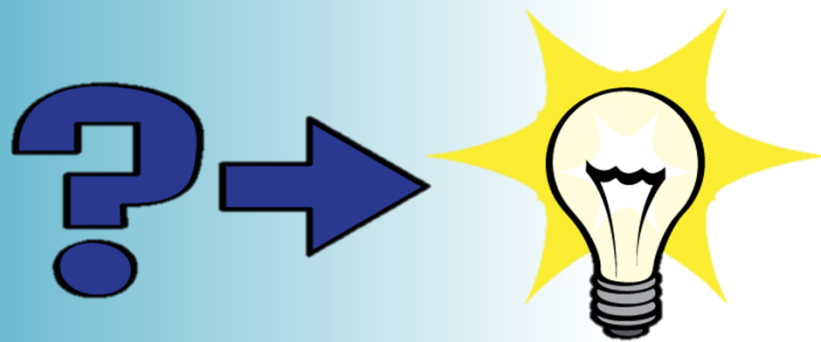


Writing a Hypothesis



SSH Mission I ASLE Class
R4 May 2021

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Hypothesis

- ① Must be a **statement**, not a question
- ② Must be **measurable**
- ③ Must have **variables** (x · y)

① Statement & ② Measurable

- What do you think will happen?
 - Make a **prediction statement** (予測の言明)
- “If... X ..., then... Y ...” statement
- Measurable (測定可能な) = can you **measure**?

③ Variables

- **Independent Variable** (独立した変数):
 - What you change
 - 実験で設定する処理条件
- **Dependent Variable** (従属した変数):
 - What you measure
 - 実験で測定する値
- **Control Variable(s)** (制御された変数)
 - What never changes
 - 実験で設定する統一条件

MEASURE

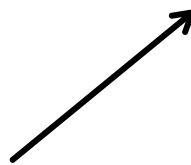
CHANGE

Dependent Variable

Independent Variable



$$\underline{y} = a \underline{x}$$



Control Variable(s)

NEVER CHANGES

Hypothesis using $y = ax$

- "If... X ..., then... Y ..."



- "If I increase/decrease X, then Y will increase/decrease."



- "If I increase/decrease [the variable], then [the variable] will increase/decrease."

Examples:

- If there are **predators** nearby, then small fish will **jump** more from the water:
 - Independent Variable: **Predators**
 - Dependent Variable: **Number of jumps**
- If we increase the **SPF** of sunscreen on a banana, then the time for the banana to **change color** will increase:
 - Independent Variable: **SPF**
 - Dependent Variable: **Time to change color**
- If we increase the **fin size** of a small pet-bottle ship, then its **speed** will increase:
 - Independent Variable: **Fin size**
 - Dependent Variable: **Speed of ship**

More Examples:

- If you increase the **temperature** of a tennis ball, then it will **bounce** higher:
 - Independent Variable: **Temperature**
 - Dependent Variable: **Height of bounce**
- If we **exercise** before an exam, then the **score** we get on an English exam will increase:
 - Independent Variable: **Exercise**
 - Dependent Variable: **Score on English exam**
- If we **eat** lots of sweet foods, then we will gain **weight**
 - Independent Variable: **Eat sweet foods**
 - Dependent Variable: **Weight**