



Orbit Revolver --- Working Mechanical Blaster



Nathan Wise

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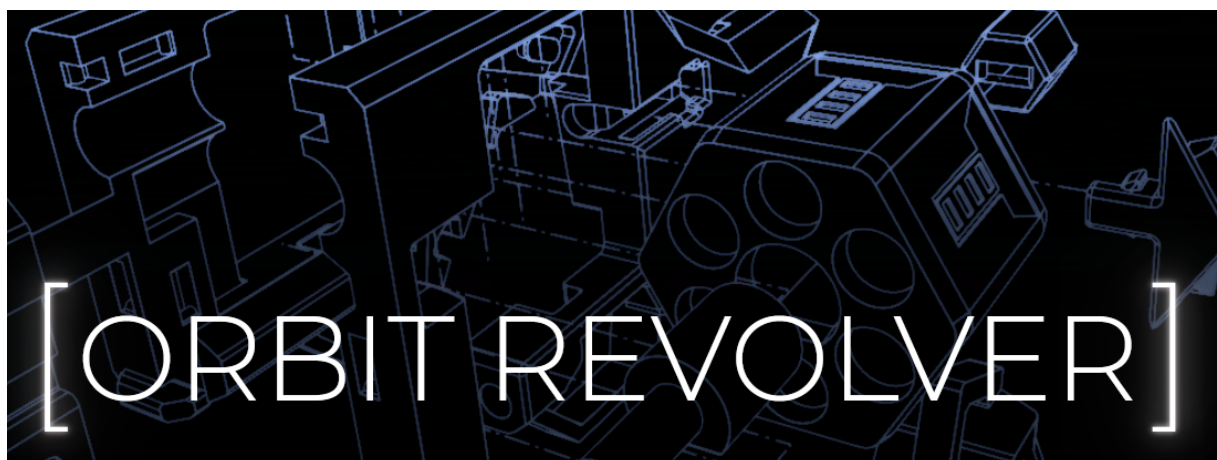
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Summary

A Working Mechanical Toy Revolver With Firing Functionality. Only common supplies you already have at home are needed.

[Toys & Games](#) > [Other Toys & Games](#)

Tags: [toy](#) [blaster](#) [gun](#) [pistol](#) [revolver](#) [launcher](#)
[rubberband](#) [orbitrevolver](#)



The Orbit Revolver is my fully functional toy blaster designed to be satisfying to handle and as accessible as possible. It is currently my favorite printed model across all my years of 3D printing.

I would recommend watching the YouTube video below so you can better understand the project, its functionality, and its development.

Showcase and Assembly Video:

<https://www.youtube.com/watch?v=R6QvAnhXJac>

Features:

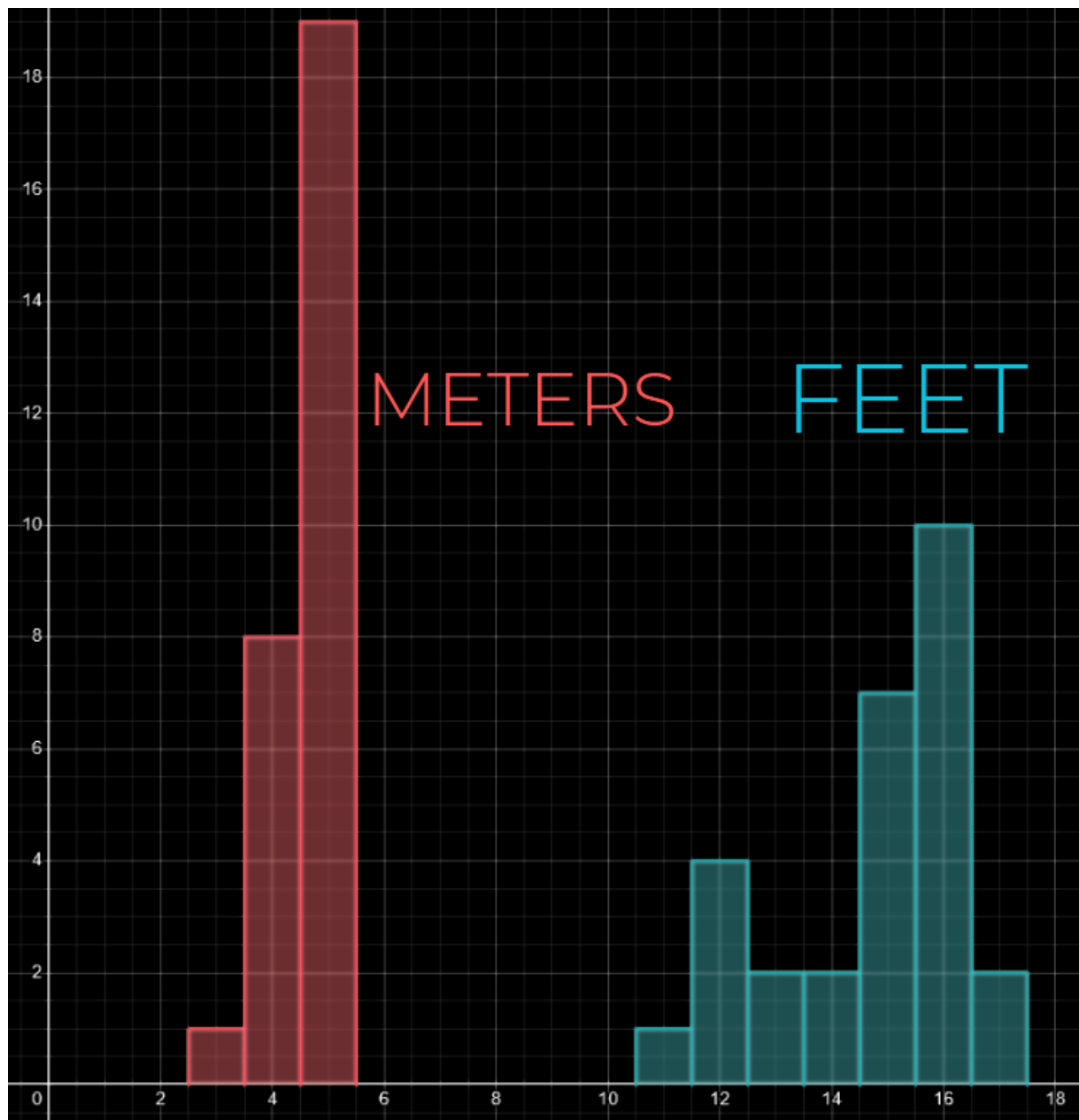
- Launchable toy bullet shells with cartridges to eject.
- Revolver mechanism that fires the toy bullet shells
- Materials you likely already have at home
- Snap fit assembly that does not require glue or screws.
- Easy disassembly for any potential maintenance

