

### **Gravity:**

Gravity is the effect of matter on space time. [ Gravity is the distortion of space time by mass.]

A matter at a point would curve (bend) the space-time fabric around it. Larger the mass, deeper will be the curvature.

General theory of relativity says: **Gravity is the curvature of space-time**. An object in space bends the space-time fabric. This bending gives rise to gravity. **Hence more the mass more is the bending, means more gravity.**

***Black hole is a very dense object in space-time, which means it has large mass in small volume. Hence, it bends the fabric to the great extent.***

### **Related questions:**

1. What are gravitational waves? What causes gravitational wave?
2. What are the properties and importance of gravitational waves? Do gravitational waves affect time?
3. Does Newton's laws of universal gravitation provide existence of gravitational wave?
4. What are gravitational waves? Who proposed the concept of gravitational wave? When was gravitational wave first detected?
5. What is space time? Explain gravity in terms of space time? How will you demonstrate that the gravity of black hole is intense?

### **Extra information:**

#### **First direct observation of gravitational wave:**

1.3 billion years earlier, two massive black holes collided. The collision released massive amounts of energy in a fraction of a second (about 50 times as luminous as all the stars in the visible universe combined) and sent gravitational waves in all directions.

On September 14, 2015 those waves reached Earth and were **detected by researchers at the Laser Interferometer Gravitational-Wave Observatory (LIGO).**