



The Pinewood Derby is a special time for most Scouts, Scouters, and parents. Some of my most cherished memories are in spending time with my son, and other Scouts, while they worked on Pinewood cars, helping when necessary, and then in the end sharing the joy of their car racing. These are memories that I will always cherish, and I hope that you, too, will be building memories to cherish.

The pinewood derby is a time for scouts to learn about the design process, about using tools, about planning and preparation, and having fun in the process. It is also a time for a parent/guardian and their Scout to spend time together developing treasured memories. When the car is all done, we then have a race to have more fun! But remember, the pinewood derby is not about racing. That is just the icing on the cake. So don't be too competitive. Have fun, relax, and enjoy. And please, let your scout do

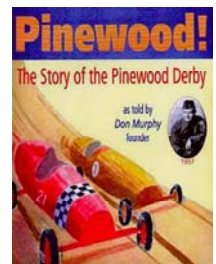
most of the work. Otherwise we are not learning.

The model cars are built from a kit which contains a wooden block (pinewood), four wheels and four nails (axles). Under the guidance of their parents or helpers the Scouts shape, sand, paint and decorate their cars to their own liking. Then the Scouts assemble their cars according to specific dimensions and weight requirements as set forth in the Official Rules (see below).

The cars run down a special race track, free wheeling, propelled only by gravity. Pack 1020 owns and uses a 6 lane track.

## HISTORY

The first Pinewood Derby was held on May 15, 1953 by Cub Scout Pack 280C of Manhattan Beach, California and directed by Cubmaster Don Murphy. The first reference to the Pinewood Derby in a Scout publication was in the October 1954 issue of Boy's Life. The June 1955 "Program Helps" theme was "Wheels, Wings, and Things." The Cub Scout Program Quarterly gave instructions for running the Pack Meeting Derby. The Supply Division's catalogs had kits available for \$2.75 for a package of eight. Over 15 million kits were sold during the next 20 years. Today, over 80 million car kits have been sold.



## Questions:

### I don't know where to start!

For those of you who have never built a car, don't have the tools, the skills, etc., don't panic. There is help available. We want to see your scout succeed so that you can have memories to cherish. And so each year we have set aside days where we get your scout started, helping to cut and shape his car, place his wheels, etc. You will only have to help with the finishing touches, but that won't be so hard. You can find the details later in this packet. During these help days, we will have tools to cut and shape, sand, and otherwise prepare the cars. We will not do any painting. This is left to you and your Scout.

### I want to build a car too!

For those of you that would like to build and race your own car but are not scouts, we do have open and outlaw classes that race as well. Semi-Pro and Outlaw classes are open to parents/guardians and siblings of scouts. This provides a chance for everyone in the family to have fun too and share in the joy with their scout. They love to cheer your car on as much as you do theirs. It is also a great way to teach your scouts how to build a car. Kits are available from the Cubmaster or the Scout office for about \$3.00 each.

### But watch out for...!

All pinewood derby cars entered in the race must be built out of the official BSA pinewood derby kit (not the kits and/or parts available in hobby stores) and have been built since last August. Otherwise these cars will be disqualified from winning,

something we sure would hate to do. There are other rules too, so be sure to check them all out and follow them before you build the car.

### What's new since last year?

- "OUTLAW CLASS" added for anyone who wants to walk on the wild side. Anything goes (OK, almost anything). Outlaw Class has two basic rules – don't interfere with another racer and don't damage the track. Outlaw Class is available to Pack 1020 scouts and anyone related them.

### What Are The Rules?

The reason this question gets asked so often is because of the confusion encountered in interpreting the guidelines for Pinewood Derby racing found in various BSA publications. These guidelines can be found in the following publications:

- "Cub Scout Leader How to Book" (BSA No. 33831)
  - "Cub Scout Grand Prix Pinewood Derby Guidebook" (BSA #33721)
  - "Grand Prix Pinewood Derby Kit" (BSA Kit No. 17006)
- They are called "guidelines" and not "rules" because each pack organization can establish whatever rules it wants for conducting their Pinewood Derby race. All Pinewood Derbies are similar in their operation, but the "Official Rules" vary among different pack organizations.

## Most Important Tips

The boys and adult should make the car together as a project! It is not the intent that the parent shows the Scout the garage door then walk away; nor is it the intent that the boy plays video games while the adult cuts and sands. Parents should shape with the power tools and then direct the rest of the action while showing the boy each step in building a car.

