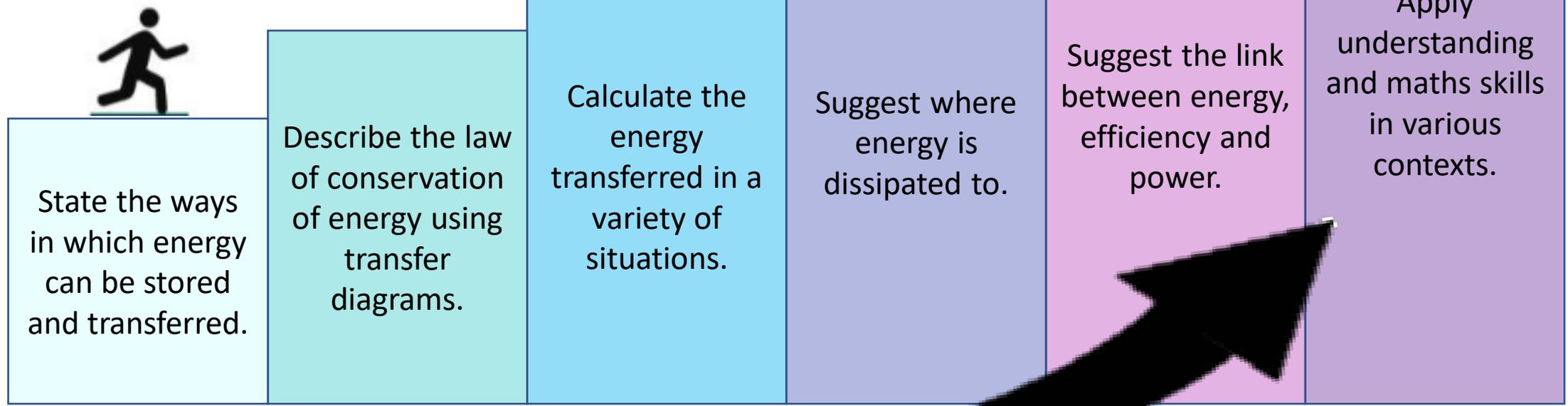


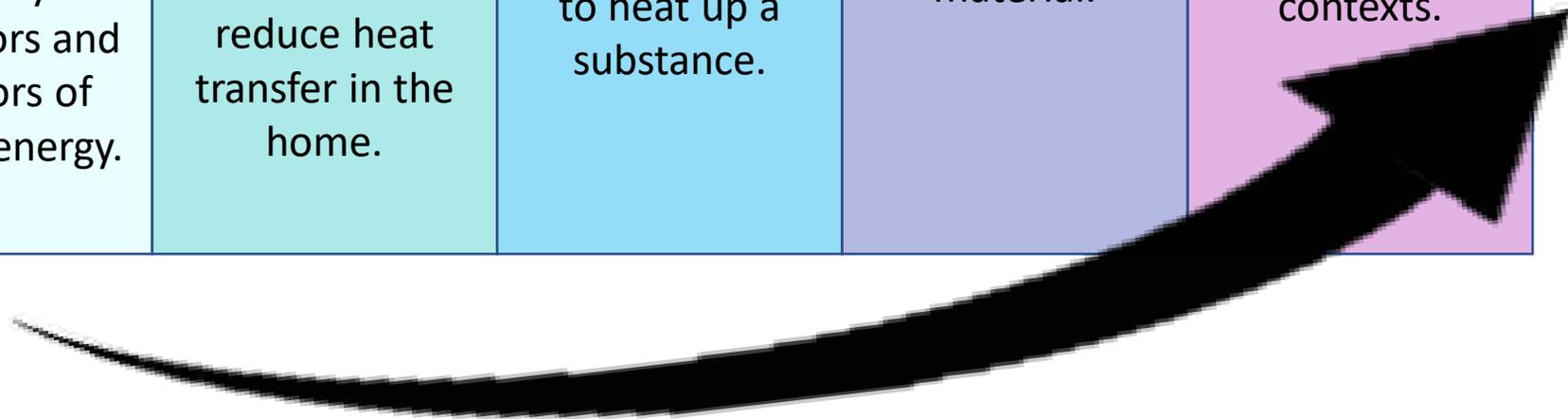
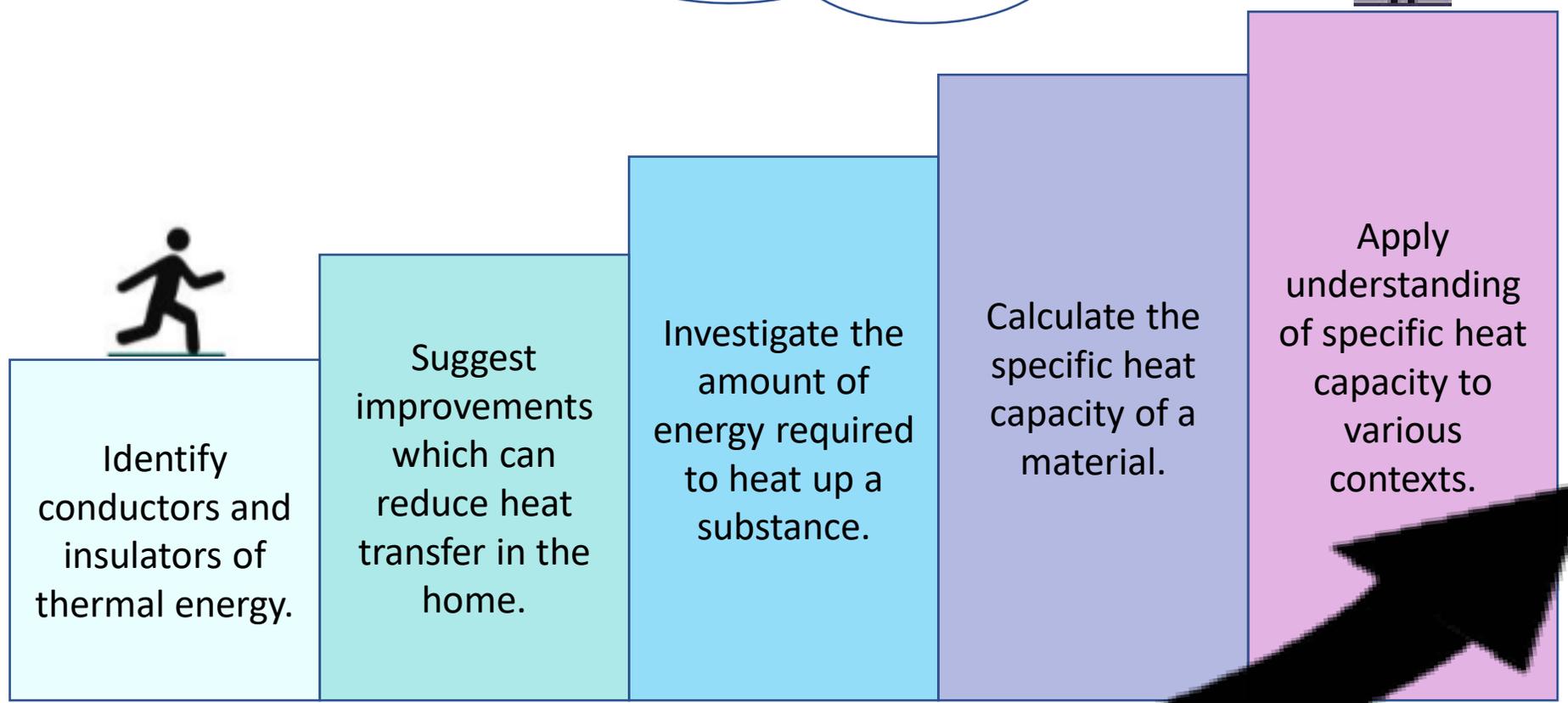
**Learning Journey**  
**conservation and**  
**dissipation of**  
**energy. P1**

Building on knowledge of energy, work efficiency, energy transfer.



