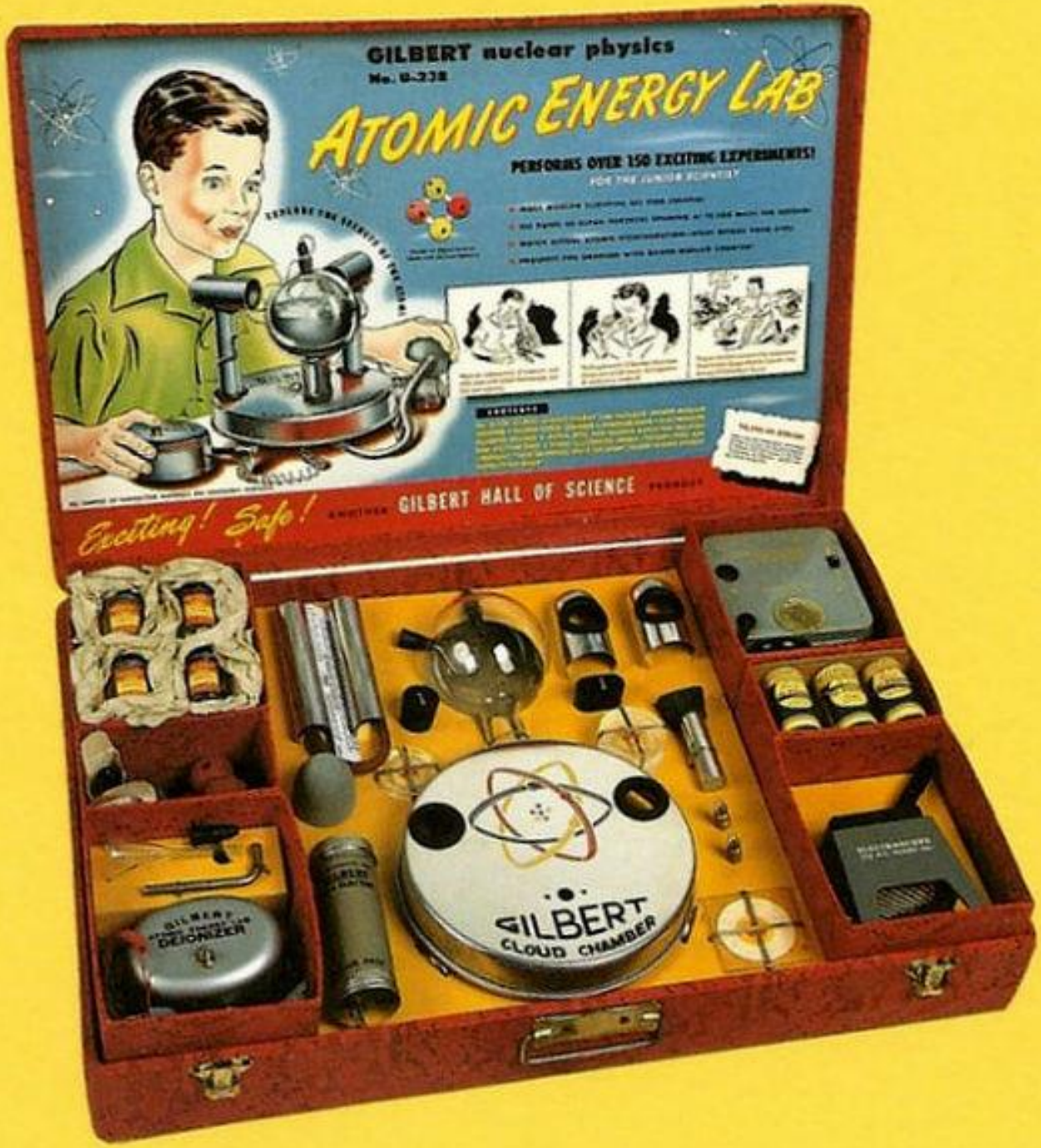
關二哥顯靈啦!


GILBERT nuclear physics
No. 6-238
ATOMIC ENERGY LAB
PERFORMS OVER 150 EXCITING EXPERIMENTS!
Exciting! Safe!
GILBERT HALL OF SCIENCE
GILBERT
CLOUD CHAMBER
DEIONIZER

古早味偵測器1


傳播大廈
Communication Building

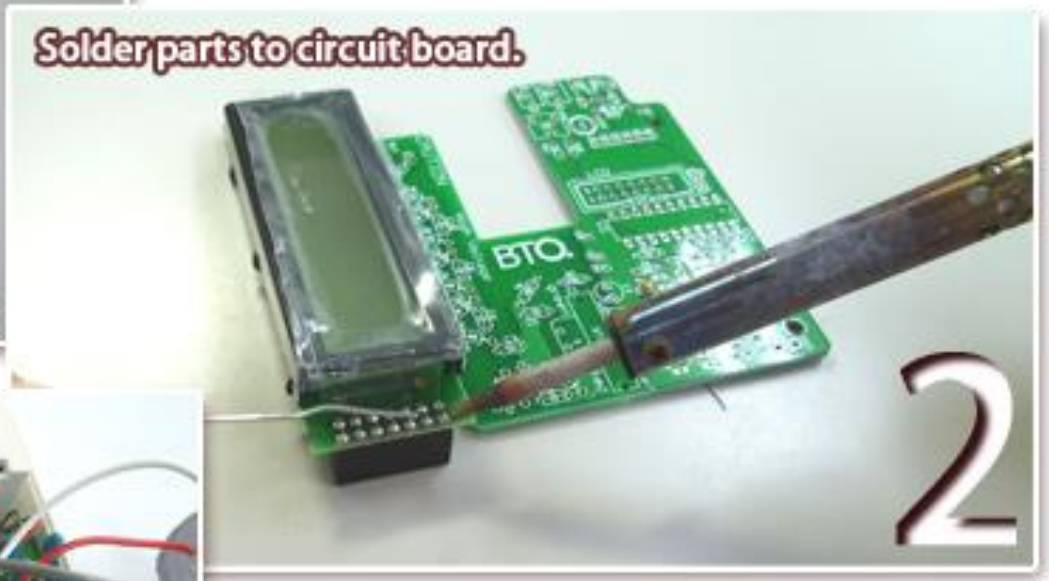

簡易霧箱セット
Compact Cloud Chamber
TEL 072-990-5509

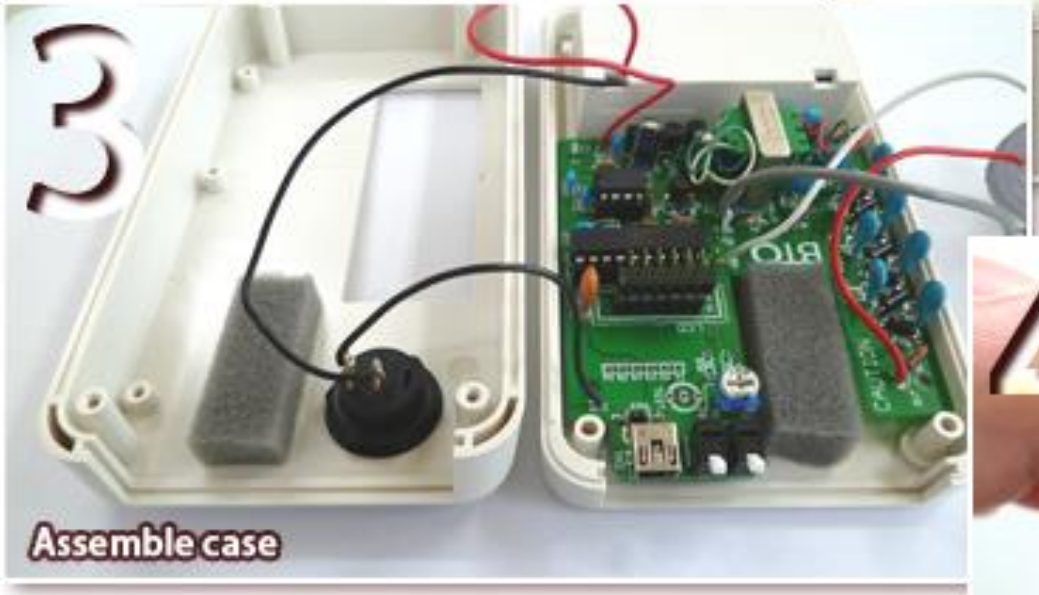
古早味偵測器2

日本出品套件 12,800日元

【To Assemble Kit】

Follow the manual to start assemble.