1. Have fun! After all, this is what it is all about.
2. Know the rules. Being disqualified can be very embarrassing.
3. Safety first. Let's not lose any fingers.

All rules will be interpreted in consideration of the Scout Oath and Scout Law.



*"It's just a racing thing..."*

## CALENDAR and SCHEDULE

### FRIDAY, DECEMBER 8, 2006: Pack Performance

7:00 PM: Pack Performance: Pinewood Derby Kickoff

### SATURDAY, DECEMBER 30, 2006: Cut Day for Pinewood Derby

8:00 AM – 1:00 PM: Need help in building a car because you lack the necessary tools, knowledge, or skill? Come to our help day where volunteers will be glad to assist the you and your Cub Scouts.

### SATURDAY, JANUARY 13, 2007: Cut Day & Weighing for Pinewood Derby

8:00 AM – 1:00 PM: Finish cutting your car, get you car Inspected and Weighed during the second Cut Day for Pinewood Derby. Come get any last minute help for you Pinewood car.

### FRIDAY, 19 JANUARY 2007: Setup and Preparations

9:00 PM: Come help setup and decorate for the Derby. We will setup the Pinewood Derby track and check-out the track.

### SATURDAY, 20 JANUARY 2007: Race Day Pilgrim Lutheran Church Parish Hall

#### Race Schedule

CHECK-IN & REGISTRATION	8:00 - 11:00 am	
	Race Time	Award Time
TIGER	10:05 am	10:50 am
WOLF	11:05 am	11:50 am
BEAR	12:05 pm	12:50 pm
WEBELOS I	1:05 pm	1:50 pm
WEBELOS II	2:05 pm	2:50 pm
Championship	3:05 pm	3:20 pm
Semi-Pro/Outlaw	3:30 pm	When completed

To help make the check-in run smooth, if at all possible please check-in and register early. If a family has more than one scout in the pack, they can check all their cars in at the same time. **Note:** the race times are approximate, although a race will not start before their designated time. Cub Scouts should be dressed in a neat, clean uniform; however, no Scout will be disqualified for not wearing their uniform.

## COUNCIL AND DISTRICT RACE

District and Council races are also scheduled for 2007. More information will be available on the race day. HOWEVER, the Pack 1020 check-in does not guarantee eligibility for district-level and higher races. District and higher level races have their own rules and check-in procedures.



**TROOP 1020 Will Run a Concession With Food and Beverages At Reasonable Prices From 9 am – 3 pm**



## PACK 1020 RULES & GUIDELINES FOR ALL RACERS & CARS

### WHO IS ELIGIBLE:

The Cub Scout Pinewood Derby race is open to all registered Cub Scouts in Pack 1020 (Tiger, Wolf, Bear, Webelos I, and Webelos II). Troop 1020 Scouts are also invited to race (details provided to the Troop). The Semi-Pro and Outlaw races are open to the parents, guardians, and siblings of Cub Scouts in Pack 1020. (We have even had a couple dogs and cats enter the races. Please check with the Race Officials for a ruling.)

**RULES FOR ALL RACES: CUB SCOUT / SEMI-PRO / OUTLAW**

1. All cars entered in the Pack 1020 Pinewood Derby shall be newly made during this Cub Scout Year (post August 2006). Cars from previous years may be raced, but must be clearly identified as older cars and may receive patches or ribbons for participation, but may not receive awards for the races.
2. A car may race in only one category (Cub Scout, Semi-Pro, or Outlaw). Only one car per Cub Scout in the Scout races.
3. Cub Scout race cars must conform to the BSA *Grand Prix Pinewood Derby* rules as specified for Pack 1020 (See section below). Semi-Pro racers may use modified wheels and axles, but adhere to the remaining BSA Pinewood Derby Rules. Outlaw racers basic rules are: cars must not interfere with other cars on the track and cars must not damage or otherwise affect the track. (Details for both Semi-Pro and Outlaw racers are in a separate section.) Any scout leader or relative of a Pack 1020 scout can race in the Semi-Pro or Outlaw class.
4. Registration period is from 8:00AM until racing starts for each Cub Scout rank. It is highly recommended that the scout or a family member of the entrant be present should any technical issues with the car be encountered at the registration table.
5. Each car has a unique, official number which must be attached to the car using the small adhesive backed labels provided in the pinewood derby kit. Place this number on the rear portion of the car so that the Official Pinewood Derby Starter can easily identify the correct car and its proper direction of travel.
6. Awards will be given to the first, second, third and fourth place finishers in each rank. Awards will also be given at each rank for cars that are judged to have the most Cub Scout content, are the best looking, or are the most innovative. These awards will be announced at the end of each rank race.
7. The winners of each category with the exception of Semi Pro or Outlaw Class will compete for an overall speed award for the Grand Championship.