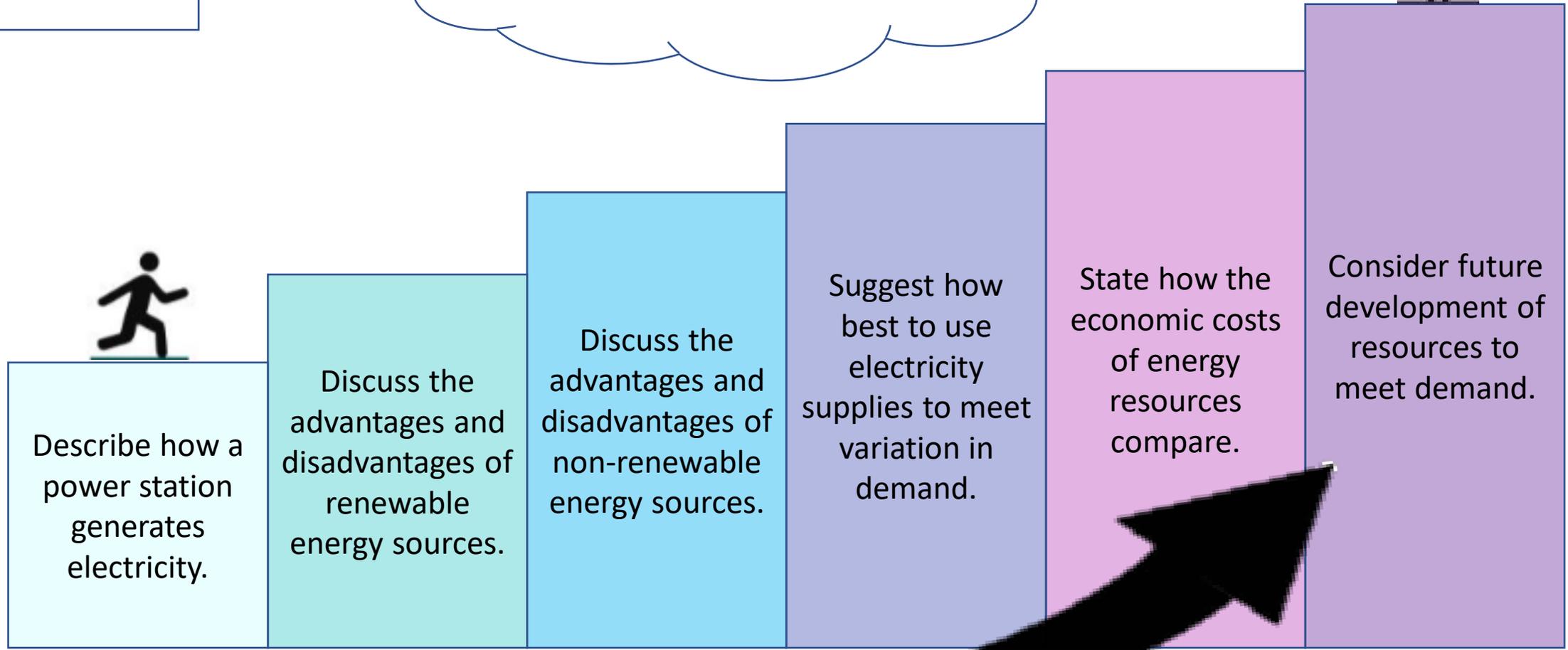
**Learning Journey**  
**Energy transfer by heating. P2**

Building on knowledge of specific heat capacity, insulators, conduction, convection and radiation, reducing heat loss.



