

Write your notes
about what you are
reading in this space.

Science Shorts -6

Potential and Kinetic Energy

Okay, picture this – you walk into a gym, ready to play some hoops. There in the middle of the court, basketball lies on the floor. You walk over and pick it up, ready to dribble to the basket. You drop it to the floor where – OH, NO! Instead of bouncing, it cracks and splatters in an oozing mess all over the once-shiny gym floor. Boy is Coach going to be mad at you!

What's that? It wouldn't happen? Why not? Why does a basketball bounce, instead of splattering like a raw egg? It's all about energy.

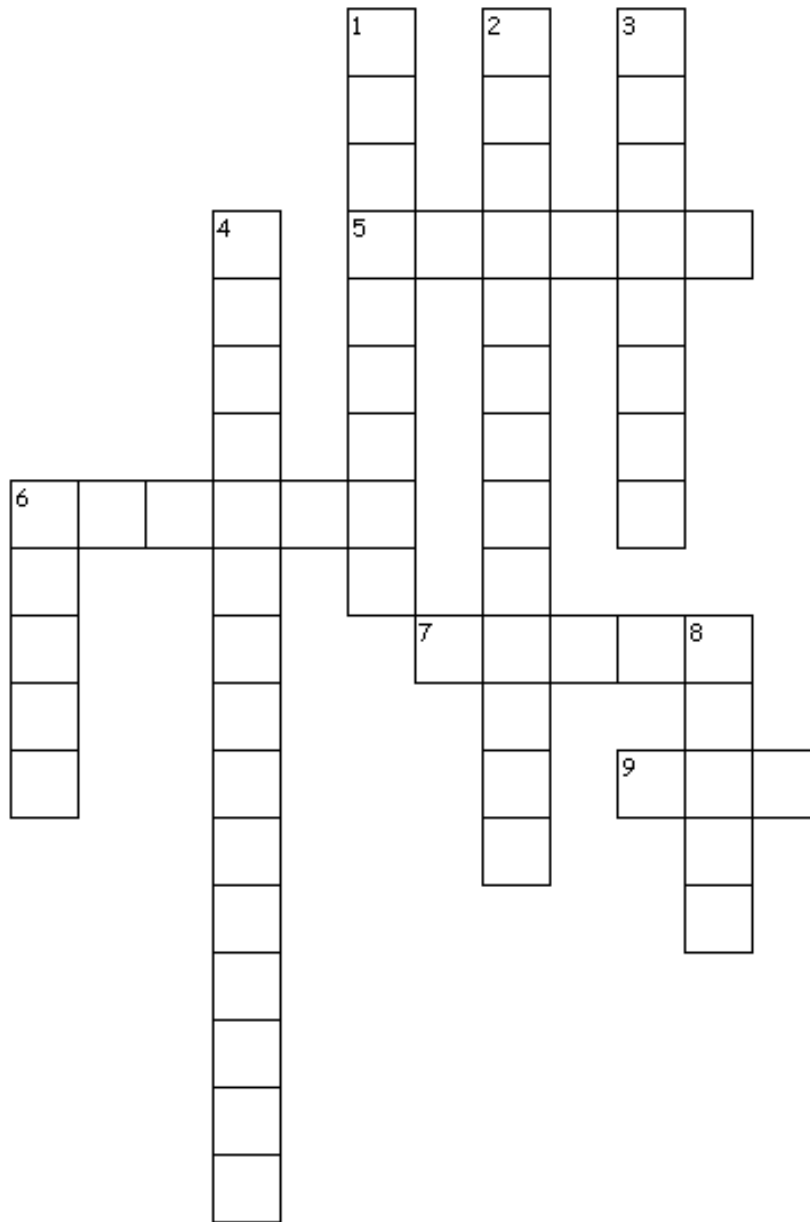
Basketballs and eggs handle energy differently. Energy is the ability to do work. When you pick up a basketball or an egg, you transfer energy to it. As long as you hold it, the ball or the egg has potential energy. That means it has stored some energy and has the potential to do something. For example, it could fall to the floor. When you drop it, that potential energy changes into kinetic energy. Kinetic energy is the energy of motion.

When the basketball hits the floor (here's the part that's different from the egg), it stores energy as the ball dents slightly. For that brief moment, the ball has potential energy again. The molecules in the rubber stretch and bend, storing energy. Then the molecules go back to their original shape. The potential energy becomes kinetic energy again. The ball bounces upward.

The egg, of course is different. Eggshell is not made of stretchy, bendy molecules that store energy. When the egg hits the floor, it smashes and breaks.

Now let's talk about the floor. What do you think happens to the floor when the basketball hits it? The floor dents very slightly, storing energy for a brief moment. Then it goes back to its original shape. Most of the energy returns to the ball.

What do you think would happen if the gym floor were covered with grass and soil, like a football field? Would it change the way the basketball bounces? Of course, it would! Grass and soil don't return to the original shape as well as wood does. Some of the grass would even be smashed, like the eggshell. So a good part of the energy from the basketball's bounce would be transferred to the grass and soil. As a result, the ball would not bounce as high as it would on a gym floor.



Across

5. Ability to do work
6. Spring away from a surface
7. Make a depression in something by hitting
9. Uncooked

Down

1. Smallest part of a chemical compound
2. Energy of motion
3. First
4. Stored energy
6. short time
8. Shatter