Good sportsmanship is expected at all times by all persons present at the Pinewood Derby. It will insure that entrants are not disqualified.

**CHECK-IN RULES: Summary**

1. Each entrant must register their car during Check-In.
2. All cars must pass inspection by the Official Inspection Team before it can compete. The Inspection Team has the right to disqualify those cars that do not meet these rules. Car owners will be informed of the violations and given an opportunity to modify the car to meet these rules. If the car cannot be modified to meet the rules, at the discretion of the Race Committee, the car may be allowed to run in the Semi-Pro or Outlaw Category.
3. You may attempt to check-in as many times as you like during the check-in period (8:00 AM - 11:00 AM).
4. When you are satisfied with your car (including weight adjustment) and it has completed all the check-in points successfully, it will be given a number and placed in a holding area. You will not be allowed to handle your car after this point.
5. Any participant or their parent has the right of appeal to the Race Committee for an interpretation of these rules. The Race Committee, by majority vote, will be the final judge of these rules. In case of a tie vote, the decision of the Race Committee Chairperson will be final.
6. If your car has not successfully completed check-in before the race begins, the car cannot race nor win an award. Be sure to allow sufficient time for Check-In.

**Racing Rules and Procedures: Summary**

1. Only Pinewood Derby officials will be allowed to place the cars on the track.
2. Any race in which there is a tie will be rerun.
3. A car that jumps off the track or interferes with another car, the heat is run again. If the same car jumps off the track a second time, the car loses the heat.
4. All races are run on a schedule determined by the race software. The race software balances the number of races with the number of cars. Every car runs the same number of races at least once per lane. The standings are based to the total "scores" from all of the races.
5. Tie scores will advance to the finals.
6. If a car breaks down the scout will be allowed a chance to fix his car before the start of its next scheduled heat. If the car is not fixed in time, it will lose the heat. Damaged, beyond repair, eliminates the car from racing.
7. A heat is rerun if a failure of the electronics, computer, start or finish line, occurs. A complete failure of the electronics necessitates "Manual Scoring" at the finish line (See section on manual scoring.).
8. **GOOD SPORTSMANSHIP AND BEHAVIOR IS EXPECTED.** Race Officials may ask anyone not following this rule to leave.

## ASK ASK ASK

If you don't understand any of the rules specified within this document...ASK! The Pack 1020 Pinewood Derby Race Director can be reached by e-mail at [ggstart1020@yahoo.com](mailto:ggstart1020@yahoo.com), or you contact any other Pack 1020 adult leader.



## Pack 1020 Racing System

### The Track

Pack 1020 has a Pinewood Derby will use a Piantedosi Oars "Freedom Series" 6 Lane aluminum track which provides standard lane clearances: 3-1/2" wide lane width with 1/4" high center guide rails [Website: <http://www.pinewoodderbytrack.com/>].

### The Finish Line

The Finish Line is a computerized, electronic mechanism, which is called a Grand Prix Finish Line from Micro Wizard [<http://www.microwizard.com/>]. The Grand Prix Finish Line is a scanner that detects each car passing through the finish line.

### The Software

The Derby Master Program is used to determine the racing schedule, record the race results, and calculate standings for each race car [<http://www.enterprisingideas.com/>].

Each car accumulates points for each race completed, and race the same number times, generally, once in each lane.

## Cub Scout Entries (BSA Grand Prix Pinewood Guidelines)

### CONSTRUCTION

Cars entered in the Cub Scout races should be substantially built by the Scout as appropriate for their age. Adult supervision is expected as necessary. It is important to work together, build the memories with your Scout, and be creative. Also remember to have FUN!

### KITS

Cars shall be built using the Official Pinewood Derby Kit authorized by the Boy Scouts of America. Each registered Cub Scout of Pack 1020 will be given a kit. Semi-Pro and Outlaw class entries can purchase a kit from either the Pack or at the Scout Shop. Use of any other kit or parts from those kits, such as those advertised in various magazines (including Boy's Life) or sold in hobby stores, may cause disqualification from all awards. Additional decorations, weights, decals, and add-ons are available at Scout shops and some hobby shops. Each box also contains one number sheet and set of Official Rules.



