts are all eligible to be advanced to the ND PWD Race as long as the youth was a registered Cub Scout with a racing car on the day of and at their Pack PWD.
- 6) **How many Racers can each Pack register for the ND PWD Race? How many total Scouts are expected to attend the ND Race?**
 There are 28 Packs within the ND. Each Pack may send up to 5 Scouts of its choosing. Nearly all Packs send their 5 fastest cars regardless of the Scout's Rank, but it is the Pack's choice which and how many (up to 5) cars may attend the ND PWD Race. The ND Race Committee anticipates 115+ attending Racers.
- 7) **What Speed Trophies will be awarded?**
 At the Race's conclusion the 5 Racers with the overall fastest cars (regardless of the Cub Scout's Rank) will be awarded Speed Trophies. In addition, 3 Cub Scouts per Rank with the fastest cars will receive an award. These are the 1st, 2nd, and 3rd places for Lions, Tigers, Wolves, Bears, Webelos, and AOLs. In addition, these 18 Cub Scouts are eligible to attend, at their choosing, to compete at the NYC World Championship Pinewood Derby® Race near Times Square.
- 8) **What Specialty Trophies will be awarded? Who are the judges?**
 During the Race, all attendees can vote once for their favorite car for each of the specialty categories. The Specialty Categories are:
- | | | |
|----------------------|----------------|----------|
| Best Cub Scout Theme | Most Patriotic | Funniest |
| Best Not A Car | Most Unique | |
- 9) **Is food available?**
 MAYBE Depends on the capabilities of the hosting facility.
 For the latest information on all things ND PWD refer to www.minsitrails.org and in the blue banner hover over "Districts", select "Northampton District" and scroll down under the "Upcoming Events" Listed and select the "Northampton District Pinewood Derby Race" link.
- 10) **May I volunteer to help at the ND PWD Race?**
 YES. Definitely. It takes a lot of manpower to orchestrate the ND PWD. The ND Race Committee is grateful for help from committed volunteers. In standing with being a service organization the ND Leaders highly encourages at least one volunteer per Pack. However due to conflict of interest if you have a youth participating in the Race you cannot be a Race Official. Reach out to the ND PWD Chair, Chris Van Camp at 513-253-8174 (M) or at MTCNCDPWD@gmail.com.
- 11) **What is the purpose of the ND PWD Guide?**
 The Guide's purpose is to explain in depth the ND PWD Rules (the Checklist Rules) to remove misunderstandings that have come to light during Inspections in prior years. The Guide is useful to all skill levels. Besides the expanded Rules explanation, the Guide includes the ND PWD Overview and the ND PWD Rules (the Checklist Rules), the Congratulation form (for Racers attending the ND PWD Race), the actual Check-In and Inspection Checklist form and the Race Operations Rules.
- 12) **Why must the car not be altered once entered at the Pack level PWD Race?**
 To maintain fairness to all racers across the ND and to those attending the ND PWD Race no car can be altered. The expectation is for the car to perform at the ND PWD Race as it did at its Pack PWD race.

13) **What does from “scratch” mean?**

From “scratch” means that the Racing Team performs the construction of their Pinewood Derby® car from the beginning with components and parts not used in previous years nor from pre-made car kits nor using professional third-party modifications or enhancements.

14) **What are the car’s components and parts? What is the car’s core?**

The car’s *Core* is constructed from the Components. The *Components* are:

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

The car’s *Parts* are *anything* else added to the car that is not used as a component of the car’s core. Examples: coins, Lego®, lights, metal, paint, plastic attachments, stickers, wood, etc. In addition, for personal choice of the design of your car you may use more BSA pinewood and/or nails and/or wheels but they cannot be the car’s core components.

15) **How do we know if we have the correct Official BSA Pinewood Derby® Car Kit?**

The Official BSA Pinewood Derby® Car Kit is known by the ND PWD Chair to be available in 4 different boxes. The new primary box is #17006 copyright 2018© with a blue and yellow front but with a blue car emerging from a brown piece of wood. The older primary box is #17006 copyright 2012© with a blue and yellow front with a red and white car pictured. The alternative box is a “gift wrapped” box and is Item #17000 copyright 2018© or copyright 2009©. Most Scouts receive their Kit from their Pack Leaders who usually purchase the Kits in bulk from the Minsi Trails Council Scout Shop. You may also purchase a Kit from the Minsi Trails Council Scout Shop or through www.scoutshop.org.

DO NOT use an older BSA Pinewood Derby® Car Kit. Mostly because the wheels are pre-2009. These wheels are outdated now. In addition, they require more preparation and do not perform as well as the 2009 generation wheels for various reasons.

16) **We damaged the car, the pinewood block, the wheel, and/or the nail. A component in the Kit or Tube is damaged. What do we do now?**

If the component is repairable, try to fix it but be mindful of the specific rules associated with the component. However, depending on your precision or the time and resources available the best option may be to replace the component. When replacing components only use the kits and/or tubes listed under General Rules 11) which are only from the Minsi Trails Council Scout Shop or through www.scoutshop.org.

17) **We purchased our car kit (or components) through Michael’s, Lowe’s, Maximum Velocity, DerbyDad4Hire, etc. And it said it was an Official BSA Pinewood Derby® Car Kit (or component). Do these qualify?**

NO. These kits and/or components cannot be used for the car’s core. These are aftermarket kits and components, and they may have the words “Pinewood Derby®” because the words are copyrighted by Scouts, BSA, but this does not indicate that the kit is the same as an Official BSA Pinewood Derby® Car Kit. Not all the components within the box may be Official BSA components. Example: the wheel appears to be exactly right, but it may state inside “MADE IN CHINA” or the wheel has been altered to reduce weight.

