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# Troop 22 Soapbox Derby

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## Event Information

### Overview:

The Soapbox Derby is a colorful, thrilling activity that is fun for the whole family. Scouts and adults will create and drive their own cars. There is no engine; the Soapbox derby car works by gravity.

### Where:

### When:

Registration and final safety inspections start at Noon, the Derby will start at 1:00 PM sharp on Sunday April 25<sup>th</sup> 2009. All Soapbox derby cars must pass a complete safety inspection before they can be used in the derby. Safety Inspectors will also re-inspect each vehicle after each run to ensure that all parts are in working order.

### Spectators:

Everyone is welcomed! Parents and leaders, please help ensure safety by keeping small children away from lanes. The Soapbox derby cars can move fast enough to cause injury.

### Participation:

The Soapbox Derby is open to all Scouts of Troop 22 in good standing and the boys should wear their "B" uniform. Due to insurance restrictions, siblings are not permitted to participate. Leaders should be in full "A" uniforms.

### Racing Procedure

- The derby is run in heats. Each patrol has one Soapbox derby car, and each boy in the patrol races the car one time. The patrol with the lowest average racing time wins.
  - Scouts bring Soapbox derby car to inspection station where it is checked and numbered.
  - Cars and drivers go to the registration table where the names and car are checked on the heat schedule.
  - As his name is called by announcer, each Scout reports to starting gate and is helped into his car. Seat belt is fastened.
  - All drivers must wear protective head gear, such as football helmet, racing helmet or construction "hard hat".
  - When the cars are released by the starter, drivers should stay in their own lanes.
  - No pumping or pushing with the feet is permitted.
  - After driving, the Scout returns to the spectator section.
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## Soapbox Derby Rules

These are the rules that the Judges will use for certifying a Soapbox derby car to race.

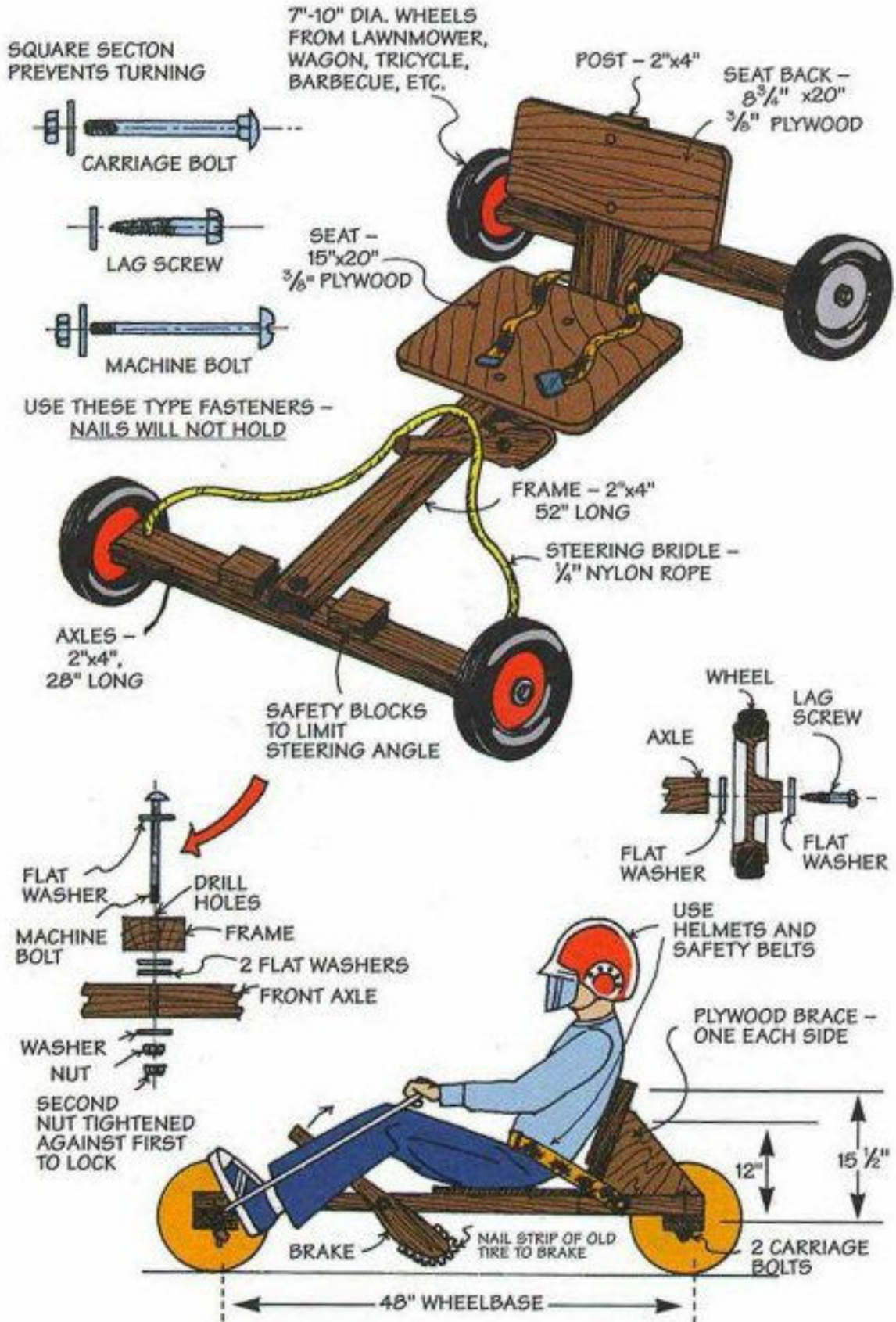
1. The outside dimensions of the finished Soapbox derby car (with wheels) shall not exceed 35" wide and 60" long.
2. The Soapbox derby car shall be constructed of 2x4's and plywood.
3. No part of the frame or seat can be assembled with nails. Screws or bolts must be used.
4. Wheels can be no more than 12" in diameter. Wheels must have rubber or plastic on the outer rim.
5. The Soapbox derby car must be equipped with a functioning seat belt that is bolted to the frame. A seat belt from an old automobile is recommended.
6. A steering mechanism must be used. Ropes or drive shaft are appropriate.
7. Drivers must wear the seat belt and a proper helmet in order to race. A bicycle helmet, a football helmet, or baseball-batting helmets are all acceptable.
8. The car must have a functioning brake.
9. No part of the Soapbox derby car may obstruct easy and ready access to the brake.
10. Each race will consist of two cars racing at a time.
11. Drivers should stay in their own lanes at all times.
12. No pumping or pushing with the feet allowed.
13. No pushing off at the start of the race.

