

# **Swansfield Elementary School Science Fair**




**Thursday May 18, 2016  
6:00 – 8:00 PM**

Swansfield is officially recognized as a Green School and this year’s fair will have a Green theme. When the word “Green” is used in this way, it means having something to do with taking care of the environment. While Green-themed topics are preferred, all topics are welcome.

Some topic ideas are:

- Recycling
- Saving electricity
- Preventing littering

The table below features the 7 guidelines for Green School certification. Use these to help you think of a science fair question.

	Water Conservation
	Energy Conservation
	Habitat Restoration
	Waste Reduction
	Healthy School Environment
	Structures for Environmental Learning
	Responsible Transportation

## Suggested Timeline

<p>1. Submit your Science Fair Question at:  <a href="http://bit.ly/ses-sciencefair">http://bit.ly/ses-sciencefair</a></p> <p>*To download this science fair packet in electronic format, please visit the Swansfield website and check the News section. (<i>ses.hcpss.org</i>)</p>	<p>Complete By:  April 11<sup>th</sup></p>
<p>Select a topic/pick an idea</p> <p>2. Submit your topic online:</p>	<p>Complete By:  April 11<sup>th</sup></p>
<p>3. Ask a Question</p> <p>4. Find Information</p> <p>5. Make a hypothesis</p> <p>6. Plan your experiment</p> <p>7. Complete your experiment and record results</p> <p>8. Write your conclusions</p>	<p>Work on Throughout April</p> <p>Complete By:  May 1<sup>st</sup></p>
<p>9. Create a Science Fair Display or Backboard</p>	<p>Complete By: May 11<sup>th</sup></p>
<p>11. Bring your completed project to school and  <b>*DROP OFF IN YOUR POD</b></p>	<p>Complete On: May 17<sup>th</sup></p>
<p>Come to Science Fair/Evening of Excellence at Swansfield and explain your project to our Swansfield families.</p> <p><b>*IMPORTANT OR FRAGILE ITEMS SHOULD BE BROUGHT IN ON THE NIGHT OF THE FAIR <u>ONLY</u></b></p>	<p><b>Thursday  May 18<sup>th</sup>  6:00-8:00</b></p>

# 1. Select a Topic

## Check List for Selecting a Question:

While Green-themed topics are preferred, all topics are welcome.

Some topic ideas are:

- Recycling
- Saving electricity
- Preventing littering

While you think of a question you want to explore, ask yourself:

- Am I interested in this?
- Can I find more information about this?
- Will I be able to get the things I need to answer the question?
- Will I be able to share what I find with numbers?
- Is this okay with my parents?

Some ideas on how to write your question:

How does \_\_\_\_\_ affect \_\_\_\_\_?

What is the effect of \_\_\_\_\_ on \_\_\_\_\_?

Which \_\_\_\_\_ is the \_\_\_\_\_?

- **Personal Interest**

Hobbies, pets\*, leisure time activities

- **Science Concepts**

Magnetism, light and shadows, temperature, gravity, centrifugal force, weather, sound, friction, machines, matter and energy, living things\*, water, environmental concerns

- **Home**

Sink, refrigerator, pantry, garage, yard

- **Science “Stuff”**

Magnets, magnifying glass, thermometer, batter, wire, bulbs, stethoscope, balloons, tuning fork, candles, funnel, compass, pulleys, balls of various sizes, gyroscope, prism, paper airplane, lenses, marbles... and so on.

Or you can explore these science fair web sites:

[www.scifair.org](http://www.scifair.org)

[www.sci.mus.mn.us/sln/tf/nav/thinkingfountain.html](http://www.sci.mus.mn.us/sln/tf/nav/thinkingfountain.html)

[www.exploratorium.edu](http://www.exploratorium.edu)

<http://www.madsci.org/experiments/>

Or check out some of the books in the media center.

## 2. Ask a Question

Your question should be worded so that it is clear and precise.

Use the following examples to best express what you are trying to find out.