Also, to maintain fairness for all Cub Scouts the components of your car need to be sourced directly from BSA (e.g., Minsi Trails Council Scout Shop) and fabricated by the Scout and their adult partner (Akela). In short, even if the kit is an official *licensed* kit – it is NOT permitted.

18) **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. The Official BSA Pre-Cut PWD Wedge may be used. The Wedge allows families to possibly skip a construction step since the block is already a wedge shape. Also, families may skip receiving a box kit from their Pack and use the Wedge kit with any variety of colored Wheels and Axles from the

BSA Tube kits for the core of their car. However, **NO** aftermarket block/wedge is permitted. The Wedge is available at the Minsi Trails Council Scout Shop or through www.scoutshop.org.

19) **Are side fenders allowed?**

YES. Side fenders are highly encouraged to promote creativity. Since fenders are parts and not components you may choose from many varieties from various sources. However, fenders have their challenges. Remember not to exceed the car weight and dimensions rules. Also make sure the fenders will not touch any part of the 2 vertical center guide rails, the lane surface, or the wheels.

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

NO. Wheels cannot extend beyond the front and/or rear of the body of the car. When using the pinewood block's pre-cut slots for the racing axles and not removing pinewood from either end of the car, the wheels will not extend beyond the front or rear of the *car body proper*.

21) **Can the end(s) of the block be removed?**

YES. You *may remove* wood from the long end of the pinewood block, but something should be added back to replace what was removed to meet the 3 ideal lengths requirements. Refer to *Car Weight and Dimensions Rules Explained* Rule 7) and Illustration 9, the right side of the diagram. Also, since at least 1 inch must remain between each end of the car and its nearest axle no wheel extends beyond the length of the now shortened block, the new *car body proper*. This new shortened block is now the *car body proper*.

22) **What is the car body proper?**

The *car body proper* is defined as the contiguous wood body itself and excludes attached parts, (i.e., 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 body 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 rule that follows the NYC World Championship PWD Rules.

23) **Are lights and electronics allowed on the car?**

YES. Lights and electronics (example: sound) accessories are encouraged to promote creativity. Be cautious not to exceed the dimensions rules or weight limit. In addition, make sure the accessory is secure, with no fragile or loose parts. Example: If the light strip is on the car's underside be aware that the car is stopped quickly after the finish line by dropping the underside on to a skid strip which could then damage the light strip. If a light strip falls off (thus removing weight) it cannot be reattached during the Race because it is not required for the car to race. Also remember to maintain the 3/8 inch underside clearance by adding no more than 1/8 inch of material to the underside of the car.

24) **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 towards the back of the car and *inside* the car body. Placing weight *into* the car is advantageous for many performance reasons. If weight cannot be placed into the car body 4 concerns appear.

- a) Very little added material (weight) can extend below the bottom of the car (about 1/8 inch) before interfering with the 3/8 inch underside clearance limitation. This clearance is to ensure that no part of the car except the wheels touch the 2 vertical center guide rails, lane, or track.
- b) In addition, if the added material is wider than 1 1/8 inches or is too close to the edge of the pinewood block then the added material may contact a vertical center guide rail.

- c) If the added material is a long continuous flat piece or/and an axle guard is used, then the axle slot is covered, and this interferes with the axle inspection. The axle slot must be visible. The axle must be visible. Not just the tip.
- d) Finally, the car is stopped quickly by a skid strip, so the smoother the underside of the car the more likely the car remains on the skid strip without damage to your car or another car.

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

Decide on the parts to be added with the finished components of the car. To get the best results take these items as an unfinished car to a commercial scale that measures ounces, like a grocery store self-checkout. The items should total about 4.85 ounces. The remaining 0.15 ounce is for paint and graphite and trim weight. Also, a reservoir (drilled hole) on the car's underside is a great way to add or remove trim weight (a putty perhaps) as needed due to variations in the scales you will encounter. Realize that Pack scales and the ND scale and commercial scales will vary due to sensitivity and calibration. Your Pack scale is probably not calibrated like the commercial scale and not as sensitive as the ND PWD Race scale. The ND scale is a jeweler's scale that is calibrated with weights certified by Northampton County Weights and Measures each year in early January. The ND scale reading is final.

26) **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 Kits?**

YES. Only the axles in the Tubes included with the colored wheels that are listed below in Q₃₂) and *General Rules Explained* Rule 11) may be used instead of or along with the axles from the Official BSA PWD Car Kits. Again, **NO** non-BSA axle or even an aftermarket BSA axle are permitted.

27) **Are aftermarket axles allowed?**

NO. Non-BSA and even aftermarket BSA axles are PROHIBITED as racing axles.
Only the Cub Scout and their adult partner(s) (Akela) can prepare their car's nails to become axles.

28) **Can we bend any and/or all the axles?**

NO. Bent axles are NOT allowed. A bent axle has an appreciable change in angle somewhere along its length that is created on purpose. Note however that most nails included in the Kits and/or Tubes are not perfectly straight. As resources (money, patience, time, tools, etc.) allow acquire more than just 4 BSA nails. Use the best four.

29) **Can any and/or all the axles be canted?**

YES. Any and/or all axles can be canted at a slight angle, but the axles themselves must be as straight as they came out of the Kits and/or Tubes. As resources (money, patience, time, tools, etc.) allow acquire more than just 4 BSA nails. Use the best 4.

30) **What is a canted axle?**

A canted axle is 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 only the edge (less friction) of the wheel touch the track. Canting reduces friction between the wheel and the track. It also can be used for improving the car's alignment.

