# Black Holes

A Black Hole is a bottomless well in space. Things can fall into a black hole, but once inside nothing can get out again, not even a beam of light or a radio call for help. Black Holes are invisible death traps for anything that passes close enough to be sucked into them.

Nothing that goes into a Black Hole comes out, and there is a point of no return called the Event Horizon. If you went beyond this you would be 'spaghettified' - stretched long and thin until you were torn apart by the immense gravity.

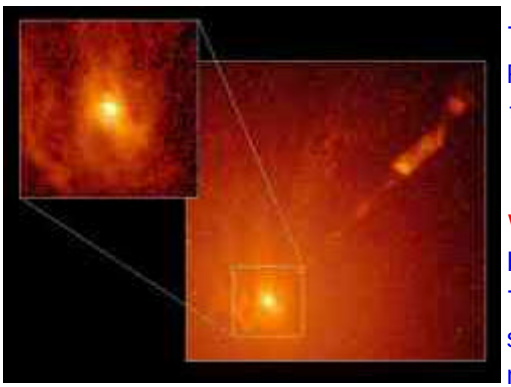
If a small star is very dense, it may begin to shrink under the pull of its own gravity. As it shrinks, it becomes denser and denser and its gravity becomes more powerful, until it shrinks to a single tiny point of infinite density called a singularity. Then even the star's light is prevented from escaping. The star has become invisible.

No one really knows how many black holes there are because they trap light they are hard to see. But there may be one at the heart of our galaxy.

The singularity at the heart of the of a Black Hole is infinitely small. The size of the hole around it depends on how much matter went into forming it. The black holes at the heart of our galaxy may be around the size of the solar system.

You may ask that if the Black Hole is black, how can we detect them? Fortunately, black holes give themselves away when they suck in gas from nearby stars. As the gas swirls around the cosmic drainplug, it heats up to millions of degrees, so hot that it emits X-rays. These X-ray emissions can be detected by satellites orbiting the Earth.

Astronomers think they have discovered a black hole in the constellation of Cygnus, the swan. It is named Cygnus X-1, and it orbits a blue star known simply by its catalogue number HDE 226868. From its orbit astronomers calculate that the black hole has a mass about eight times that of the Sun.



This picture shows a possible black hole emitting X-Rays (note the jet of emissions). This picture was taken by the Hubble Space Telescope.

What is Gravity – Gravity is the mutual attraction between every single bit of matter in the universe. The more matter there is, and the closer it is, the stronger the attraction. A big dense planet pulls much more than a small one, or one that is far away. The Sun is so big, it makes it pull felt over millions of kilometres of space. The Earth is smaller but big enough to keep the Moon circling around it. The weigh of an object is simply how hard gravity is pulling on it.