



## *Benjamin Franklin and Mathematics* (1706-1790)

*Benjamin Franklin may be well known for his printing press and lightning rod, but did you know that he also had a strong interest in mathematics?*

*His contributions to numbers span everything from population studies to creating magic square puzzles. He was one of America's earliest self taught mathematicians.*

Franklin reworked an **ancient mathematical puzzle**, known as the **Magic Square**, during his time as a young clerk. Traditionally the square has at least **three rows of boxes** containing numbers which, **both vertically and horizontally, add up to the same sum**. Franklin made magic squares with **eight rows which added up to 260**. He also established the “**bent row**”—a row of numbers neither horizontal nor vertical, but **bent through the square**, which also added up to 260.

In the mid 1700s Franklin invented a simple mechanical **odometer**, an instrument which measures distance traveled. He needed the device during his time as Postmaster (which he was appointed to in 1731 until 1776), making trips and needing to know how far he had gone. The odometer worked by **counting the rotation of his carriage's wheels**.

Upon his death in 1790, Benjamin Franklin wanted to leave money to the towns of Boston and Philadelphia, **under certain conditions**: that trustees were to **invest the money in trust funds which could only be accessed after 200 years**. By the time the funds matured in the 1990s, Franklin funds contained millions of dollars, which are now being spent on **local high school scholarships and other academic pursuits**.

In 1761, Franklin put his knowledge of math to work when he invented the **mechanical armonica**, a **musical instrument made of glass**. Franklin set **37 glass bowls in a horizontal spindle**, which rotated by a foot treadle. In order to make the armonica's ringing sound, the player wet his or her fingers with water and a little chalk and touched the glasses as they rotated.