



# *Science & Engineering Fair*

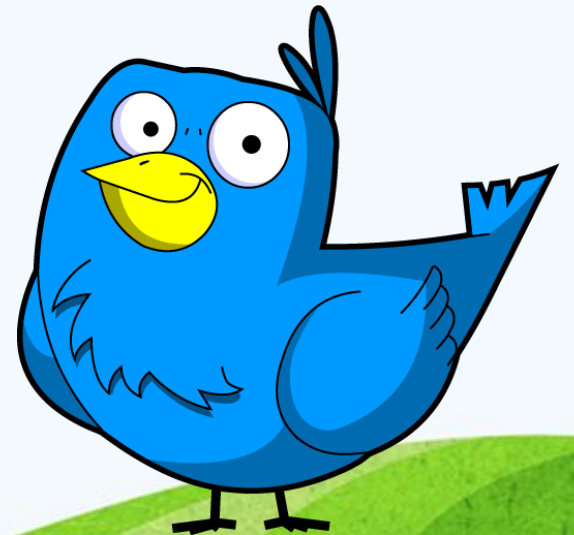
Student Guide

Patrick Elementary School

# How do I choose a Science Fair topic?

## Questions to Ask Yourself...

- 1) What are my interests and hobbies?
- 2) What science topics do I enjoy learning about?
  - I've always wondered...



# Possible Science Topics

Animals

Light

Rocks &  
Minerals

Electricity

Space

Environmental  
Science

Plants

Sport  
Science

Force &  
Motion

Heat

Behavior  
Science

Weathering

Chemistry

Sound

Magnets

Weather

Health  
Science

Erosion

# How can I think of a testable question?

Once you pick an area of science that interests you, try to narrow your topic.

- For instance, I might be interested in force and motion.
- To narrow my topic, I can think about what I can test to create a testable question. (Hmmm... I've always wondered about friction...)
  - Testable Question: How do different surfaces affect the time it takes for a car with rubber wheels to roll down a ramp?







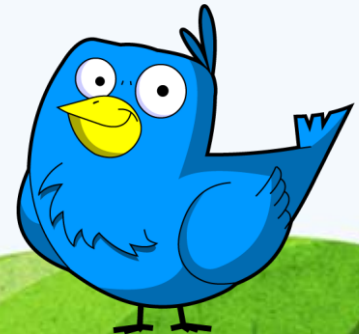
## Things to think about when picking a topic...

- *Is it safe to do?*
- *Do I need adult help for some parts?*
- *What materials do I need?*
- *Can I easily get the materials I need?*
- *Do I have enough time to test my idea?*
- *How will I collect data?  
What will I measure?*

# Problem – Stating Your Testable Question

What idea are you trying to investigate?  
Put the topic in the form of a testable question.

- How does \_\_\_\_\_ affect \_\_\_\_\_?  
variable result
- What are the effects of \_\_\_\_\_ on \_\_\_\_\_?  
variable result





# Sample Testable Questions



- How does temperature affect the rate of growth of plants?
- What effect does temperature have on the elasticity of a rubber band?
- How does gas pressure inside a basketball affect how high the ball bounces?





# Background Research



*Research your topic using resources.*

- Find out everything you can about your topic and question.*
- Take notes! (Include your sources. Where did you find the information?)*
- Summarize your background information in one to two paragraphs. Use your own words!*
  - Include your sources at the end.*



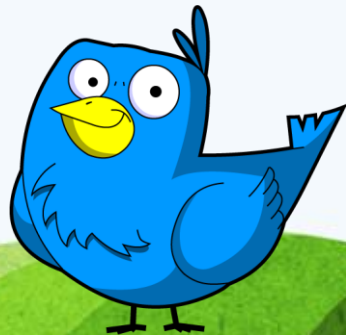




# Hypothesis

A hypothesis states what you think is going to happen when you investigate a question.

- **Example:** If \_\_\_\_\_ [I do this] \_\_\_\_\_, then \_\_\_\_\_ [this] \_\_\_\_\_ will happen.
- **Sample Hypothesis:** If chocolate candies are placed on different colored plates in the sun, then the candy on the darkest colored plate will melt the fastest.
  - You will be able to measure both what you do and what will happen.





