

# POTENTIAL AND KINETIC ENERGY



# How is all energy divided?

**Energy**  
(the ability to  
cause change)

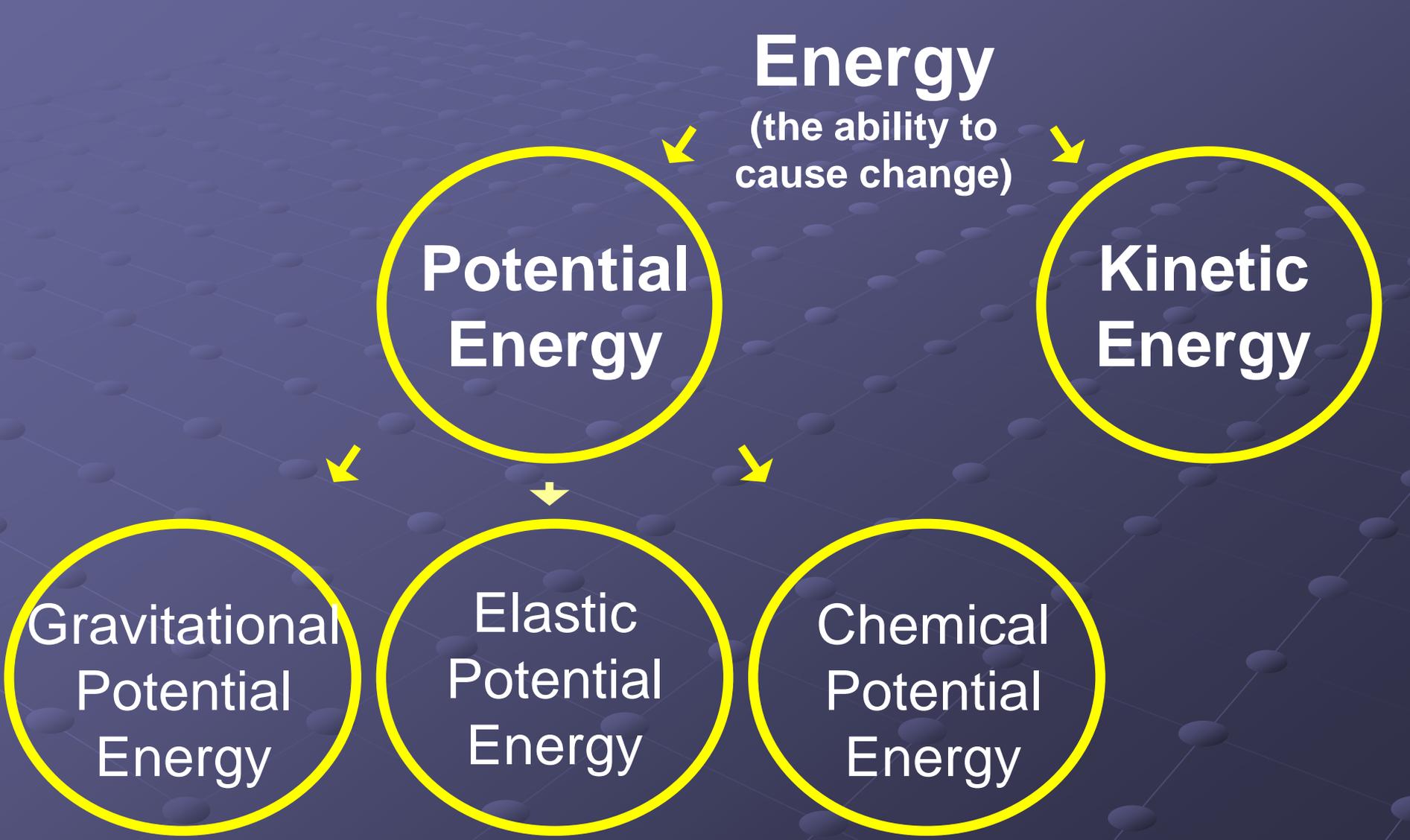
**Potential  
Energy**

**Kinetic  
Energy**

**Gravitational  
Potential  
Energy**

**Elastic  
Potential  
Energy**

**Chemical  
Potential  
Energy**

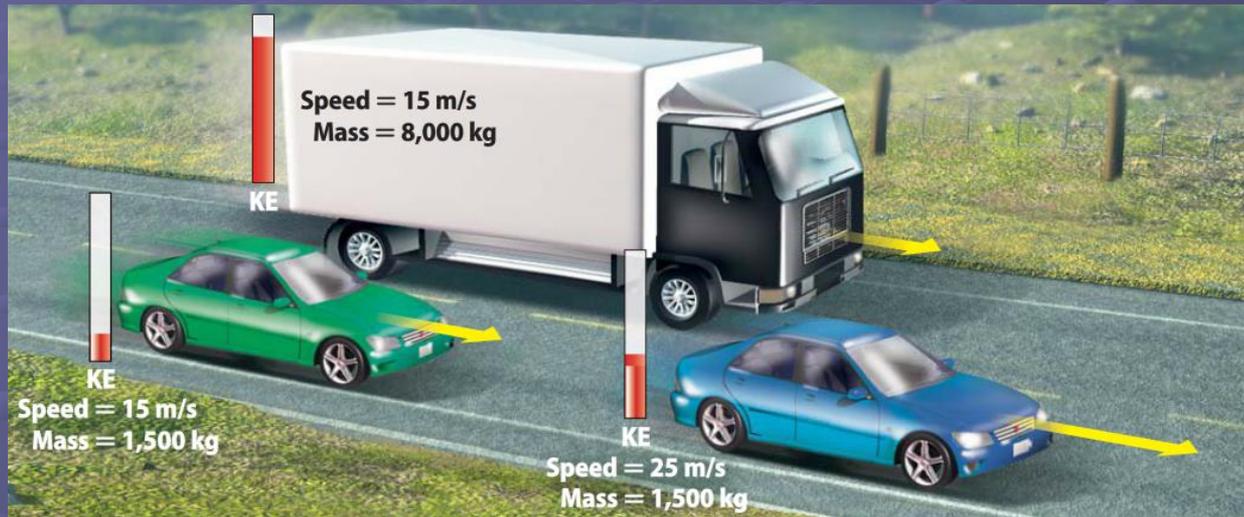


Read and highlight for  
pages 206-207. Stop  
when you get to  
**Potential Energy.**

