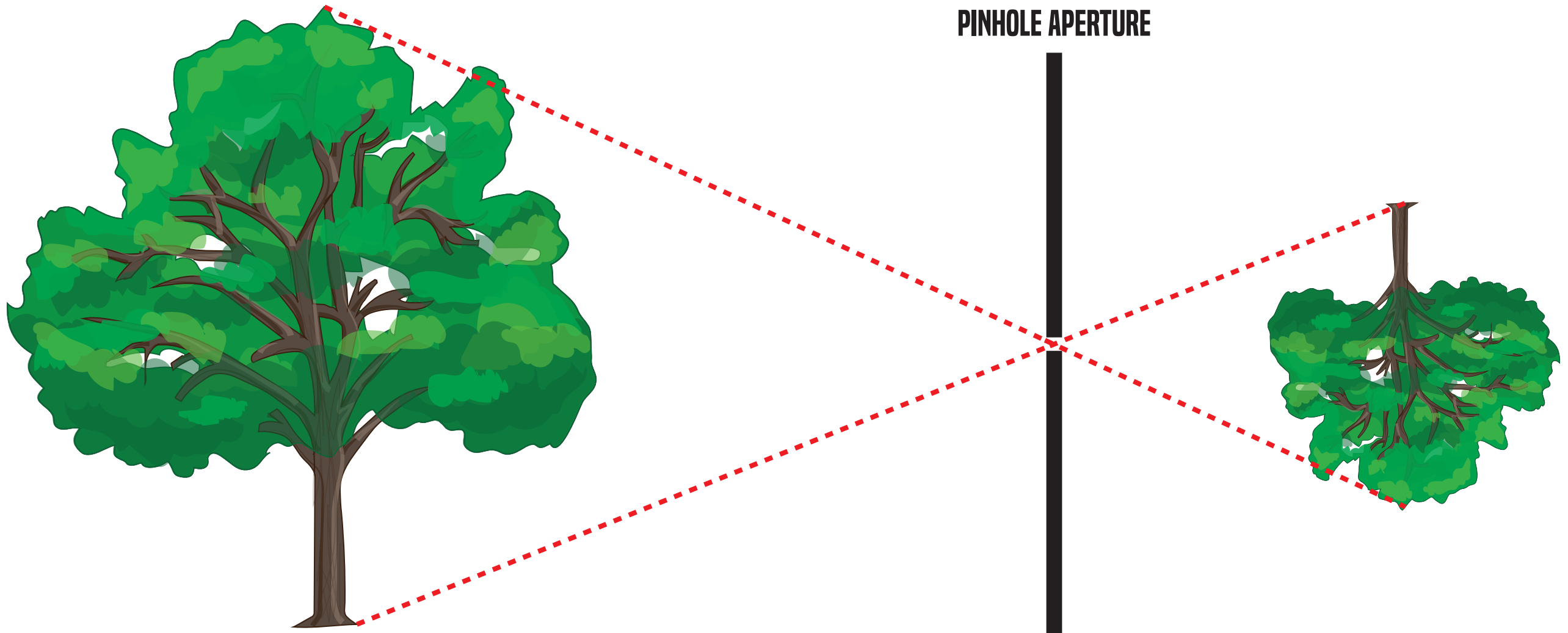


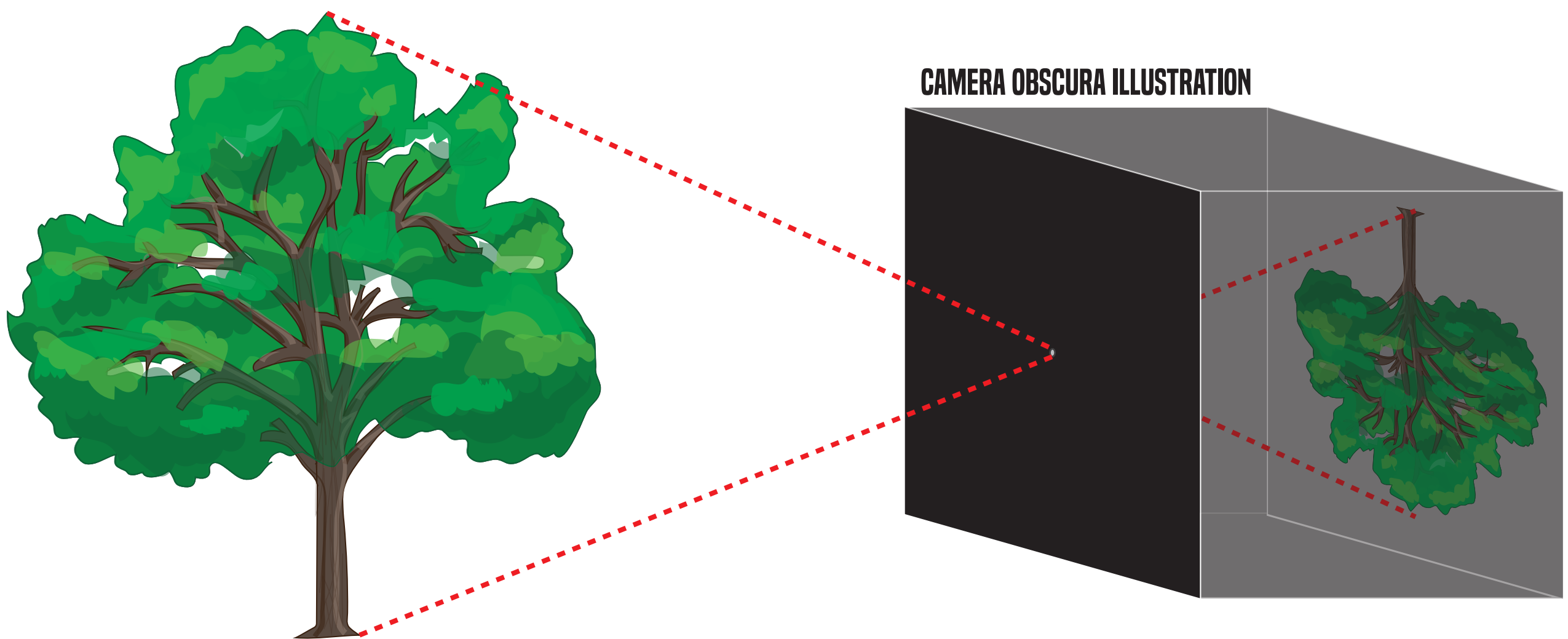
MAKE YOUR OWN: CAMERA OBSCURA

DEFINITION

A “camera obscura” is a name for an imaging device that utilises the theory behind pinhole photography. When light emanating from an object shines through a pinhole, it produces an upside down image. This is because light rays from the tip of the object (e.g. the top of the tree, please see image below) travel in a straight line through the pinhole and ends up near the floor, whilst light rays from the base of the object travel in a straight line through the pinhole and ends up near the ceiling. When these rays form a focus, it necessarily produces an inverted image.



Applying this principle to a camera obscura then (as shown below), all we would need is a pinhole, and some way of viewing the image produced.