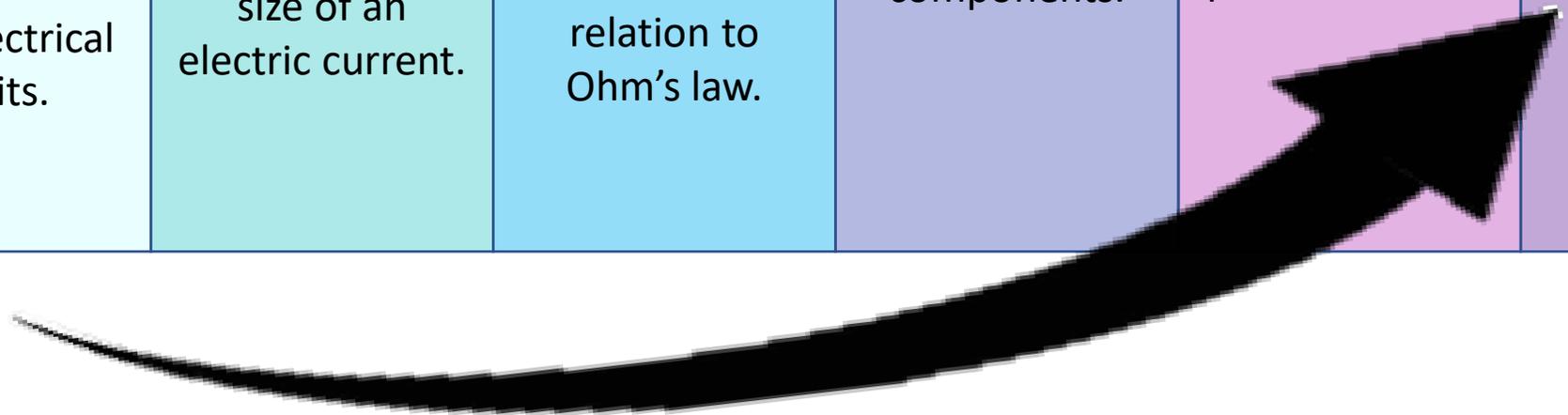
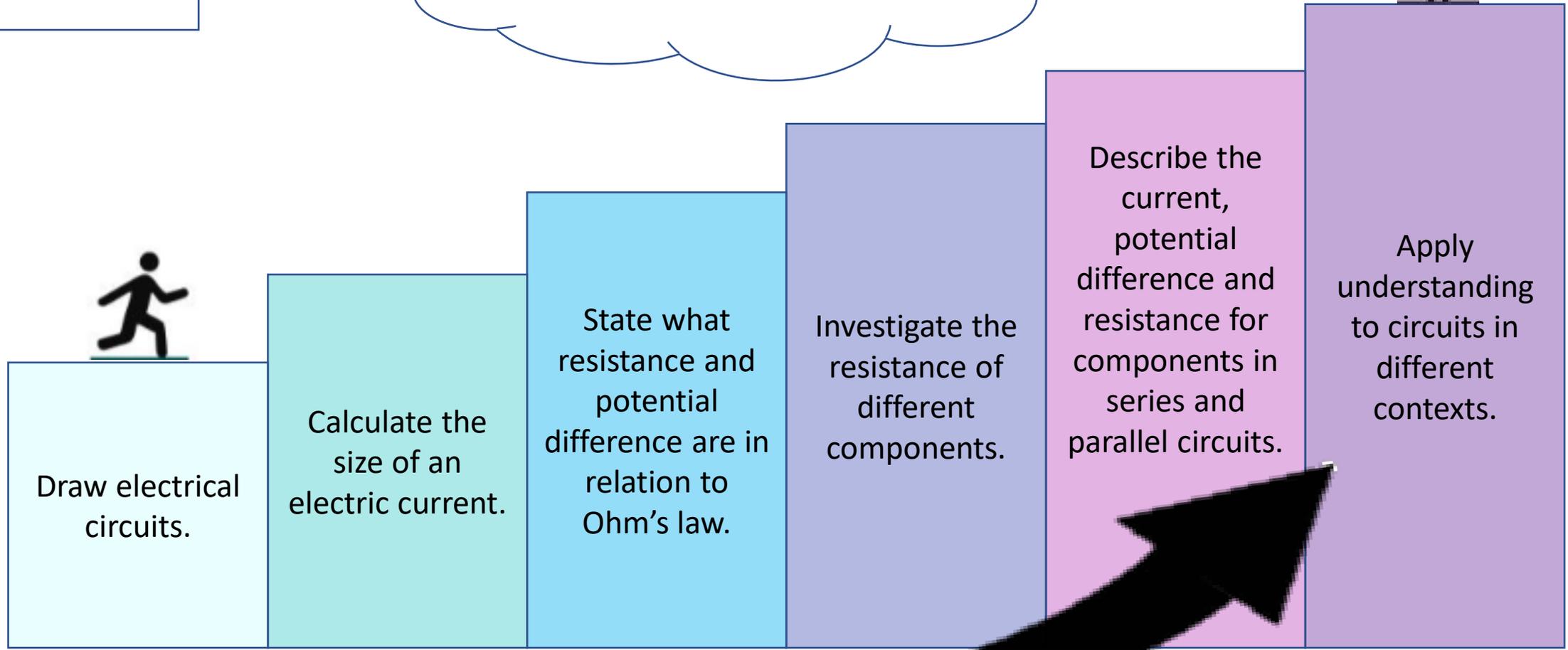
**Learning Journey**  
**Energy resources.**  
**P3**

Building on knowledge of generating electricity, fossil fuels, global warming.



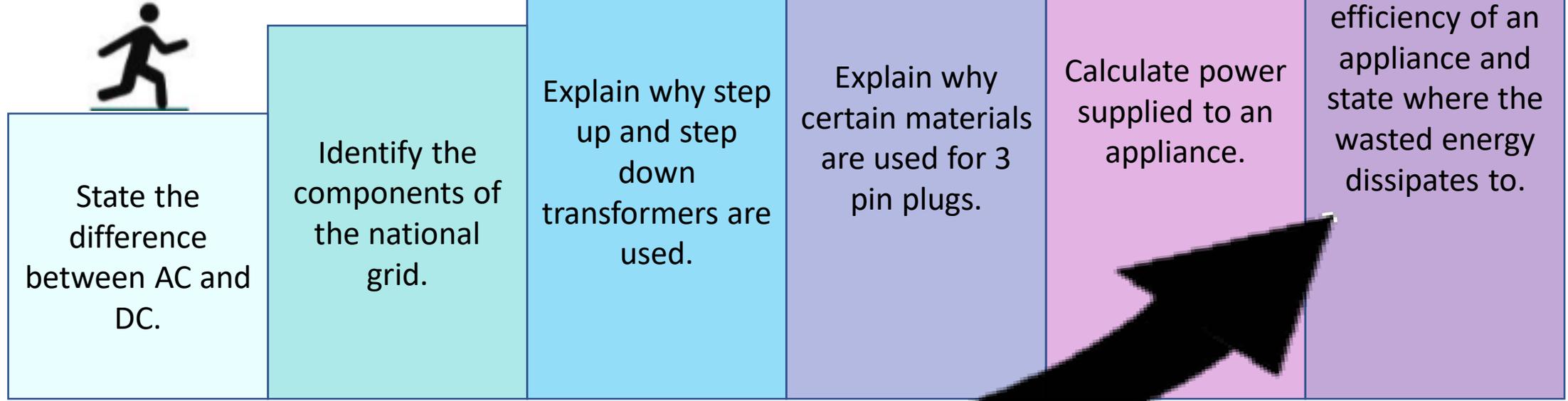
**Learning Journey**  
**Electric circuits. P4**

