

Hardware M-19 Scope Tutorial



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Welcome to my hardware M-19 scope tutorial. Here I will attempt to show how I build scopes for my PVC stormtrooper blasters out of materials available from Home Depot and Walmart. I make these scopes for about \$2.50 each.





If you have any questions, you can email me at jedi5150@fanforce.net. To begin the tutorial, choose a page from above.

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Here is a list of materials needed to make your M-19 scope:

Item Picture	Item Description	Item Location	Item Price
	Polyvinyl funnel	Walmart	\$0.96
	3/4" PVC Endcap	Home Depot	\$0.13
	1 1/2" long piece of 1/2" tubing (I used a pen cap)	Ace Hardware	???
No Pic	3/4" PVC Coupler (slip-on type)	Home Depot	\$0.48
	1" long piece of 1/4" aluminum barstock	Online Metals	???

No Pic	finish washer	Ace hardware, home depot, etc	\$0.05
No Pic	1 1/4" fender washer	Ace Hardware	\$0.13

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	<p>Begin by marking the location on the funnel spout that is 1.25" in diameter. This can be done by placing the funnel inside a 1.25" inside diameter pipe and marking it.</p>
	<p>From this mark, measure 1 5/8" down the funnel spout and mark it.</p>
	<p>Next, cut the end off of the funnel spout.</p>
	<p>Next, cut the funnel spout at the 1 1/4" mark. You may want to cut it slightly shorter, to ensure an outside diameter of 1 1/4". Sand both ends of the cone smooth.</p>
	<p>Mark the PVC coupler to a length of 1" and cut it. Sand the end flush.</p>

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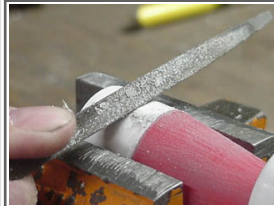
Sand the end of the PVC endcap smooth (it usually will have writing on it).



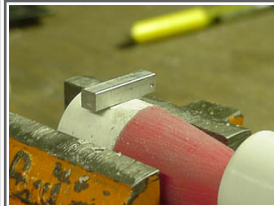
Glue the Coupler, funnel, and endcap together as shown.



File the ends of the 1/4" aluminum barstock smooth.



File a flat spot on the bottom of the scope for the barstock to glue to.



Glue the barstock to the scope as shown.

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	<p>Cut a 1" piece of the 1/2" tubing to fit along the bottom of the scope as shown. The better it fits, the better glue joint. When you're happy with the fit, glue it in place. The glue a short piece of smaller diameter tubing inside the 1/4" tubing, and glue a finish washer inside.</p>
	<p>Fill in the hole of the 1 1/4" fender washer. Sand it smooth.</p>
	<p>Glue a 3/8" long piece of the 1/2" tubing on the washer as shown. (I used the end of a pen cap that had a recess in it as shown...this is not necessary).</p>
	<p>Glue the washer assembly on the front end of the scope as shown.</p>
	<p>Using your favorite filler putty, fill in the cracks, crevices, etc. You may have to build-up the joint between the cone and the coupler to smooth it out. You'll also have to putty the joint between the cone and the 1/4" tubing.</p>
<p>Sand everything smooth.</p>	

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Prime and paint it to your liking.



Install the scope on your favorite blaster. Here I have installed a lens in the front of the scope. This lense was obtained from a disposable camera. I went to Walmart's camera bar and asked if I could have a couple used cameras. I came home with 78 of them.

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