【To Mesureing】

Once counter has completed count the radiactive materials.
You can merure radioactive things like.
In super market some [Reduced salt] products ,
[Uranium grass beeds] used in accessory etc.

課題

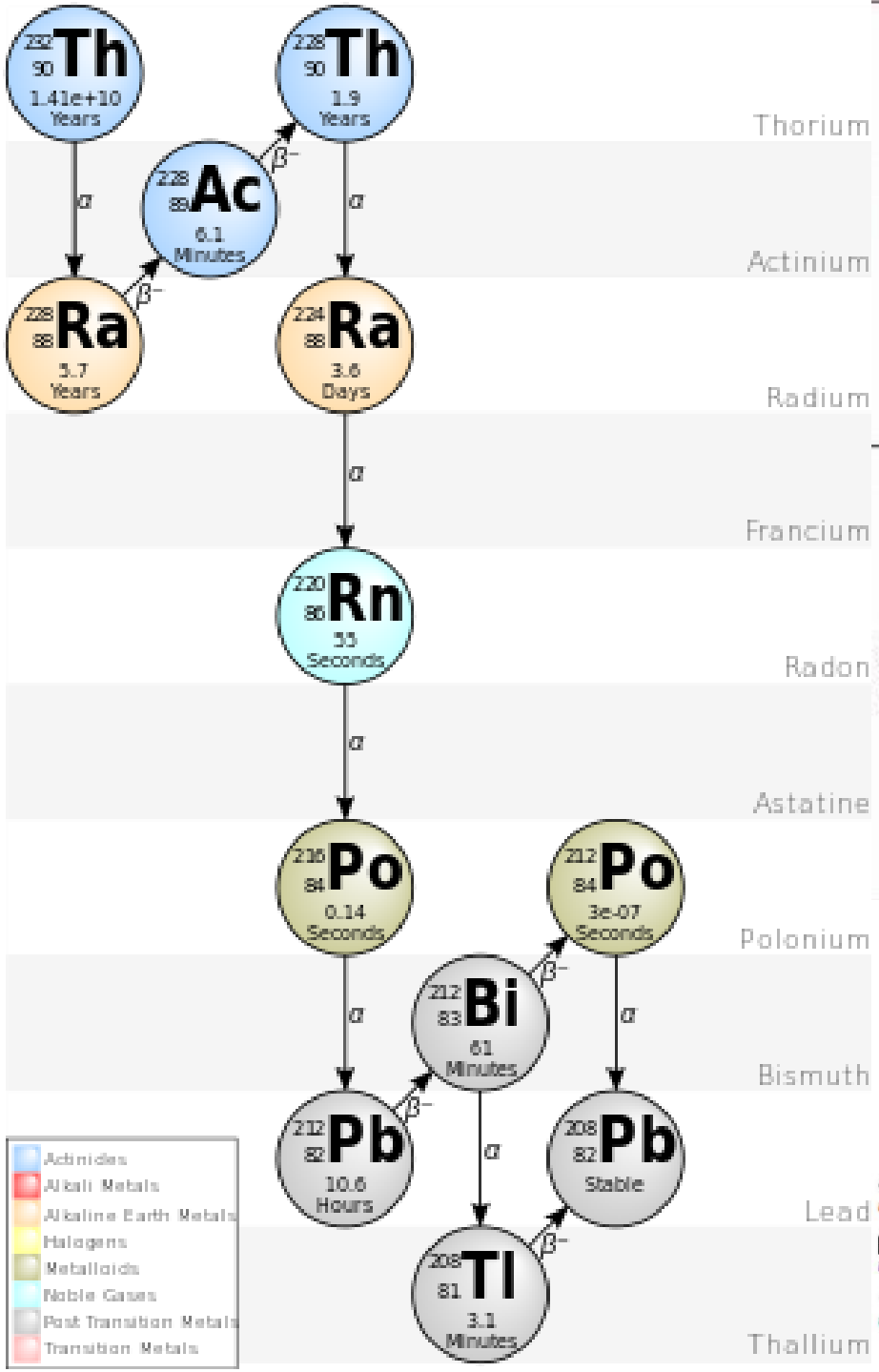
放射源 - 環境背景輻射，Th

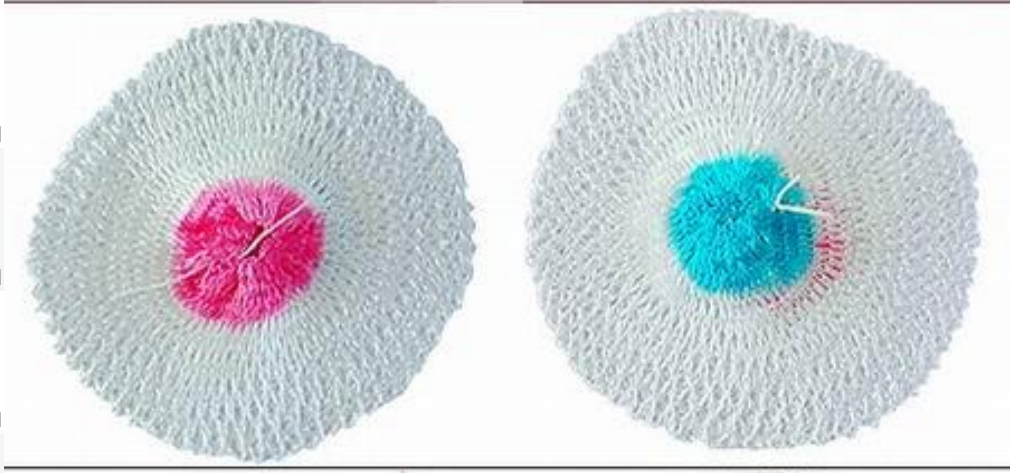
高壓源

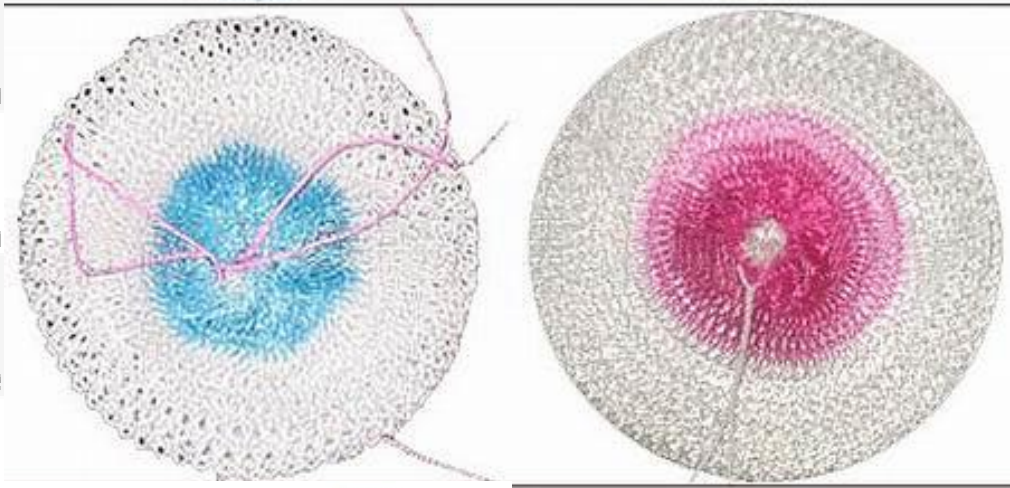
偵測部

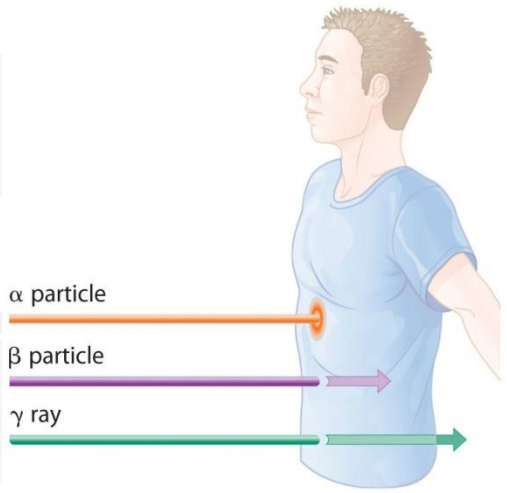
顯示部

放射源 –
環境背景輻射
瓦斯燈芯 Th釷
醫療放射源

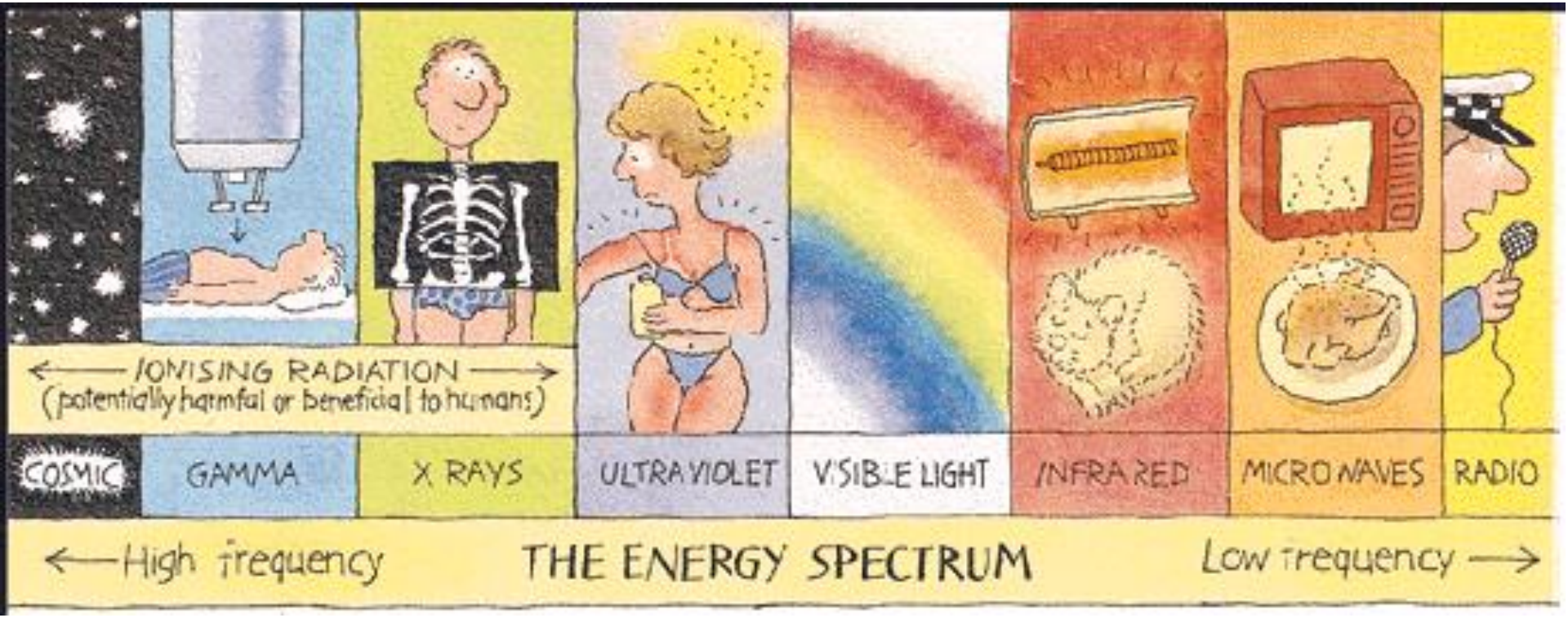

232 90 Th 1.41e+10 Years
228 90 Th 1.9 Years
228 88 Ac 6.1 Minutes
228 88 Ra 5.7 Years
224 88 Ra 3.6 Days
220 86 Rn 55 Seconds
216 84 Po 0.14 Seconds
