
“Mathematics Helps Predict the Behavior of Nature and Phenomena in the World”

Numbers play an important role in today's society; they're a part of our everyday life. In cooking, appropriate measurements are a must in order to have a balance of flavor, otherwise it would be too much of anything thus becoming undesirable to eat. To save money, making a daily budget for food, transportation, and other expenses is a must. Also, in order to do tasks in midst of a hectic schedule, finding free time, calculating the minutes or hours between sequential events is usually done by many. Simply put, Mathematics is more than just the formulas and problems found in academic books, it goes beyond that.

The purpose of this essay is to inform the reader that Mathematics is more than a school subject—it's both a language and a method to analyze abstract phenomena and nature through detected patterns, and regularities.

Stated in the book “Nature's Numbers” by Ian Stewart, for many centuries, people thought that nature was divided into two views: it obeys laws vs. it's constantly changing. ¹ Newton, along with Galileo and Kepler, was one of the firsts to go past that thought, and realized that change obeys rules while rules generate change. Because of that discovery, Laws of Motion, one of the most fundamental theories in today's time, was created; it was made by conducting experiments, collecting data, and analyzing possible patterns. The conclusions made by the cannonball experiment done by Galileo (analyzed also by Newton) were the ball's motion had a parabolic trajectory, the velocity continued to go downwards, and it had a constant acceleration. Therefore that experiment agrees with Newton's Laws of Motion which is when a force acts on a body, the body experiences an acceleration that is proportional to that force.

If Laws of Motion weren't introduced in today's time, people wouldn't be able to grasp how and why some of the things happen in life. For example, if we sit or lay down on a hard surface for far too long, our bodies will start feeling pain due to the surface's equal and opposite force on us, but we don't know that thus we'll wonder why our bottoms are hurt, and what would we do to stop the pain. Another example is rocket takeoffs; in order to fly to space, the exhaust from the rocket pushes away from the ground, and the ground exerts equal and opposite force on the rocket which causes the latter to go forward. If the third law of motion never existed, space travelling would've been deemed impossible today.