



المركز العلمي للترجمة

## How Nuclear Bomb Works



2008-1-1



<a href="http://www.howstuffworks.com/">http://www.howstuffworks.com/</a>	1
<a href="http://science.howstuffworks.com/nuclear-bomb.htm">http://science.howstuffworks.com/nuclear-bomb.htm</a>	2
/.	3
	4
	5
	6
	7
19	8
12	9
2438	10
2008-1-1	11





من أجل أبنائنا العرب



Fail Safe, Dr. Strangelove, The Day After, Testament,

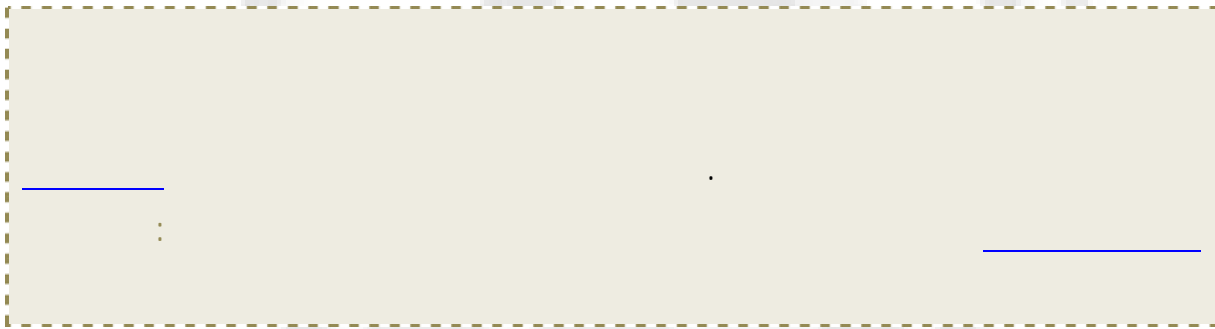
Fat Man and Little Boy, The Peacemaker,



1953



)



nuclear fission (1)

.239 235

nuclear fusion (2)

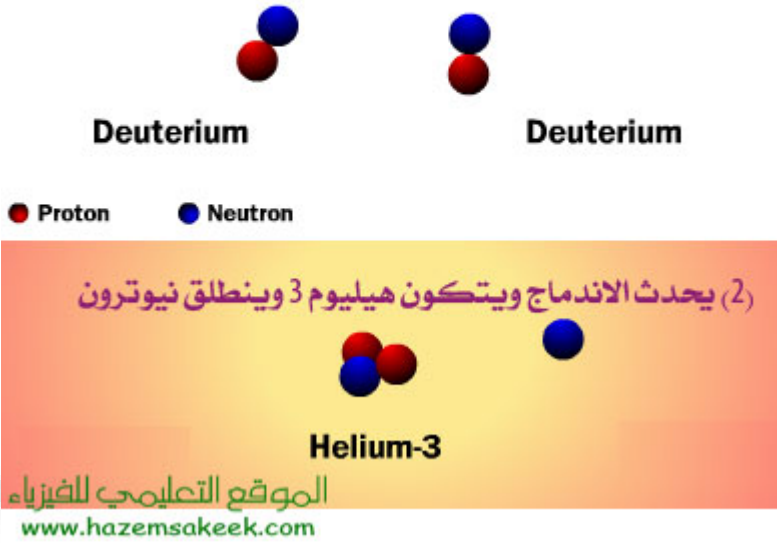
)

(



## تفاعل نووي اندماجي لنواتين ديتيريوم

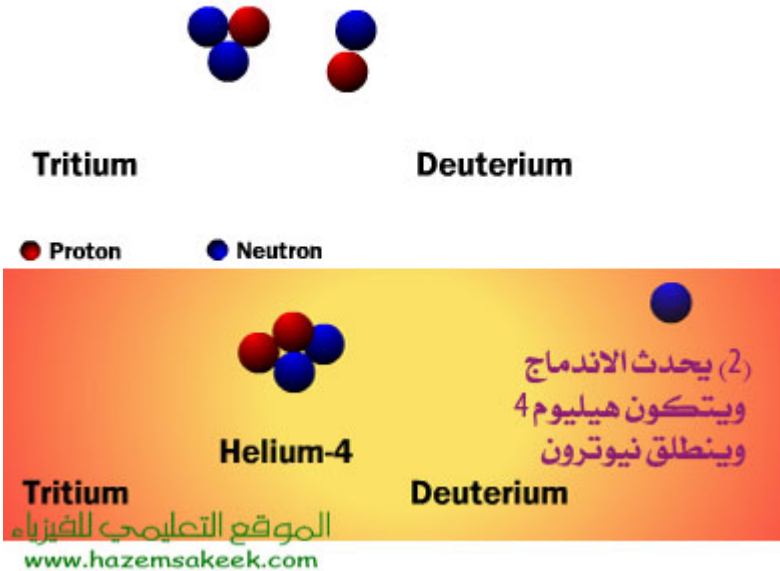
(1) نواتان ديتيريوم تقتربان من بعضهما البعض