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

First, the axle shaft (not just the tip) within the axle slot needs to be visible for inspection.

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

CAUTION. Non-clear covers are NOT permitted to remain on the car. A clear axle cover guard is discouraged. Be mindful of the 3/8 inch ground clearance requirement. Ideally use the axle

guard cover to insert the nails then remove the guard and secure the axles with perhaps a clear adhesive. Also make sure no sticky substance remains.

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

YES. BSA 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 Kits. Any color combination of the Official BSA wheels may be used. Again, **NO** other non-BSA wheels or any aftermarket BSA colored wheels are permitted. PERIOD. The following wheels (with Item #) are available at the Minsi Trails Council Scout Shop or through www.scoutshop.org.

a) <u>Black</u>	# 17553	<u>Original</u>
b) Ragin' Red	# 17554	<i>Limited Supply</i>
c) Screamin' Yellow	# 17555	<i>due to</i>
d) Blazin' (Dark) Blue	# 17556	<i>discontinuation.</i>
e) <u>Outrageous Orange</u>	# 17557	<u><i>Good luck finding.</i></u>
f) Glow (White)	# 647053	These are
g) Green	# 647054	new as of
h) Pink	# 647055	2018 and glow
i) Purple	# 647056	under a
j) Electric Blue	# 647826	Black Light

33) **Are aftermarket wheels allowed?**

NO. Non-BSA and even aftermarket BSA wheels are PROHIBITED as racing wheels. Only the Cub Scout and their adult partner(s) (Akela) can prepare their car's wheels.

34) **What are the allowable wheel dimensions?**

WARNING: BE VERY CAREFUL WITH THIS RULE: the INTENTIONS vs. PUSHING THE LIMIT.

Typical Dimensions of a standard wheel (out of the Kit or Tube):

- The overall diameter of the wheel is about 1.185 inches. The fluting (small bumps around the outer circumference of the wheel) MUST be complete and unaltered and untouched. Again, only LIGHT SANDING to remove surface imperfections is permitted.
- The tread surface width, measured from the fluting to the inner tread edge, is about 0.313 inch. The curve of the inside tread edge must remain unaltered and untouched. Again, only LIGHT SANDING to remove surface imperfections is permitted.
- The overall width of the wheel is about 0.375 inch. The overall width is measured from the edge of inner wheel bore cone to the outer sidewall lettering.
- The overall tread surface thickness is about 0.036 inch. Again, only LIGHT SANDING to remove surface imperfections is permitted and NO material may be removed from the inside of the wheel.

35) **Can wheel treads be lathed?**

NO. The wheel's outer treads **CANNOT** be lathed for the ND PWD Race. No part of a wheel can be lathed. The wheels may only be LIGHTLY SANDED, and/or polished to remove imperfections. *This is contrary to the NYC World Championship PWD Rules.*

36) **Are air deflectors or air shields or weights allowed inside any wheel cavity? Can anything cover the outside of the wheel?**

NO. Nothing may be inside/outside or cover the inner wheel cavity or the outer part of the wheel, even if the part is clear. For inspection, each wheels inside cavity must have nothing within it or covering 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. Examples: include but are not limited to clear tape, cardboard, etc. NOTHING is permitted inside or outside.

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

NO. None of the treads 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 is inserted into the axle slot at a slight angle (canted) up or down in reference to the side of the car while viewing the car from behind or in front.

38) **Can we have a raised wheel?**

NO. RAISED WHEELS ARE PROHIBITED. NO GAP IS PERMITTED! PERIOD!

39) **Do all the wheels have to be touching the lane surface?**

YES. For fairness and to compete at the ND PWD Race all wheels MUST be TOUCHING the lane through a full rotation. This is easier said than done. To ensure that all wheels are touching place the car on a smooth, level surface (e.g., pane of glass), then gently and without applying downward pressure move the car back and forth. All racing wheels must roll through a full rotation.

40) **What are some examples of how to get all 4 wheels to touch the lane at the same time through a complete rotation?**

- a) Place something like a flat toothpick under the raised wheel. Sand a ½ inch length of the toothpick down enough that it fills the gap between the wheel and the resting surface. Remove the suspect axle and wheel. Then put the sanded portion of the toothpick into the axle slot at the base of the slot (against the bulk of the wood) and secure in place. Remove excess toothpick. Then reinsert the axle (with wheel) into the axle groove without moving the toothpick.
- b) To correct a front raised wheel, screw into from the top of the car over the shaft of the axle a cone head set screw. Slowly turn the set screw to push the shaft of the axle down. This changes the cant of the axle and thus changes the angle of the wheel.
- c) Take the opposite axle (and wheel) out of the axle slot. Increase the depth of this slot. Reinsert the axle and wheel. Repeat as needed.
- d) Use a Pinewood Derby Axle Guide Tool (found at the Scout Shop) and follow its directions.

41) **Can oil be used instead of graphite to lubricate axles and wheels?**

NO. OIL IS PROHIBITED. If graphite is not evident, or oil is suspected, graphite may be applied to any and/or all wheels by the Inspectors or ND Race Committee during the Inspection.

42) **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 is responsible to re-install the passable axles and/or wheels.

43) **Where else could we race our Pinewood Derby® car beyond the ND PWD Race?**

Minsi Trails Council does not have a Council Race. In the past there have been 2 annual national Scout races and also a monthly professional league.

NYC: The three Cub Scouts in each Rank with the fastest cars (those who receive the speed certificates) at the ND PWD Race are eligible to participate in the NYC World Championship Pinewood Derby® Race (NYC Race). The NYC Race has historically been scheduled 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. Find out more at www.bsa-gnyc.org/championshippinewood.