### Cub Scout Race Car Specifications:

**Height:** Not to exceed 4 ¾ inches overall; the car must be able to pass under the finish line.

**Length:** Not to exceed 7 inches overall

**Width:** Not to exceed 2 ¾ inches including wheels and axles

**Size:** Must fit within the official dimension "box."

**Wheel Track** (width between wheel hubs): Not modified from original BSA kit (i.e. approx. 1 ¾ inches excluding wheels and axle nails)

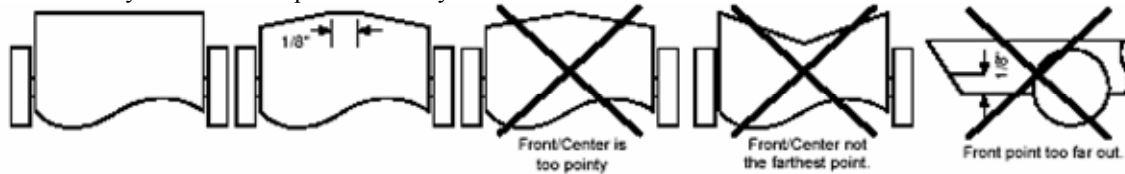
**Clearance:** Not less than ⅜ inches; the car must clear the center guide to be qualified to race.

**Weight:** A completed car shall not exceed 5.000 ounces (141.75 grams) as measured on the official Pack 1020 scale at the time of check-in.

### Race Car Body:

The main part of the body should be made from an Official Grand Prix Pinewood Derby kit either provided by the Pack or purchased at a Scout Shop. You may remove material from the block of wood or add other parts to give it the shape you want, including hollowing it out for decorative purposes or for the purpose of adding weight, with the following restrictions:

1. The front edge of the car body (front being defined as the end that goes down the track first) must properly engage the starting pin. A point at least  $\frac{1}{8}$ " wide is enough to easily engage the starting pin.
2. The front of the car may not be designed to attempt to gain an advantage to either the starting or finish line. (See illustration below).
3. Cars which may damage the track are not permitted.
4. You may build up the body of the car with any fixed SOLID material including but not limited to wood or metal, providing all materials are securely attached to the body. Loose materials are not permitted on the cars.
5. Car designs considered in poor taste, offensive, or not scout-worthy are not acceptable.
6. All weights or other material mounted to the car may not interfere with other cars or restrict the clearance rules.
7. Hazardous materials are prohibited.
8. No springs, magnets, moving or liquid parts will be allowed on or in a car.
9. The car must be freewheeling with no starting device or other propulsion. The motion of the car may not be mechanically aided (motor, springs, CO2 cartridges, rubber bands, etc. are prohibited).
10. Any car having any item on it, which in the opinion of race committee is dangerous, hazardous, in poor taste or presents an image not in keeping with Scouting can be disqualified.
11. Fixtures and accessories must not extend beyond the dimensions stated in the Car Dimensions and Weight section above.
12. Cars with wet or sticky paint will not pass inspection. Wet or loose glue will also fail inspection. Please make sure the finish on your car has ample time to dry before the race.



## Wheels:

The only wheels allowed for the Cub Scout races are the BSA Grand Prix Pinewood Derby Wheels supplied with the kit or from a BSA wheel replacement kit. The wheels shall not be modified in any way except for lightly sanding by hand to remove mold mark on the surface of the wheel. No rounding, beveling, milling, turning, or painting of the wheels is allowed! The inner wheel hub shall not be modified in any way. Cars with modified or other wheels may race in the Semi-Pro races.

## Axles:

The only axles allowed for the Cub Scout races are BSA Grand Prix Pinewood Derby Axles supplied with the kit or from a BSA wheel replacement kit. No other body, wheels or axles of any kind are allowed, nor are other parts related to the wheel/axles assembly allowed including but not limited to the use of washers, bushings, wheel bearings or springs. Nail axles may have any rough edges removed and can be polished, but they cannot be plated nor modified in any other way (this includes being bent). Bearings, washers, or spacers as part of the wheel assembly are prohibited in the Cub Scout races, but may race in the Semi-Pro and Outlaw races.

## Lubricants:

Axles and wheels may be lubricated with DRY LUBRICANT (such as the BSA graphite or white Teflon lubricants available from the scout office). No fluids may be used for any purpose anywhere on the car; oils and fluid lubricants will damage the track surface.