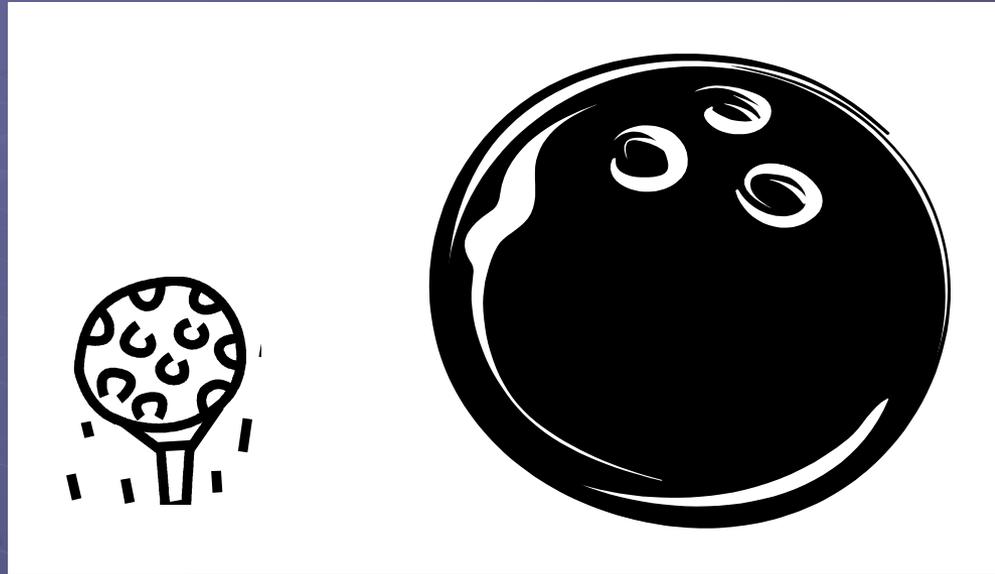
Complete blue #2 on page 207

# What is Kinetic Energy?

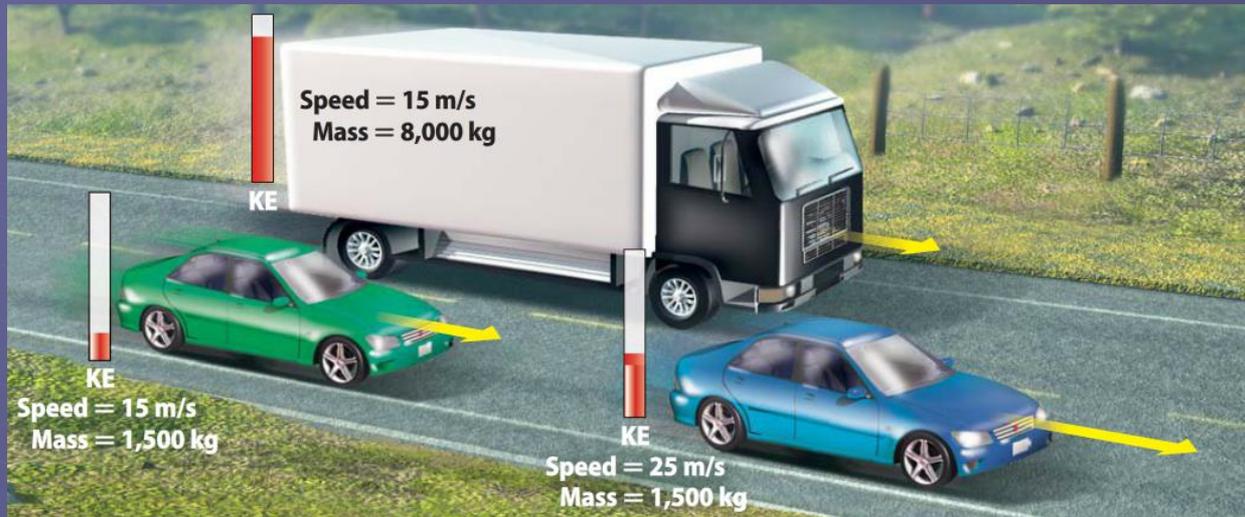
- Energy an object has due to its motion



- The kinetic energy of an object depends on both its mass and speed. Observe the differences in the masses and speeds of the vehicles in the picture.



**Which ball has more kinetic energy if they were both moving at the same speed?**

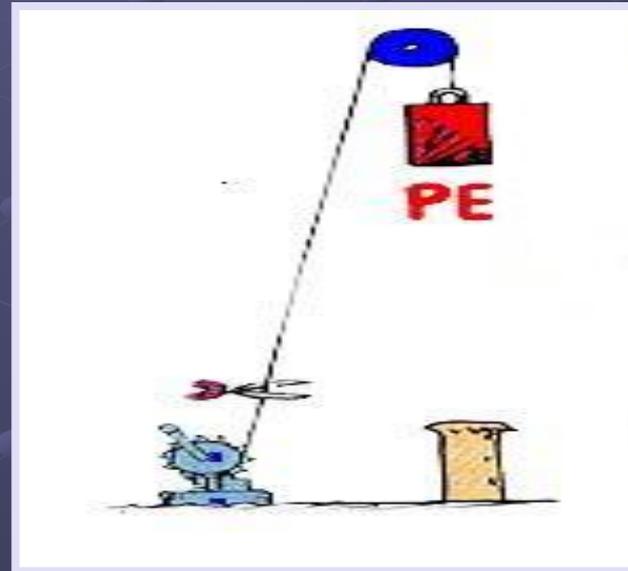


Which car has more kinetic energy in the above photo?

Read and highlight  
about Potential Energy  
starting at the bottom of  
page 207 through 208  
about types of potential  
energy.

