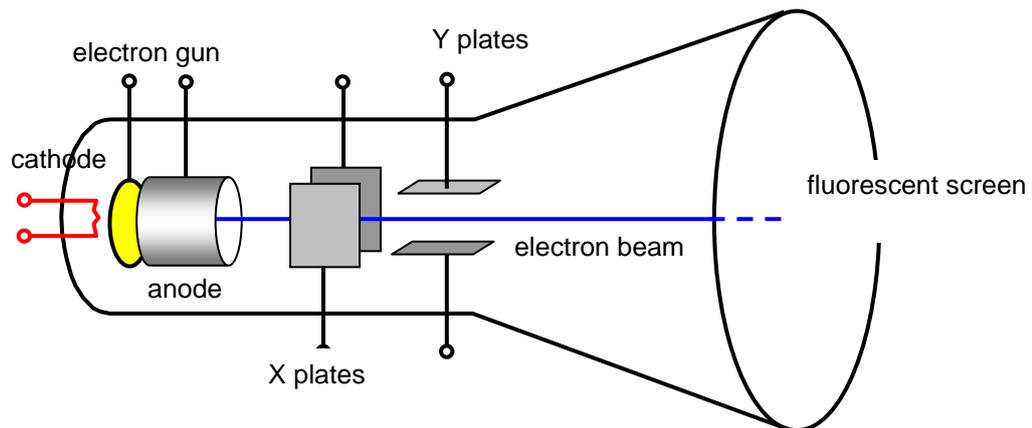


## TAP 122- 1: The Cathode ray oscilloscope

### Basic operation

Before doing the experiments you should adjust the controls for focus, brilliance, X and Y shift until you have a dot in the middle of the screen.



The simplified diagram above shows the inside of a cathode ray oscilloscope.

Copy the diagram into your books.

These experiments will help you understand how a cathode ray oscilloscope works.

You will need a CRO, a battery pack, a high current power supply, and a microphone and leads.

### Instructions

Switch on your oscilloscope and adjust the controls to give a straight line across the centre of the screen.

The Y gain should be set at 1V / division and the time base set at 1 ms / division,

1. Connect one 1.5 V cell to the Y inputs and adjust the Y gain, if necessary, so that the line moves up 1.5 divisions.

AFTER THIS DO NOT ALTER THE Y SHIFT OR Y GAIN.

2. Now connect two cells and then three cells. Record the line deflection each time.
3. Reverse the leads and repeat number two.

4. Now connect the 1 V ac supply from the high current power supply (Extra low voltage supply or Westminster power supply) to the Y inputs.

**If the signal source and oscilloscope both have earthed terminals make sure that the earthed lead of the oscilloscope (often black) is connected to the earthed terminal of the supply (often yellow), or you will short out the signal generator through the CRO.**

Record the size and shape of the trace. Repeat with the 2 V ac input and then the dc input, recording the trace each time. You must have a steady trace for each experiment.

5. With the 2 V ac connected try increasing the Y gain. Then try varying the variable-control. Record the results.
6. Now connect a microphone to the Y inputs and record the effect of talking into it.