

Name: \_\_\_\_\_ Date: \_\_\_\_\_

## PHYSICS

### Work, Power, and Energy

### ENERGY TRANSFORMATIONS

**TRANSFORMATIONS OF ENERGY.** Identify the different types of energy and the work associated with the operation of the device or how the process works. Choose from the different types of potential energy, kinetic energy, and other forms of energy. Read the descriptions of the energy transformations carefully.

1) Energy transformations by an electric fan. Drag and drop the correct forms of energy and work into the box.

Electricity	Rotational KE	Mechanical KE	Translational KE
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- Electrons move through a wire from the wall outlet to the fan's motor.
- This causes the gears, levers, cogs, and wheels in the motor to move together.
- The motor causes the blades of the fan to spin very fast.
- The spinning blades force air to move across the room at a fast velocity.


2) Energy transformations in a forest. Drag and drop the correct forms of energy into the box.

Nuclear energy

Radiant energy

Chemical PE



- Hydrogen atoms in the core of the sun fuse together to form the new element helium. This releases a lot of energy.



- Light is emitted from the surface of the sun, That light travels through space to the Earth.
- Photosynthesis occurs in leaves of the trees. Photosynthesis makes sugars which is food for the tree and the sugars are used to make wood.

3) Energy transformations during a forest fire. Drag and drop the correct forms of energy into the box.

Thermal energy

Radiant energy

Chemical PE



- The trees are made of wood.
- When the fire happens, the wood flames around the wood become very, very hot.
- The flames glow yellow and orange light.

4) How a microwave oven works. Drag and drop the correct forms of energy into the box.

Rotational KE

Thermal Energy

Electricity

Radiant Energy



- Electrons move through a wire from the wall to the microwave.
- The power source inside the microwave oven makes microwaves. The microwaves pass through the food.
- The microwaves interact with the water molecules. They cause the water molecules in the food to spin very fast.
- The collisions and friction between spinning water molecules and the solid parts of the food cause the food to warm up to very high temperature.

5) Energy transformations in a car. Drag and drop the correct forms of energy into the box.

Thermal Energy

Translational KE

Rotational KE

Mechanical KE

Chemical PE



- The driver puts gasoline into the car.
- In the motor of the car, the gasoline is burned for energy. The motor gets very hot.
- The parts of the motor: (pistons, wheels, cogs, belts, levers) move and turn together.
- The energy from the motor is translated to the drive train. The axel and wheels rotate at a very high speed.
- The car goes forward. The car moves from one location to another.

6) How a hydroelectric power plant works. Drag and drop the correct forms of energy into the box.

Translational KE

Rotational KE

Gravitational PE

Mechanical KE

Electricity



- A dam is built on a river. The dam holds the water at a higher elevation than the river. Water is stored behind the dam.
- Water moves at high speed through large tubes in the middle of the dam.
- The fast moving water passes through a turbine (propeller). The turbine propeller spins at very high speed.
- A generator is connected to the turbine. The wheels, cogs, magnets, belts, and gears in the generator move together.
- The moving parts of the generator push electrons through a large copper coil. The electrons move through large cables from the dam to towns and houses.

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