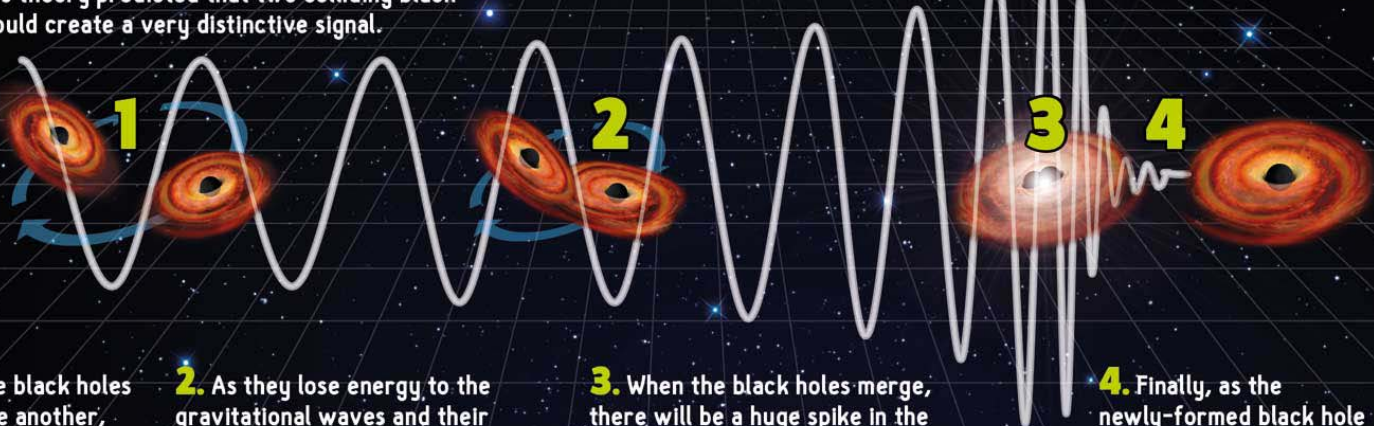


# PREDICTION vs DETECTION

Einstein's theory predicted that two colliding black holes would create a very distinctive signal.



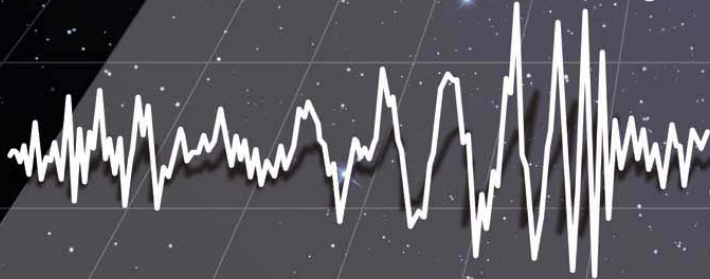
**1.** As the black holes orbit one another, they will create a series of waves.

**2.** As they lose energy to the gravitational waves and their orbits shrink, the frequency of the waves will steadily increase.

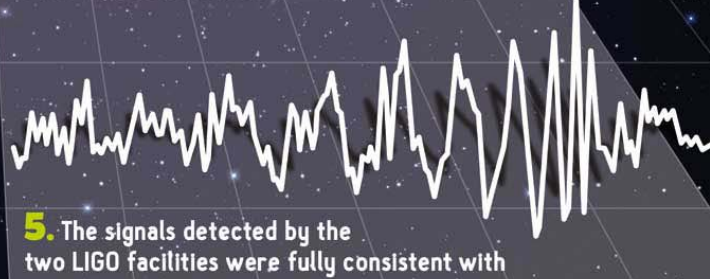
**3.** When the black holes merge, there will be a huge spike in the waves as an enormous amount of gravitational energy is released.

**4.** Finally, as the newly-formed black hole settles down, the waves will taper off and die away.

LIGO Washington



**5** LIGO Louisiana



**5.** The signals detected by the two LIGO facilities were fully consistent with those Einstein predicted in his general theory of relativity.