

## The Poof Cannon

*With attachments for*  
**The Ponginator**  
**The TP Terminator**  
**The Crepe Paper Flame Thrower**  
**The Ping Ponger Pitcher**

Purchase and gather all the material and tools required. See “Parts List – Poof Cannon”, a separate parts list is included for building the “Launch Pad” and “Hoola Nets”.



**SAFETY NOTE:** Always know, read and follow the safety directions that come with your power or hand tools, and **most importantly, always** wear safety glasses or safety goggles while working on this or any shop project.

**DANGER!** Paint Thinner, PVC Cement and Plastic Paints are **EXTREMELY** Flammable. The VAPORS are harmful **DO NOT** breathe. Vapors may cause flash fire. Use only in a well ventilated area. Read, understand and follow all product directions and precautions before using.

1. Begin by removing all factory markings from the PVC pipes and fittings. This will help greatly when it is time to paint. The markings tend to bleed through the paint.
2. Cut PVC Pipe to the following lengths using a PVC Plastic Pipe saw or a hacksaw.
  - ½" pipe: 10", 3¼", 10"
  - 1½" pipe: 6", 10", 6", 1¾", 1¾", 1¾"
  - 2" pipe: 1¾", 14", 14", 2"
  - 3" pipe: 24", 2½", 2½"

3. Number all the parts with a pencil or with a marker on painter's tape. See attached page: **"Poof Cannon—Numbering of Parts."**



## **Poof Cannon:**

### **Assemble the Poof Cannon according to the following steps:**

When gluing PVC into PVC on this project, apply glue lightly inside the lip that will slide into the other piece.

- Before gluing Part 1 into Part 2, make sure that the funnel is pointing away from the first pipe (note: arrow in picture). This will allow the ping pong balls to flow freely toward the muzzle. Glue Part 1 into Part 2



- Apply glue to the other side of Part 2. Slide Part 3 into Part 2.

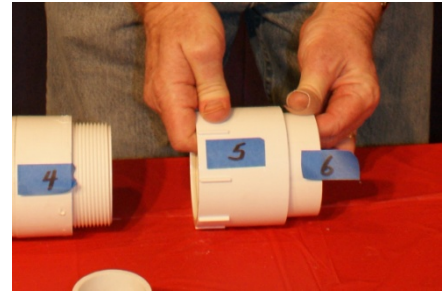


- Apply glue on the inside lip of Part 4. Slide this onto Part 3. Note: Parts 2 & 4 should fit tightly together.



**Caution. Do not glue threads together between Parts 4 and 5.**

- Glue Part 6 into Part 5



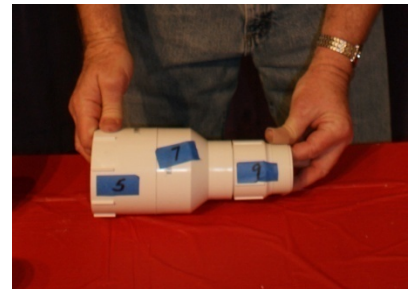
- Glue Part 7 into Part 6.  
Note: Parts 5 & 7 fit tightly together.



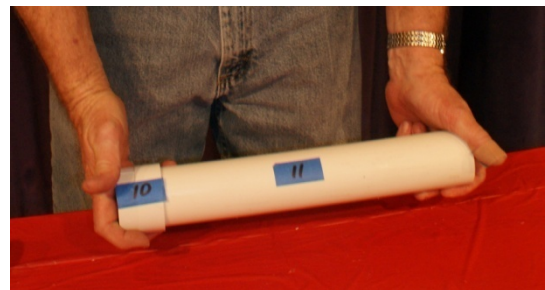
- Glue Part 8 into Part 7



- Glue Part 9 to Part 8. Note: Parts 7 & 9 fit tightly together.



- Glue Part 10 into Part 11.



- Cut a slit into Part 12. This slit will create an airstream that will spin the toilet paper roll in “**TP Terminator**”. With a bold marker, mark the cut. A safe way to hold this piece while sawing is to place Part 12 on the end of Part 11 **as a dry fit**. Do not glue in case you make a mistake cutting. If that happens then you can replace only Part 12. Carefully saw both edges. You may have to flip the cap so that you cut on both edges and balance your cut. Drill a hole in both ends that will help you safely remove the cut piece. Sandpaper the rough edges to remove all burrs. **Make sure all the shavings are out**, remove the cap and smooth the inside of the cut.



- **Screw the Part 10-11 assembly to Part 9.** Glue Part 12 into Part 11 so that the slot you just cut is horizontal.

- Glue Part 13 into Part 14.



