

Questions of science



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Why is Isaac Newton considered such an important figure in the ascent of science in the 18th century? Sir Isaac Newton was acclaimed as the greatest mathematician and physicist of his time. His work on the basic laws of motion and the law of gravitation marked the culmination of the scientific revolution in the 16th and 17th centuries starting with his publication on the Opticks. His studies on the behavior of light laid the foundation on the science for spectrum analysis. His publication on the Mathematical Principles of Natural Philosophy also explained the universality of gravitational force.

Newton's natural philosophy found the natural phenomenon of things as ordered and predictable which attracted a profound influence on the 18th century science called as enlightenment intellectual history of Europe (Erickson & Murphy 2003). The study marked an intellectual transformation and influence in shaping modern science into its being. The basic laws of motion and the law of universal gravitation have been the cornerstone of many scientific disciplines making it as one of the most important single work in the history of science.

Newton's principle that the inertia of an object is proportional to its mass presented a new dynamic mathematical physics that accounts for the motions of celestial and terrestrial bodies. His work in astronomy, mathematics and physics successfully subjected natural occurrences of things to scientific inquiry. This leads to the formulation and computation of the shape of bodies and resisting mediums to help explain the impact of force, gravitation, inertia and velocity occurrences in nature.

His concept predicting the motion of objects in line with the basic relationship of force vector, mass and acceleration gave relevant explanations on projectile and trajectory of objects leading to creative complicated designs in military warfare, cars, boats, airplanes and rockets. The Newtonian mechanics is also known to form the foundation of nearly every physical model in game programming. Discuss the reasons why common sense tells us that the momentum or inertia of a car will not continue if we turn the car off.

Why is our common sense incorrect at this case? Common sense is partially true in itself. A car will stop if we turn the car off. The car won't run of course unless some external force were applied to it like somebody pushes it or has parked it in an inclined plane where the force of gravity can eventually pull the car downwards. This is best explained with Newton's first law of motion that a body at rest is assumed to stay at rest unless acted upon by an external force. In this case linear force is relative to the weight of the car.

A car moving in a natural motion at constant velocity in a straight line stops only depending on the amount of adverse acting air drag force and road friction on its tires. The relationship between the state of rest and uniform linear motion automatically assume that the car's drag force and friction force balances the forward thrust of the car (Goswami 2001). The relativity of motion is directly proportional to mass and the force of application. This means that a stationary object changes its motion when forces are not balance.

An object continues to move in a single straight line at a constant speed unless affected by a greater opposing force. This is inertia. Inertia is the tendency of the car to keep moving even if it has been turned off until something else works against its motion. This is the very reason why seatbelts were devised and implemented for its passenger's safety. So a car may not be able to move as long as there is no reluctant force acting on it. The reason may not be necessarily total loss of reluctant force.

Inertia adheres to the philosophy where any forces acting on the object are balanced or somehow cancels each other out. So there is always the presence of a reluctant force that keeps objects moving anywhere. It is the question of what stops them that settles the intriguing characteristics of inertia. It is apparent that the passenger keeps moving forward also even if the car comes to a stop because of inertia. Why is carbon dioxide called a greenhouse gas? What does the production of carbon dioxide from burning fossils fuels have to do with global warming?

Carbon dioxide is a chemical compound composed of carbon and oxygen. It sustains life by sustaining the needs of plants during photosynthesis where it assimilates carbon dioxide and emits oxygen for the utilization of animals and humans. Carbon dioxide is considered as a greenhouse gas because of its ability to transmit visible light and absorb electromagnetic radiation of a wavelength longer than visible light (Kojima & Harrison 1994). The greenhouse effect is the process where infrared radiation is being absorbed by the greenhouse gases in the atmosphere.

Thus radiation may not be able to pass through these greenhouse gases which act as a natural blanket of the earth. Carbon dioxide basically allows passage of light but absorbs heat energy released from the earth and keeps the earth surface warmer. Carbon dioxide when released into the air may cause a major climate change. This results when carbon containing fossil fuels such as oil, natural gas and coal are burned in the air. Carbon dioxide is known to play a vital role in the earth's environment but is also a contributor of global warming problems.

Its unprecedented rate of increase may pose catastrophic long term effects to the environment. The increase concentration level of carbon dioxide may be trapped in the atmosphere together with the other pollutants trapping the sun's heat like a thickening blanket which causes the earth to warm up. The rise of global temperatures may cause severe flood and droughts, prevalence of insects, raise sea levels, change precipitation and change of regional climate conditions. This could affect human health, alter crop production and alter some types of ecosystems.