3

## تفاعل نووي اندماجي لنواتين ديتيريوم وتريتيوم

(1) نواتان ديتيريوم وتريتيوم تقتربان من بعضهما البعض



4



.1

.2

.3



(1)

.1945

Gun-triggered

Implosion-triggered

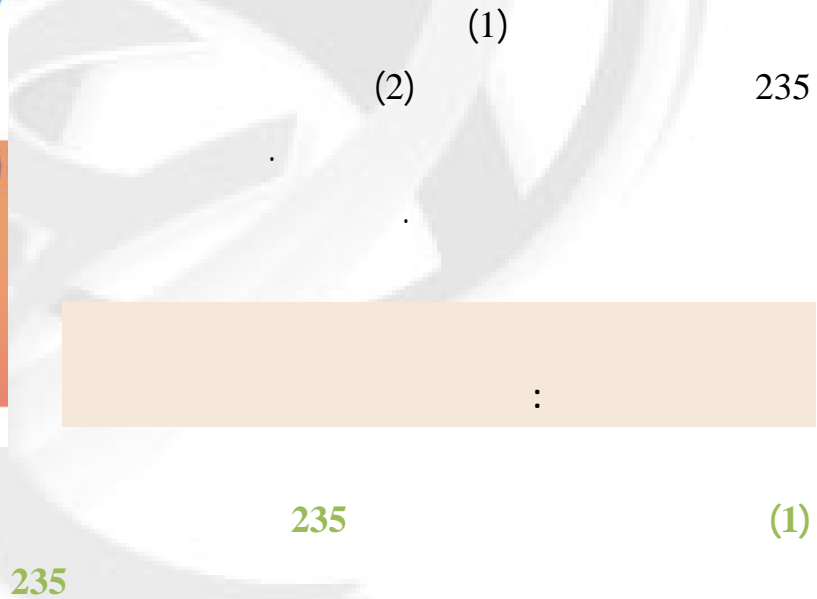
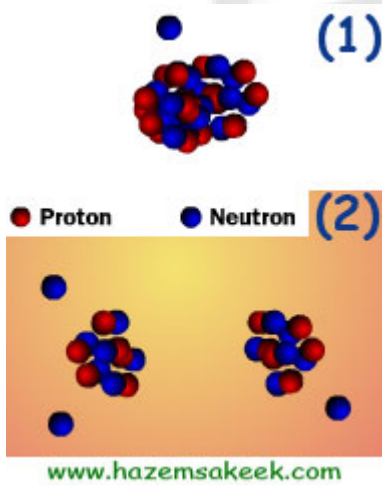
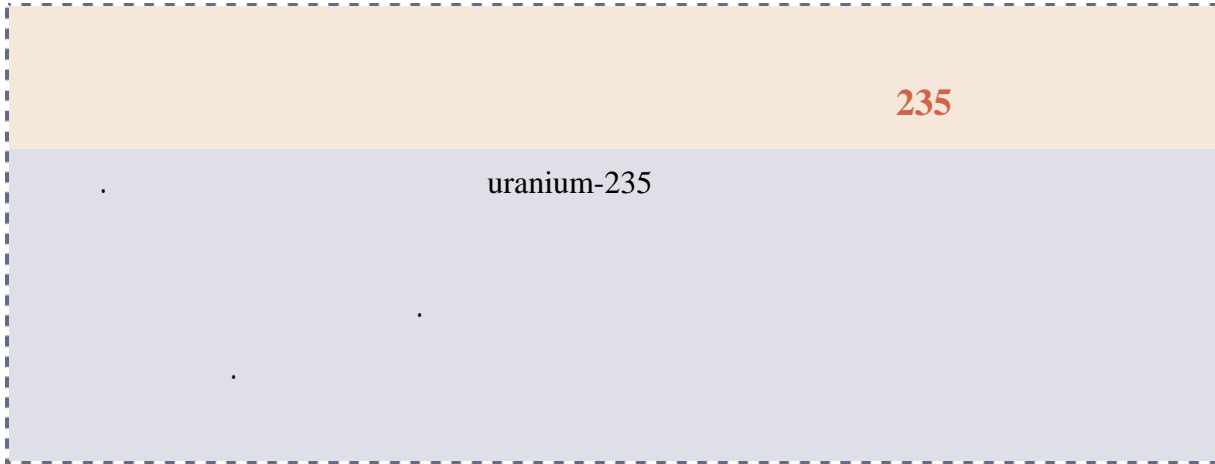
.1945