Building on knowledge of circuits, current, potential difference, resistance.



**Learning Journey**  
**Electricity in the**  
**home. P5**

Building on knowledge of electricity, current, generating electricity, non-renewable resources, efficiency.



**Learning Journey**  
**Density P6**

Building on knowledge of measuring mass, measuring volume, states of matter, particle theory, collision theory.



State that density is the mass per unit of volume.

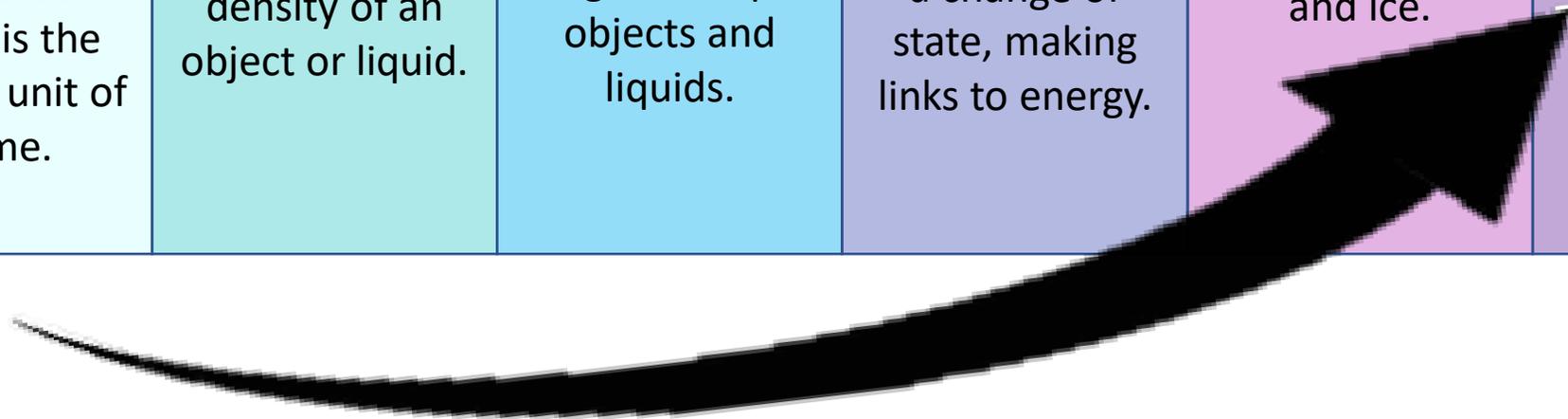
Calculate the density of an object or liquid.

Investigate the density of regular and irregular shaped objects and liquids.

Apply kinetic theory to states of matter and explain what happens during a change of state, making links to energy.

