



Pumpkin Cannon - Spring Cannon That Shoots Mini Pumpkins

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Summary

Working spring cannon that fires 20 mm mini pumpkins. Fully printed, coil spring included. No screws or glue.

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A working spring cannon on a pirate-style carriage that shoots little 3D printed pumpkins. Pull back the skull knob, give it a quarter turn, drop a pumpkin in the muzzle and turn the skull upright to fire. Everything is printed, the coil spring included: no metal spring, screws, rubber bands or glue.

FEATURES

- About 120 x 70 mm footprint, 158 mm long barrel
- Fits any 180 mm bed
- Printed coil spring with a diamond-shaped wire, so it prints without supports

- Adjustable elevation (about 8 to 17 degrees) with a sliding wedge (quoin)
- Ammo: 20 mm ribbed mini pumpkins with stems. A plate of 6 is included; print as many as you like
- 20 printed parts plus ammo, already laid out on 4 plates in the 3MF
- The one in the photos is printed in black and green with white pumpkins

PRINT SETTINGS

- Every part is already oriented for printing. No supports needed
- Spring: PETG strongly recommended. 0.16 mm layers, 100% infill (or 4-5 walls), slow speed, a little less cooling. PLA works and shoots harder, but it is more brittle and slowly loses its spring if left compressed
- Firing rod, knob pin, cap pins, trunnions and wheel stubs: 100% infill (they carry the load)
- Piston, knob and pumpkins: 2 walls, 10-15% infill. Lighter means more range
- Barrel, carriage, wheels, quoin: 0.2 mm layers, 15% infill
- Suggested colours: barrel, cap squares and stubs black or iron grey; carriage, wheels and quoin wood brown; knob bone white; pumpkins orange (a colour change at the top layers gives green stems)

ASSEMBLY (see the assembly guide image)

1. Press the two trunnions into the sockets on the sides of the barrel. The narrow peg goes in.
2. Build the firing unit on the firing rod: (a) Slide the piston onto the rod from the rear (knob) end, pointed nose first. Turn it so the slot lines up with the two lugs, push it past them and bring it down to the round head. (b) Slide the spring onto the rod from the rear end. (c) Slide the breech cap on from the rear, flat face outward, with the slot lined up with the lugs. It stays behind the lugs.
3. Push the whole firing unit into the back of the barrel, piston first. Line up the 2 holes in the cap with the 2 holes in the barrel and push in the 2 cap pins.
4. Push the skull knob onto the hex end of the rod, skull upright and the lugs horizontal. Push the knob pin through the knob and the rod.
5. Press the 4 wheel stubs through the wheels into the holes in the carriage sides. The big wheels go at the front.
6. Drop the barrel's trunnions into the notches in the carriage. Press a cap square over each trunnion; its 2 pegs go into the cheek.
7. Put the quoin on the bed behind the barrel, high edge forward, under the breech.

HOW TO FIRE

1. Aim: slide the quoin forward to aim higher, back to aim lower. The barrel must point at least a little upward so the pumpkin rolls in.
 2. Cock: with the skull upright, pull the knob straight back as far as it goes, turn it a quarter turn so the skull lies on its side and let go. The lugs click into the grooves on the cap and hold the spring.
 3. Load: drop a pumpkin into the muzzle. It rolls back to the piston.
 4. Fire: turn the skull back upright. The spring fires.
- Use two hands: hold the carriage with one hand while you turn the knob.
 - Don't leave it cocked for hours: a printed spring slowly loses strength if it stays compressed.
 - Never aim at faces or animals.

TROUBLESHOOTING

- Weak shot: print the pumpkins and piston lighter, sand any stringing in the bore, or reprint the spring in PETG at 100% infill.
- The knob is hard to turn when cocked: pull back slightly while you turn.
- The spring takes a set over time: print a new one, it is a small part.

Model files



pumpkin_cannon.3mf

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