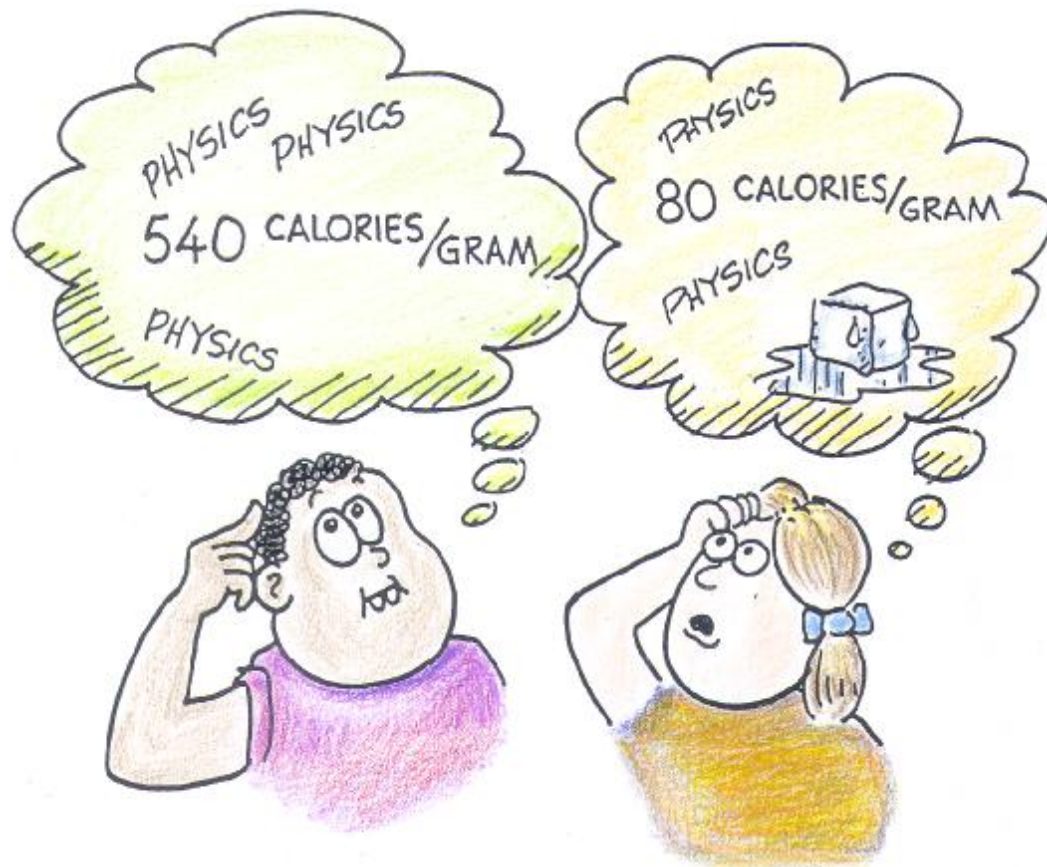


# NEXT-TIME QUESTION

What is the minimum amount of  $100^{\circ}\text{C}$  steam required to melt 1 gram of  $0^{\circ}\text{C}$  ice?



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Answer: 0.125 gram

0.125 gram of  $100^{\circ}\text{C}$  steam will provide the 80 calories required to melt 1 gram of ice. The  $\text{H}_2\text{O}$  in the form of steam will give up 540 calories per gram when it condenses to boiling water, and another 100 calories per gram when the water is cooled from  $100^{\circ}\text{C}$  to  $0^{\circ}\text{C}$ . So the steam will give up a total of 640 calories per gram to the ice. But the ice needs only 80 calories to melt. So only  $80/640$  gram (0.125 gram) of steam will do the job.