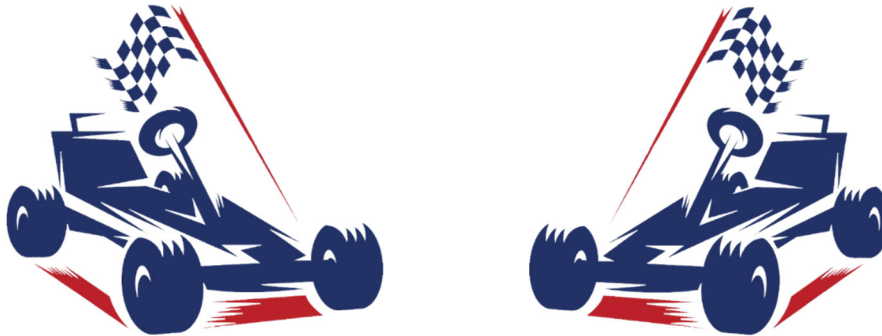


PIO PICO DISTRICT's



# PUSH CART DERBY 2020

## LEADER'S GUIDE

**DATE:** FEBRUARY 22<sup>nd</sup>, 2020

Time: 7:00 am – 3:00 pm

**LOCATION:** El Rancho Adult School PARKING LOT

9515 HANEY ST., PICO RIVERA, CA 90660

***\*NO VEHICLE PARKING IN LOT\****

Registration begins Friday Dec. 20th

REGISTRATION COST IS \$15 PER PERSON

EMAIL: SOPHIA ANTUNEZ - [Sophia.Antunez72@gmail.com](mailto:Sophia.Antunez72@gmail.com)

Indicate Unit #, Unit Type, number of Participants, and food vending

In-person signup begins: January 15th, 2020 at Roundtable

First United Methodist Church: 13222 Bailey St. Whittier, CA 90601

7:00 pm – 8:30 pm

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

<http://www.scouting.org/scoutsource/HealthandSafety/ahmr.aspx>

### **Team Divisions:**

Division I- Lion Cardboard Boxcar (separate race area – circuit rules/specific to be posted)

Division II – Tiger

Division III – Wolf

Division IV – Bear

Division V – Webelos / Arrow of Light

Division VI – Boy Scouts ages 11-13

Division VII – Boy Scouts ages 14-17 / Ventures

Teams for all divisions will consist of four members with each team member only being allowed to be a part of 1 team. 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 IV to form a team.

If 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 Unit and/or Scout to secure a spot on a team prior to race day.

**Each Unit must have at least 1 cart to participate. If a Unit has more than one team per division, they must have 2 carts.**

***Divisions I – IV are required to have an adult pit crew chief for each race. We will have a Pit Crew Staff area.***

### **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/J 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.)

#### **Patches and Awards:**

- **Patches:** All registered Scout Participants will receive patches while supplies last.
- **Awards:** Medals for various challenges to be awarded the day of the event

#### **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 race time.
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 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 3.
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 can 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 scouts 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 if 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. 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 one-member driving. They will drive for a predetermined distance to the 1st 5-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 II & III** – 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 IV & V** – 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 VI** – Racers in this division will drive 100 yards or a full lap of the track between changeover zones.

### **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. 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 a 5-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 1 heat. The Pit Crew will restage the carts and the 1 of the non-driving team members from the 1 heat will begin the race as the driver and drive for a predetermined distance to a 5-yard changeover zone. The last non-driving team member will switch places with the driver before racing to the finish line. (Does not apply to divisions I, II or III)
5. A 5 second penalty will be added for all exchanges occurring outside of the changeover zone. ***(Does not apply to divisions II or III)***
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 at each changeover. ***(Does not apply to divisions II or III)***

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.