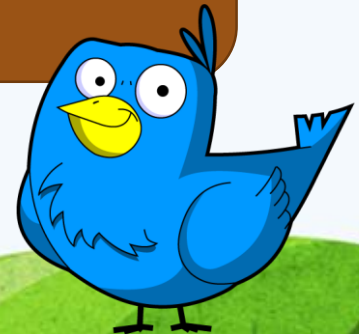
# Materials

List all of the materials used in your investigation.

- Include what, how much, and what kinds of materials you used.
- In science, we use **METRIC** units!
- Example:
  - One 200mL glass cup
  - One 200mL Styrofoam cup
  - One 200mL plastic cup
  - 50 mL of water for each cup
  - Three thermometers

## Helpful Hints for Metrics

1 teaspoon = 5 milliliters (mL)  
1 tablespoon = 15 milliliters (mL)





# Procedure

Explain your procedure step by step.

- *How did you do your experiment?*
- *Number your steps in order, and write in complete sentences.*
- *Another person should be able to read your procedure, follow it, and do the experiment just as you did.*





# Data and Results

What did you observe? What is your evidence?

- *Make a table to explain your observations. Use your five senses.*
- *Create a table to show number data.*
- *Create a graph to show how your data can be compared.*
  - *What type of graph will show your data the best?*
    - *Bar graphs (comparisons)*
    - *Circle graphs (compare fractions/percents)*
    - *Line graphs (changes over time)*
- *Create-A-Graph on Ms. Askew's webpage will help you make a graph. You can save and print.*







