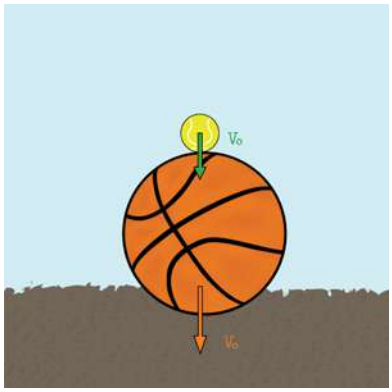


Two Ball Bounce

Leading questions:

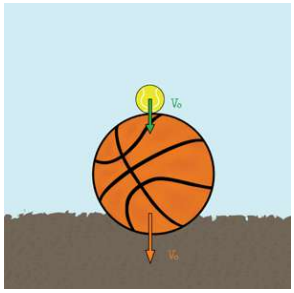
- A ball held above the floor has gravitational potential energy. What happens to the ball's potential energy when you drop it?
- How high do you think the ball should bounce back?

What to do:

1. Hold a large ball at chest height and drop it.
   - Why does the ball bounce back up?
   - Is the ball's kinetic energy (bouncing back up) equal to the potential energy before you let go?
   - How do you know?
2. Place the smaller ball on top of the bigger one and drop them together.
   - Why does the smaller ball go higher than if did before?
   - Why doesn't the larger ball go as high as it did before?

Summary:

Energy can be converted from one form of energy to another, but it is never lost. This is called the Law of Conservation of Energy. What kind of energy do moving cars have? Where do you think happens to the energy goes when the two cars collide?



Two Ball Bounce
(Guide)

Leading questions:

- A ball held above the floor has gravitational potential energy. What happens to the ball's potential energy when you drop it?
  - **Explain**: The potential energy (from gravity) changes to kinetic energy (motion).
- How high do you think the ball should bounce back?
  - **Explain**: The ball should ideally come back to the same height. In reality though, it will lose some energy to friction and heat when it hits the floor.

What to do:

1. Hold a large ball at chest height and drop it.
   - Why does the ball bounce back up?
     Explain: When the ball hits the floor, its kinetic (motion) energy in transformed to potential (squeezing) energy. The ball squeezes back, converting back to kinetic energy.
   - Is the ball's kinetic energy (bouncing back up) equal to the potential energy before you let go?
     - **Explain**: The kinetic energy from the bounce will be slightly less that the original potential energy, because of friction between he ball and the floor.
   - How do you know?
     - **Explain**: The ball doesn't quite bounce back to the same height.
2. Place the smaller ball on top of the bigger one and drop them together.
   - Why does the smaller ball go higher than if did before?
     - **Explain**: When the larger ball squeezes against the floor, some of its potential energy is transferred to the smaller ball, increasing its kinetic energy.
   - Why doesn't the larger ball go as high as it did before?
     - **Explain**: Some of the potential energy from the larger ball is lost to the smaller ball. That leaves less energy to be converted into kinetic energy.

Summary:

Energy can be converted from one form of energy to another, but it is never lost. This is called the Law of Conservation of Energy. What kind of energy do moving cars have? Where do you think happens to the energy goes when the two cars collide?

- **Explain**: The kinetic energy is used to do work (bending metal), with heat and sound.