

## Tinkercad Rapid Prototyping Class Lamp Example Instructions

- 1 Open a copy of “RP Lamp parts” in tinkercad.
- 2 Set your scale to mm and the snap grid to 1.
- 3 Copy the cone and cylinder and assign them a color.
- 4 Drag the colored cone to the middle of the bed.
- 5 Use the ruler to resize the cone to 70 x70 x138 (l x w x h).
- 6 Use the ruler to resize the cylinder to 50.7 x 50.7 x 8 (l x w x h).
- 7 Drag out a box, turn it into a hole, resize it to about 60 x 60 (l x w), raise it up to 38.
- 8 Align the box with the cone, extend the height of the box to cover the peak of the cone and group to truncate the cone.
- 9 Copy the cone and make the copy a hole, resize it to 64 x 64 (l x w), and raise it up 3.
- 10 Align the hole cone with the original, and group to hollow out the original.
- 11 Copy the colored cylinder, make the copy a hole, resize the hole to 47.7 x 47.7, align and group with the original to make a ring.
- 12 For better visibility, make the cone into a hole.
- 13 Copy the arduino mount and color it.
- 15 For fine tuning use part homing and snap grid 0.1.
- 16 Use align to center up the arduino mount to the cone.
- 17 Nudge the arduino holder by 0.1 steps so it just clears the inside of the cone wall.
- 18 Turn the cone back to a color and group it with the arduino mount.
- 19 Turn the grouped part back to a hole.
- 20 Temporarily put the arduino into the holder to check the fit.
- 21 Now we are going to make an opening for the usb cable.
- 22 Drag out a box and resize it to 12 wide, 9 high and leave it at 20 long.
- 23 Drag out a round roof, rotate it -90 degrees and resize it to 12 wide, 3 high, and leave it at 20 long.
- 24 Align the roof to the box, group them and make the resulting shape a hole.
- 25 Align the hole shape to the cone assembly so the usb cable can fit into the arduino.

- 26 Remove the arduino model and turn the cone back into a color before you group the usb hole with the cone assembly.
- 27 Now we will make a hole for the switch. Copy the switch and turn the copy into a hole.
- 28 Align the switch hole with the usb hole and put the bottom of the switch hole about 6 mm above the top of the usb hole.
- 29 Tilt the switch hole so it matches the slant of the cone assembly.
- 30 The thickest round section of the switch hole should fully intersect the cone assembly--group them to make the switch hole.
- 31 Copy the original (white) cylinder and scale the copy to 12x12x 36 high, make it a hole.
- 32 Make 3 copies of the cylinder you just created, these will be supports for the neopixel ring.
- 33 Drag the 4 cylinders into the cone and align them evenly around the arduino holder.
- 34 Do not block the space for the arduino with a cylinder or let it protrude through the cone wall.
- 35 Turn the cylinders back to a color before grouping them with the cone assembly.
- 36 Raise the ring you created earlier to 37.9.
- 37 Align it with the top of the cone assembly and group.
- 38 That's it! Remember to download the cone assembly only for printing by selecting it and use the check box on the download screen