The ND PWD Race Rules are designed to meet the NYC Rules for the Stock Division.

Omaha: The Mid-America Council National Pinewood Derby® Race has historically scheduled between mid-April and mid-June in Omaha, NE. Their Race rules are quite different from ours; less stringent which allows for faster cars. There are no pre-qualification requirements, thus any person can enter. There are 6 Race Divisions you could enter, covering Cub Scouts and Kids

(under 18) and Adults including graphite and oil lubrication for each group. 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. Look for more information at www.midamericaderby.com.

Pro: Finally, for those wanting to “go way down the rabbit hole” and go pro there is even a national monthly race league. This is a very, very small group of people from across the USA. These builders and cars are at the peak of the pyramid. Even though the races are very competitive (winning by 0.0001 seconds), and the racers are far and wide there is lots of help and encouragement to be found. Learn more at www.npwdrl.com.

CONGRATULATIONS
To the pending REGISTRANT and ALTERNATE Scouts

for the

2022 Northampton District
Pinewood Derby® Race

- Where: The Wind Gap Fire Company Social Hall
 111 N Broadway
 Wind Gap, PA 18019
- When: Early Check-In & Inspection
 Contact Chris Van Camp at 513-253-8174 (M)
 Race Day and Check-In & Inspection
 Saturday, March 19, 2022
 Check-In & Inspection from 9:30 A.M. to 11:00 A.M.
 Race Begins about 11:30 A.M.
 Awards Ceremony finishes about 2:30 P.M.
- Hosted by: The Northampton Pinewood Derby® Committee and
 the Order of the Arrow
- Until the Race: Keep the car away from playful hands.
 It is advised to put the car in a sealed Ziplock bag.
- Prior to Check-In: 1) Refer to the ND PWD Guide to review to the ND PWD Race Operations
 Rules found at www.minsitrails.org
 2) Reapply the same graphite to the attached wheels and axles.
 3) Clean debris from wheels.
- AND REMEMBER: Once the car **was** accepted by your Pack's Inspection Committee it was
no longer able to be adjusted or altered or modified or fixed or repaired,
 etc. Thus, the car must remain in the same configuration that it finished
 at your Pack's Pinewood Derby® race.
- Direct Questions to: Northampton District
 Pinewood Derby® Chair
 Chris Van Camp
 (513) 253-8174 (M) and/or MTCNCDPWD@gmail.com

Northampton District Pinewood Derby® Race Check-In and Inspection Checklist

Welcome Racers to the Northampton District (ND) Pinewood Derby® (PWD) Race! Thank you, Racers and Akelas, for submitting a car for racing. Even though each of us wants to see our car win we all need to remember the purpose of the PWD. We are all wanting to HAVE FUN, to watch a fair race, share the excitement of a friendly 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. In return, we appreciate your patience with the Check-In and Inspection process, race operation, and web hosting processes.

Safety note, no car or person may pose a hazard to the other cars, the track, persons, or the facility. Please be respectful to one another. Follow the Scout Law and Oath and encourage each other to do the same. The inspectors' decisions and ultimately the ND PWD Chair's decisions are final.

The ND Race Operation Rules are in the ND PWD Guide found at www.minsitrails.org.

We all need to do our best, including being fair with one another and race by the rules. You may remember seeing the *Congratulations* form at the end of your Pack race. Remember to *compete* in the ND PWD Race the car needs to comply with the ND PWD Checklist Rules.

The back of this form has the Checklist Rules. It is needed by the Car Inspection Team (CIT) to approve the car to *compete* for a Speed Trophy. If the car does not pass, the Racing Team MAY be allowed, with the ND Race Committee's approval, to adjust their car as needed on a case-by-case basis. In short, the adjustment(s) cannot give the car a speed advantage. A limited Pit Stop Station is available to make adjustments. Afterwards the car will need to be reinspected.

Once your car is given an entry number no one except the CIT or the Race Operation Crew (ROC) may handle the car. Should a car become damaged to the point of being unable to race you and your Racing Team will be given up to 6 minutes (maybe more) to repair the car. Refer to the Race Operation Rules.

If the car cannot meet the ND PWD Rules, it CAN still *participate* and is still eligible to win 1 of the 5 Specialty Trophies, but not a Speed Trophy. So, we HIGHLY encourage you to race. You as a racing Cub Scout will be able to pick your favorite car for each Specialty Trophies. Also, all racing Scouts will receive a ND PWD Patch. Finally, ...

HAVE FUN!! CHEER EACH OTHER ON!!

