

Twitter Link - [Black Hole Project](#)



BlackholeProject
@blackholeproj3



The [#Universe](#) is full of unknowns, but there's nothing more mystifying and interesting than [#BlackHoles](#).



While being at the center of most galaxies, there's still little we know about this astronomical object.

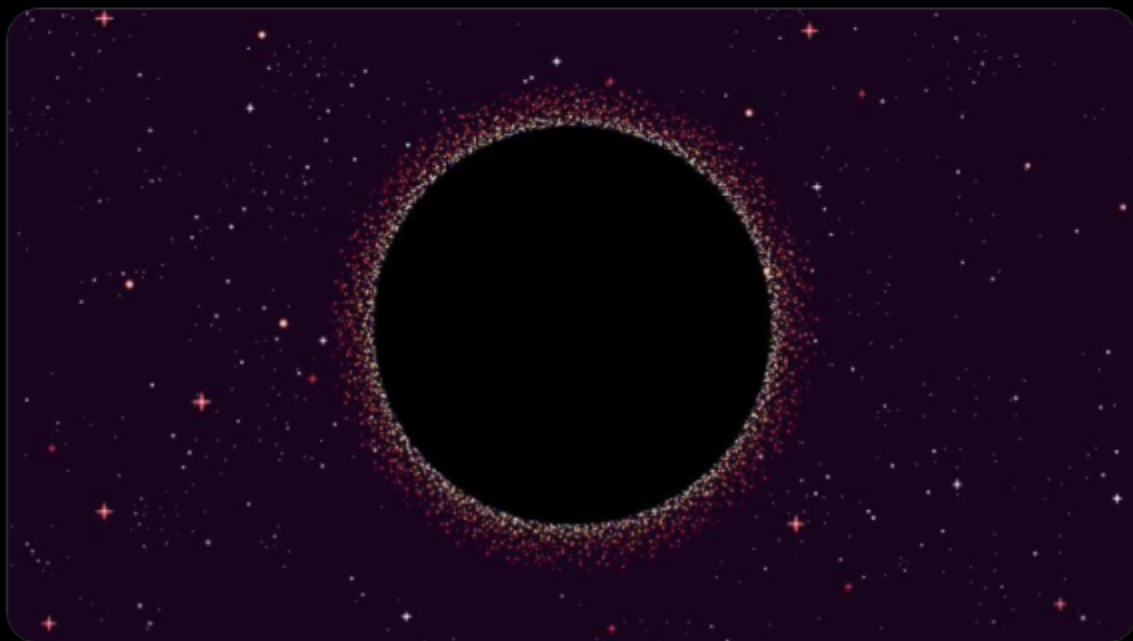
But here's what we do know.



From Birth to Death.



A Thread.





BlackholeProject

@blackholeproj3

...

☀️ For a black hole to form, a star has to collapse into itself and die, creating a supernova explosion which will create either a black hole or a neutron star.

☀️ This star has to have at least three times the mass of our own sun.



BlackholeProject

@blackholeproj3

...


☯️ The reason this is so is that as a star is constantly collapsing in onto itself due to gravity, in its core, energy in the form of radiation pushes against gravity, maintaining a delicate balance between the two forces.

Over time this balance will break.