# Conclusions

## What did you observe and find out?

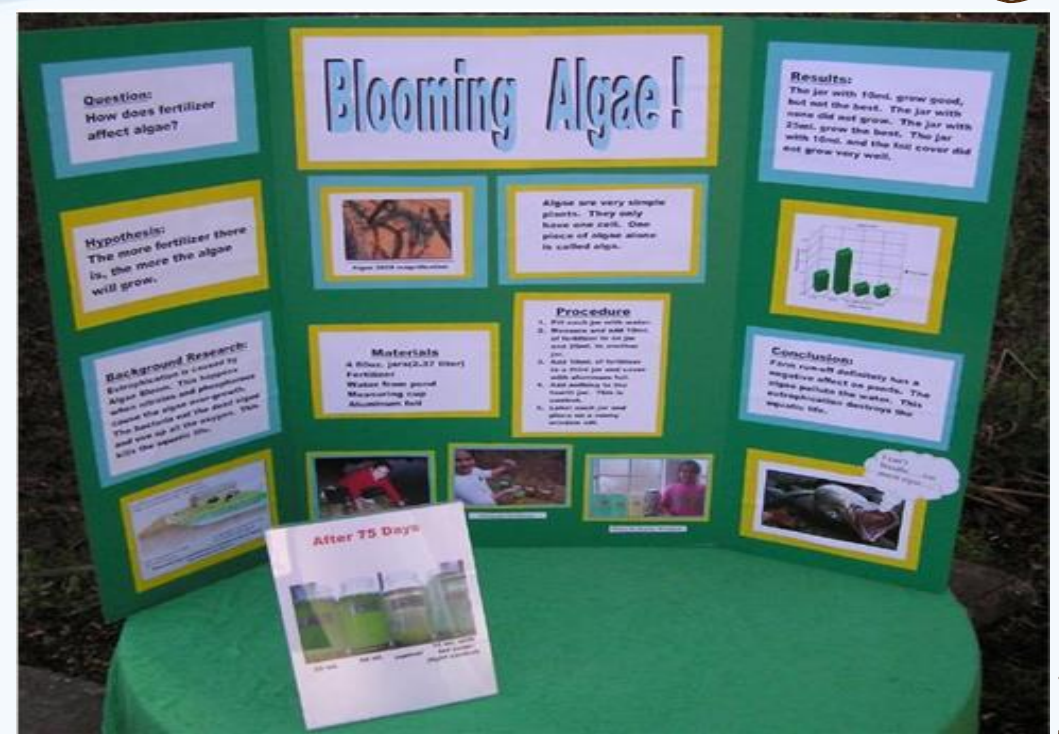
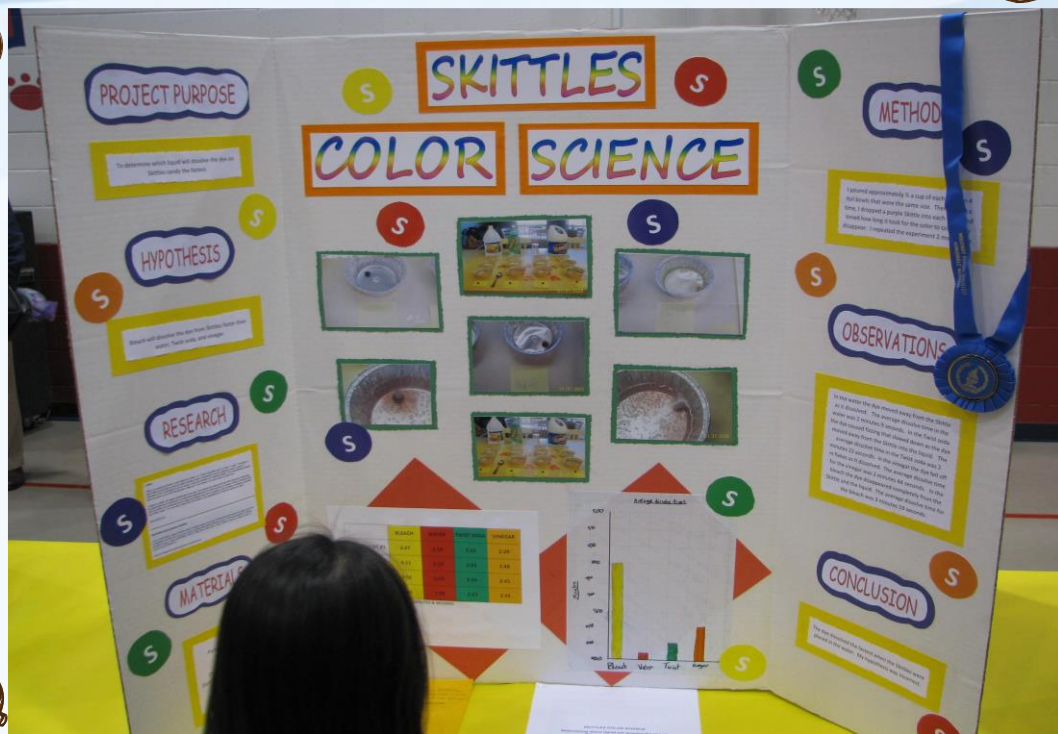
- Write a paragraph to summarize your results. Use your data as evidence.

### Thinking Stems

I discovered...  
My data shows...  
My results support...  
In conclusion,  
I found out...

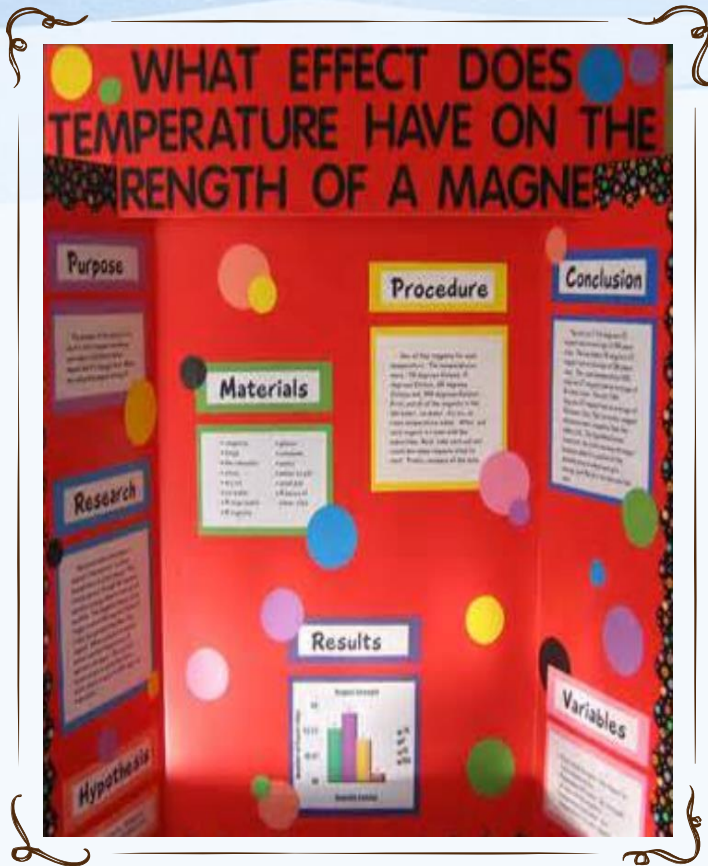
- In a second paragraph, explain how you would continue your experiment in the future.
  - Would you change anything?
  - What else would you like to find out?