Scout's Name: _____ Scout's **Pack**: _____

Car's Name: _____ Scout's **Rank**: _____
At the Pack Race Not Grade

To Be Completed by the ND PWD Car Inspection Team

Scout Registered? _____ Car Entry Number: _____
Top Rear of Car

Car Registered? _____ Car's Pack Standing: _____

SPEED and SPECIALTY **SPECIALTY Only**

To Be Completed by the ND PWD Car Inspection Team

Weight/Overall Inspector

_____ Guided by the **Scout Law & Oath**

_____ **Car Submitted by Registered Scout**
(Lions to Current School Year AOLs & Their Racing Team)

_____ **NA Unaltered** Since Pack Inspection
(ONLY More Graphite & Wheel Cleaning Permitted)

_____ **No Sticky Substance**
(NO: Excess Glue, Wet Paint, Tape, Magnets, Etc.)

_____ **No Moving Weights or Liquids**
(All Parts Solid, Secure, & Safe)

_____ **WEIGHT ≤ 5.00 OUNCES!**
(Up to 5.004 Ounces Permitted. NOT 5.005)

_____ **Cub Scout should be in Class A Uniform**

_____ **Scout Built This School Year from Scratch**
(NO: Repeats, Repaints, Old Components, Professional, Etc.)

_____ **BODY Component is a BSA PWD BLOCK!**
(NO: Other Material, Blocks, Kits, Prefinished, Professional, Etc.)

_____ **If Lights/Sound Attached, Turn Off**

_____ **No Fragile or Loose Parts**
(No Glass, Mercury, Dangerous Parts, Etc.)

_____ **GRAVITY POWERED ONLY!**
(NO PROPULSION SYSTEM. PERIOD!)

Dimensions Inspector

_____ **OVERALL LENGTH = 7" (Ideally) to 6 3/8"**
(Caution Block's Length, Cutting Ends, Adding Lights, Pipes, Etc.)

_____ **OVERALL WIDTH ≤ 2 3/4"**
(Including Wheels & the Axle Heads & *Fenders*, Etc.)

_____ **Wheels Do Not Extend Beyond Body**
(Wheels MUST Remain Behind PWD Block's Front & Rear Ends)

_____ **WHEELBASE LENGTH = 4 3/8"**
(Do NOT Make New Axle Slots or Extend Wheelbase)

_____ **Underside Attachment Width ≤ 1 1/8"**
(Centered & NO Sharp &/or Abrasive Material)

_____ **Bottom of Nose (Front) ≤ 1" High**
(Up Curved Nose Allowed)

_____ **Height ≤ 6"**
(ND PWD BestTrack® Champ Timer Clearance is 6 1/2")

_____ **WIDTH Between Wheels ≥ 1 3/4"**
(Inside Edge *Between Wheels* Using Same Axle Slot)

_____ **No Protrusion Beyond Starting Pin**
(NOTHING May Extend Beyond the Starting Side of the Pin)

_____ **Block End Lengths are between 1" & 1 5/8"**
(From Each Associated Axle Slot to the PWD Block Ends)

_____ **GROUND CLEARANCE ≥ 3/8"**
(NO MORE than 1/8" Thickness Added to Underside of Car)

_____ **Nose (Front) Width ≥ 1/2", Centered**
(No Pointy Nose)

Axles Inspector

_____ **AXLES are 4 BSA PWD NAILS!**
(NO Other Axles. Prefinished, Professional, Etc.)

_____ **2 Wheels & 2 Axles per Axle Slot**
(Each Axle's Pair of Wheels MUST be Across from the Other)

_____ **Smooth (if Desired) Unaltered Axles**
(ONLY Filed, Sanded, Polished, & Graphite Permitted)

_____ **NO BEARINGS/BUSHINGS/WASHERS!**
(ONLY Axle, Wheel, PWD Body, & Graphite Permitted)

_____ **ONLY DRY GRAPHITE-Based Lube!**
(NO OIL! No Liquid Lubricant! PERIOD!)

_____ **Both Original Axle Slots Used & Visible**
(ONLY Adjustments Allowed: True Slots. Pre-Drill to Fit Axles)

_____ **Each Axle Shaft is Visible**
(Caution the Clarity of Adhesive If Used)

_____ **NO SPRINGS/SUSPENSION!**
(PERIOD! Not Even the Body)

Wheels Inspector

_____ **WHEELS are 4 BSA PWD WHEELS!**
(Colored Wheels Allowed. NO: "CHINA", *Prefinished, Professional, Etc.*)

_____ **Tread is Flat & Parallel to Bore**
(NO Reshaping Tread at ALL. Lattice MUST Face Outward)

_____ **Correct LETTERS/NUMBERS Intact**
(BSA / PINWOOD DERBY®) (OFFICIAL BSA / # / MADE IN USA)

_____ **NO MATERIAL REMOVED IN/OUT!**
(NO: Lathe, Narrow, Lighten, Hub Stepdown Removal, Etc.)

_____ **NOTHING but 4 Wheels Contact Lane**
(Wheels NOT Required to be Flat on Track. Canted Allowed)

_____ **NO WHEEL ALTERATIONS!**
(ONLY Adjustments Allowed. Polish: Bore, Hub, Tread, & Tread)

_____ **NO MATERIAL ADDED** Except Graphite
(NO: Inside/Outside Cover, Hubcap, Paint, Nail Polish, Etc.)

_____ **Outside FULLY Intact & UNALTERED**
(Small Dotted Bumps Along Tread & Sidewall. Lattice Also)

_____ **ONLY LIGHT SANDING Permitted**
(ONLY TO REMOVE MINOR SURFACE IMPERFECTIONS!)

_____ **NO RAISED WHEEL! PERIOD!**
(NO GAP Under Any Wheel. Test on Smooth Rigid Flat Surface)

NORTHAMPTON DISTRICT PINEWOOD DERBY® RACE OPERATIONS RULES

Eligibility

- 1) The Pack PWD Race Chair (or designee):
 - a) is highly recommended to re-inspect a minimum of 7 cars at the end of their Pack PWD race to ensure that each car can pass the ND Inspection to compete.
 - b) informs up to 5 Cub Scouts that they are to-be-registered to represent their Pack at the ND PWD Race.
 - c) informs the remaining Cub Scouts that they are to be alternates.
 - d) should give the to-be-registered and alternate Cub Scouts and their adult partners (Akela) the *Congratulations* form at the end of their Pack PWD Race.
 - e) may send an equal number of alternate Cub Scouts as substitute(s) when any number of the up to 5 to-be-registered Cub Scouts are unable to attend the ND PWD Race.
 - f) registers and completes payment by the Monday before Race Day for up to 5 Cub Scouts. Registration is through the Minsi Trails Council website. Payment is through the Minsi Trails office. Refer to www.minsitrails.org and in the blue banner hover over “Districts”, select “Northampton District” and scroll down under the “Upcoming Events” Listed and select the “Northampton District Pinewood Derby Race” link. On the top left is the registration link. Include in the registration:
 - i) Scout’s Name
 - ii) Scout’s Rank (on the day of the Pack race)
 - iii) Car’s Name
 - iv) Pack Number
 - v) Akela email **AND** mobile phone number