# What is Potential Energy?

- Energy that is stored and waiting to be used later



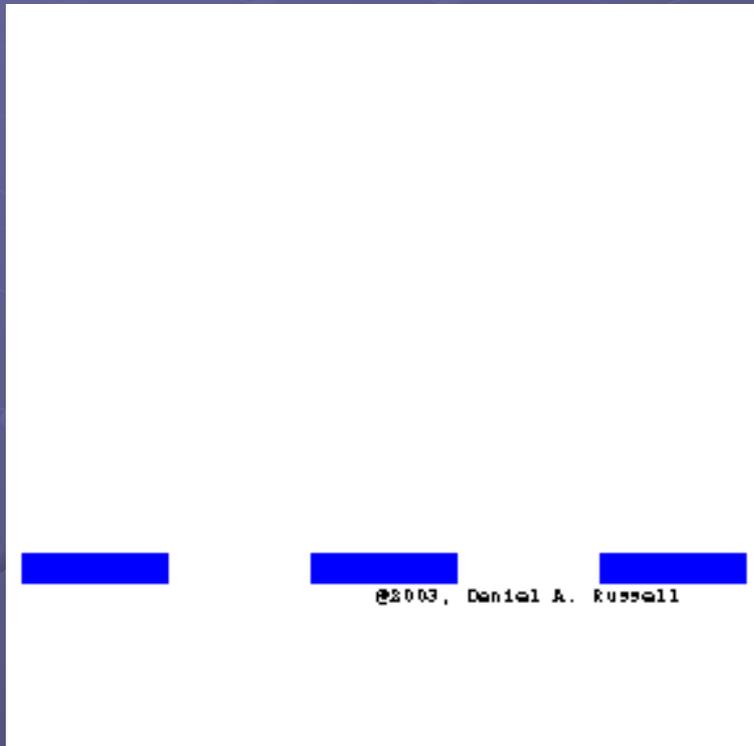
# What is Gravitational Potential Energy?



- **Potential energy due to an object's position or height**

# What is Elastic Potential Energy?

- Potential energy due compression or expansion of an elastic object.



**Notice the ball compressing  
and expanding**

# What is Elastic Potential Energy?



Can you name any other toys that may demonstrate elastic potential energy?

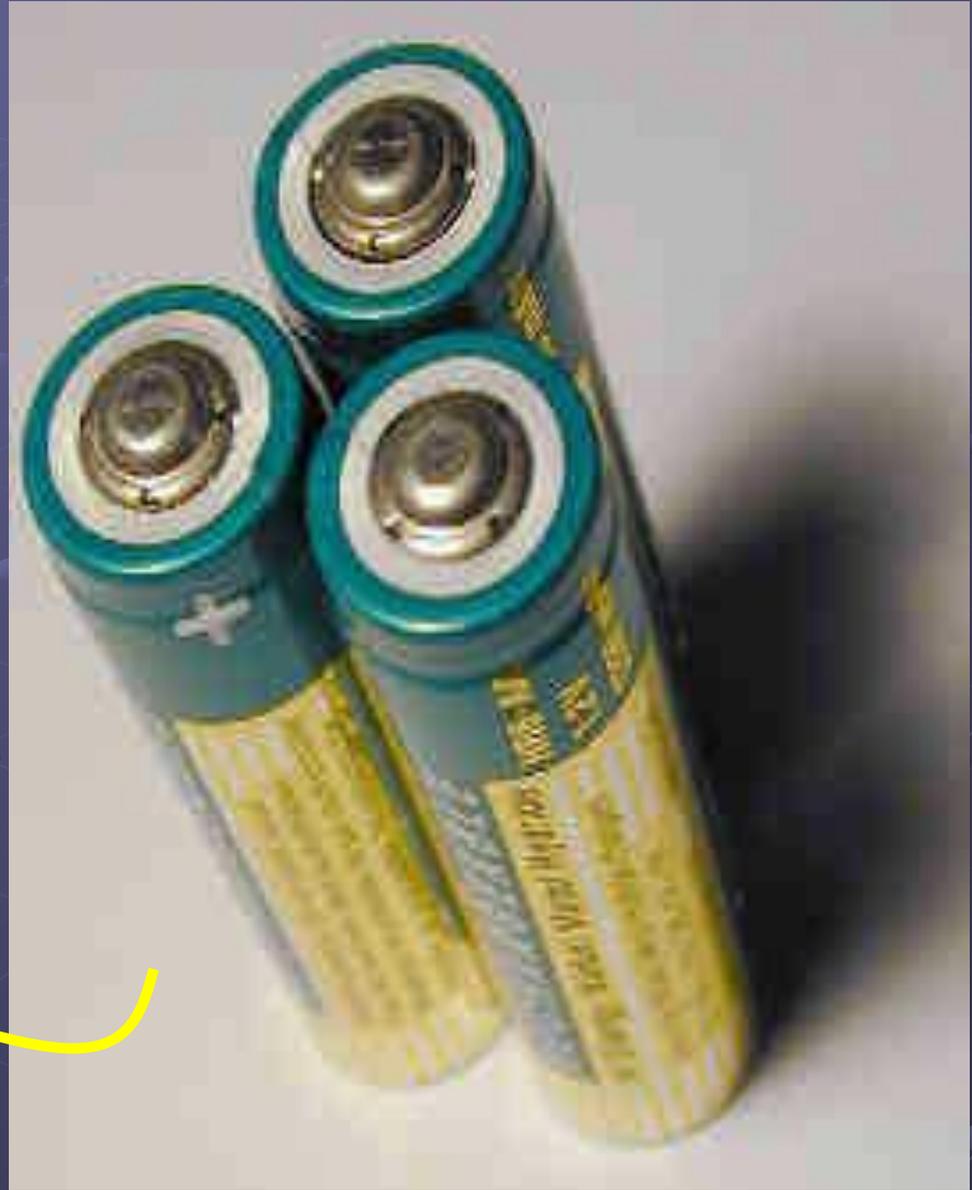
# What is Chemical Potential Energy?

- **Potential energy stored within the chemical bonds of an object**

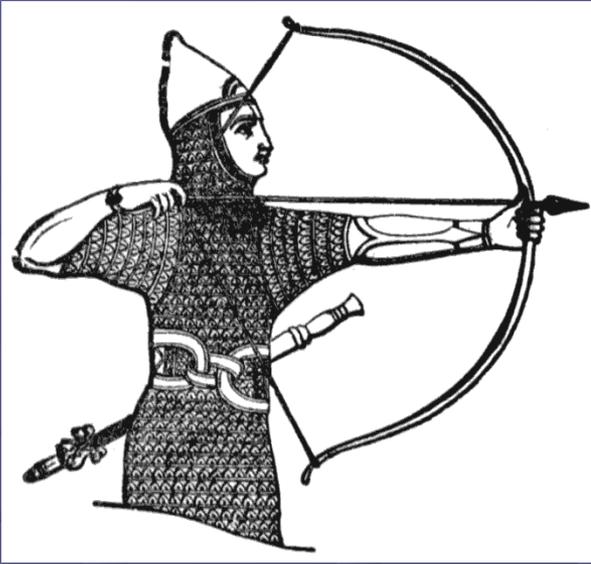


# What is Chemical Potential Energy?

- **Potential energy stored within the chemical bonds of an object**



# Types of Potential Energy



A.



