

**ADVENTURE DISTRICT  
PINewood DERBY  
RULES  
2006**

**Adventure District, Keystone Area Council  
And Cub Scout Pack 180  
December 11, 2005**

**ADVENTURE DISTRICT  
PINEWOOD DERBY RULES  
2006**

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## 2004 Adventure District Pinewood Derby Rules

We encourage all Cubs, parents and partners to use the block of wood in the official *Grand Prix Pinewood Derby Kit* sold at the Scout store.

### 1. Length, Width and Clearance:

- A. Maximum overall width (including wheels and axles) shall not exceed 2-3/4 inches.
- B. Minimum width between wheels shall be 1-3/4 inches so that car shall clear the center guide strip.
- C. Minimum clearance between bottom of car and track shall be 3/8 inches so that car shall clear the center guide strip.
- D. Maximum length shall not exceed 7 inches. No part of the car shall extend over the top of or in front of the starting peg on the racetrack.
- E. Maximum height shall not exceed 4 inches.
- F. Front of cars may be notched. However, the notch shall be a minimum of 1/2 inch wide. The notch shall be square and centered. No "V" notched or "W" notched front ends shall be allowed. (See Details for Front Notching - Page 8)

### 2. Weight and Appearance:

- A. Weight shall not exceed five (5) ounces. The readings of the Official Race Scale shall be considered final. The wooden car may be hollowed out and built up to the maximum weight by the addition of wood or metal or plastic; provided it is securely affixed to it. No loose materials of any kind are permitted in or on the car. Using scotch tape to secure coins or washers to a car does not qualify as "securely affixed"; items secured in such a manner are prone to fall off the cars.
- B. Mercury shall not be used for adding weight. It is a potential health hazard.
- C. Details such as steering wheel, driver, spoiler, decal, painting and interior details are permissible as long as these details do not exceed the maximum length, width and weight specifications
- D. Paper hubcaps are not permitted. If a car has paper hubcaps the racer must remove the hubcaps before inspection.

### 3. Wheels and Axles:

- A. Only the official Cub Scout *Grand Prix Pinewood Derby Kit* wheels and axles that come in the kit can be used. Older version wheels are not permitted. Axles may be polished. Wheels may be lightly sanded to remove the mold projection of the tread. This light sanding of the outer edge of the wheel is the only wheel modification allowed. The tread surface of the wheel may be altered only to a flat surface that is parallel to the axle. Beveling, tapering, thin sanding, wafering or lathe-turning of the wheels is prohibited. You may drill or rout out the inside hub of the wheel.
- B. Any type of wheel bearing, Teflon, washers or bushings are prohibited.
- C. The car shall not ride on any type of springs.
- D. The car shall be free-wheeling with no starting device or other propulsion.
- E. Insert axles only into the grooves provided on the wood block of the car. Long wheelbase cars are not allowed. Applying wood putty in the grooves and using a drill press to make holes to insert the axles is prohibited.
- F. No lathe-turned wheels or speed-axles are permitted.
- G. Drill presses with mandrels or hand-held variable speed drills with mandrels in vices may be used to lightly sand wheels and polish axles. The wheel diameter may not be less than 1.150”.
- H. You may file a groove in your axles to reduce friction. You may taper the inside head of each nail with a file and polish it. You may file down the pointed end of each nail to match the diameter of the axle. You may cut off the tapered point end of each nail and polish it. You may true-up or straighten the axles.
- I. The car shall have four (4) wheels and axles; however, only three (3) wheels are required to make contact with the track. You may raise one wheel off the track surface.
- J. Do not reduce the width of the wheels. You may drill holes in the spoked area of the wheel but not the sidewall of the tires.
- K. For examples of legal and illegal wheels, a legal tapered head axle and a diagram of a legal grooved axle, see Details for Wheels and Axles Pages 8 and 9.

#### **4. Lubrication:**

- A. Only dry powder lubricants, such as graphite, may be used. Regular oils and silicone sprays are prohibited and may soften the plastic wheels.
- B. Cars may be lubricated before inspection. No further lubrication shall be permitted.
- C. Cars may be lubricated before the final overall race between classification (Tiger, Wolf, Bear, Webelos 1 and Webelos 2) winners.