- Glue Part 15 into the top of Part 2. This part of the assembly we call the carburetor. It will serve as the input for the Ping Pong Cartridges and crepe paper.



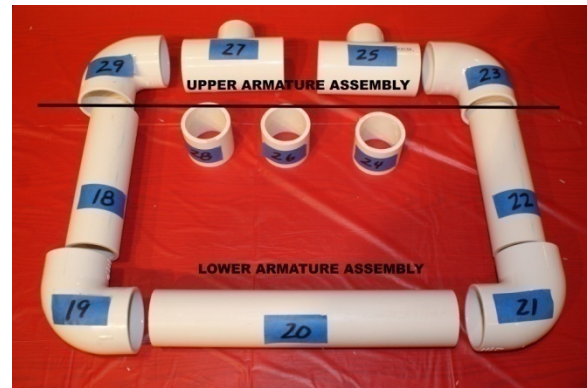
- Part 16 fits onto Part 15 as a dry fit and **is not to be glued**. It needs to be removable so the crepe paper used with “**The Crepe Paper Flame Thrower**” can flow in. Cut Part 16 as you did Part 12, using Part 14 to secure the cap as you cut it. Crepe paper normally is 1 3/4” wide. The slot needs to be the right size so that the crepe paper can freely flow through the tube.





## Handle Assembly:

**NOTE:** The handle assembly must be glued in a specific order so that the angle of the Parts 25 & 27 can be glued at 45 degrees.



- Glue Part 18 into Part 19.



- Glue Part 19 into Part 20.

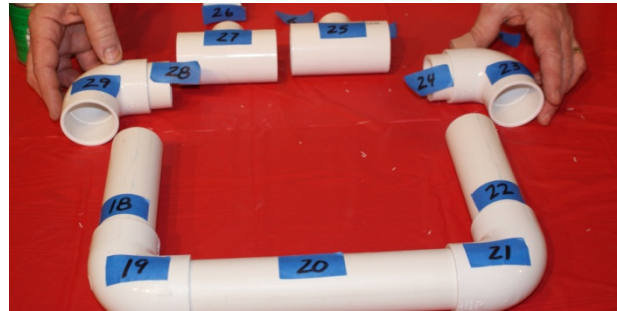


- Insert Part 29 into Part 18 and **do not glue it**. It will help you glue Part 20 into Part 21 square. Do this on a flat surface and force all corner parts down on the surface.

- Glue Part 22 into Part 21, and remove Part 29 from Part 18. You should have a piece that looks like this.



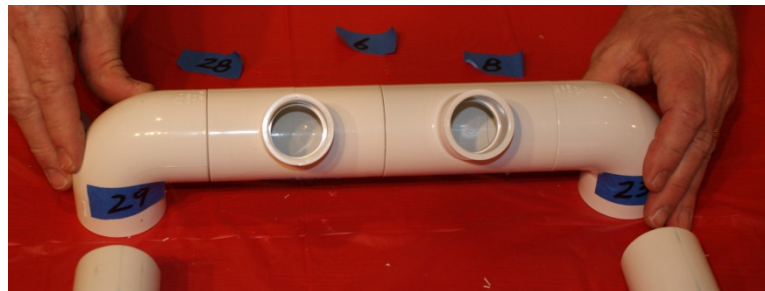
- The top part of the handle will be glued independently and then placed on the bottom piece just assembled. Glue Part 24 into Part 23. Glue Part 28 into Part 29.



- Glue Part 25 and Part 27 together using Part 26. Make sure they are both even and at the same angle. This can be done by placing them on a flat surface.



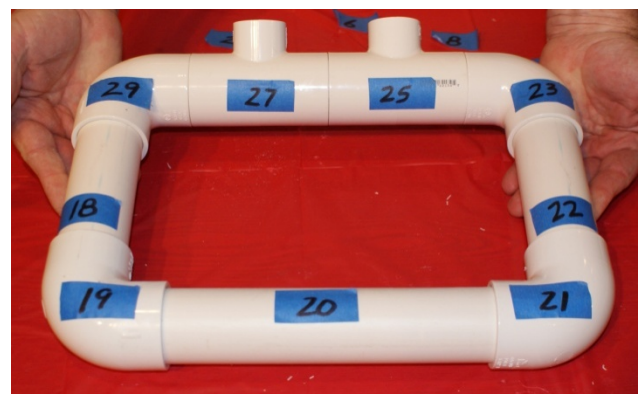
- Dry fit the upper armature together by inserting Part 27 into Part 28 and Part 24 into Part 25. You will want to glue them so that Part 27 and Part 25 are at a **45 degree angle**. This does not have to be precise, but you can measure the angle if you like.