B.

C.



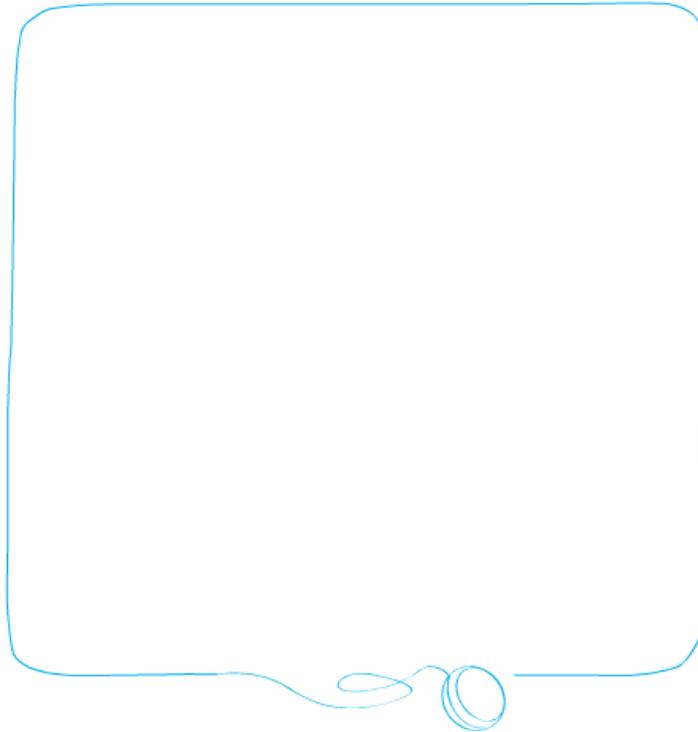
# Complete page 209

## Apply it!

Draw a picture of a yo-yo as it moves up and down a string. Label your drawing with the terms below. **TEKS 6.8(A)**

potential energy

kinetic energy



**Connect it!** Describe the yo-yo when it has no potential energy and no kinetic energy.

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potential energy

kinetic energy



Potential energy



More energy supplied by tugging string

Kinetic energy of movement



Kinetic energy of rotation

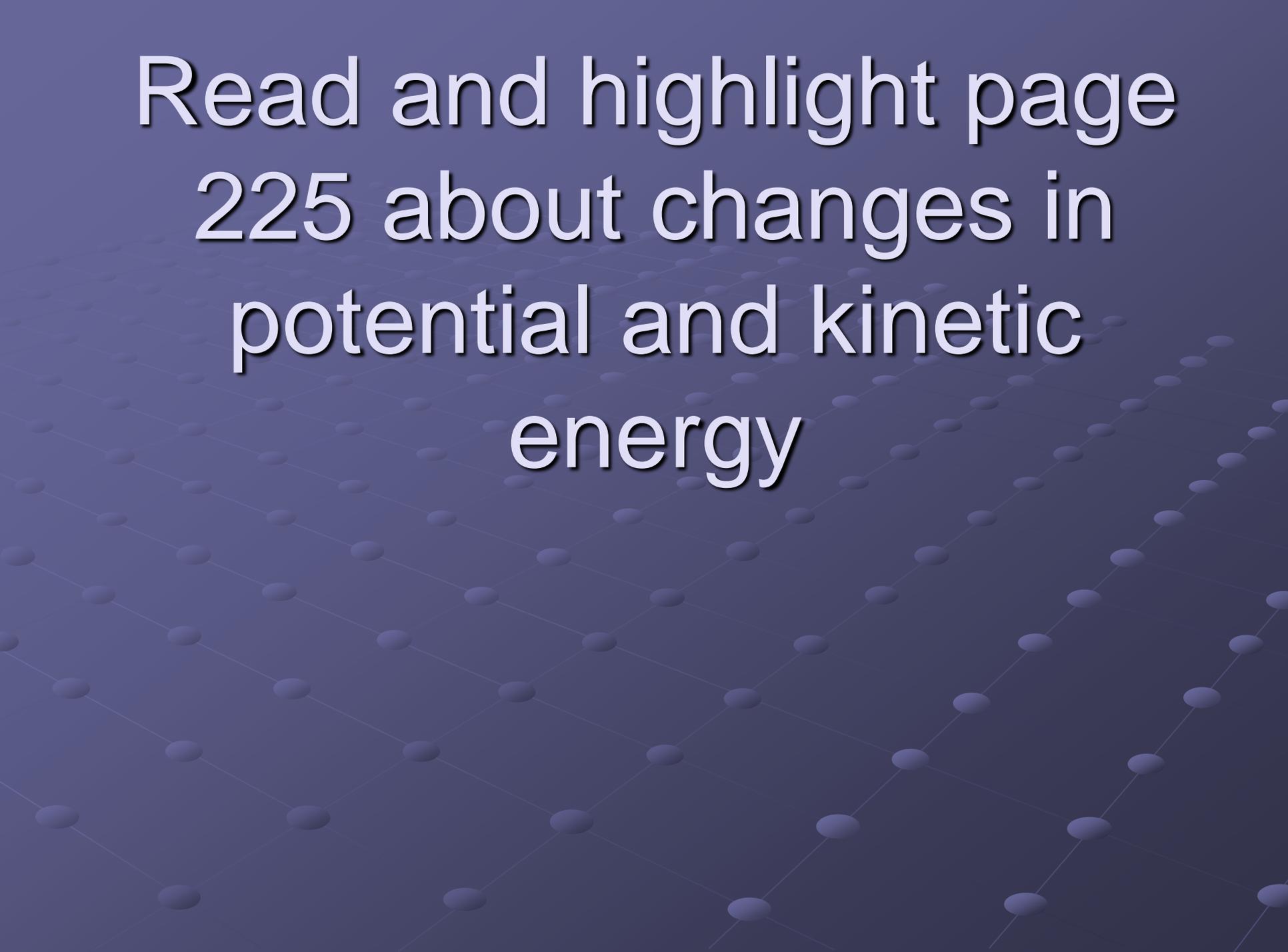
[www.explainthatstuff.com](http://www.explainthatstuff.com)

