



Dr. Abhishek Sir
Class will Start Shortly

energy is released
by a Nuclear Reaction.

Fission

Breaking of
a larger
nucleus into
2 smaller nuclei.

Fusion

(Thermonuclear weapon
or
Hydrogen Bomb)

↳ Fusion of (H) nuclei
to produce (He) nucleus

atched ~ 80.f.)

Pu239

d decay

se
r 3

ons

+ 2 or 3
Neutrons

+ A large
amount
of energy

↳ First & only time used

↳ Against Japan by
the USA in 1945

Hiroshima
6.8.45

Nagasaki
9.8.45

⇒ Presently with
9 countries of the
World:

- USA
- Russia
- China
- UK
- France

India
Pakistan
North Korea
Israel

Energy

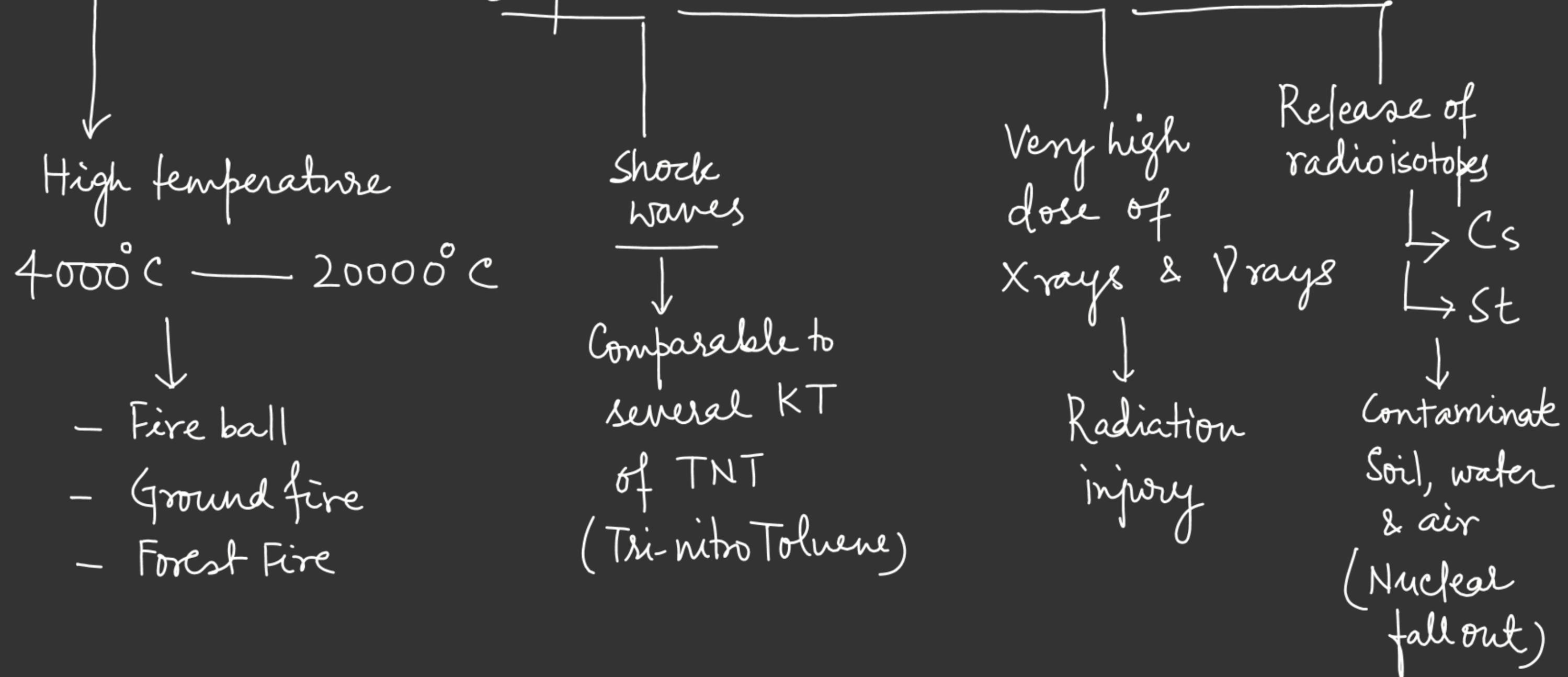
Radiation

2 smaller nuclei

(fast neutrons)

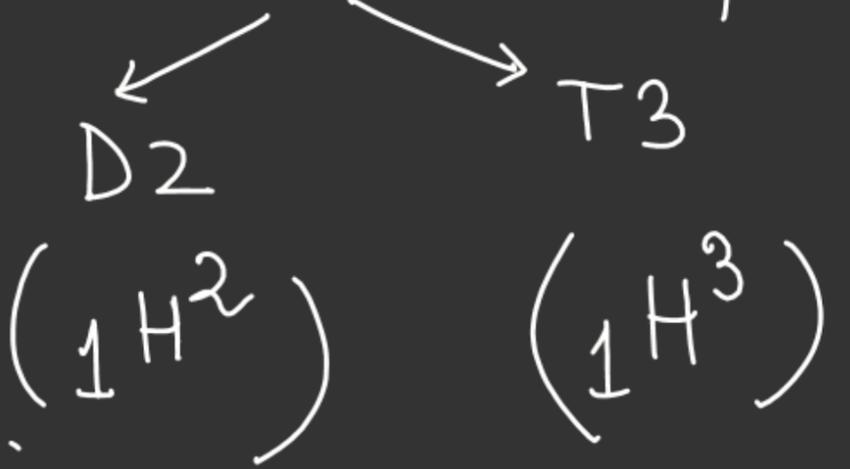
↓
Trigger uncontrolled
Chain reaction

↓
A very high quantity
of explosive energy

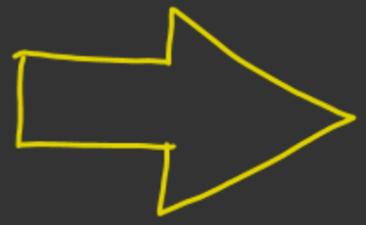
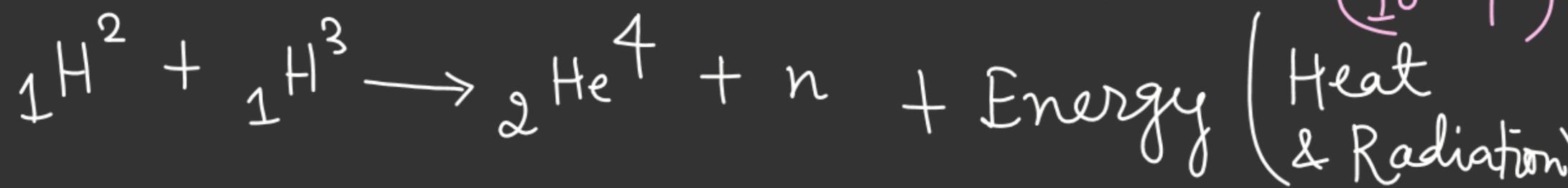


Fusion Weapons / Hydrogen Bombs / Thermonuclear Devices

Based on nuclear fusion of H-isotopes



Much ($\sim 1000\times$) more release of energy



Much more destructive
Explosive energy expressed in $\boxed{\text{MT}}$
(10^6 T)

Mechanism

Detonation



Fission reaction (Confined inside the bomb)



Very high temp. ($\sim 1 \text{ crore}^\circ \text{C}$)



Fusion



Explosion

UO₂

Yellow Cake