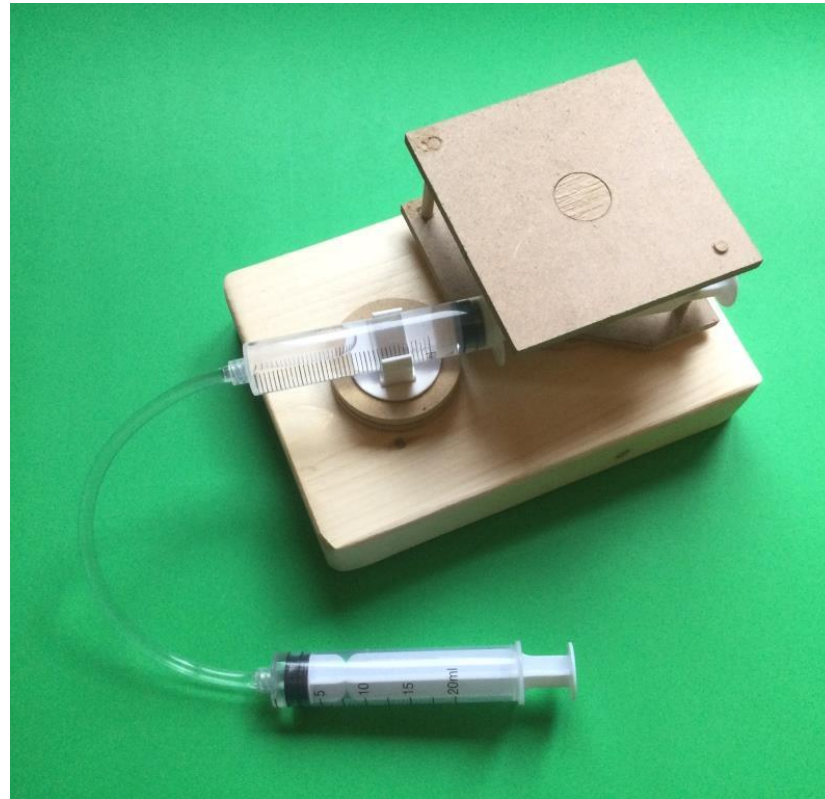


Hydraulic Rotating Platform from Workshop Kit materials:

Step-by-step assembly instructions

Note: the small package of extra parts is included in the student School Workshop kits



Contents of Kit

In the package labeled “Parts For Rotating Platform”:

Plastic Tubing: 1 length

White Syringe Holder: 1

White card disk X 1

Wooden dowel, 3/16”- 5mm diam.: 1 x 1 1/8” - 29mm; 2 x 2 1/4” - 57mm

Square Platform with two holes, one platform cut into trapezium

From the parts in the **unlabeled** bag in the Workshop Kit:

