

Activity: Bouncing Balls

On SCOPE's Sports Tech 3 episode, you saw Julia experiment with the energy of bouncing balls. Here's how she did it:



What you need

Tennis Ball

Basketball

Large Open Area

Egg

What to do

1. Start by bouncing the tennis ball or the basketball and try to work out why these balls bounce so well.
2. Now comes the fun part! Standing in a large open space, hold the basketball out at arms length and hold the tennis ball on top.
3. Once everything is in position, drop them both at the same time.
4. What happened to the tennis ball? What happened to the basketball?
5. Finally, if you want to make things really messy (make sure you ask an adult before you do this part!), replace the tennis ball with an egg and see if this non-bouncing object bounces!

What's happening?

Why do basketballs and tennis balls bounce? Well it all has to do with energy. When you drop the ball, gravity pulls it down to the ground and creates movement energy, which is called kinetic energy. As the ball hits the ground, it squishes, or deforms, so the kinetic energy *changes* into deformation energy, but only for a split second! The rubber quickly springs back to how it was before, and this pushes the ball back up again! And yep, you guessed it – the energy changes back into kinetic energy! And what about that tennis ball and basketball trick? Well when the ball hit the ground, it transferred its upward moving energy into the tennis ball, which went flying! And because the basketball transferred its energy to the tennis ball, it bounced much lower. The egg trick uses the same principal, but with some extremely messy results!