



# *Cub Scout Pack 460*

## **Pinewood Derby 2010**



*Sunday, March 14, 2010, 1:00pm – Calvary United Methodist Church Hall*

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### **Rules:**

The purpose of the rules is to provide a reasonable and level playing field for all contestants. Please read and heed the rules!

#### **Eligibility of Contestants and Cars**

- The Year 2010 Competition is open to all Pack 460 Cub Scouts. In case of illness, an absent scout may be represented by an authorized agent, who must check in with the Pinewood Derby Chair (Steve Seidel) before racing begins.
- Cars in the Year 2010 Competition must have been made for this race season.
- We strongly recommend that cars in the Year 2010 Competition be built from the block in the official Grand Prix Pinewood Derby kit.

#### **Length, Width & Clearance**

- Maximum overall width (including wheels and axles) shall not exceed 2-3/4"
- Minimum width between wheels shall be 1-3/4" so car will clear the center guide strip.
- Minimum clearance between the bottom of the car and track shall be 3/8" so the car will clear the center guide strip.
- Maximum length (including wheels) shall not exceed 7".
- Maximum height shall not exceed 2-3/4".
- The wheelbase (distance between the front and rear axles, center to center) may be changed, but the wheels must stay within the maximum length requirement. The front wheels must not exceed past the front of the car or you will not meet the indented front end rule below.

#### **Wheels and axles**

- Only the wheels and axles from the official Grand Prix Pinewood Derby kit may be used.
- Axles may be lightly filed, sanded and polished. This light filing, sanding and polishing is the only axle modification allowed.
- Wheels may be lightly sanded and polished. This light sanding and polishing is the only wheel modification allowed.

## Weight and Appearance

- **Weight shall not exceed 5.0 ounces.** The readings of the Official Race Scale are considered final.
- The car may be carved, sculpted, and/or sanded in order to enhance performance and/or appearance.
- No loose materials of any kind are permitted on or inside the car.
- Additional materials may be added to the car for the following purposes only:
  1. *Weights may be added to increase the weight and/or alter the weight distribution of a car.*
  2. *Paints/decals/decorations may be added to alter the appearance and/or aerodynamics of a car.*
  3. *Glue may be used to connect the axles to the car body.*
  4. *Wood putty, or a similar wood-like substance, may be used to repair minor damage to a car.*
- Indented noses are prohibited. Cars like the one pictured below will "stage" further down the track, and thus will not traverse the same course as other cars.



## Lubrication

- Only dry powdered lubricants, such as graphite or white powder Pinewood Derby Car Lubricant, may be used. Oils and silicone sprays are prohibited.
- Cars may be lubricated before inspection only. **No lubricants** may be applied after a car is registered.

## Ground Rules

- If a car jumps off the track, the heat will be run again. If the same car jumps off the track a second time, it will automatically lose the heat.
- If a car leaves its lane and interferes with another car, the heat will be run again. If the same car leaves its lane a second time and interferes with another car, the heat will be run again without the interfering car. The interfering car will automatically lose the heat.
- If a car suffers a mechanical problem and a repair can be accomplished within 5 minutes, the heat will be run again. If not, the car will automatically lose the heat.

## Inspections and Disputes

- Each car must pass inspection by the Official Inspection Team before it may compete. The Inspection Team has the right to disqualify those cars which do not meet the rules. Car owners will be informed of the violations and given an opportunity to modify the car.
- Ungentlemanly or unsportsmanlike conduct by any participant or member of the audience will be grounds for expulsion from the competition and/or race area.

## Dress Code

- Scouts should be in a class A uniform during the competition.
- **Class A uniforms** are the official Cub Scout uniforms consisting of a uniform shirt (with all patches), appropriate neckerchief, and blue pants/jeans (or shorts).

- Coats, jackets, sweaters, etc. may not be worn by a Scout when he is competing. Too easily, they can get caught on the track or jostle cars which have already been staged by other Scouts.

## Racing Format

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*This section describes the racing format for the Pack 460 Pinewood Derby.*

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All Scouts will compete in an intra-Den competition. As the cars for a heat are announced, each Scout is responsible for "staging" his car in the Starting Gate. Those Scouts then move to the Finish Line to watch the heat. A Finish Line judge will return the cars back to the Scouts after the heat has ended.

A Round Robin, Final Standing method will be used to identify the fastest cars. A software program, GrandPrix Race, will be used to automatically determine the races for each car. Since we will be using a 4 lane track for this competition, each car will race at least four times (once on each lane).

Scouts will be assigned points for each heat in which they compete: 1 point for 1st place, 2 points for 2nd place, 3 points for 3rd place, and 4 points for 4th place. At the end of the intra-Den competition, the points are added up. Low score wins, next lowest score finishes second, and so on. We will only advance 2 cars from each Den, so in the event of a tie, we will have a race off.

When all Scouts in a Den have completed racing Round 1, the top 2 cars from each Den will advance to Round 2. After Round 2, the top 2 cars will advance to the Final Round competition. These 2 finalists will then have one final race to determine the Grand Champion for the 2009 Pinewood Derby. The top five cars will receive a trophy.

There will also be a competition for the cars with the Most Scout Spirit, Most Patriotic, and Most Original.

