



Black Hole

BLACK HOLES

ABOUT

- A place in space with **extremely high gravity pull**; even light can't escape (hence, **invisible**)
- The strong gravity is due to matter being squeezed into a tiny space

The term 'black hole' was coined in the mid-1960s by American physicist John Archibald Wheeler

DETECTION

- By seeing how stars very close to black holes act differently than other stars
- In April 2019, scientists at the **Event Horizon Telescope Project** released the first-ever image of a Black Hole (shadow, more precisely)

Albert Einstein and Black Hole

- First predicted their existences in **Theory of General Relativity**
- It showed that when a massive star dies, it leaves behind a small, dense remnant core

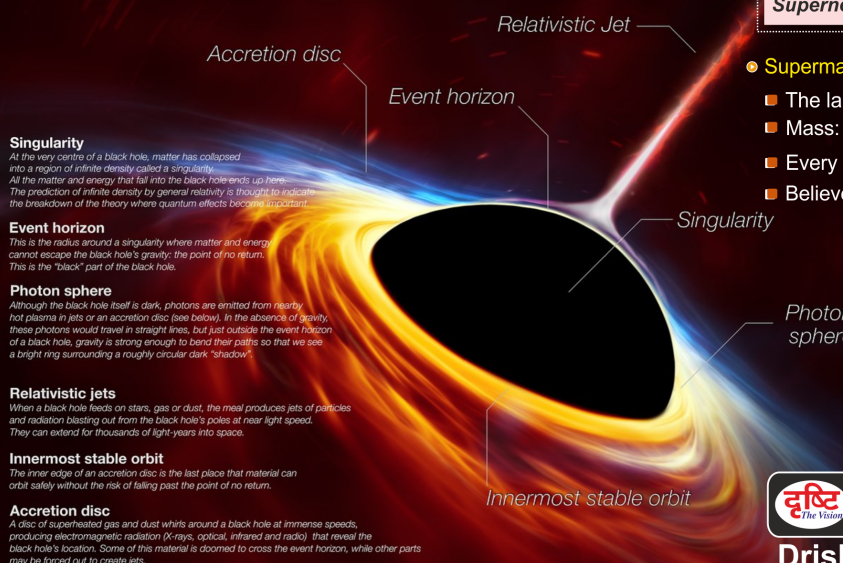
India's first dedicated satellite, AstroSat observed for the very first-time rapid variability of high energy X-ray emission from a black hole system

TYPES

- **Miniature (Hypothetical):**
 - The smallest; size of just 1 atom
 - Mass: varies from 1/100th of a milligram to the mass of a large mountain
 - Believed to be formed when universe began
- **Stellar:**
 - Mass: **20x the mass of sun**
 - Believed to be formed due to **Supernovae explosion**

Supernova is an exploding star that has reached the end of its life

- **Supermassive**
 - The largest
 - Mass: >1 million suns together
 - Every large galaxy has a supermassive black hole at its centre
 - Believed to be made at the same time as their home galaxy



Sagittarius A is the supermassive black hole at the centre of Milky Way (mass: ~about 4 mn suns)

The Sun will never turn into a black hole as it is not big enough to make a black hole



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