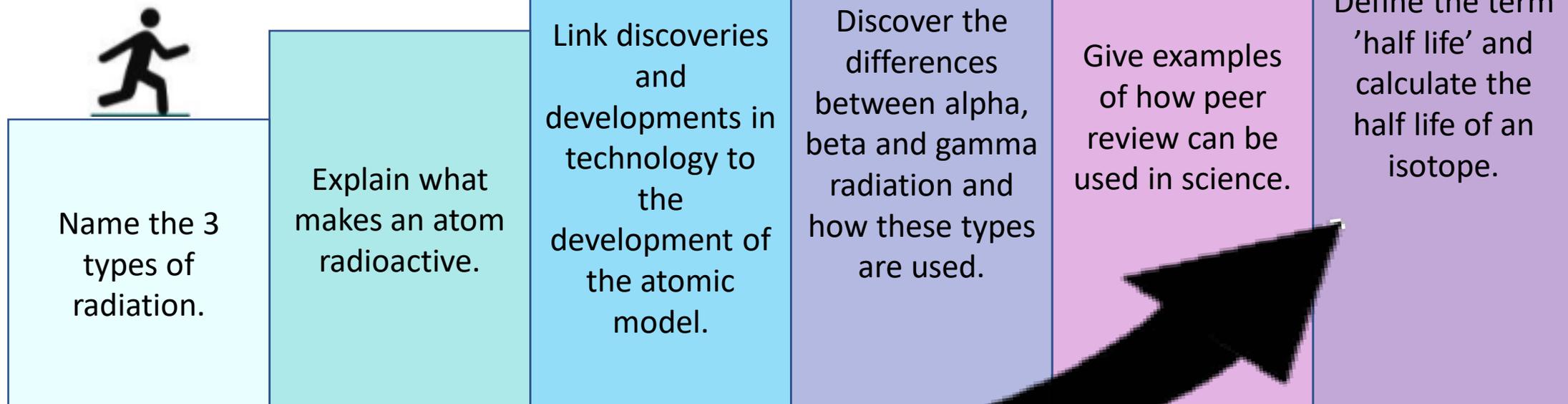
State what is meant by specific latent heat and measure the specific latent heat of water and ice.

Explain changes in pressure of a gas when the temperature changes.



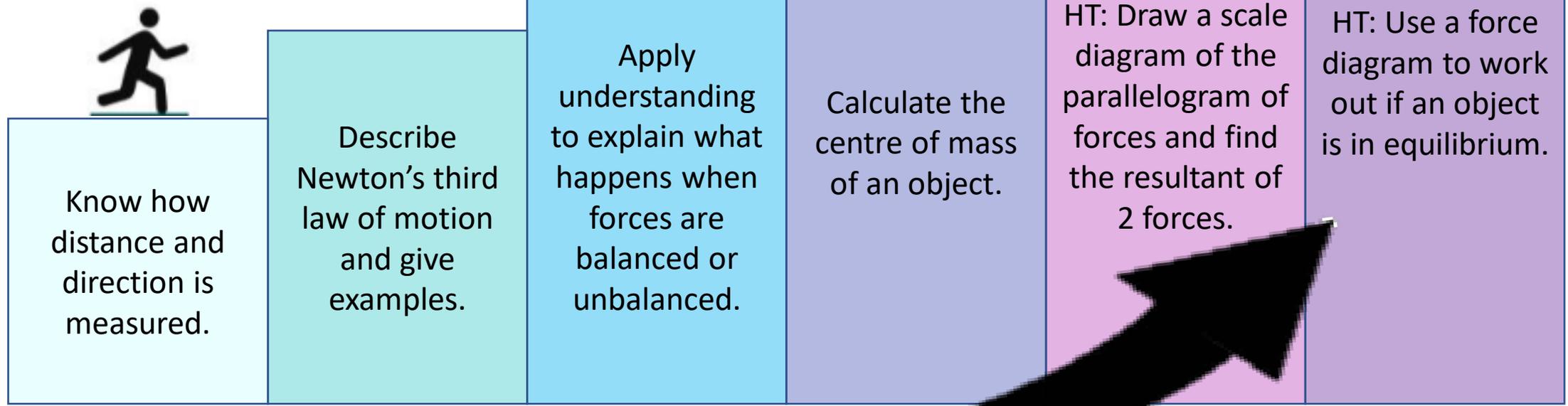
**Learning Journey**  
**Atoms and**  
**radiation P7**

Building on knowledge of atomic structure, isotopes, changing theories, plum pudding model.



**Learning Journey**  
**Forces in balance**  
**P8**

Building on knowledge of forces,  
distance, balanced forces,  
measuring force.



**Learning Journey**  
**Speed and distance-time graphs P9**

Building on knowledge of speed, distance, time, graph analysis.



Use graphs to analyse the motion of an object.

