

Grade 8 Natural Science Worksheet

Demonstrating osmosis

Choose 6 chicken eggs that are approximately the same size.

Remove the shells of the eggs by soaking them in vinegar for two to three days.

Take the eggs out of the vinegar and rinse in fresh water. Be careful because the eggs can break very easily now!

Dry them with paper towels and weigh each on a scale. Note the mass of each egg.

Put 3 of the eggs into containers containing the same amounts of pure water.

Put the other 3 in containers with equal amounts of salt water. Dry and weigh the eggs every hour for eight hours. Make sure that you put each egg back into its own container.

Record the mass of each egg in a table.

Work out the average mass for the two groups of eggs for each hour, then compare the results.

Write up this procedure according to the scientific method. You must provide a hypothesis, list of apparatus, method, results and conclusions. You must also state how you made the experiment fair.

[40 marks]

Rubric to assess written scientific report

Criteria	Level 4 [4]	Level 3 [3]	Level 2 [2]	Level 1 [1]
Presentation	On a neat sheet of paper, handwriting is neat.	Some attention has been paid to neatness and presentation.	Not very neat, could be improved greatly.	Scrappy sheet of paper, messy handwriting.
Heading	Present.	Present.	Present but not appropriate.	Not present.
Ability to use correct grammar & spelling	Very few grammatical and spelling errors.	A few grammatical and spelling errors.	Grammar and spelling needs attention.	Many grammatical and spelling errors.
Hypothesis	Clearly stated.	Fair statement.	Not clearly stated.	None stated.
Apparatus	Correctly listed.	Mostly correct.	Partially correct.	None listed.

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Method	Correctly described.	Mostly correct.	Partially correct.	None/confused description.
Recognition of fair test	Specifically mentioned.	Addressed.	Some vague mention.	None.
Results	Recorded appropriately.	Recorded adequately.	Recording needs attention.	Incorrectly recorded.
Discussion	Directly relates to results.	Present.	Present but vague.	None/incomprehensible.
Conclusion	Correct, relates to aim.	Mostly.	Partially correct.	None/incomprehensible.

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Suggested Solutions

Possible marks	Solution
40	<p>You should find that the average mass of the eggs in pure water increased at first and then stayed the same towards the end of the 8 hour period. This is because the water moved into the eggs through osmosis. We expect the average mass of the eggs in salt water to decrease.</p> <p>For this to be a fair experiment the eggs have to be approximately the same size. Also the liquid we put the eggs into have to be the same amount. For the salt water group, the concentration of the salt water has to be the same in all 3 containers.</p> <p>You need to determine the mass accurately. A digital scale will probably give you the most accurate readings. Make sure that the scale is calibrated correctly and don't make the mistake of recording the mass of the egg including the container you use to weigh the eggs!</p> <p>To make the results more accurate we used 2 groups of 3 eggs and took the average mass of the eggs in each group. To make results even more accurate, the experiment can be repeated and results compared.</p> <p>See rubric in Appendix of Assessment Tools.</p>

Appendix of Assessment Tools

Rubric to assess written scientific report

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