Green corner gussets: 1 card

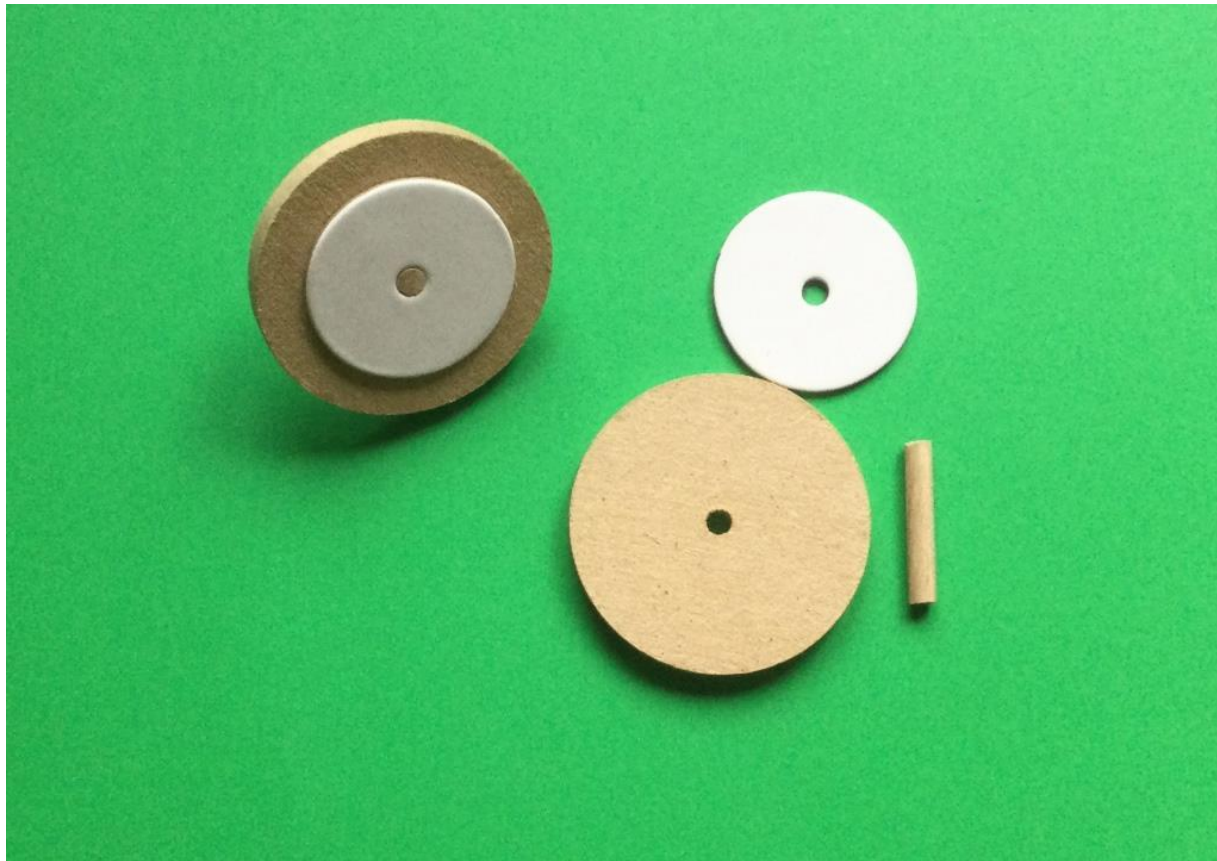
Base, 5 1/2” x 7 3/4” (140mm x 197mm³, drilled with holes)

Syringes, 20cc x 2 (one will have a hole in its plunger)

