Name:_____ Date:_____

Energy Conversion Practice 2: Renewable Resources

Solar Energy



Solar panels convert radiant energy from sunlight into electrical energy. This connects to the objective of waves because light is an electromagnetic wave that transfers energy.

1. Which energy conversion occurs in a solar panel?

A. Thermal energy → chemical energy

B. Mechanical energy → nuclear energy

C. Radiant energy → electrical energy

D. Electrical energy → radiant energy

Select one answer above.

Wind Turbines



Wind transfers kinetic energy to the turbine blades, which helps a generator produce electrical energy. This connects to the objective of waves because wind can be produced by uneven heating that transfers energy through moving air.

2. Which sequence best describes a wind turbine?

A. Wind's kinetic energy → mechanical energy → electrical energy

B. Thermal energy → nuclear energy → electrical energy

C. Radiant energy → chemical energy → sound energy

D. Electrical energy → chemical energy → wind energy

Ocean Buoys

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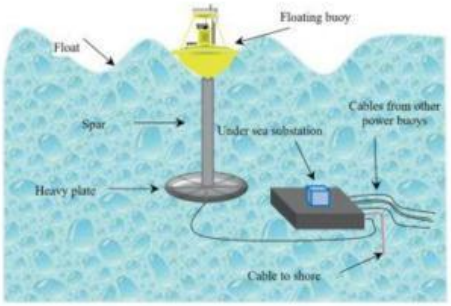


Ocean waves move buoys up and down, transferring kinetic energy to a pump or generator that produces electricity. This directly connects to the objective of waves because the wave's motion carries energy through the water.

3. What energy conversion occurs in an ocean buoy system?

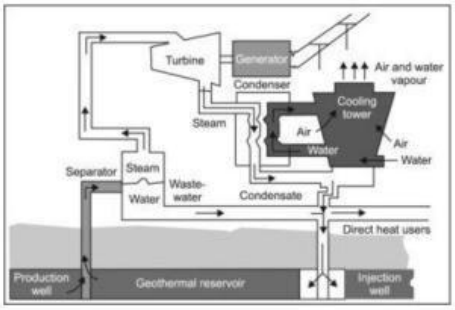
A. Electrical energy → wave energy → chemical energy

B. Wave kinetic energy → mechanical energy → electrical energy

C. Chemical energy → radiant energy → wave energy

D. Gravitational energy → nuclear energy → electrical energy

Geothermal Energy



Earth's internal thermal energy turns water into steam, and the steam spins a turbine connected to a generator. This connects to the objective of waves because moving steam carries energy through the system like a wave carries energy through a medium.

4. Which sequence best describes geothermal energy conversion?

A. Electrical energy → thermal energy → chemical energy

B. Radiant energy → gravitational energy → nuclear energy

C. Thermal energy → mechanical energy → electrical energy

D. Chemical energy → wave energy → thermal energy

Biomass



Biomass stores chemical potential energy. Burning it releases thermal energy that makes steam, which spins a turbine and produces electricity. This connects to the objective of waves because the moving steam transfers energy through the system.

5. Which sequence best describes biomass energy conversion?

A. Electrical energy → chemical energy → radiant energy

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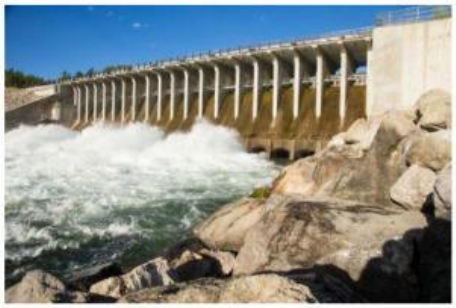
B. Mechanical energy → nuclear energy → chemical energy

C. Radiant energy → electrical energy → gravitational energy

D. Chemical energy → thermal energy → mechanical energy → electrical energy

Hydroelectric Dams



Water stored behind a dam has gravitational potential energy. As it falls, that energy becomes kinetic energy, spins a turbine, and produces electricity. This connects to the objective of waves because moving water transfers energy through the system.

6. Which sequence best describes a hydroelectric dam?

A. Electrical energy → chemical energy → gravitational energy

B. Gravitational potential energy → kinetic energy → mechanical energy → electrical energy

C. Radiant energy → thermal energy → nuclear energy

D. Chemical energy → sound energy → electrical energy

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