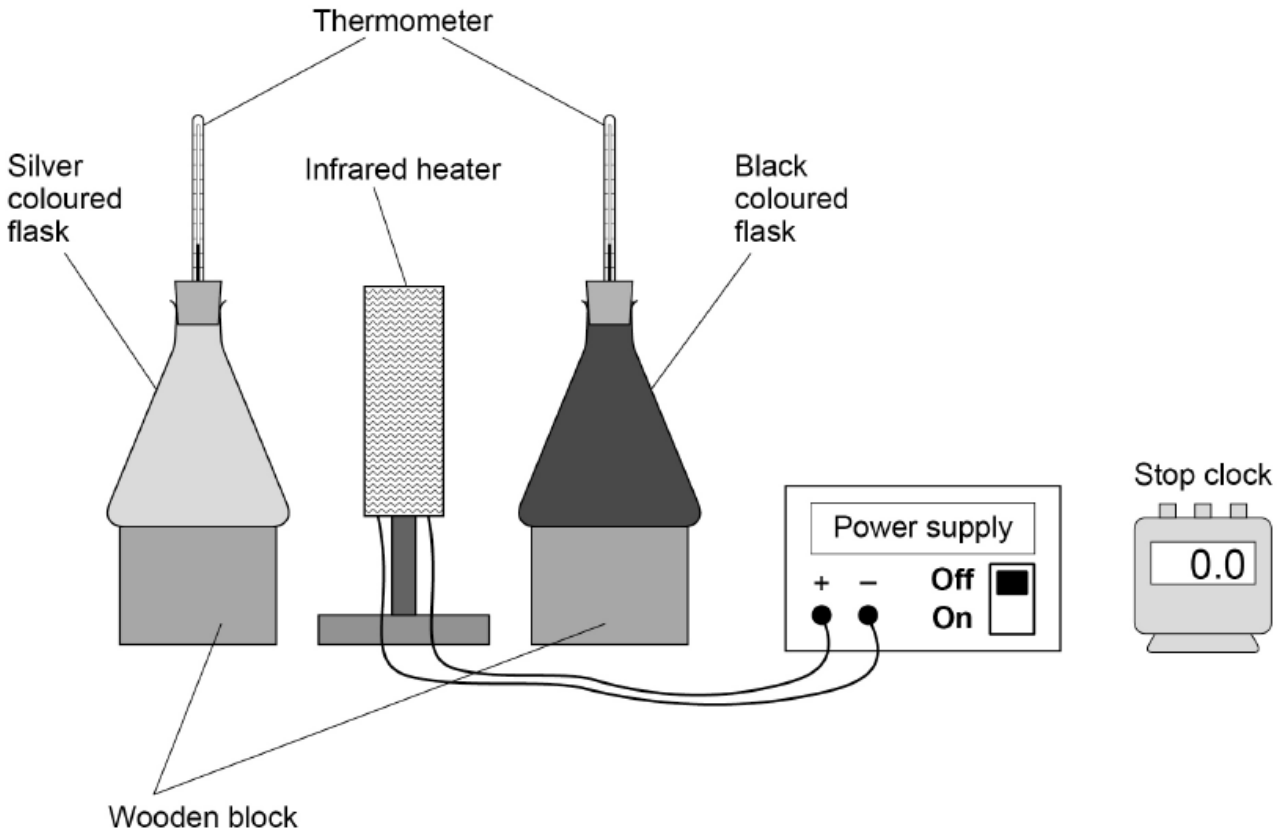
AQA - Black body radiations – GCSE Physics

1. June/2021/Paper_2F/No.3(3.2_3.7)

A student investigated how the colour of a surface affects the amount of infrared the surface absorbs.

Figure 9 shows the equipment used.

Figure 9



0 3 . 2 Complete the sentence.

Choose the answer from the box.

[1 mark]

a control	**the dependent**	**the independent**

In this investigation the distance between each flask and the infrared heater

is _____ variable.

0 3 . 3 The student wrote the hypothesis:

> 'Surface colour of the flask affects the amount of infrared absorbed when the heater is switched on for five minutes.'

Describe how the equipment in **Figure 9** could be used to test this hypothesis.

[4 marks]

Table 1 shows the results.

Table 1

Colour of flask	Temperature increase in °C		
	Test 1	**Test 2**	**Test 3**
Black	19	17	27
Silver	10	12	11

0 3 . 4 Which **one** of the results for the black flask is anomalous?

[1 mark]

_____

0 3 . 5 The anomalous result was caused by reading the thermometer incorrectly.

What should the student do with the anomalous result?

[1 mark]

_____

_____

0 3 . 6 Calculate the mean temperature increase for the silver flask.

[1 mark]

_____

_____

Mean temperature increase = _____ °C

0 3 . 7 What conclusion can be made from **Table 1?**

[1 mark]

Tick (✓) **one** box.

Both flasks absorbed the same amount of infrared during the five minutes. ☐

The black flask absorbed the most infrared during the five minutes. ☐

The silver flask absorbed the most infrared during the five minutes. ☐