212 84 Po 3e-07 Seconds
212 83 Bi 61 Minutes
212 82 Pb 10.6 Hours
208 82 Pb Stable
208 81 Tl 3.1 Minutes
α
β−
Thorium
Actinium
Radium
Francium
Radon
Astatine
Polonium
Bismuth
Lead
Thallium
Actinides
Alkali Metals
Alkaline Earth Metals
Halogens
Metalloids
Noble Gases
Post Transition Metals
Transition Metals

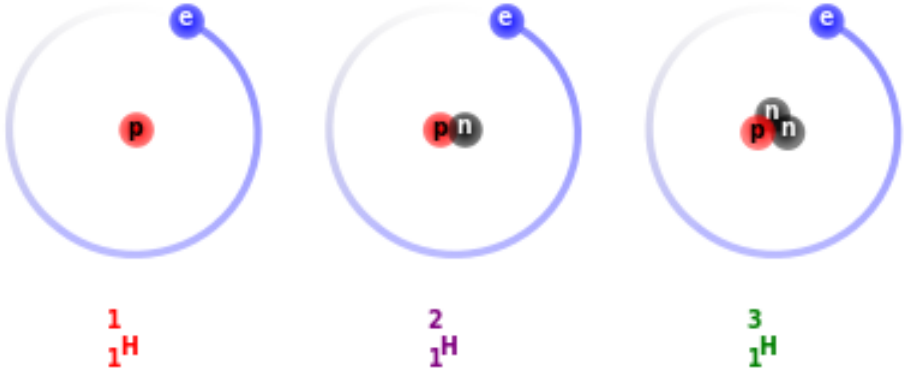





α particle
β particle
γ ray


Coleman


← IONISING RADIATION →
(potentially harmful or beneficial to humans)
COSMIC
GAMMA
X RAYS
ULTRAVIOLET
VISIBLE LIGHT
INFRARED
MICROWAVES
RADIO
← High frequency
THE ENERGY SPECTRUM
Low frequency →



$^{1}_{1}H$ $^{2}_{1}H$ $^{3}_{1}H$

氚
($30,000/g)

