

**Energy Study Guide**  
Physical Science  
**Energy**

Name \_\_\_\_\_  
1 2 3 4 5 6 7 8

1. Define and give examples of the following terms:

a. Kinetic Energy:

-How does it increase? How does it decrease?

b. Gravitational Potential Energy:

-How does it increase? How does it decrease?

c. Chemical Energy:

d. Thermal Energy:

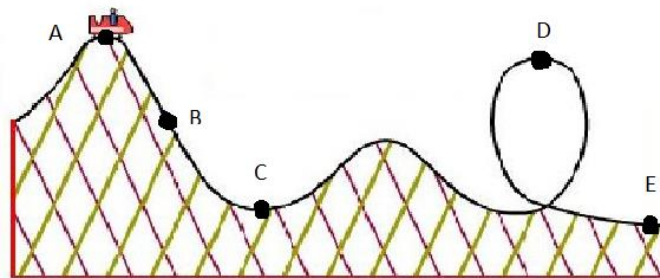
e. Electrical Energy:

f. Conservation of energy:

g. Work:

h. Power:

*Use the following diagram to answer questions 2-4:*



2. Write what type(s) of energy the roller coaster has at positions A, B, C, D, and E. For each letter, write what type of energy the roller coaster has the *most* of. The roller coaster is *barely* moving at A.

3. Will the roller coaster make it around the loop (**NO FRICTION**)? Why or why not?

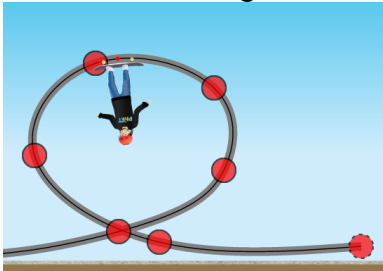
4. Now, **THERE IS FRICTION!** What *new* type of energy will the rollercoaster have?

5. Describe what type(s) of energy the object has in each situation:

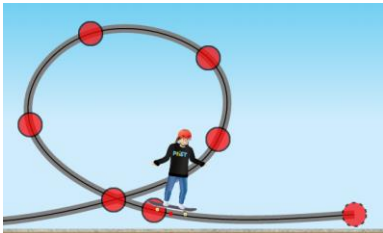
a. A ball rolls to a stop on the floor.



b. A skateboarder is riding around a loop while moving *really* fast. **NO FRICTION.**



The same skateboarder has made it to the bottom of the loop safely. **NO FRICTION.**



### Power and Work

12. Calculate the work done to lift a 200 N object a distance of 75 m.

13. If you weigh 800 N, and you do 9500 J of work while climbing the stairs, calculate the height of the stairs.

14. Determine the work done if a 50 kg object is lifted a distance of 4 m.

15. Calculate the power of an object that does 3000 J of work in 45 seconds.

16. If a 700 N person runs up stairs to a height of 15 m. If the student's power is 250 watts, how much time did it take?

17. If you hold a 500 N object motionless in your arms, how much work have you done on the object?