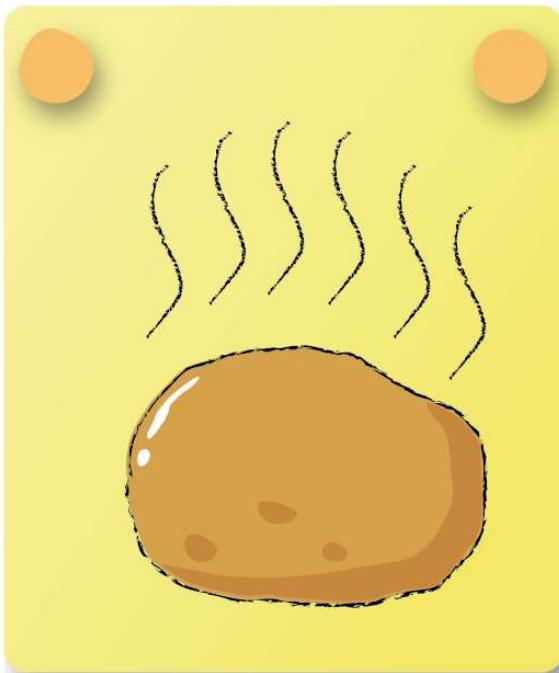


Lecture 7 - Question 7



Consider a hot baked potato on a plate. The temperature of the potato is observed to drop by 4 °C during the first minute. Will the temperature drop during the second minute be less than, equal to or more than 4 °C? Why?

The drop will be less than. This due to a decreasing temperature gradient. The difference between surface temperature and environmental temperature is bigger at the beginning than after the first minute. It can be said that the temperature gradient has decreased. The rate of heat transfer is described as:



$$\dot{Q} = \frac{\Delta T}{R}$$

Thus less heat will leave during the second minute. The temperature drop is proportional to the amount of heat leaving. This is characterized by specific heat capacity. If less heat leaves the body, the temperature drop will thus be less as well.