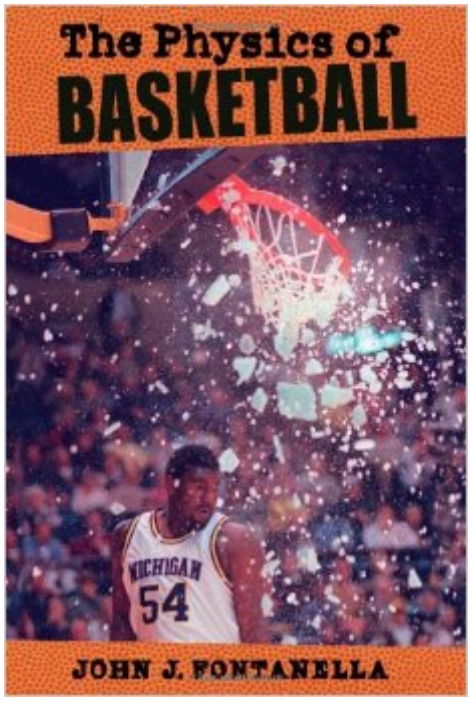
The Physics Of Basketball



Synopsis

Drain three pointers, slam dunk easily, and sink that buzzer beater from half court with the help of simple science. Your coach, physicist John J. Fontanella, shows how you can improve your game if you take advice from Isaac Newton. As you read, relive some of the great moments in the gameâ •this time with a scientist and diehard basketball fan as your color analyst. Find out why you ought to put spin on the ball. Get tips on how to improve your free throw and increase your percentage from the charity stripe. Youâ ™ll even learn how to shatter the backboard, if thatâ ™s something youâ ™ve always dreamed of doing. With photographs and simple high school formulas, physics professor Fontanellaâ •who played in college against Pittsburgh and Syracuseâ •reveals the key pieces of physics that underscore basketball. He covers almost every aspect of the game, weaving in stories from games heâ ™s played and games heâ ™s seen, and tales from basketball history and folklore. Physics comes alive as you see how Kobe Bryant, Wilt "the Stilt" Chamberlain, Michael Jordan, Becky Hammon, and J. J. Reddick do naturally the things that Isaac Newton says they should.

Book Information

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Customer Reviews

Make no mistake about it, this is not an introductory book. This is for people who know basketball and a little physics or know physics and a little basketball. It tells basketball stories to illustrate physics and physics stories to illustrate basketball.I would recommend this book to high school and college physics teachers to add interest to their discussions. It could even be used as text for a college course on physics of sports. Not only does sport interest students, they already know

something about ’how it works’ and with the help of this book, an instructor can use physics to introduce them to ’why it works’.I found of the sequence of explanation of the four force model of the flight of the ball exceptionally well done. As with a good scienctist, he started with data. Then he took one force, gravity, explained how it works, what effect it will have on a shot ball and compared the effect to data. He showed how gravity was necessary but insufficient to explain the ball’s motion. Through three more forces: buoynacy, drag (air resistance) and Magnus force, he methodically discussed the force, performed measurements, then added the force to the model. Now that he had the four force model, he used it to explain how a good shooter chooses his shot angle to make a shot ’softer’ not, as one might expect, easier. Marvelous -- data, theory (or theories), model, prediction, repeat until it matches nature, and finally use the model to explain something not originally in the model. How much more accurate a view of the method of scientist than the "scientific method".As the motion of the ball gets more complicated, following the physics does get a bit challenging.

Would you like some extra motivation to learn the laws of physics? John Fontanella really does the trick for you, with his great analysis of the physics world in the game of basketball! He covers aspects of how to shoot the "soft shot" and how the ball has its best rotation before falling into the hoop. He also covers the aspect of the buoyant force acting on the ball. That was something that really struck my interest, as it is something that I’ve never really thought about. Reading from this book helped me to appreciate the game of basketball even more. I even feel like I may naturally perform a little better in the future due to the realization of how things work. It makes sense now how the basketball can seem to float more than a solid object in the air, because of the air that is inside it causing a buoyant force from the air to act upon it. Not only are some of these aspects of the game of basketball taught on, but Fontanella even breaks down the mechanics of how one receives "hang time" when going to slam the ball. He broke down the calculations to where due to the acceleration of gravity, 71% of a person’s horizontal travel happens in the top half of flight. Also, because when one throws his or her arms up in the air, there is an opposing force which seems to lower the person’s vertical height. If this person will raise his or her arms once he or she barely pushes off the ground, this appearance of being lowered in the air will not really occur. When this individual throws his arms down, especially in attempt to throw the basketball through the hoop, his body will appear to "lift" even though he is currently in the air. Due to all of this, it will appear as if the athlete is truly floating or hanging in air. I really enjoyed this book.

The Kurious Kid Presents: Basketball: Awesome Amazing Spectacular Facts & Photos of Basketball (Kurious Kids) Jimmy Butler: The Inspiring Story of One of Basketball's Best All-Around Shooting Guards (Basketball Biography Books) Stephen Curry: The Inspiring Story of One of Basketball's Sharpest Shooters (Basketball Biography Books) Michael Jordan: The Inspiring Story of One of Basketball's Greatest Players (Basketball Biography Books) Kevin Durant: The Inspiring Story of One of Basketball's Greatest Small Forwards (Basketball Biography Books) LeBron James: The Inspiring Story of One of Basketball's Greatest Players (Basketball Biography Books) Kyrie Irving: The Inspiring Story of One of Basketball's Most Versatile Point Guards (Basketball Biography Books) Kuroko's Basketball, Vol. 2: Includes Vols. 3 & 4: 3-4 (Kuroko's Basketball) Physics for Scientists and Engineers with Modern Physics: Volume II (3rd Edition) (Physics for Scientists & Engineers) Head First Physics: A learner's companion to mechanics and practical physics (AP Physics B - Advanced Placement) The Physics of Basketball Learning Game Physics with Bullet Physics and OpenGL Sterling Test Prep GRE Physics Practice Questions: High Yield GRE Physics Questions with Detailed Explanations McGraw-Hill Education SAT Subject Test Physics 2nd Ed. (Mcgraw-Hill's Sat Subject Test Physics) Sterling Test Prep MCAT Physics Practice Questions: High Yield MCAT Physics Questions with Detailed Explanations Conceptual Physics : The High School Physics Program Physics of Atoms and Ions (Graduate Texts in Contemporary Physics) Physics of Amphiphiles: Micelles, Vesicles and Microemulsions : Proceedings of the International School of Physics, Enrico Fermi, Course Xc The Feynman Lectures on Physics, Vol. II: The New Millennium Edition: Mainly Electromagnetism and Matter (Feynman Lectures on Physics (Paperback)) (Volume 2) Physics for Scientists and Engineers, Volume 2: Electricity, Magnetism, Light, and Elementary Modern Physics