



# Johannes Kepler

## 1571-1630

Kepler was the German Renaissance astronomer who discovered the three principles of planetary motion, which can be stated as follows: *(1) all planets move about the Sun in elliptical orbits, having the Sun as one of the foci; (2) a radius vector joining any planet to the Sun sweeps out equal areas in equal lengths of time; (3) the squares of the sidereal periods (of revolution) of the planets are directly proportional to the cubes of their mean distances from the Sun.*

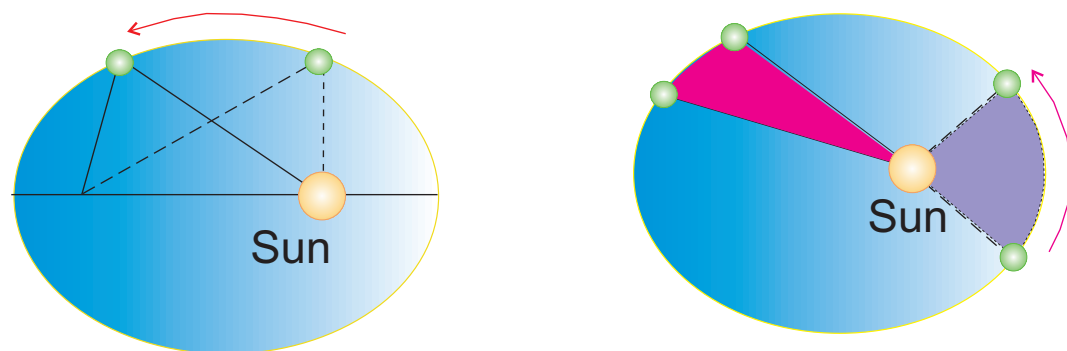
Kepler was the first to set forth accurately what happens to light after it enters a telescope. He presented the earliest correct explanation of how human being see.

Kepler was born on December 27th, 1571 in the German town of Weil der Stadt. As a seven months' baby he was of a delicate constitution and only just survived.

His father, Heinrich, was a mercenary soldier, who periodically left his family to participate in wars. His mother, Katharine, followed her husband and little Johannes was left to the care of his grandparents. He entered the first class of the Latin school at the age of seven. Kepler distinctly remembered two events from his boyhood which pointed toward his later calling. In the year 1577 his mother led him up a slope and showed him the great comet then in the sky; in 1580 his father took him out at night to observe a lunar eclipse.

On October 1584 the thirteen year old Kepler, after passing the state examination, entered the convent school at Adelberg. Two years later he moved into the higher seminary, which had found a home in the Cistercian monastery at Maulbronn.

Kepler's biographer Max Caspar noticed that he was 'distinguished from the average student by his introspective nature and the content of his intellectual activity'. He made good use of his time. He was always busy, but did not stick to one thing, because new thoughts and goals always pressed upon him.



*Kepler discovered that a planet travels in an oval path around the Sun, moving so that a line drawn between Sun and planet covers equal areas in equal times*



*He served  
the nobles  
as an astrologist !*

Kepler wrote lyric poems in imitation of ancient poetic forms. He liked to play with anagrams and daring allegories. He exercised his memory by learning the longest psalms by heart. He was a peace loving person.

In September 1589 the gates of the University of Tübingen opened for him. There he studied astronomy under Michael Mästlin, who believed in the Copernican theory.

In 1594 Kepler was strongly recommended as teacher of mathematics in the Lutheran high school of Graz in Austria. There he published his first paper *Mysterium Cosmographicum*. Unfortunately, the changing religious situation forced him to leave Graz.

In 1600, Kepler was invited to join Tycho Brahe's research staff at the Observatory outside Prague. In 1601 Kepler was appointed as Imperial Mathematician of the Holy Roman Empire. He left Prague in 1612 and moved to Linz, Austria. His main paper *Harmonices mundi* was published in 1619, there he stated his Third Law. The great accomplishment of Kepler was to find his Laws by fitting the extensive observation data of Brahe to simple mathematical relations.

The life in his family was not peaceful. His mother, Katharine, in her old age, was involved in an ugly witch trial and only her son's skillful intervention saved her from torture and fiery death. He was married twice and had eleven children, however only four of them grew up. The last years of his life were not happy. He and his family suffered from poverty and war. He died in 1630; alas, the German Thirty Years War obliterated his grave.

S.E.