\*\*Note: These are the minimum design requirements to race. BE CREATIVE!!

\*\*Note: It is required that each Scout provide their own helmet.

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## Detailed Instructions

Follow these directions to build your Soapbox derby car:

1. Cut one 2 X 4 52" for main frame.
  2. Cut two 2 X 4's 28" for axles.
  3. Make an "X" on each end of each axle, and drill a hole at each "X" intersect, 6" deep using a hand electric drill (5/16" wood bit works well).
  4. On front axle 2 X 4:
    - a. Drill a 5/16" hole on each end near the back for the rope.
    - b. Drill a 3/8" hole at center of 2 X 4.
    - c. Attach (2) 2 X 4 blocks to front axle, on either side, 2-1/8" from center hole, use glue and #6 X 2" screws. This will limit steering.
  5. At front of main frame 2 X 4, drill a 3/8" hole (center 1-5/8" from front).
  6. Attach front axle to frame using 3/8" X 4" hex bolt, 4 washers, and lock nut or 2 nuts. (Tighten enough to allow steering).
  7. Align back axle 2 X 4 at right angle with back of main frame 2 X 4, clamp if possible. Drill (2) 5/16" holes through axle and main frame. Attach main frame to back axle using 2 carriage bolts, 2 washers, 2 lock washers, and 2 nuts. If this is to be a permanent attachment, glue also.
  8. Cut out seat and back rest from plywood.
  9. Cut one 2 X 4 12-14" in length for back rest support. (Bevel slightly about 5 degrees if possible).
  10. Attach back rest support (bevel end down) to main frame using glue and 2 screws (#8...2-1/2") at an angle. Position of this support depends on size of boy, have scout sit on 2 X 4 frame to estimate position.
  11. Cut out 2 triangular shaped pieces of plywood and attach to either side of backrest support and main frame with glue and screws (#6 1-1/2"). Drilling small pilot holes helps.
  12. Attach seat and back rest using glue and screws (#6...1-1/2").
  13. Cut 2 X 2 surveyor's stake to 14-16" at an angle, cover end with rubber using nails, drill a 3/8" hole through stake at location it will meet main frame.
  14. Drill hole 5/16" into main frame at point to attach brake. Mount brake using 3/8" X 4" lag screw and washer to side of main frame.
  15. Drill and attach seat belt with fasteners of choice.
  16. Attach 6-7' of 1/4" rope to front axle as shown.
  17. Attach wheels using washers and 3/8" X 6" lag screws. (Socket wrench helps).
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### Supplies and Tools

<b>Quantity</b>	<b>Description</b>	<b>Tools</b>
4	8" wheels	Drill
1	2'X4' 3/8" or 1/2" plywood	3/8" and 5/16" wood bit
2	8' 2X4's	Wrenches or socket set
1	2"X2" surveyor's stake	Screwdriver
4	3/8" X 6" lag screws (for wheels)	Tape measurer
1	3/8" X 4" hex bolt (for front axle)	Wood glue
1	3/8" X 4" lag screw (for brake)	Power or hand saw
2	5/16" X 4" carriage bolts (for rear axle)	
13	3/8" washers	
1	3/8" lock nut	
2	5/16" washers	
2	5/16" lock washers	
2	5/16" nuts	
32	#6 X 1 1/2" wood screws	
4	#6 X 2" wood screws	
1	6-7' 1/4" rope	
1	seat belt (from salvage yard)	
1	2" X6" piece of rubber (from old tire)	

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## **Event Preparations**

Below are the items that the troop must provide and bring to the event:

1. Caution tape will be used to rope off the racing area, as well as potential hazardous areas.
2. Duct Tape to mark off the finish line.
3. Water coolers and refreshments.
4. Cups for everyone must be provided as well as a garbage can to clean up the racing area.
5. Certificates and awards
7. Tools such as a hammer, nails, screws, and crowbar for minor repairs.