**Connect it!** Describe the yo-yo when it has no potential energy and no kinetic energy.

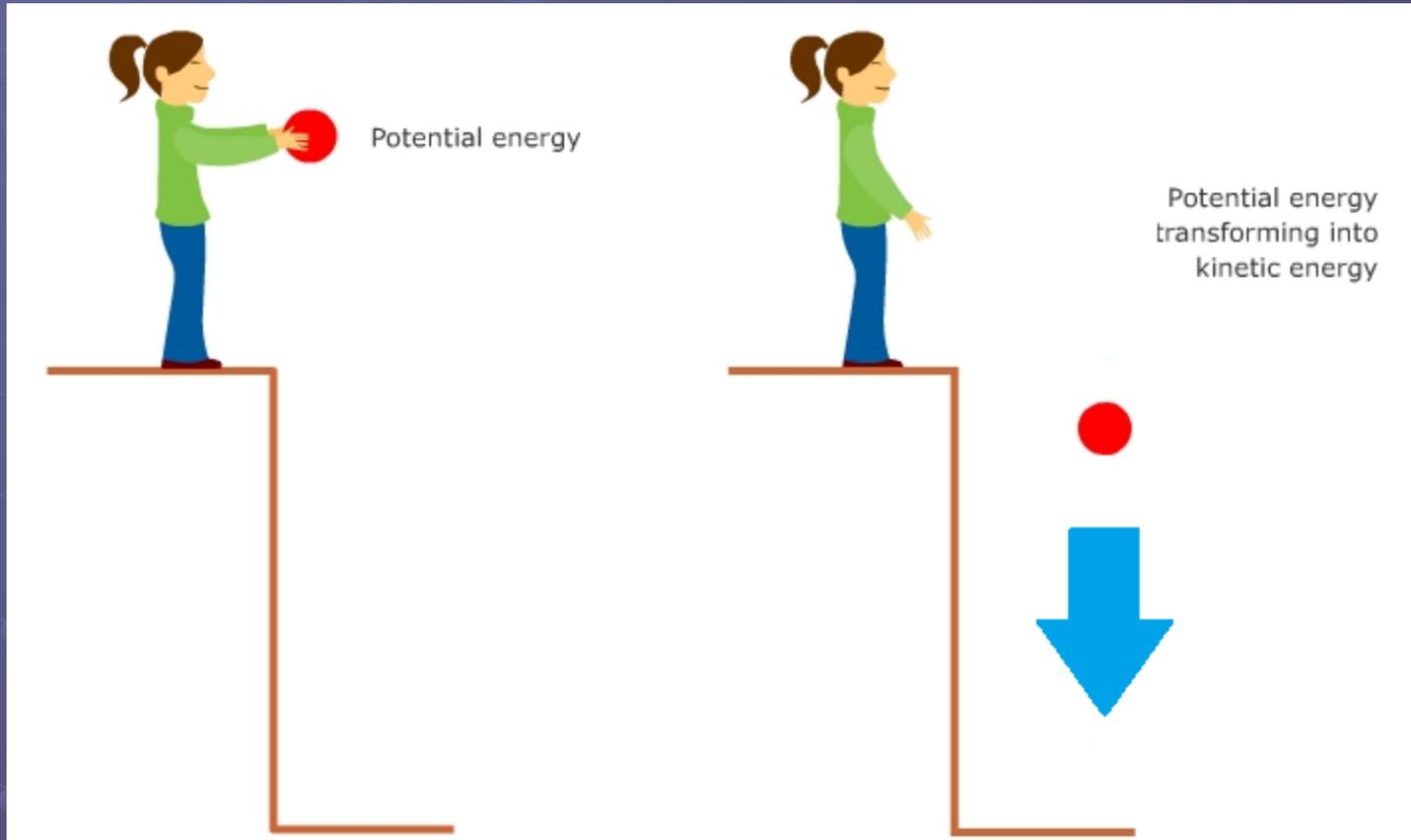
yo-yo hanging motionless at bottom of string

Apply

Read and highlight page  
225 about changes in  
potential and kinetic  
energy

The background of the slide features a repeating pattern of a diamond crystal lattice. It consists of a grid of small, light-colored spheres (atoms) connected by thin, light-colored lines, creating a three-dimensional perspective of a diamond structure.

