Name:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Osmosis Required Practical**

In this question you will be assessed on using good English, organising information clearly and using specialist terms where appropriate.

**A student is asked to investigate osmosis in potato tissue. Some of the equipment they were provided with is shown below:**

* a potato
* a cork borer or potato chipper/ vegetable stick cutter
* a ruler
* a 10 cm3 measuring cylinder
* labels
* three boiling tubes
* a test tube rack
* paper towels
* a sharp knife
* a white tile
* a range of sugar solutions
* distilled water
* a top-pan balance.

**Describe how they could carry out this investigation**

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**Osmosis Required Practical**

Marks awarded for this answer will be determined by the quality of the written communication as well as the standard of the scientific response

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| --- | --- | --- | --- |
| **Poor Understanding**  **(0 marks)** | Level 1  Basic Understanding  (1-2 marks)  **Grade 3-4** | Level 2  Clear Understanding  (3-4 marks)  **Grade 5-6** | Level 3  Detailed Understanding  (5-6 marks)  **Grade 7-8** |
|  | * Knowledge of basic information * Simple understanding * The answer is poorly organised, with almost no specialist terms and their use demonstrating a general lack of understanding of their meaning, little or no detail * The spelling, punctuation and grammar are very weak | * Knowledge of accurate information * Clear understanding * The answer has some structure and organisation, use of terms has been attempted but not always accurately, some detail given * There is reasonable accuracy in spelling, punctuation, although there may still be some errors. | * Knowledge of accurate information appropriately contextualised * Detailed understanding supported by relevant evidence and examples * Answer is coherent and is in an organised, logical sequence, containing a wide range of appropriate or relevant specialist terms used accurately * The answer shows almost faultless spelling, punctuation and grammar |
| **Examples of biology points made in the response**  **When marking this question, the amounts do not need to be the same, however, the method should follow roughly the same steps**   1. Use a cork borer to cut three potato cylinders of the same diameter. 2. Trim the cylinders so that they are all the same length (about 3 cm). 3. Accurately measure and record the length and mass of each potato cylinder. 4. Measure 10 cm3 of the 0.5 M sugar solution and put into the first boiling tube. Label boiling tube as: 0.5 M sugar. 5. Measure 10 cm3 of 0.25 M sugar solution and put into the second boiling tube. Label boiling tube as: 0.25 M sugar. 6. Measure 10 cm3 of the distilled water and put into the third boiling tube. Label boiling tube   as water.   1. Add one potato cylinder to each boiling tube. Make sure you know the length and mass of each potato cylinder in each boiling tube. 2. **Record the lengths and masses of each potato cylinder** 3. Leave the potato cylinders in the boiling tubes overnight in the test tube rack. 4. Remove the cylinders from the boiling tubes and carefully blot them dry with the paper towels. 5. Re-measure the length and mass of each cylinder | | | |
| **Total 6 marks** | | | |