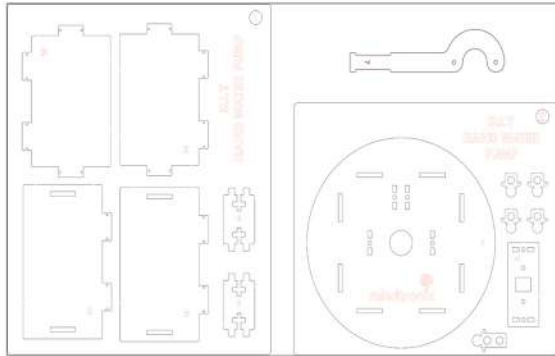


HAND WATER PUMP - PARTS LIST



HAND WATER PUMP SET

PISTON WITH ACRYLIC

SPARE



**STEEL BALL 3MM X2
STEEL BALL 5MM X 4**



MAGNET



**STEEL BALL 3MM X2
STEEL BALL 5MM X 4**



STRAW PIPE



SYRINGE



M3 NUTS - 8



SCREW DRIVER X 1



TISSUE PAPER



CONTAINER



(M3 x 10) screw x 10 pcs



(M3 x 15) screw x 2 pcs

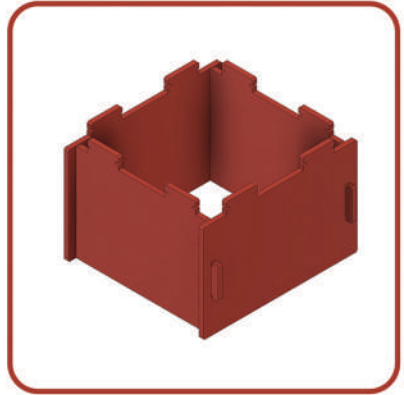
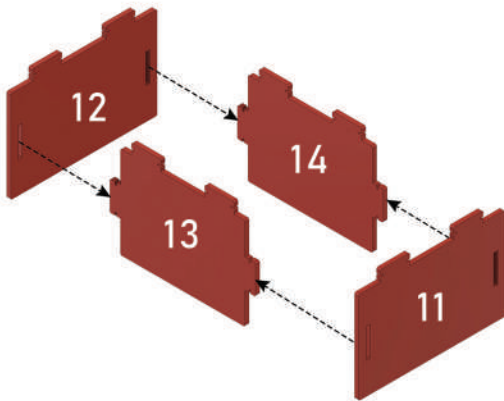


(M3 x 20) screw x 2 pcs



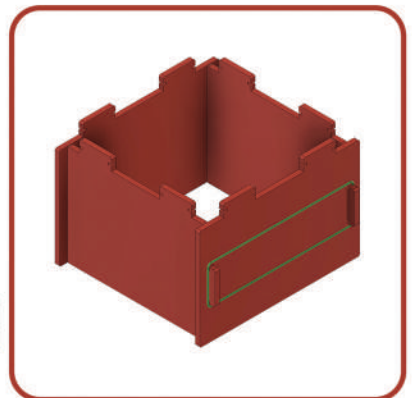
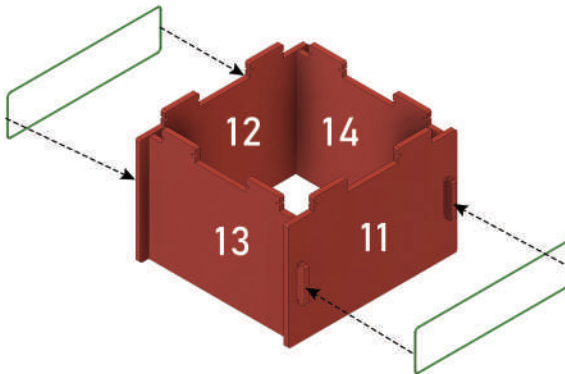
1