# Converting Kinetic to Potential Energy and Potential to Kinetic Energy



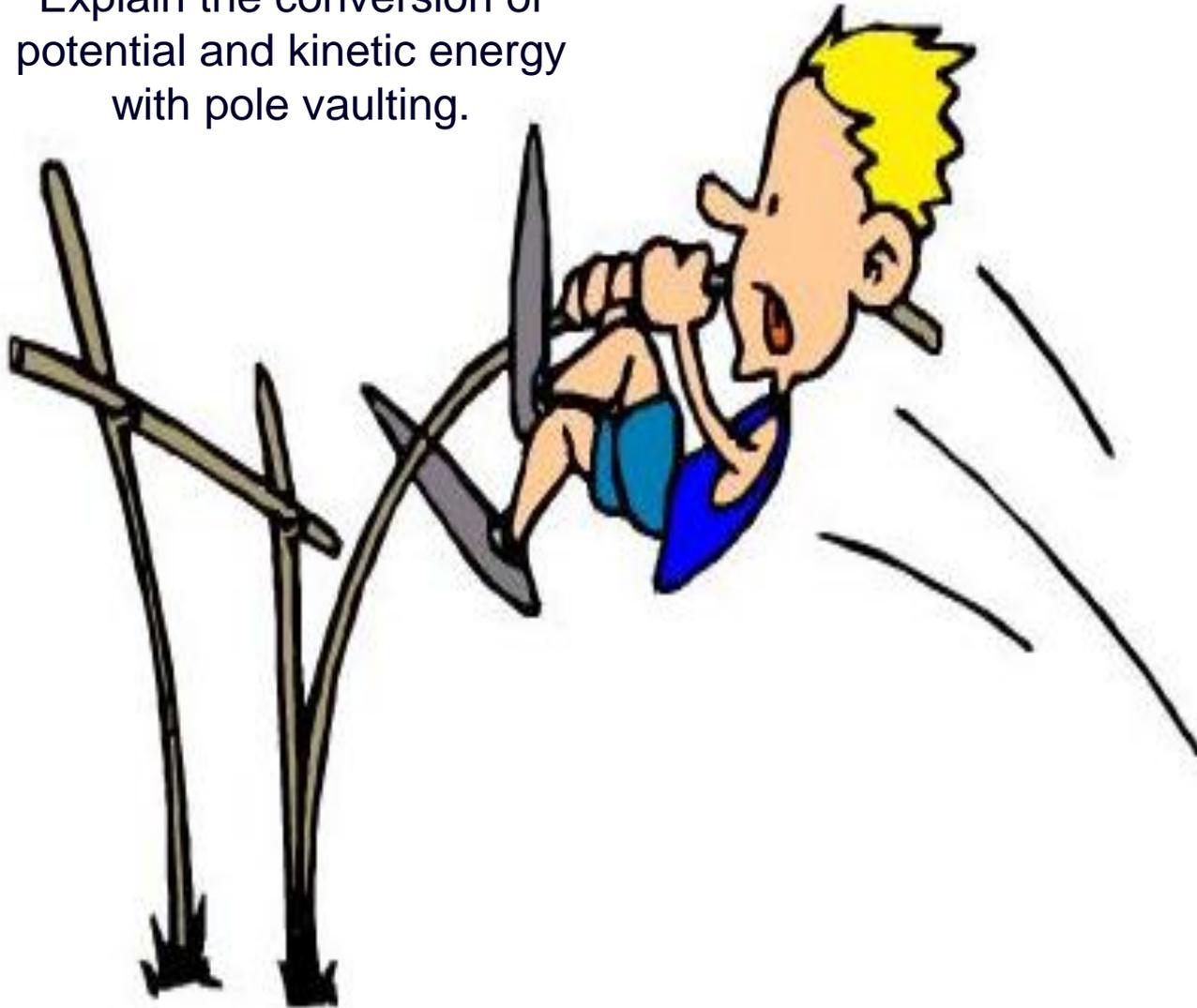
# Conversions in a Waterfall

gravitational potential energy  
changing to kinetic energy

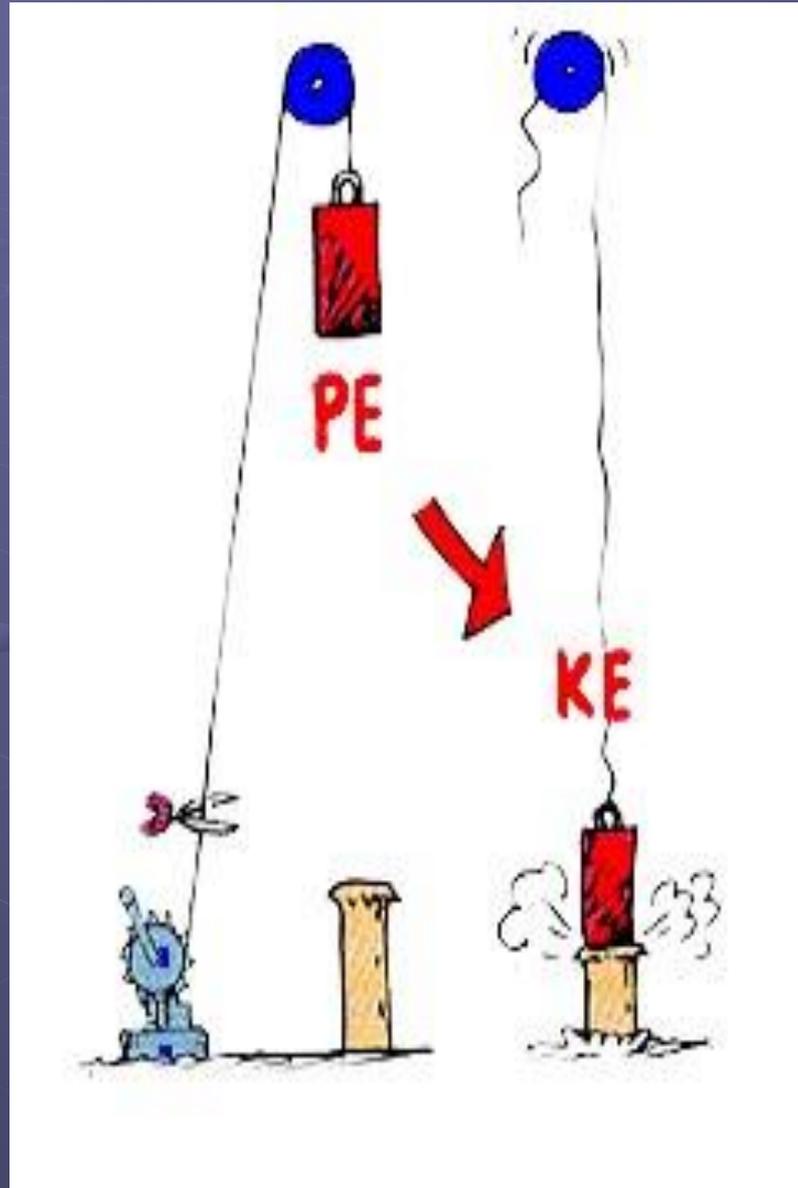


# Conversions in a Pole Vault

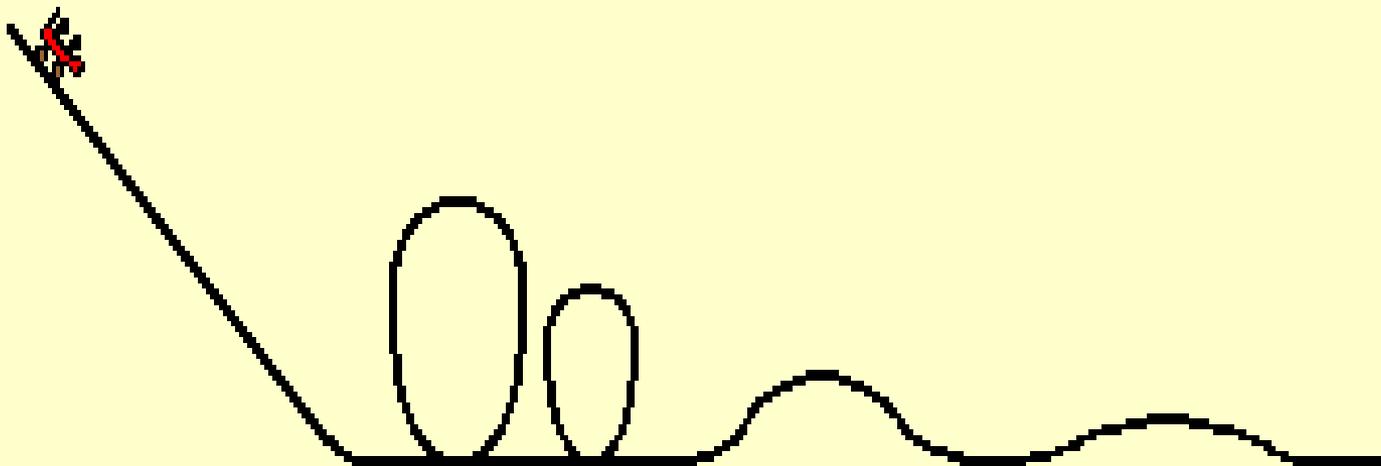
Explain the conversion of potential and kinetic energy with pole vaulting.