Example: If 3 Cub Scouts are registered then only 3 Cub Scouts may attend. A 4th or 5th Cub Scout may not attend the ND PWD Race unless also registered by the Monday before Race Day.

Example: If Race Day is Saturday, March 19, then registration is due by Monday, March 15.
 - g) must confirm via MTCNCDPWD@gmail.com any number of further alternate Cub Scout(s) with their Rank and their named qualified cars with the ND PWD Chair who will then inform the ND PWD Timer Manager and a paid ND Leader (ideally the District Director) if the substitution occurs after the initial registration or after Monday before Race Day and no later than 9:00 PM on Friday before Race Day.
 - h) should have their Pack flag and stand attend the Council Race and then returned to the Pack.
 - i) in the event of inclement weather or an unforeseen event, will inform the Pack’s Racers if the ND PWD Race is on-time, delayed, or cancelled. The Pack PWD Race Chair will be informed by the Pack Cubmaster and/or Committee Chair via email from a paid ND Leader (ideally the District Director) by 8 A.M. Race Day.
- 2) A Cub Scout is a youth that is a registered BSA Lion, Tiger, Wolf, Bear, Webelo, or Arrow of Light (AOL). A Cub Scout is eligible to race in the ND PWD Race when they meets the following rules. The Cub Scout:
 - a) must have participated in their ND Pack’s Pack PWD race (current school year) as a registered Cub Scout.
 - b) must be a registered Cub Scout with their ND Cub Scout Pack at some point between (current school year) January 1, and the ND Race Day. An AOL Cub Scout that has crossed over to and is registered with a Scouts, BSA Troop until the ND Race Day may race for their former Cub Scout Pack.

- c) must be registered to race (ensure payment completed) through the Minsi Trails Council website by their Pack's PWD Chair (or designee) by the Monday before Race Day.
 - d) may be an alternate for an initially registered Cub Scout after being confirmed as a substitution via email at MTCNCDPWD@gmail.com with the ND PWD Chair. The Chair then informs the ND PWD Timer Manager and a paid ND Leader (ideally the District Director). This substitution is permitted after the initial registration or between the Monday before Race Day and 9:00 PM the night before Race Day.
 - e) must follow the ND PWD Race Rules and Race Operations Rules.
 - f) and their Racing Team must accept the outcome of each heat and the final results. You are involved in a speed competition where the car could be damaged up to and including beyond repair by no fault of the owner.
- 3) Only one car may be presented by the Cub Scout per school year. The car presented by the registered (and any alternate) Cub Scout is eligible to race in the ND PWD Race when it meets the following rules. The car:
- a) must have been built this school year after August 31 and prior to the Cub Scout's Pack PWD Race.
 - b) must be the Cub Scout's personally built car.
 - c) must have been raced on behalf of the Cub Scout in the Cub Scout's Pack PWD Race.
 - d) must remain in the same configuration that it finished in at its Pack PWD Race.
NO alterations EXCEPT adding more graphite and cleaning the wheels.
 - e) name must be registered along with the Cub Scout by the Cub Scouts Akela by the Cub Scout's Pack PWD Chair (or designee).
 - f) must adhere to the ND PWD Race Rules and Race Operations Rules.
 - g) is involved in a speed competition where it could be damaged up to and including beyond repair.

Check-In

- 1) Check-In verifies that the Cub Scout and their car were properly registered (including payment received) with the Northampton District. In addition, the Check-In includes the inspection of the car to ensure compliance with the ND PWD Race Rules. The Inspection tables are expected to be manned primarily by members of the Order of the Arrow (OA). They are the Car Inspection Team (CIT). The Inspection tables has the ND PWD scale (calibrated by Northampton County Weights and Measures), the measurement tools, etc. necessary to inspect the car. These tools are the official equipment for the ND PWD Race.
- 2) The ND Race Committee is responsible for the proper conduct of the Check-In and Inspection. Good behavior and good sportsmanship are expected by all attendees. All decisions of the ND Race Committee are final, and the ND PWD Chair (or designee) can ask anyone not following these rules to leave.
- 3) The Race Day Check-In and Inspection is at a public location within Northampton County PA on usually the third Saturday of March. Race Day Check-In is from 9:30 A.M. to 11:00 A.M. The Racing Team's initial line entry for the Check-In table needs to be by 11:00 A.M. Inspection ends when the last car receives an entry number.
Additional Check-Ins and Inspections at a private location maybe available. Refer to www.minsitrails.org and hover over "Districts" in the blue banner and select the "Northampton District" link. Then scroll down and under the "Upcoming District Events" select the "Northampton District Pinewood Derby" link.
- 4) The Racing Team shall complete their portion of the *ND PWD Check-In and Inspection Checklist* form prior to the Check-In Table.
- 5) The Cub Scout must personally present their eligible car along with their Check-In form to the CIT members at the Check-In table and the first Inspection table. The car presented to race in ND PWD Race must pass the inspections performed by the CIT. The CIT completes the Inspection Checklist.