**Warning--Many oils and fluid lubricants will soften the plastic wheels keeping them from turning freely.**

Once the car is impounded, it will be lubricated once before the racing begins.



## Spare Parts:

If any parts need to be replaced due to damage or loss (wheels, nail axle, body), the Cubmaster and Pinewood Race Director have spare parts available at a nominal charge.

## Building Instructions and Guidelines:

Although there is no right or wrong way to build a car, we have developed some general guidelines to help you. Some of these are taken from the instructions that come with the car, while others are based on personal experience. Please use these as a reference, but feel free to deviate from them as necessary. The only exception...please, let the scout do most of the work unless a safety hazard (such as using power tools) or if there is a chance of damaging the car beyond repair (such as installing the axles). Parents and other adults are encouraged to supervise and teach.

Who	Action
Scout / Adult	Check the alignment of the grooves to ensure that each is a perfect 90-degree angle to the car body. Adjust if necessary using two hacksaw blades side-by-side or cut new grooves or drill new holes as necessary.
Adult	Using a drill bit slightly smaller than the axle diameter (0.09" or 3/32" or less), carefully drill into the axle grooves. Take care not to drill sideways or the race car will pull to one side and run slower. The purpose of this is to make it easier to insert the axles later without damage.
Scout	Choose your favorite design, and then mark the block of wood accordingly with a pencil.
Adult	Plan for where to add weight to the car (most cars need added weight). A section of wood can be removed from the bottom to add flat lead weights (using wood tools or a rotary tool); holes can be drilled to add round lead weights, etc. Cut/drill/chisel away wood to make room for weights. Plan on arriving at the race a little under weight. It is far easier to add a bit of weight, then removing weight.
Scout and / or Adult	Cut out the design by hand or by using a power saw. If doing by hand, the Scout should do as much of the work as possible. Adults generally should use the power tools.
Scout / Adult	Shape the block, as necessary, to give the final shape.
Scout	Sand the block of wood until smooth. Start with heavy gauge sandpaper and step through finer gauge sandpaper smoothing the surface.
Scout	Wipe down the car with a wet rag and let dry thoroughly. <b>Look at the surface closely</b> ; a smooth glossy surface depends on a smooth, defect-free wood surface.
Scout	If painting, apply several coats of sanding sealer, and when finished, sand the entire car with fine grade sandpaper. Take care not to sand too much; use very fine grade sandpaper and sand just enough to smooth the surface. <b>HINT</b> : Use a screw or nail driven into the bottom to help hold onto the car while painting.
Scout	Color car if desired (markers, crayons, paint, etc.). If painting, give car at least two coats of fast drying paint in your choice of color. Paint can be applied by brush or by spray can. Spray paint will generally be easier and dry more quickly.
Scout / Adult	Add any desired details, such as decals, steering wheels, etc. Also add any weights not already added. A clear finish coat over decals and stickers will help prevent damage.
Scout / Adult	Optional (recommended): Polish the axles with very fine sandpaper, steel wool, or other polish material.
Scout / Adult	Pre-lubricate the axles and wheels using a dry powdered lubricate. <b>Do not use regular oil or silicone spray.</b> Careful. This is MESSY.
Scout	Slide wheels over axles, then gently tap them the axles into the car body grooves with a 1/4" dowel or similar object to within 1/32nd" of car body. <b>Make sure the wheels turn freely.</b>
Scout / Adult	Make any adjustments to the wheels/axles desired to get the car to roll freely and straight.
Scout / Adult	Once you have adjusted everything the way you want it, consider adding glue to the axles to ensure they won't move or come out during the race (hot glue or epoxy are good choices). <b>Make sure the glue does not get on the wheels!</b>
Scout / Adult	Be prepared to make adjustments to the weight on check-in day.
Scout / Adult	Cars numbers are assigned and added on registration day.
Parental supervision in the construction of the car is encouraged.	

## Design Tips

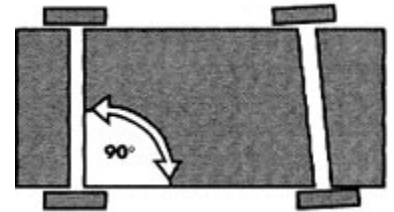
1. Have your son draw a design on paper then cut it out and use it as a template. I use the paper with the little squares on it to make it easier for him. Draw a side and top view on the paper by tracing around the block of wood.
2. Keep the car a full seven inches. It has to do with the physics of velocity and length of travel of the weights.
3. Use the full 2 3/4 inches (outside wheel to outside wheel) that the rules give you. This will allow the wheels to travel farther before hitting the center strip.
4. Leave a lot of wood in the back to put in the weights.
5. Do not make the front of the car too pointed or sloped upward. It is hard to set up against the starting dowels.
6. Use your imagination. Be creative. Shape has the least to do with winning. A beaver driving a log or even a pickup truck is more interesting than a wedge and will be just as fast. The aerodynamics of a small block of wood doesn't mean much in forty feet.