#### **5. Inspection and Disputes:**

- A. Each car must pass inspection by the Inspection Team before it may compete. The Inspection Team has the right to disqualify those cars which do not meet these rules. Car owners (racers) shall be informed of the violations and given an opportunity to modify the car to meet these rules. Any modifications must be made prior to the closing of classification registration. The Inspection Team usually consists of the following people: the weight inspector, the width, length and wheelbase inspector, the wheel and axle inspector and the Timekeeper. There may be more members of the team at the registration and inspection tables.
- B. Each car owner (the racer) shall designate a Crew Chief assigned to the racer and his car. This designation shall be made at the time of registration and may be changed at registration at the Adventure District Pinewood Derby.
- C. Any racer or Crew Chief has the right of appeal to the Race Committee for the interpretation of these rules. The Race Committee, by majority vote, shall be the final judge of these rules. In case of a tie vote, the decision of the Racemaster shall be final. Any racer or Crew Chief has a right of appeal to the Race Committee if he or she disagrees with a Track official's ruling during a race or with the outcome of a race. The Race Committee, by majority vote, shall determine the validity of the appeal. In case of a tie vote, the decision of the Racemaster shall be final. An appeal shall be submitted during or within one (1) hour after the race. The Race Committee consists of the Inspection Team.
- D. Ungentlemanly or unsportsmanlike conduct by any participant or member of the audience shall be grounds for expulsion from the competition and/or the race area.

- E. Each Scout shall be informed when he has lost two races. The car handler announcing the race can do this. No individual shall interfere by talking to the officials while a race is running. There are four Track officials at each track: a car handler, a timer, a car bracketer and a starter.

## **6. Ground Rules:**

- A. All racers shall be registered Cub Scouts of the Adventure District selected by their respective Pack to race in the Adventure District Pinewood Derby. The racers must race their own car. No substitute racer is allowed.
- B. The car raced at the Adventure District Derby shall be the same car raced at the Cub Scout's Pack Derby, or, if no derby was held, a car built between December 1, 2005 and March 11, 2006. Do not build a new car for the Adventure District Derby. Cars raced at previous year's Adventure District Pinewood Derbies are prohibited from racing again.
- C. The race will be double elimination conducted according to classification. The winners of each classification will compete for the "Fastest Car in the Adventure District Pinewood Derby " trophy.
- D. If the car leaves its lane and interferes with another car, the race shall be run again. Track officials shall be the only members to check the car for problems with the Cub Scout. If the same car leaves its lane a second time, it shall automatically lose the race.
- E. If a car jumps off the track, the race shall be run again. Track officials shall be the only members to check the car for problems with the Cub Scout. If the same car jumps off the track a second time, it shall automatically lose the race.
- F. If a car suffers a mechanical problem, such as the loss of an axle, a broken wheel, etc., and a repair can be accomplished in a reasonable time (5 minutes), the race shall be run again. If not, the car shall automatically lose the race. Cub Scouts may be assisted in making repairs by their Crew Chief. Track officials shall oversee all repairs.
- G. Electronic finish lines shall be used to declare race winners. Electronic finish line results are final
- H. Only Track officials, Cub Scout racers and Crew Chiefs shall be permitted into the registration and track area. This rule shall be strictly enforced. Track officials shall place all cars in the impound area and shall give the car to each Cub Scout when he is called to the starting line.

- I. Only one (1) car per Cub Scout may be entered and can only be raced in one classification. (Example: The same car cannot race in Tigers and Bears, or Wolves and Webelos, etc.) No substitute racecars shall be permitted.
- J. Trophies will be awarded to First, Second and Third place finishers of each classification. First place winners of each classification shall race each other to determine the overall fastest car in the District. The winner of this event will receive the "Fastest Car in the Adventure District Pinewood Derby" trophy.
- K. There shall be a 30 second time limit for each Cub Scout to set his car on the track to race. If a Cub Scout exceeds the time limit, the Track official shall remind him of this rule. If he continues to exceed this limit, the Track official will tell the Cub Scout to step down after 30 seconds.

## **7. Brackets and Bys**

After each racer is registered, registration is closed, inspection is complete and cars are impounded, each rank classification – Tiger, Wolf, Bear, Webelos 1 and Webelos 2 – gets divided in pairs into brackets. These random brackets, assigned by a computer software program, match pairs of racers and, because there are not always an even number of racers for the brackets, also assign a certain number of racers to bys. By using this random assignment, all racers are guaranteed the same number of initial runs on the track. All bys are run before races in brackets are run. A by is a run down the track in each lane by a single racer.

