



# How do you pick a topic?



- Choose something you're interested in!
  - Sports?
  - Games?
  - Computers?
  - Building things?
  - Plants?
  - Behavior?
  - Food?
- Ask yourself...
  - Is there something I would like to know about this?
    - How does this work?
    - Would it be better to do this or that?
    - Why does this happen?

The question you ask is your **INVESTIGATIVE QUESTION**

# Some (*hopefully*) Helpful Websites

I need to find a topic:

[Science Buddies - topic selection wizard](#)

[UChicago - pick a topic](#)

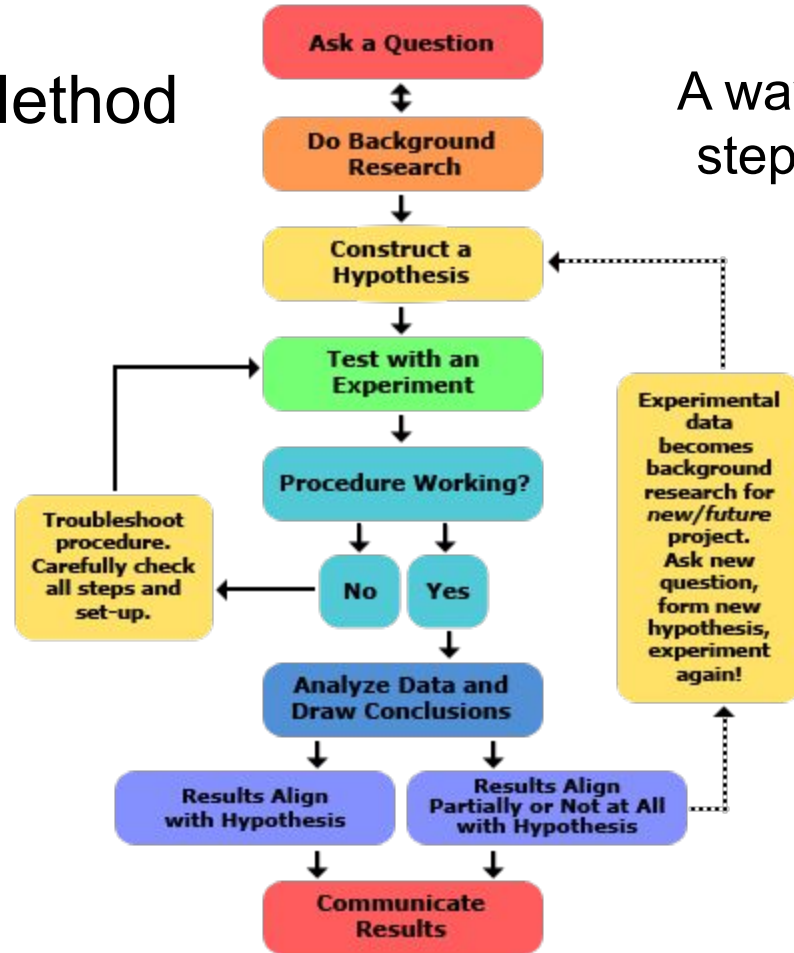
I have a topic. Now what?

[NASA/JPL How to Do a Science Fair Project](#)

[How To Do a Great Science Fair Project and Board](#)

# The Scientific Method

A way of thinking... not a step-by-step procedure



## Do some research

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

## Suggest an answer to your question

- This is your **hypothesis**.
  - It is often stated as an “if... then... because” statement
  - This is basically a prediction
  - You are predicting that one thing will affect (will have an impact will affect on) another thing

# Design an Experiment

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

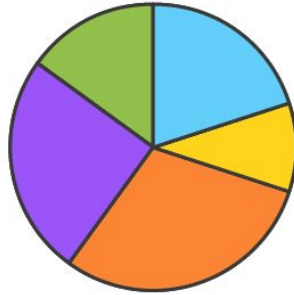
- What materials do you need?
- What will you **change** from one trial to the next? What will be different from one trial to the next?
  - This is called the **independent variable**
    - Sometimes this is called the manipulated variable
- What do you need to **stay the same** from one trial to the 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?



# Graph your data

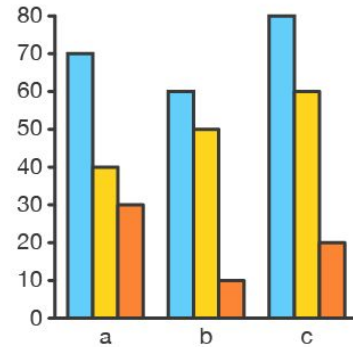
pie chart

Parts of a whole?