(2)

Elugelap

Teller-Ulam design

.1952



.supercriticality

(2)

1\*10E-12

(3)

.235

( )



$$E=mc^2$$

enriched

235

235

%90

**critical mass**

critical mass

(1)

supercritical mass

**supercritical mass**

(2)





(3)

(235 )

Gun-triggered (1)

Implosion (2)

beryllium

polonium

(1)

8

9

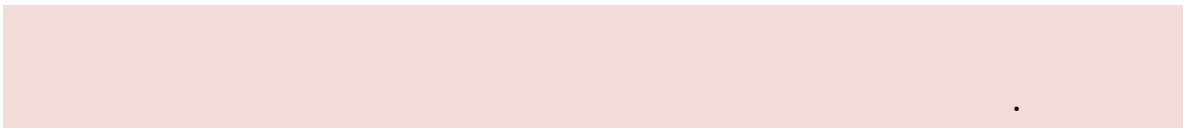
(2)

(3)

.tamper (235 )

tamper

tamper





### Gun-triggered Fission Bomb

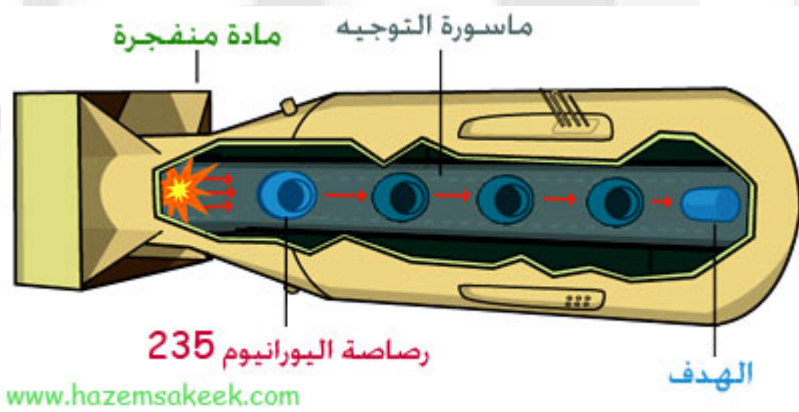
(1)

235

235

235

235



(1)

.( )

(2)

(3)

(4)



من أجل أبنائنا العرب

**Gun - Triggered Fission Bomb**

Length: 10 feet 6 inches  
Diameter: 29 inches  
Weight: 9,700 lbs  
Yield: 14.5 kilotons

قنبلة الولد الصغير الانشطارية  
"Little Boy"

الموقع التعليمي للفيزياء  
www.hazemsakeek.com

14.5

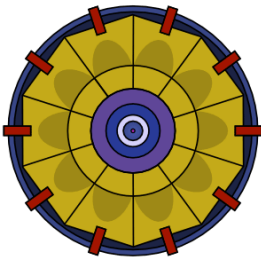
Little Boy

14,500 TNT

**Implosion-Triggered Fission Bomb**

(2)

Manhattan Project



239

235

.shock wave

(1)

.( )

