

1/11/2009

PACK 673

PINEWOOD DERBY RULES & GUIDELINES 2009





## PACK 673 - PINWOOD DERBY GUIDELINES

The Pinewood Derby is probably the most recognized event in scouting. It is designed to provide scouts an opportunity to build a race car from a block of pine and participate in a friendly competition with their peers. Camaraderie and good sportsmanship are the hallmarks of this event and the race is held in the spirit of friendly completion. In fact the original purpose of the pinewood derby was to encourage scouts and their parents to work together on a fun project. That spirit still remains today.

Building the car is a family activity and it is expected that the boys will do as much of the work on their car as possible given their age. Obviously parents are will be more involved with the tigers than with the webelos. Where possible parents should allow the boys to do the work on the cars and learn from their mistakes. This is also an excellent opportunity for parents to teach their scouts about tool safety. Parents and siblings of scouts who would like to build their own cars are encouraged to enter a car into the open class race.

Pack 673 generally holds its annual pinewood derby race in late January so that the second year Webelos can participate in the pack race before crossing over to Boy Scouts in February. The race check-in is held on a Friday evening with racing beginning on the next morning (Saturday). The race typically runs through the morning with the pack finals in the early afternoon followed by the race awards.

To insure that cars which win the pack races can participate in the district race our rules are taken directly from the District Rules. These can be found on the district web site (<http://www.longspeakbsa.org/MountainView/>).

The Pack 673 2009 Pinewood Derby Race rules are provided below. Any questions about these rules should be directed to Scott Palo ([scott.palo@colorado.edu](mailto:scott.palo@colorado.edu) or 303-682-9979) the race coordinator for 2009.

### **Racing Classes:**

The pinewood derby will consist of two race classes, these are scout and open class.

#### **Scouts Class:**

Each scout is allowed to enter a single car in the pinewood derby race. All parts of the car must be from an official BSA pinewood derby kit (#17006) and constructed after September 1, 2008.



### **Open Class:**

All Cub Scout leaders, non-scout siblings of cub scouts, and parents of Cub Scouts are eligible to enter a car in the Open Class division. Only one car per person may be entered. All construction rules are the same as for Cub Scouts with one exception: cars do not have to have been made after September 1, 2008.

### **Check-in:**

All cars must be checked in during the check-in time schedule for the Friday evening before the race. This process only takes about 5 minutes if there is no line and you do not need to make any modifications to your car. However it is best to schedule 30-60 minutes to insure that you have ample time if any modifications need to be made to the car. The check-in process consist of an inspection to determine that the car does not violate any of the rules listed in the following section on general rules and a short interview of the scout with the craftsmanship judges. The purpose of this interview is so that the judges can determine how involved the scout was in the construction of the car.

### **Race Format:**

Racing generally begins at 9am on Saturday morning starting with the tigers, followed by the wolves, bears, webelos and open class. Boys will race by rank and the top 3 cars from each rank will race in the pack semifinals. Our track has three lanes, and for all races each car will race once in each lane. Cars will be placed based on their cumulative time for the 3 runs in each race.

For each rank (eg, tiger, wolf, etc) the racing will begin with a qualification race where all of the cars from a rank will race once on each lane of the track. The race order is determined randomly and 6 fastest cars (cumulative time of all 3 races) will move onto the rank finals. For the rank finals the cars will again be randomly ordered and race once on each lane of the track. Again the cumulative time of all 3 races will be used to determine the 3 fastest cars from each rank. These cars will move onto the pack semifinal race.

The top 3 cars from each of the 5 ranks will move onto the pack semifinals. The racing will be the same as for the earlier heats with all 15 cars randomly ordered and each car will race once in each lane. The 6 fastest cars from the pack semifinals based on cumulative time will race in the pack finals.



The pack finals will consist of three races with each of the 6 cars racing once in each lane. The cumulative time of these three races will be used to determine the top three cars in the pack.

The open class races will be held similar to scout races with a qualification race and a finals race and will generally occur after the rank finals and prior to the pack finals.

A schedule with the expected times for each of the races will be posted on the pack website approximately 1 week before the race. Races may run later than the posted times but will not start before the posted time.