# Converting Kinetic to Potential Energy and Potential to Kinetic Energy

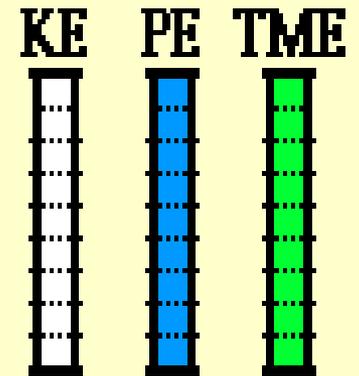


# Converting Kinetic to Potential Energy and Potential to Kinetic Energy



Height = 72.0 m

Speed = 0.0 m/s

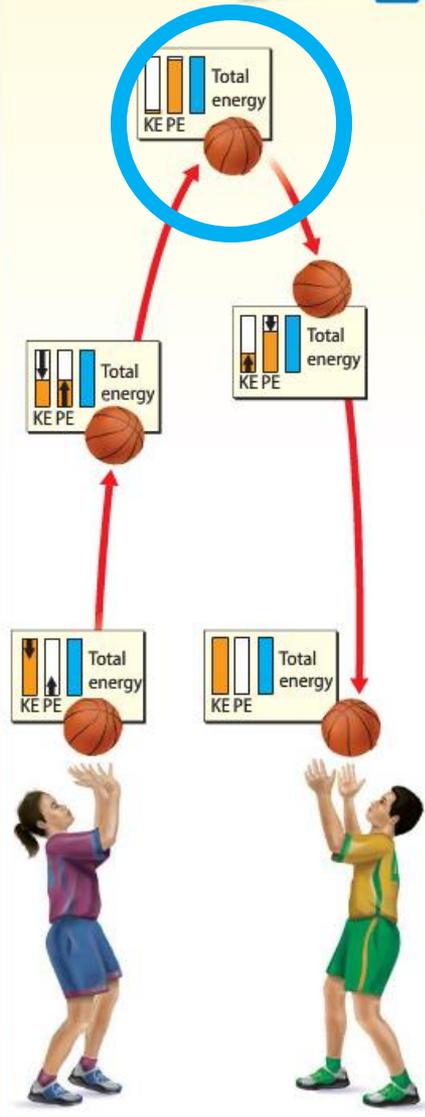


# Converting Kinetic to Potential Energy and Potential to Kinetic Energy



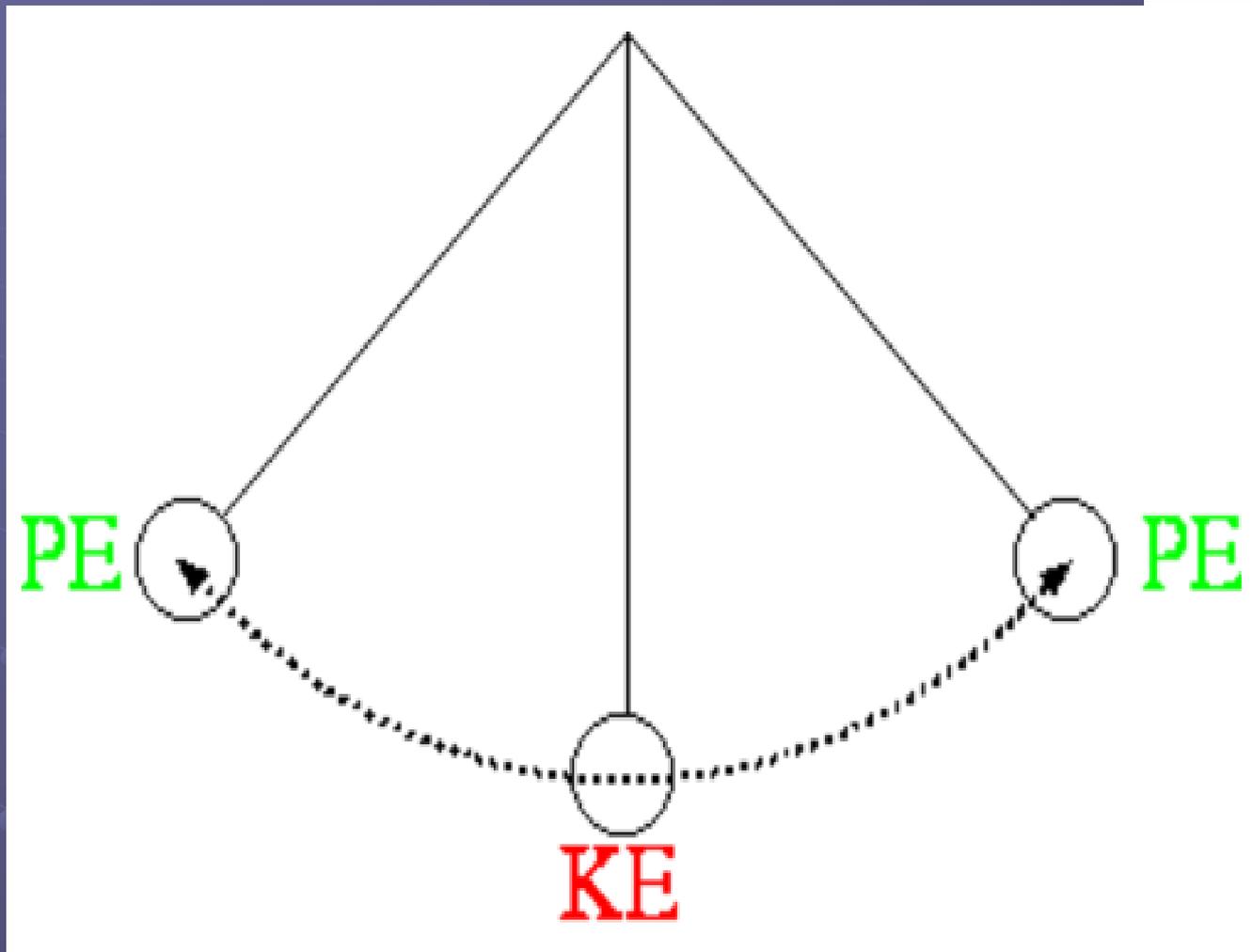
## Conservation of Energy

Go Online!

