### **Laboratory Report structure, writing & proofreading**

**Task 1.** *Warm-up Activity.**Discuss in pairs.*

*Why do scientists write lab reports?*

*What challenges do students face when writing lab reports?*

**Task 2.** *Tick the sentences that resonate with you in the table.*

| **Why do scientists write lab reports?** | *Lab reports help scientists communicate their findings clearly so others can replicate their experiments.* |  |
| --- | --- | --- |
| *Writing a lab report forces us to think critically about our results and methods.* |  |
| *Lab reports document what went right or wrong in an experiment for future reference.* |  |
| *Good lab reports help improve scientific techniques by analyzing errors and suggesting refinements.* |  |
| *Scientists write lab reports because if it’s not documented, it didn’t happen (at least in science!).* |  |
| **What challenges do students face when writing lab reports?** | *It’s difficult to write concisely while also including all necessary details.* |  |
| *Figuring out whether to use past or present tense in different sections can be confusing.* |  |
| *Formatting a lab report correctly feels like solving another experiment – but with no lab equipment!*  |  |
| *Scientists write lab reports so they can practice their typing skills for a future in data entry.* |  |
| *The biggest challenge in writing lab reports? Trying to sound professional when all you want to say is ‘the experiment went terribly wrong, and I have no idea why.’* |  |

### **Deconstructing a Lab Report: Structure of a lab report**

**Task 3.** *Your group has been given shuffled excerpts from a lab report. Read each excerpt carefully and decide which section it belongs to: Introduction, Methods, Results, Discussion. Compare your answers with a neighboring group before discussing it as a class.*

 **🔹 Excerpt Α***"A beaker containing 100 mL of 1.0 M HCl was placed on a magnetic stirrer, and a temperature probe was inserted to monitor thermal fluctuations. We then sequentially added magnesium ribbon (2 cm length) and recorded the time until effervescence (αναβρασμός) ceased. The procedure was repeated using magnesium powder (0.05 g) under identical conditions."*

**🔹 Excerpt Β**

*"The observed difference in reaction rates aligns with collision theory, which suggests that increased surface area enhances reactant interaction. The minor temperature increase likely resulted from the exothermic nature of the reaction, though variations in heat dissipation (απαγωγή θερμότητας) could have influenced the recorded values. One limitation was that the magnesium ribbon’s surface oxidation was not accounted for, which may have slightly slowed its reactivity."*

*🔹* ***Excerpt C***

*"The reaction between hydrochloric acid and magnesium metal produces hydrogen gas, a principle frequently used to illustrate reaction rates. Given that increased surface area generally accelerates reaction speed, we hypothesized that magnesium powder would react faster than magnesium ribbon."*

*🔹* ***Excerpt D***

*"The reaction involving magnesium powder reached completion in an average time of 18.4 ± 0.3 seconds, whereas the magnesium ribbon required 42.7 ± 1.1 seconds. Additionally, a minor increase in temperature was observed during both reactions, with the powder reaching a peak of 28.2°C compared to 27.1°C for the ribbon."*

*🔹* ***Excerpt E***

*"Table 1 summarizes reaction times for each condition. Figure 2 illustrates the temperature changes during the reaction. The calculated rate constants for the reactions were 0.054 s⁻¹ (powder) and 0.027 s⁻¹ (ribbon)."*

**Task 4.** What made certain sections difficult to classify?

*How does each section contribute to clarity and reproducibility in scientific writing?*

*Why is avoiding interpretation in the Results section important?*

**Task 5.** Read the Annotated Lab report instruction before you make your one. Make a list of

guidelines that you did not know.

| **Sections** | **Guidelines** | **Guidelines** |
| --- | --- | --- |
| **Introduction** |  |  |
|  |  |  |
|  |  |  |
| **Methods** |  |  |
|  |  |  |
|  |  |  |
| **Results** |  |  |
|  |  |  |
| **Discussion** |  |  |
|  |  |  |
| **Other sections** |  |  |
|  |  |  |

**Task 6.** In your textbook, there is a lab report written by a student that contains mistakes. Listen to the instructor feedback and make corrections in the report.