



MARSHMALLOW SHOOTER

Introduction

Marshmallow shooters or guns require very little money, skill and effort to make. They are great fun for all ages and safe (except for your indoor carpet). ☺ We heard about these neat creations for a co-worker then my sons and I went out onto the internet to research how to make one. We found the design on instructables.com, which is an excellent website for cool projects.

Materials Cost

I purchased these materials in 2006 from a home improvement center. I have listed the cost that I paid for the pieces below.

Total Cost for 1 gun = \$2.00 (approximately)

- ½ Inch PVC pipe (drinking water grade) – 10 feet long \$1.62
- ½ Inch PVC T joint – 10 pack \$2.56
- ½ Inch PVC L joint – 10 pack \$1.92
- ½ Inch PVC end cap – individual piece \$0.23
- ½ Inch PVC coupler – 10 pack (optional) \$1.28

Skill Level and Time Required

Skill Level = Easy

Total time = 10 minutes

You can choose to cut the PVC pipe with a hacksaw which is the common method. We decided to go with an old-fashioned pipe cutter. This made it possible for the younger kids to do the entire project without serious risk of injury. Please see the tip below about pipe cutter and fitting tube into pieces.

My 7 & 8 year old sons had no problems measuring and cutting the PVC tubing. They also found it very easy to take the pieces they had and assemble them in the right order using the hand-drawn diagram that I copied from instructables.com.

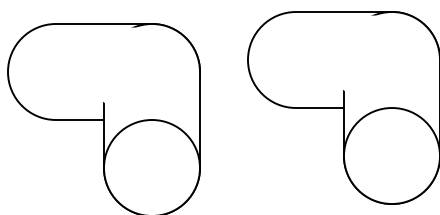
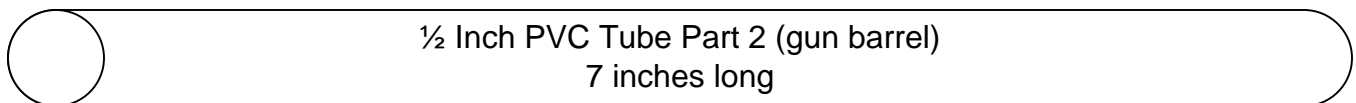
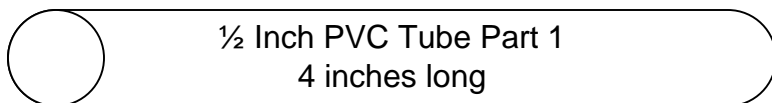
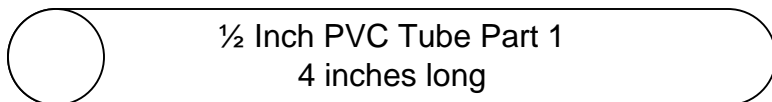
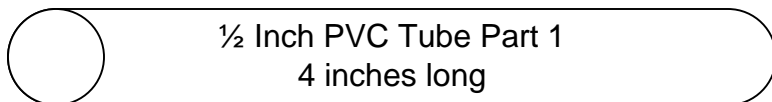
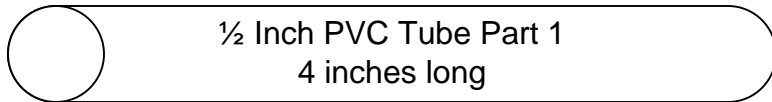
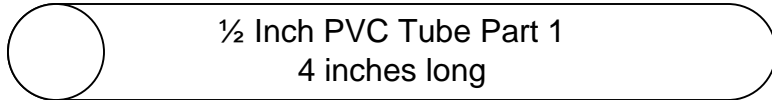
Tips