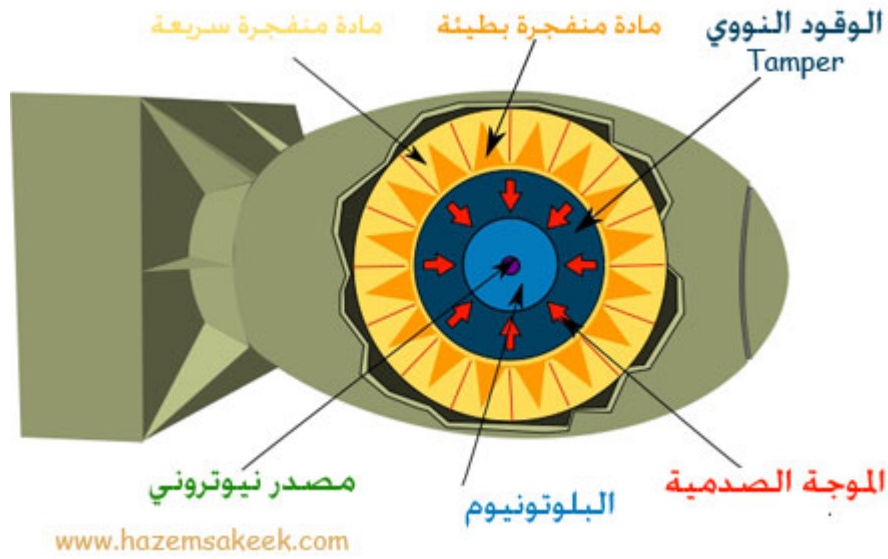
(2)

(3)

(4)



من أجل أبنائنا العرب



23

Fat Man

Modern Implosion-Triggered Design

(3)

.shock wave

(1)

(2)

(3)

(4)

(5)



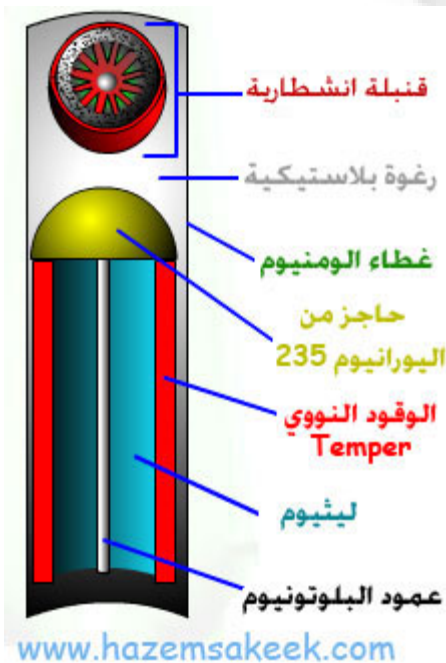
من أجل أبنائنا العرب



Little Boy

Fat Man

fusion bombs



Fusion Bombs

1.5%

little boy

Fat Man

4.5%

thermonuclear bomb



)

(1)

.)

(2)

(3)

$$\begin{array}{ccccccc} 4 & + & & & + & 6 & \\ & + & 4 & + & & & + & 7 \end{array}$$



Teller-Ulam

tamper

238

tamper

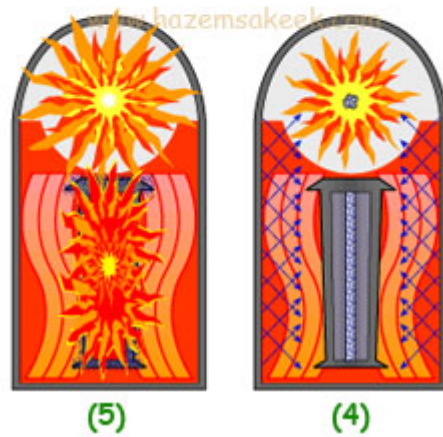
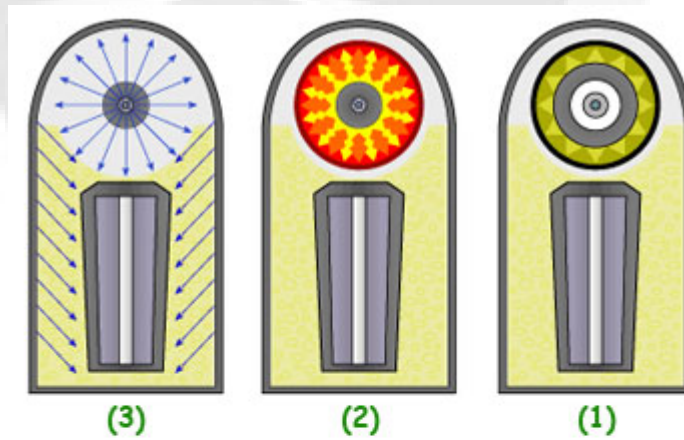
239

238

( ) :

Teller-Ulam

(1)



www.hazemsakeek.com

Teller-Ulam



(2)

tamper

(3)

tamper

shock

(4)

wave

(5)