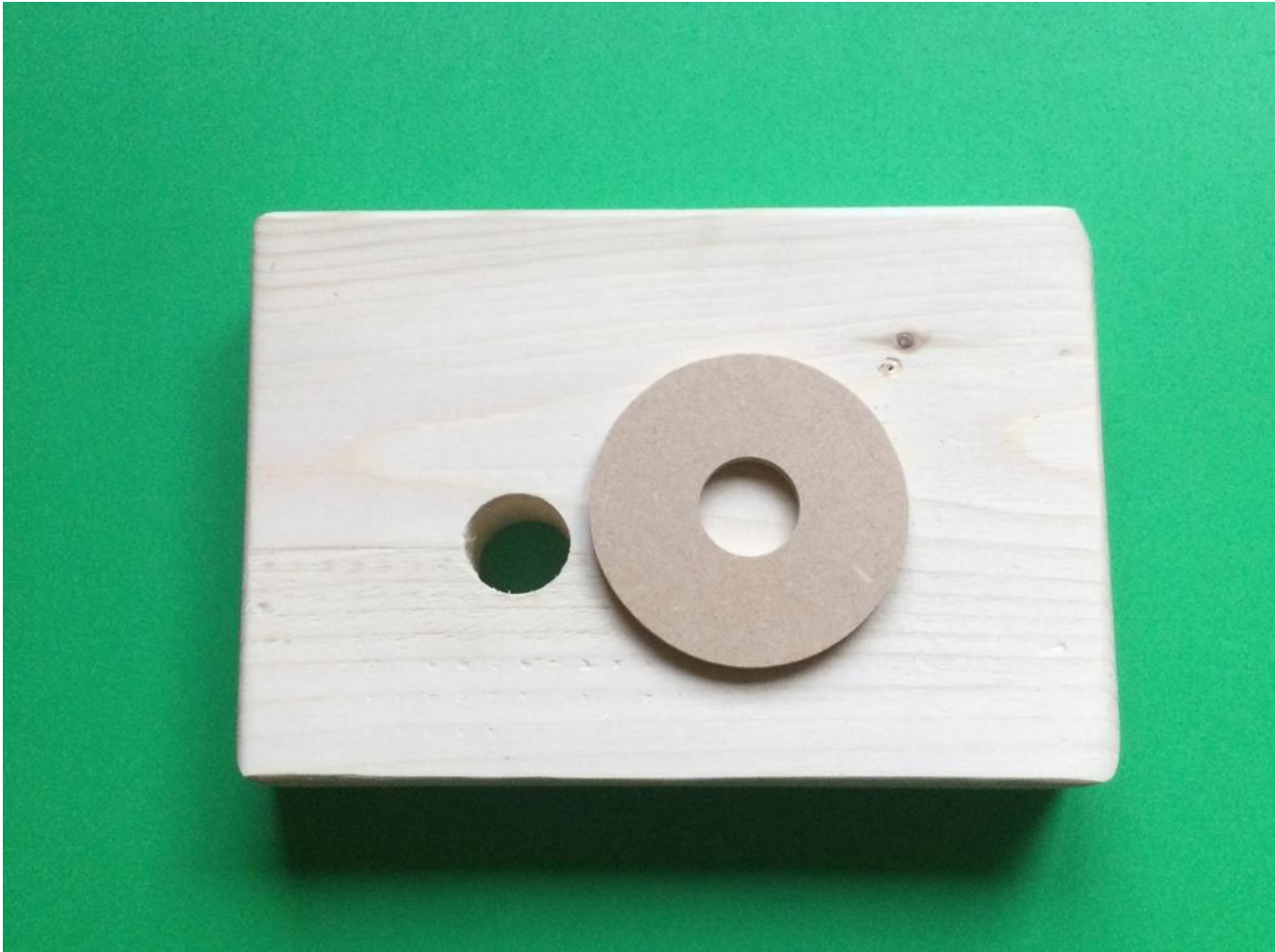
Wooden dowel, 7/8” - 22mm diam.; 1 x 3 7/8” - 200mm

Large wheel x 1, Medium wheel x 2

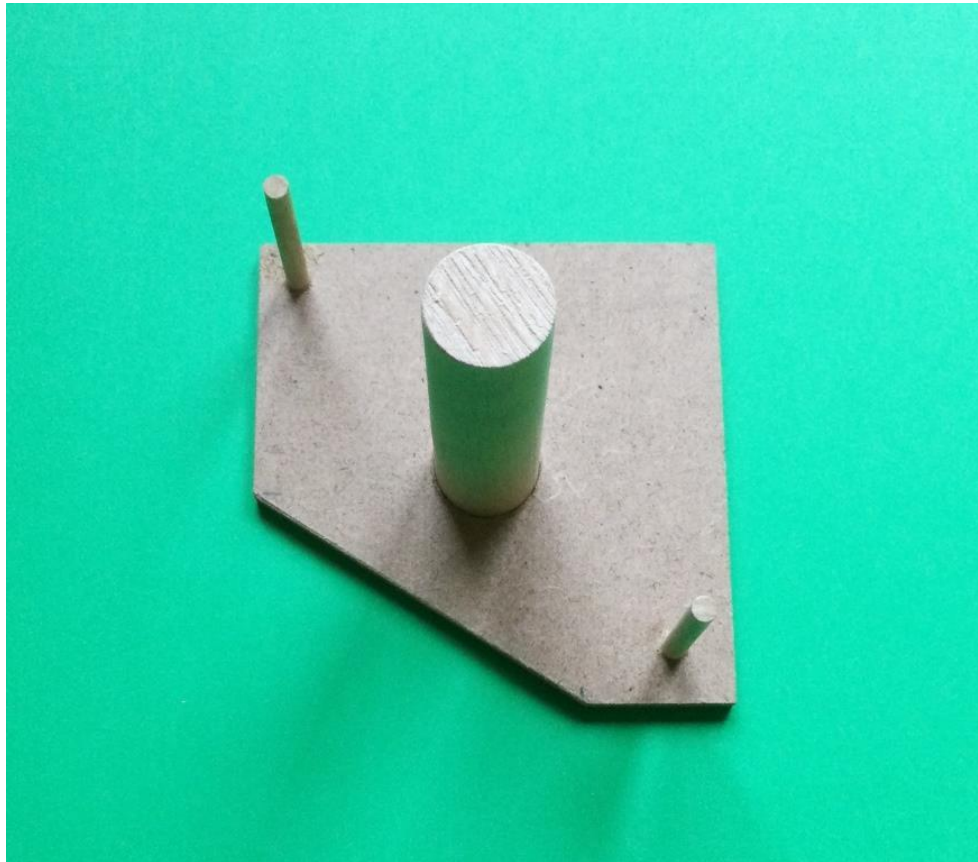
Glue white disk onto the rougher side of one medium wheel so the holes are aligned. Carefully push the 1 $\frac{1}{8}$ " – 29mm dowel into the wheel from the other side so it just touches the card. If the dowel is loose, use a small amount of glue on its tip. Put on one side to dry.