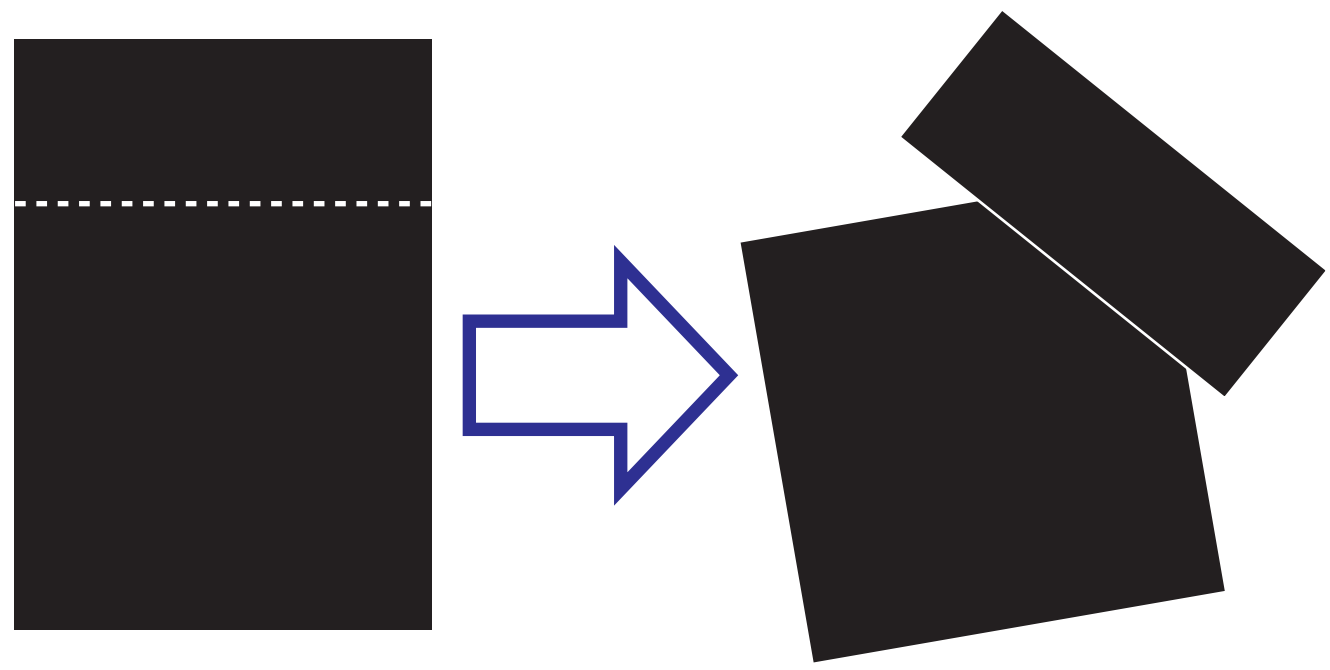
MATERIALS

- a pencil
- a drawing pin
- two pieces of black card (A4 size)
- sellotape/ electrical tape
- scissors
- tracing paper or equivalent (I sometimes use the slightly translucent sandwich bags, and the bag from a cereal box would work too)



INSTRUCTIONS

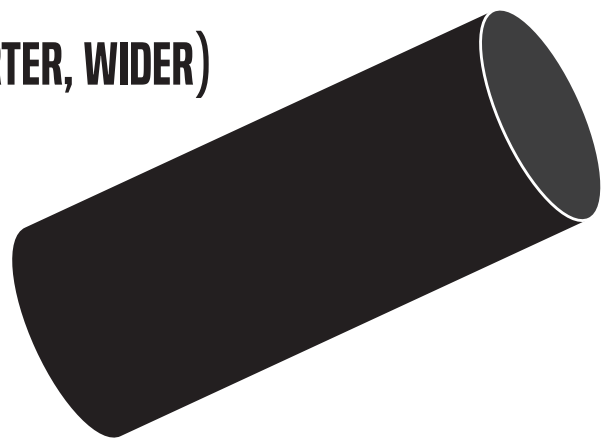
1. Cut an 8cm strip off the first piece of black card like this:
Set the 8cm strip to one side for now.



2. Take the remaining part of the first card and roll it up to make a tube (Tube 1). Sellotape to secure. The diameter of the tube should be roughly 6cm. Overlapping is allowed!

3. Roll up the second (uncut) piece of card to fit inside the first tube. This needs to fit very snugly so I recommend rolling it up small, placing it inside the first tube, and then letting it expand inside. Carefully remove this narrower tube and secure with sellotape (Tube 2). You should now have two tubes of slightly different length and diameter (with the wider tube being shorter in length).

