

Biology Induction Task: Milk allergies



Key Skills

- Researching methodologies
- Justification of equipment and method choices
- Safe working
- Explain how scientists develop and test their ideas (How Science Works)

Your Task:	<p>A glass of milk or a slice of pizza causes swollen lips, hives, or other significant symptoms, it may be because of an allergy to casein, a protein in milk. Most people with an allergy to milk have symptoms which appear when they are infants and outgrow them as they get older. However, some people do not outgrow these symptoms and continue to be allergic as adults.</p> <p>Normally casein is digested by an enzyme called trypsin, produced in the pancreas and added to your small intestine during digestion. In the lab, when trypsin is added to a dilute solution of milk powder, the casein is digested and the solution goes clear, making it very easy to see the end point of the reaction.</p> <p>As the digestion of casein is by an enzyme, this reaction is affected by various factors that affect all enzyme-controlled reactions. Your task is to plan an investigation into the effect of temperature on the rate of the reaction catalysed by trypsin.</p>
Success Criteria	<ol style="list-style-type: none"> 1. An introduction including what enzymes are and how they work 2. A discussion of all the factors that affect the rate of an enzyme-controlled reaction with appropriate science 3. Statement of your independent, dependent and control variables 4. A testable hypothesis – how do you expect your independent variable to affect your dependent variable and why? 5. A list of equipment needed – with detail and justification (use words like ‘precise’ and ‘accurate’) 6. A step-by-step method, including justification of what is being done (use words like ‘accurate’ and ‘repeatable’) 7. A risk assessment for your chosen method 8. How to calculate rate of reaction from your raw data
Your starting point:	<p>Your work should be able to be understood by a scientifically literate A-level student and therefore of A-Level detail. It should not exceed 2 pages (4 sides) of A4 in length including any diagrams or figures and must be submitted on paper.</p> <p>Consult A-level text books to consolidate the basics</p> <p>A couple of websites to start you off.</p> <p>http://alevelnotes.com/Enzymes/144?tree=</p> <p>http://www.biologyguide.net/unit1/2_enzymes.htm</p>
How you will be assessed:	<p>Grade A – Your work will include:</p> <ul style="list-style-type: none"> ● Most/All (7-8) criteria points met fully and in appropriate detail as explained above <p>Grade C – Your work will include:</p> <ul style="list-style-type: none"> ● Some (4-6) criteria points met in appropriate detail or all criteria met but lacking detail in some areas <p>Grade E – Your work will include:</p> <ul style="list-style-type: none"> ● Few (1-3) criteria points met in appropriate detail or more met but lacking detail <p><i>Please note:</i> All sources of information must be fully referenced. Plagiarised work will not be assessed.</p>