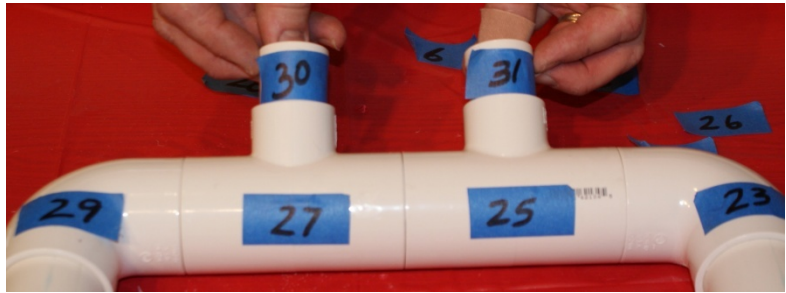
- Unhook one dry fitting, glue it, unhook the other dry fitting and glue it. Take care to maintain a **45 degree angle**.



- Now the upper armature can be attached to the lower armature. Glue Part 29 into Part 18 and Part 23 into Part 22.



- Glue 30 and 31 into the handle assembly. Keep a rag handy to wipe off excess glue. Both should be inserted to the same depth.



### **Armature Assembly:** For holding the crepe paper rolls

- Glue Part 33 into Part 32, glue Part 33 into Part 34 and glue Part 35 into Part 36. Part 34 and Part 35 will connect as a dry fit. This entire assembly will connect to the handle as a dry fit. **Do not glue Part 34 to Part 35.** From this opening you will load crepe paper.



- Attach the handle mechanism. **Note the forward direction of the Poof Cannon.** The handle's armature will be pointing in this direction.



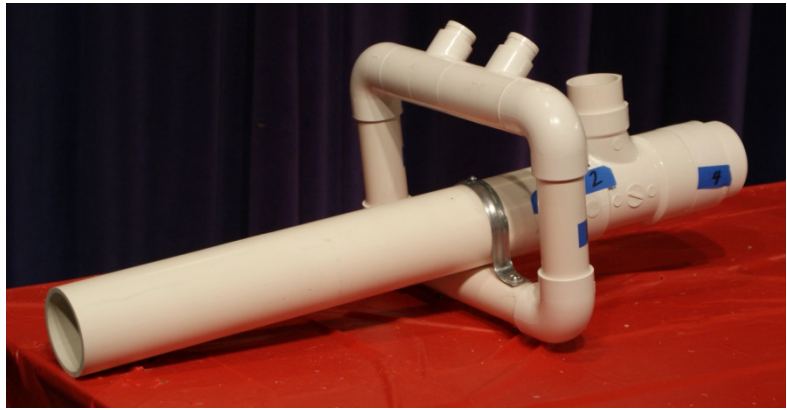
- Place the pipe strap **9 1/2 inches** behind the 3x3x2 inch reducing tee. It is your option to screw the pipe strap onto the 3 inch PVC pipe so that it will be extra secure.



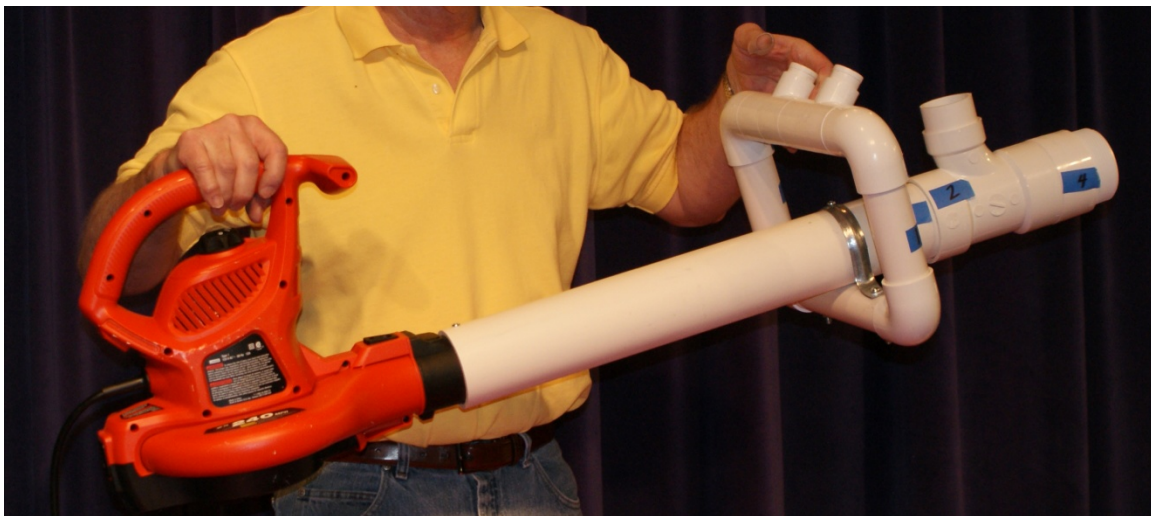
**NOTE:** Pipe strap placement may need to be adjusted to permit easy mounting to the “Poof Cannon” into your “Launch Pad”.



