1. Essentials of the Internal Assessment

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Purpose of the Internal Assessment

1. The purpose of the **internal assessment (IA)** is to enable students to **put into practice** the **practical skills and techniques** learned during the **DP Physics course**.
2. It is also an opportunity for students to undertake an **investigation** that allows them to **explore their personal interests** in physics.
3. The IA is comprised of **one scientific investigation**, in which students **formulate a unique research question** and **collect data** to answer it.

Note
The format of the scientific investigation is a **written report** of no more than **3000 words**. The investigation is **assessed** against **four criteria**.

1. The **scientific investigation** is worth **20% of the final grade** in the **DP Physics programme**.
2. Student performance is assessed against **four assessment criteria** with a total of **24 marks** (the criteria are the same for both **SL** and **HL**).
3. These **criteria** will be discussed further in **section 2**.

Criterion	Research design	Data analysis	Conclusion	Evaluation	Total
Number of available marks	6 (25%)	6 (25%)	6 (25%)	6 (25%)	24 (100%)

Figure 1: Criteria marks

1. The **scientific investigation** is allocated a total of **10 hours**.
    1. This includes:
        1. **Explanation of the requirements**
        2. Time for students to **collect data** in the laboratory (or **secondary data** if applicable)
        3. Time for teachers to **give feedback** and **check for authenticity**
2. In most cases, the majority of this time is spent in the **laboratory collecting data**.

Types of investigation

1. The different types of **data collection and/or analysis** suitable for use in the **scientific investigation** are:
    1. **Hands-on data collection** in the laboratory
    2. The use of **simulation(s)**
    3. The use of **database(s)**
    4. Use of **spreadsheets**
    5. **Fieldwork**
2. Of the different types of investigation, the **first** is by far the most common and will produce **primary data** (collected by the student themselves).
3. The use of a **simulation** will also produce **primary data**, whereas a **database** will involve the collection of **secondary data**.
4. If the chosen methodology involves a simulation, it must give some **variability in the data**.
    1. A simulation that produces **identical results every time** is not suitable, nor is one that **chooses the variables for the student**.
5. For students considering this method, it is advisable to **discuss their ideas with their teacher** to ensure suitability.

Tip

- Data from a **database** or **simulation** can be used in a **hands-on investigation**, but should not be the **main source** of data.
- A **spreadsheet** should be used for **data analysis**, such as **plotting graphs** and determining **best-fit lines**.

Fieldwork may be possible depending on the type of investigation and should be **discussed** with the **teacher**, though it is fairly **uncommon** in physics.

Group Work

Depending on the **resources** available, it may be possible for students to **work in groups** during the **data collection** part of the investigation.

The rules for group work are:

1. Maximum **three students** per group.
2. Each student must **formulate their own research question**.
3. A student can choose a **different independent variable**, or the **same independent variable** with a **different dependent variable**.
4. A student cannot use the **same raw data** as another member, but may use **different data** from a larger set collected together.
5. Each student must submit their own **individual report**, clearly indicating **group work**. A **group report** is not permitted.

6. A **class collaboration** may occur where data is collected in a **large-scale activity**, treated as if from a **database**.

Hint
Because of the **complexity** of the rules, it is strongly recommended that students considering **group work discuss** requirements with their **teacher** beforehand to avoid issues of **academic honesty**.

Required Sections

The **scientific investigation** is assessed through a **written report**.

Although the **IB** offers no specific guidance on the **structure**, it is recommended that it follow the form of a **laboratory report (lab report)**.

Tip
The following is a **recommended structure**, though it is not mandatory. Sections marked with a * are **required** by the IB.

1. **Title*** (reflecting the aims or purpose of the investigation)
2. **Candidate's personal code*** (and all group members' codes, if applicable)
3. **Word count***
4. **Introductory paragraph** (introducing the investigation)
5. **Research question**
6. **Background context** or **research**
7. **Hypothesis**
8. **Experimental variables** (independent, dependent, control)
9. **Procedure/method** (including apparatus and chemicals)
10. **Risk assessment**
11. **Raw data**
12. **Processed data**
13. **Graphs**
14. **Conclusion**
15. **Evaluation**
16. **Works cited**

A **cover page** and **table of contents** are **not required**. **Appendices** are recommended but will **not be read** by the examiner. All **relevant information** must be included in the **main body** of the report.

Note
If the report contains **excess raw data**, a **sample** of data at **relevant intervals** should be included.

Word Count

1. The **internal assessment report** has a maximum **word count** of **3000 words**.
2. This does **not include**:
    1. **Data tables***
    2. **Sketches**
    3. **Graphs**
    4. **Headings**
    5. **References** or **bibliography**

If a report exceeds **3000 words**, **examiners** are not required to read the entire report.

Note
*The **IB recommends** that if large amounts of **data** have been collected, students should include only a **sample**.

Academic honesty

1. The **IB** takes **academic honesty** very seriously. Any **work** or **ideas** not belonging to the student must be clearly **referenced**.
2. This includes any **images** or **figures** used in the report. The report must also include a **works cited list**.

Tip
The **referencing style** can be chosen by the student (or the school) but must be **consistent** throughout the report.`