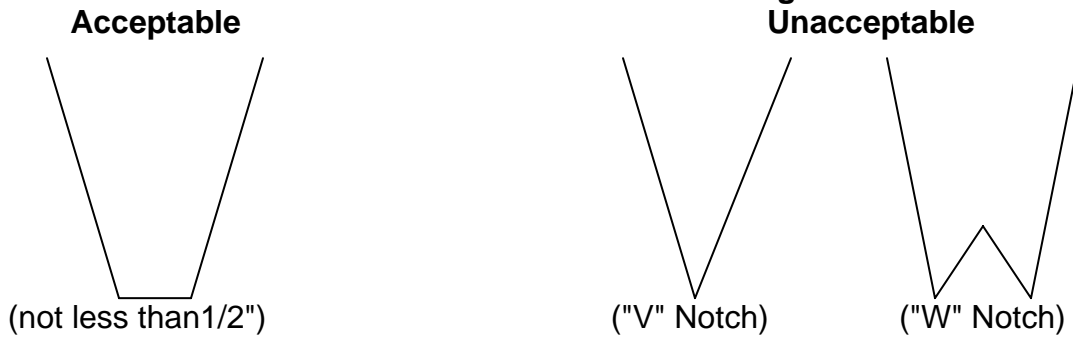
## **8. Heats, Winners, Ties and Consolation Bracket**

The heat system requires each racer to win a race on each lane of the track. A racer must win a heat to move on. A heat is a race down the track in each of two lanes by two competing racers at the same time. For example, In the first half of a heat, *Tiger A* runs down Lane 1 and *Tiger B* runs down Lane 2. In the second half of the heat, *Tiger A* runs down Lane 2 and *Tiger B* runs down Lane 1. To win a heat and move on, one of the racers in the heat must win on Lane 1 and Lane 2. If one racer, *Tiger A*, wins on Lane 1 on the first race, and then wins on Lane 2 on the second race, then *Tiger A* is a clear winner and moves on. *Tiger B* is moved to a consolation bracket to race again later.

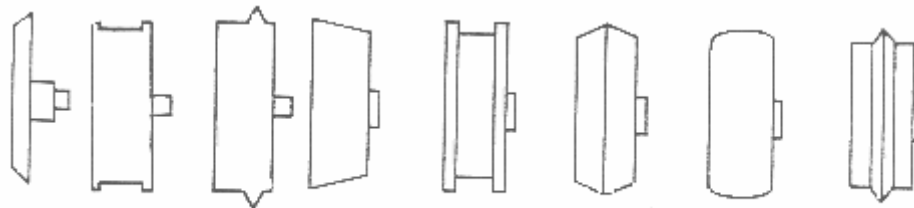
In another example, if in the first half of a heat, *Tiger A* runs down Lane 1 and wins on Lane 1, and *Tiger B* loses on Lane 2, but in the second half of the heat, *Tiger A* runs down Lane 2 and loses on Lane 2, while *Tiger B* runs down Lane 1 and wins on Lane 1, then neither car has won the heat, because neither car has won on both Lane 1 and Lane 2. Both cars have won on Lane 1. Another heat must be run. This is a tie.

When the second heat is run, one racer wins the heat if he can win on lane 2 and the other racer cannot. If one racer wins on Lane 2 in this second heat and the other racer cannot win on Lane 2, then the winner in Lane 2 has won on both lanes and he advances. However, if neither car can win on Lane 2, *OR* if both racers win on lane 2, then the heat is again a tie and the winner shall be determined by the total fastest speed of the four races completed in each of the two heats. (Please refer to Page 10 for Examples of Heats and Ties)

**Details for Front Notching**



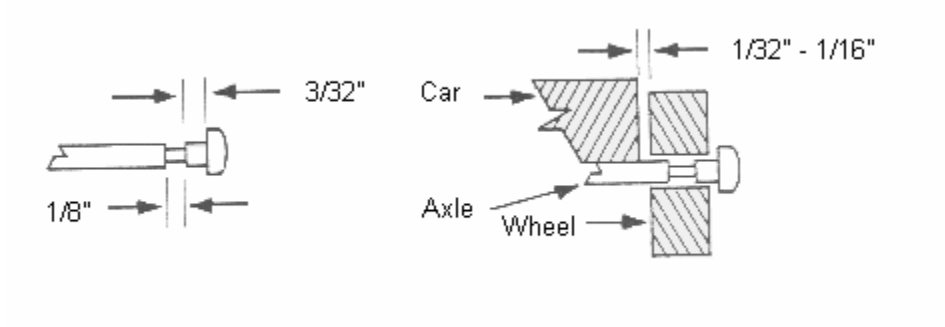
**Details for Wheels and Axles**



**Illegal Wheels**



**Legal Tapered Head Axle**



**Legal Grooved Axle**

## Examples of Heats and Ties

### EXAMPLE 1 – A CLEAR WINNER IN ONE HEAT

	LANE 1	LANE 2	WINNER - Lane
Heat 1	TIGER A	TIGER B	<i>TIGER A – Lane 1</i>
Heat 1	TIGER B	TIGER A	<i>TIGER A – Lane 2</i>

**TIGER A IS THE WINNER OF THE HEAT – HE WON ON BOTH LANE 1 AND LANE 2. HE MOVES ON; TIGER B GOES TO THE CONSOLATION BRACKET**