The only non-3D printed components are a pack of Pilot G2 pens (for their springs), and a single rubber band. So you likely already have the components at home to print it (Read materials section for more details)

This model took months of development and a lot of reprinted parts. However, I am releasing this for free so everyone can print it without any upfront cost.

Performance:

30 Trials of test fires indicate the model can fire at ranges around 5.2m/
17ft

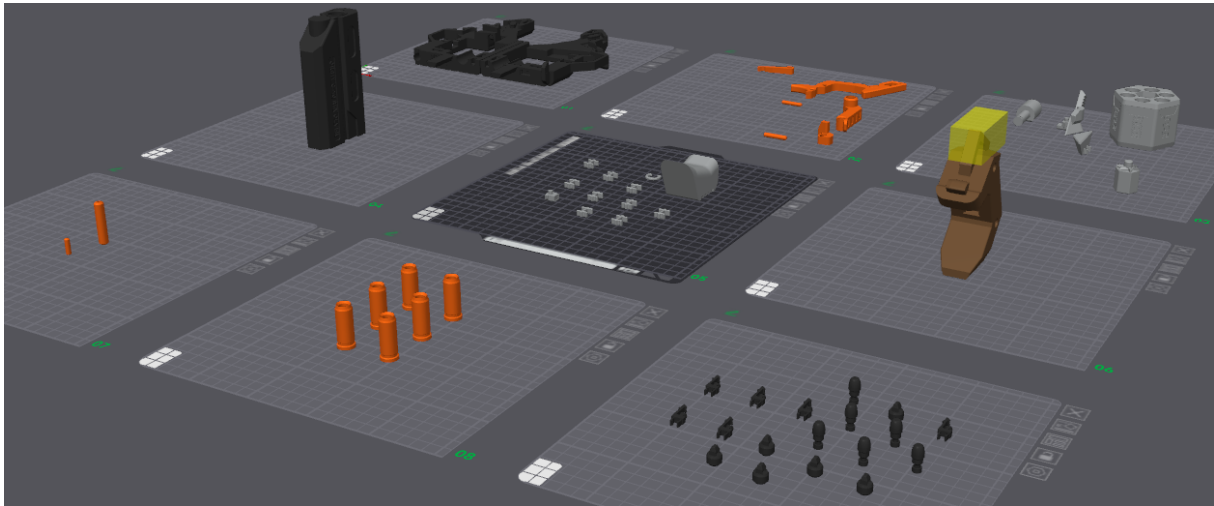


Print specifications:

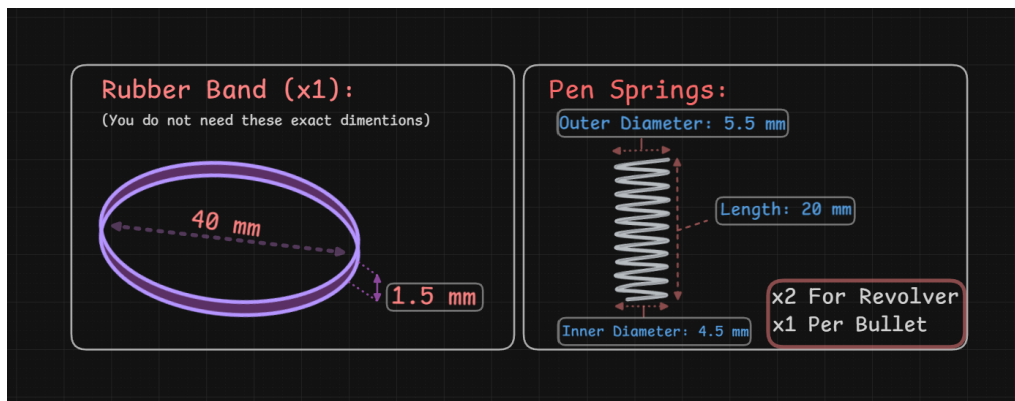
100% printed in PLA

My printer managed to print the full project in 10h43m

Total material cost: 307g of PLA.



