Study Guide

8th INTG Science SG8.2

Quiz 7 Energy Transformations

Newton's First Law of Motion states that an object will not change its motion unless acted upon by an external force. We know that moving objects, like skateboards, eventually slow down and stop. What external force is involved?

2nd Law of Thermodynamics states that during any energy transfer, heat will always be lost from the system. In the example of the skateboard above, the external force transfers some of the mechanical energy to what?

Energy is the ability for something to do _____.

Match each type of energy with the appropriate definition or example. (Cut and paste if digital, write if on paper.)

Gravitational energy	Mechanical energy	Electrical energy
Chemical energy	Elastic energy	Thermal (heat) energy
Sound energy	Nuclear energy	Radiant energy

	Energy possessed by an object due to its motion.
	Energy measured by a rise in temperature. Causes matter to vibrate and collide faster at the atomic level.
	Movement of energy through compressional waves produced from vibrations.
	Light or electromagnetic energy that moves in a wave through matter or without matter.
	The energy is given off when electrons flow between atoms.
	The energy an object has stored is based on how far it can fall before it hits the surface.
	The energy locked up in the bonds between atoms in molecules.
	The energy stored in individual atoms.
	Aka, spring energy. This energy is stored in materials that can bend or stretch when force is applied, and then return to the original shape.

LIVEWORKSHEETS

Click on the drop down to select circle or ignore to a characteristic you can change to give an object change kinetic or potential energy:

Mass Color Height Volume Velocity Texture

Determine the type of energy each situation has:

Water flowing in a river	Potential/Kinetic
Wind blowing	Potential/Kinetic
A tank of propane gas	Potential/Kinetic
A hamburger	Potential/Kinetic
An atomic bomb	Potential/Kinetic
A roller coaster at the top of the loop	Potential/Kinetic
A skater at the bottom of the ramp	Potential/Kinetic
The blades of a wind turbine at work	Potential/Kinetic
Sunlight as it contacts a plant	Potential/Kinetic
A battery in your cell phone	Potential/Kinetic
Electricity in a wire	Potential/Kinetic
Warm water	Potential/Kinetic

During an energy transfer, all the energy present in the beginning will be present after the transfer. This is the Law of _____.

When energy is transferred, some is always lost to the surrounding environment as heat. This is the Law of _____.

What type of energy is present in gasoline?

When fuel is burned, the energy is released as what form of kinetic energy?

LIVEWORKSHEETS

True or False- Engineers can design an energy transfer system that is 100% efficient.

In Lab: Coaster part 1 we used marbles of different masses on the same track to see how much kinetic energy was transferred to the box. We measured to see how far the box moved to see how much kinetic energy was transferred to it.

What is the independent variable? Distance the box moved / mass

What is the dependent variable? Distance the box moved / mass

In Lab: Coaster part 2 we used a marble with a constant mass. We dropped it from different heights to increase the velocity it hit the box with.

What is the independent variable? Height/velocity

What is the dependent variable? height/velocity

LIVEWORKSHEETS