



PIO PICO
PUSHCART DERBY 2023
LEADERS' GUIDE



Date: February 11, 2023

Time: 8:00 am - 4:00 pm

Location: **Stonewood Center Mall**

251 Stonewood St. Downey 90241

(Pushcart race off Lakewood Entrance by Food Court)

It is the responsibility of each unit to read and understand the rules and regulations within the Leaders Packet. If you have any questions, please direct them to Mary Gaither mgait30724@aol.com or 562-964-3774

Table of Contents

Schedule.....	1
Team Divisions	2
Safety.....	2
Operation during the Event	2
Awards.....	3
Push Cart Construction Rule	3
Events: Relay Race - Rules & Logistics.....	4
Events: Relay Race - Division Specifics	5
Events: Drag Race - Rules & Logistics.....	5
Events: Drag Race - Division Specifics	6
Events: Parallel Parking.....	6
Push Cart Suggested Plans & Design.....	7
Cart Inspection Checklist.....	9
Pit Stop Drinks & Snacks	10

**All participants Youth and Adults must be
BSA registered!**

**Units need to have the Boy Scout Medical Form
Parts A & B for each participant on hand.**

SCHEDULE:

8:00 am Check-in starts. Please go to HQ tent for wrist bands (If you paid as a group send 1 adult to get wrist bands). Only 1 adult and 1 youth need to take your cart over for inspection. Remember you have 4 hrs. and 45 min. of racing time. Please arrive no later than 10:00am.

8:30 am Opening Ceremony

8:45 -1:30 pm Teams will go with cart to the Staging Areas (Line Up) for each track. They will hand the team time slip to the track Pit Crew Timer. At the end of their race, the timer will give back the slip with the recorded time on it. After you have done the Oval track 2 times, Drag track 2 times and parking 2 times you will need to turn in your score cards ASAP to HQ tent.

1:30 pm Scouts need to hand in score cards.

Clean-up! Please give us your Scouts and Adults to help take apart the tracks and pick up any trash. Remember Scouts leave it cleaner than they found it! Thank You in advance.

2:30 pm AWARDS and Team Pictures

Team Divisions:

Division 1 - Tiger

Division 2 - Wolf Division 3 - Bear

Division 4 - Webelos / Arrow of Light

Division 5 - Troop/Scouts

Division 6 - Crew/Adults

Divisions 1, 2, 3, 4 & 5 will consist of four members (1 driver and 3 pushers).

Racers may move up 1 division if necessary in order to field a team but racers cannot move down in division. For example if a pack has 1 Bear and 3 Webelos the Bear can be moved up to Division 4 in order to form a team. In the event that a Unit does not have enough Scouts to field a team or teams, a provisional team can be formed with Scouts from another Unit. It is the responsibility of the units to keep record of the scouts in each race. (Each member of the winning teams in all divisions will receive a medal).

Division 6 will have three members (1 driver and 2 pushers).

Safety:

Every Racer is Required to wear the following:

- Helmet (bicycle, motorcycle or skate) - each racer must have their own helmet equipped with a strap
- Pants/Jeans - No shorts!
- Closed toe shoes - No sandals or shoes with an open back!

Optional but Highly Recommended:

- Gloves - Full gloves including the fingers
- Knee and elbow pads
- Long sleeve shirt
- Eye protection - to be worn by the driver. As the drivers switch during the race the protective eyewear should be passed along amongst the team

Operation during event:

- Only use your feet and the rope attached to the axle to steer the cart
- Clear the course before removing safety gear (seat belt, helmet, gloves, etc.)

Awards:

Awards:

- 1st 2nd 3rd place winners by division. A medal is given to each winning team member.