## Friction Is Your Enemy

1. Debur the wheels. Take off the flashing and seam that was produced when the wheel was molded with a 600 grit or better sandpaper. Inside as well as out. Sand any bumps off the wheel the sandpaper. Metal polish will restore the gloss. Be careful not to break any rules regarding wheel modification. Don't sand too much in one area or you'll create a flat spot.
2. Polish the axles. First with use 400 grit if you have a really bad spot. Then use 600 grit, and then a jewelers rouge. Finish off with a chrome/metal polish.

## It's Time To Go Straight!

1. Axles must be in straight front to back. That is square to the body. True the axles, don't trust the slots! (See the illustration at right.)
2. After pressing in the axles, test the car for crooked wheels...roll it on the floor. If the wheels are on straight, the car should roll 8-10 feet in a fairly straight line. Should the car turn left or right, you need to tinker with the axle placement without removing them from the car body, until it rolls straight.
3. Glue the axles in place. Nothing is worse than having the wheel fall off as you cross the finish line. After final assemble, add a drop of glue to the pointed end of the axles. Take care not to get any glue on or near the wheels.
4. Once you match a wheel and axle together with graphite, keep them together. They wear into each other as a matched set.



## Weigh In

1. Get the weight as close to the 5 ounce limit as possible. Add the last little bit of weight at the time of check-in. Remember, the official scale determines the eligibility for the race.
2. Everyone has an opinion on where to put the weight. My belief is that the weight needs to be predominantly in the rear so that gravity can act upon the weight further up the incline and for a longer period of time. But be careful not to put too much in the rear or you'll pop a wheelie.
3. What kind of weight? Tubular weights can be sunk in the sides; flat weights, like those sold at hobby & council stores can be attached to the car bottom if it is carved in a bit. Incremental weights (with pre-marked grooves) are easier to snap off into the size you need. Some folks just use BB's, nuts & bolts, etc., but these must be glued so that they can not move. No movable weights or mercury are allowed.

## The Finish

1. Buy a gloss finish for the car. It's worth it. After all that work, this is the final touch. The more coats that you put on...the shinier your car will be. Be sure the paint is dry before putting on the gloss coat. Some gloss products may be incompatible with the paint.
2. Sand in the direction of the grain when smoothing and against the grain when shaping.
3. Use a sandable primer or wood sealer. White is good for light colors and gray for dark colors.
4. Spray paints dry very quickly and result in a smooth finish. Brush-on paints may take longer to dry (1 hour to over night). Please allow enough time for all paint and glues to dry.
5. Children LOVE decals and stickers.

## Race Day-Be Prepared

1. The Pack has extra axles and wheels on hand just in case of an accident.
2. Transport your car in a shoebox. Dropped cars are unfortunately a too common experience.
3. Explain to your son that running the car along the floor prior to the race may damage the car.

## CHECK-IN RULES: Details

### Registration

Each Scout must register their car. Registration will record the Scout's name, Rank, and (optionally) Car name. Please register as soon as possible to provide time to enter names into the computer system. During the check in period, each car will be inspected to be compliant with all the rules. Any car that fails the check in will be returned to the owner for modification.

## Inspection

This process will be conducted in order to ensure compliance with the 2007 racing rules. All cars are inspected for compliance with the rules.

- A Race Official inspects each car. Any discrepancies found during inspection are noted.
- A car be inspected any number of times, provided the inspection and check-in are completed before racing time. If a car does not pass inspection, it will be unable to race.
- A digital scale is used to weigh cars to a resolution of at least 0.01 ounce. **NOTE:** The Pack 1020 Official scale determines the car's weigh; small differences between scales are possible. Cars over five (5) ounces are not eligible to race.
- A jig will be used to determine if the car complies with the length, width, and clearance limitations.
- Once a car successfully completes the inspection and the owner is satisfied, the car will be given a number and placed in a holding area. Only authorized personnel will be allowed to handle once it is placed in the holding area. Cars will be lubricated once before racing begins. **NOTE: The car number should be placed on the back end of the car.**
- Appeals may be made to the Pinewood Derby Race Director whose decision is final. Remember that this is supposed to be a fun day.
- Once a car has passed check-in, it will be allowed to compete for pack-level awards regardless if discrepancies are found later.

