Lesson Two: Forms of Energy

6.PS3.1 Analyze the properties and compare sources of kinetic, elastic potential, gravitational potential, electric potential, chemical, and thermal energy.

Explore and Explain: Working Through Text

Directions: Read pages 12–19 and answer the following questions as they guide you in understanding the various forms of energy.

Page 12

1. Fill in the blank: Potential energy related to an object's height is _____ potential energy.

2. Write the formula for calculating gravitational potential energy:

Figure 3

3. Which rock climber has the greatest potential energy? Why?

4. Calculate the potential energy of the rock climber you chose above. The height to be used is at the rock climber's lowest foot.

GPE = (W) x (H)

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5. Fill in the blank: The energy associated with objects that can be compressed or stretched is _____ potential energy.

Figure 4

6. Rank the amount of potential energy of the trampoline from greatest to least. A ranking of 1 is the greatest. Explain your answer.

Left		Middle		Right	

7. What type of energy does a cup sitting on a table have? Why?

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8. Fill in the blank: The form of energy that is associated with an object's motion, position, or shape is _____ energy.

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9. How do you calculate an object's mechanical energy?

10. Provide examples of the following

An object with mechanical energy, but just kinetic:
An object with mechanical energy, but just potential:

Figure 1

11. Solve for the mechanical energy of the basketball at point A.

12. Solve for the mechanical energy of the basketball at point B.

13. Why does the ball's gravitational potential energy increase from point A to point B?

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14. At a certain point, the kinetic energy of a falling apple is 5.2 J and its potential energy is 3.5 J. What is its mechanical energy?

15. If an object's mechanical energy is equal to its potential energy, how much kinetic energy does the object have? Why?

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16. Fill in the blank: Other forms of energy are associated with the _____ that make up the objects.

17. What are the particles that make up everything?

18. Where is the nucleus located in an atom?

19. Fill in the blank: Energy stored in an atom's nucleus is called _____ energy.

20. When is nuclear energy released?

21. What is the nuclear reaction that occurs when a nucleus is split?

22. How do we use nuclear fission?

23. What is the nuclear reaction that occurs when the nuclei of atoms join together?

24. Where does nuclear fusion occur?

25. Fill in the blank: The particles that make up objects are constantly in _____.

26. What is thermal energy?

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27. Fill in the blank: The higher the temperature of the object, the greater the _____ energy.

28. As an object heats up, what happens to its particle?

29. Thermal energy always moves…

30. The amount of thermal energy it takes to raise the temperature of an object depends on
    1.
    2.
    3.

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31. What is electric energy?

32. What are some examples of electric energy?

33. Also called radiant energy, a type of energy that travels through space in waves is _____ energy.

34. What are some of the different types of electromagnetic energy?

35. What is the energy called that is stored in the bonds between atoms and molecules?

36. In order to release chemical energy stored in these bonds, what has to happen?

37. Where can chemical energy be found?

Sound Energy (Online)

38. The movement of energy in waves through a substance is _____ energy.

39. Air and water are _____, through which sound waves travel before reaching our ears.

40. What are some examples of objects that produce sound energy?

Evaluate

Directions: Answer the following question using information from your lesson

1. List the nine forms of energy and provide one example for each form.

1.
2.
3.
4.
5.
6.
7.
8.
9.