新型態核能反應爐：

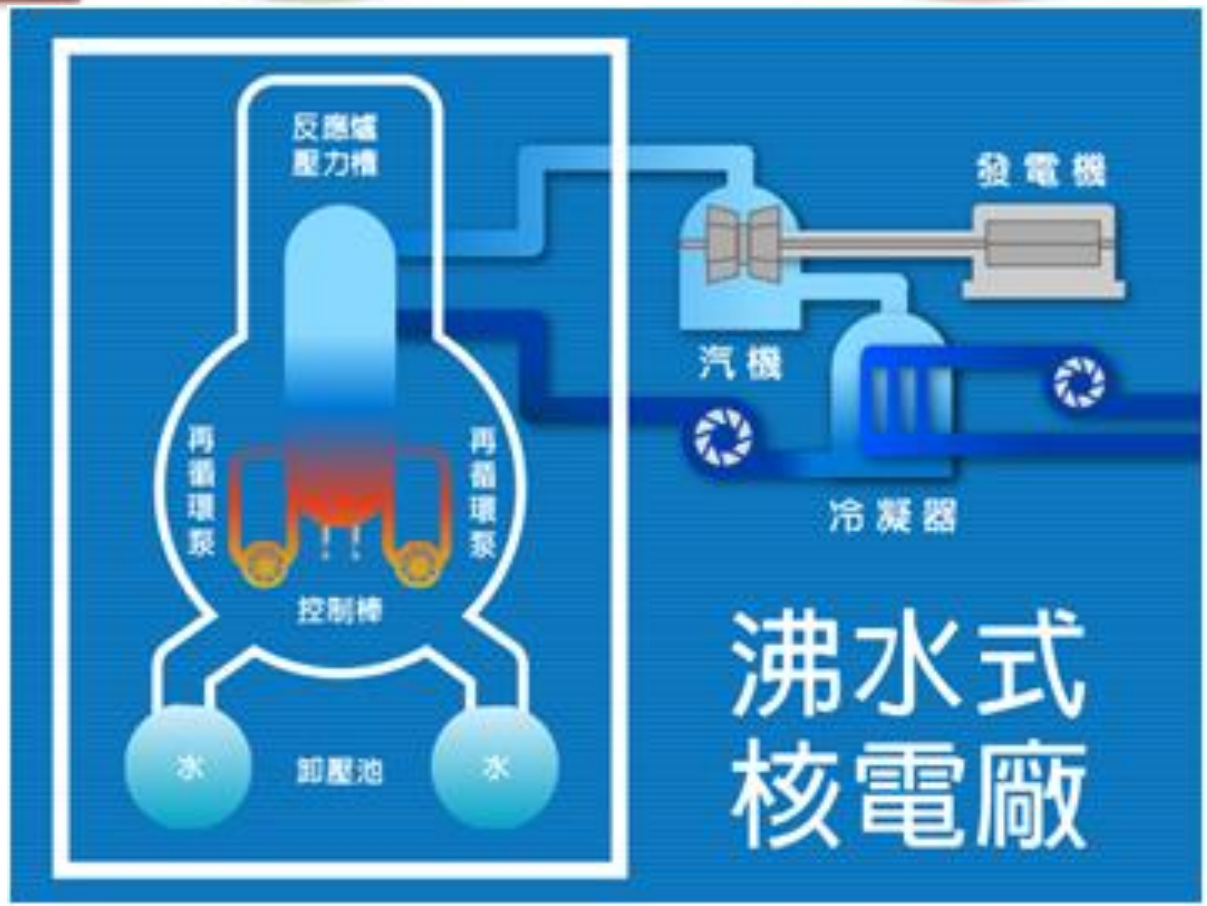
核燃料　　核能發電

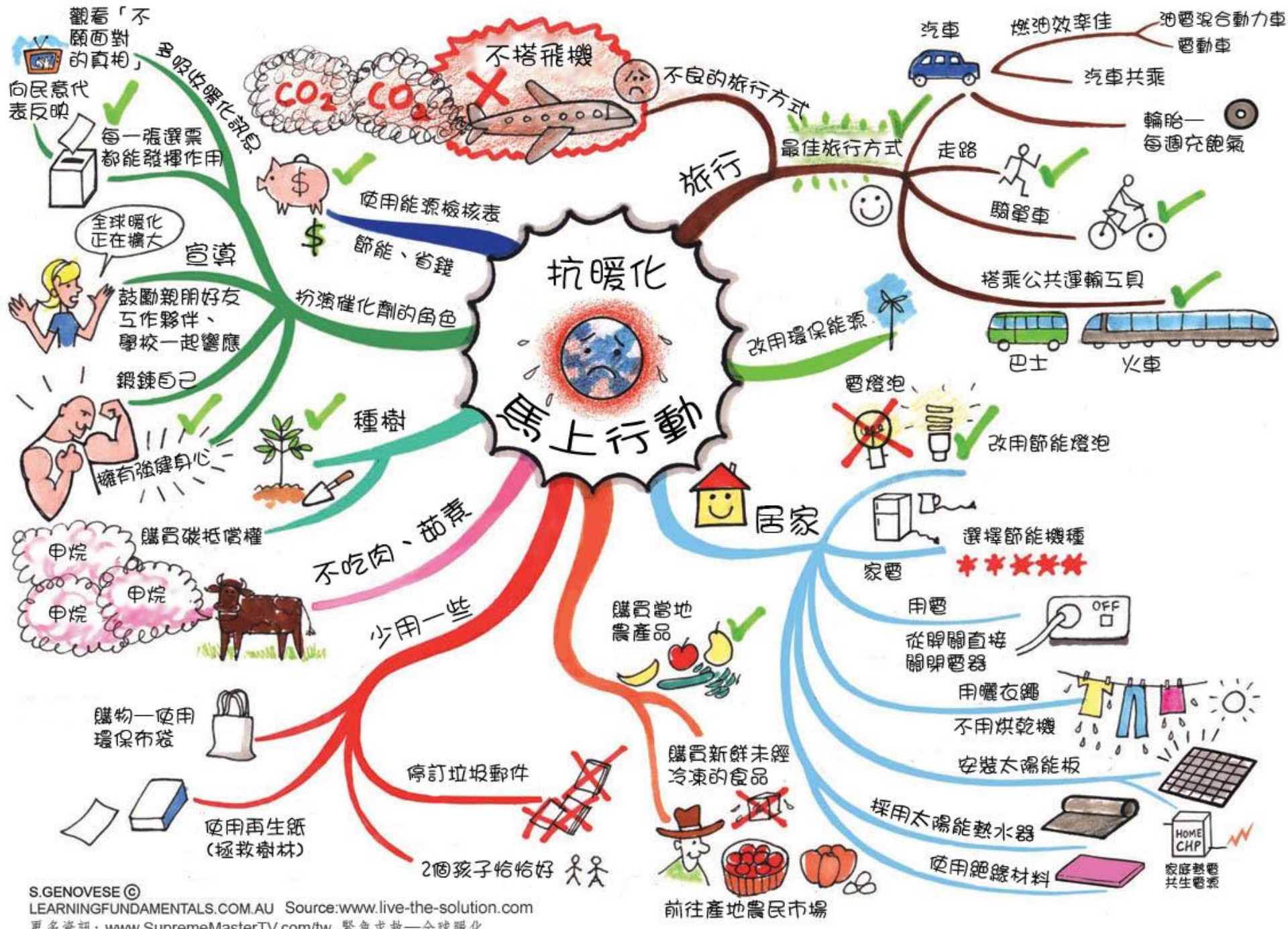
臺灣有部分蘊藏量

釷-232 → 吸收中子 → 鈾-233

自然界與核工業界大量庫存

鈾-238 → 吸收中子 → 鈽-239





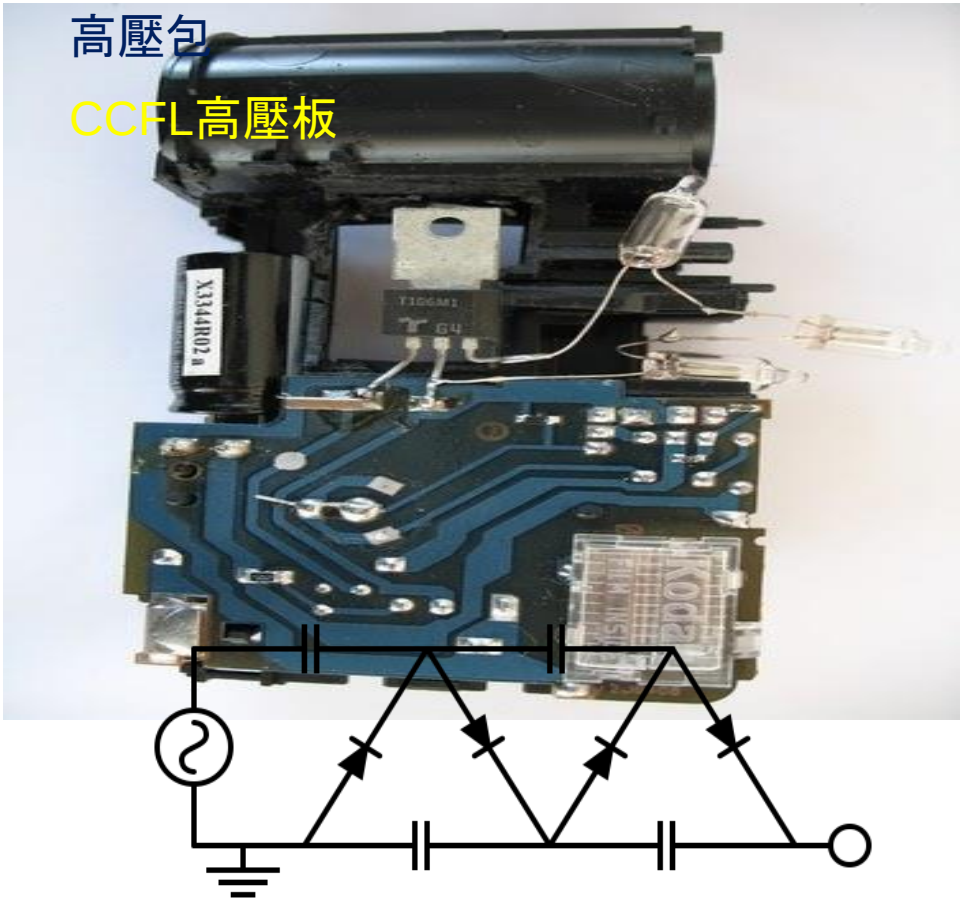
高壓源

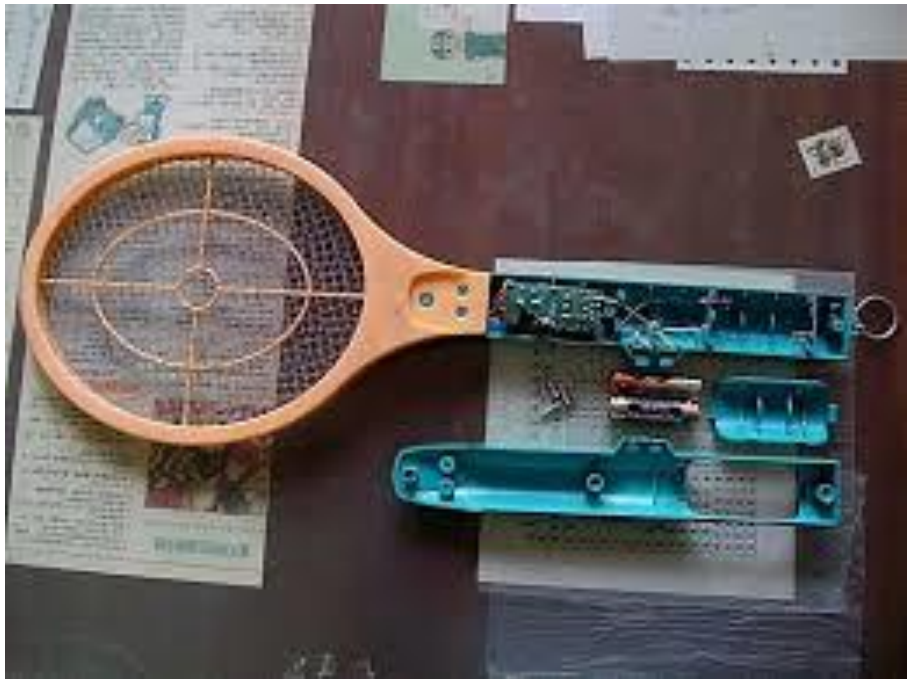
電蚊拍

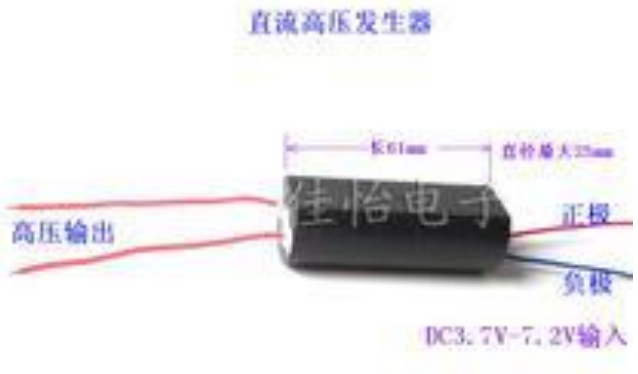
可拋棄式相機閃光燈高壓源

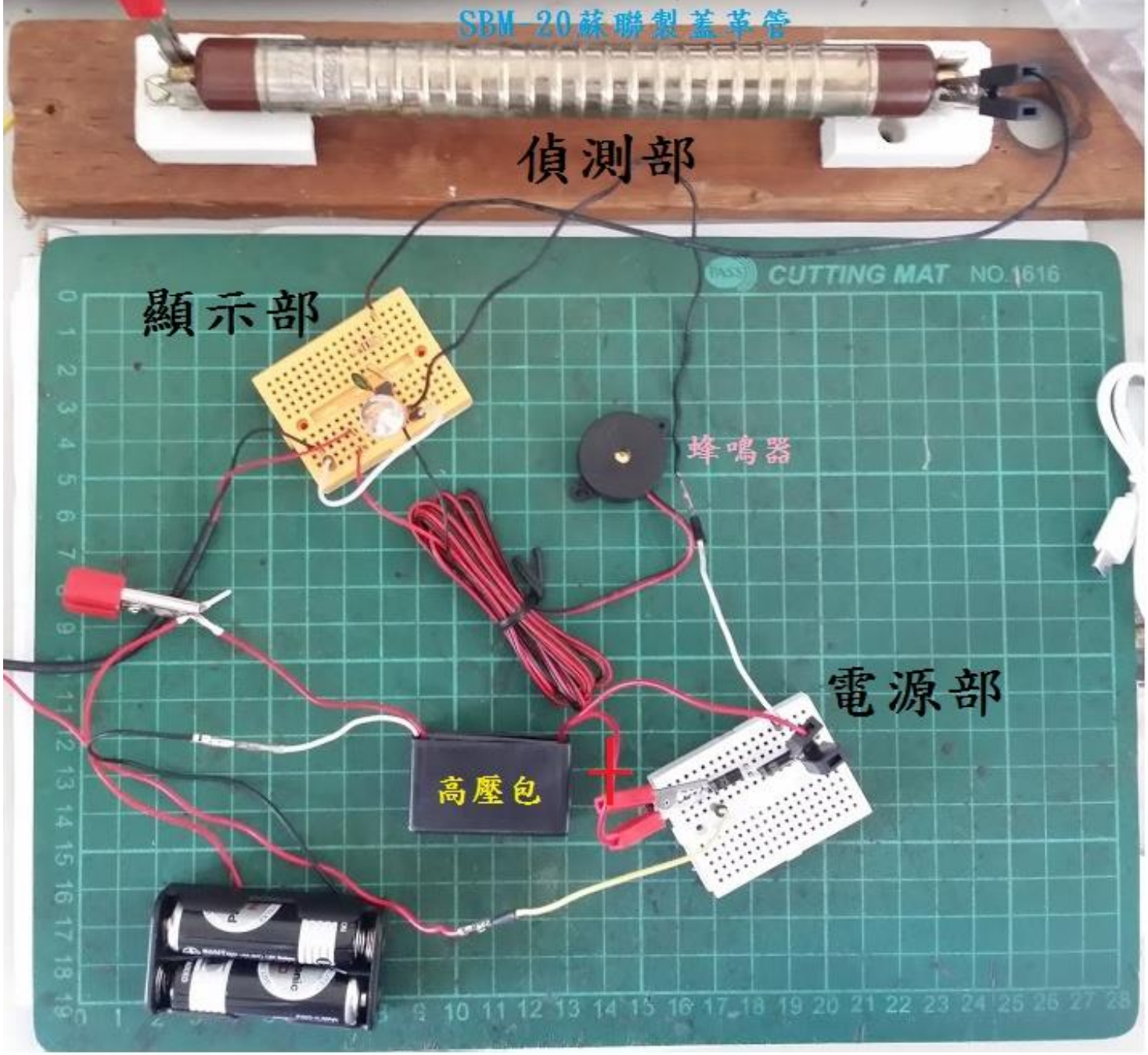
高壓包

CCFL高壓板