TUBE 1 (SHORTER, WIDER)



TUBE 2 (LONGER, FITS SNUGLY INSIDE TUBE 1)



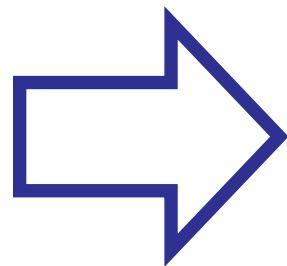
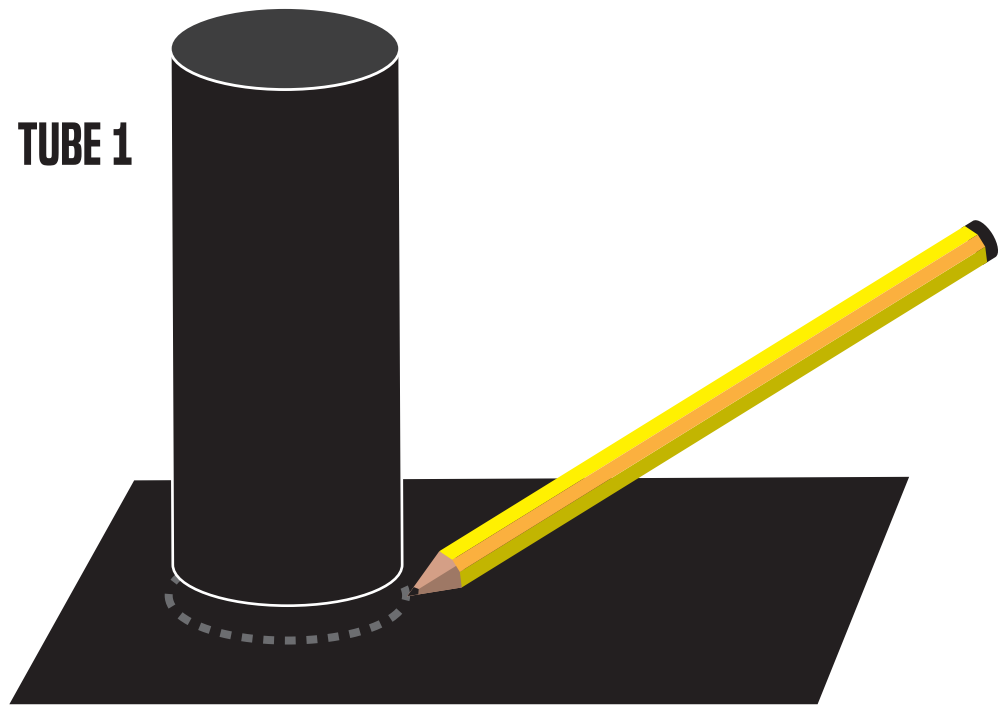
4. Now secure some tracing paper (or equivalent) over the edge of Tube 2. This should look like this:

TUBE 2

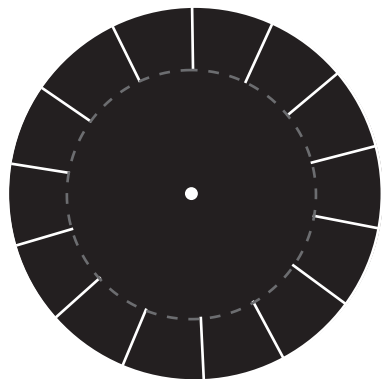


5. Collect the remaining 8cm strip of flat card, and Tube 1. Draw around the tube to create a circular template on the card. Then draw a slightly bigger circle and connect the two with radial lines (see below).

TUBE 1



6. Cut all the solid lines of your new circle shape and use a drawing pin to make a pinhole in the centre of your circle. Now you should have something that looks like:



7. Attach this to Tube 1 using sellotape.

TUBE 1



8. Place the tracing paper end of Tube 2 inside the open end of Tube 1 and point the pinhole end at something well-lit to see an upside down image form on the tracing paper! Focus will need to be adjusted depending on object distance by pushing the narrow tube inward or pulling it outward until an appropriate level of focus is achieved..