Hand pump



Fix the blocks

2



Now, Square stand is ready

Lock the joints using Rubber bands

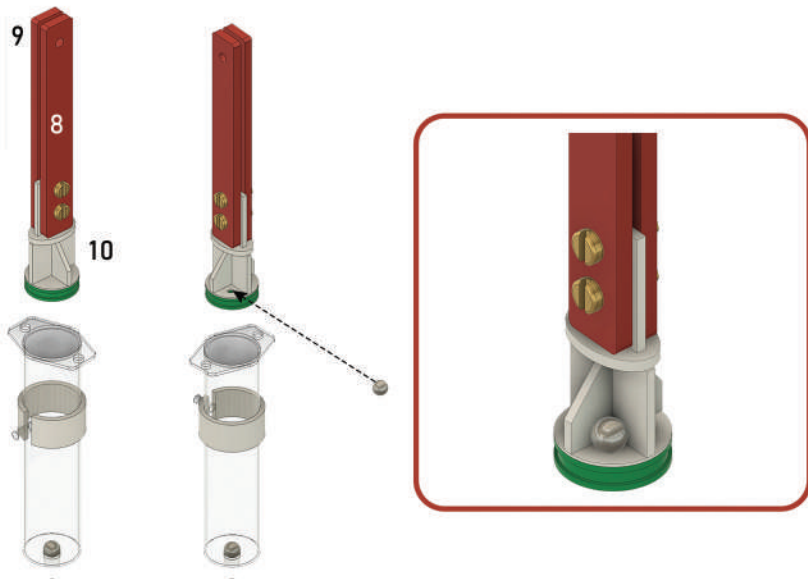


3



Take the Syringe and add one small 3mm steel ball into it

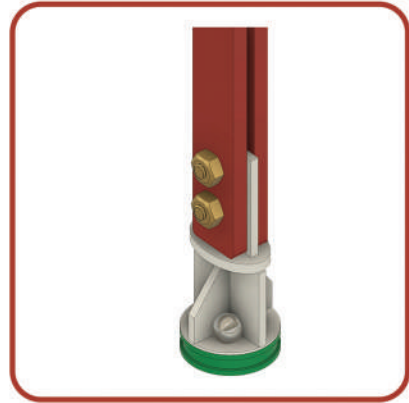
4



Take Piston and add one big 5mm steel ball onto the hole on Piston
(Before inserting into the Syringe)



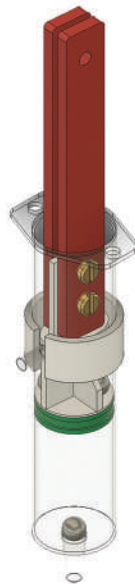
5



(Before inserting into the syringe)

Add another big 5mm steel ball on the other hole of piston

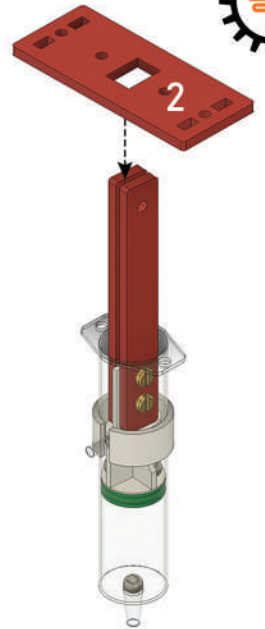
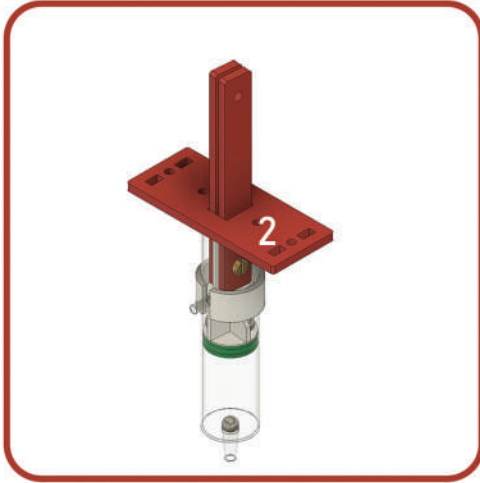
6



