**Activity 3.5 - Measuring the rate of osmosis**

**Skills - A03.1 Using techniques, apparatus and materials**

**A03.2 Planning - A03.3 Observing, measuring and recording**

**A03.4 Interpreting and evaluating observations and data**

1. Collect a piece of Visking tubing. Moisten it and rub it between your fingers to open it. Tie one end tightly.
2. Use a dropper pipette to put some concentrated sugar solution into the tubing.
3. Place a long, narrow glass tube into the tubing, as shown in the diagram. Tie it very, very tightly, using thread.
4. Place the tubing inside a beaker of water, as shown in the diagram.
5. Mark the level of liquid inside the glass tube.

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| **Time in Minutes** | **0** | **2** | **4** | **6** | **8** | **10** | **12** | **14** | **16** |
| Height of liquid in mm |  |  |  |  |  |  |  |  |  |

1. Make a copy of this results chart.   
   Every 2 minutes, record the level of the liquid in the glass tube.
2. Collect a sheet of graph paper.   
   Draw a line graph of your results. Put time in minutes on the x-axis, and height in mm on the y-axis.

**Questions**

**A1** Describe what happened to the liquid level inside the glass tube.  
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**A2** Explain why this happened.  
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**A3** Use your graph to work out the mean (average) rate at which the liquid moved up the tube, in mm per second. (Ask your teacher for help if you are not sure how to do this.)  
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**A4** Predict what would have happened to the rate of osmosis in this experiment if you had used a kind of Visking tubing with ridges and grooves in it, giving it a larger surface area. Explain your answer.  
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**A5** When temperature rises, particles move more quickly. Describe how you could use this apparatus to carry out an experiment to investigate the effect of temperature on the rate of osmosis. Think about the following things.

* What will you vary in your experiment?  
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* What will you keep the same?  
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* What will you measure, when will you measure it and how will you measure it?  
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* How will you record and display your results?  
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* Predict the results that you would expect.  
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