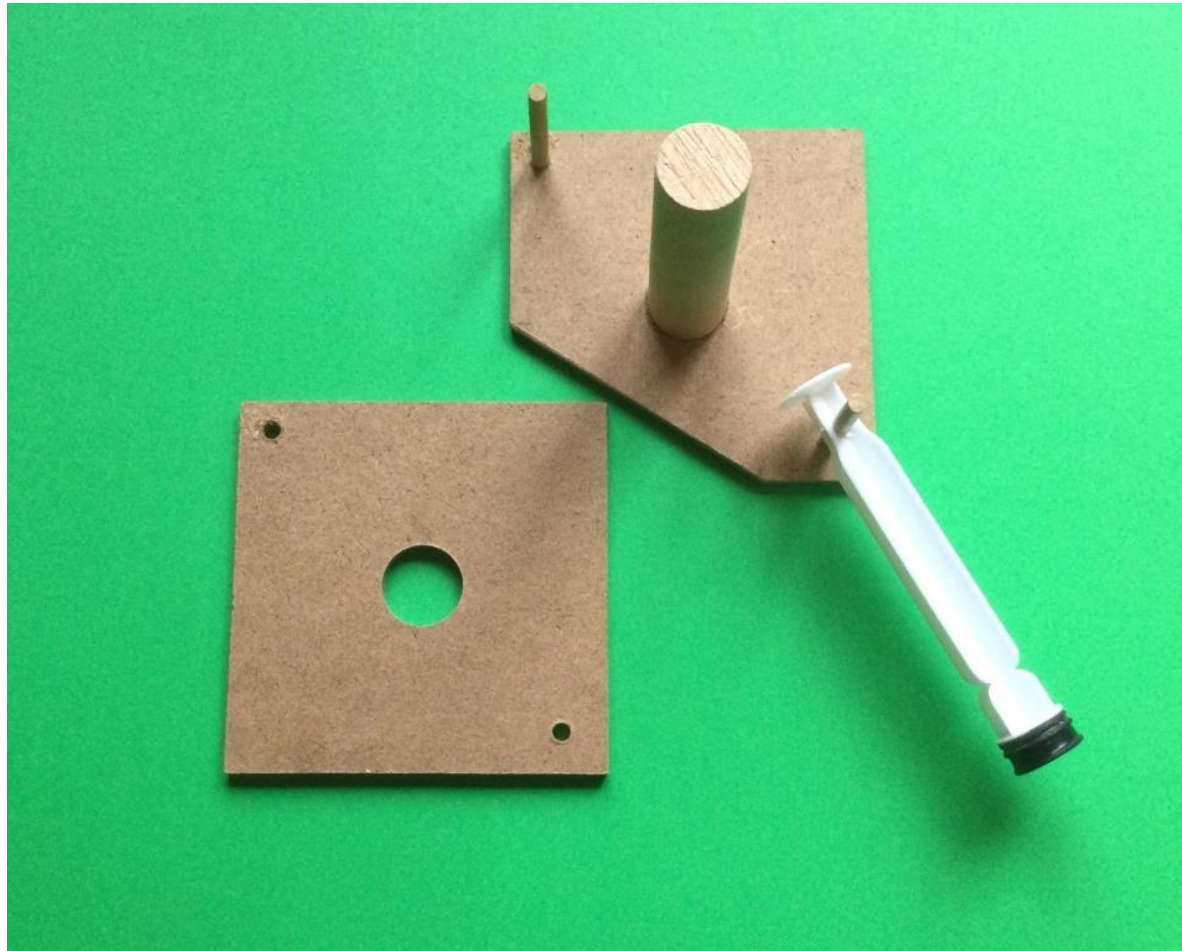
Glue the large wheel with the $\frac{7}{8}$ " – 22mm hole, smooth side up, onto the wooden base so the holes align, and the large dowel turns through the wheel and the base easily.



