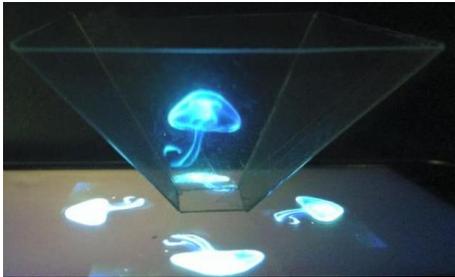


Eco Explorers

MAKE YOUR OWN 3D HOLOGRAM PROJECTOR



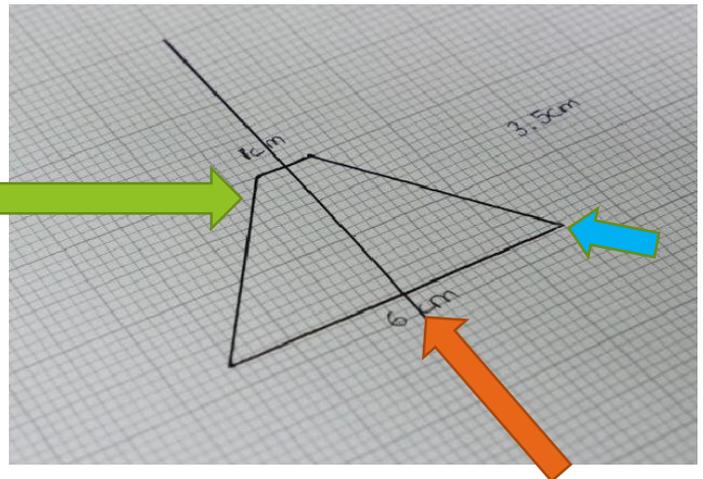
Supplies You'll Need:

1. Thin Plastic (you can find this on many product's packaging such as salad greens containers, toy packaging, etc). Can't find any? You can use old CD cases, but the plastic is a bit harder to work with!
2. Scissors
3. A ruler
4. A pen
5. Clear tape
6. (optional) a protractor
7. Paper (graph paper is best)

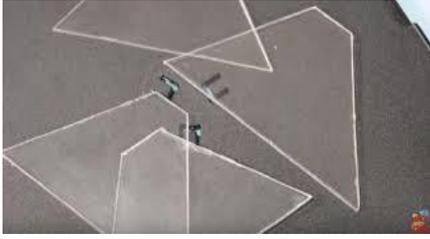
STEP ONE - THE TRUNCATED PYRAMID GUIDE

First, we will be making a shape on paper called a "truncated pyramid" (AKA isosceles trapezium) - a pyramid with the point cut off. This will be your **guide** to make your plastic truncated pyramids later.

1. One a piece of paper, draw a straight vertical line - this will be your center line.
2. Next, you will draw a line that will intersect the centerline (horizontal). This line will measure 1 cm total and will intersect your center line directly in the middle: 0.5 of your horizontal line should extend from the center line to the right, and 0.5 will extend to the left.
3. Now, measure down your centerline 3.5 cm. Your truncated pyramid will be 3.5 cm tall. Your next horizontal line will be 3.5 cm away from the 1cm horizontal line you just drew.



4. The length of your next horizontal line (at the bottom of your truncated pyramid figure) will have a total length of 6 cm. It will be split evenly by the intersecting centerline, so 3 cm will be to the right of your centerline, and 3 cm will extend to the left.
5. Now, you will connect the edge of your top horizontal line to the edge of your bottom horizontal line. You should get your truncated pyramid shape, like shown in the picture.
6. If you have a protractor, you can check to see if the angles of your truncated pyramid are correct. Position your protractor on the right edge point AKA **vertex** (see the blue arrow) of the pyramid. The angle should be 30 degrees. CHALLENGE QUESTION: What should the angle of the left vertex be? *Hint: this angle is the **supplement** of 30 degrees.*



STEP TWO - THE PROJECTOR

You will use the guide you made to make the sides of your projector.

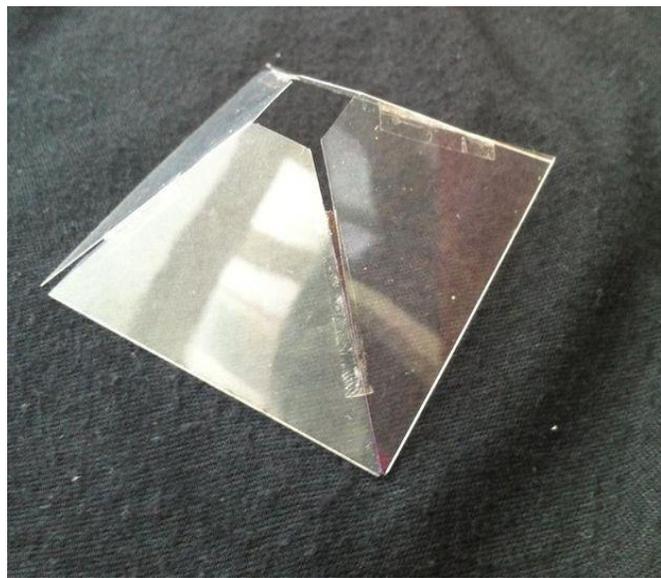
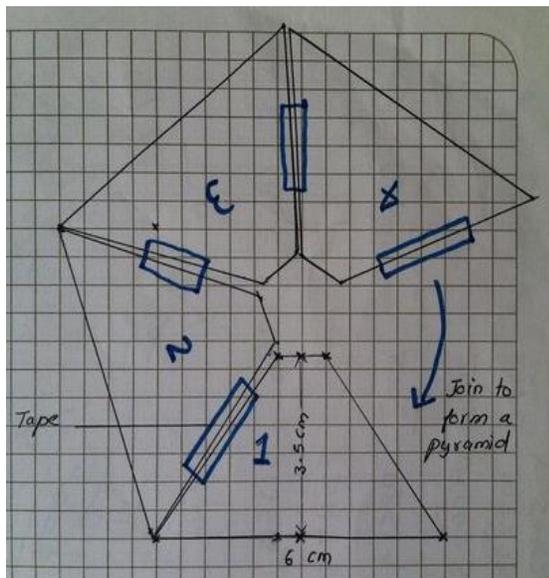
1. Position your sheet of plastic over the guide shape you just drew on paper. You will trace the shape on

the plastic sheet 4 times (make 4 truncated pyramids on the plastic).



2. Carefully cut them out. Try your best to cut exactly on the line and to make sure that all 4 shapes are the same.

3. Use clear tape to tape the four sides together. Use only enough tape to hold the sides together as excess tape can make the projected images blurry. You may have to attempt this step a few times to make sure all sides line up properly.



STEP THREE - WATCH 3D VIDEOS

You have completed the construction of your projector! Now to test it out!

1. Check out the Eco Explorers Youtube channel for videos online designed for your holographic projector - you will see 3D jellyfish to firebolts and even a dancing Minion!

Eco Explorers Youtube Channel:

<http://tinyurl.com/nfg9bm9>

2. Select one of the holographic videos. Place your truncated pyramid in the center of the screen with the topside facing down. Make sure your projector is positioned directly in the middle of the 4 images.

3. Dim the lights and enjoy the show!