### **Drag Race - Division Specifics**

**Divisions II and III** – Racers in these divisions will drive 50 yards with 3 pushers and 1 driver but there will not be any switching of drivers. Each heat will consist of one straightaway race of 50 yards. Each team will race 2 heats with a different driver 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 IV, V, VI** – 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. Teams in division IV 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 3 minutes for divisions II, III, IV
3. Maximum 1 ½ minutes for divisions V, VI



Eloy Antunez III  
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Plymouth Church, Whittier CA

email: renegadedj@gmail.com

## LIONS BOXCAR SUGGESTED PLANS

*FEEL FREE TO MODIFY FOR YOUR DESIGN,  
BUT MAINTAIN THE SAFETY REQUIREMENTS*

### How to Make a Cardboard Box Car



1. Seal a large box with packing tape.



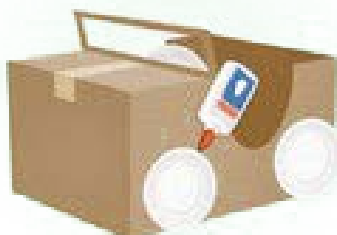
3. Fold the cut top of the box to create a windshield. Then tape the top fold to its bottom half.



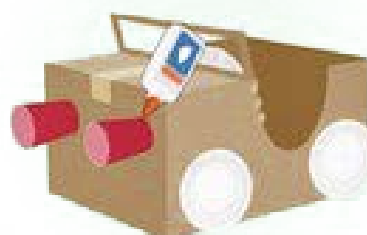
2. Have an adult use a box cutter to cut out a semicircle on each side to make the doors. Then cut two thirds of the top of the box, leaving it joined to the car's "hood."