Now insert the Piston into the Syringe

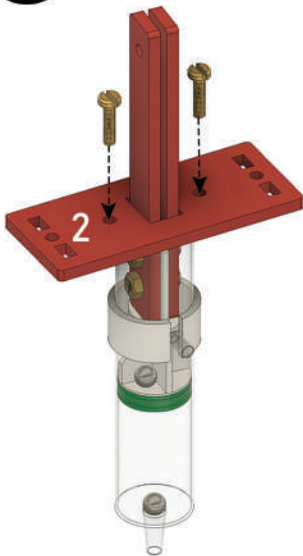


7



Insert the top supporter into the Piston

8

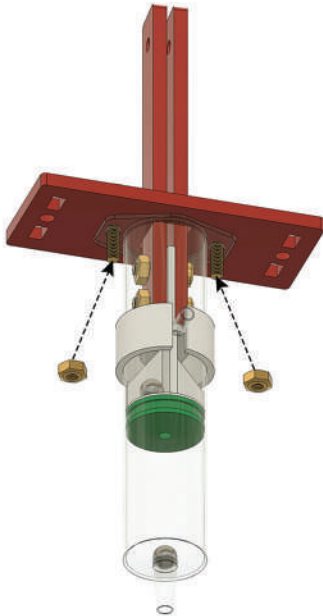


Insert M3X10 screws through the top supporters and Syringe

4



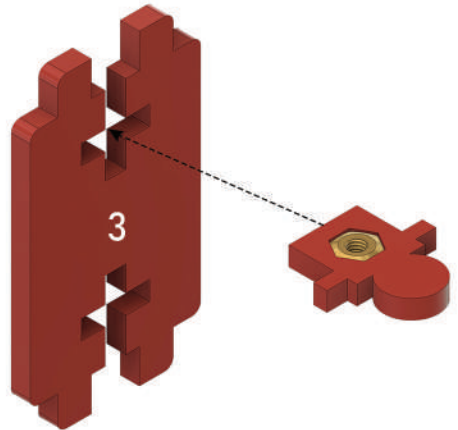
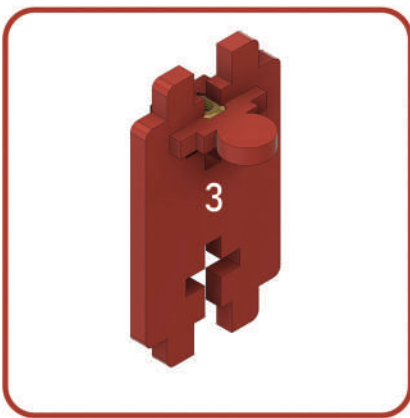
9



Lock the screws using nuts from the bottom

10

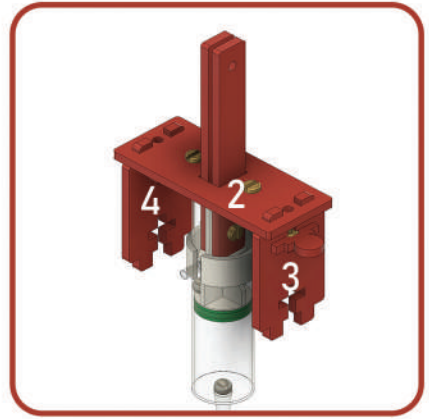
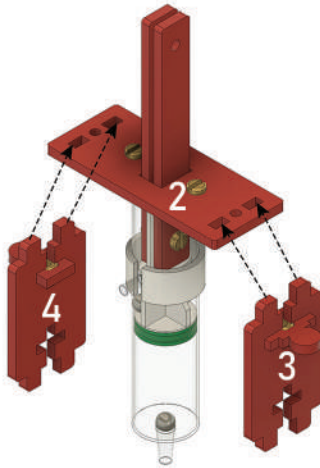
X2



Fix the nut connectors to the side supporters

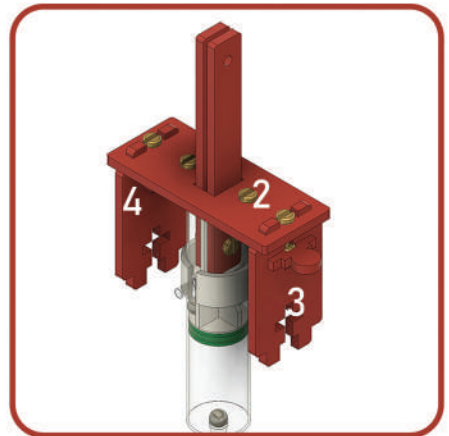
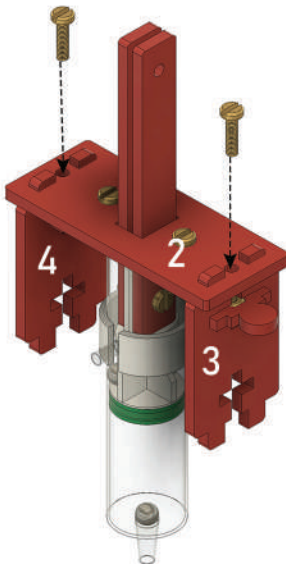