Push Cart Construction Rules

1. All carts must pass a safety inspection prior to racing. If the cart does not pass, the members of the team will be notified of the reason the cart failed and will have the opportunity to fix the issue and pass inspection prior to racing.
2. Pushcarts are to be built by team members with adult supervision (overseeing the work for safety) where required due to the age of the team members. Please follow the Guide to Safe Scouting guidelines.
3. Wheels must have a total outside diameter no less than 8 inches and no greater than 12 inches.
4. Wheels must be made of plastic or solid rubber only. No inflatable tires will be allowed.
5. The carts wheelbase will be measured from axle to axle and must be no less than 30 inches and no greater than 48 inches.
6. Nails will not be permitted for axles. Axles must be screws, bolts or shafts and will be inspected for safety prior to the race. It is recommended to use a shaft attached to the wooden axle with U bolts and then secure the wheels to the shaft with cotter pins. (Refer to included diagram)
7. All carts must have steering blocks on the top side of the front axle board to limit the angle of turn
8. The total length of the cart is not to exceed 84 inches including the secured push bar.
9. The total width of the cart must be no less than 20 inches and no greater than 40 inches.
10. All carts must have at least 1-1/2 inches of ground clearance.
11. Cart bodies must be constructed of wood, metal fasteners are permitted.
12. All carts must include a seatbelt to secure the driver with a locking mechanism.
13. All carts must have a seat with a secure back for the driver to sit in while driving the cart.
14. All carts must include a secured push bar no greater than 60" in length.
15. All carts must be powered manually; no motors or other devices for power will be permitted.

16. All carts must have 4 wheels, 2 in the front and 2 in the back.
17. All carts must have front wheel steering with drivers able to steer the cart using their feet on the front axle along with a rope attached to the front axle.
18. It is recommended that holes been drilled into main frame near front so that you are able to move front axle back to fit smaller drivers. (refer to included diagram)
19. It is recommended that foot rests with Velcro straps be installed on the front axle to ensure that boys do not put their feet down while the cart is in motion.
20. Personalization such as: seat pads/covers, painting, decals and reflectors are allowed as long as they meet safety standards.
21. Cardboard number plates, covers, and panels are allowed as long as they are secured safely.
22. After the safety inspection there can be no alterations made to the cart.

Events:

Relay Race - Rules & Logistics

1. The track will be a 100 yard oval and will consist of two lanes with 2 carts racing simultaneously.
2. Each team will race 2 times (once in each lane). Each race will be timed, and the winners of each division will be determined by the lowest average time from both races.
3. Teams shall pre-determine drivers and pushers for each segment of the race.
4. The Pit Crew will stage the carts at the starting line. When the racing officials determine that all carts are properly set and each member is wearing appropriate safety gear the race will be started.
5. 4 team members will begin the race at the starting line with 3 members pushing and 1 member driving. They will drive for a predetermined distance to the 1st 25 yard changeover zone. At this point one of the pushers will switch places with the driver and continue racing towards the 2nd changeover zone. At the 2nd changeover zone one of the remaining 2 members that have yet to drive will switch places with the driver. The team will push/drive towards the 3rd and final changeover zone where the last team member will switch places with the driver before racing to the finish line.
6. A 5 second penalty will be added for all exchanges occurring outside of the changeover zone.

7. To ensure that each racer has an opportunity to both push and drive a 10 second penalty will be imposed for teams failing to comply with this requirement.
8. If a cart strays from its assigned lane and interferes with another cart a 10 second penalty will be imposed.
9. If a driver exits a cart before it stops a 10 second penalty will be imposed.

Relay Race - Division Specifics

Divisions 1,2& 3 : Racers in these divisions will drive 25 yards or $\frac{1}{4}$ of the track between changeover zones and must have one Adult Coach near the course to coach and direct their team. The coach is not allowed to touch the cart or move lane markers once the race begins. A 5 second penalty will be imposed for each time they touch a cart or lane marker.

Division 4 & 5 : Racers in these divisions will drive 50 yards or $\frac{1}{2}$ of the track between changeover zones and Division IV teams must have one Adult Coach near the course to coach and direct their team. The coach is not allowed to touch the cart or move lane markers once the race begins. A 5 second penalty will be imposed for each time they touch a cart or lane marker.

Division 6 - Racers in this division will drive 100 yards or a full lap of the track between with no change overs.

