Galileo's Views on Force & Motion

Galileo Galilei's views on motion and force can be traced in the unpublished book that he began to write during his time as a teacher at the University of Pisa titled "On Motion."

On Motion

Galileo proposed in his book that objects in free fall dropped with a uniform speed that was dependent on their specific gravity rather than their weight.

Testing the Theory

The now famous physicist and astronomer tested his theory by experimenting with objects that were dropped from a height and discovered that the results did not support his assumptions. He found that objects that were lighter initially moved ahead of heavier objects, but then the heavier object would overtake the lighter object and reach the ground sooner. However, it's now known that objects in a vacuum fall at the same speed, and that in air a heavier object falls faster than a lighter object of the same shape. Galileo's test was flawed as the lighter object should at no time move ahead of the heavier object.

Replicating the Experiment

Galileo's experiments were replicated by students who dropped wooden and iron balls of the same size from a certain height. It was shown that the wooden balls moved ahead of the iron balls. The reason for this discrepancy stems from the fact that the heavier metal ball had to be held with more force and was actually released a fraction later than the wooden ball.

Refining His Ideas

Galileo later refined his testing procedures and altered his initial ideas, finally concluding that in a vacuum all objects accelerate uniformly, no matter what their shape or specific gravity.