11



Insert side supporters to the Syringe

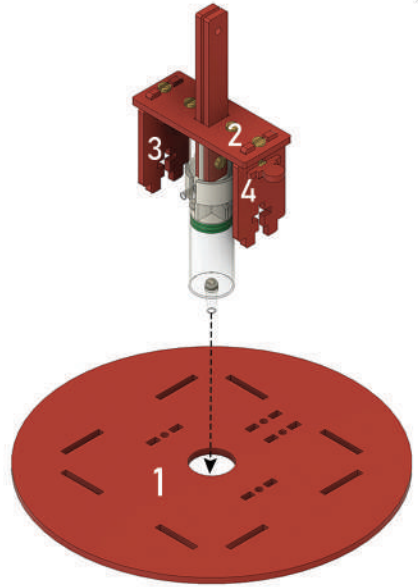
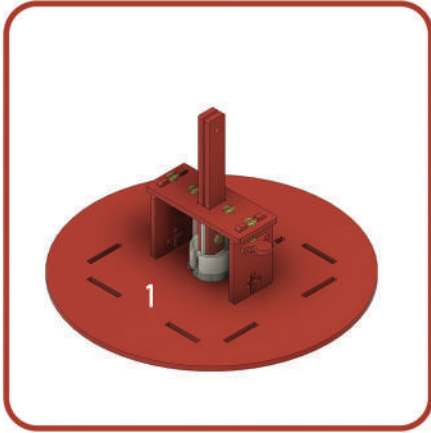
12



Insert M3X10 screws from top to lock the side supporters

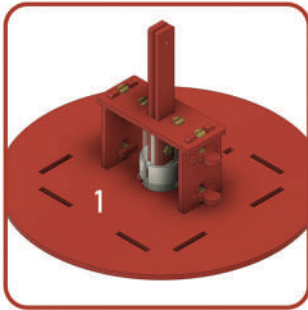


13

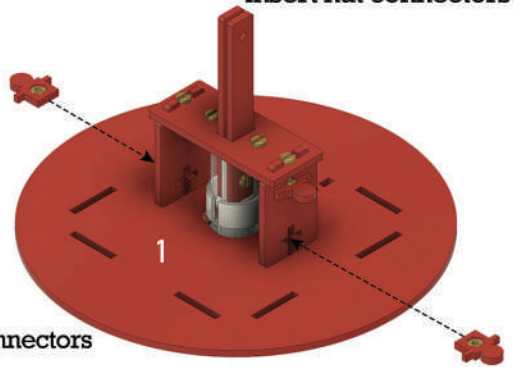


Insert the syringe with supporters into the circular base

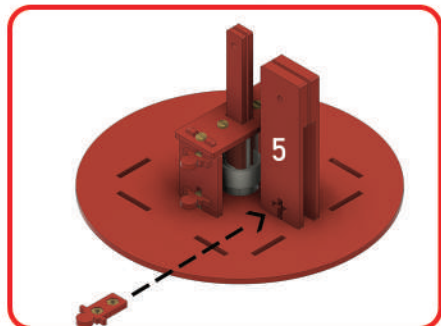
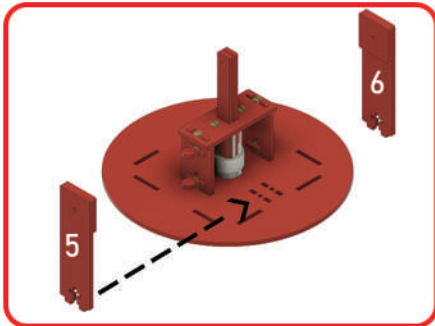
14



Insert nut connectors



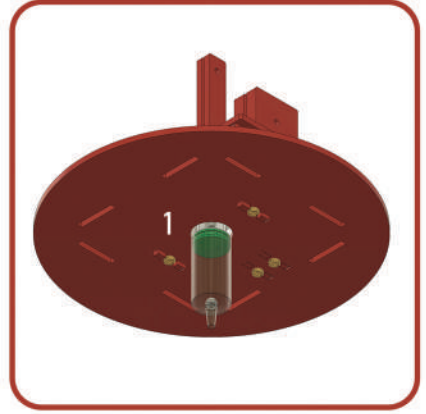
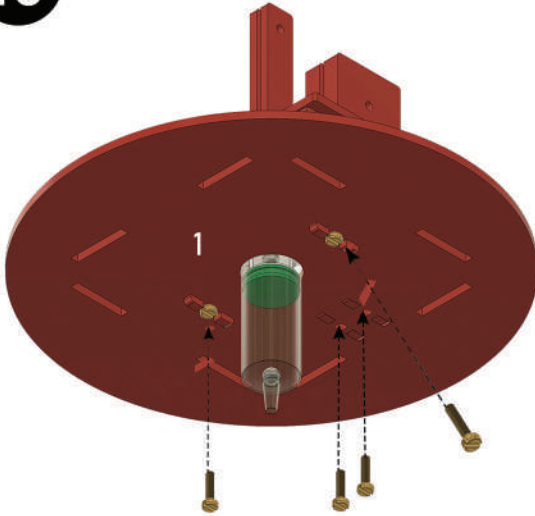
Fix the side supporters and lock with nut connectors