## Holding Area

After the car has passed inspection, it will be taken by a Pinewood Derby Official to the Pit Table to be impounded until the start of the racing. The pit area access is restricted to ensure that the cars are protected from unnecessary or unauthorized handling. If a car is removed from the holding area for any reason, it must once again go through a complete inspection. The Pinewood Derby Race Director, at his or her discretion, can allow a car in the holding area to be removed if it is deemed necessary. As an example: if a car that is accidentally dropped before the start of the race which needs to be repaired.

## COMMON PROBLEMS FOUND DURING CHECK-IN

### 1. INCORRECT WEIGHT:

The Pack 1020 Official scale will determine the weight of each car. Scales may vary; humidity affects weight, glue and stickers add weight, and other factors contribute to difference. Expect to adjust the weight of the car during check-in.

### 2. INSUFFICIENT CLEARANCE:

Adding weights directly on the bottom of a car may reduce clearance and causing the cars to drag on the track. This slows the car and can damage the tack. The bottom may be hollowed to allow room for the weights.

### 3. SIZE VIOLATIONS:

Addition of weights or trim to the ends of the cars has caused some cars to exceed the maximum allowable length, width, and height.

### 4. BEVELING, SHAPING OR TURNING OF THE WHEELS:

The wheels of some of the cars in past years have been beveled, shaped, rounded or milled which is against the rules. The wheels are inspected at check-in and if they don't match the rules they must be replaced.

### 5. USE OF NON-OFFICIAL WHEELS AND AXLES:

Only BSA approved wheels and axles are allowed in the Cub Scout races. Materials may be added to the body, wheels and axles smoothed (lightly). Kits from hobby stores contain non-BSA wheels and axles, and are not allowed in the Cub races.

### 6. LOOSE MATERIAL:

Several cars had material that was loose inside or became loose. Any cars that have loose material either at check in or found during the race must have the loose material removed or fixed.

## LATE ENTRIES

Registration for a race must close at least 5 minutes before each race is scheduled to begin. This ensures enough time for the Race Officials to complete entry into the racing system and allow the system to determine the racing schedule.

## RACE RULES: Details

Pack 1020 uses a Pinewood Derby track with an electronic timer that shows the race time and place of each car. Each car will be raced an equal number of times on each lane (usually once per lane), although not necessarily one right after the other. The exact number of runs and the lane assignments are determined by the race software. Races will be by group (Tiger, Wolf, Bear, Webelos I and Webelos II; Outlaw, Semi-Pro). After all heats for a particular group, the top cars as based on their overall standing, the first, second, third, and fourth place, are raced to determine the overall standing. Ties also advance to the championship race.



All cars will be returned to their owners after the Pack race.

### Race Operations:

- Racing begins on time!
- Each race is made up of a number of heats. A heat is considered to be one trip down the track.
- The Racing lane assignments are determined by the race software.
- The cars are placed on the track and aligned based on the lane assignments. Proper positioning of the cars will be limited to correct direction of car and reasonable alignment of car to track.
- A Race Official starts the heat; the race times and finish place recorded by the race software. Racing continues until all heats are run. The top four cars then compete for the final standings by a simple lane rotation. Ties also advance to the finals.
- Each car must cross the finish line without leaving the lane it started the run in order for the computer to record a time for each run down the track. It may be necessary to rerun some races if cars leave their lane or otherwise do not cross the finish line. Race officials will decide when reruns are needed. All decisions of the race officials are final.
- Arguing with the race officials at any time by parents or Scouts could result in disqualification.

### Malfunctions:

In the event of a breakdown of a car during the race, the participant will be given a repair period. Only damage affecting the car's ability to race may be fixed. The Scout must do work with assistance from his parent or guardian. Pinewood Derby Pit Officials will re-inspect any car that is serviced during the race.