**EXAMPLE 2 – NO CLEAR WINNER IN THE FIRST RACE; BUT A CLEAR WINNER IN THE SECOND RACE DETERMINES THE HEAT.**

#### FIRST HEAT

	LANE 1	LANE 2	WINNER
Heat 1	TIGER A	TIGER B	<i>TIGER A – Lane 1</i>
Heat 1	TIGER B	TIGER A	<i>TIGER B – Lane 1</i>

**NEITHER TIGER A NOR TIGER B WINS THE RACE; NEITHER RACER WON ON BOTH LANES. THE RACERS MUST RACE AGAIN TO WIN ON LANE 2 TO DETERMINE THE WINNER.**

#### SECOND HEAT

	LANE 1	LANE 2	WINNER
Heat 2	TIGER A	TIGER B	<i>TIGER A – Lane 1</i>
Heat 2	TIGER B	TIGER A	<i>TIGER A – Lane 2</i>

**TIGER A IS THE WINNER. HE WON ON LANE 2 IN THE SECOND HEAT. TIGER B WON ONLY ON LANE 1. TIGER A MOVES ON; TIGER B GOES TO THE CONSOLATION BRACKET**

**EXAMPLE 3 – NO CLEAR WINNER IN THE FIRST RACE AND NO CLEAR WINNER IN THE SECOND – A TIE, THE WINNER IS DETERMINED BY THE COMBINED TIMES OF FOUR RACES**

**FIRST HEAT**

	<b>LANE 1</b>	<b>LANE 2</b>	<b>WINNER</b>
<b>Heat 1</b>	<b>TIGER A</b>	<b>TIGER B</b>	<b><i>TIGER A – LANE 1</i></b>
<b>Heat 1</b>	<b>TIGER B</b>	<b>TIGER A</b>	<b><i>TIGER B – LANE 1</i></b>

**NEITHER TIGER A NOR TIGER B WINS. NEITHER RACER WON ON BOTH LANES. THE RACERS MUST RACE AGAIN TO DETERMINE THE WINNER.**

**SECOND HEAT**

	<b>LANE 1</b>	<b>LANE 2</b>	<b>WINNER</b>
<b>Heat 2</b>	<b>TIGER A</b>	<b>TIGER B</b>	<b><i>TIGER B – LANE 2</i></b>
<b>Heat 2</b>	<b>TIGER B</b>	<b>TIGER A</b>	<b><i>TIGER A – LANE 2</i></b>

**NEITHER TIGER A NOR TIGER B WINS THE HEAT; BOTH RACERS WON ON BOTH LANES. NEITHER RACER WON A HEAT. THE RACE TIMES OF EACH RACER FOR ALL FOUR RUNS IN BOTH HEATS ARE ADDED UP, AND THE RACER WITH THE FASTEST OVERALL TIME IS THE WINNER OF THE HEAT AND THE RACE AND MOVES ON. THE OTHER RACER GOES TO THE CONSOLATION BRACKET**

**Note: the above examples are not all-encompassing; there are several other scenarios that may occur during races. The examples above are given to illustrate some of the results that may occur.**

## **Summary of Rule Changes from 2005**

1. The only rule change for 2006 is in Section 3. Wheels and Axles: Paragraph G. that the wheel diameter may not be less than 1.150" to limit the amount of sanding or lathe-turning on the outer surface of the wheels.

**2006**  
**Adventure District Pinewood Derby**  
**Registration Form and Inspection Certification**

*(This form will be completed at the Derby. Do not mail this form to the District/Council office)*

**Registration**

**Cub Scout Name:** \_\_\_\_\_

**Cub Scout Rank:** \_\_\_\_\_ **Cub Pack Number:** \_\_\_\_\_  
(Tiger, Wolf, Bear, Webelos I, Webelos II)

**Crew Chief Name:** \_\_\_\_\_

**Car Number Assignment:** \_\_\_\_\_

**Inspection**

**Weight** \_\_\_\_\_  
(Track Official Signature or initials)

**Width** \_\_\_\_\_  
(Track Official Signature or initials)

**Height** \_\_\_\_\_  
(Track Official Signature or initials)

**Wheel Clearance** \_\_\_\_\_  
(Track Official Signature or initials)

**Length** \_\_\_\_\_  
(Track Official Signature or initials)

**Wheel Inspection** \_\_\_\_\_  
(Track Official Signature or initials)

**Wheel Spacing** \_\_\_\_\_  
(Track Official Signature or initials)

**Front Notch** \_\_\_\_\_  
(Track Official Signature or initials)

**Impounded** \_\_\_\_\_  
(Track Official Signature or initials)

**Race Master** \_\_\_\_\_  
(Visual Inspection and Final Approval)