7

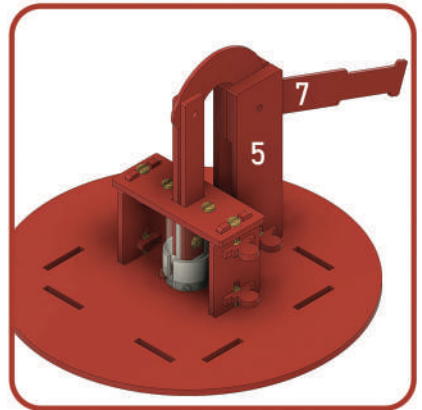
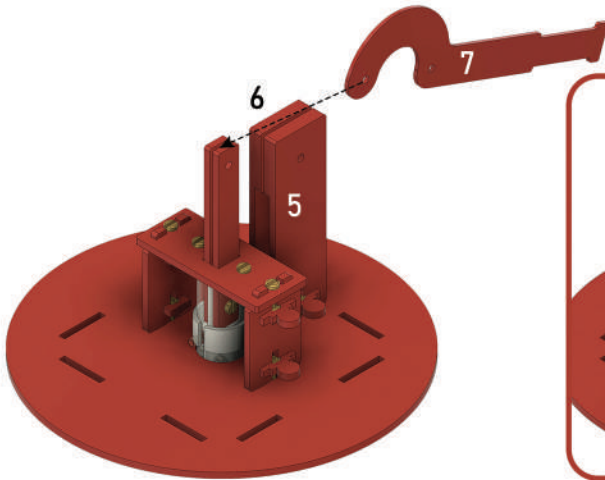


15



Lock the side supporters & handle supporters
using screws from the bottom

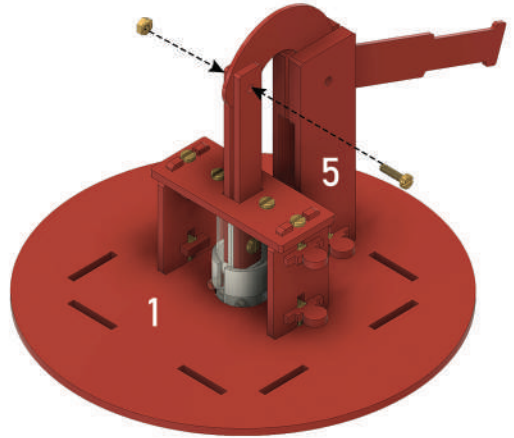
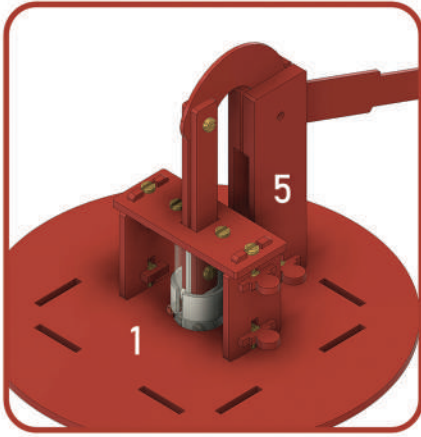
16



Fix the handle to the piston

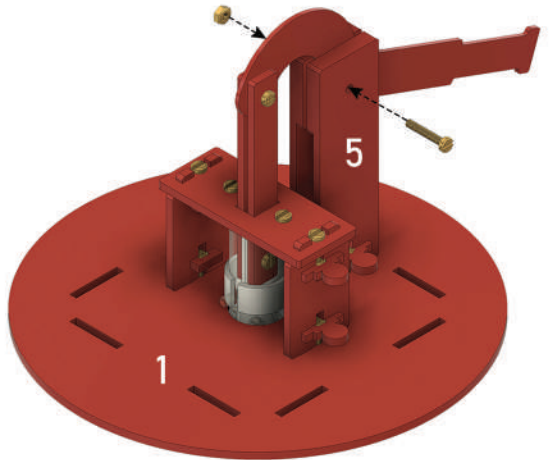
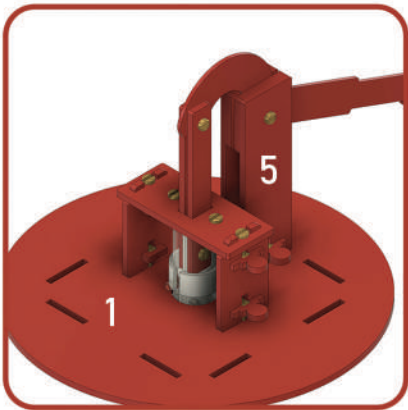


