

Teacher notes

Topic B

Black body radiation depends **only** on the temperature of the body. It does not depend on the material of the body or any other characteristics. This is clearly demonstrated in the two photographs below, taken from the Harvard Natural Sciences Lecture Demonstrations (https://www.youtube.com/watch?v=Psvo_XEc784).

In the first, an iron ball and a stone are placed in a hot oven. We clearly distinguish the two bodies and the oven. The temperature of the bodies is much lower than that of the oven.



In the second, the temperature of the two bodies has reached the same temperature as that of the oven. The oven, the iron ball and the stone radiate in exactly the same way.



They have exactly the same black body spectrum i.e. they have the same color. Hence it is very difficult to distinguish them.