

GUIDE 1 · LEVELBOW P1

Build LevelBow P1 for under \$50

P1 is the bow we made for archers who need something lighter than a beginner bow. It's ½ in Schedule 40 PVC pipe with recurve tips and a nylon string. Here are the steps we follow, plus standard safety checks.

Draw weight 6–7 lb	Length 64 in	Draw length 24–31 in	Weight 390 g	Cost to build Under \$50
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What you need

- One 10 ft length of ½ in Schedule 40 PVC pipe. Each bow uses a 68 in piece.
- A 64 in nylon string
- A heat gun
- A hacksaw
- A tape measure and a marker
- Heat-resistant gloves
- A luggage scale, to check the draw weight

Steps

1. Mark and cut the pipe

Measure 68 in along the pipe, mark it, and cut it with a hacksaw. That 68 in stick takes a 64 in string once the tips are bent. Smooth the cut ends so they can't fray the string or cut a hand.

2. Heat and bend the tips

Have a partner hold the pipe steady, with their hands well away from the part you're heating. Warm one end with the heat gun, and keep the heat gun moving so the pipe heats evenly. When it softens, bend the tip away from the archer, toward the target side, into a recurve. Hold it until it cools. Repeat on the other end, bending the same way.

Work outside or somewhere with good airflow, and wear heat-resistant gloves. Stop if the pipe starts to brown or smoke. Overheated PVC gives off harmful fumes.

3. Check the curve

Lay the bow on a flat table and compare the two tips. They should bend the same way and by about the same amount. If they don't, warm the tip again and adjust it. Check each bend for kinks, flat spots or brown marks. A kinked or scorched bend is weak, so start again with new pipe.

4. String it

Tie the 64 in nylon string from tip to tip. The string holds the bend and turns the pipe into a bow. Make sure each end of the string sits firmly and can't slide along the tip or slip off at full draw.

5. Check the draw weight

One person holds the bow by the grip. Hook a luggage scale on the middle of the string, pull it slowly back to the archer's draw length (P1 suits 24 to 31 in) and read the weight. Then let the string forward slowly. Never let go of it with no arrow on the string. Ours reads 6 to 7 lb, depending on draw length.

6. First draws

Before anyone else uses the bow, a coach tries it, wearing eye protection, with an arrow, at short range, into a large target. Start with short draws and work up to full draw, checking the bends between draws. Only then does an archer try it.

Every time you use it

- Never draw and release without an arrow. Releasing an empty string (a dry fire) can break the bow, even one as light as P1.
- Check the bow for cracks or white stress marks before every session, especially at the bends. Retire a cracked bow.
- Use arrows long enough that the arrow point stays in front of the bow at full draw.
- Store the bow indoors, out of the cold and the sun. Cold PVC is more brittle, so take extra care in cold weather.

Build and use these at your own risk. They aren't certified equipment. A qualified coach should check every new bow and rig before anyone uses it, and supervise every session.

Built one, changed the design, or have a question? Email us at levelbowinfo@gmail.com.