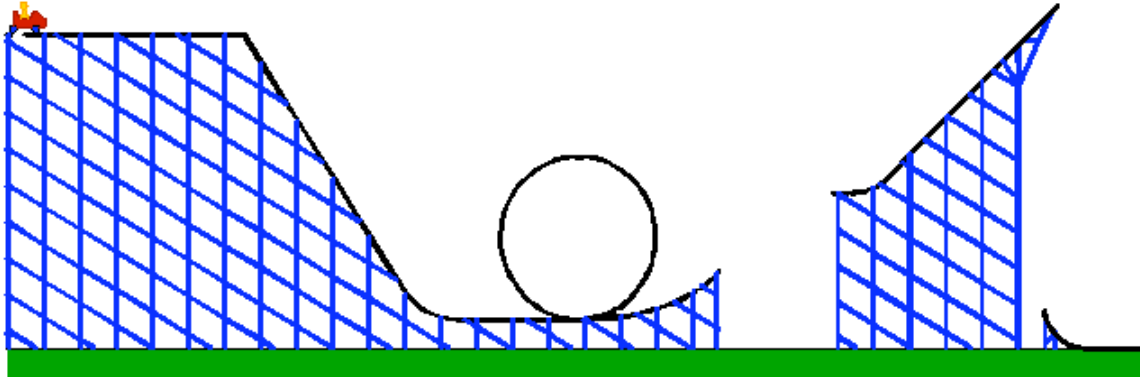


Name: \_\_\_\_\_

**Definitions:**PE: Potential Energy due to gravity ( $mgh$ )

KE: Kinetic Energy (Energy of motion)

TE: Total Energy:  $KE+PE=TE$ **Instructions:**

Go to the following web page:

<http://www.mrwaynesclass.com/energy/coasterANDenergy2.swf>

If you pressed the “play” button by now, do it. Watch the animation and how it repeats. Click on the “S” button. The speedometer is displayed. Run the animation. Let it repeat. Watch the height and the speedometer.

(1) How is speed and height related? (Answer on the “answer sheet.”).

Click on the “e” button to see the energy level meters.

- (2) Where on the coaster is the potential energy, **PE**, the largest (Answer on the “answer sheet.”)
- Compared to the heights of the other parts of the track, what is unique about this location's height? (Answer on the “answer sheet.”).
  - Compared to the velocities at other locations on the coaster, what is unique about the speed at this location? (Answer on the “answer sheet.”).

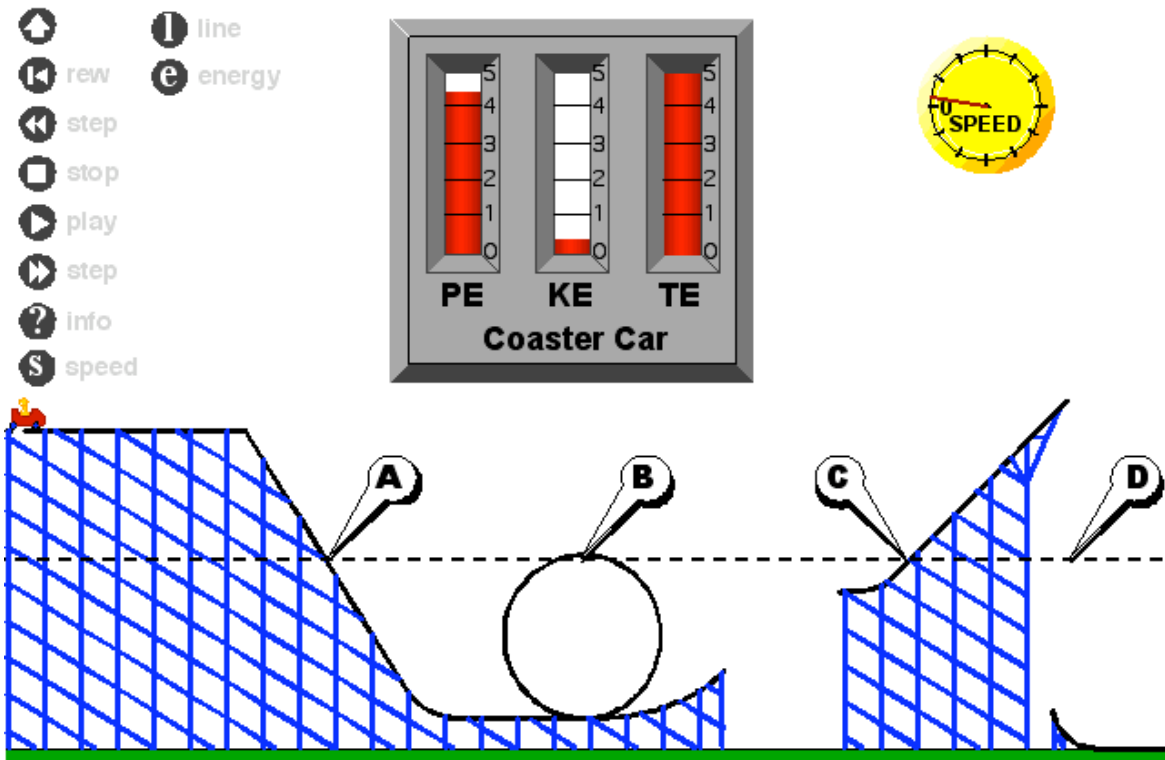
- (3) Where is the speed the greatest on the coaster? (Answer on the “answer sheet.”)
- Compared to the heights of the other parts of the track, what is unique about this location's height? (Answer on the “answer sheet.”).
  - Compared to the velocities at other locations on the coaster, what is unique about the speed at this location? (Answer on the “answer sheet.”).

(4) When on the coaster ride does the total energy, **TE**, meter change? (Answer on the “answer sheet.”).

(5) What does #4 tell you about the energy on the ride? (Answer on the “answer sheet.”).

Name: \_\_\_\_\_

Click on the “l” button to display a line and the labels A, B, C and D. Your screen should look something like the one below.



- (6) Draw an arrow to indicate the direction of the roller coaster car at each letter's location. (Answer on the "answer sheet.").
- (7) Run the animation to find the potential energy, **PE**, at each location? (Answer on the "answer sheet.").
- (8) Run the animation to find the kinetic energy, **KE**, at each location? (Answer on the "answer sheet.").
- (9) Run the animation to find the speed at each location? You can stop and step the movie forwards and backwards using the buttons at the left. (Answer on the "answer sheet.").
- (10) Does the direction the coaster car is traveling affect the amount of kinetic energy, **KE**, it has? Explain your answer. (Answer on the "answer sheet.").
- (11) At the end of the ride on the right, the coaster returns across the ground from right to left. Look at the energy levels and the speedometer and using what you know about energy and speed from your answers, draw what you think the left side, not visible on the screen, looks like. (Answer on the "answer sheet.").

Name: \_\_\_\_\_

1					
2	a				
	b				
3	a				
	b				
4					
5					
6	Draw an arrow				
	a	b	c	d	
7	a	b	c	d	
8	a	b	c	d	
9	a	b	c	d	
10					
11					