4. Have a grown-up cut out a windshield.



5. Glue on paper-plate wheels.



6. Attach plastic-cup lights with glue.



7. Get a custom paint job using finger and tempera paints.



8. Add upholstery by gluing fabric or construction paper to the inside of the car.



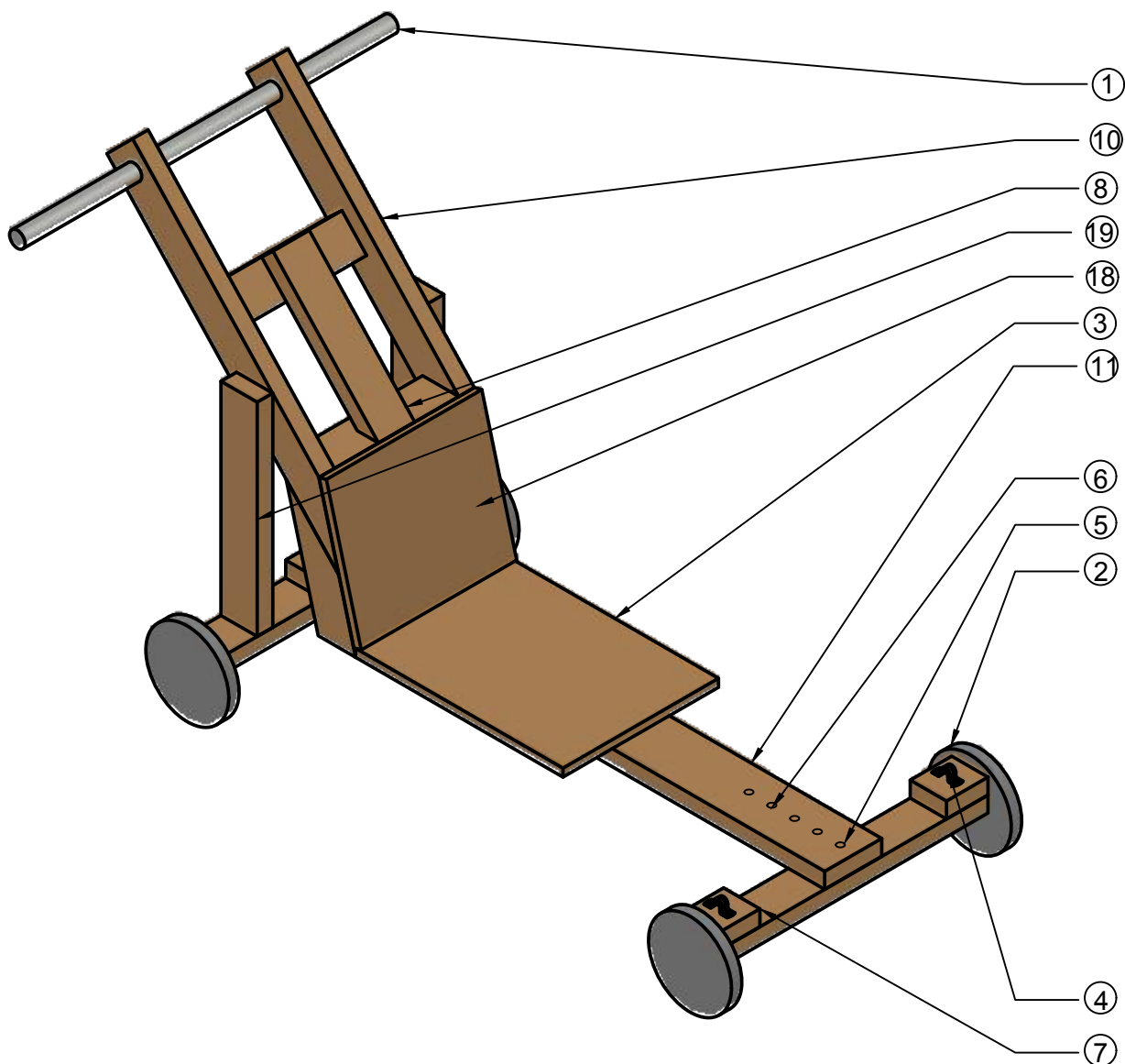


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## **PUSH CART SUGGESTED PLANS**

*FEEL FREE TO MODIFY FOR YOUR DESIGN,  
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### **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 AXLES 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 TO LOCK
18. 3/8" OR 1/2" PLYWOOD SEAT 15" WIDTH X 13" HIGH (RECOMMENDED)
19. 2 X 4 HANDLE POSTS VERTICAL SUPPORT

