

The Scientific Method

1. Introduction

- ◆ “Today, we’re going to [we’d like to] tell you about our research on _____.”
- ◆ Outline / Table of Contents [発表の流れ; 概要]
- ◆ Background : Basic information of the subject you did research on.
 - What is it?
 - How does it work?
 - What previous research has been done? * Previous Study (Studies) [先行研究]
- ◆ Problems
 - Why does this matter?
- ◆ Purpose [研究目的]: “We wanted to know what / how / why ...” or “We were interested in ...”
- ◇ Hypothesis [仮説]: “It was predicted that...”

2. Experiment * preliminary experiment [予備実験] / main experiment [本実験]

(1) Methods / Procedure :

- ◆ Explain how you did it and what you used
 - “In order to _____, we did _____.”
 - “**First**, we _____ using a _____.”, “**Next**, we _____.”
- ◇ Maybe explain a little bit on why you did it like that.
 - “We did _____ because of _____.” or “... because we thought _____.”

(2) Results [Data]

- ◆ Show the data you collected and explain it.
- ◆ Use graphs, pictures, and words.
 - “We made a graph of _____, with _____ on the x-axis and _____ on the y.”

(3) Discussion / Analysis [考察/分析]

- ◆ Explain what do your results mean? / What did you learn from your results?
 - “The relationship between ___ and ___ is ...” or
 - “There was no relationship between ___ and ___.”
 - “There was a positive [negative] correlation.” or “There was no correlation.”

(4) Conclusion [結論]

- Do you accept or reject your hypothesis?
- Did you have any problems or errors in your experiment?

3. Future Plan / Future Research

- How could you make this experiment better?
- What can be done in the future?

4. Reference(s)

☆日本語のタイトルを英訳すること

★Useful Expressions★

・シグナル表現

I’m going to talk about ~. / Here is (are) ~. / Let me tell you ~. / In this slide, I’ll show you ~. / Please look at the graph. / Now, ~.

・つなぎ表現

First of all, ~. / To start with ~. / Let’s move on to next slide

・強調表現

The key point here is ~ / amazingly

● スライドについて

- ・標準的な英語フォントを用いる(Arial, Tahoma, Century, Calibri 等)
- ・見やすい大きさのフォントサイズを選ぶ **タイトル:44 pt, それ以外:24~32 pt 程度**
- ・スライド 1 枚に詰め込みすぎない (↓例↓)

Background of Research

Mycorrhizae literally translates to “fungus-root.” Mycorrhiza defines a mutually beneficial relationship between the root of a plant and a fungus that colonizes the plant root. A lot of plants make mycorrhiza. Mycorrhiza is formed by mycorrhizal fungi that invade the plant root. The plant and the fungus have a mutually beneficial relationship, where the fungus facilitates water and nutrient uptake in the plant, and the plant provides food and nutrients created by photosynthesis to the fungus.

× 原稿そのまま

Background of Research

What is mycorrhiza ?
Mycorrhiza literally translates to “fungus-root.”

Water & Nutrients

Photosynthate(sugar etc.)

— Symbiosis between plant and mycorrhizal fungi —

○ キーワードのみ記載

○ 内容がイメージ化されている

* 記号の説明 *

◆ : 必須項目、◇ : 自由項目 : この項目の用語を各スライドのタイトルに使うとよい

“ ” : プレゼン時に使える表現 : 各項目についてどうい内容を書けばよいか

Science Words

- Independent variable [Input]: 独立変数
 - YOU change this.
- Dependent Variable [Output]: 従属変数
 - This changes BECAUSE OF the independent variable.
- Control group: 制御する変数
 - **Doesn't change!** You **compare** the dependent variable to the control group.
- Data: データ
- Data point: データ点
- Figures: 図表
 - Any **pictures, tables, or graphs** you use are called "**figures**"

Table: 表

Tables show the **numbers** for your data.

Salt Concentration (%)	Transmittance(%T)				
	Trial #1	Trial #2	Trial #3	Trial #4	Trial #5
0	77.23	74.50	64.88	75.27	54.66
3	85.23	92.82	78.91	60.71	57.96
6	88.39	100.05	73.66	66.51	64.54
9	80.71	100.05	68.29	64.91	52.96
12	82.66	117.18	71.01	56.91	46.95
15	72.55	115.40	65.72	66.03	55.38

Column (blue arrow pointing to Trial #5 column)

Row (red arrow pointing to the 15% row)

- Trial: 試行 **how many times** did you do the experiment?
- Row: left to right 行
- Column: up and down 列