### **Craftsmanship Judging:**

Judging craftsmanship is a difficult and subjective process. We work diligently to find three impartial judges who are not related to any of the scouts to do the craftsmanship judging. As part of this process the judges interview the boys about their cars during the check-in process. The craftsmanship judging will be based equally on the following three categories:

- Originality of the design

- Quality of the workmanship

- Cub Scout Participation

After check-on on Friday evening the judges will have an opportunity to view and evaluate all of the cars before making a final craftsmanship decision. The craftsmanship awards will be announced with the awards after racing on Saturday.

### **Awards:**

An awards ceremony will be held Saturday afternoon, after all of the races have been completed. Medals will be awarded for the three fastest cars in each rank and the top craftsmanship for each rank. Trophies will be awarded to the three fastest cars in the pack and the top three highest ranked cars from the craftsmanship judging.

### **District Race:**

The complete set of district rules can be found on the district web site (<http://www.longspeakbsa.org/MountainView/>). Specifically each pack is allowed to enter up to 8 cars in the district race. Five cars can be entered in the racing competition and 3 cars in the show completion. At the district level a car cannot

complete in both the race and show competitions. Of the five cars entered in the race competition, one can be from a tiger, up to three from scouts in ranks of wolf through webelos II and one from the open class. For the show competition two cars can be from the scouts (tiger through webelos II) and one car from the open class. If a car is disqualified from the district race at check-in the back will have alternate cars on hand. Typically we will keep the top two tiger cars, the top 5 non-tiger scout cars and the top two open class cars in the event of a disqualification.

All entries for the district competition must be collected and kept by the pack Pinewood Derby Chairperson after the pack race. The pack Chairperson or their designate is then responsible for checking the cars in at the district competition. This generally occurs on the Thursday evening before the annual district scout show. It is also recommended that the parents of the scouts who's cars will be racing accompany the pack Chairperson at the district check-in in the event that modifications to the car need to be made to insure the car meets the district rules.

The district requires that all packs entering cars in the district pinewood derby race have a booth at the scout show. Additionally it is required that the pack also provide volunteers to assist with the pinewood derby race. This can be either at check-in on Thursday evening, the open class race on Friday evening or the scout race on Saturday. It is generally expected that each pack will provide volunteers for 4 hours during this time.

### **Pack 673 Pinewood Derby Committee:**

Pack 673 has a pinewood derby committee that includes a committee chair and typically 5-7 members. The pinewood derby committee chair is also a defacto member of the pack 673 committee and is expected to attend the monthly leaders meetings. The committee is responsible for organizing the annual pack 673 pinewood derby committee and the chair of the committee is required to insure that the derby cars are safely stored after the pack race in January and are entered into the district race. The derby committee chair is also responsible for storing all of the derby materials such as the track timing system etc., reviewing the rules and has the final decision making authority regarding the rules.

It is a tradition in pack 673 that the parents of the boys who's cars go onto the district competition are members of the pack derby committee the following year.



While this forms the base membership for the derby committee any parent of a scout can volunteer to be a member of this committee.



## GENERAL RULES:

1. The Pack Pinewood Derby is divided into three divisions. The Cub Scout division is open to all Cub Scouts registered with the pack when the pack races, including 5th graders. The Open Class division is for non-Cub Scouts, Adult Leaders and non-Scout siblings of Scouts. Cars must be built from an official Pinewood Derby Car Kit and comply with these rules. Each car must pass an inspection by the Official Inspection Committee before it may compete. **The inspectors have the right to *disqualify those cars, which do not meet requirements as defined here. The decision of the pinewood derby coordinator is final.***
2. Only race officials will be permitted into the registration and track area. This rule is strictly enforced to avoid any accidental damage to the cars.
3. Use only Pinewood Derby Kit (#17006), authorized by the Boy Scouts of America and available through the Boulder Scout Service Center, McGuckin Hardware in Boulder, or official Boy Scout Distributors. Any other kit, such as those advertised in various magazines (including Boy's Life) or sold in hobby stores and even McGuckin's (for example Pinecar), ***WILL NOT BE ACCEPTED.*** If parts (such as wheels, axles, precut wood blocks, etc.) are removed from such kits and installed in the official kit, disqualification of said car will result. In general, use of unofficial parts for the purpose of increased performance and / or improvements of said cars is not allowed.
4. DIMENSIONS
  - a. WIDTH: Overall width shall not exceed 2  $\frac{3}{4}$  inches, so as not to interfere with other cars. The minimum width between wheels shall be 1  $\frac{3}{4}$  inches so car will clear center guide strip
  - b. LENGTH: Overall length shall not exceed 7 inches. The center of the front of the car cannot be pointed; it must have a flat area of at least  $\frac{2}{8}$  of an inch for track starter pins.
  - c. HEIGHT: Overall height shall not exceed 4 inches
  - d. CLEARANCE: Minimum recommended car clearance is  $\frac{3}{8}$  inches, otherwise the car may rub against the track.
5. WEIGHT: Weight shall not exceed 5.000 ounces (141.75 grams). No loose materials of any kind are permitted in the car. The car may be hollowed out and built up to a maximum weight by the addition of a solid