- Use pipe cutter instead of hacksaw if you are working with younger kids.
- Pipe cutter will cause ends of pipe to expand slightly but they will still fit into connectors but will be tighter.
- Do not glue pieces together. This will allow you to take the gun apart if it jams or you want to add more sections to it. These PVC pieces work a lot like Legos.
- Let your kids be creative and modify the design and try them out. The whole Lego aspect is cool.
- Study physics principles as they relate to the marshmallow shooter such as velocity, trajectories and the venturi effect.
- Fill in the extra cavities of pipe that are not part of the natural passageway of the projectile marshmallow. This allows the air pressure when you blow to be more directed in the ammo's firing pathway. We just used some toilet paper in the handles. See diagram for more details.
- Filling up the front handle with marshmallows for a semi-automatic weapon might sound like a good idea but the marshmallows tend to get stuck then.
- Fill up a sandwich baggie with mini-marshmallows and duct tape bag to the gun barrel for faster and easier loading.
- Marshmallows will stick to the carpet and floor in your house so keep the battles outside. This will keep mom happy. Also look out for attracting unwanted ants to these sweet treats on the ground.

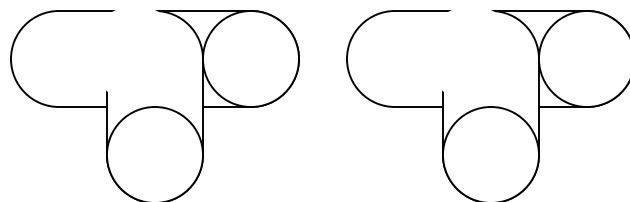


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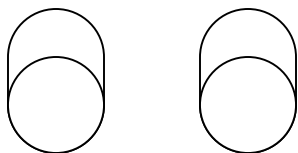
All pieces needed for basic gun assembly