Drag Race - Rules & Logistics

1. The track will be 100 yards in a straight line and will consist of two lanes with 2 carts racing simultaneously.
2. Each team will race 2 times. Each race will be timed, and the winners of each division will be determined by the lowest average time from both races.
3. Teams shall pre-determine drivers and pushers for each heat of the drag race.
4. The Pit Crew will stage the carts at the starting line. When the racing officials determine that all carts are properly set and each member is wearing appropriate safety gear the race will be started.
5. Divisions 1,2 & 3 will have 4 team members begin the race at the starting line with 3 members pushing and 1 member driving. They will drive for a predetermined distance to a 50 yard changeover zone. At this point one of the pushers will switch places with the driver and continue racing towards the finish line which will conclude the first heat.
6. Divisions 4 & 5 will have 4 team members Division 6 will have 3 team members. They will drive 100 yards turn cart around, change driver and race back to finish line which will conclude the first heat.

7. A 5 second penalty will be added for all exchanges occurring outside of the changeover zone. (Does not apply to divisions I, II or III)
8. To ensure that each racer has an opportunity to both push and drive a 10 second penalty will be imposed for teams failing to comply with this requirement at each changeover. (Does not apply to divisions I, II or III)
9. If a cart strays from its assigned lane and interferes with another cart a 10 second penalty will be imposed.
10. If a driver exits a cart before it stops a 10 second penalty will be imposed.

Drag Race - Division Specifics

Divisions 1, 2 and 3 - Racers in these divisions will drive 50 yards with 3 pushers and 1 driver they will be switching drivers at 50 yard changeover. Each heat will consist of one straightaway race of 100 yards. Each team will race 2 heats with 2 different drivers for each heat and must have one Adult Coach near the course to coach and direct their team. The coach is not allowed to touch the cart or move lane markers once the race begins. A 5 second penalty will be imposed for each time they touch a cart or lane marker.

Divisions 4, 5, 6 - Racers in these divisions will drive 100 yards or the full length of the drag strip before turning the cart around, switching places and returning 100 yards to the finish the heat. Each heat will consist of one straightaway race of 200 yards. Teams in division 4 must have one Adult Coach near the course to coach and direct their team. The coach is not allowed to touch the cart or move lane markers once the race begins. A 5 second penalty will be imposed for each time they touch a cart or lane marker.