material, such as wood or metal provided it is securely built into the body. Melting and pouring of liquid lead directly into the body of the car is prohibited. Mercury shall not be used for adding weight. It is a potential health hazard. Rule #4 will also be applied to show cars that will not be raced.

6. WHEEL BEARINGS: Washers and/or bushings of any kind are prohibited. Any type of material inserted between the wheel and the car body such as paper, tin foil, body wrap etc is considered as a bushing. If using such items to decorate your car, be sure that it is not inserted between the wheel hub and the car.
7. SPRINGING: The car shall not ride on any type of springs.
8. DETAILS: Details such as steering wheel driver, decals, painting, and interior detail are permissible as long as those details do not exceed the maximum length, width, height and weight specifications and are securely fastened to the car.
9. PAINT: Cars with wet paint will not be accepted.
10. ATTACHMENTS: The car must be freewheeling with no starting device.
11. WHEELS:
  - a. **NO ROUNDING or BEVELING of the wheel is permitted.** Milling and turning of the wheels is especially prohibited. Therefore, use of a mandrel to turn the wheels is prohibited.
  - b. **Best advice is to leave the wheels alone.**
  - c. Camber must be adjusted so that the wheels ride flat on the track. **All 4 wheels must touch the track and turn when the car moves.** At inspection, cars will be rolled back and forth on a flat surface to see that a rotation of all four wheels can be achieved. Three wheel cars are prohibited.
  - d. The only work that may be done on the wheels is a light sanding of the nub that is left behind after the injection molding process.
12. AXLES:
  - a. Axle spacing is determined by the preset grooves in the block of wood provided in the kit. You **CANNOT** modify the wheel base of the car. However axle slots are not symmetric and you can choose which end is the front and which is the back.



b. Axles may be filed and polished to remove the burrs that are created when casting, but cannot be plated or specially lubricated.

13. LUBRICANT: Only dry graphite lubricant or Grand Prix Pinewood Derby Wheel and Axle Lubricant (eg. part no. 17240) may be used as a lubricant. Liquid lubricants cannot be used because they will ruin our pinewood derby track. Once the car has been officially checked-in it cannot be modified in any way (this includes lubrication). So you must apply any lubricant to the car before the final inspection and check-in.

14. All cars entered in the 2009 Pack 673 Pinewood Derby Cub Scout divisions must have been built after September 1, 2008. Cars are to have been built by the Scouts with limited parental/ adult supervision and help. Scouts should do most of the work including painting. Open class cars are not subject to this rule.

### **CHECK-IN RULES:**

Each car is inspected during check-in. If the weight exceeds the limit, the person checking in the car should be prepared to adjust the weight or submit an alternate car. The scales at check-in will be considered to represent the official weight of the car. Many factors can affect weight, including changes in humidity and wood absorption. The person checking in the cars should expect to have to adjust the weight of the car. Be prepared to wait for hours, as District check-in is a tedious process. If your car has not been given a number by the end of the weigh in period it will be treated according to the rules under LATE ENTRIES.

### **LATE ENTRIES:**

Late entries are allowed under the following conditions.

1. Medical/Emergency - Under the condition that a car or cars were not checked in due to a Medical / emergency of the party responsible for checking in a car. Proof may be expected. The car may be entered without penalty if it is weighed in before the start of the first heat. It may be that adding a late entry becomes technically impossible due to time constraints and data entry complications.
2. Unexcused Reasons - It may be that adding a late entry becomes technically impossible due to time constraints and data entry complications. Late entries that are weighed in after the checkin period is over but before the start of the first heat might be accepted under the

condition that the car will be penalized. The penalty will depend upon the race format that is used for district race. The race format is dependent upon the track that is available for the district race. With differentials of .001 in race final times, it can be assumed that a penalty would knock a car out of winning contention.