- **Center the handle assembly** beneath pipe strap. Measure to make sure it is centered. Mark holes for bolts to attach. Drill holes for bolts. Attach bolts.



- Attach the Poof Cannon to the blower motor. Slide the blower into the pipe. To create as snug a fit as possible, you may want to leave an attachment on the blower or wrap the nozzle with duct tape. Secure with a screw.



**NOTE:** For illustration purposes only, we use a Black & Decker blower assembly that produces 240 mph airflow. You may use any blower assembly that suits your purposes. The primary requirements are that the blower have a 3" round output, to fit into the 3" PVC pipe and deliver at least a 200 mph output airflow.

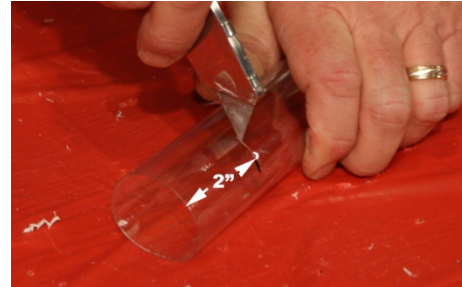


## Ping Pong Cartridges:

The ping pong cartridges will end up looking like this—2 couplings and a cap with a hole drilled through the coupling.



- Fasten the 2 couplings together by using a **2 inch** clear plastic segment from the top of the tube. Cut with a utility knife, but trim with a scissors to remove any jagged edges. Dry fit to make sure your cut is accurate and the 2 couplings fit lightly together.



- Glue sparingly to join them. **Do not apply glue around the inside lip of the PVC.** Apply glue to the clear plastic. This will prevent glue drops from squeezing out into the path of the ping pong balls flowing through the pipe. Apply glue around the outside of one end of the clear plastic and insert it into the coupling. Glue **lightly** around the other end of the clear plastic and insert it into the second coupling.



- Wipe off any glue that squeezes out between the two fittings. The two fittings should fit tightly together.

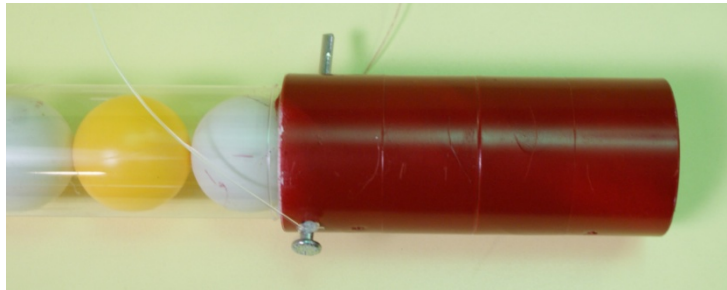


- Next the tube will be inserted into the coupling. Again, lightly glue the **outside** of the uncut end of the clear plastic tube. Insert the tube into the double coupling.

- Glue a 1 ¼ inch cap to the opening, cut end of the clear plastic tube.



- Drill the hole into which the nail fits that will hold & release the ping pong balls. Choose a drill bit that is the same diameter as the 2½" nail. **Drill ½" from the top of the double coupling.** Check for burrs inside and test with a ping pong ball. **For safety cut the tip off the nail.** File it to soften any sharp edges. Place into the hole and check to see that it slides easily through both sides. Tie a two foot piece of fishing line to the head of the nail. Trim off excess string. Tie the other end of the string to the base of the tube, where the clear tube enters the double coupling. Allow 1 foot of string between ties. You can further insure that the knots will not come undone if you place a drop of glue at both locations. Repeat creating two more Ping Pong Cartridges, three in all.



### **Assemble the TP Terminator:**

The TP Terminator is the attachment that holds a roll of toilet paper above the air stream so that it unwinds, blowing a stream of toilet paper.

- Position the spinning part of a paint roller 8" off the end of Parts 11 and 12. Attach a screw through the **middle** of the handle and into the PVC pipe.



- Pivot the paint roller so that spinning roller is **4" above** the projected air stream, keeping slot and paint roller parallel to each other. Attach a second screw in the handle and pipe to secure this pitch.



