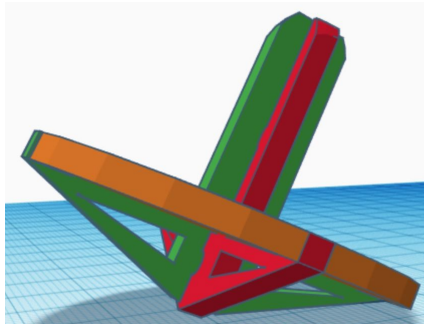


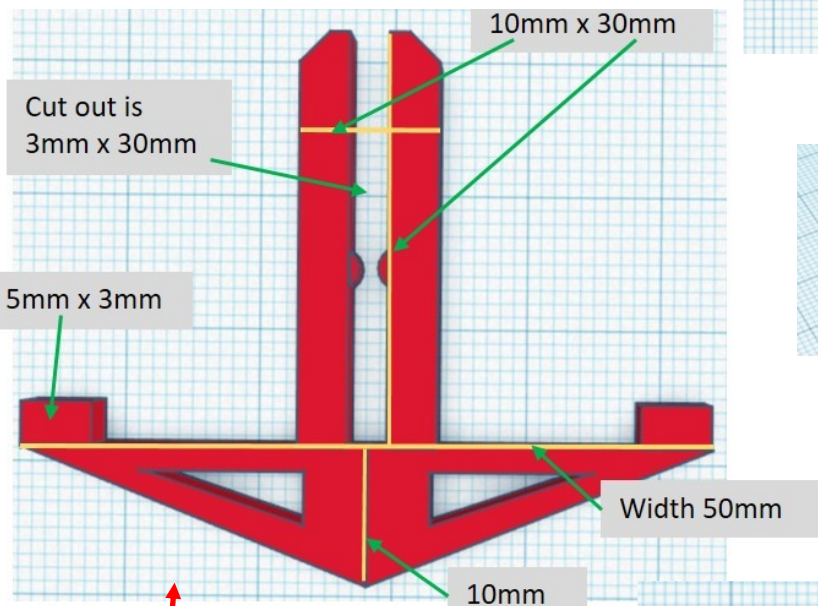
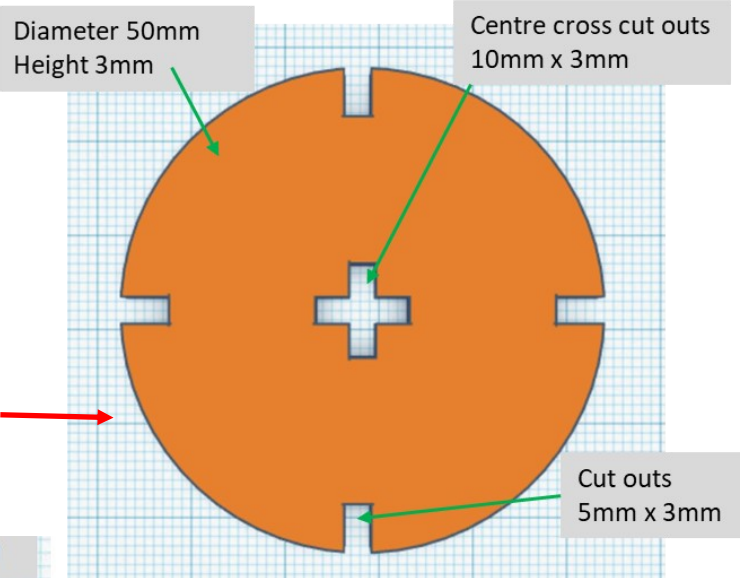
# Spinning Top Design Tinkercad Tutorial



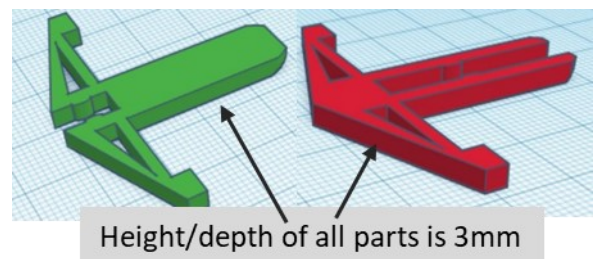
The spinning top is made of 3 parts which click together. Part measurements are below and the following pages have instructions showing how to make each of the 3 parts.