A full Schedule of all the races by name will be issued to everyone on Race Day.



***Good Luck & Good Racing!***



# *Pinewood Derby*

## *Year 2010 Schedule*

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*Here is the schedule for this year's 2010 Pack 460 Pinewood Derby.*

### **Workshop Day**

**Saturday, January 30, 2010 – 9:00am – 12:00pm**

An informal fun workshop will take place at the Calvary United Methodist Church basement from 9:00 AM to 12:00 PM. This is an opportunity for newbies, tool-impaired folks, and anyone who's just interested in doing a little car building to get together.

### **Registration Day**

**Saturday, March 13, 2010 – 9:00am – 12:00pm**

Registration Day will take place in the Calvary United Methodist Church basement from 9:00 AM to 12:00 PM. You will be able to test your car on the track at this time. Once you are satisfied with the car's performance, it will be inspected. If it passes, it will be registered and impounded until Race Day. No further lubrication will be allowed.

**Since the racing schedule must be finalized prior to Race Day, no registrations will be allowed on Race Day. If you are unable to make it to Registration Day, please e-mail Steve Seidel, Pinewood Derby Chair, at [steveseidel@hotmail.com](mailto:steveseidel@hotmail.com), to make other arrangements.**

### ***Race Day***

***Sunday, March 14, 2010 – 1:00pm – 4:00pm***

The Pack 460 Pinewood Derby will take place in the Calvary United Methodist Church Hall (upstairs gym) starting at 1:00pm and running for approximately 3 hours.

Food will be available on Race Day, so please plan to eat at the race. All proceeds benefit Cub Scout Pack 460.

## Building Your Pinewood Derby Car

Building a Pinewood Derby car is like many things in life. If you do things out of order, or if you make mistakes early in the process, it's sometimes difficult to recover.

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### **Step 1: Design the car.**

On a piece of white paper, sketch the side and top views of your car. Include in your design where the axles will go, and the locations in which you will place additional weight. Copy this design onto the wood block.

(It's probably best to perform this step while not in the presence of any tools. Many have succumbed to temptation at this time.)

### **Step 2: Drill the axle holes (or drill out the pre-cut grooves if you are using them.)**

Get these as straight as you can. Use a #44 drill bit (0.086") for best fit.

### **Step 3: Cut out the car body.**

You'll probably need a hand saw, jig saw, or coping saw for this, and possibly a chisel and hammer. It's a good idea to cut, chisel, or drill out areas for additional weight at this time.

### **Step 4: Shape and sand the car body.**

Sandpaper is a must here, of course. A small wood rasp can also be useful. Shaping, smoothing, and detailing can also be done with a Dremel Moto (or similar) tool. Attach any decorations, such as driver, steering wheel, fins, spoilers, etc., at this time.

### **Step 5: Preliminary length and weight check.**

Measure the length of your car and make adjustments if necessary. Weigh the body, axles, and wheels together. Securely attach weight (5-minute epoxy is good for this) to bring total to 5.0 ounces.

### **Step 6: Paint and detail the car body.**

Apply a number of thin coats of paint, followed by a number of thin coats of clear finish. Add decals and/or stickers.

### **Step 7: Prepare the wheels and axles.**

Sand away the mold projections from the wheels and wheel hubs, then polish them. Place each axle in a drill. Remove the burrs from underside of the axle heads with a small file. Smooth the axles with wet, fine grit sandpaper, then polish with toothpaste, wet pumice, or jeweler's rouge on a strip of cloth.

### **Step 8: Final length and weight check.**

Measure your car's length again and, if needed, make adjustments. Weigh the body, axles, and wheels again. Adjust the weight to as close to 5.0 ounces as you can without going over.

### **Step 9: Install wheels and axles.**

Again, the straighter, the better. Your car should be able to roll straight on a level surface for a reasonable distance.

## **Step 10: Lubricate wheels and axles.**

Add lots of graphite and work it into the wheels and axles. Do this often, right up until registration.

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### ***Some Miscellaneous Construction Tips***

- *Avoid narrow, pointed noses.* They are legal, but cars are difficult to stage at the starting line. Also, cars are detected as they cross our finish line because the nose of the car blocks an infrared beam. Such a car may not trip the sensor correctly.
- *Check your clearance, Clarence.* It is very tempting to simply screw those flat weights to the bottom of a car. But if you do, your car will likely scrape the center guide strip on the track. You must inlay the flat weights if you're attaching them to the bottom of your car.
- *Drill the axle holes before you cut out the car body.* This was stated earlier, but it bears repeating. It's easier to drill a good hole into a squared block of wood than into a car-shaped block of wood.
- *Don't epoxy the axles to the car body.* You'll never get them out if you have to make a last-minute adjustment or an emergency repair. Use wood glue or something similar instead.
- *Apply many thin coats of paint and finish.* Your car will look better if you apply 10 thin coats than if you apply 2 thick coats. Also, my personal preference is brush-on paints over sprays. They're easier for a Scout to handle and they're less messy.
- *Check your car's length early on.* This was also stated earlier and it also bears repeating. Better to trim it sooner than later.

***Good Luck and Good Racing!***