

Type of Motion	Definition
ROTARY	Circular movement around an axis or center point.
LINEAR	Movement in a straight line in one direction.
RECIPROCATING	Back-and-forth movement in a straight line.
OSCILLATING	Back-and-forth movement in an arc or curve.

Task 1: Match each machine component to the correct type of motion.
LINEAR, RECIPROCATING, OSCILLATING

ROTARY,

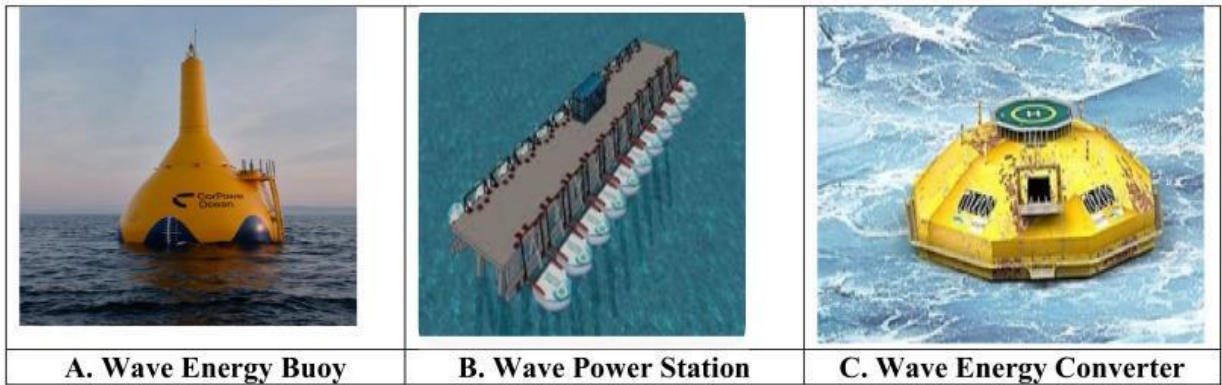
Component	Type of Motion
1) Electric motor shaft	_____
2) Piston in a cylinder	_____
3) Conveyor belt	_____
4) Pendulum	_____
5) Drill bit	_____

Task 2: Fill in the blank with the correct type of motion:

ROTARY, LINEAR, RECIPROCATING, or OSCILLATING.

1. A spinning drill bit uses _____ motion.
2. A pendulum swinging back and forth demonstrates _____ motion.
3. A train moving along a straight track uses _____ motion.
4. A piston moving back and forth in a cylinder uses _____ motion.
5. The hands of a clock move in _____ motion.
6. A rocking chair moves in _____ motion.
7. An elevator moving between floors uses _____ motion.
8. A fan blade uses _____ motion to cool the room.

Task 3: Match each component (1-12) with the correct device (A, B, or C). You may use letters more than once.



Copper coil	_____	Seabed anchoring system	_____
Air chamber	_____	Underwater opening / inlet	_____
Magnetic shaft	_____	Accumulator	_____
Hudraulic motor	_____	Rotating blades	_____
Fibreglass container	_____	Floater / floating structure	_____
Generator	_____	Valve	_____
Turbine	_____	Electrical cable	_____

Task 4: Choose the correct device to complete each sentence (Buoy / Station / Both).

- _____ uses a magnetic shaft and copper coil to generate electricity.
- _____ uses moving air to spin a turbine.
- _____ is/are anchored to the seabed.
- A _____ may have moving parts, but the main structure itself may be fixed or floating depending on the type.
- _____ is/are fixed to the seabed close to the shore.
- The operation of _____ involves the principle of electromagnetic induction.
- _____ can be noisy and may pose a risk to marine life.
- _____ is a general term for any device that converts wave motion into electrical energy.

Task 5. Complete the sentences with the correct word from the box.

| oscillate | induces | reciprocates | turbine | chamber |
generator | renewable | seabed |

1. The buoy's magnetic shaft _____ through the copper coil as the waves move.
2. The movement of the magnet _____ an electric current in the coil.
3. The wave power station has a large air _____ where water rises and falls.
4. The spinning _____ is connected to a _____ to produce electricity.
5. Unlike fossil fuels, wave energy is a _____ source of power.
6. The buoy is anchored to the _____ 30 metres below the surface.
7. Watching a buoy _____ up and down on the water is very relaxing.

Task 6. Circle the correct word to complete each sentence.

1. The buoy (floats / sinks) on the sea surface.
2. The magnetic shaft (moves / stays still) through the copper coil.
3. The wave power station is (floating / fixed) to the seabed.
4. Water (enters / leaves) the chamber through an underwater opening.
5. The movement of the magnet (stops / induces) an electric current.
6. The turbine (rotates / remains stationary) when air passes through it.
7. The buoy's shaft (reciprocates / spins in circles) as waves pass.
8. Both devices convert wave energy into (heat / electricity).

Task 7. Match the beginnings of the sentences with their endings.

A. Wave Energy Buoy

Beginning	Ending
1. Waves cause the floating buoy	a) through the stationary copper coil.
2. The magnetic shaft, attached to the seabed,	b) to shore through an underwater cable.
3. The buoy's movement forces the magnetic shaft to reciprocate	c) induces an electric current.
4. The movement of the magnet inside the coil	d) remains stationary relative to the moving buoy.
5. The induced electric current is transmitted	e) to oscillate up and down.

B. Wave Power Station

Beginning	Ending
1. A wave enters the chamber	a) the turbine, producing electricity.
2. The water rises	b) through the underwater opening.
3. The rising water forces air	c) out through the hole at the top.
4. The moving air spins	d) the turbine, continuing the cycle.
5. The spinning turbine turns	e) inside the chamber.
6. When the wave retreats, falling water sucks air back in, spinning	f) the generator.

C. General Wave Energy Converter

Beginning	Ending
1. The device intercepts	a) into mechanical energy.
2. Wave energy is converted	b) a power take-off system.
3. The mechanical movement drives	c) the motion of ocean waves.
4. The power take-off system converts mechanical energy	d) to shore or stored for later use.
5. The electricity is then transmitted	e) into electrical energy.