

Ask a question...

- What interests you?
- Have you ever wondered how something works?

Do some research

- Check online
- Look in textbooks
- Find scientific articles
- You are trying to learn a little about the topic

Suggest an answer to your question

- This is your **hypothesis**.
 - It is usually stated as an “if... then... because” statement

Example

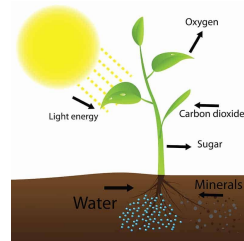
I have noticed that plants need **LIGHT** to grow.



Research

Photosynthesis

Hypothesis:



If the color of light affects plant growth, ***then*** **green** light will cause the most growth ***because*** plants are **green**.

Design an Experiment

Always remember... what question are you trying to answer?

- What materials do you need?
- What will you **change** from one trial to the next?
 - This is called the independent variable
 - Sometimes this is called the manipulated variable
- What do you need to **stay the same** from one trial to the next?
- How will you collect information?
 - The data you collect is called the dependent variable
 - Sometimes this is called the responding variable
 - Will you measure something?
 - Will you collect something?
 - Will you count something?



Same type of plant
Same length of light per day
Same amount of water
Same location

What should I measure?

- Height of each plant?
- Weight (mass) of each plant?
- Appearance of each plant?



- Write out a step-by-step procedure
 - This is a rough draft... you can change this later but you will want to keep track of everything you do in a notebook

- Run your experiment
 - Record all information collected in one or more data tables

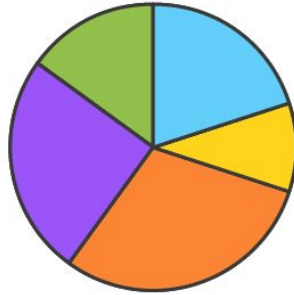
Data Table

Color of Light Used	Initial (Starting) Height of Plant (cm)	Final Height of Plant After 2 Weeks (cm)	Growth of Plant (cm) (Final minus Initial)
1) White	25	48	23
2) Blue	25	39	14
3) Green	25	30	5
4) Red	25	43	18
5) None	25	27	2

Graph your data

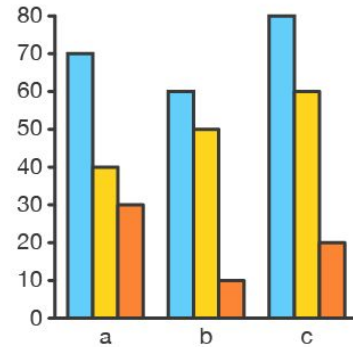
pie chart

Parts of a whole?



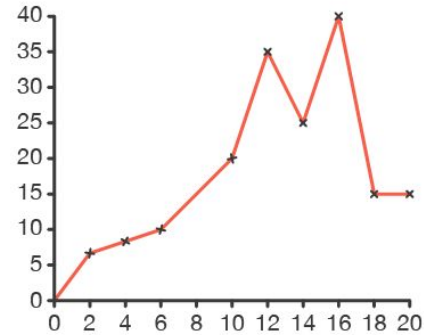
bar chart

Counting -or- Unrelated independent variables

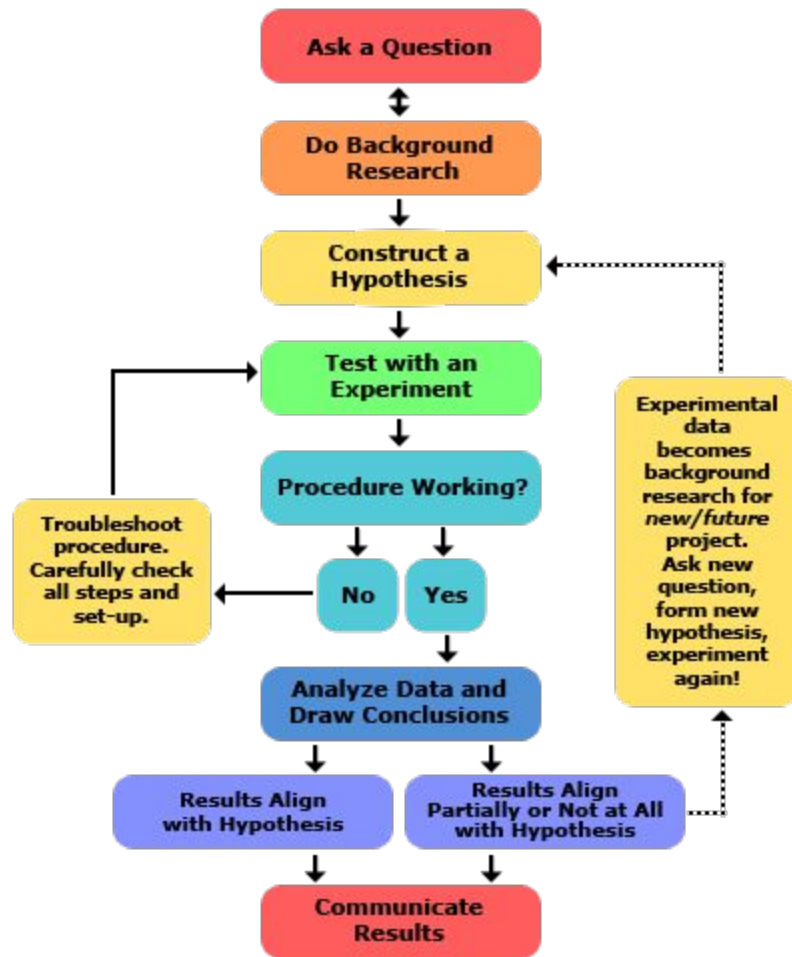


line graph

Changes?



- Explain your results
 - What did your data tell you?
 - Did your data support your hypothesis?
 - How do you know?
 - What if your data did not support your hypothesis?
 - What do you think went wrong?
 - What would you do differently?
 - Where would you go from here?
 - Additional experiments?
 - Additional research?





Science Fair Projects are DUE
Thursday, April 11, 2024 at 7:15AM
Please Drop Off your projects in the Library