17



Lock the handle using (M3X15) screw and nut to the piston

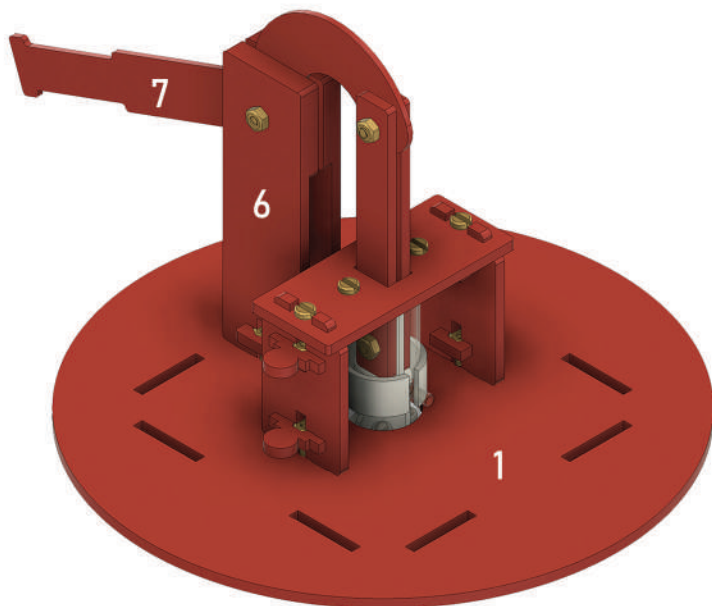
18



Lock the handle using (M3X20) screw and nut
to the handle supporters

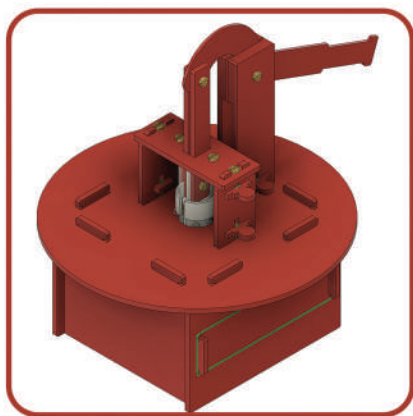
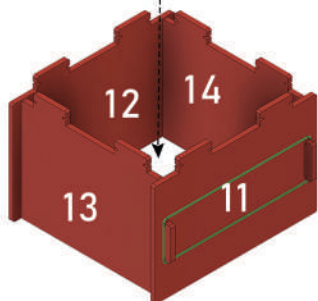
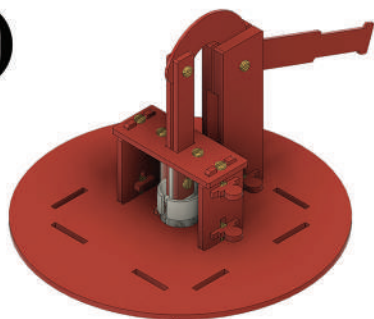


19



Top set of Hand pump is ready

20

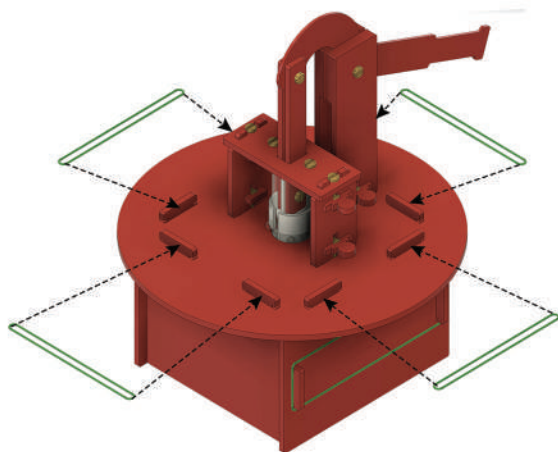
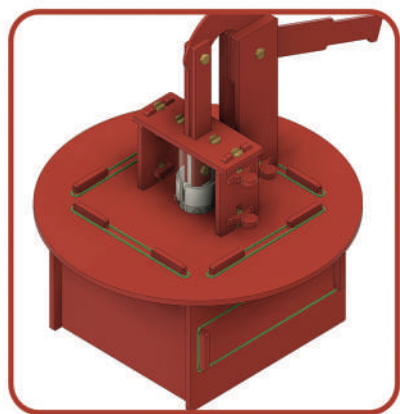