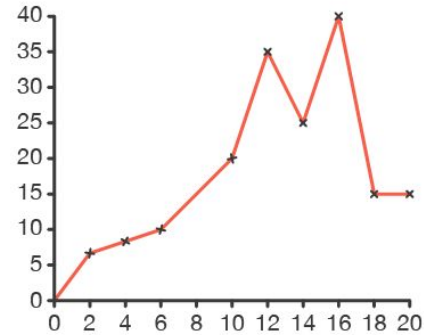
bar chart

Counting -or- Unrelated independent variables



line graph

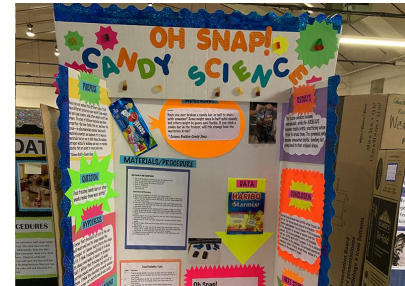
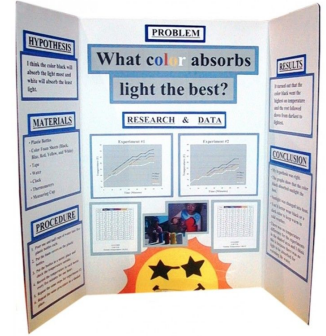
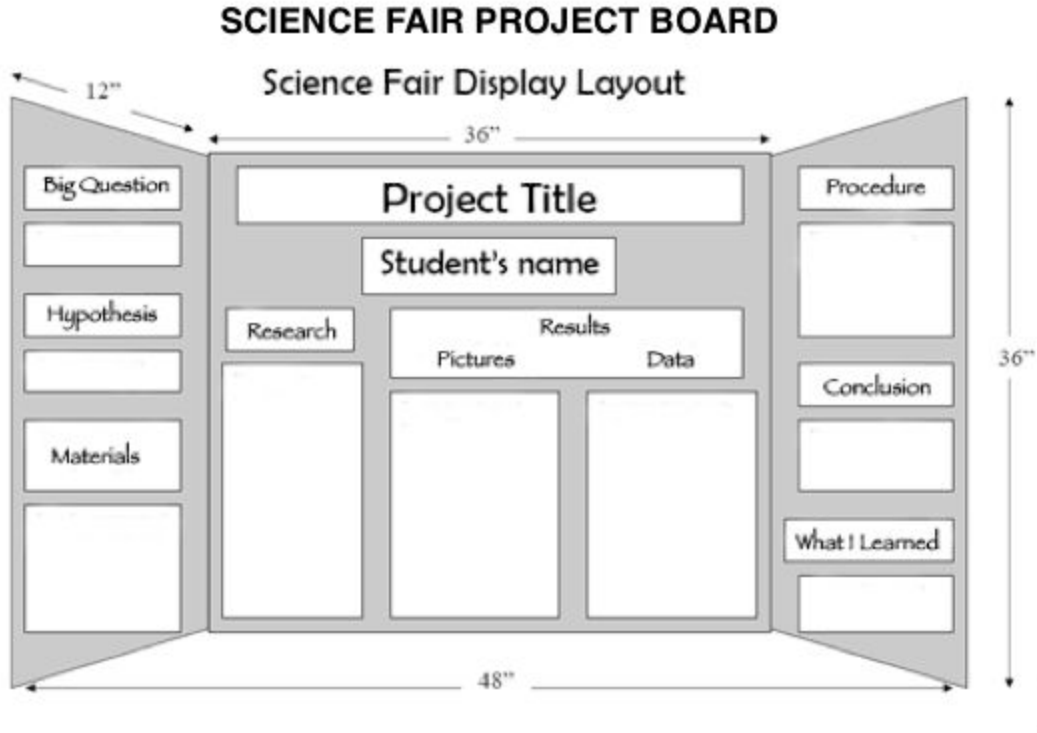
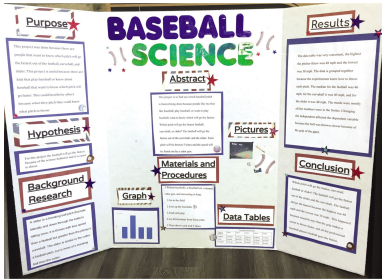
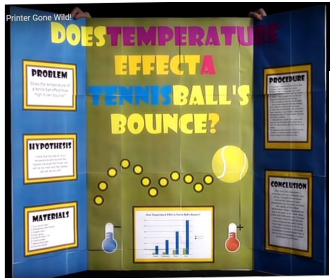
Changes?





- **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?



Have fun and be creative!