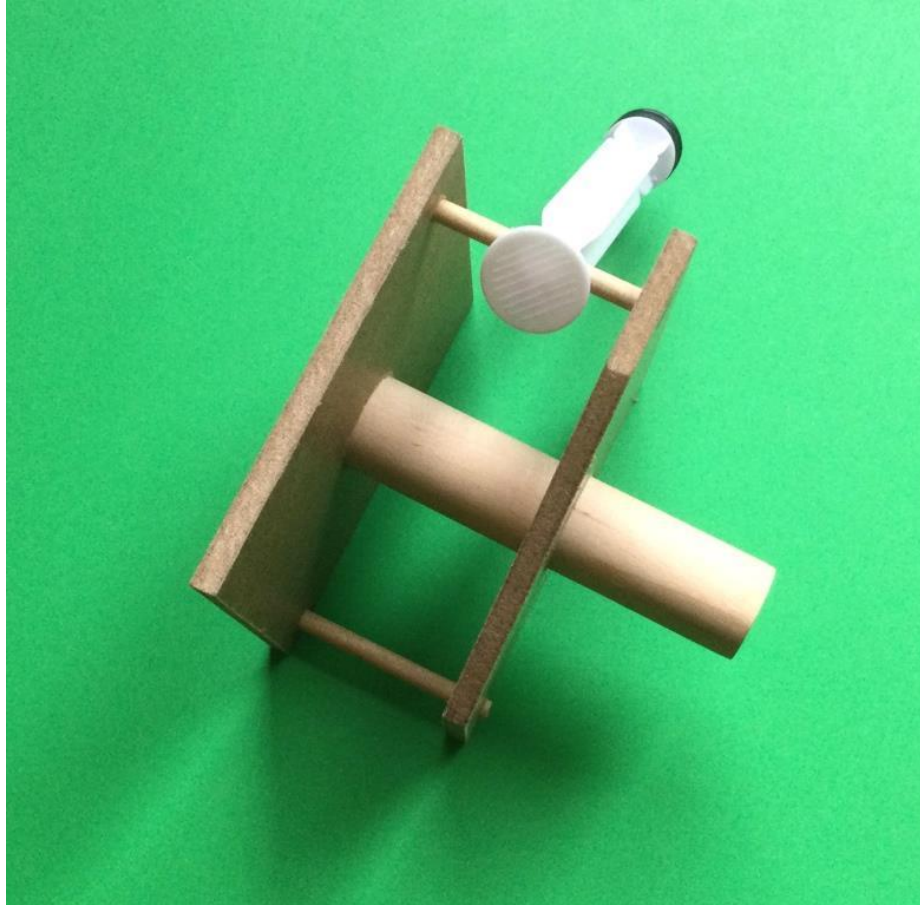
Select the platform in the shape of a trapezium and firmly push the $2\frac{1}{4}$ " – 57mm dowels into the corner holes. Ensure they are vertical. Insert, but do not glue. The large dowel into the $\frac{7}{8}$ " center hole. If glue is necessary for the smaller dowels use a small amount around the inner edges of the holes or the tips of the dowels.



