



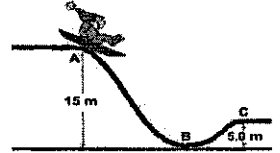
Name _____ Period _____

Science Test Review KEY!!! : Forms of Energy

1. Define Energy: the ability to do work or cause change
2. Two Main Types of Energy are potential energy and kinetic energy

3. Define Potential Energy stored energy due to position or arrangement of particles

4. In the diagram to the right, at which point does the sled have the greatest potential energy? A



5. Define Kinetic Energy: energy of motion

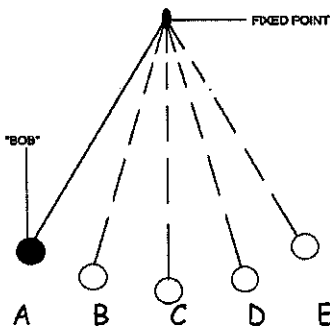
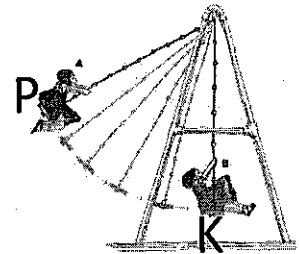
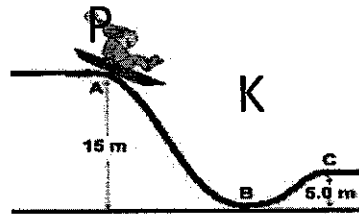
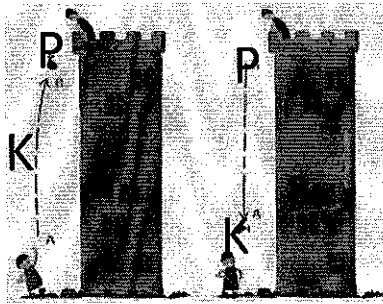
6. The amount of Kinetic energy a moving object has depends on its mass and velocity.

7. In each of the following pairs, CIRCLE which would have more kinetic energy rolling down a hill:

- A marble or a boulder
- A beach ball or bowling ball
- A Toy car or a Hummer

Explain why you chose the ones you chose? they all have the greater mass

P 8. In the diagrams below, identify the greatest Kinetic and greatest potential energy



9. What is pictured to the left? pendulum

10. At which point does the pendulum have the most potential energy? A&E

11. At which point does the pendulum have the most kinetic energy? C

12. At which points on the pendulum are the kinetic and potential energy equal? B & D and A & E

13. If you place a block at point C, what would happen to the block?

It would be moved

Why? The pendulum has kinetic energy which would be transferred to block as motion energy

Define the Forms of Potential Energy:

14. Chemical Energy: energy stored in the bonds of atoms and molecules

Example: biomass, petroleum (gasoline), natural gas

15. Nuclear Energy: energy stored in the nucleus of an atom

Example: the sun (fusion), nuclear (fission) in power plants

List two ways nuclear energy is produced: fusion and fission

16. Gravitational Potential Energy: potential energy due to position or place (elevation)

Example: cat on a fridge

17. Stored Mechanical: energy stored in objects by application of force

Example: compressed spring, rubber band wind-up toy made in class

Define the Forms of Kinetic Energy:

18. Radiant Energy: is electromagnetic energy that travels in transverse waves.

Example: x rays, sun light

*List the different forms of Radiant Energy gamma rays & x-rays, UV rays, visible light, infrared, microwaves, radiowaves (GUVIMR)

19. Thermal Energy: heat energy

Example: geothermal heat

20. Motion or Mechanical Energy: is the movement of objects and substances from one place to another.

Example: bike riding

21. Sound Energy: is the movement of energy through substances in longitudinal waves

Example: guitar string plucked

22. Electrical Energy: the movement of electrons

Example: electricity

23. Energy of microwaves, radio waves, x-rays, ultraviolet rays, and light waves are

all forms of electromagnetic energy (or radiant)

Energy Transformations (Conversions)

24. Define Energy transformation: begins with one energy and produces another type of energy

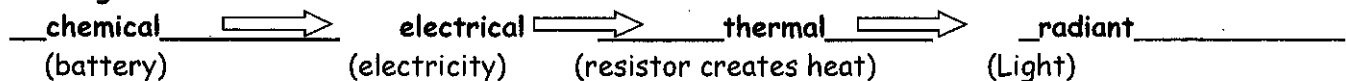
25. What does the law of conservation of energy state? The law of conservation of energy says that energy is neither created nor destroyed.

Give an example: chemical energy transforming into motion/mechanical energy and also producing heat and sound energy

26. In every energy conversion, some energy is always converted into thermal (heat) energy, due to friction.

27. What is the energy transformation for a resource to produce electricity?

Flashlight:



28. Using number 27, diagram the energy transformations that occur in the following:

Hot Plate **electrical > thermal**

Windmill **motion /mechanical > electrical or mechanical**

Toaster **electrical > thermal**

Gas Stove **chemical > thermal**

Car Engine **chemical > mechanical/sound/thermal**

Hair Dryer **electrical > thermal/motion**

29. chemical energy in the sugars and starches of food fuels all your body functions and movements, and provides the thermal energy that keeps your body temperature constant.

Heat/Thermal Energy Transfer

DEFINE:

30. convection- heat transfer through fluids (liquids) and gases

31. conduction- heat transfer by particles touching

32. radiation- heat transfer through electromagnetic waves (example: sun's light and heat)

33. Identify the following examples as convection, conduction or radiation:

*Ice in a soft drink melts due to conduction & convection

*Boiling an egg in water convection

*A pot touching a hot stove conduction

*A small heater heating a bathroom convection

*A cold blooded reptile warming itself from the sun radiation

34. Explain how heat moves through liquids during convection. **Hot liquids circulate and rise to top as cold liquids circulate and sink to bottom—and this process repeats in a circular-type fashion.**

~Draw a picture showing this.