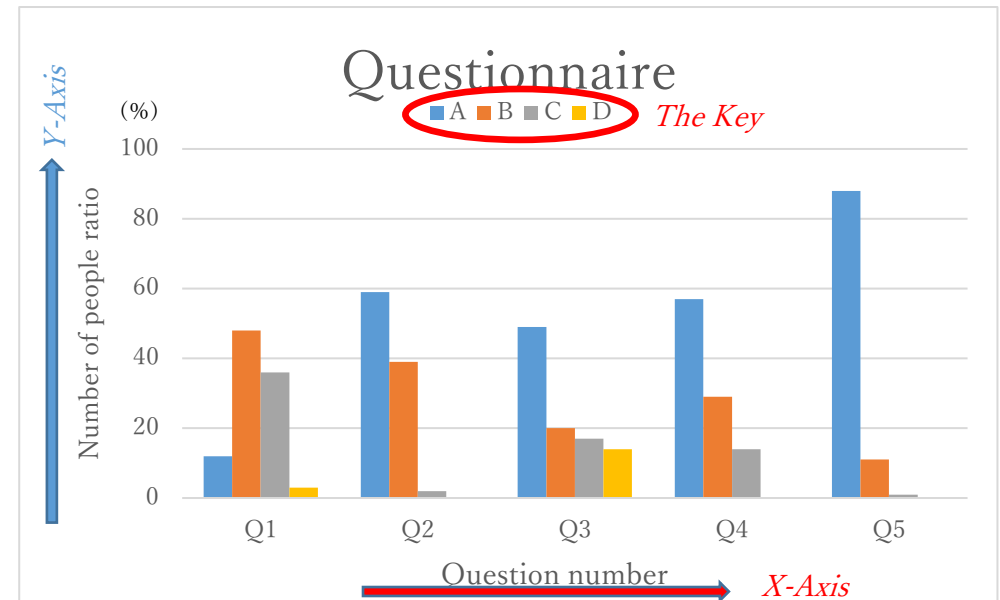
Graphs: グラフ

Graphs show the **trends** in your data as a picture.

Bar graph: 棒グラフ

This kind of graph uses solid **bars**.

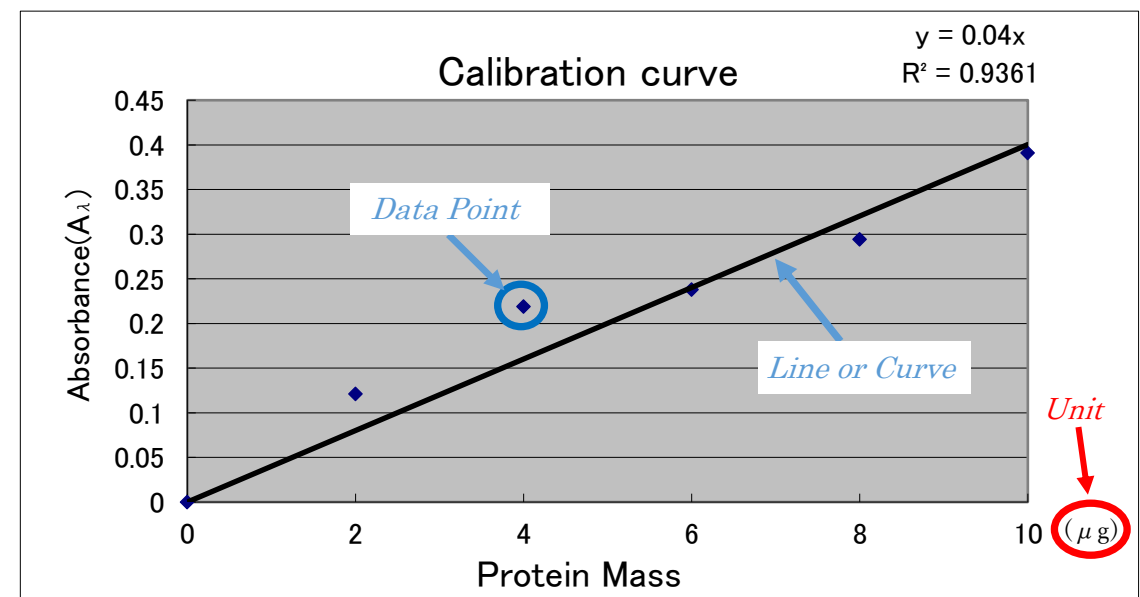
- X-axis: left to right 横軸 / Y-axis: up and down 縦軸



- Key: 凡例 this tells you what the **different colors mean**
 - Tip: use different colors that are easy to tell apart

Line Graph: 線グラフ

This kind of graph uses dots to show **data points**, and **lines** or **curves** to connect them.



- Unit: 単位 what measurement did you use?
 - Examples: cm, mm, kg, g, °C
- Line: 線 / Curve: 曲線

Data

- Trend: 傾向
 - Example: there is a **(positive/negative) trend** in the data
- Relationship or Effect: 關係
 - When independent variable **(increases/decreases)**, dependent variable **(increases/decreases)**.
 - Example: When weight increases, tension increases.
 - Effect and Affect? What's the difference??
 - Effect 名詞
 - Affect 動詞
 - HINT: Affect → A for Action!
- Significant 有意差
 - Does the data clearly show a trend with almost no error?
- Error 誤り
 - Were there any problems or mistakes?

Math Words:

- Equals =
- Plus +
- Minus -
- Times x (_____)
- Divided by ÷
- Over /
- To the power of N^x
- Squared N²
- Cubed N³
- The square root of √

Example sentences: how to do say equations (式)?

$$2 \times 4 + 6 - 7 = 7$$

2 times 4 plus 6 minus 7 equals 7

$$(2 + 3)(7 + 1) = 40$$

Two **plus** three **times 7 plus 1 equals 40**

$$D = M \div V$$

D equals M **divided by** V

OR

$$D = \frac{M}{V}$$

D equals M **over** V

$$2^4 = 16$$

2 to the power of 4 equals 16

$$2^n = Y$$

2 to the power of n equals Y

$$3^2 = 9$$

3 squared equals 9

$$4^3 = 64$$

4 cubed equals 64

$$\sqrt{25} = 5$$

The square root of 25 equals 5