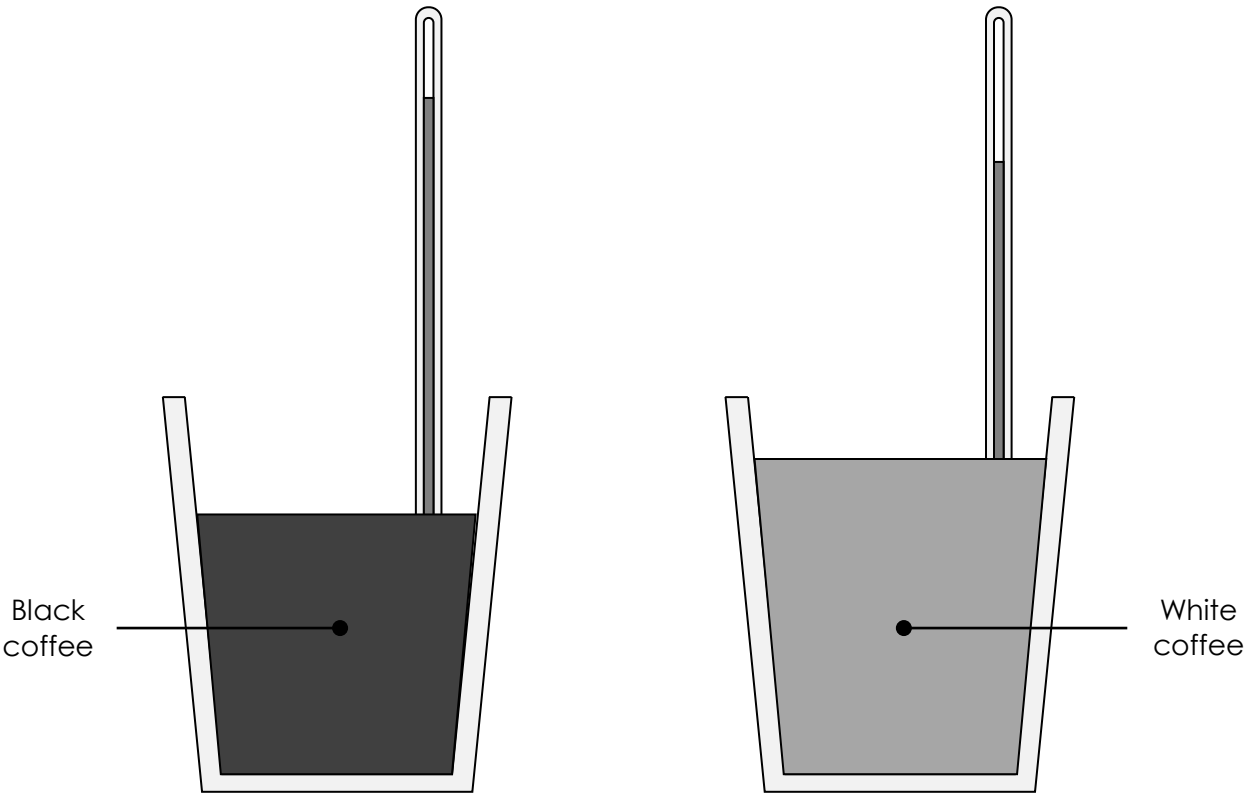
16th October

1. An investigation is carried out into the specific heat capacity of milk.

   268 ml of black coffee at 78 ˚C is poured into an insulated cup.

   a. Suggest a suitable value for the **density** and **specific heat capacity** of black coffee



   40 g of milk from a kitchen fridge is added to the coffee.

   b. Suggest a sensible value for the starting **temperature** of the milk

   The final temperature of the milky coffee is recorded as 69 ˚C.

   Assuming that no energy is lost to the surroundings:

   c. Calculate the **thermal energy** lost by the black coffee as it cooled to this temperature

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d. State the **energy transferred** to the milk

e. Calculate a value for the **specific heat capacity** of milk

f. If 65 g of milk was added, rather than 40 g, calculate the **final temperature** of this milky coffee

g. Write the units for specific heat capacity in its **base units**