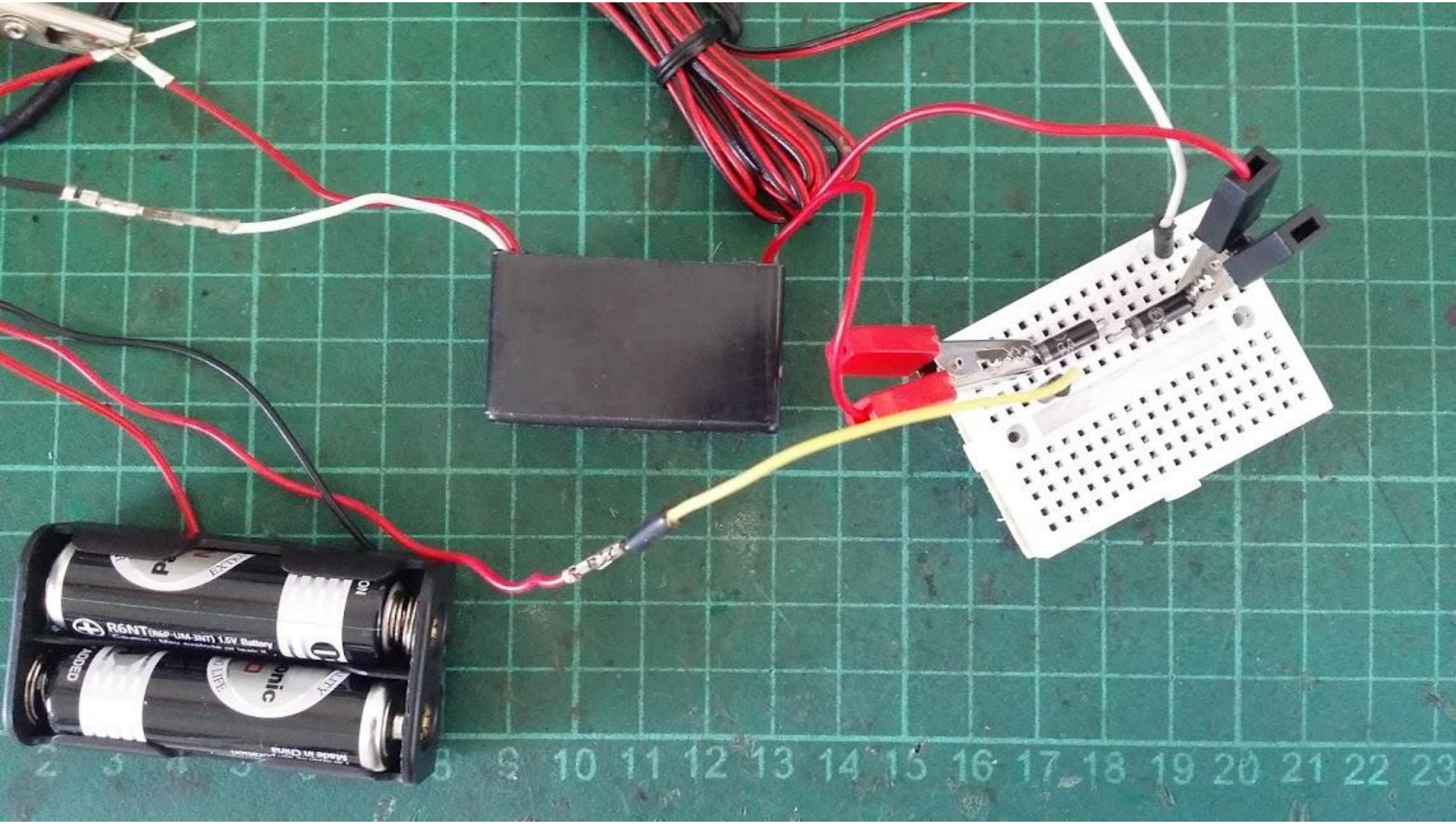


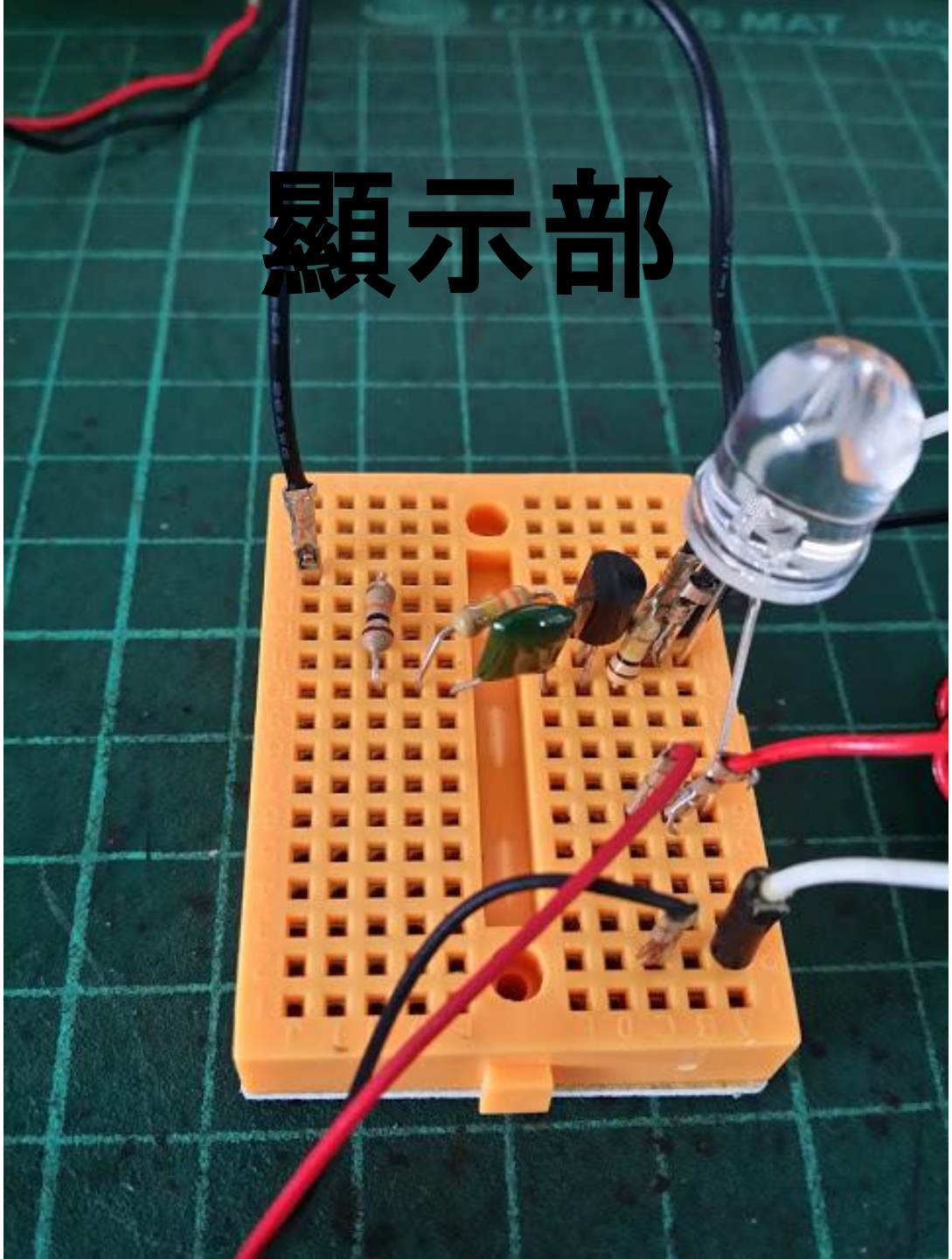


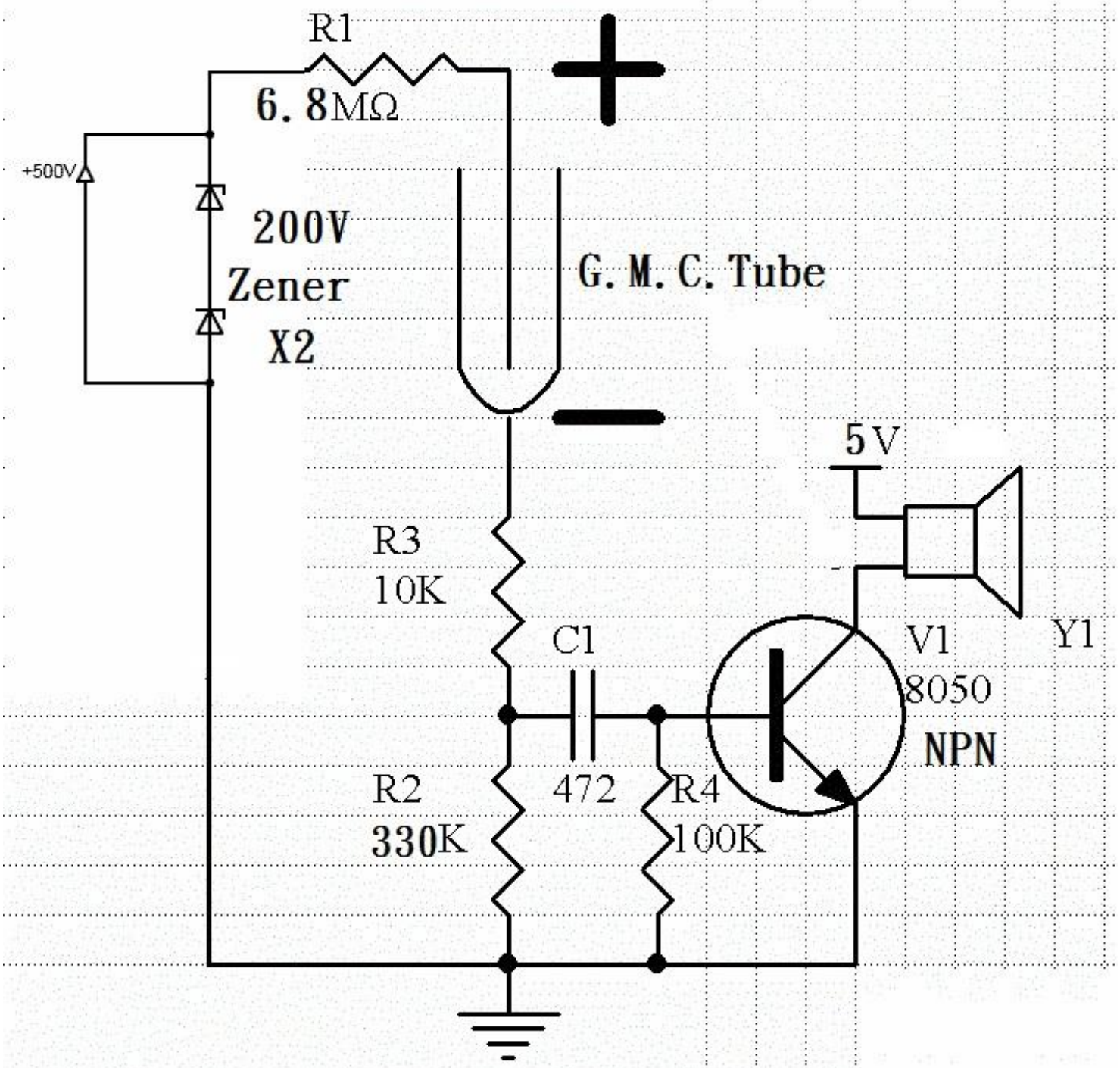

SBM-20蘇聯製蓋革管
偵測部
顯示部
CUTTING MAT NO.1616
蜂鳴器
電源部
高壓包

偵測部

電源部




顯示部


R1
6.8MΩ
+500V
200V
Zener
X2
G.M.C. Tube
5V
R3
10K
C1
V1
8050
NPN
Y1
R2
330K
472
R4
100K

想一想

正負極可以對調?
高壓源?
放射源?宇宙，恆星，元素...燈芯
偵測源?G.M.C.Tube
原理?光電效應，雪崩現象，淬熄
電流VS電子流?
顯示部?


The Library of Science
RADIATION DETECTION KIT

Estimates of the Gas Mantle Radiation Exposures

A very detailed analysis of the radiation exposures due to thorium containing gas lantern mantles can be found in section 3.4 of the Nuclear Regulatory Commission publication Systematic Radiological Assessment of Exemptions for Source and Byproduct Materials★ (NUREG-1717). The inhalation doses were based on the assumption that all of the Rn-220 in the mantle was released and that 30 % of the radium was volatilized when the mantles were ignited.

The highest exposure, **200 mrem** per year, was to a hypothetical individual who lived in a residence for 4800 hours per year in which the only source of light was four gas lantern mantles. A dose of 2 mrem was calculated for a small child who played with a used mantle and ingested part of the ash.