238

tamper

(6)

50\*10E-9

550\*10E-9)

600\*10E-9

700

.(

10,000





.ground zero hypocenter

(1)

(2)

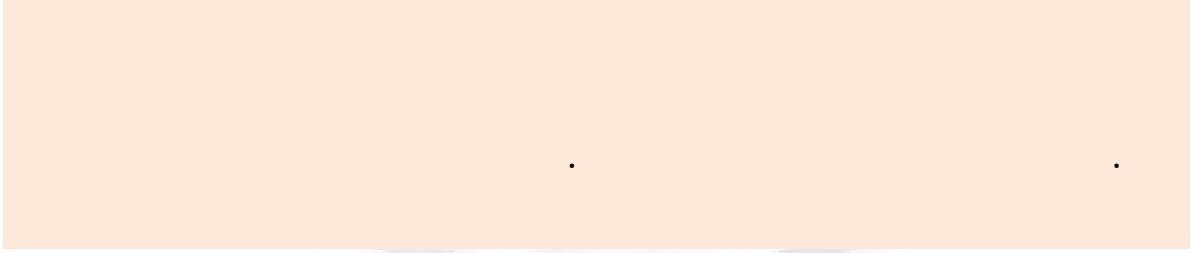
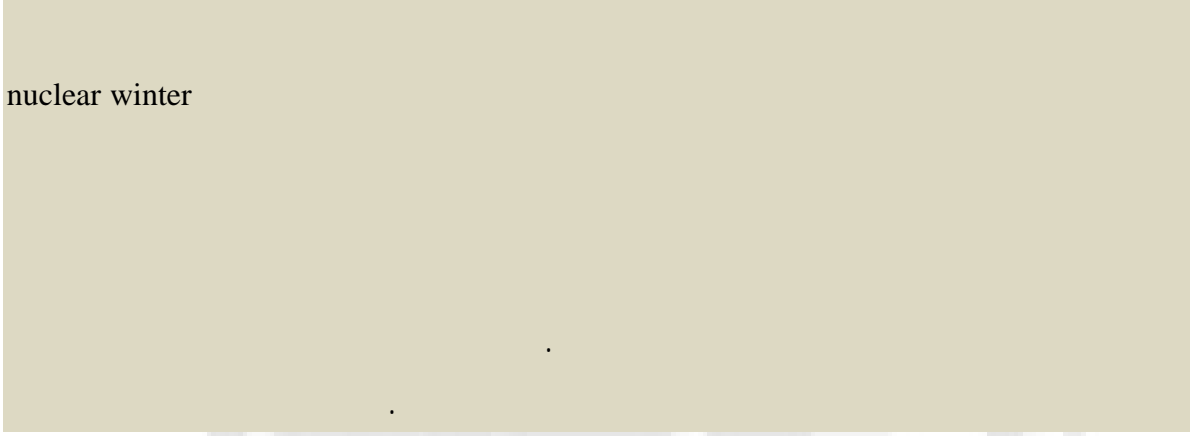
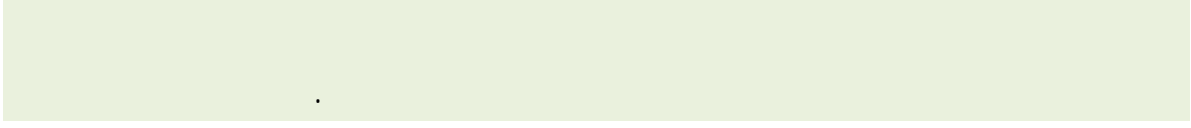
(3)

(4)

300



من أجل أبنائنا العرب





[http://en.wikipedia.org/wiki/Nuclear\\_weapon\\_design#Implosion\\_method](http://en.wikipedia.org/wiki/Nuclear_weapon_design#Implosion_method)

<http://www.atomicarchive.com/index.shtml>

<http://www.pbs.org/wgbh/amex/bomb/sfeature/blastmap.html>

[http://www.youtube.com/watch?v=NNcQX033V\\_M](http://www.youtube.com/watch?v=NNcQX033V_M)

<http://www.youtube.com/watch?v=EVkRwIxoeFY>

<http://www.youtube.com/watch?v=ya9-cpas5eA>

<http://www.youtube.com/watch?v=YF7EhwcwEj8>

<http://www.youtube.com/watch?v=H1sS1TmXF38>

