



Catherine's Family Fitness Blog

By [Catherine Holecko](#), About.com Guide to Family Fitness

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The science of soccer

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Whether you're trying to get a [reluctant](#) science lover onto the field, or help a star athlete improve math and science grades, check out Deji Badiru's new book, *The Physics of Soccer: Using Math and Science to Improve Your Game* ([compare prices](#)). Badiru lists five ways kids, parents, and teachers can connect science and sport:



1. Use the effect of gravity to explain why what goes up, must come down
 2. Use the science of work and energy to explain how [calories](#) are burned
 3. Use the science of evaporation to explain how [sweating](#) cools the body down
 4. Use mathematical principles to assess how a ball bounces off a wall when kicked at a certain angle
 5. In simple terms, use Newton's Laws of Motion to explain movements of the ball in ball-based games
- A ball at rest stays at rest until acted upon by a force such as a kick (from the first law)
 - The acceleration that a ball achieves is based on its weight and the kicking force applied to the ball (from second law)
 - For every action on the ball, there is an equal and opposite reaction. The ball pushes against the foot whenever the foot pushes against the ball.