



SUMTER MIDDLE- ENERGY STUDY GUIDE

Adapted from Troup County School System



MARCH 23, 2016
SCS

8th Science Energy Study Guide

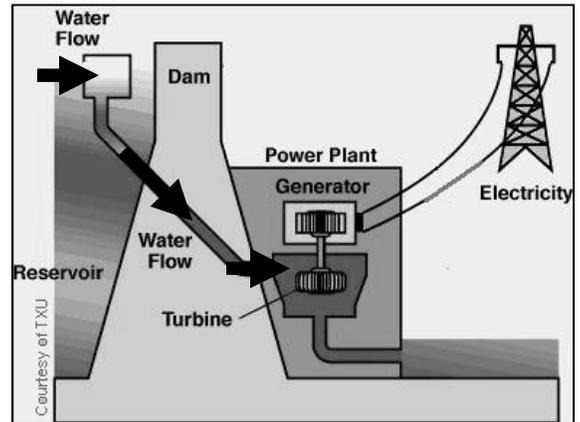
Name _____ Date ____ Period __

1. An engine converts 95% of its energy to mechanical energy. What happens to the other 5% of its energy? (S8P2a)

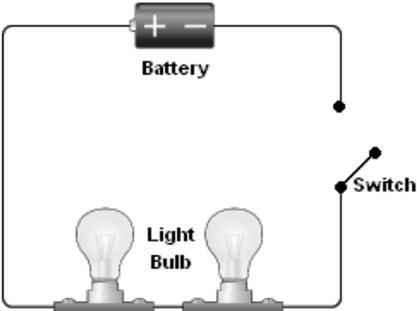
2. The diagram to the right shows a hydroelectric power plant. (S8P2a, c)

(a) Identify the type of energy of the water behind the dam.

(b) When the water flows past the turbine, as shown in the diagram, the energy of the water changes to what type of energy?



Identify the energy transformations in the following: (S8P2a,c)

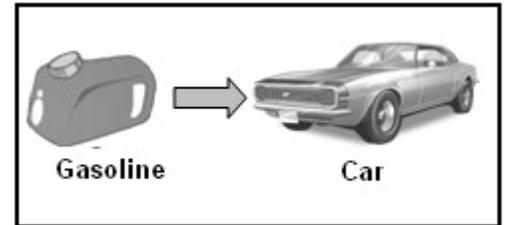
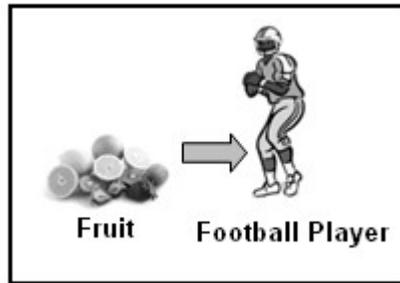
3. Toaster 	6. Windmill 
4. Flashlight 	7. Lightbulb 
5. Circuit 	

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8. When a match is lit, energy transforms from chemical energy to thermal (heat) energy and light energy. Describe the changes in the chemical, thermal, and light energy of the lit match. (S8P2a,c)

9. Look at the two diagrams to the right. What type of energy transformation is occurring in both diagrams? (S8P2a,c)



10. Which form of energy is given off by the vibrating strings on the banjo shown in the diagram? (S8P2c)

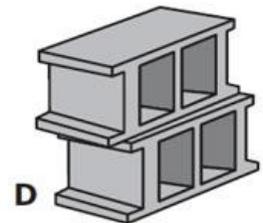
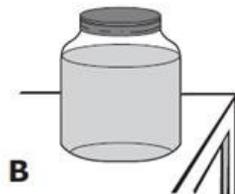


11. Enrique's soccer coach told him to eat a good breakfast Saturday morning in order to have plenty of energy for the soccer game. To which transformation of energy is Enrique's coach referring? (S8P2c)



