H

Higher Assignment
Protocol Sheet: Half Value Thickness

This experiment can only be completed by students over the age of 16.

**Half Value Thickness**

**Apparatus**

Geiger-Muller tube, counter or ratemeter, radioactive source,

lead absorbers.



**Instructions:**

• Determine the background count rate.

• With the radioactive source in position, record the count rate with no absorber, paying due attention to safety requirements.

• Place a piece of lead of known thickness between the source and detector.

• Record thef count rate and thickness of lead absorber.

• Repeat using lead absorbers of different known thickness.

• Use an appropriate format to determine the half-thickness of lead.

**Risk Assessment**

* Before completing this experiment schools must ensure that they have a full Radiation Policy in place and it complies with all laws. If in doubt contact Gregor Steele at SSERC if you are in a Scottish State School.
* The student must actively participate in the experiment.
* Due attention must be paid to safety requirements and age restrictions.
* The source must be out for the minimum time and all other students should be kept away from the experiment.
* Perspex sheets should be available to absorb the Bremsstrahlung radiation as electrons are scattered as gamma radiation is passed through lead.
* Do a visual check on all wiring to ensure it is safe. Discuss with a teacher if you have any concerns.