

What Is a Black Hole?

National Aeronautics and
Space Administration



A black hole is an area of such immense gravity that nothing—not even light—can escape from it.

The area around a singularity where nothing—including light—is able to escape is called an event horizon. That's probably what you are thinking of when you think of a black hole.

This small point is called a singularity.

Black holes can form at the end of some stars' lives.

Once all of a star's material is used up, it no longer has the energy to support itself and it collapses.

All of that collapsing matter creates a magnificent explosion.

The material left over after the explosion falls into an infinitely small point.

Stellar Black Hole

Supermassive Black Hole

Black holes can form in many ways and have a range of masses. Stellar black holes have as much matter as a bunch of our suns. Supermassive black holes, on the other hand, have the mass of 1,000 million suns, all trapped within a tiny singularity.

What would happen if you took a spaceship near a black hole's event horizon? The end closer to the black hole would experience so much more gravity than the other end that it would stretch out like a piece of spaghetti. What's the scientific term for this? Spaghettification!

Space Place
in a Snap!