Report Summary

# Date: [Select Date Report Written]

# Analyst: [your name]

# Experiment Purpose

Write 1-4 sentences briefly stating the purpose of the exercise. There may be multiple purposes for a given week’s exercises. You’ll usually be given some guidance in this regard prior to beginning lab work.

Example:

Use [methodology] for [presumptive or confirmatory] identification of controlled substances.

# Findings

Briefly describe each sample and associated results in a table.

Description may mean color, state of matter, type of item, size of clothing, brand, etc.

Results may mean substance identification, preliminary results, concentration (if measured), etc.

Example:

|  |  |  |
| --- | --- | --- |
| **Sample #** | **Description** | **Results** |
| 1 | white powder | Cocaine |
| 2 | orange pills | Pharmaceutical identification indicates 200 mg of ibuprofen per tablet. Ibuprofen was not confirmed. |
| 3 | 2”x3” mirror with residue | No analysis |

# Additional Comments

This section may not always be necessary. It may include brief explanation of inconclusive results, additional sample requirements, etc.

If you have nothing to say here, simply type “N/A”.

Full Report

# Introduction

This is essentially a significantly expanded ‘Experiment Purpose’ with added background.

* Explain what kind of analytes you’re working with (drugs, etc.), the method(s) you’ll use to analyze them, what that data will tell you, and (briefly) how each of those methods works.
* Provide at least one figure per method that helps explain how the method works – this can be a chemical mechanism, an instrument schematic, etc. Use in-text citations and provide a ‘Works Cited’ list (more on that later).

Example (yours will be longer):

The purpose of this experiment is to identify controlled substances in unknowns provided. For a substance’s identity to be confirmed, it must be analyzed by two different techniques (as outlined by SWGDRG) with corroborating results.

Presumptive testing will consist of x, y, and z. X uses midi-chlorians to identify drugs containing the Force and a positive result will be a blue top layer. It is suggested that this blue color results from [explain mechanism, if one exists].

Confirmatory testing will be performed using gas chromatography-mass spectrometry (GC-MS). [Briefly explain method].

General Rules of Thumb for Writing Reports:

1. Always use passive voice (“The flask was filled” vs “I filled the flask”).
2. Always use numbers to provide values – never spell them out.
3. Never begin a sentence with a number if you can help it.
4. The “µ” (mu) for microliter and other symbols can be found in the ‘Symbols’ menu under the ‘Insert’ tab at the top of Word. Embrace the symbols and don’t use shortcuts.
5. All figures and tables should be numbered and labeled with a title.
	1. Number Tables in a separate sequence than Figures.
	2. All graphs should have labeled axes.
	3. Always indicate units in a table heading, graph axis label, or legend.
6. If you put a figure into a report, you must mention/discuss it somewhere in the text.
	1. Ex.: “See Table 1 for a summary of mass measurements of exhibits”
	2. Ex.: “The IR spectrum in Figure 3 features stretches consistent with cocaine such as…”

# Materials

## Unknowns

Provide a bullet point list of each sample (i.e. – evidence) to be analyzed

Example:

* Zip-top bag containing 12.1 grams of white powder
* Unlabeled pill bottle containing 18 orange pills

## Reagents

Provide a bullet point list of reagents used here. Include purity/grade and manufacturer.

Example:

* Methanol – LCMS grade (Sigma Aldrich)

## Reference Materials

Provide a bullet point list of reference materials used here. Include concentration and manufacturer.

Example:

* Cocaine – 1 mg/mL in methanol (Sigma Aldrich)

## Supplies

Provide a bullet point list of other supplies like disposable pipettes, micropipettors, volumetric flasks, etc.

Example:

* Sterile cotton swabs
* 25 mL volumetric flask
* 1-10 µL micropipette w/ disposable tips

## Instrumentation

Provide a bullet point list of all instrumentation used, including model and manufacturer.

Example:

* GC-MS – Thermo Fisher Scientific ISQ 7000

# Methods

Provide a detailed narrative of how you conduct your experiment.

Include any calculations you had to use.

You may use tables to summarize measurements in addition to the narrative description.

Example:

A stock solution of X ng/mL cocaine in methanol was prepared by diluting X µL of the cocaine reference standard in methanol in a X mL volumetric flask.

# Results and Discussion

Use tables to summarize results, and provide spectra, graphs, and calculations as needed.

You should provide at least one example image per analyte per type of analysis in your Results and Discussion. This may be a spectrum, chromatogram, photo of a color test result, etc. Screenshots are acceptable, pictures of a computer screen are not. f you do a color test on a powder that turns blue, take a picture and include that. If you analyze that same powder using GC-MS, you should ADDITIONALLY include images of the resulting chromatogram and mass spectrum.

Include a specific section for controls, internal standards, etc., when performed.

Provide a detailed explanation of the meaning of your results – identification, characterization, concentration determination, presumptive/confirmatory, etc.

Provide commentary on if multiple results of the same substance agree or disagree.

Provide explanation of inconclusive or unsuccessful experiments and suggestions for improvement.

# Works Cited

Cite where you get your information, and only use reputable resources such as edited books, journal articles, manufacturer websites, etc. These are not big research projects and sometimes you may only need 1-2 sources, but you should always give credit where it’s due.

Citation Format:

For in-text references, use brackets [1] to refer to the citation number.

I don’t particularly care which format you choose for the citations in your ‘Works Cited’ section. Just pick one and be consistent for that report. I recommend Vancouver Style, as that is what the *Journal of Forensic Sciences* uses. Another good option is IEEE, because it is pre-programmed into the Microsoft Word Reference Manager.

If it is a book or journal article, include:

1. Author
2. Title, Chapter, etc.
3. Publication name (and/or publisher, for books)
4. Year
5. Issue and/or Volume, if given
6. Hyperlink or DOI if found online

Journal Article Example:

Saverwyns, S.; Currie, C.; Lamas-Delgado, E. “Macro X-ray fluorescence scanning (MA-XRF) as tool in the authentication of paintings”. Microchemical Journal. 2018; 137:139-147. <https://doi.org/10.1016/j.microc.2017.10.008>

If your source is a website, include:

1. Title of the organization/company/society/etc.
2. Title of the web page/article/etc. you specifically referenced
3. Hyperlink
4. Date Accessed.

Website Example:

U.S. Fish & Wildlife Service – Ventura Fish and Wildlife Office. Southern Sea Otter. <https://www.fws.gov/ventura/endangered/species/info/sso.html>. Accessed 1/12/2022.

*Note: I’m not going to deduct points based on formatting if it’s homogenous and clean, but if you need more examples of this style in particular, see the “References” section of the JFS Author Guide at the link below.*

<https://onlinelibrary.wiley.com/page/journal/15564029/homepage/forauthors.html>