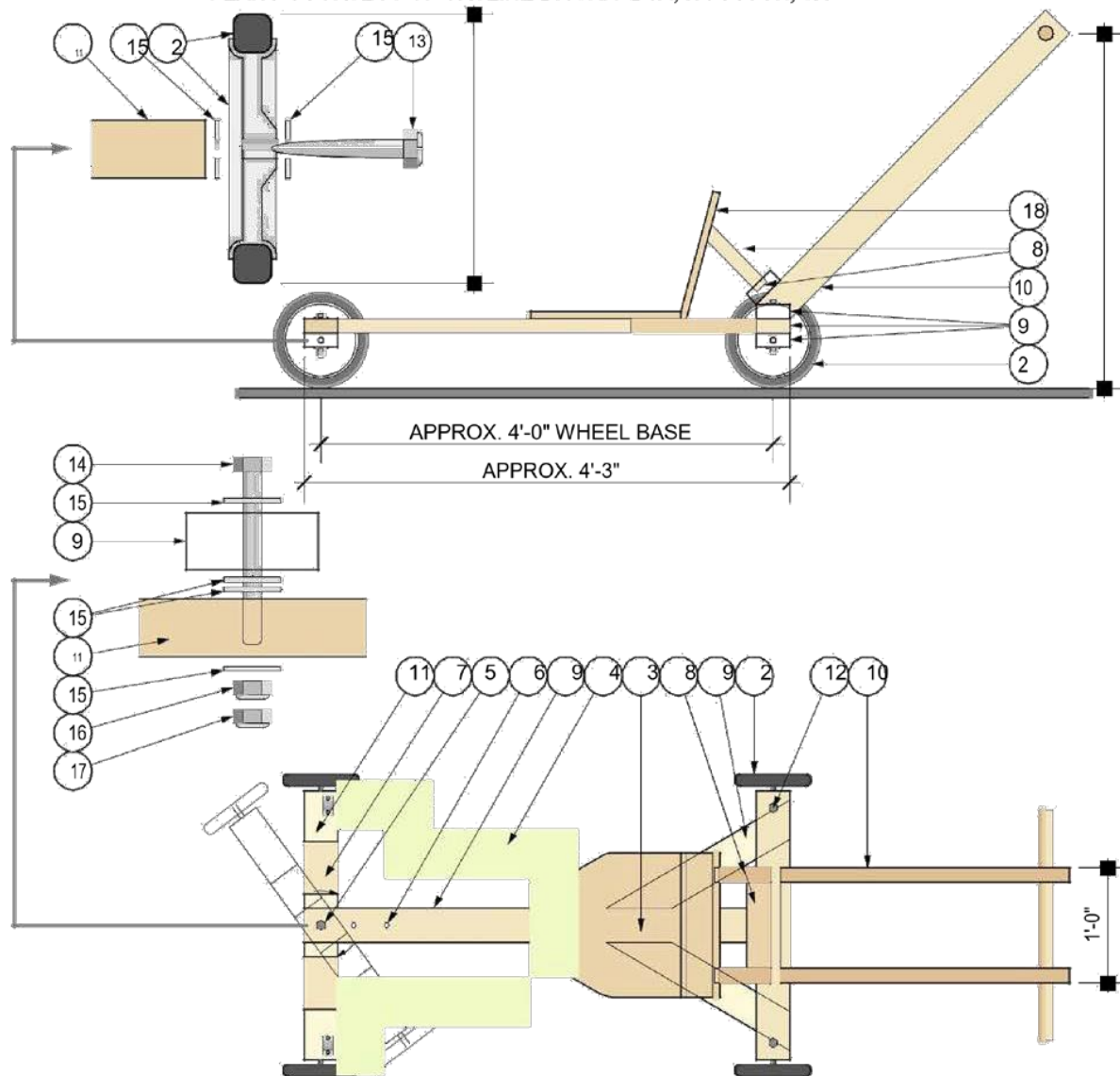
Parallel Parking

This is a timed event. 4 team members are required. Carts must be parallel parked as follows:

1. 5 feet wide by 9 feet long dimensions
2. Maximum 4 minutes for divisions I, II, III, IV
3. Maximum 3 minutes for divisions V, VI