Elementary Science Fair Display Board Examples

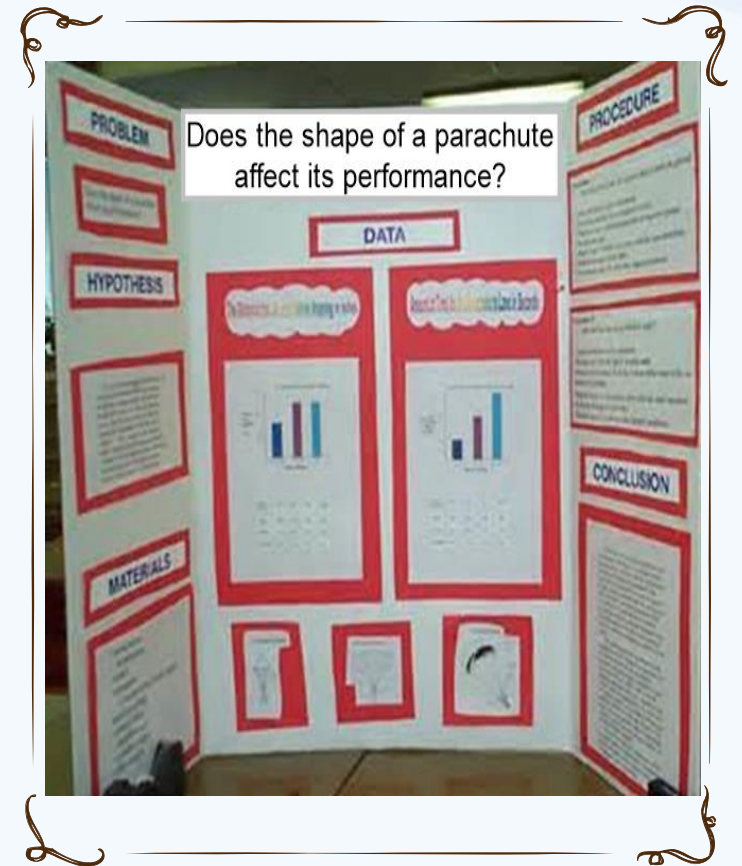




What effect does temperature have on the strength of a magnet?