Insert the top set onto the Square block

10

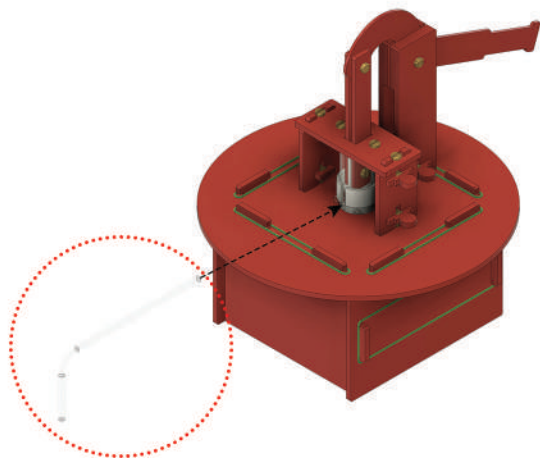
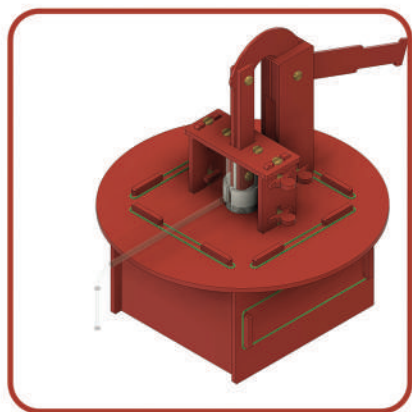


21



Lock all joints using Rubber bands

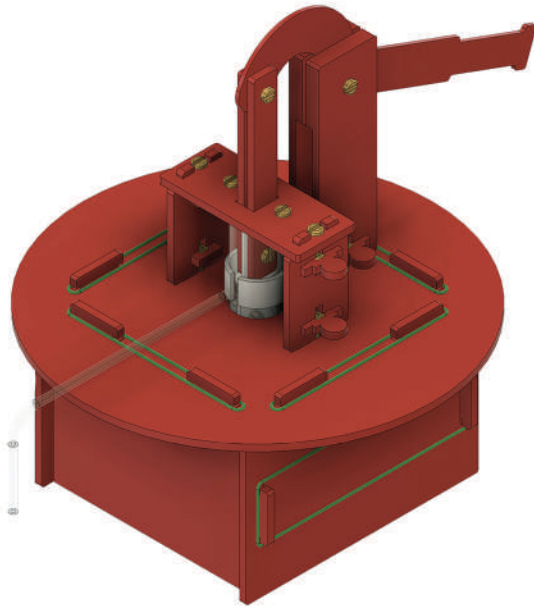
22



Fix pipe to the pipe connector on the Syringe



23



Now the hand pump is ready

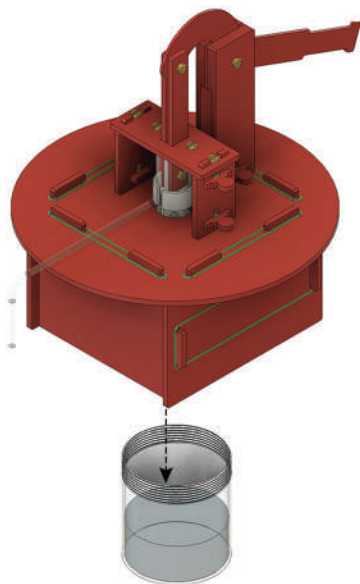
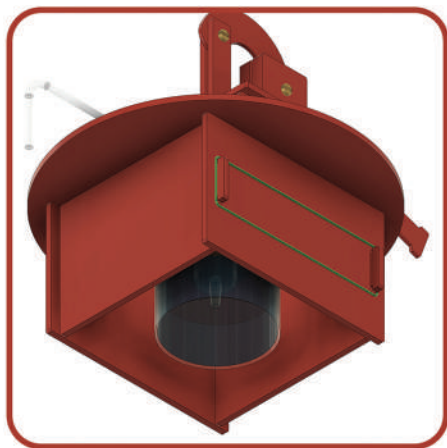
24