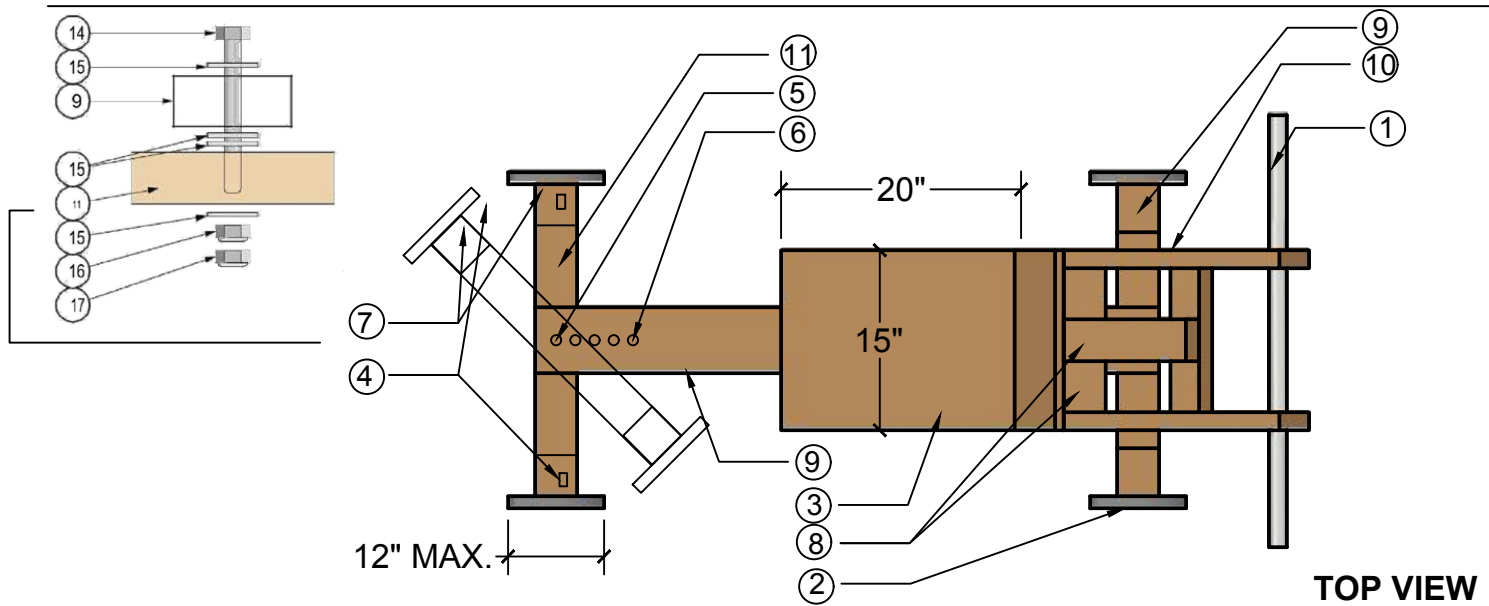
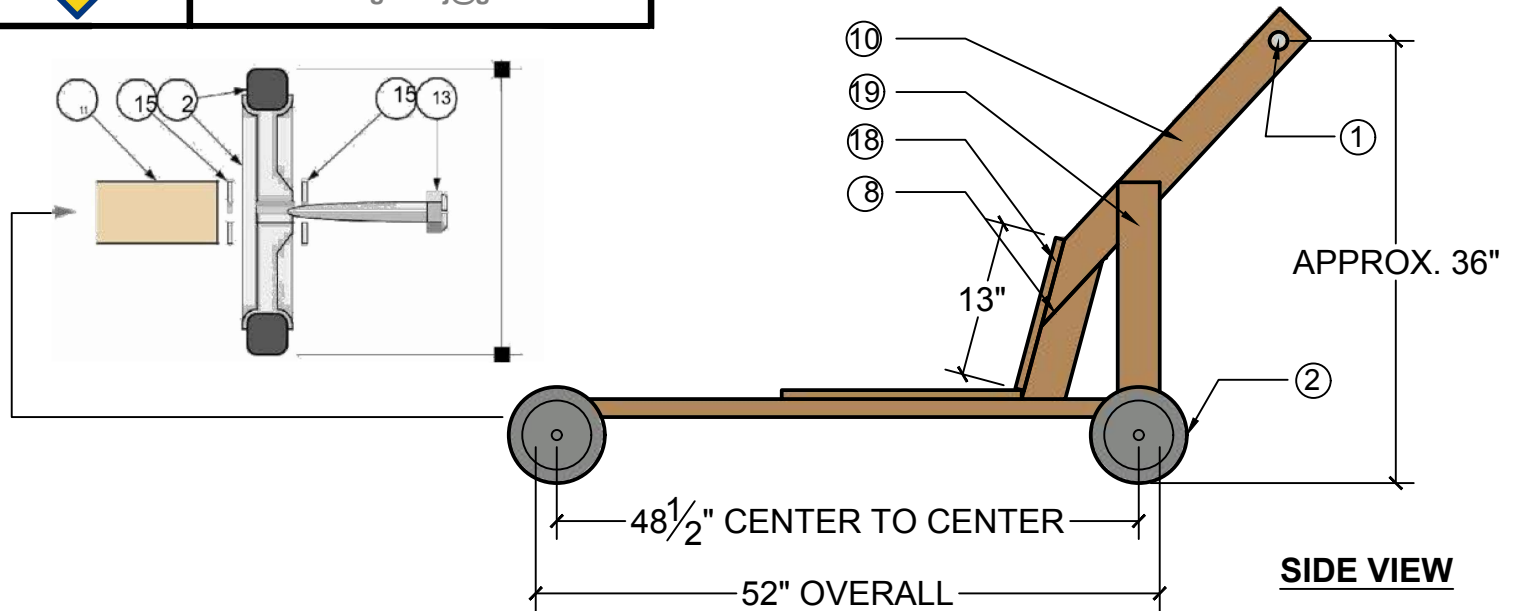
### **PERSPECTIVE VIEW**



