

How to build a cloud chamber

You may want to build some extra sets of cloud chamber equipment to enable more people to interact with it at once. This guide will tell you what you need (please refer to the equipment list in the handbook for suppliers) and how to put this simple but effective cloud chamber together.

You will need:

Plastic fish tank, 'sticky back' felt, scissors, blue tack (NOT play-dough as this will crack), laminated black card (to put in the base of your chamber), 2 sets of LED strip lights, 2 baking trays larger in area than the fish tank, thoriated tungsten rods, pipette, ethanol or isopropanol.

Building the cloud chamber



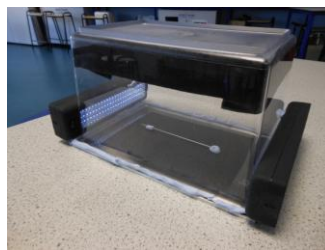
- 1) Cut several 1.5 inch strips of the sticky back felt.
- 2) Carefully line the bottom 1.5 inches of the fish tank sides with the felt (this will eventually be the top of the cloud chamber).

3) Place all the other items in easy reach – once the ethanol/isopropanol is added to the felt, you need to work quickly. Pre-prepare one of the baking trays by placing the laminated black card on it, and place a thoriated tungsten rod on the black card using two pieces of blue tack as supports.





- 4) Roll out enough blue tack to form a seal around the bottom of the fish tank once it is upturned onto the baking tray.
- 5) Using a pipette, add about 3ml of ethanol/isopropanol to **each side** of the felt.
- 6) Quickly turn the tank over and place it on the tray with the card and the thoriated rod. Create a seal around the base with the blue tack to ensure that no air currents can disturb the super saturated layer.
- 7) Place an LED strip light on each side of the chamber and switch on.
- 8) Fill the second tray with a layer of dry ice and place the sealed chamber tray on top. Warning! The metal will get very cold – wear gloves when handling the trays from this point on.
- 9) Turn the lights down and give the chamber one or two minutes to settle. You should start to see tracks from the thoriated tungsten rods.



For details on how the cloud chamber works and experiments to try please refer to the Explore Your Universe Handbook.

Questions? Comments? Ideas?

Please share in o the Explore Your Universe website or feel free to email Sophie Allan on:

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