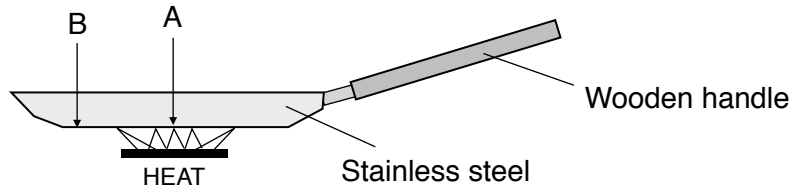


- 1 The diagram shows a frying pan that is used for cooking. The base of the frying pan is made of stainless steel. The letters indicate two different points on the frying pan.

Diagram 1



- 1 (a) (i) Explain how heat energy is transferred through the stainless steel base of the saucepan. [3 marks]

Ions or electrons or particles gain (kinetic) energy.

You can't say ions or particles move faster.

More vibration of ions or vibration with bigger amplitude. [1]

Energy is transferred by collisions between vibrating ions/electrons/particles. [1]

- 1 (a) (ii) The handle is made of wood which is a good insulator of heat.

In terms of particles, suggest why wood is a good insulator of heat.

[1 mark]

No free electrons or atoms/molecules/particles not arranged in neat rows. [1]

- 1 (a) (iii) It is possible to determine how good a material is at conducting heat energy using a measurement called **thermal conductivity** measured in  $W/m/^\circ C$ .

The higher the thermal conductivity, the better the material is at conducting heat energy.

The table shows the thermal conductivity of two materials used to make the base of a frying pan and the temperature at point A and B as shown in **Diagram 1** above.

Material	Thermal Conductivity $W/m/$	Temperature after 1 minute of heating (	
		Point A	Point B
Steel	43	140	105
Copper	401	160	155

Explain why copper is a better metal for making the base of the frying pan.

Use information from the table and the diagram to help you answer.

[3 marks]

Temperature gets higher than steel. [1]

Temperature gets higher quicker or copper heats up quicker. [1]

Heat is conducted or spread more evenly (than steel). [1]

(Total 7 marks)

End

Don't just say temperature gets high. This is a comparison question so you have to say higher. Also make it clear whether you are talking about the steel or the copper.