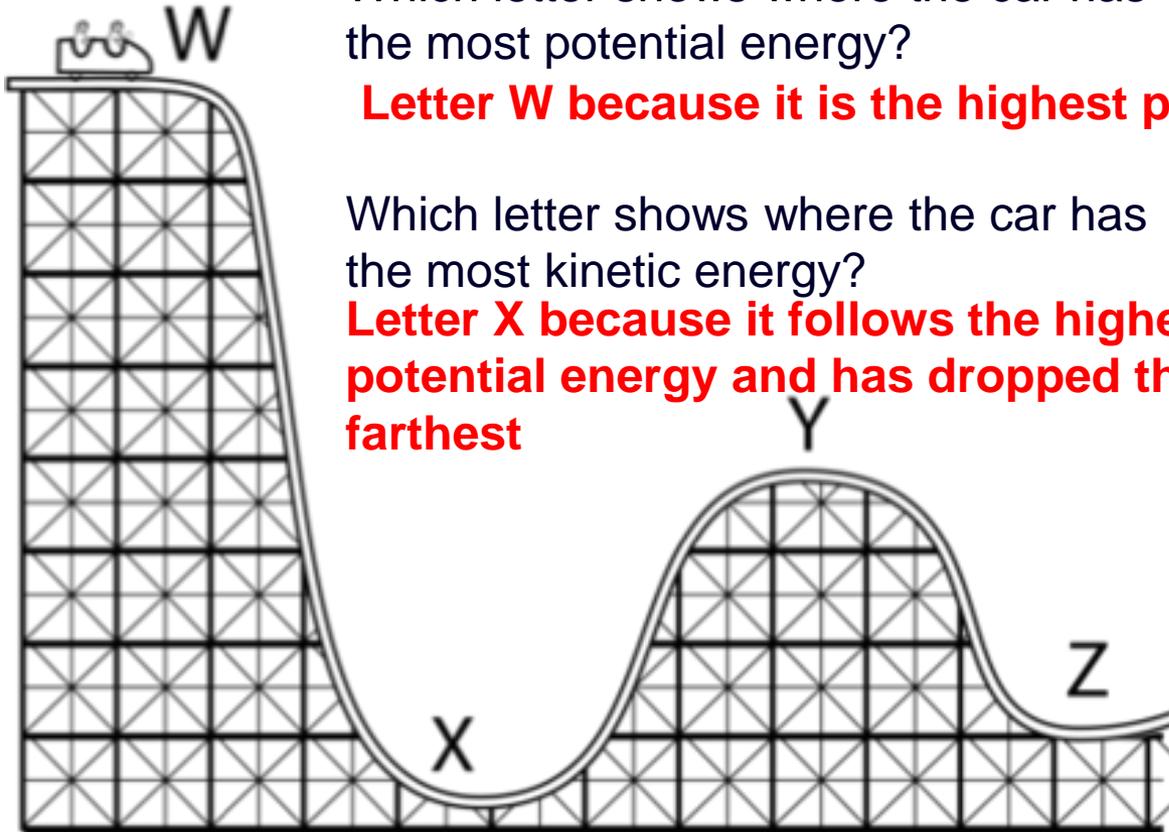


Circle in your book the point that the ball has the most gravitational potential energy.

# Conversions in a Pendulum



# Conversions in a Rollercoaster



Which letter shows where the car has the most potential energy?

**Letter W because it is the highest point**

Which letter shows where the car has the most kinetic energy?

**Letter X because it follows the highest potential energy and has dropped the farthest**

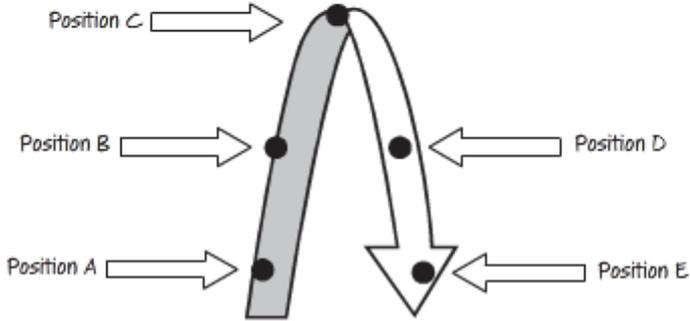
Turn to page 226 in your textbook. Using the word choices below, fill in the chart on that page. Then wait.

## Word Bank

decreasing  
increasing  
highest  
lowest

**Organize it!**

**Describe** how energy changes as a ball is thrown in the air. Compare the relative amounts of potential and kinetic energy at each position. **TEXS 6.8(A)**



Position C →

Position B →      ← Position D

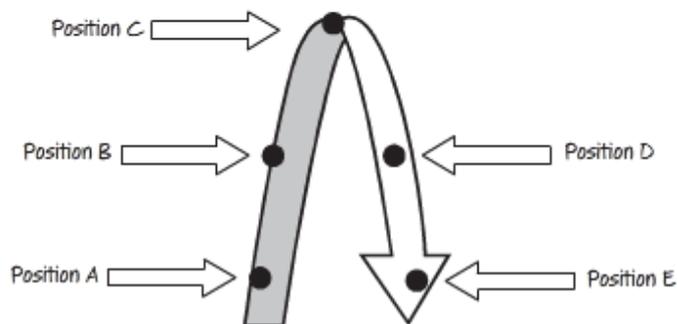
Position A →      ← Position E

Position	Kinetic Energy	Potential Energy
A		
B		
C		
D		
E		

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## Organize it!

Describe how energy changes as a ball is thrown in the air. Compare the relative amounts of potential and kinetic energy at each position. **TEKS 6.8(A)**



Position	Kinetic Energy	Potential Energy
A	highest	lowest
B	decreasing	increasing
C	lowest	highest
D	increasing	decreasing
E	highest	lowest

Work on or study your  
flashcards for the remainder  
of the class period.