Simple Distillation

Aim: To separate pure water from a mixture of water and food dye using distillation.

Materials:

* retort stand
* clamp
* boss head
* heat proof mat
* Bunsen burner
* matches
* 2 test tubes
* tubing
* safety glasses
* test tube holder
* rubber stopper
* food colouring and water solution

Method

1. Set up the apparatus as shown with the test tube half filled.
2. Gently heat the food dye and water solution.  
   (You may need to move your Bunsen burner away from the test tube if it boils too vigorously.)
3. Collect any water that comes through the rubber hose in a second test tube which you hold with a test tube holder.

Questions

1. Draw a labelled diagram of the apparatus.
2. Write an observation of the distillation process.
3. In the solution of food dye and water, which is the solute and which is the solvent?
4. Explain why the gaseous water turns back into liquid water.
5. Why are you able to separate the water from the food dye? (Hint: think about their boiling points)

Figure 1 Distillation apparatus