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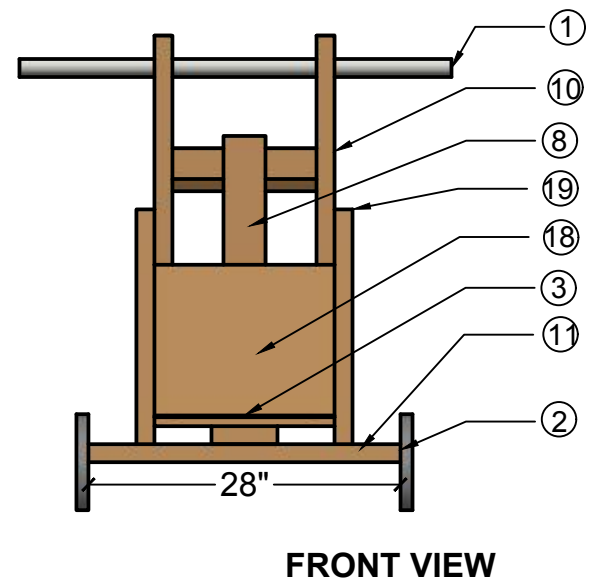
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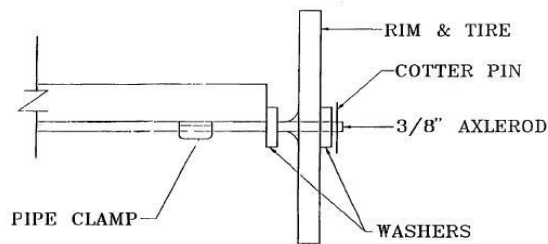
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19. 2 X 4 HANDLE POSTS VERTICAL SUPPORT



## 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.

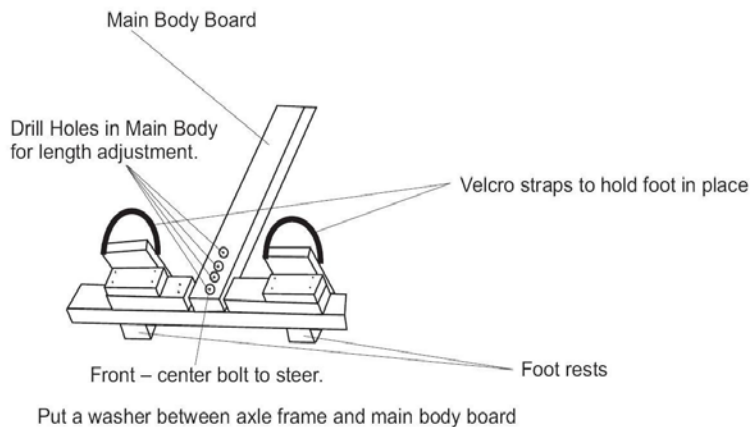


## WHEEL CROSS SECTION

SCALE: 1" = 3'-0"

## FOOTREST

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.



# PUSH CART DERBY 2020 SCHEDULE

07:00 a.m. Pio Pico District Cook Team Breakfast begins

07:00 a.m. Check-in begins

07:45 a.m. Vendor Booths set-up begins. **Unit must register a team in the event to have a vendor booth.** No food sales until 10:00 am

08:00 a.m. Check-in closes

08:30 a.m. Races begin

03:00 p.m. Award Presentation and closing ceremony

## PUSH CART DERBY 2020 REGISTRATION FORM

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 Sophia Antunez 714-450-0668

Cost Per Participant: \$15 / Cost Per additional patches: \$5

Pack / Troop / Crew (Circle one) Unit # \_\_\_\_\_

Food Booth request – list items: \_\_\_\_\_

(contact Rocio Garcia to reserve your items)

### **Circle applicable Divisions:**

Lion (Div. I)

Tiger (Div II)

Wolf (Div. III)

Bears (Div. IV)

Webelos/Arrow of Light (Div. V)

Scouts 11 – 13 (Div. VI)

Scouts 14 – 17/Venturer Scouts (Div. VII)

Team Name: \_\_\_\_\_ Division #: \_\_\_\_ Pit Crew Chief: \_\_\_\_\_ (Div I – IV)

Team Name: \_\_\_\_\_ Division #: \_\_\_\_ Pit Crew Chief: \_\_\_\_\_ (Div I – IV)

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Team Name: \_\_\_\_\_ Division #: \_\_\_\_ Pit Crew Chief: \_\_\_\_\_ (Div I – IV)

### **All units must provide at least two adult volunteers for the day's event**

1) \_\_\_\_\_ 2) \_\_\_\_\_

Cell #: \_\_\_\_\_ Cell# \_\_\_\_\_

3) \_\_\_\_\_ 4) \_\_\_\_\_

Cell #: \_\_\_\_\_ Cell# \_\_\_\_\_

## 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

**This cart was awarded:** Best Paint / Best Design (circle one) **Division:** I   II   III   IV   V   VI (Circle one)

\_\_\_\_\_  
**Inspector Signature**

\_\_\_\_\_  
**Date and Time**