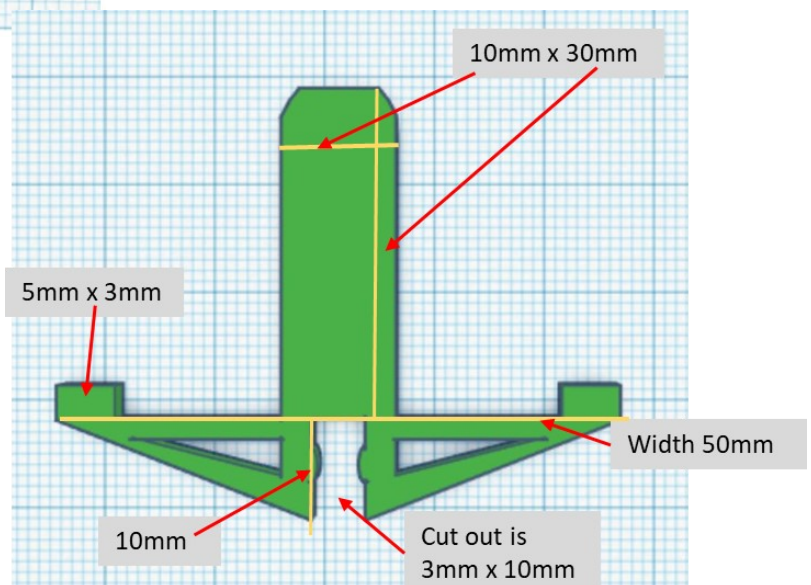
**Spinner**



**Handle part 1**



**Handle part 2**





## Spinner base

1) Drag a cylinder to the grid, size 50mm x 50mm and increase number of sides to 64 to smooth out circle edges.

2) Change height to 3mm to create a disc

4) Select the disc and then the hole shape and use Align to place it at centre edge of disc.

5) Select hole shape, duplicate and move the copy to opposite edge. Use Align to place it centre edge.

3) Make a hole shape box, sized 3mm x 5mm.

6) Select shape, duplicate it, then use arrow to rotate by 90° – as shown.

7) Move the rotated duplicate towards the edge, then use Align to place it centre edge.

8) Select shape, duplicate and move the copy to opposite edge. Use Align to place it centre edge.

9) Select 5 shapes and Group to make the cuts.

10) Make a hole shape box, 3mm x 10mm, duplicate it, then use arrow to rotate by 90° to form a cross. Then group the cross.

11) Select cross and disc, use Align to centre it.

Then click group to cut centre cross.