## **Paint:**

Paint according to your own creativity. If you use spray paint formulated for painting plastics, you won't need to prime. If you use other spray paints...such as fluorescent colors...you will need to prime with a good quality plastic primer.

**Be sure to let the primer dry thoroughly.**

- Before painting, tape off parts whose performance would be affected by painting. Tape off Part 15, the 2 inch pipe that we call the carburetor. Ping pong cartridges need to slide easily into this opening. Also the two inch cap needs to slide on and off this part. Paint will make these pieces fit too snugly.



- Tape off the parts that will slide when the crepe paper attachment is inserted onto the handle. This is the inside of Parts 30 and 31 (the one inch by half inch reducers) and the one half inch pipes that slide into them. Only tape off an inch of the bottom at the each pipe.
- Tape off Part 34, the 3/4" small pipe that the crepe paper will spin on. It will spin easier without paint.
- Some pieces of the poof cannon screw together. Don't paint over any threads that will be used. Apply some petroleum jelly to the first 4 or 5 threads of the attachment. Screw on threaded attachments several turns. Paint exposed threads. Unexposed threads will remain paint free and easily turned.



- We recommend that you use at least two colors. The white of the PVC will make a third color. Kid-friendly colors will help the Poof Cannon look fun and less scary than if painted in black or grey. Design your colors and patterns to coordinate with how you will paint your "Launch Pad". You may want to stripe parts of your project by using painters tape. For painting multiple colors, tape off the machine for one color at a time. Allow plenty of drying time between colors.







## Parts List for Poof Cannon

### Power:

Leaf rake blower motor assembly– (1) Parts can be ordered from a Customer Service Center for the brand of product you prefer.

Basic requirements are a circular nozzle that fits into 3" PVC pipe that can deliver 200+ mph airflow.

### PVC Parts:

½" pipe– total needed - 24"  
1 ½" pipe – total needed - 28"  
2" pipe – total needed - 30"  
3" pipe – total needed - 29"  
3" x 3" x 2" reducing tee– (1)  
3" male adapter – (1)  
3" female adapter – (1)  
3" x 2" pipe reducer – (1)  
2" male adapter – (1)  
2" female adapter – (2)  
2" cap – (3)  
1½" 90 degree elbow – (4)  
1½" x 1 ½" x 1" tee – (2)  
1" x ½" bushing (reducer)- (2)  
1¼" cap – (3)  
1¼" coupling – (6)  
½" 90 degree elbow – (2)  
PVC Glue

### Hardware Parts:

3" galvanized pipe strap – (1)  
¼" -20 x 2- ½" machine bolts with nuts – (2)  
¼" flat washer – (2)  
#6 eye hooks – (2)  
Strap of your choice. Example: 48" Carabiner Style Bungee Cord – (1)  
1" screw – (1)  
2½" nail – (3)

### Paint Department:

Paint roller – (1)  
Sand paper – (1 piece)  
Plastic paint primer – (if not using paint designed specifically for plastic)  
Spray paint designed for plastic – (design your own color scheme)  
Painter's tape – (optional for special marking)

### Miscellaneous Parts:

4 foot clear fluorescent bulb guard – (3)  
Strong fishing line – (6 feet)  
Ping pong balls – (144—order inexpensively: [www.kidskountpublishing.com](http://www.kidskountpublishing.com))

## Poof Cannon—Numbering of Parts

1. 24" of 3" pipe
2. 3" x 3" x 2" Tee Reducing
3. 2½" of 3" pipe
4. 3" male adapter
5. 3" female adapter
6. 2½" of 3" pipe
7. 3" x 2" pipe reducer
8. 1¾" of 2" pipe
9. 2" male adapter
10. 2" female adapter
11. 14" of 2" pipe
12. 2" cap (sliced on top)
13. 2" female adapter
14. 14" of 2" pipe
15. 2" of 2" pipe (carburetor for the Tee)
16. 2" cap (sliced on top)
17. 2" cap
18. 6" of 1½" pipe
19. 1½" 90 degree elbow
20. 10" of 1½" pipe
21. 1½" 90 degree elbow
22. 6" of 1½" pipe
23. 1 ½ 90 degree elbow
24. 1¾" of 1½" pipe
25. 1½" x 1½" x 1" tee
26. 1¾" of 1½" pipe
27. 1½" x 1½" x 1" Tee
28. 1¾" of 1½" pipe
29. 1½" 90 degree elbow
30. 1" x ½" reducer
31. 1" x ½" reducer
32. 10" of ½" pipe
33. ½" 90 degree elbow
34. 3¼" of ½" pipe
35. ½" 90 degree elbow
36. 10" of ½" pipe

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