- 6) No person may unnecessarily interfere with any member of the CIT while a car is being inspected. No person other than Race Officials may enter the track area at any time. No one other than the CIT and the ROC may handle and/or interfere with any racing car once it is impounded for the Race.
- 7) If a car appears not to be compliant, the inspector will inform the Racing Team of the issue(s) verbally and with their Reg/Check form. If needed the car will be reviewed by at least the other inspectors and up to the ND PWD Chair. Each issue will be reviewed on a case-by-case basis. The objective is to have the car *compete*. However, no adjustment(s) may allow a car to gain a speed advantage. In addition, certain issues just cannot be adjusted to comply with Rules. Examples of non-compliance include, but are not limited to, the use of a non-BSA pinewood block or an extended wheelbase.
- 8) If the CIT permits the issue(s) to be corrected, the Racing Team may adjust the car to be compliant to *compete*. The permitted adjustment(s) shall be completed by the Racing Team. Tools and supplies required to perform the adjustment(s) are the responsibility of the Racing Team. A very limited array of simple tools and/or supplies may be available. Racers are to be prepared for adjustments. Once a car is finally adjusted, it must restart the Inspection process from the beginning.
- 9) If the Racing Team believes that their car is following the ND PWD Rules, they may appeal to the full adult CIT that are available. The CIT voting members, by a majority vote, will uphold or overturn the appeal. In the case of a tie vote, the ND PWD Chair makes the final decision.
- 10) The Racing Team must be back in line for Inspection no later than 11:00 A.M. on Race Day. There is no limit to the number of times a Racing Team may return to the Check-In table and/or Inspection tables to check on their adjustment(s) progress. Remember to be patient and courteous to others.
- 11) The final step for the Cub Scout is to indicate which end of the car is its rear. The last step of the Inspection is the attachment of a sticker to the car's top rear. The sticker shows the car's entry number.
- 12) After the car is accepted to race by the ND Race Committee, it is placed in a designated staging location that is manned by the ND PWD Race Operation Crew (ROC). Only the ROC may handle the car. The car remains in this staging location except when it is to race, if it needs repair, if it is to be presented during the Awards Ceremony, or it is released to the Racing Team by the Racing Committee. Once a car is released to the Racing Team it can no longer compete in the ND PWD Race. The Racing Team is responsible for claiming only their car after the end of the Awards Ceremony.
- 13) If a car is not able to follow the ND PWD Rules, it may still *participate* in the Race. The Racing Team is encouraged to race the car (have fun and practice good sportsmanship). Each individual heat time is available briefly and immediately following the heat on The Champ timer at the track finish line and the overhead screen. However, the final total time for the car will not be included in the final standings of the cars for a speed award.
- 14) Should a car pose a potential hazard to itself, other cars, the track, the facility, or the attendees, the car is to be reviewed by the full adult CIT and ND Race Committee. The car might perform a pre-race lane qualification check by racing on an interior lane of the track. If the car is determined by a super majority (67%) of all the voting members of the CIT to be a hazard, the car cannot race. PERIOD. (Respect of others). An unsafe car is the only reason the Race Committee will not allow a car to race.
- 15) AGAIN, if you strive to *compete* in the ND PWD Race ensure that your car is compliant with the ND PWD Rules!! Understand the Checklist Rules and use the Guide and ask questions (to the right persons) well before your Pack Race.

Race Operations

- 1) The operation of the ND PWD Race is manned by the Race Operation Crew (ROC). The ND Race Committee is responsible for the proper conduct of the operation of the ND PWD Race. Good behavior and good sportsmanship are expected by all attendees. All decisions of the ND Race Committee are final, and the ND PWD Chair (or designee) can ask anyone not following these rules to leave.
- 2) The ND PWD Race is expected to use a 4-lane 42-foot Best Track® aluminum track with a manual spring release starter pin in concert with a *The Champ* electric timer (timer) that is managed by the GrandPrix Race Manager™ software (software). The software is managed by the ROC Timer Manager.
- 3) Each instance cars race down the track is called a heat. Each heat includes of up to 4 cars. Each car races once in each lane for a total of 4 personal heats. Prior to the start of The Race the software randomly assigns each car a personal heat in each lane. The total number of heats for the ND PWD Race equals the total number of cars entered into the software. The timer displays times down to 0.001 of a second and the finishing placement (1, 2 3, and 4) for each car in a heat. The software records times down to the 0.0001 of a second and measures to 0.00005 of a second. The software manages the ranking of all competing cars in the ND PWD Race.
- 4) Each car's final standing is determined by its total time. Total time is the sum of ALL 4 heat times. The lowest valued total time will be first place for the ND PWD Race. The slowest heat time is included in the total time. NO personal heat time is removed or dropped.
- 5) Prior to the start of the ND PWD Race, the ROC Timer Manager along with the ND PWD Chair (or designee) will publicly announce all racing Scouts' names and the car names only once to all in attendance. This is to ensure that every racing Scout is accounted for and entered into the software correctly. Once the Race starts a car *cannot* be inserted into the software. If a Scout's car is found not to be entered with the other cars to compete but should be, that car will race immediately after the official Race. The forgotten car's 4 personal heat times will be added together and will be included with the final standings.
- 6) At any time during The Race, the ND Race Committee can inspect a car to ensure constant compliance with the ND PWD Rules and will act accordingly.
- 7) No person may unnecessarily interfere with any member of the ROC during race operations. No person other than Race Officials may enter the track area at any time. No one other than ROC may handle and/or interfere with any racing car until the car is released to the owner.
- 8) During the operation of the ND PWD Race, a Racing Team may appeal to the ROC. Examples include but are not limited to execution of race operation, improper lane placement, heat results, re-inspection, etc. The Racing Team is responsible for making a *prompt* and *timely* appeal. The voting members of the ROC, by a majority vote, will uphold or overturn the appeal. In the case of a tie vote, the ND PWD Chair makes the final decision.
- 9) **Electronic Errors:** In the event of a temporary timer and/or software malfunction, the heat will be re-run. In the event of a mid-race timer and/or software failure, the ROC and ND Race Committee will determine the best approach to racing based on the circumstances. All decisions of the ND Race Committee via the ND PWD Chair are final.
- 10) **Person Interference:** In the event of interference by any person (child, adult, Scout, parent, Starter, Leader, etc.), the heat will be re-run. Refer to the **Car Repair** Rule as needed.
- 11) **Track Fault:** If a car leaves its lane or the track, the ROC may inspect the track. If a track fault is found, the track will be repaired as able. The heat will be re-run. No previous heats will be re-run. Refer to the **Car Interference** and **Car Repair** Rules as needed.