### Examples

1. How does \_\_\_\_\_ affect \_\_\_\_\_?  
*How does the type of fertilizer affect a plant's growth?*
2. What is the effect of \_\_\_\_\_ on \_\_\_\_\_?  
*What is the effect of air temperature on the bounce of a basketball?*
3. Which \_\_\_\_\_ is \_\_\_\_\_?  
*Which brand of paper towel is the most absorbent?*

# 3. Find Information

Resources: Books, magazines, videos, newspapers, organizations, web sites, museums. Swansfield's media specialist or the librarians at the Howard County Library can help you find useful information.

Remember to record your resources in a bibliography so that the authors get credit for their ideas. (A bibliography is a listing of your resources so that someone else could go and find the same information.)

# 4. Make a Hypothesis

A hypothesis is a guess of what you think the answer to your question will be based on your research. It is your prediction of what will happen as you perform your experiment.

## Examples of Wording a Hypothesis:

1. If \_\_\_\_\_ then \_\_\_\_\_.

*If you add fertilizer to the soil, then the plant will grow taller.*

2. I predicted that \_\_\_\_\_ would occur when I \_\_\_\_\_.

*I predicted that the higher the air temperature, the higher the basketball would bounce.*

*I predict that the heaviest paper towel will be the most absorbent.*

3. I think that \_\_\_\_\_ will cause \_\_\_\_\_.

*I think that adding fertilizer to the soil will cause a plant to grow taller.*

## Things to remember:

- Always use the same verb tense throughout your hypothesis (My hypothesis *is*, or my hypothesis *was*)
- Be sure to give a reason for your prediction if you can
- Your hypothesis might need more than one prediction
- Be sure to do some research that allows you to make a reasonable hypothesis.

# 5. Plan Your Experiment

- How much time will you need?
- Will you do repeated trials or use duplicate test subjects?
- What will you be observing and recording?
- What materials will you need?
- Where will you conduct your experiment?
- What are the exact steps to follow in running a test or trial?

## Observation Criteria

- What are you looking for?
- When will you observe and record?
- What will you measure and count?
- When will you measure and count?

## Create the “recipe” for your experiments

- Make your step-by-step procedures clear and specific
- Your “recipe” should allow someone else to duplicate your experiment and get similar results.
- Look back at your question and hypothesis to make sure your experiments will answer your question.

# 6. Complete Your Experiment

**Collect Data** (the information you will learn by doing your experiments)

## Three ways to observe and record:

1. Measuring (data chart)
2. Counting (tally sheet)
3. Describing (journal or diary) – be sure to date entries

## Analyze Your Results

Look at your data. Is it complete? Are the entries dated and in order? Is everything labeled with titles and units? Is your log easy to understand?

Demonstrate your results in a graph, table, or picture if you can. A graph is like a picture of your results. What kind of graph should you use? What kind of chart or diagram best illustrates your results?

## 7. Write Your Conclusion

The conclusion is your chance to share your results. It is where you let everyone know if your original hypothesis was correct or incorrect. You need to be honest in reporting your results. It's okay if your results didn't come out as you expected – scientists learn as much when things *don't* work.

### Conclusion Guidelines

1. The conclusion should be written in paragraph form and displayed on your poster or board.
2. It should include:
  - Your question
  - Hypothesis
  - Actual results (data)
  - Do the results support or reject your hypothesis?
  - Explanation of why results turned out the way they did
  - Use of research that help you explain your results
  - Practical application
  - Future related questions to investigate
3. Your conclusion should only be based on your actual data
4. Use your results and research to explain your conclusion
5. Study your data for patterns and obvious results, then look again for less obvious results.
6. Have someone review your rough draft before making your final draft



# 8. Create Your Display

**Your display should include:**

- Your Question
- Hypothesis
- Materials List
- Procedure
- Results
- Conclusion

**You also may want to include**

- Science Log
- Pictures, Diagrams
- Research Summary
- Experimental equipment
- Models or samples



**Congratulations! You did it!**

**Bring your completed project to your pod the day before the Science Fair!**