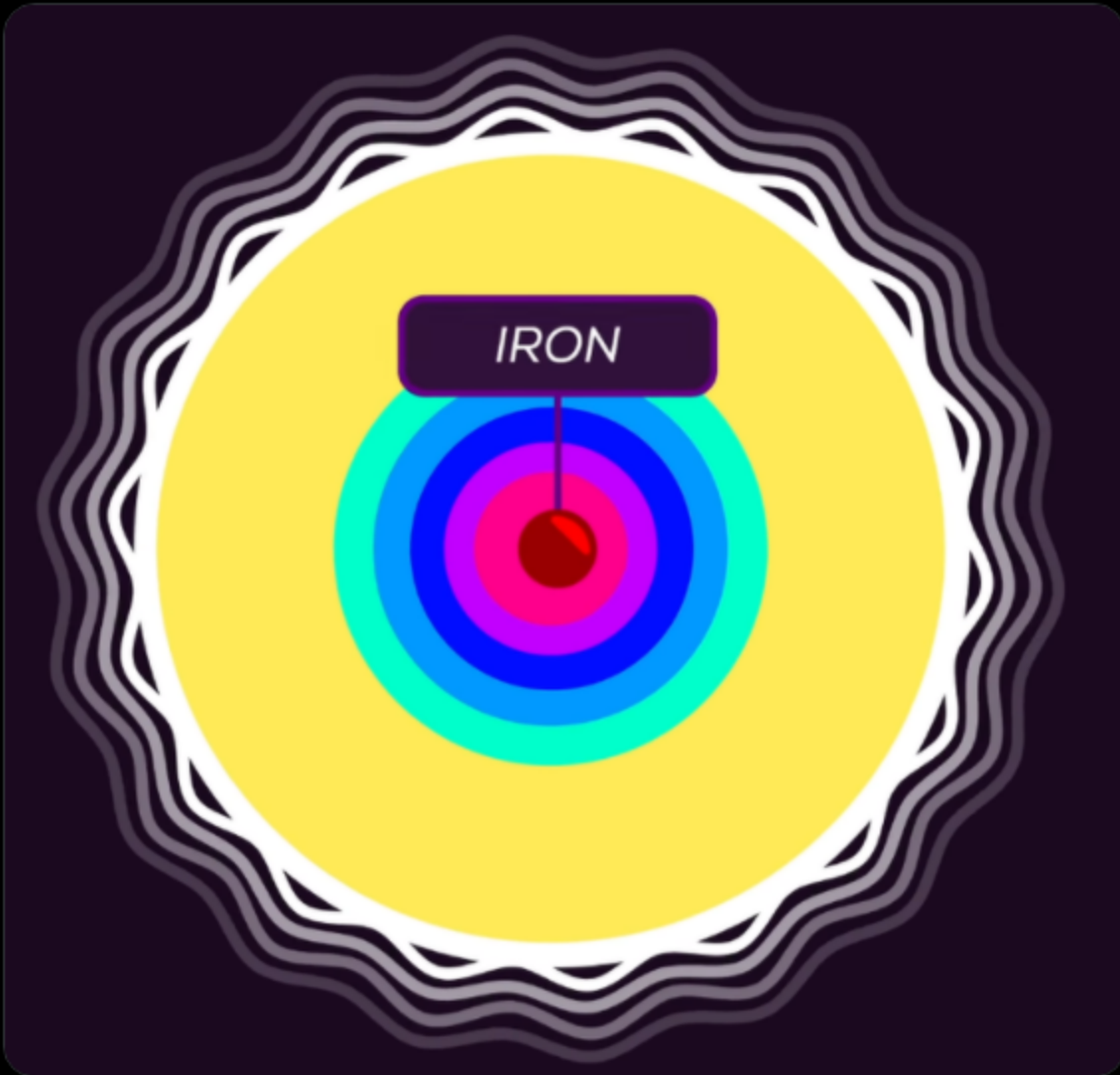


BlackholeProject
@blackholeproj3

...

 This balance breaks because, in the star's core, nuclear fission crushes hydrogen atoms into helium, releasing radiation.

Eventually, heavier elements will fuse until iron. Iron doesn't release any radiation when made and builds up at the center of the star, tipping the scale.





BlackholeProject

@blackholeproj3

...

🤖 So, we finally have the birth of our black hole, but what does it look like?

👁️ The part of the black hole we can see is called the event horizon.

💡 Even light can't escape the event horizon resulting in the black hole only reflecting as a black sphere.

