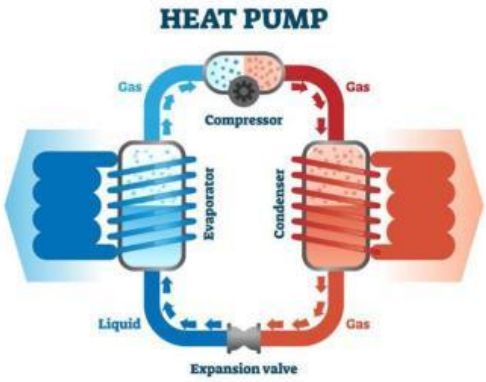
States of Matter and Particle Theory.

Application in real life.

A Heat Pump



Complete by uisng words from the list below.

hotter - colder - energy loss - energy gain – condensation – evaporation – compression – expansion – evaporates – absorbs – increaded – decreased – higher – lower – transfers – heat up – cools down – gaining - losing

A heat pump moves heat energy from one place to another by changing the state of a refrigerant (a special fluid). This process happens in a cycle with four key steps, using energy to change states between liquid and gas.

1. (Liquid → Gas)

Process:: _____ Energy Transfer: _____

- Inside the heat pump, the refrigerant_____ heat from the air or ground.
- This extra energy makes the refrigerant _____ (change from liquid to gas).
- Example: Like water turning into steam when heated.

2. (Gas → HighPressure Gas)

Process: _____ When gas is compressed energy is _____

- A compressor squeezes the gas, making it _____ and _____ in energy.
- Example: Like pumping a bike tire, where the air inside gets hotter when squeezed.

3. (Gas → Liquid)

Process:: _____ Energy Transfer: _____

- The hot gas _____ heat to the house (or water) and as a result it _____.
- It then _____ back into a liquid (_____ energy).
- Example: Like steam turning into water droplets on a cold surface.

4. **(Liquid → Low-Pressure Liquid)**

Process: _____ Energy Transfer: _____

- The liquid refrigerant passes through an expansion valve, losing pressure and which causes the refridgerant to _____.