### **Supplies & Equipment:**

- Participants will bring own graphite and repair kits
- Participants are responsible for their own alterations (either adding or subtracting weight) in order to qualify.
- Keep in mind, these alterations may be done throughout the Friday evening check-in period. A few tools will be available for use at the church, though it is recommended that you bring your own tools to save you time.
- Timesaving tip: if you have a home digital scale, try to get your car as close to 5 oz prior to bringing it on Friday night so you don't need to make as many adjustments at the Registration event.

### **RACE FORMAT:**

The exact race format will be dependent upon the track that is available for the district race.

### **CAR REPAIR DURING THE RACE:**

1. If a wheel or weight of a car falls off during the race, the car's position in the schedule may have to be adjusted. The car will be disqualified unless a person responsible for the car (parent, Scout, leader) makes repairs within 5 minutes and it is possible to give the car a new position in the schedule. Note the car must be re-weighed following repairs and adding weight other than the piece that fell off is not allowed. Lubrication of the car is not allowed. These rules are designed to be fair, encourage good craftsmanship, and limit delays to the race. Cars needing repeated repairs will be disqualified.
2. No lubrication of cars during the race or after check-in is allowed. Cars should be lubricated prior to or during check-in. Once the car has been inspected and accepted by the check-in judges it cannot be modified in any way including adding lubricant.

## **RACE PROBLEMS:**

1. **LUCK IS PART OF RACING.** If a car is interfered with during a run, for example being hit by something, another car, falls apart or hits debris on the track, the run will NOT be repeated unless the race judge rules otherwise due to exceptional circumstances.
2. If a timer or computer error occurs, the run will be repeated to the best of the technological capability of the track. The software can be flakey at times and it is not uncommon to re-run races due to software difficulties.

## **COMMON PROBLEMS FOUND DURING CHECK-IN:**

Below is a list of common rules violations found during the car check-in process. Specific information about each of the rules can be found in the section on General Rules.

1. **INCORRECT WEIGHT:** Cars exceeding 5.0 oz will not be accepted. If your car is too heavy or too light you can make adjustments during the check-in time.
2. **BEVELING OR SHAPING OF THE WHEELS:** If there is any indication that the wheels on the car have been modified, other than a slight sanding of the injection molding nub, the car will be disqualified. This is a common reason for cars being rejected at the district race. To insure that our cars are not rejected by the district we will strictly enforce this rule.
3. **LEVEL WHEELS & AXLES:** All four wheels must move when the car is rolled on a flat surface. This is the most common reason for cars being rejected from the district race. In the past they have rolled the cars on a low friction precision machined aluminum plate to see that all four wheels move. Cars which don't meet this requirement will not be accepted at check-in. We have seen many cases where cars at the district race do not meet this requirement and the person from the pack responsible for the car tries to make a last minute adjustment and breaks the car. Don't let this happen to you, roll your car on a smooth flat surface to be sure that all of the wheels move.
4. **MODIFICATION OF WHEEL BASE:** The wheel base of the car supplied with the official BSA kit cannot be modified.
5. **USE OF NON-OFFICIAL CAR KITS:** They are easily identified as the wheels and axles are different from the official car kits.



6. **INSUFFICIENT CLEARANCE:** Most tracks have a center guide rail, which is the reason for the clearance guidelines.
7. **SIZE VIOLATIONS:** Addition of weights or trim to the ends or sides of the cars may cause cars to exceed the maximum allowable dimensions.
8. **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. It is not fair if an adult has done much of the work on a car, which is competing against cars built by Scouts. Parents should supervise and teach and utilize proper safety precautions when using power tools. Because of the risk of damaging the car, an adult can set the weight of the car and attach the wheels and assist with the use of any power tools. Doing more is a disservice to the Scout. If an adult wants to do more 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. During the check-in process the boys will be interviewed by the craftsmanship judges to determine how much each boy has participated in the construction of their car. This will be taken into consideration for the determination of the craftsmanship awards.

### **REVISION HISTORY:**

- 11-JAN-09 (Scott Palo): Combined old pack rules with 2008 district rules to create a set of rules that adhere to the district race requirements. Added text describing the pinewood derby and how the race is run in pack 673.