**Reaction Times Analysis Lab**

**Learning Outcomes**:

* ***RQ****:* ***Do men have faster reaction times than women?***
* *Compare reaction times from an online reaction timer with that gathered from experimental results gained from a ruler drop experiment.*
* *Present, process and analyse your data in an IB standard lab report (Analysis and Evaluation section of the IA rubric).*

Examples of online reaction timers here:

<http://getyourwebsitehere.com/jswb/rttest01.html>

<http://intelligencetest.com/reflex/index.htm>

<http://www.bbc.co.uk/science/humanbody/sleep/sheep/reaction_version5.swf>

Methods for ruler drop available here:

[http://www.topendsports.com/testing/tests/reaction-stick.htm#](http://www.topendsports.com/testing/tests/reaction-stick.htm)

<http://www.topendsports.com/testing/reactionmake.htm>

**Hints and Tips**

Remember you need a minimum of **5 repeats** per person per method to be able to calculate **SD** and the more volunteers you test the more **reliable** your results will be.

Record your data in this Google Sheet document:

<https://docs.google.com/spreadsheets/d/1Dr5HdnUYiRlo4zNy5Tk49YTwN8UMbesSTVWO4h4cOB4/edit?usp=sharing>

There are results from last year’s class so that you have more data to work with.

The IA rubric for Analysis and Evaluation are given below:

**Analysis**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Marks** | **Raw data is** | **Data processing** | **Impact of uncertainties** | **Interpretation of processed data** |
| **6** | Sufficient. Could support a detailed and valid conclusion. | Appropriate and sufficient accuracy enables a conclusion to the RQ to be drawn that is fully consistent with data. | Full and appropriate consideration. | Correct valid and detailed conclusion. |
| **4** | Relevant but incomplete. Could support a simple or partially valid conclusion. | Appropriate and sufficient. Could lead to a broadly valid conclusion but significant inaccuracies and inconsistencies in the processing. | Some consideration. | Broadly valid limited conclusion. |
| **2** | Insufficient to support a valid conclusion. | Basic, inaccurate or too insufficient to lead to a valid conclusion | Little consideration. | Incorrect or insufficient invalid or very incomplete |
| **0** | Standard not reached. | Standard not reached. | Standard not reached. | Standard not reached. |

**Evaluation**

|  |  |  |  |  |
| --- | --- | --- | --- | --- |
| **Marks** | **Conclusion data** | **Conclusion theory** | **Strengths/weaknesses, e.g.limitations of the data and sources of error, are** | **Realistic/relevant suggestions for improvement/extension of the investigation.** |
| **6** | Described in detail and justified, entirely relevant to the RQ fully supported by the data. | Justified through relevant comparison to the accepted scientific context. | Discussed and provide evidence of a clear understanding of the methodological issues involved in establishing the conclusion. | Are discussed. |
| **4** | Described, relevant to the research question and supported by the data. | Some relevant comparison to accepted scientific context. | Described and provide evidence of some awareness of the methodological issues involved in establishing the conclusion. | Some described. |
| **2** | Outlined but may not be relevant to the research question or may not be supported by the data. | Erroneous or superficially compared to the accepted scientific context. | Outlined but are restricted to an account of the practical or procedural issues faced. | Very few outlined. |
| **0** | Standard not reached. | Standard not reached. | Standard not reached. | Standard not reached. |