- If an item glued or affixed to a car falls off during the race and, in the opinion of the race officials the car is still able to race, repairs may not be allowed (Judges decision) and the item simply returned to the Scout.
- If a car becomes unable to make it down the track, a "pit stop" (timed by the senior race official) will be called to allow the youth to affect repairs under adult guidance.
- If not able to repair the car in a reasonable time or if it becomes disabled repeatedly, the car will be out of the race.
- If a car (or part of a car) leaves its lane and interferes with another car, the race is rerun once. If the same car causes interference again, the heat will be run again but without the offending car.
- If the car left its lane, didn't interfere with another car and manages to cross the finish line in its intended lane, the heat is valid for all cars.
- If the car left its lane, didn't interfere with another car but doesn't cross the finish line in its own lane, the times for the other cars are stored and one additional heat is attempted for the car having the problem. If this additional attempt fails, the car will not receive a time for that heat.
- If a car suffers mechanical problems during a heat but crosses the finish line in its own lane, the times for the race are kept. The owner of a car suffering mechanical problems will be given the opportunity to repair the car. Repaired cars will be inspected before returning to the pit area.
- If a car is damaged after the end of a race heat, the scout is allowed to make repairs.

## RACE PROBLEMS:

### 1. INTERFERENCE:

If any car is interfered with during a heat, such as being hit by someone or something, debris on the track, etc., that heat will be repeated with the same cars in their same lanes.

## **2. TIMER ERROR:**

If a timer error occurs during a run, that run will be repeated with the same cars in the same lanes.

## **3. ELECTRONICS FAILURE:**

In the event of a complete electronics failure, race will continue using manual schedules. If possible, there should be one judge for each lane being run; if 6 lanes are used, 6 judges work the finish line. Each judge is responsible for a "place": 1<sup>st</sup>, 2<sup>nd</sup>, 3<sup>rd</sup>, etc. The judge responsible for 1<sup>st</sup> place will pick up the 1<sup>st</sup> place car. The judge responsible for 2<sup>nd</sup> place will pick up the 2<sup>nd</sup> place car. And so on. In case of a tie, or the inability to decide a place, the cars in question rerun in the same lanes. If a place cannot be decided after a second run, a tie is given to the cars.

## **Appealing a Decision**

1. If a Race Official makes a ruling or judgment and you wish to appeal it, all assembled Pinewood Derby Race Officials will conduct the review and on a majority rule basis be upheld or overturned.
2. The decision rendered by such an appeal is final and no questioning the committee ruling will be tolerated.
3. If the Race Committee has a tie vote the Director or Cubmaster will be the tiebreaker.

## **COMMON CONCERNS**

### **EXCESSIVE PARENTAL INVOLVEMENT:**

A common complaint is that some parents have done too much of the work on their Scout's cars. The Scouts are supposed to do the majority of the work themselves out of fairness, and so that they can learn. Due to the risk of damaging the car an adult can set the weight or attach the wheels. If an adult wants to do more work on a car they are encouraged to build a car of their own. This is an excellent way to encourage your Scout and show him by example how to build it. It is impossible for the Pinewood Derby Committee to judge who has done the work on the cars. We can only trust the honesty of the Scouts, parents and leaders.



## **SEMI-PRO CLASS CONSTRUCTION RULES**

### **SUMMARY:**

The basic Cub Scout Rules apply to the Semi-Pro, with the exception of the wheels and axles. Semi-Pro cars are not required to have BSA official wheels and axles.

The Semi-Pro is open to all parents, siblings, and adults within Pack 1020.

Semi-Pro cars cannot compete in District or Council Pinewood events.

## **OUTLAW CLASS CONSTRUCTION RULES**

### **SUMMARY:**

There are three basic rules:

- 1) Make sure your Outlaw Class car won't damage the track
- 2) Must be able to run on the track.
- 3) Must not interfere with a car in another lane

Outlaw Class cars do not compete in District races and do not compete for the "Most Awesome" award. The rest of the Outlaw Class construction rules are for guidance. Any race official may disqualify an Outlaw Class car for any reason. Appeals can be made to the Pack 1020 Race Director whose decision is final.

### **BUILD DATE:**

All cars entered in the Outlaw Class of the Pack 1020 Pinewood Derby shall have been built after 01 September 1997. Cars that previously won awards anywhere are ineligible for entry in the Pack 1020 Pinewood Derby.

### **WEIGHT:**

A completed car shall not exceed 1 pound (16 ounces) as measured on the official Pack 1020 scale.

**Pack 1020      2007 Pinewood Derby Rules and Information**

Revision: 12/5/2006

**TROOP 1020**

The Boy Scouts from Troop 1020 are invited to compete in the Semi-Pro and Outlaw races. Further details are available to the Troop.

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