If Earth was a black hole (1915)
Mixed media

Stars that die may turn into black holes. Our Sun will not become a black hole because it is too small. In spite black holes are black they are known to exist. They are observed by measuring how stars in their neighbourhood move. The stars move in a way that shows there must be a very heavy object nearby. Black holes are not visible since not even light particles, photons, can leave.

In the middle of galaxies – perhaps all galaxies – black holes exist. In the middle of our galaxy, The Milky Way, there is believed to exist a black hole being roughly 4 million times as massive as the Sun.

The first person to suggest there may be objects heavy enough to prevent light from escaping was *John Michell* in 1783. The second person to propose the same was the French mathematician *Pierre-Simon Laplace*. The year was 1796. After that it lasted till 1915 before someone suggested this again. By then *Albert Einstein* had shown that gravitation can influence light.

There is a simple formula to calculate the radius a black hole will have if the celestial body's mass is known. It was *Karl Schwarzschild* that came up with this formula in 1915. Schwarzschild himself did not believe black holes exist!

$$\text{Radius} = \frac{2 \cdot G \cdot M}{c^2}$$

$G = 6.67 \cdot 10^{-11}\ Nm^2/kg^2$ (a constant)
$M = 5.98 \cdot 10^{24}$ kg (mass of Earth)
$c = 3.0 \cdot 10^{8}$ m/s (speed of light)

I have used Schwarzschild's formula to find the radius Earth would have as a black hole. The result is 9 mm. You can try the calculation on your own!