Take the plastic container
and fill half of it with water

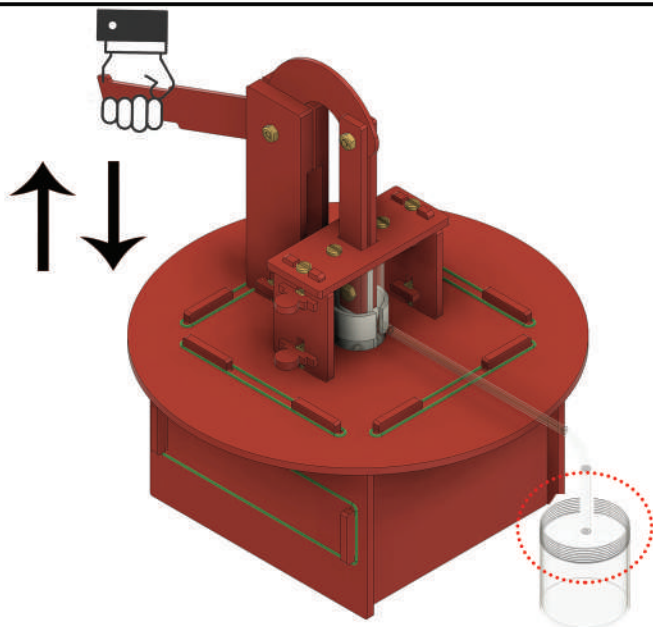


25



Place the container below the handpump
(Syringe should be immersed in the water)

26



Place a small empty cup(from home)below the pipe and
slowly pump the handle and observe.

HAND PUMP

AIM

To build a Hand pump

INTRODUCTION

Handpumps, which have been around for centuries, can provide a cost-effective solution to allow the rural poor to gain access to clean water for drinking and other purposes like irrigation.

WHAT DO YOU NEED

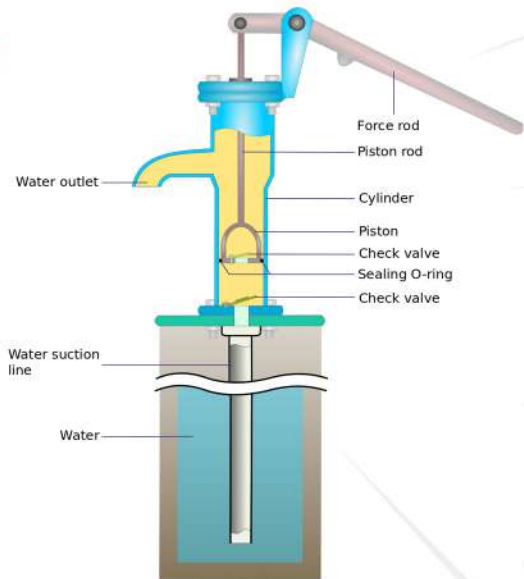
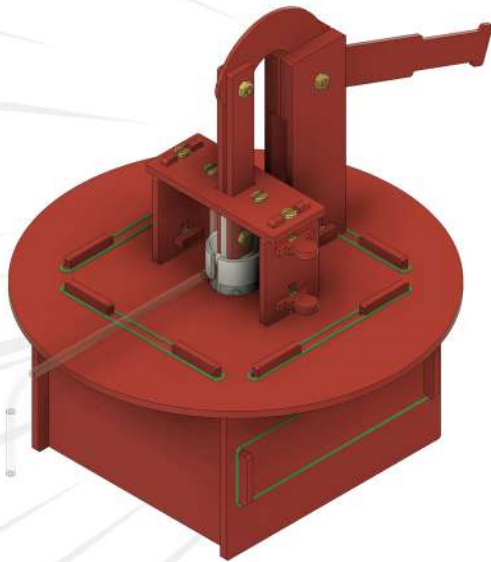
From home: Water, Plastic cup

From kit: Handpump set X1, Plastic container
(Refer building instructions - Page no:1-13)

They are widely used in places where access to water is scarce and are capable of lifting small amounts of water from depths of up to 100 meters

PROCEDURE

- Build the model as per building instructions.
- Fill the plastic container with water and place it under the hand pump
- Take plastic cup (from home) and place it in front of hand pump near the pipe
- Now, pump the handle carefully and observe.



THEORY

Handpumps operate on the principles of fluid mechanics. Mechanical energy is used to lift the water from some depth below ground to the surface, and the water is moved by taking advantage of pressure differences.

When the piston is pulled upwards, there is a decrease in pressure within the cylinder. This causes the water to flow into the cylinder through the foot valve.