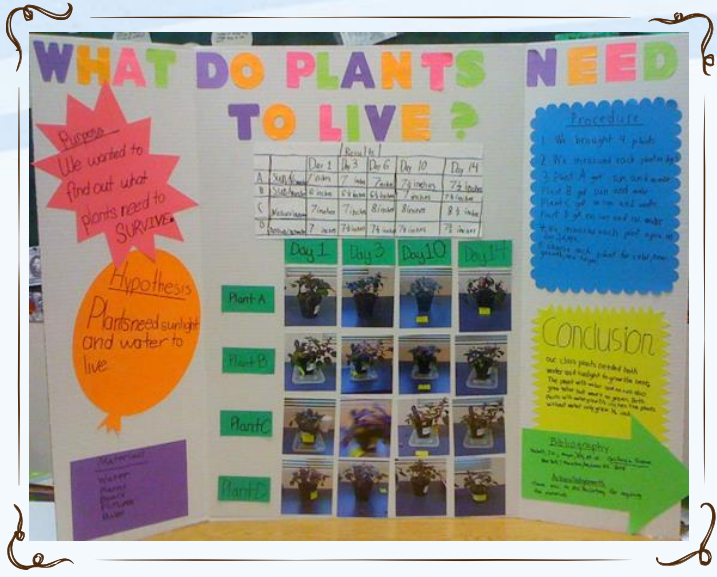
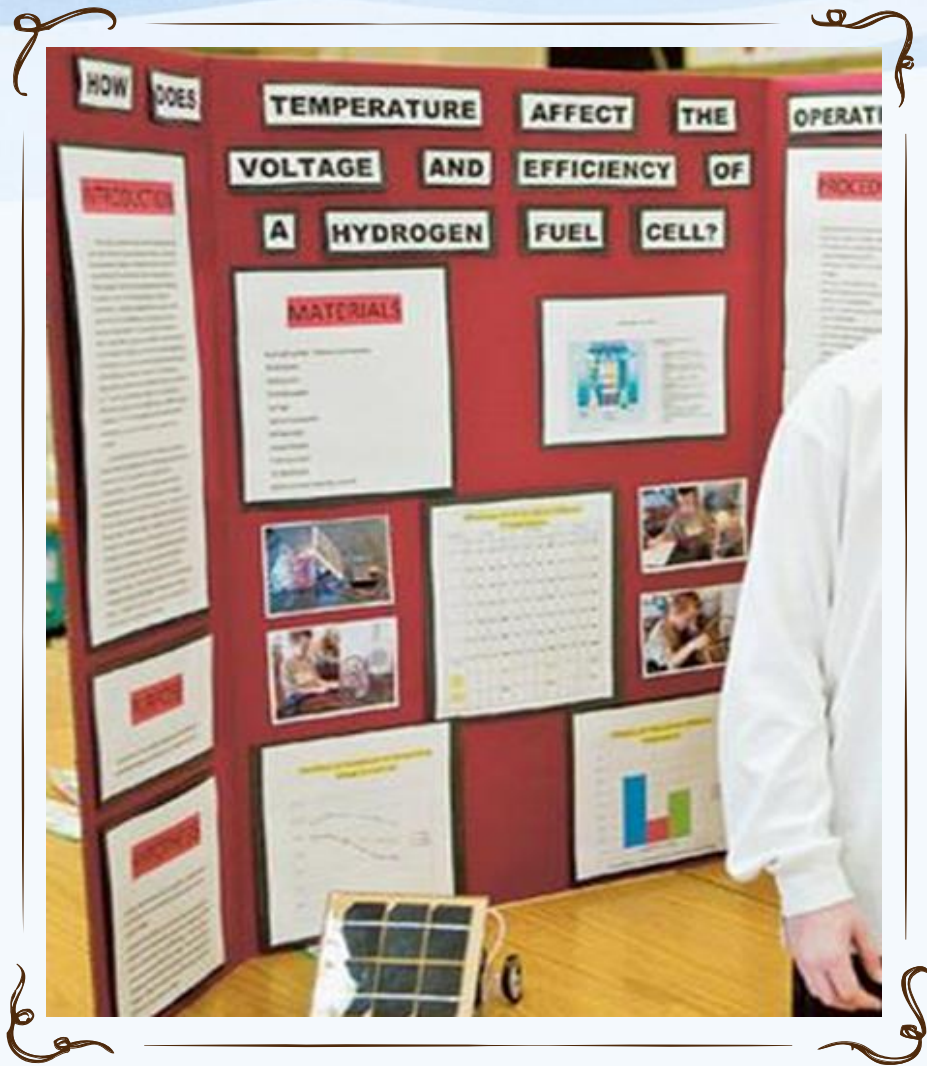


Does color affect the rate of evaporation?



Does the shape of a parachute affect its performance?





Make your display board clear, organized, and creative!







*Have fun!*

