Thermal Physics Name ……

	melting point	specific heat capacity	specific latent heat of fusion	density
	°C	J/kg°C	kJ/kg	kg/m^3
aluminium	660	900	399	2700
lead	328	160	25	11300
magnesium	650	1020	348	1740
tungsten	3422	134	191	1930
zinc	420	387	113	7140

1. A 500cm^3 block of each of these metals is made. Put them in order of their mass (lowest to highest):

2. A 1kg block of each of these metals is made. Put them in order of their volume (lowest to highest):

3. A 1kg block of each of these metals is at room temperature (20°C). Each is heated with a 100W heater for ten minutes. They are insulated with foam, so you can assume no heat is lost to the surroundings.
    a. How much energy is transferred to each block?

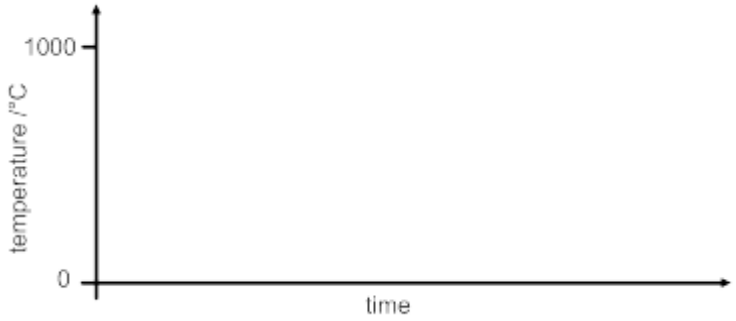
    b. Which block is the hottest after the ten minutes?

    c. Which block is the coolest?

d. Calculate the final temperature of the block in part c.

4. 5kg blocks of each material are put in a kiln at room temperature. The temperature of the kiln is very slowly increased up to 3500°C.
    a. Write down the order in which the blocks start to melt:

    b. Complete this graph to show what happens to the temperature of the zinc from room temperature to 1000°C. (no need for numbers on the time axis)



    c. How much energy is transferred to the zinc block from when it starts to melt to when it has completely melted?

    d. The kiln is switched off and cools down, and the molten metals solidify again.
        i. How much energy is released by the molten magnesium when it solidifies?

        ii. How much energy is released by the magnesium when it cools from 500°C to 200°C?