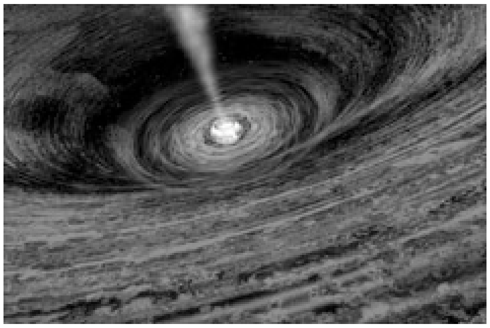
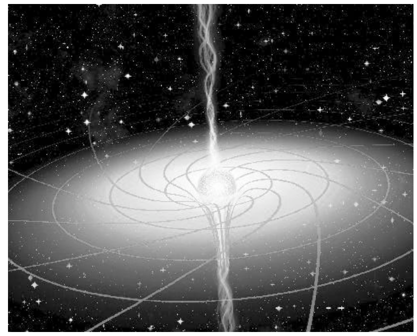
Probe Result



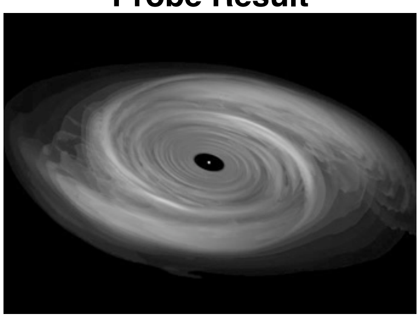
The temperature of the disc of gas that spirals into a black hole can reach millions of degrees. At these temperatures, a gas isn't red hot, or white hot, but X-ray hot! One important way to discover black holes is to look for the glow of X-rays using an X-ray space telescope.

Probe Result



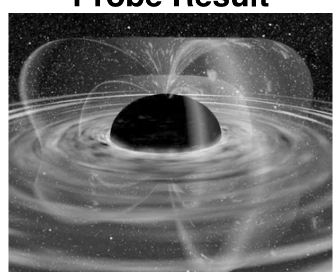
From your spaceship above the Black Hole, the clock on board the probe appears to slow down and actually freezes at the moment the probe enters the black hole. From the probe's point of view however, its clock ticks by normally, but looking back up it sees your spaceship clock whizzing round faster and faster!

Probe Result

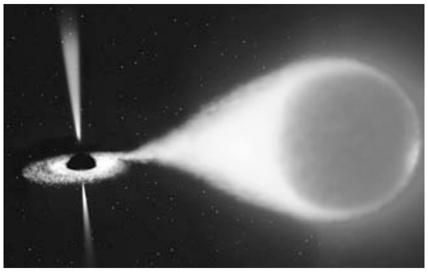
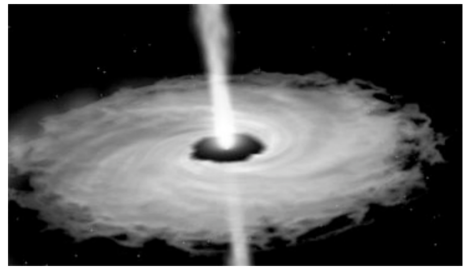
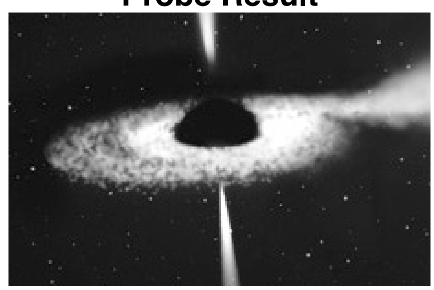


