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# What is a black hole?

KS2

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Ages 7-14  4 min read

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A black hole is a region of space where gravity has gone completely off the charts. It's so powerful that once you're too close, absolutely nothing — not rockets, not light, not anything — can escape.

It's not actually a "hole" in space like a gap in the floor. It's more like a region of space that has become incredibly dense. So dense that it bends space and time around it.

Imagine putting a bowling ball on a stretched trampoline. It creates a dip, and anything nearby rolls towards it. Now imagine a black hole is like a bowling ball so heavy the trampoline rips completely. There's no coming back from that dip.

## How do black holes form?

Most black holes form when a massive star runs out of fuel and collapses under its own gravity. The star's outer layers explode in a supernova, and the core squishes down into an incredibly tiny, incredibly dense point called a singularity.

## Can we see them?

Not directly — they're black, and space is also black. But we can spot them by watching how nearby stars and gas behave. If a star is orbiting something invisible, or gas is spiralling in and glowing bright just before it disappears — there's probably a black hole there.

In 2019, scientists took the first actual photo of a black hole (well, its glowing ring of gas). It's 55 million light-years away and has the mass of 6.5 billion suns. Bit mental, really.