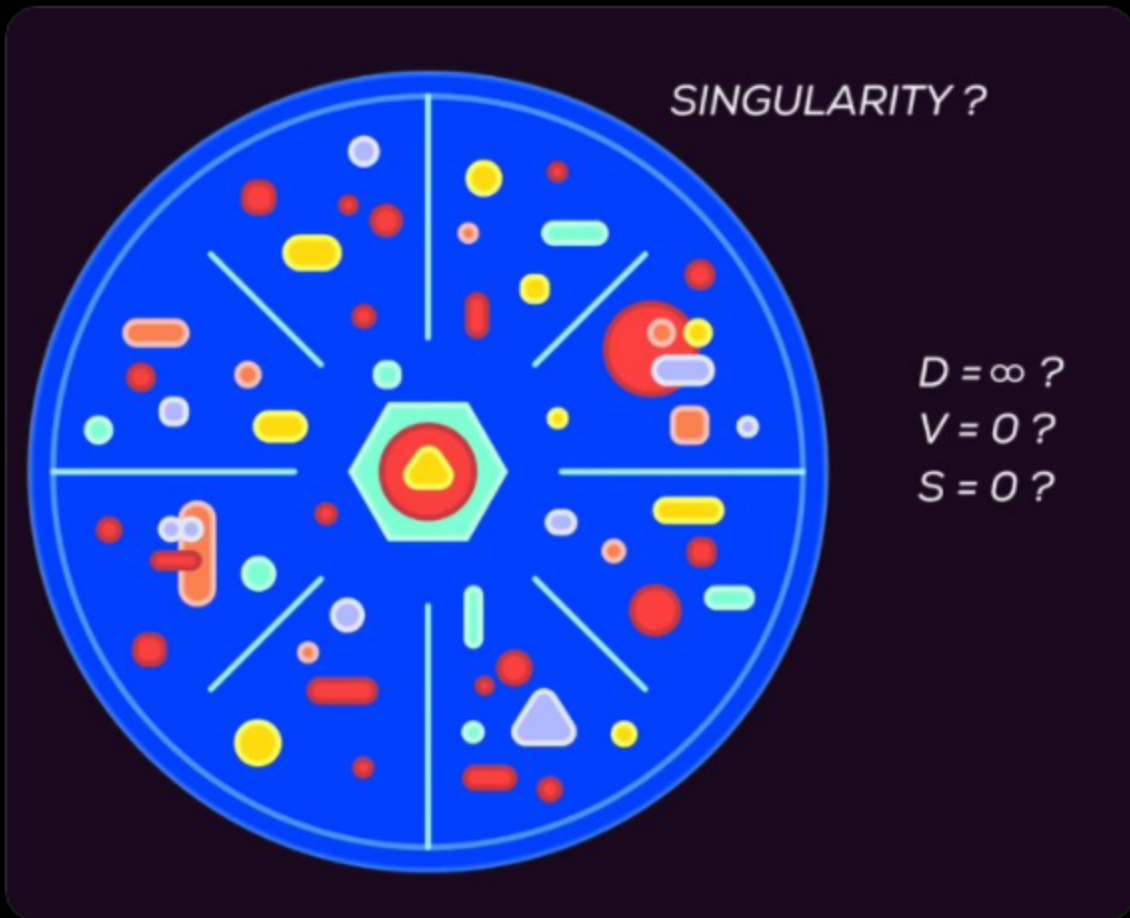




BlackholeProject
@blackholeproj3

...

We have no idea of what the inside of a black hole may look like beyond the event horizon, but we call this part the “singularity” where we hypothesize that all its mass is concentrated into a single point in space, with no surface or volume.





BlackholeProject

@blackholeproj3

...

● ● Some fun theories say a black hole is a door into an alternative universe. This can also include a white hole, which is the other side out from a black hole like a wormhole, depending on which way you're coming in.



BlackholeProject
@blackholeproj3

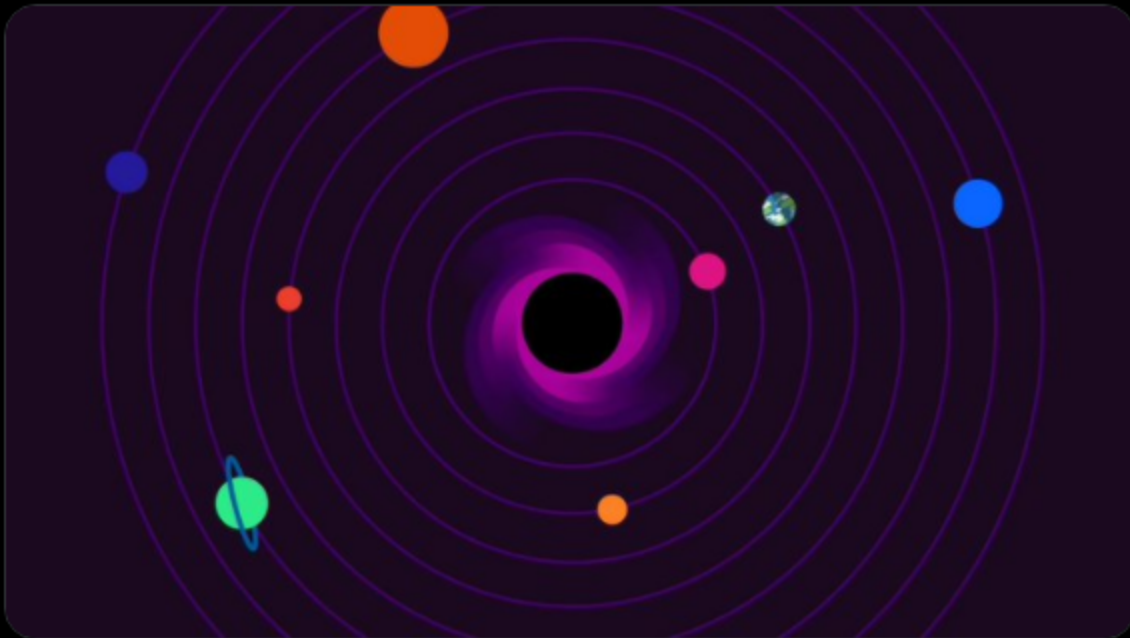
...