12. Identify the type of Energy shown in the diagram. (S8P2c)

13. Which of these has kinetic energy? Explain. (S8P2b)

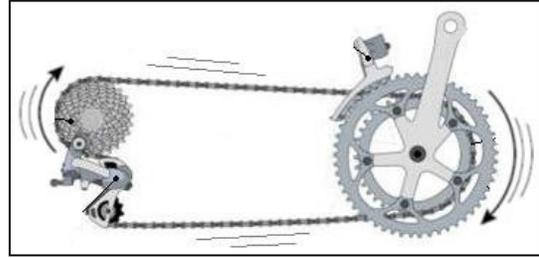


14. Identify an example of chemical potential energy. (S8P2b)

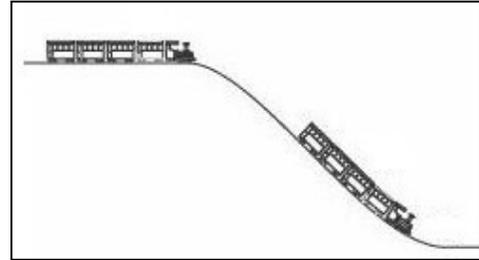
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15. The diagram to the right shows the gear of a bicycle. Which form of energy is shown? (S8P2c)



16. The image to the right shows a train traveling from a starting point at the top of the hill. What type of energy change is occurring in the image to the right? (S8P2b)

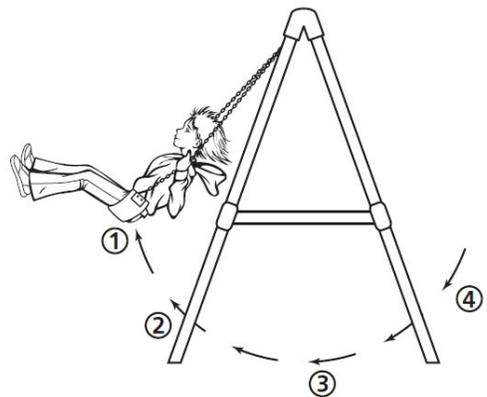


17. Identify whether the following is an example of kinetic energy or potential energy: (S8P2b)

- a. throwing a ball
- b. gasoline in a car
- c. hitting a tennis ball
- d. water behind a dam
- e. a peanut butter sandwich
- f. a falling rock

A diagram of a student on a playground swing is shown to the right. (S8P2b)

- 18. At which point is the kinetic energy the greatest?
- 19. At which point is the potential energy the greatest?



20. Explain what happens to the potential and kinetic energy as the student swings.

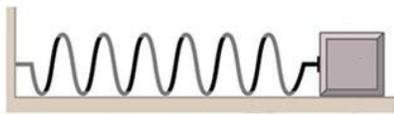
21. Why does heat convection only occur in gases and liquids? (S8P2d)

22. Describe the relationship between radiation, thermal energy, and electromagnetic waves. (S8P2d)

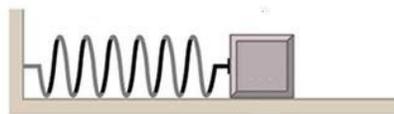
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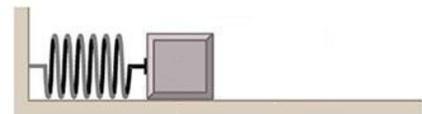
A student is investigating potential and kinetic energy by stretching a spring. When the student lets go, the spring recoils.



Spring Fully Stretched



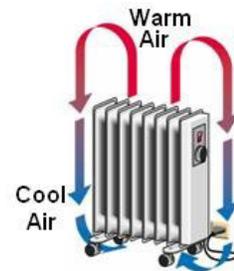
Spring Recoiling



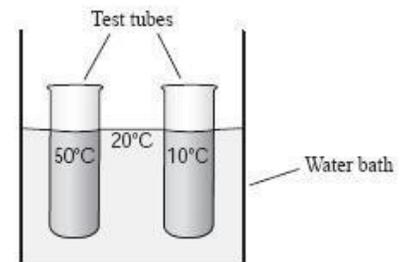
Spring Fully Recoiled

23. Explain at which time the potential energy in the spring is being converted into kinetic energy in this system. (S8P2b)

24. The diagram to the right shows a radiator heating the air surrounding it. Explain what type of heat transfer is occurring. (S8P2d)

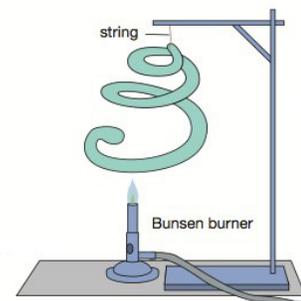


A teacher put one test tube of 50°C liquid and one test tube of 10°C liquid into a 20°C water bath, as shown in the diagram to the right.



25. Explain what will happen to the liquids in the test tubes. (S8P2d)

26. When the Bunsen burner is on, as shown in the diagram to the right, the paper string will spin. Explain what causes the paper to spin. (S8P2d)



27. Identify the types of Energy transfer shown in the diagram to the right. (S8P2d)