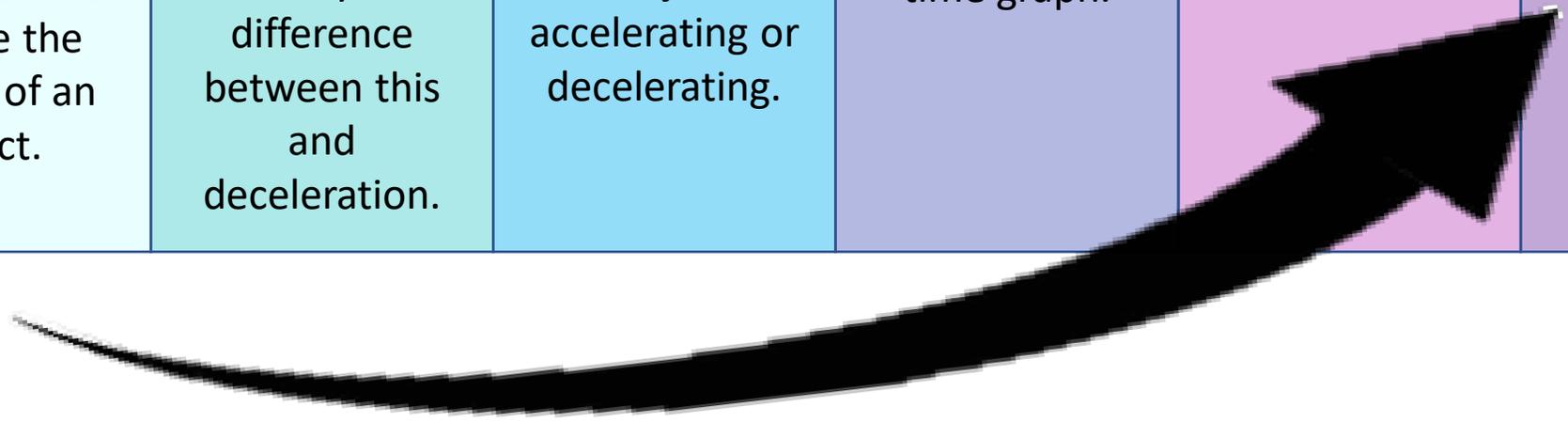
Calculate the acceleration of an object and identify the difference between this and deceleration.

Use a velocity time graph to deduce whether an object is accelerating or decelerating.

Calculate acceleration from a velocity time graph.

HT: calculate the displacement using a velocity time graph.

HT: Calculate the speed using a distance time graph – when the speed is constant and changing.



**Learning Journey**  
**Forces and**  
**acceleration P10**

Building on knowledge of forces, Hooke's law, mass, acceleration, speed.



Calculate the resultant force on an object using mass and acceleration.

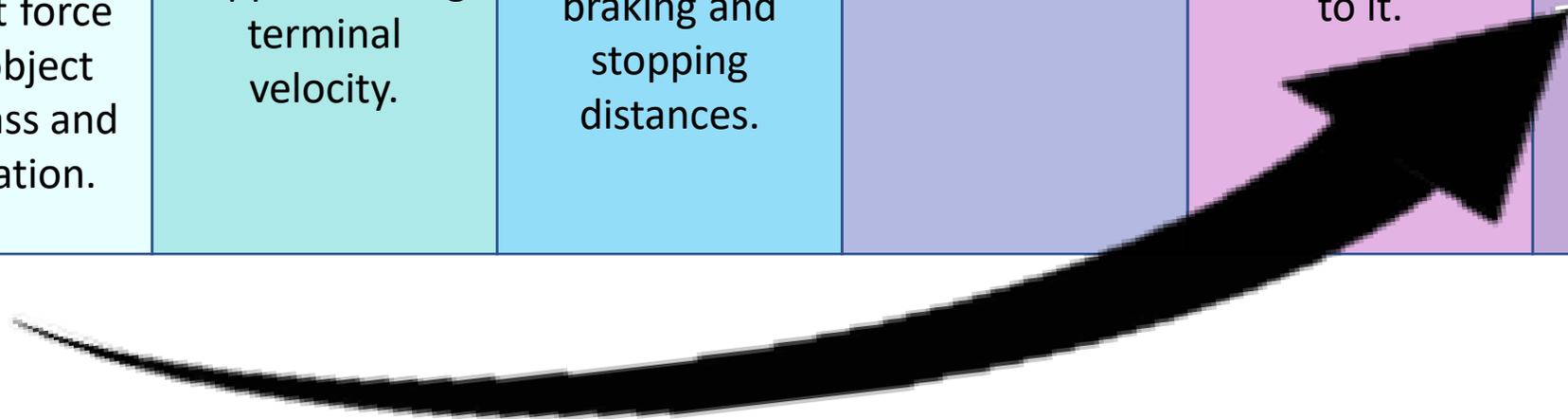
Explain what happens during terminal velocity.

Apply understanding of forces in the context of braking and stopping distances.

HT: Calculate momentum.

