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| **Task** | **Investigate a factor that affects the enzyme activity, using a yeast solution** |

Assessed criteria  
Criterion B: Inquiring and designing

|  |  |  |  |
| --- | --- | --- | --- |
| Achievement level |  |  | Level descriptor |
| 0 | The student does not reach the standard described in any of the levels below. | | |
| 1-2 | The student is able to:  i. **state** a problem or question to be tested by a scientific investigation  ii. **outline** a testable hypothesis  iii. **outline** the variables  iv. **design** a method, with limited success. |  | The research question or problem is inappropriate or incorrectly formulated. The research question or problem is stated using minimal scientific vocabulary not based on research. The hypothesis is formulated but not described and not theoretically justified. Variables are not correctly identified as independent, dependent and controlled. The manipulation and measuring of all the variables has barely been described and mistakes are often made. The method does not allow for the collection of sufficient relevant data. **The method** is not **clear** or **safe** and not well **structured**.  An incomplete list of materials, and without proper names, is included. No references have been included. |
| 3-4 | The student is able to:  i. **outline** a problem or question to be tested by a scientific investigation  ii. **formulate** a testable hypothesis using scientific reasoning  iii. **outline** how to manipulate the variables, and outline how relevant data will be collected  iv. **design** a safe method in which he or she selects materials and equipment. |  | The research question or problem is not adequately formulated, or not clear or concise. The research question or problem is outlined using the proper scientific vocabulary and based on some research. The hypothesis is formulated, described but not theoretically justified. Variables are mostly correctly identified as independent, dependent and controlled. The manipulation and measuring of all the variables is described, but with some mistakes. The method barely allows for the collection of sufficient and relevant data. **The method** is not always **clear** or **safe** and could be better **structured**.  An incomplete list of materials, and not always with proper names, is included. A reference list is included but not in the APA forma or with some mistakes. |
| 5-6 | The student is able to:i. describe a problem or question to be tested by a scientific investigationii. formulate and explain a testable hypothesis using scientific reasoningiii. describe how to manipulate the variables, and describe how sufficient, relevant data will be collectediv. design a complete and safe method in which he or she selects appropriate materials and equipment. |  | The research question or problem is adequately formulated, but could be more clear and concise. The research question or problem is described using the proper scientific vocabulary and based on some research. The hypothesis is formulated, explained and theoretically justified but with limited scientific reasoning Variables are correctly identified as independent, dependent and controlled. The manipulation and measuring of all the variables is explained with little mistakes. The method allows for the collection of sufficient and relevant data. The **method** is **clear**, **safe** and **logically structured**, with little mistakes.  A complete list of materials, mostly with their proper names, is included. A reference list is included in the APA format. |
| 7-8 | The student is able to:  i. **explain** a problem or question to be tested by a scientific investigation  ii. **formulate** and **explain** a testable hypothesis using correct scientific reasoning  iii. **explain** how to manipulate the variables, and explain how sufficient, relevant data will be collected  iv. **design** a logical, complete and safe method in which he or she selects appropriate materials and equipment. |  | The research question or problem is well formulated, clear and concise. The research question or problem is well explained using the proper scientific vocabulary and based on previous research. The hypothesis is well formulated, explained and theoretically justified with correct scientific reasoning and without mistakes. Variables are correctly identified as independent, dependent and controlled. The manipulation and measuring of all the variables is well explained. The method allows for the collections of sufficient and relevant data. The **method** is completely clear, safe and logically structured.  A complete list of materials, with their proper names, is included. A reference list is included in the APA format. |

**Formative due date: January 9th**

**Summative due date: Last week of February**

Please use the template on the next page for your work. Send ONLY that template to your teacher for assessment

**To prepare yourself have a look at [this page](http://www.sciencesfp.com/how-to-write-a-lab-report.html) on the Science website and [download this document](http://www.sciencesfp.com/uploads/2/1/5/9/21597828/planning_an_investigation.docx).**

**Research Question**

(What you will study)

**Background Information**

(Be aware that not all sources are reliable ones, so make sure the sources you use are valid)

**Hypothesis**

(A good hypothesis will clarify and create focus for the research question)

**Variables**

Independent (what you are changing and how you will change it)

Dependent (what you are measuring and how you are measuring it with the corresponding units)

Controlled (include all the relevant or important controlled variables)

**Materials**

**Method**

**References**

APA style

Use <http://www.citethisforme.com/>

You only need to copy and paste the part after “bibliography:”

Remember that Wikipedia or yahoo answers IS NOT a reference, it is a starting point to find other acceptable references.