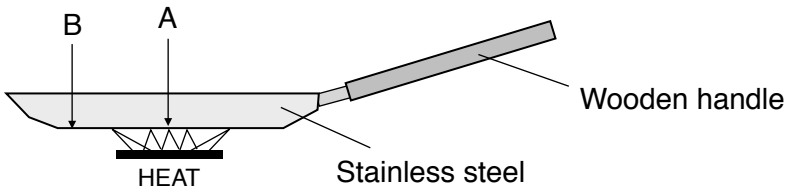
*Do not write outside the box*

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]**

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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]**

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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/$^{o}$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]**

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**(Total 7 marks)**

**End**