So, how do black holes die?

Well, first we need to know how they work. 🛠️

🔪 A common misconception is that black holes suck things in like a vacuum. In reality, black holes pull things inwards due to their own gravity.

(This also means black holes can be the center of an orbit)





BlackholeProject
@blackholeproj3



A black hole can increase its gravity by absorbing mass such as asteroids, planets, or even other black holes.

☀️🌊 However, while a black hole is not absorbing mass it's also constantly evaporating due to a process called Hawking Radiation, named after Stephen Hawking.





BlackholeProject
@blackholeproj3



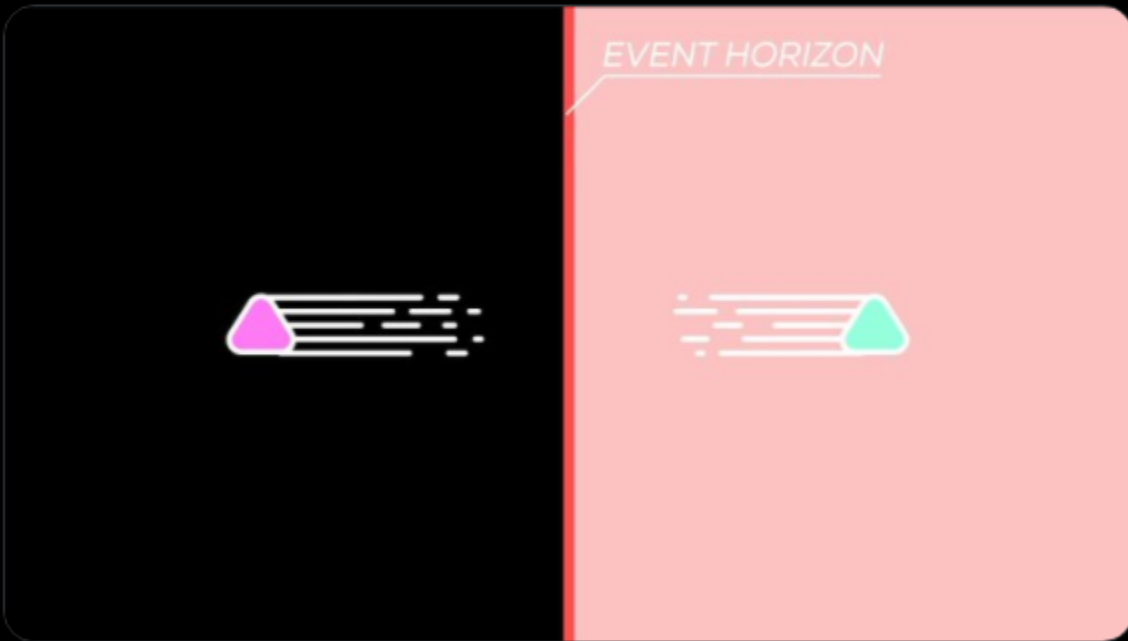
🌌 In empty space (which is not really empty), virtual particles will constantly collide with each other annihilating each other.



BlackholeProject
@blackholeproj3



🗺️ When this happens right at the edge of a black hole (or the event horizon), one particle will be inside the black hole and one outside. One of the particles will be drawn into the black hole, and the other will escape becoming a real particle.







BlackholeProject

@blackholeproj3



 This deals with quantum mechanics, but in general, this just means the black hole is losing energy.

 This is slow at first but becomes faster as the black hole becomes smaller.



BlackholeProject

@blackholeproj3



🔥 In the last second of its life, the black hole radiates away from the energy of billions of nuclear bombs in a huge explosion.

🕒 This process is incredibly slow and will occur long after we are gone.

💥 In the end, a black hole will go with a bang instead of wither away.

