

Paper Rocket Launcher



Build a paper rocket, stomp on a bottle, and watch it blast across the yard - air power, no batteries needed.

A Little Bee Crafty printable project

At a glance

Age range	6+ (a whole-family build; little ones love the stomp)
Hands-on time	About 45 minutes to build, then play all day
Skill level	Beginner (rolling, taping, and a little cutting)
Mess level	Low indoors; launch it outside or in a big room
Adult supervision	Some - help with the bottle/tube launcher

Here is a backyard classic powered by nothing but a stomp. You roll a paper tube around a piece of pipe to make a rocket body, add fins and a nose cone, then slide it onto a launch tube taped to an empty plastic bottle. Jump on the bottle and the burst of air rockets it into the sky. The printable gives you a true-to-scale body wrap so every rocket comes out the right size to slide on and off the tube - plus fin and nose-cone cut-outs. Build a fleet and hold a launch contest.

The science: stomping squeezes air out of the bottle fast - and the moving air pushes the rocket off the tube. A pointy nose and fins help it fly straight and far.

What you'll need

Materials

- 1 printed Template Page (last page of this PDF), on regular paper
- 1 empty plastic bottle (a 1 to 2 liter soda bottle works great)
- About 2 to 3 ft of 1/2 in tubing: PVC pipe OR a length of garden hose
- Strong tape - duct tape or packing tape for the launcher
- Clear tape or a glue stick for building the rockets
- Crayons, markers, or stickers to decorate (optional)
- A few extra sheets of paper to build a whole fleet

Tools

- Scissors
- A pencil
- A ruler (to check the 1-inch scale box)
- The 1/2 in pipe doubles as the rolling form for the rocket body
- Optional: a wide open space outdoors for launching

Safety first

Rockets fly fast and far - always point the launcher straight UP or away from people, faces, pets, windows, and the road, and never look down the tube. An adult should help build the bottle-and-tube launcher and tape it firmly. Launch outdoors or in a large open room. Use paper rockets only - never anything hard or pointed on the nose.

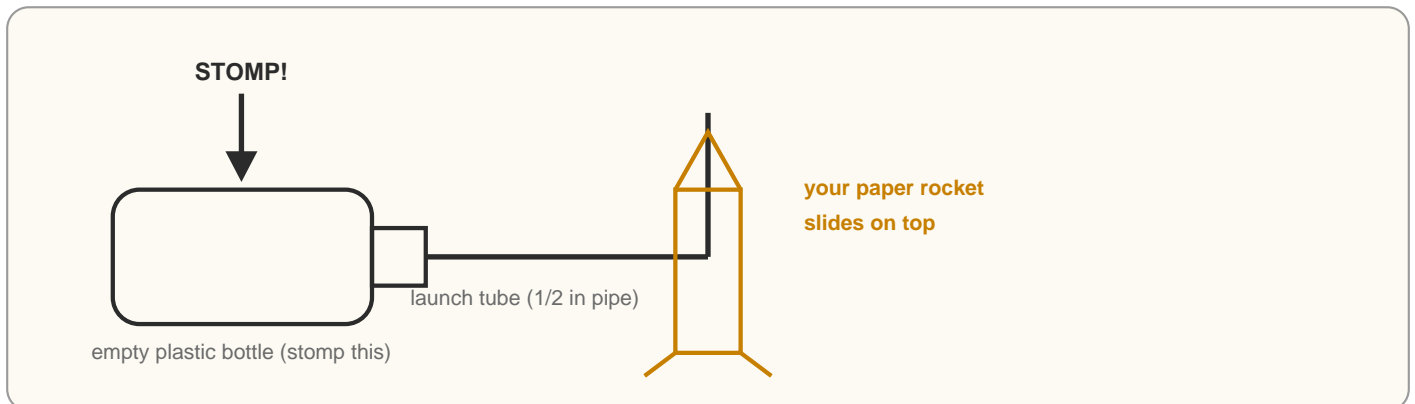
Before you print:

Print the template page at 100% / Actual Size (turn OFF 'Fit to page' or 'Scale to fit'). Check the 1-inch box with a ruler before cutting - if it measures 1 inch, every piece will be the right size.

