

DIY Spirograph

Create your own spirograph and get creative with hypotrochoid spirals and geometric shapes!

Materials:

Cardboard sheets
Corrugated cardboard strips
Exacto Knife
Hot Glue
Paper
Protractor (Or circular lids/bowls)
Pens

Directions:

- 1)** Gather your materials and start preheating your glue gun. We are first going to create the gear shapes that move to create the spirograph. Place the protractor in the center of a cardboard sheet. Create a circle with the protractor that measures about 10 inches in diameter. If you don't have a protractor you can trace the perimeter of a bowl or any other circular object.
- 2)** Cut out the interior of the circle with an exacto knife or pair of scissors. The cardboard square with the large circle cut out will now be the exterior frame of the spirograph. Set aside the interior circular cut out.
- 3)** On another sheet of cardboard trace a smaller circle with the protractor or jar lid. This circle should be significantly smaller, around 3-4 inches in diameter. Once this is traced, cut out the circle and set aside the exterior frame.
- 4)** Now, we are going to make the threads that will interlock the two gears. Cut the corrugated cardboard into thin strips. With the corrugated side facing outwards, hot glue the corrugated cardboard strips around the outside of the smaller gear and the inside of the larger gear frame. Make sure the threads fit together and the smaller gear can rotate within the larger gear.
- 5)** Poke a few small holes on the face of the smaller gear. These will be where you hold the pen to rotate the small gear. The hole should be large enough for the pen tip to fit through, but not too large or the pen will become destabilized as you move. Placing the holes in different positions will create different spirals!
- 6)** Try out your DIY spirograph by placing the smaller gear on the inside larger gear. Place your pen in a hole on the smaller gear and slowly rotate the gear along the interior of the larger gear. You can create different spirals with not only different pen positions but also different sized smaller gears!

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