

http://www.sciencespectrumonline.com/artman/publish/article_299.shtml

The Physics of Soccer: Using Math and Science to Improve Your Game

By SS

Mar 19, 2010, 19:20

Children's understanding of how science, technology, engineering, and math are incorporated into their everyday lives. Creating simple connections between everyday events and activities such as sports, helps children to be less intimidated by these subjects and more intrigued by their relevance.

One of the world's leading experts on STEM Integration, Dr. Deji Badiru explains how you can easily relate subjects like physics and math into your child's everyday life. The head of the Department of Systems and Engineering Management at the Air Force Institute of Technology in Dayton, Ohio, Badiru is the author of *The Physics of Soccer Using Math and Science to Improve Your Game*; a practical guide to incorporating science into soccer to improve your performance.

"The goal is to demystify STEM so that kids see science, technology, engineering, and math as less intimidating. This can be accomplished by using STEM to explain common everyday events that are fun to observe, thus making STEM more appealing. Kids learn better when exposed to scenarios involving inquiry, critical thinking, inquisitive questioning, role playing, integration of knowledge, and abstraction."

Dr. Badiru's five tips for incorporating STEM into sports and activities are:

Five tips for incorporating STEM into sports:

1. In simple terms, use Newton's Laws of Motion to explain movements of the ball in ball-based games.
 - i) A ball at rest stays at rest until acted upon by a force such as a kick (from the first law)
 - ii) The acceleration that a ball achieves is based on its weight and the kicking force applied to the ball (from second law)
 - iii) 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.
2. Use the effect of gravity to explain why "an apple never falls far away from the tree."
3. Use the science of work and energy to explain how calories are burned when playing sports
4. Use the science of evaporation to explain sweating cools the body down during sports activities

5. Use mathematical principles to assess how a ball bounces off a wall when kicked against the wall at a certain angle

© Copyright 2004 by Career Communications Group, Inc.