



## The Isaac Newton School of Driving: Physics and Your Car

By Barry Parker

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For some people, driving is an art; for others, it's a science. At the Isaac Newton School of Driving, though, every car is a laboratory on wheels and every drive an exciting journey into the world of physics. As explained by renowned science writer and physics professor Barry Parker—whose father was a car mechanic and garage owner—almost every aspect of driving involves physics. A car's performance and handling relies on fundamental concepts such as force, momentum, and energy. Its ignition system depends on the principles of electricity and magnetism. Braking relies on friction—yet another basic scientific concept—and if the brakes fail, the resulting damage, too, can be predicted using physics.

Parker's first lesson describes the basic physics of driving: speed and acceleration; why you get thrown forward while braking or outward while turning; and why car advertisements boast about horsepower and torque. He goes on to discuss the thermodynamics of engines, and how they can be more fuel efficient; and what friction and traction are and how they keep a car's tires on the road, whether it's dry, wet, or icy. He also describes how simple laws of physics enable scientists to design aerodynamic cars and high-tech steering systems. Parker then explores the high-performance physics of auto racing, outlines how traffic accidents are reconstructed by police, uses chaos theory to explain why traffic jams happen, and describes what cars of the future might look like. Whether you drive a Pacer or a Porsche, *The Isaac Newton School of Driving* offers better—and better-informed—driving through physics.

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### Editorial Review

Review

Parker grew up a mechanic's son and is as comfortable discussing gear sets and weight transfer as he is explaining the formula for determining the force of drag on a vehicle at any given speed. You don't need to be an engineer to read and enjoy Parker's often entertaining book that covers everything from the basics of engines and electronics to crashes and congestion. And after learning about  $Wd=Fh/R$ , you will likely be a better driver. RATING: Three and 1/2 [out of four] helmets.

(Larry Edsall *Autoweek*)

Parker's entertaining book is not a heavy tome replete with complex mathematical formulas?nothing more complex than high school physics. What *The Isaac Newton School of Driving* answers is the annoying complaint every teacher or parent hears from a teenager: 'I'll never use all this (insert expletive) in real life!'

(Terry Jackson *AMI Auto World Magazine*)

Contains examples of practical technology that would certainly enhance and extend many courses... written in a lighthearted manner that is successful and appealing.

(Hal Harris *21 C: Scanning the Future*)

A comprehensive look at the fundamental elements of the driving experience... The author enlivens many difficult concepts with clear, comfortable explanations... Whether a reader is looking for simple applications or the physics of high performance racing vehicles, this book will make any reader pause and think about the science of their car and driving.

(Charles James *National Science Teachers Association Recommends*)

Barry Parker has written an intriguing book... *The Isaac Newton School of Driving* has a definite flair and keeps the reader interested.

(Henry J. P. Smith *Industrial Physicist*)

The discussions are clear and the physics is correct.

(*Choice*)

Parker writes with authority and humor about the expensive machines none of us can survive without for long. For high-school students Ph.D.'s, and anyone who wants to know how cars really work, this is an excellent book.

(Paul J. Nahin, author of *Oliver Heaviside: The Life, Work, and Times of an Electrical Genius of the Victorian Age*)

At last, a book about cars that goes beyond the usual basics and right into the heart of the matter. Barry Parker lucidly covers an impressive range of topics related to cars and driving, from engines and aerodynamics to traffic jams and futuristic trends. In it I learned more about my own vehicle than by reading the owner's manual! This book will surely find a wide audience.

(Alain Haché, author of *The Physics of Hockey*)

*The Isaac Newton School of Driving* has provided a wonderful overview of all the things that have to happen to get you there and back again safely. From the intricacies of the internal combustion engine to the dangers of head to head collisions, Barry Parker provides a great resource for automobile fans who want to understand science, and vice versa.

(Alan C. Tribble, author of *A Tribble's Guide to Space*)

About the Author

**Barry Parker** is a professor emeritus of physics at Idaho State University and the author of fifteen books, including *Einstein's Dream*, *Relativity Made Relatively Easy*, *The Vindication of the Big Bang*, and *Cosmic Time Travel*.

## Users Review

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**Melissa Hopkins:**

As people who live in typically the modest era should be up-date about what going on or details even knowledge to make these keep up with the era that is certainly always change and move ahead. Some of you maybe will update themselves by reading books. It is a good choice in your case but the problems coming to a person is you don't know which you should start with. This *The Isaac Newton School of Driving: Physics and Your Car* is our recommendation so you keep up with the world. Why, as this book serves what you want and want in this era.

**Steven Kilgore:**

*The Isaac Newton School of Driving: Physics and Your Car* can be one of your beginner books that are good idea. Many of us recommend that straight away because this guide has good vocabulary that may increase your knowledge in language, easy to understand, bit entertaining however delivering the information. The article writer giving his/her effort to get every word into enjoyment arrangement in writing *The Isaac Newton School of Driving: Physics and Your Car* although doesn't forget the main stage, giving the reader the hottest in addition to based confirm resource facts that maybe you can be one among it. This great information can easily drawn you into new stage of crucial considering.

**Carlos Reese:**

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