- 12) Car Does Not Cross Finish Line: The assumption to this rule is that the car does not leave its lane or the track, or is not interfered with, or does not sustain damage during the heat. If a car does not cross the finish line, the heat will be re-run. In following the Scout Law and Oath the ND Race Committee may permit the Racing Team to adjust their car. The heat will be re-run and called valid. If during the re-run the same car does not cross the finish line a time of 6.0000 seconds will be awarded since all times are used towards the total time. Refer to the Car Repair Rules as needed.
- 13) Car Leaves its Lane: If a car leaves its lane and proceeds down the track and does not interfere with another car, then the heat will be re-run, even if the car registers a finish time. If, during the re-run of the same heat, the same car leaves its lane again and still proceeds down the track and still does not interfere with another car, then the re-run heat will be called valid. If the car registers a finish time, this actual time will be awarded. If the car does not register a finish time, a time of 6.0000 seconds will be awarded since all times are used towards the total time. The car leaving its lane is defined as the car “jumping” at least once a wheel(s) over a center guide rail and sliding down, for any length, the guide rail and did not leave the track. Refer to the Car Interference and Car Repair Rules as needed.
- 14) Car Leaves the Track: If a car leaves the track and does not interfere with another car, then the heat will be re-run. If, during the re-run of the same heat, the same car leaves the track again or its lane and/or does not register a finish time and still does not interfere with another car, then the re-run of the heat will be called valid. The actual finish time or 6.0000 seconds (whichever is faster) will be awarded since all times are used towards the total time. Refer to the Car Leaves its Lane and Car Interference and Car Repair Rules as needed.
- 15) Car Interference: If a car physically interferes with another car, then that heat will be re-run. If, during the re-run, the same interfering car physically interferes with another car again, then the heat will be re-run again without the interfering car. The interfering car will be awarded a time of 6.0000 seconds since all times are used towards the total time. Refer to the Car Repair Rule as needed.
- 16) Car Repair: If a wheel falls off or the car becomes damaged to the point that it cannot race, then the Cub Scout and their Racing Team may perform repairs. Any cosmetic, details, or accessories that fall off are not considered damage to the car. Repairs will be observed by a ND Race Committee member. The Racing Team will have up to 6 minutes to complete the necessary repairs to their car. If repairs cannot be completed within the 6 minutes, the car will be retired from racing and the heat will re-run with the remaining cars and the ND PWD Race will continue. Tools and supplies required to complete repairs are the responsibility of the Racing Team. A very limited array of simple tools and/or supplies may be available. Racers be prepared for repairs. If a car is damaged due to track fault or person interference, the ROC may allow additional repair time and assistance. Remember all Racing Teams must accept the outcome of each heat and the final results. You are involved in a speed competition where the car could be damaged up to and including beyond repair by no fault of the owner.

Trophy Ceremony

- 1) Prior to awarding the Speed Trophies, the ND Race Committee can re-inspect cars as needed immediately following the final heat of the Race to ensure compliance with the ND PWD Rules.
- 2) Specialty Trophies:
 - a) A car that is awarded a speed trophy should expect not to be awarded a specialty trophy.
 - b) During the Race, ALL attendees (except the ND PWD Chair) may vote once for their favorite car for each of the specialty categories listed below.

- c) The car receiving the most votes in a category will be awarded that trophy/certificate. Should more than one car receive an equal number of votes the ND PWD Chair will determine the winner among those cars.
 - d) A car cannot be awarded more than one specialty trophy. Should a car receive the most votes in more than one category the ND PWD Chair will determine the awarded category.
 - e) The 5 Specialty Categories are:
 - i) Best Cub Scout Theme
 - ii) Most Patriotic
 - iii) Funniest
 - iv) Best Not a Car
 - v) Most Unique
- 3) Speed Trophies:
- a) A car that is awarded a specialty trophy should not expect to be awarded a speed trophy.
 - b) The 3 Cub Scouts per Rank with the fastest cars will be awarded certificates. These certificates are for the 1st, 2nd, and 3rd places for Lions, Tigers, Wolfs, Bears, Webelos, and current year Arrows of Lights (AOL). These Scouts are then eligible to compete, at their choosing, at the NYC World Championship Pinewood Derby[®] Race near Times Square. The NYC Race has historically occurred on the last Saturday of June.
 - c) The 5 Scouts with the overall fastest cars, regardless of the Cub Scout's Rank, will be awarded top speed trophies. These Scouts will most likely also be awarded a 1st, 2nd, or 3rd place trophy in their Rank.