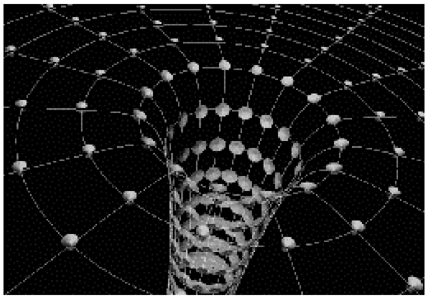
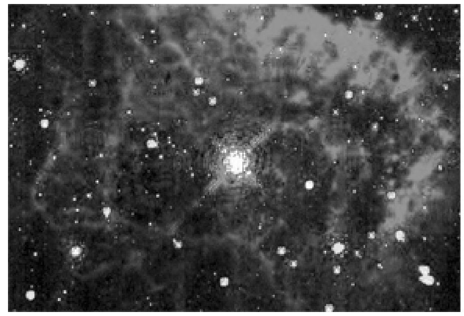
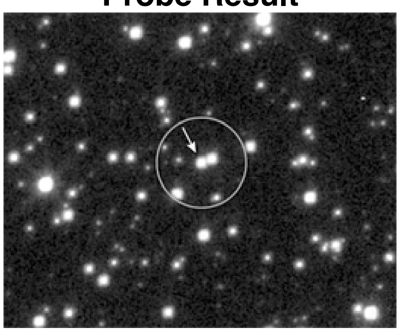
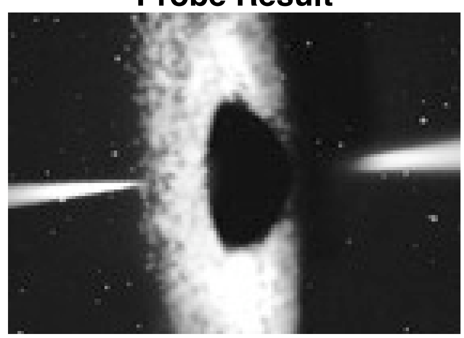
Because a black hole warps space, it will also warp anything in that space. As the probe moves towards the black hole, the stretching and squeezing gets worse and worse. In the end, the probe is stretched and squeezed to destruction.

Probe Result



Despite having the mass of nearly ten Suns, this black hole is no larger than an average city, about 60 km side to side. Black holes are very compact objects, concentrating a lot of mass into a very small volume. The disc of gas that has given your ship such a rough ride is about 100 times bigger – a pancake about as wide as the United States.

Probe Result  We can't see the black hole itself but we can see the effect that a black hole has on its surroundings. Our black hole is in an orbital dance with a companion star. Simply by watching the companion star, we could tell that something was tugging it around. The motions of stars we can see gives us clues to the whereabouts of things – such as black holes – that are invisible to us.	**Probe Result**  Sometimes the gas near the black hole is whipped up into such a tornado that before it has a chance to fall into the black hole, it is shot back out into space in two jets like the beams of a lighthouse. Although the jets look as though they are emerging from the black hole, they actually start just outside it.
Probe Result  This black hole began its life as an ordinary, but very large star. When the star had used up all its nuclear fuel, its core collapsed to form this black hole. The outer part of the star was blown out into space in a huge explosion called a supernova.	**Probe Result**  The black hole doesn't have a surface – you can't land on it. The black ball you see is simply a boundary – like an open doorway into a pitch black room. Your probe does not notice anything strange as it passes through the boundary, except that it cannot ever turn around and come back out.

Probe Result  **Once inside the black hole the probe is lost to us. Even if it survives the intense gravity as it enters the hole it will never be able to communicate with us on the outside. Ultimately, as the probe reaches the very center of the black hole, not even the atoms that the probe is made of will be able to resist the stretching and squeezing of the gravity.**	**Probe Result**  **Black holes are formed when the biggest and brightest stars die. The Sun, although a very impressive star, is not big enough to form a black hole when it dies. This black hole, with a mass of about ten Suns, began its life as a huge star with a mass of a hundred Suns.**
Probe Result  **This black hole is one of about a million in our Milky Way galaxy. This sounds dangerous, but the Milky Way is a big place. It took our ultra-fast spaceship a very long time to reach even this nearby black hole and, as we are finding out, we needed to get pretty close before things got really risky!**	**Probe Result**  **We can watch the probe reach the black hole but will never see it enter. Because of the effect gravity has on time, the probe will appear to move slower and slower and then freeze at the moment it "touches" the black hole. Its frozen image will just keep getting fainter and redder for the rest of time.**