

## Question 1

9. (a) (i) What is the purpose of a hypothesis in the scientific method?

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- (ii) Explain what is meant by double-blind testing in scientific experimentation.

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- (b) A scientist wished to investigate the effect of the concentration of iodine on the rate of growth of tadpoles (young frogs). He acquired 100 tadpoles of the same age, all of which had hatched from the fertilised eggs of one female. He used water from the pond in which the tadpoles had hatched, and a stock solution of iodine.

- (i) Why do you think that it was important that all the tadpoles came from the same mother?

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- (ii) At the start of the investigation the scientist divided the tadpoles into four groups of 25, one of which was to be the control.

1. Why is a control essential in scientific experiments?

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2. Suggest why he used 25 tadpoles in each group.

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3. Suggest how this investigation would have been carried out.

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- (iii) Suggest **two** factors that the scientist would have kept constant during the investigation.

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