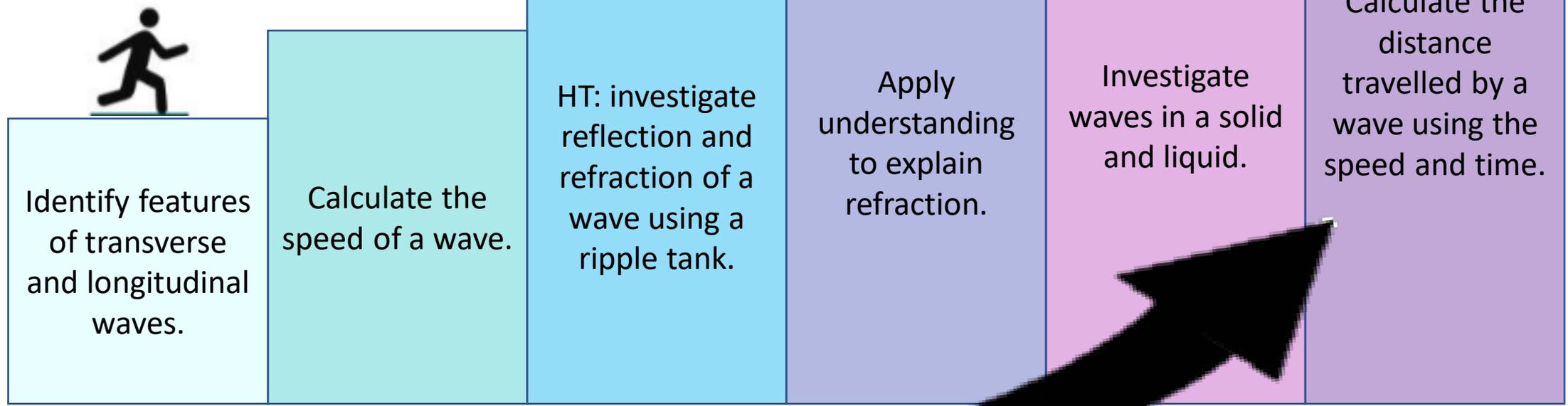
Describe what happens to the extension of an object when a force is applied to it.

Use Hooke's law to calculate the spring constant of an object.



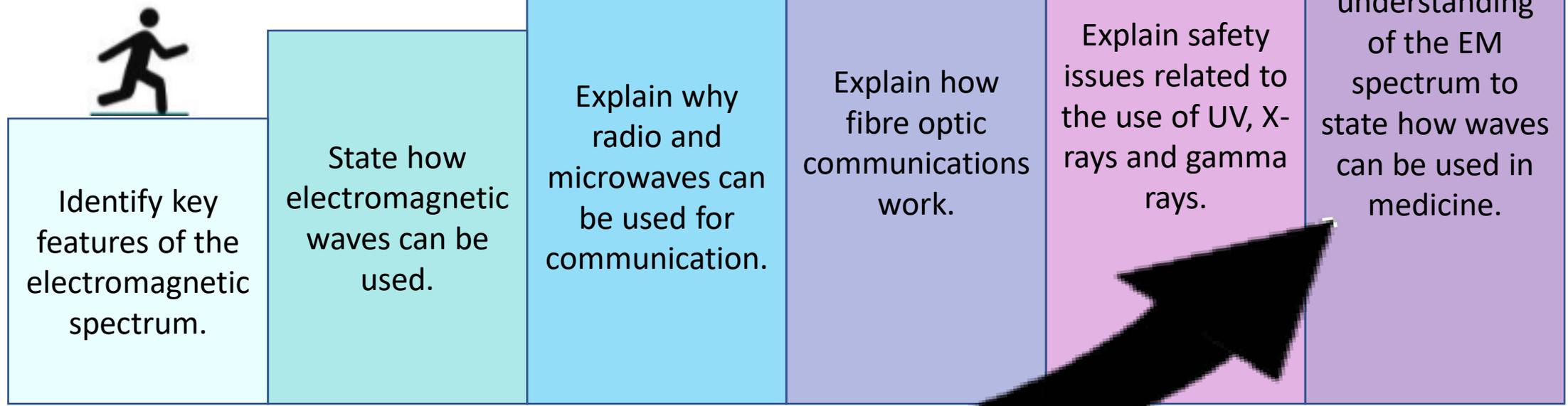
**Learning Journey**  
**Wave properties**  
**P11**

Building on knowledge of waves,  
energy, frequency, speed,  
amplitude, wavelength.



**Learning Journey**  
**Electromagnetic**  
**waves P12**

Building on knowledge of waves,  
transverse waves, energy,  
frequency, speed.



**Learning Journey**  
**Electromagnetism**  
**P13**

Building on knowledge of magnets, field, current.



Draw magnetic field lines and define the term induced magnetism.

Describe how the strength and direction of the field varies with position and current.

Explain what happens to an electromagnet when the current is switched off.

HT: State how to change the size and direction of the force on a current carrying wire in a magnetic field.

HT: Apply understanding to explain what happens in an electric motor.

HT: State what is meant by magnetic flux density and calculate the force.

