follow the curve of spacetime around the massive body. The central premise of Einstein’s general relativity is that all matter and energy moving through the universe distort the fabric of spacetime. Einstein’s theory predicts that if you observe something moving very close to a massive object, such as a star or a black hole, you will see a curved path that deviates from a straight line. This curvature is known as the gravitational field of the massive object.

The third mission, called Gravity Probe B, launched an Earth-orbiting satellite experiment in 2004 to test the validity of curved spacetime. Three experiments are underway to further test the validity of curved spacetime. Two missions, Gravity Probe B and LAGEOS 2, have tested the geodetic effect, which predicts that gravitational fields cause objects to follow curved trajectories. Gravity Probe B, launched in 2004, used three-axis stabilities (gyroscopes) to measure the deflection of the spin axis due to the Earth’s gravity. The LAGEOS 2 mission, launched in 1992, used laser-ranging to measure the deflection of the gravitational field around the moon.

In addition to these missions, there are other experiments that test the predictions of general relativity. One of the most famous experiments is the Shapiro Time-Delay, which measures the time it takes for light to travel through a gravitational field. The Pound-Rebka redshift experiment measures the redshift of high-energy gamma rays as they pass through the Earth’s gravitational field. These experiments provide a more precise test of the general theory of relativity than any of the earlier experiments.

The theory of curved spacetime, or geodetic, effect is one of the most elegant and profound predictions of Einstein’s general theory of relativity. It predicts that gravitational fields cause objects to follow curved trajectories, and it has been tested with great accuracy by a variety of experiments. The theory of curved spacetime has been confirmed by a number of experiments, including the Shapiro Time-Delay, the Pound-Rebka redshift experiment, and Gravity Probe B.

The Pound-Rebka redshift experiment uses high-energy gamma rays to test the predictions of general relativity. In this experiment, gamma rays are sent from a source near the bottom of an elevator shaft to a sensor 74 feet above the source. As the gamma rays pass through the Earth’s gravitational field, they lose energy, and their wavelength increases. This increase in wavelength is called the redshift, and it provides a precise test of the general theory of relativity.

The Shapiro Time-Delay experiment uses the Shapiro Effect, which predicts that light traveling near a massive object will be delayed due to the curvature of spacetime caused by the gravitational field. This effect has been observed in binary stars that are passing very close to a massive object, such as a black hole. The Shapiro Effect has been observed in many binary stars, and it provides a precise test of the general theory of relativity.

In summary, the general theory of relativity has been tested with great accuracy by a variety of experiments, and the predictions of the theory have been confirmed by a number of experiments. The theory of curved spacetime is one of the most elegant and profound predictions of Einstein’s general theory of relativity, and it has been tested with great accuracy by a variety of experiments.

For More Information:
- The Shapiro Time-Delay — http://hyperphysics.phy-astr.gsu.edu/hbase/relativ/gratim.html
- The Pound-Rebka Redshift Experiment — http://hyperphysics.phy-astr.gsu.edu/hbase/relativ/poundrebka.html
- Putting Relativity To The Test — http://hyperphysics.phy-astr.gsu.edu/hbase/relativ/index.html