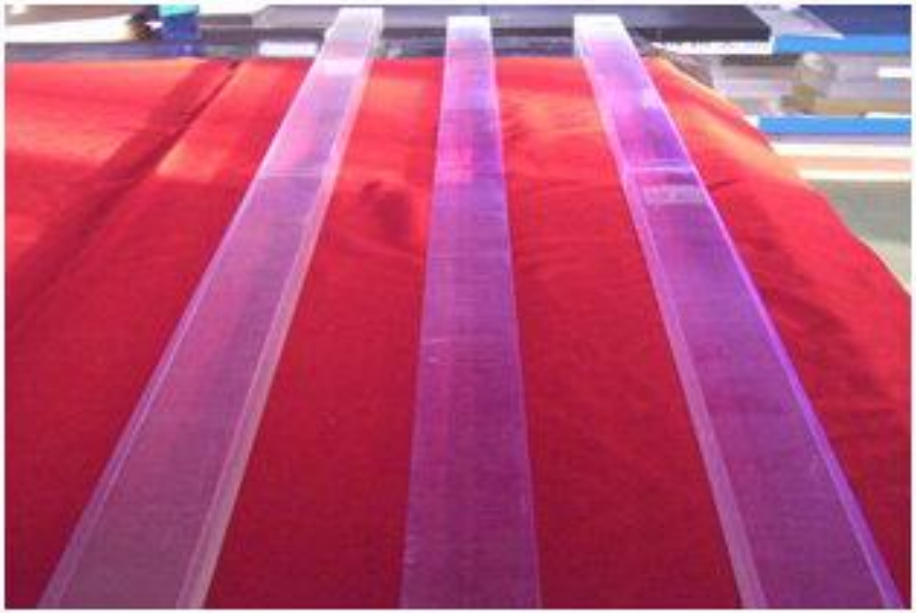
Avid campers were estimated to receive 0.05 to 6 mrem per year, while the estimate for one-time campers was 0.002 to 0.06 mrem.

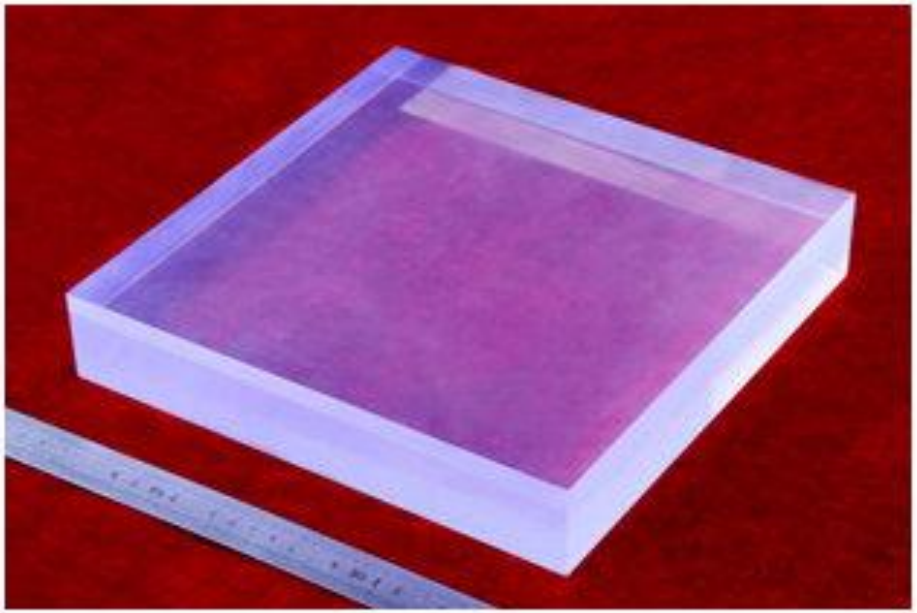
人類面臨的最大輻射危害是來自于自然界，也就是來自于天上、地下以及人們日常生活的周圍環境之中。據美國科學家研究証明，美國平均每人每年受到來自自然界的輻射是**350毫雷姆**（人體積聚輻射的單位），其中僅來自宇宙射線的輻射就有40毫雷姆。

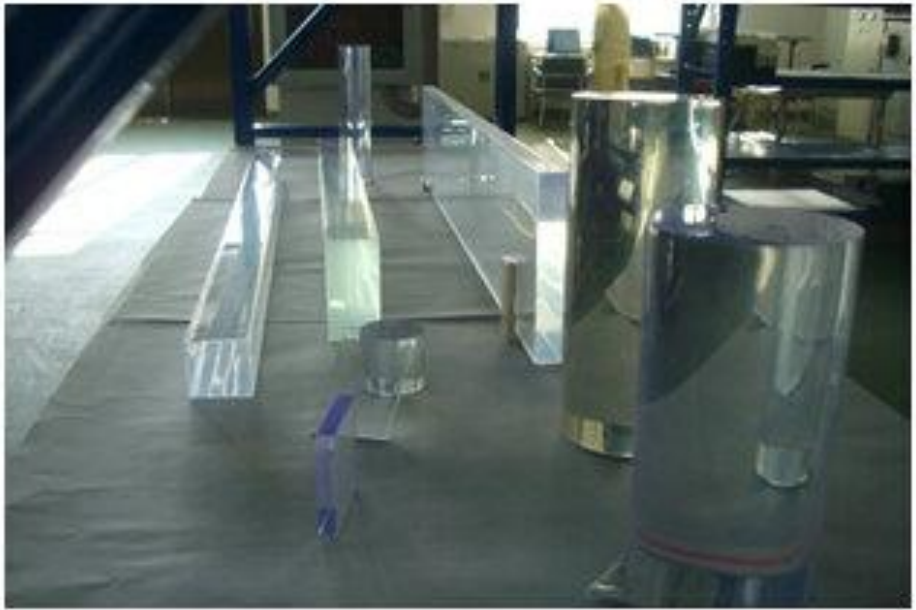
美國控制輻射有標准

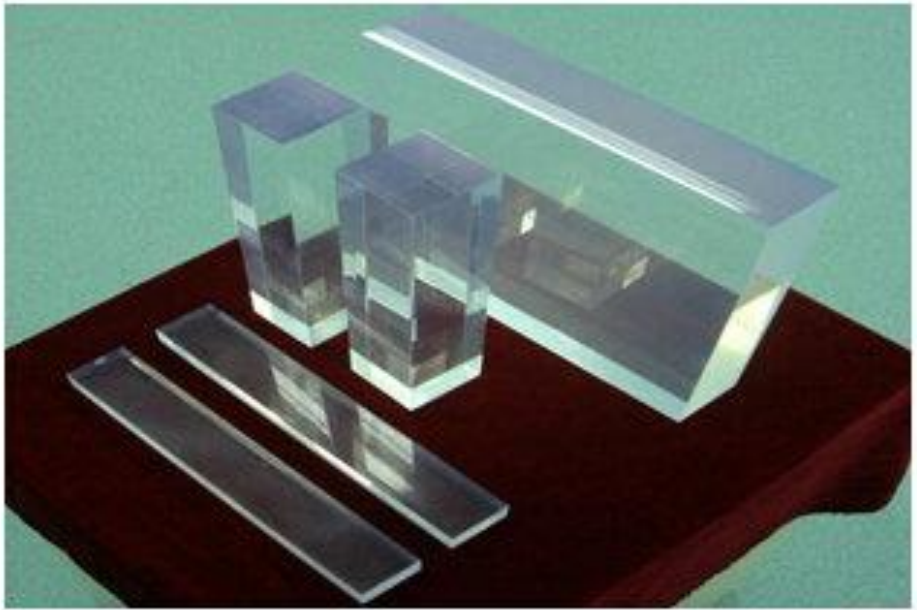
由于輻射問題日益引起社會關注，美國有關當局對輻射危害加強控制的同時，也制定出了量化標准。環境保護署的標准是：從某個單一來源所產生的輻射一年不得超過15毫雷姆，地下水不得超過4毫雷姆。核控制委員會規定的標准稍為寬松些：任何來源的輻射一年不得超過25毫雷姆。

最靈敏偵測器









閃亮亮的禮物

Zener二極體原理與功用

電晶體的功用與能量棒

蓋革管自製