Build the launcher

- 1 Print and check**
Print the Template Page at 100%. Measure the 1-inch box with a ruler so your rocket body comes out the right size.
- 2 Grown-up: make the launcher (grown-up step)**
Push one end of the 1/2 in tube firmly onto the bottle's mouth. Wrap tape around the joint until it is airtight and snug - no air should leak out when you squeeze the bottle.
- 3 Set up the launch tube**
Lay the bottle on the ground and prop the free end of the tube pointing up and away from everyone. This upright end is where your rocket sits.
- 4 Test the air**
Give the bottle a quick squeeze with your hands and feel the puff of air come out the top of the tube. That puff is your rocket engine!

How the launcher works



Build the rocket

- 5 Cut out the pieces**

From the Template Page, cut out the Body Wrap rectangle, the 4 Fins, and the Nose-Cone shape along their SOLID lines.
- 6 Roll the body**

Wrap the Body Wrap around your 1/2 in pipe, starting at the 'roll from here' edge. Roll it snug but NOT tight, so it will slide off. Tape the loose edge down along the glue tab.
- 7 Slide it off**

Gently slide the paper tube off the pipe. This is your rocket body. It should slip on and off the launch tube easily.
- 8 Make the nose cone**

Curl the Nose-Cone sector into a cone by overlapping the straight edges to the dashed line; tape it. Tape the cone onto one end of the body to seal it shut. (Air must not escape the top.)
- 9 Fold and attach the fins**

Fold each Fin along its dashed tab line. Tape the tabs to the bottom of the body, spacing the 3 or 4 fins evenly around it - like the points of a star.
- 10 Decorate and check**

Color or sticker your rocket. Make sure the nose is sealed and the fins are straight. Slide it onto the launch tube - it is ready to fly!

Launch it!

Slide your rocket onto the upright launch tube. Make sure everyone is standing back and the tube points up and away. On the count of three, STOMP or jump on the bottle - and watch it fly! The bottle puffs back up on its own, so just slide on the next rocket and go again.

Make it yours

> Distance derby

Build several rockets and change ONE thing each time - longer body, bigger fins, pointier nose - then measure which flies farthest. That is real engineering.

> Tiny-maker version (ages 3-5)

A grown-up tapes the body and cone; the child decorates and does the stomping. The stomp is the best part anyway.

> Target practice

Set a hula hoop or bucket out in the yard and try to land rockets inside. Aim by tilting the launch tube slightly.

> Glow squadron

Decorate with white or neon paper and launch at dusk, or add a streamer tail of thin paper strips for a comet look.

The learning (quietly)

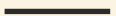

This is a physics playground disguised as a toy. Stomping the bottle is a hands-on lesson in air pressure: squeeze a gas into less space and it rushes out, pushing the rocket up - Newton's idea that every push has an equal push back. The nose cone and fins teach aerodynamics, drag, and stability, and because kids can change one feature and re-launch, they naturally run fair-test experiments and compare results. Rolling the body snugly enough to fly but loosely enough to slide is a quiet lesson in tolerance and measuring - and the whole thing rewards trying again, which is the heart of being a maker.

Paper Rocket - Template Page



Print at 100% / Actual Size. The Body Wrap rolls around a 1/2 in pipe. Cut on SOLID lines.

Line key

-  SOLID line = CUT here (scissors)
-  DASHED line = FOLD here (do not cut)

Check this box with a ruler.
It must be 1 inch at 100%.

1 inch
(2.54 cm)

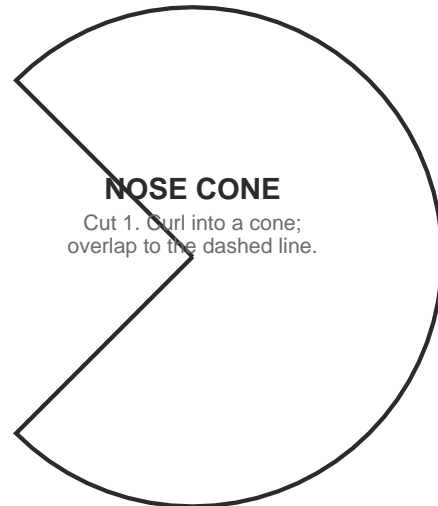
NOSE END (seal with cone)

ROCKET BODY WRAP
Roll around a 1/2 in pipe, snug but loose.
Tape the edge down on the tab.

FIN END (open - sits on tube)

ROLL FROM THIS EDGE

glue / tape tab



Fins - cut 4, fold tab on dashed line