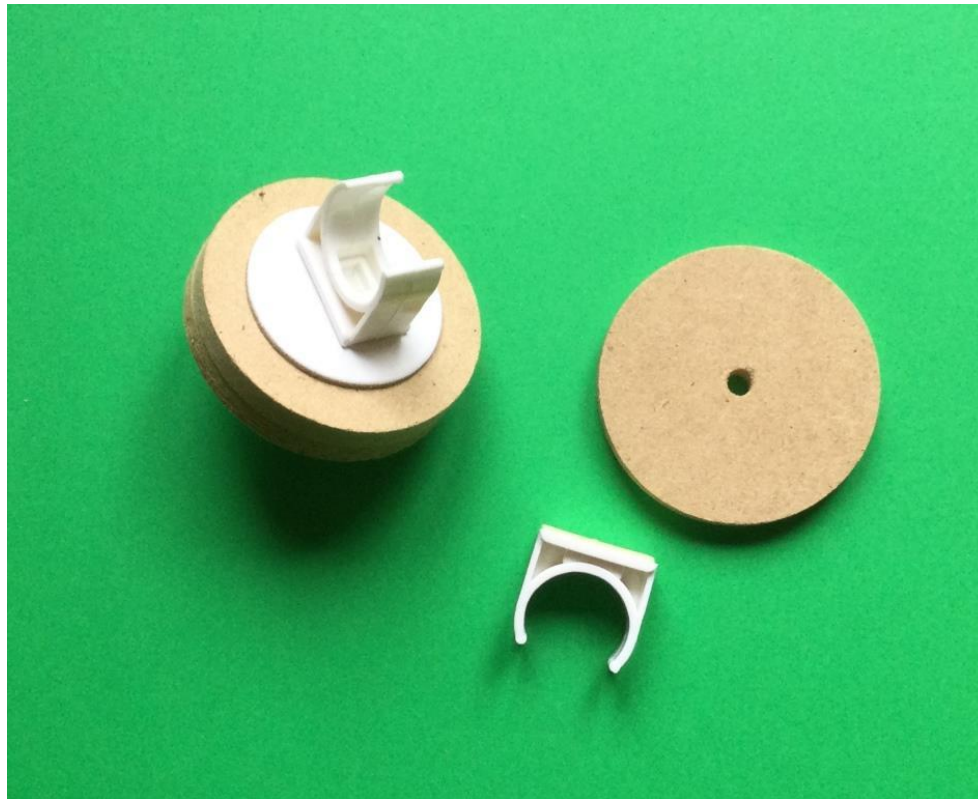
Select the 20cc piston-syringe with a hole in its plunger. Remove the plunger from the barrel and place the plunger onto the dowel nearest the smallest side as shown below



Carefully place the square platform onto the structure. The $\frac{7}{8}$ " – 22mm diam. dowel will be flush with top of the square platform and protrude thru the base of the other platform. If glue is necessary for the large dowel use a small amount around its tip.