## T-shaped handle parts

**1)** Drag a Roof shape to the grid, resize to 50mm x 3mm, and height 10mm.

**2)** Place a box hole shape over exactly half of the roof shape. Group the 2 shapes to cut forming this shape.

**3)** Duplicate it and move duplicate away

**4)** Make duplicate a hole shape and resize to 12mm x 6mm, height 4mm.

**5)** Move hole shape to position and Group to cut.

**6)** Click on the shape and flip it with this arrow.

**7)** Make a box shape 5mm x 3mm, height 3mm.

**8)** Select the 2 shapes and Align the small box

**9)** Select the box and use the up arrow to move it up 10mm to sit on the end of the green object.

**10)** Duplicate the object, then Flip the duplicate

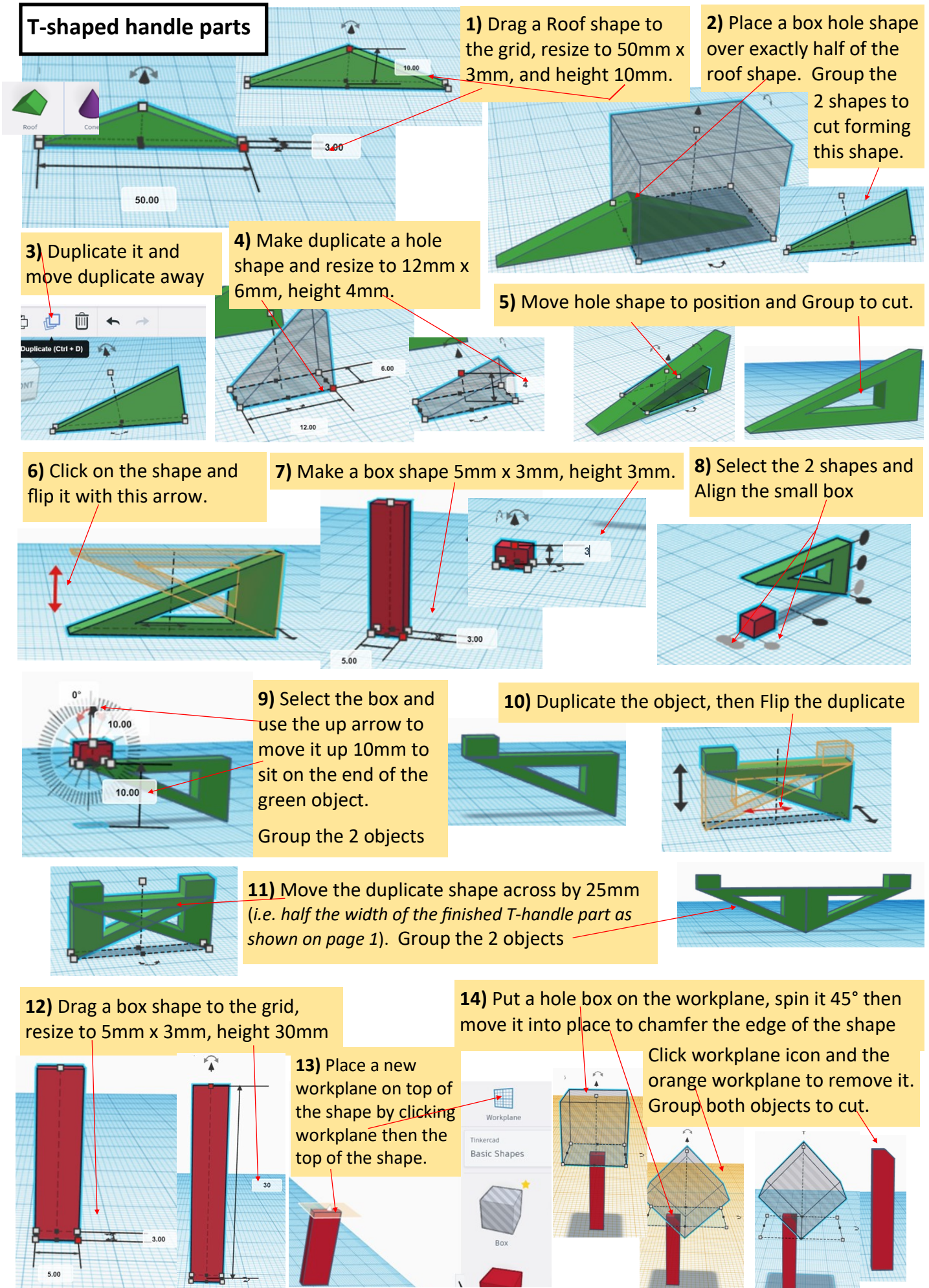
**11)** Move the duplicate shape across by 25mm (i.e. half the width of the finished T-handle part as shown on page 1). Group the 2 objects

**12)** Drag a box shape to the grid, resize to 5mm x 3mm, height 30mm

**13)** Place a new workplane on top of the shape by clicking workplane then the top of the shape.

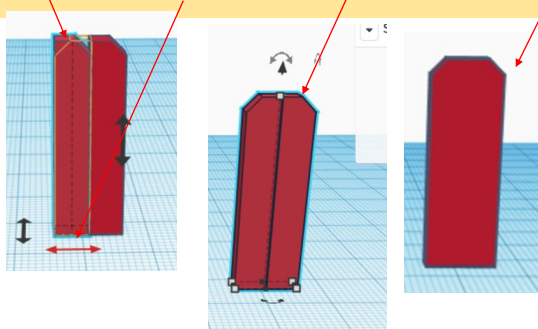
**14)** Put a hole box on the workplane, spin it 45° then move it into place to chamfer the edge of the shape

Click workplane icon and the orange workplane to remove it. Group both objects to cut.

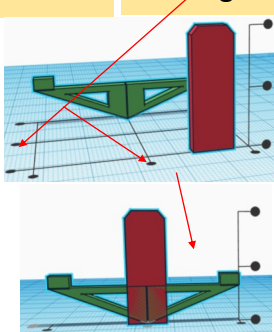




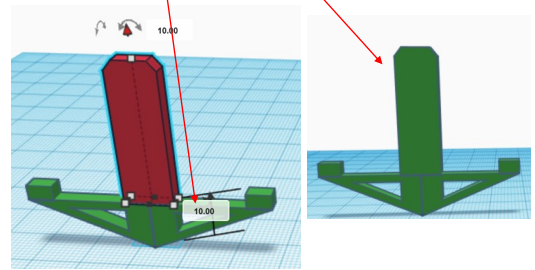
**15) Duplicate shape and move duplicate across by 5mm, then Flip. Select both shapes and Group**



