

## Sample Science Department Lab Report Format

### Important Reminders for a Lab Report

Check Spelling

Headings should stand out (separate lines)

**Do not copy verbatim (word for word) from the lab handout or any other source. This is plagiarism and would result in a zero mark and possible further consequences.**

**Title-** Heading, Name, Class Name, Teacher Name, Date Lab Report

**Introduction** – The introduction should be written in the proper format i.e. in complete sentences and should connect lab concepts to what is being covered in the lessons. It should provide background information and prior knowledge on the lab including but not limited to the scientists, theories, and any laws tested in the experiment.

**Purpose:** The objective is a concise statement that outlines the purpose of the experiment being performed. This is where you tell the reader your reason for doing the lab and you briefly summarize any relevant background information about the experiment, including any relevant chemical equations and/or algebraic equations.

**Hypothesis:** The hypothesis is a one-line sentence where you discuss how you'll solve the problem at hand. The statement after "if" is the independent variable. The independent variable is whatever you will do to solve the problem. The statement after "then" is the dependent variable, because what happens will depend on what you did in the first place. If \_\_\_\_\_ then\_\_\_\_\_.

**Materials:** (Bulleted List) the materials section is a list of all equipment, reagents (chemicals), and computer programs that were used to complete the experiment. The materials list is a complete list that also indicates how much of each material will be used in the experiment.

**Procedure:** This section may be written in either paragraphs or numbered steps. The procedure is a detailed statement (step by step) of how the experiment was performed such that the experiment could be repeated using your report.

**Data / Results / Observations:** This is a collection of observations, measurements, multiple trials, data tables, charts, and repeating steps. This section may consist of quantitative and/or qualitative observations of the experiment.

**Conclusion:** The conclusion is a concise statement that answers the objective. The conclusion should be written in the impersonal past tense. How to change the experiment for improved results, what did you learn? Explain what the results are telling you, and do you Accept/Reject Hypothesis.

**A one-line sentence is incorrect, and not considered as an effective conclusion.**

**Important-** Do not copy material without citing the source. This includes lab manuals, text books, your neighbor, old labs, etc. Plagiarism, of any degree, will not be accepted.

## Sample Lab

### Boiling Point of Water

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**Introduction:** Kinetic theory states that all molecules in matter are in constant motion (Kane and Sternheim, 1984). As these molecules absorb more energy they have a higher amount of random movement. As energy is absorbed in the form of heat the average kinetic energy (temperature) of the molecules will increase except during a phase change. The absorbed energy used in the phase change breaks the attractive forces between the molecules, thus transformation occurs in the orientation of the molecules. An example of a phase change would be the boiling point of water which is a change from a liquid to a gas. This can be observed by using a temperature versus time line graph when the slope becomes zero (plateau) The boiling point of water is expected to be 100.00 oC (Merck, 1976).

**Objective:** The purpose of this experiment is to determine the boiling point of water.

**Hypothesis:** If the pressure in the classroom is close to 1 atmosphere, then the boiling point of water should be approximately 100 degrees Celsius.

**Materials List:** 500 ml beaker distilled water, thermometer, hot plate, Word Processing Software

#### Procedure:

The required materials were selected and taken to the workstation.

The beaker was filled with approximately 300 ml of distilled water.

The beaker was gently placed on the hotplate.

The thermometer was placed in the beaker and the initial temperature was recorded.

The hotplate was switched on to high.

The temperature was recorded every 2 minutes until 6 minutes after boiling began.

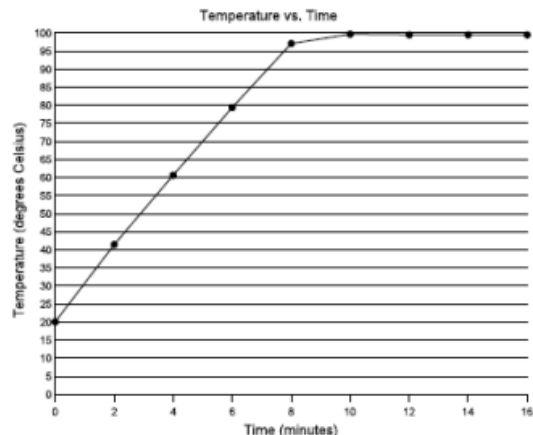
The hotplate was turned off and the materials were allowed to cool for at least 10 minutes before the equipment was dismantled.

#### Data / Results / Observations:

##### Quantitative Results

**Table 1** Graph displaying data obtained from the heating of water from 0 to 16 minutes

Time (minutes)	0	2	4	6	8	10	12	14	16
Temp (°C)	20.05	41.46	60.62	79.39	97.11	99.68	99.51	99.51	99.51



**Figure 2.** A line graph of temperature versus time of the data obtained in Table 1

A line graph of temperature versus time of the data obtained in Table 1

### Qualitative Results

Numerous small bubbles formed at the bottom of the beaker at 70.6 oC. The size and rate of bubble formation increased as the temperature increased. At 100.0 oC the rate and size of bubble formation remained constant. At that temperature, there was constant production of steam.

**Conclusion:** It was determined from the data plotted in the temperature versus time graph (Figure 2) that the boiling point of water is 99.51 degrees Celcius. This concurs very closely with the stated hypothesis, therefore the experiment was deemed a success. The percent error was found to be 0.49%. Possible sources of error could have involved impurities in the water and human error in reading the thermometer. Possible sources of error may be impurities in the water which may be chemicals from dirty glassware. Improvements would include more accurate thermometers, clean equipment and proper reading of the thermometer.