L Connector for 1/2 inch PVC
X2



T Connector for 1/2 inch PVC
X2

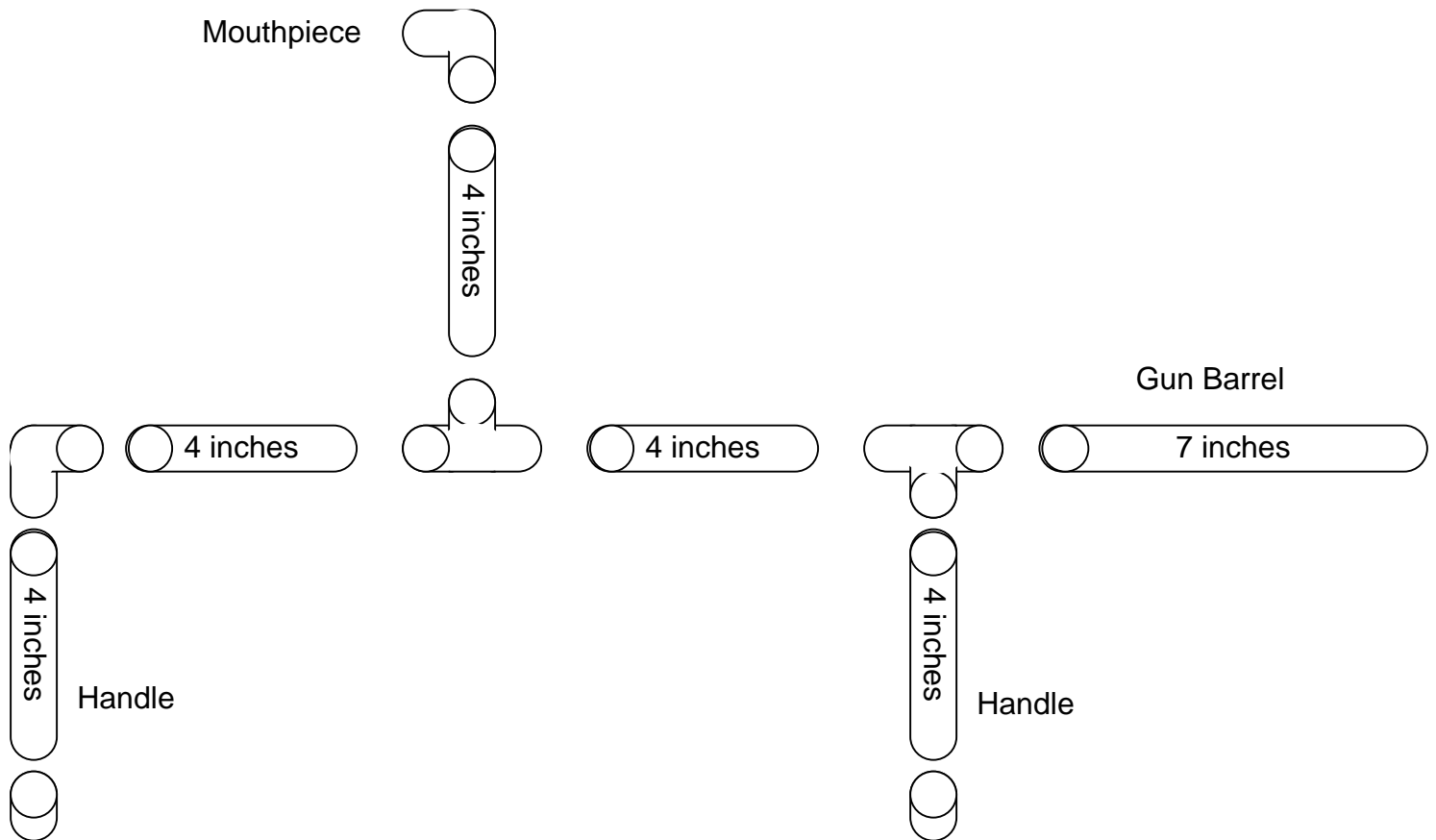


Caps for 1/2 inch PVC
X2





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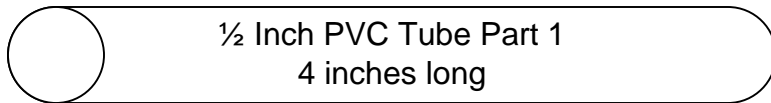
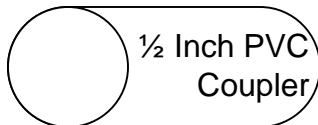
1. Purchase necessary pieces from home improvement store. Here is the minimum you will need to make one gun.
 - 3 feet of $\frac{1}{2}$ inch PVC pipe (more for additions)
 - 2 – L Connectors for $\frac{1}{2}$ inch PVC pipe
 - 2 – T Connectors for $\frac{1}{2}$ inch PVC pipe
 - 2 – End Caps for $\frac{1}{2}$ inch PVC pipe
2. Cut long $\frac{1}{2}$ inch PVC pipe into the following sections
 - 5 – 4 inch sections
 - 1 – 7 inch section
3. Push pieces together in the pattern above.



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DIRECTIONS FOR EXTENDED MOUTHPIECE

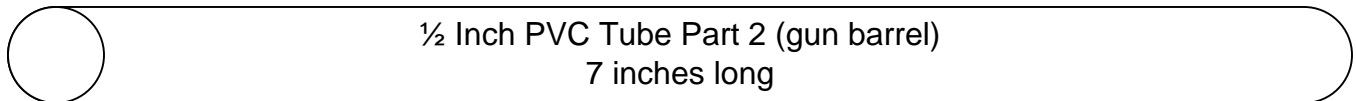
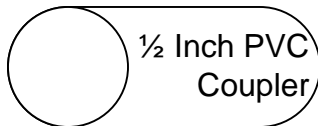
1. Place 4 inch tube into mouthpiece (topmost L tube).
2. Place PVC coupling piece onto end of 4 inch tube extended from L tube.
3. Blow into coupler.



DIRECTIONS FOR EXTENDED GUN BARREL

1. Place PVC coupling piece onto end of 7 inch tube that is currently the gun barrel.
2. Place new 7 inch tube into coupler.

This will achieve more accuracy but my son does not think it creates more velocity



FOR EXTRA AIR PRESSURE

Block extra areas inside the tubing to create greater air pressure for the marshmallow's pathway out of the gun.