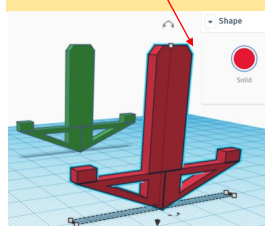
**16) Select shapes and Align**



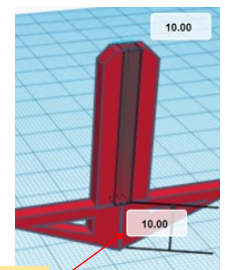
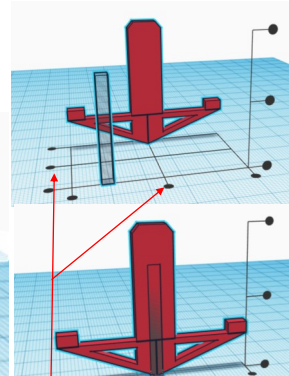
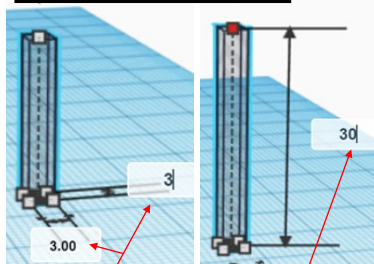
**17) Move red shape up by 10mm, then Group both shapes**



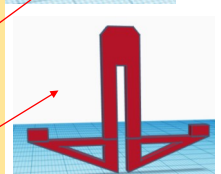
**18) Duplicate the shape and make one copy red**



### Handle part 1



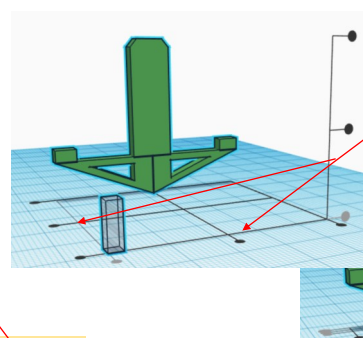
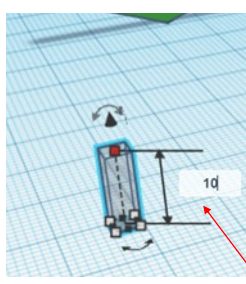
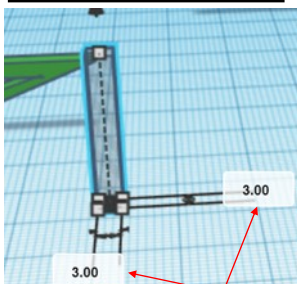
**21) Move the hole box up 10mm, then Group to cut.**



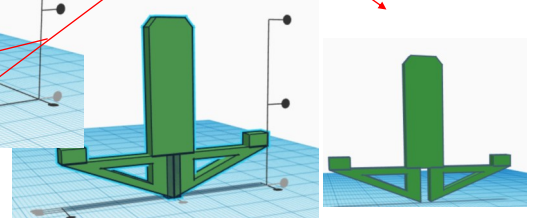
**19) Make a hole box, 3mm x 3mm, height 30mm**

**20) Align the shapes**

### Handle part 2



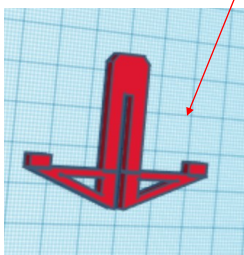
**23) Align the shapes. Then Group to cut.**



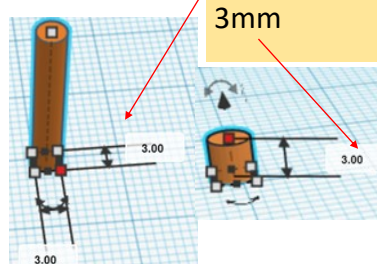
**22) Make a hole box, 3mm x 3mm, height 10mm**

### Adding indents to help parts fit tightly together

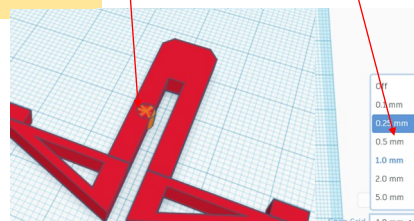
**24) Spin the red handle part 90° and move it down to sit on the grid.**



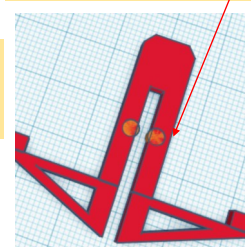
**25) Make a cylinder 3mm x 3mm, height 3mm**



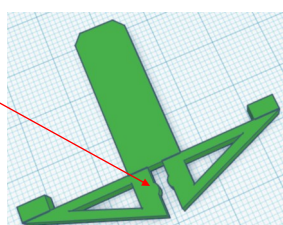
**26) Move the cylinder into place giving a very small overlap. Changing Snap Grid will help you manoeuvre the cylinder.**



**27) Duplicate the cylinder and use the keyboard arrows keys to move the duplicate into place.**



**29) Follow the same procedure to add indents to the green handle part.**



**28) Group the objects to finish.**