Materials:



- x1 Rubber band
(You do not need these exact dimensions, just something vaguely similar)
Band Dimensions:
40mm Diameter
1.5mm Height
- Full revolver - x8 Pilot G2 Pen Springs (x2 for no bullets)
(Does not have to be this specific pen/spring model, just ensure your pens contain similar springs. I cannot guarantee the functionality of other spring sizes)
Spring Dimensions:
20mm Length
5.5mm Outer Diameter
4.5mm Inner Diameter
0.47 Wire diameter
These springs have been ordered and tested by me, if you don't want to buy a pack of pens, this is the best option for you:
Springs (0.4 x 5 x 20mm) : <https://amzn.to/4yooab9>
(These aren't the Pilot G2 pen springs, but they work amazing)

The link above is affiliate, meaning that, at no additional cost to you, I may earn a commission if you click through and make a purchase.

Accessories:

I am uploading a compatible speed loader and display stand to Makerworld so that my audience there learns of this model page, and is routed here.

Speed loader: (Coming soon)

Display Stand: (Coming soon)

Print Consistency:

I have printed a total of 3 Orbit Revolvers, and have had no issues regarding parts fitting, functionality, or other minutia.

While the print tests came back positive, this model is very complex and requires precise printing. In my experience, complex models may require tinkering for a small number of users so that the model functions due to print variability (printer, filament quality, proper care, etc.) So please keep that in mind, and be open-minded if your output is not working.

(TLDR for those from Makerworld: get a slicer)

Other & Behind the Scenes:

The revolvers name "Orbit" was derived from the path the carriages take when revolving, and primarily a tribute to the Swedish metal band "Orbit Culture."

I learned all about pen spring launch mechanisms thanks to the creator Jaatinen3D and his bullet keychain. His bullet keychain inspired my own original cartridge design **with permission**, I recommend you check his work out here: <https://makerworld.com/en/@Jaatinen3D>

I have attempted to upload this project for 3 weeks everyday, but I have been too busy because of University and have had no absolutely no free time. **As I am typing this, I am in the back of a University Physics II lecture sacrificing my understanding just to get this project uploaded before Friday afternoon. This project had been uploaded to the internet while I am sitting in the back of the auditorium half-learning about planar and cylindrical symmetry regarding Gauss' Law.**

Thank you.

I am hoping that uploading this model provides you some enjoyment and is a fun project for you to build.

If you want to leave me a tip for my work you can do so here:

1 Coffee = 1 day of gas

BuyMeACoffee



Otherwise, interacting with the YouTube and this model page greatly supports my work indirectly, and motivates me to upload more mechanical projects.

Breakdown of my work, and why motivation matters:

- Time spend researching revolver mechanisms and drawing my own design.
- Modeling the design, making it 3d printable & optimizing for it, and having snap joint support to make glue unnecessary.
- Testing, tweaking, and redesigning a lot of parts until the mechanism works.
- Reliability testing by printing the 3mf multiple times
- Setting up a photo station, taking lots of photos, and editing them
- Filming, script-writing, and editing the YouTube video through Davinci Resolve and refining my technique/style through learning more about its features
- Writing and publishing

My girlfriend also helped me with script writing and making the description, she loves it when people thank her in the comments!

Helps out a ton as a mechanical engineering student.



Model files



bullet-cartridge-bullet-catch.stl



bullet-cartridge-bullet-cartridge.stl



bullet-cartridge-primer.stl



bullet-cartridge-bullet-shell.stl



orbit-revolver-cylinder-lock.stl



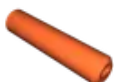
orbit-revolver-cylinder-lock-pin.stl



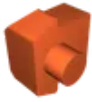
orbit-revolver-frame-insert.stl



orbit-revolver-hand-pin.stl



orbit-revolver-crane-pin.stl



orbit-revolver-release-spring-holder.stl



orbit-revolver-trigger-pin.stl



orbit-revolver-cylinder-release.stl



orbit-revolver-cylinder-ratchet.stl



orbit-revolver-crane.stl



orbit-revolver-cylinder-hook.stl



orbit-revolver-trigger-hammer.stl



orbit-revolver-hand.stl



orbit-revolver-cylinder-axis.stl



orbit-revolver-right-frame.stl



orbit-revolver-handle.stl



orbit-revolver-handle-insert.stl



orbit-revolver-cylinder.stl



orbit-revolver-barrel.stl



orbit-revolver-left-frame.stl



snap-joint-x9.stl



orbit-revolver-bambu-print-file.3mf



left_hand-orbit-revolver-bambu-print-file.3mf

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