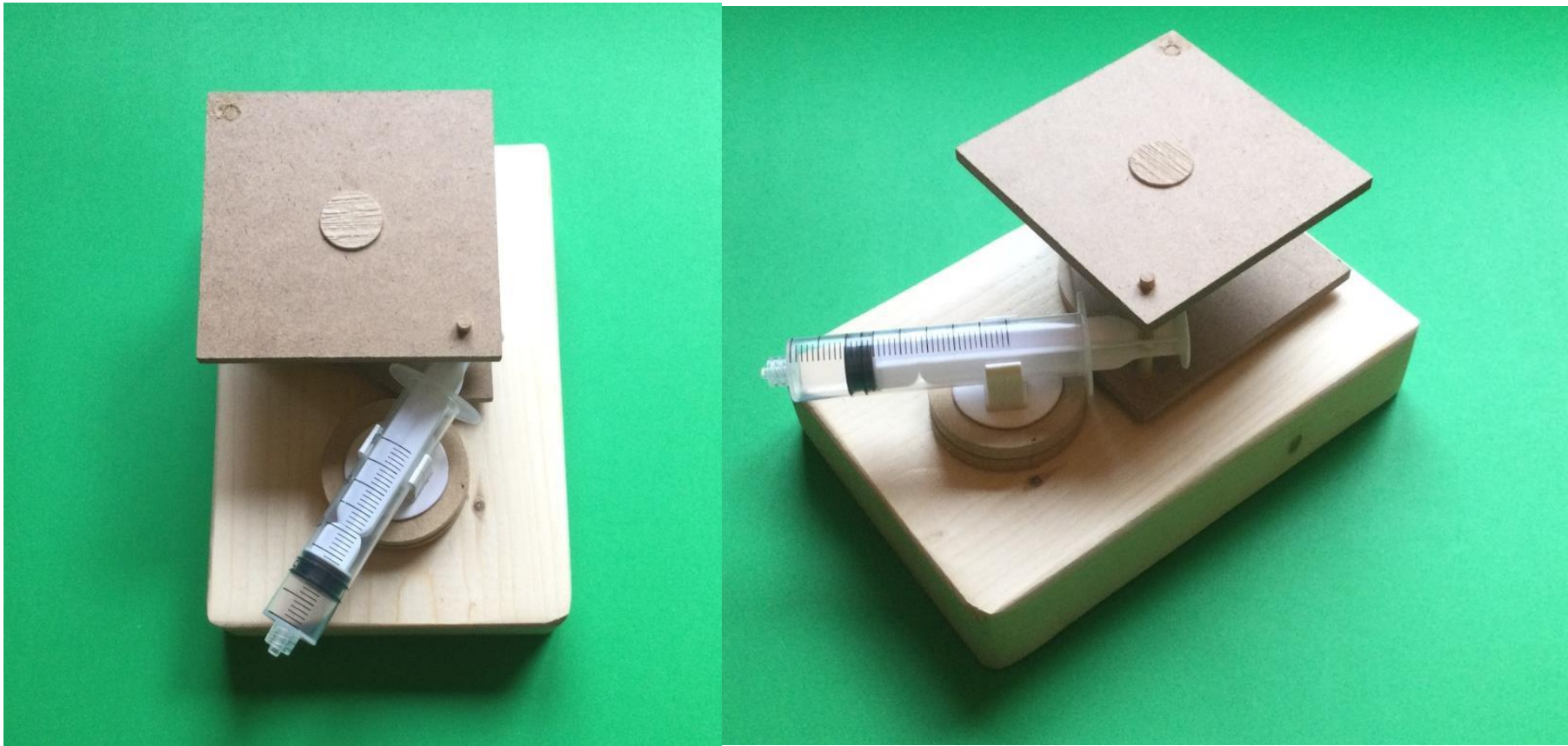


While the structure dries place the remaining medium wheel onto the dowel with its smooth side down, so it touches the base when inserted into the small hole in the base. It will rotate freely. Next, be careful! The white syringe clip has a double-sided sticky base. It needs to be firmly placed onto the center of the white disk ONCE only.



Carefully replace the barrel onto the plunger. Place the structure onto the base, inserting the dowels into the holes, as shown below. For the piston-syringe platform, use the small hole furthest away from the largest hole first.

Place the piston-syringe so the 20cc mark is near the white clip. The position of the piston-syringe platform will change the movement of the rotating base sub-system and can be explored using the second smaller hole



Close the piston-syringe on the structure and then attach the other piston-syringe, fully open, using the length of tubing.
Test the device pneumatically – it will open and close. At this time do not attempt to rotate the platform beyond the white clip as it impedes its movement.



The rotation of the platform will be approx. 40° . The pressure inside the syringes, operated pneumatically, is insufficient to overcome the force the clip places on the barrel of the syringe in the structure.



To achieve a 90° rotation hydraulics, using water in the piston-syringes, is required.

Follow this procedure to fill the piston-syringes and tubing, with water. You will need a cup of water (½ full) and some paper towels in case of spillage

1. Remove the syringe and tubing and carefully push the plunger of the piston-syringe on the structure so it is fully closed
2. Fill the other syringe with tubing attached with water. Be sure to remove the air if any is trapped by holding the syringe vertically and pushing the air out
3. Repeat until air is removed and the syringe and tubing are full of water
4. Connect the water filled syringe and tubing to the syringe on the structure

Note the difference in operation of the device when hydraulic

With water hydraulics the pressure in the syringes is sufficient to overcome the resistance of the clip and rotate the platform approx. 90°