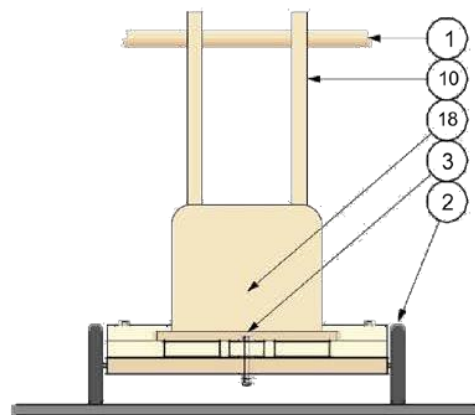
PUSH CAR SUGGESTED PLANS

FEEL FREE TO CREATE YOUR OWN PUSH CAR
PLANS COURTESY OF SKYLINE DISTRIC BSA, HOUSTON, TX



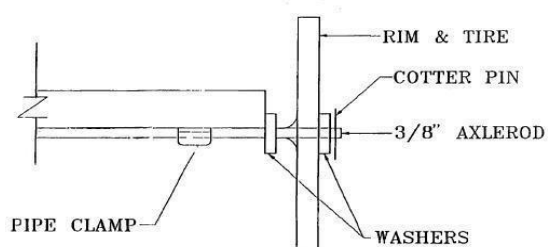
NOTES TO DRAWING

- 1 WOOD PUSH BAR 1 1/2" DIAMETER. (Recommended)
- 2 WHEELS NOT TO BE LARGER THAN 12" DIAMETER.
- 3 3/8" OR 1/2" PLYWOOD SEAT 15" WIDTH X 20" LONG.(Recommended)
- 4 STEERING BRIDLE, 1/4" NYLON ROPE.
- 5 STEERING MACHINE BOLT.
- 6 DRILL HOLES ON THE AXEL TO ADJUST CAR TO USER PROPORTIONS.
- 7 2 X 4 SAFETY WOOD BLOCKS, TO LIMIT STEERING ANGLE.
- 8 SEAT POSTS SUPPORT.
- 9 2 X 4 WOOD CAR FRAME.
- 10 2 X 4 HANDLE SUPPORT.
- 11 2 X 4 X 28" WOOD AXLES.
- 12 CARRIAGE BOLT.
- 13 LAG SCREW. (See Alternate and Recommended Option)
- 14 MACHINE BOLT.
- 15 FLAT WASHER.
- 16 NUT.
- 17 SECOND NUT TIGHTENED AGAINST FIRST NUT TO LOCK.
- 18 3/8" OR 1/2" PLYWOOD SEAT BACK 15" WIDTH X 13" HIGH.



RECOMMENDED AXLE DESIGN

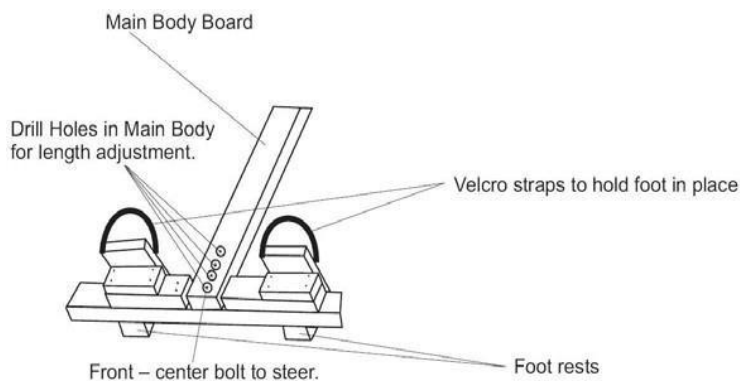
Using Lag bolts as axles is not recommended due to the number of races and teams the unit may use the car for during the event. A solid axle is recommended to ensure your racers spend more time on the track and less time in the pit (because that would truly be the pits). Below is one example of how to build an axle for your carts. This is not the only way or necessarily the best way.



WHEEL CROSS SECTION

SCALE: 1" = 3'-0"

FOOTREST



Put a washer between axle frame and main body board

In order to reduce the risk of drivers taking their feet off the steering bar to catch themselves should they lose their balance, a footrest is one minor modification that is also required.

CART INSPECTION CHECKLIST

Pack / Troop / Crew (circle one) Unit #: _____ CART # _____

DIVISION: _____ TEAM NAME: _____

PASS	FAIL	
		Outside diameter of wheels no less than 8 inches no greater than 12 inches
		Wheels are made of plastic or solid rubber
		Wheelbase is no less than 30 inches and no greater than 48 inches
		Axles must be screws, bolts or shafts. No Nails!
		Total length of cart including push bar does not exceed 84 inches
		Total width of cart is no less than 20 inches and no greater than 40 inches
		Cart has a minimum of 1 1/2 inches of ground clearance
		Cart body is made of wood
		No Handbrake installed
		Installed seatbelt with locking mechanism
		Installed seat with secure seat back
		Installed secured push bar no greater than 60" in length
		Steering blocks to limit oversteering
		No motors or other devices for power installed
		Cart has 4 wheels, 2 in the front and 2 in the back
		Front wheel steering with a rope attached to the front axle
		All seat pads/covers, panels, and other misc. items are secured & meet safety standards

Inspector Signature

Date



Water, Soda, Ice Tea and Ice Coffee along with assorted pre-packaged Snacks will be for sale at the Pit Stop Canopy.

Food Court and Restrooms

