| Topic	Latent heat	Level	Key Stage 4 (or any course for students aged 14-16)
Outcomes	1. To understand the concept of latent heat of fusion and vaporisation 2. To calculate the latent heat of vaporisation for water		
Information for teachers	The opening question can be posted to the class to assess their prior knowledge. Give time for students to first think about their ideas before they discuss them with their partner and class. The goal is to help students understand that there is a maximum temperature a liquid can reach i.e. it's boiling point. The demonstration is a great way to then help students understand and calculate latent heat of vaporization without lots of complicated equipment. Students should already be familiar with using the following equation: change in thermal energy = mass × specific heat capacity × temperature change		

Would you rather be boiled alive in water or olive oil or would it make no difference?!

Once a substance reaches its boiling point its temperature will not increase until all the substance has turned into a vapour. This is because energy is being used to break forces between molecules and **not** increase the kinetic energy of particles. Olive oil boils at 300 °C and water boils at 100 °C. No matter how long you heat liquid water for, it will never reach a temperature higher than 100 °C.

Method to work out the specific latent heat of vaporisation of water.

1. Fill one beaker with water and one identical beaker with 100 ml of water
2. Place both beakers on a hot plate
3. Measure the initial temperature of the of the full beaker of water and record the temperature again once all the water in the second beaker has evaporated
4. Now use the specific heat capacity of water to calculate the latent heat of vaporisation in joules per kilogram.

100 ml

Hot plate
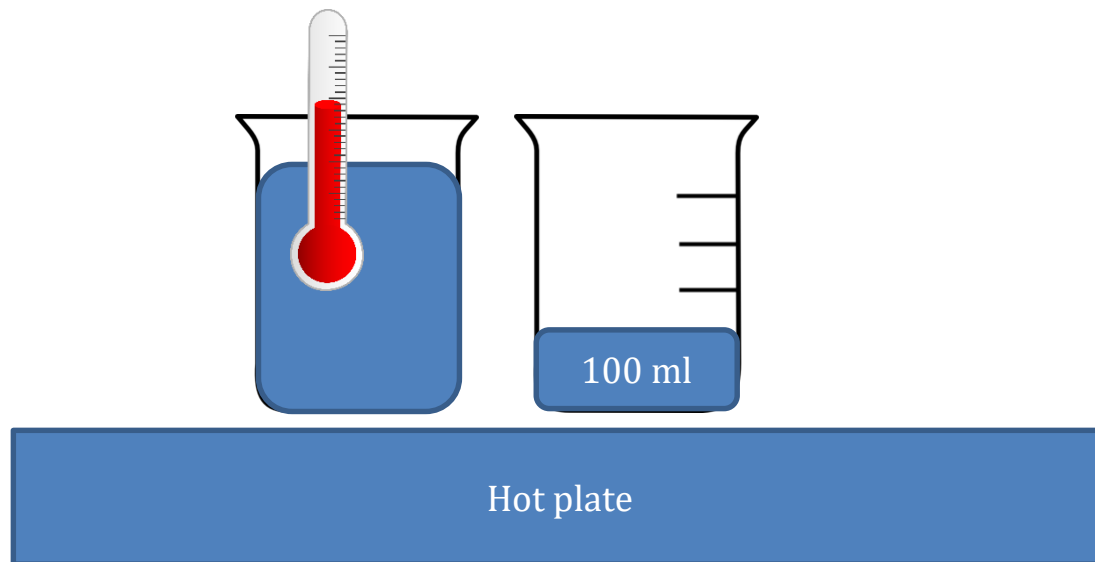
How much energy does it take to turn liquid water into a vapour?