Name\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ Block\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Energy Test Study Guide

Directions: On your own please answer the following questions to help you study for your test. Note: This is an overview of our energy unit and it would be wise to also study materials like quizzes, labs/ demos, homework, and readings from Science Matters.

1. Define Potential Energy.
2. Define Kinetic Energy.
3. Michael Phelps the swimmer is on the starting block. Here he has energy of position or \_\_\_\_\_\_\_\_\_\_\_\_\_\_. When he jumps off the block his energy is changed into what?
4. A stretched rubber band is an example of what kind of energy?
5. Is the energy produced by water running a turbine in a dam kinetic or potential?
6. Define Thermal Energy.
7. Define Stored Mechanical Energy.
8. Suppose you are doing jumping jacks, what kind of energy do you have at the top of your jump when you are above the ground?
9. How does mass affect gravitational potential energy?
10. Define an exothermic reaction.
11. Give an example of an exothermic reaction.
12. Define endothermic reaction.
13. Give an example of an endothermic reaction.
14. What are the 11 main forms of energy?

|  |  |
| --- | --- |
| Potential | Kinetic |
|  |  |
|  |  |
|  |  |
|  |  |
|  |  |

1. What kind of energy would make something feel warm?
2. The energy of moving electrons is known as what?
3. What happens if you wear dark clothes on a sunny day?
4. What happens if you wear white clothes on a sunny day?
5. Tell me what the Law of Conservation of Energy says.
6. What is energy conversion?
7. Solve this equation for the question mark *(amount of energy transferred to heat):*

Remember equation for % efficiency is (total work output/ work input) x 100

Total Electrical energy for light bulb = 250 J (joules)

Light Energy out = 120 J (joules) + Heat Energy out \_\_\_\_\_?\_\_\_\_ J (joules)

1. Based on the above answer, how much energy was being wasted (not useful)?
2. What is the % efficiency of a ball that has 110 J of potential energy before a bounce (input) and 83J of energy after the bounce (output) ?

Remember equation is (total work output/ work input) x 100

1. What energy transfer happens in photosynthesis?
2. If two of anything collide together what types of energy will they produce? (There should be more than one)
3. What factors impact the amount of kinetic energy something has when it falls?
4. True or false? An object’s mass and its height determine the amount of GPE the object has.
5. How did the happy sad ball part I and II relate to our energy unit? *(give overview or lab and conclusions/ reflection/ observations/ findings.)*
6. True or false- Heat travels from higher temperature ares to cooler areas. *(What is this known as?)*
7. What is the difference between heat and temperature?
8. True or false- If a ball is dropped from 1 meter and bounces 97 cm it is more efficient than a ball that is dropped from 1 meter and only bounces 10 cm. Why?
9. What do the particles of water look like in a bucket with lots of heat/thermal energy vs a bucket with a low amount of heat/ thermal energy? Draw it below.
10. How is heat transferred? (*3 main ways and know their definitions*)
11. What are four energy sources that we talked about in class? How are they used (how do they make electricity) Pros and cons. *(look over notes)*
12. If you double the height you lift a wrecking ball, what happens to the amount of PE it has? Explain.
13. If you throw a rock twice as fast, what happens to the amount of KE it has?

1. Explain. If you double the mass of a Yeti on a sled, what happens to the KE at the bottom of the hill? (assume they start at the same height)
2. Compare and contrast Nuclear and Chemical energy. What are the similarities and differences between them?
3. List something that operates by transforming chemical energy to light energy.
4. What are the energy transformations from the sun to you running a marathon?