



Create a Cryptex

Materials:

- 1 2" PVC pipe
- 1 1 ¼" PVC pipe
- 1 1" PVC pipe
- 2 2" PVC end cap
- 1 2" x 1 ¼" PVC bushing
- 1 2" x 1" PVC bushing
- 2-4 1 ¼" PVC coupling
- 6 screws

Tools:

- saw
- sandpaper
- PVC glue
- binder clips
- writing utensil
- ruler/tape measure
- drill with 11/64" drill bit
- screwdriver

Instructions:

Rings:

Cut six (or the number of letters/numbers/symbols in your code) ~1" code rings and two ~½" end rings out of the 2" PVC pipe for the outer rings. Cut eight ~½" rings out of the 1 ¼" PVC coupling for the inner rings. Cut a ¼" notch into all of the inner rings, wide enough for the head of the screw to pass through. Glue the inner rings into the outer rings, keeping one edge flush. Use binder clips to hold the rings together until the glue sets. Mark where the notches in the inner rings are, for when you set your code, then populate the code rings with letters/numbers/symbols, ensuring that the inner rings are all on the same side of the code rings.

Outer Tube:

Glue the 2" x 1 $\frac{1}{4}$ " PVC bushing into a 2" PVC end cap (Endcap-O). Insert the 1 $\frac{1}{4}$ " PVC pipe into Endcap-O and mark where it ends. Slide the rings onto the 1 $\frac{1}{4}$ " PVC and mark where they end. Remove the rings and pull the pipe out of Endcap-O. Cut a slot along the 1 $\frac{1}{4}$ " PVC pipe from one mark to the other, its width being the width of the shaft of a screw (~ $\frac{1}{8}$ "). Cut the 1 $\frac{1}{4}$ " PVC pipe to length at the second mark. Measure and record the length of the pipe. Glue the non-slotted end of the 1 $\frac{1}{4}$ " PVC pipe into Endcap-O. Draw an arrow or line on Endcap-O to show where the slot is, or where the code should line up.

Inner Tube:

Glue the 2" x 1" PVC bushing into a 2" PVC end cap (Endcap-I). Measure the 1" PVC pipe to the same length as the outer tube and cut it. Glue the 1" PVC pipe into Endcap-I. Insert the inner tube into the outer tube and mark the slot on the inner tube. Remove the inner tube. Mark where the screws should go, starting at 1 $\frac{1}{4}$ " from Endcap-I and every inch after that, then predrill holes for the screws. Attach screws, leaving enough space for the outer tube to slide under the heads of the screws. If desired, draw an arrow or line on Endcap-I to show where the screws are, or where the code should line up.

Assembly:

Slide an assembled end ring all the way down the outer tube and glue it in place, ensuring that the notch lines up with the slot. Slide the assembled code rings, in the correct order, onto the outer tube, with the inner rings away from Endcap-O. Glue the second assembled end ring onto the end of the outer tube, making sure that the notch lines up with the slot. Turn the code rings to the code (when you look into the outer tube, all of the notches should line up with the slot). Insert inner tube. Turn rings to lock, enter code to unlock.