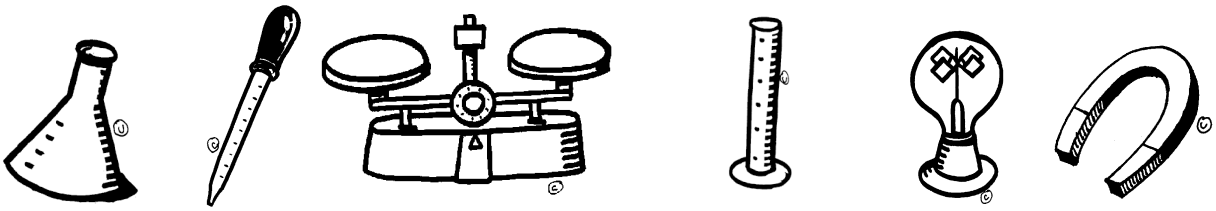


Swift Creek Elementary Science Fair
Thursday, January 10, 2019

The Science Fair is OPTIONAL for 3rd, 4th and 5th graders. Students may work on a science fair project **with one to three partners. Two types of projects can be submitted: An Experimental Project (described below) or a Demonstration (see Demonstration Project form for more info). All Science Fair forms can be found and downloaded at (http://swiftcreekeswcpssnetptahtml.weebly.com/science-fair.html).**

Schedule for Thursday, January 10, 2019

Project Check-In	**8:00-9:15 am (in Cafeteria)**
Judging	**9:45–11:30 am**
Public Viewing	**6:30-7:30 pm**

BEFORE you begin your Experimental Project
Create a Research Plan. The plan should include the following:
Question or problem,
Goals/expected outcomes/hypotheses,
Methods or procedures,
Types of data to be collected and how it will be analyzed,
OPTIONAL: IF you want your project to be eligible for the Regional Fair (see below): Five (5) major references are needed for the Bibliography.

AFTER your experiment is complete
Communicate your results with a **display board (available for purchase at Cougar counter, Target, or Walmart).**
A written report is OPTIONAL but will be needed if continuing on to REGIONAL FAIR.

Great Websites for project ideas:
http://www.sciencebuddies.org/
http://www.education.com/science-fair/

A Great Web Resource on Science Fair Projects:
http://school.discoveryeducation.com/sciencefaircentral

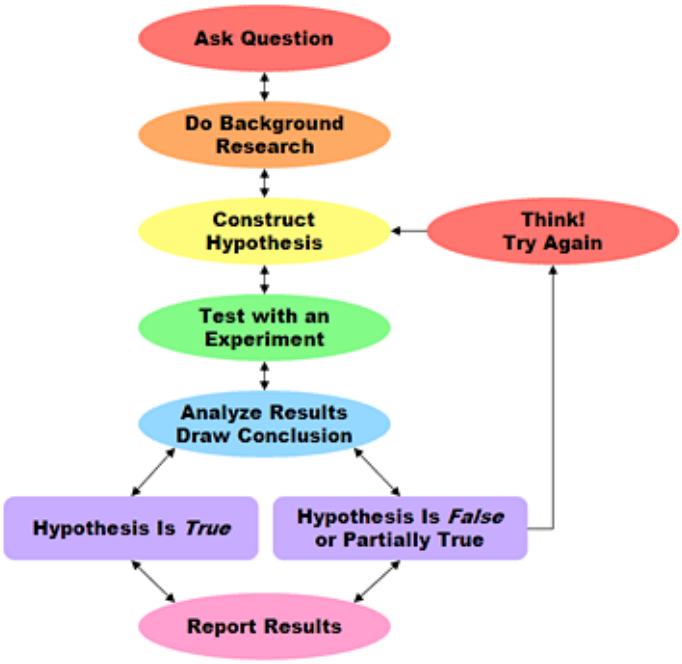
If you want to participate in the Science Fair, please turn in **the one page Swift Creek Science Fair Registration form** to your teacher by **Tuesday, January 8, 2019. Teachers,** please put the completed forms in the Science Fair Box in the mailroom.

Three 'Best in Show' projects will be chosen to represent Swift Creek in the NC 3A Central Regional Science Fair (ncsciencefair.org/region3a/) to be held **Saturday, February 2, 2019 at Hillside High School, Durham, NC**. From each grade level up to three First Places, three Second Places, four Third Places, and as many as five Honorable Mentions will be awarded medals.
If you have any questions you may contact the **Science Fair Coordinator Jennifer Miller** by e-mail jcmille4@gmail.com

The Scientific Method

The scientific method is a process for experimentation that is used to explore observations and answer questions. Scientists use the scientific method to search for **cause and effect** relationships in nature. In other words, they design an experiment so that changes to one item cause something else to vary in a predictable way.

Just as it does for a professional scientist, the scientific method will help you to focus your science fair project question, construct a hypothesis, design, execute, and evaluate your experiment.



Steps of the Scientific Method
Ask a Question: The scientific method starts when you ask a question about something that you observe: How, What, When, Who, Which, Why, or Where? And, in order for the scientific method to answer the question it must be about something that you can measure, preferably with a number.
Do Background Research: Rather than starting from scratch in putting together a plan for answering your question, you want to be a savvy scientist using library and Internet research to help you find the best way to do things and insure that you don't repeat mistakes from the past.
Construct a Hypothesis: A hypothesis is an educated guess about how things work: "If _____*[I do this]* _____, then _____*[this]*_____ will happen." You must state your hypothesis in a way that you can easily measure, and of course, your hypothesis should be constructed in a way to help you answer your original question.
Test Your Hypothesis by Doing an Experiment: Your experiment tests whether your hypothesis is true or false. It is important for your experiment to be a fair test. You conduct a fair test by making sure that you change only one factor at a time while keeping all other conditions the same. You should also repeat your experiments several times to make sure that the first results weren't just an accident.
Analyze Your Data and Draw a Conclusion: Once your experiment is complete, you collect your measurements and analyze them to see if your hypothesis is true or false. Scientists often find that their hypothesis was false, and in such cases they will construct a new hypothesis starting the entire process of the scientific method over again. Even if they find that their hypothesis was true, they may want to test it again in a new way.
Communicate Your Results: To complete your science fair project you will communicate your results to others in a final report and a display board. Professional scientists do almost exactly the same thing by publishing their final report in a scientific journal or by presenting their results on a poster at a scientific meeting.

What Makes for a Good Science Fair Written Final Report?

- **Title page**.
- **Abstract.** An abstract is an abbreviated version of your final report. Include a short summary of the hypothesis, materials & procedures, results, and conclusion.
- **Introduction**. Include your question, variables, hypothesis, and background research.
- **Materials list**. List all materials in sufficient detail.
- **Experimental procedure.** The experimental procedure is like a step-by-step recipe for your science experiment. A good procedure is so detailed and complete that it lets someone else duplicate your experiment exactly!
- **Data analysis and discussion** (including data table and graph(s)). This section is a summary of what you found out in your experiment, focusing on your observations, data table, and graph(s), which should be included at this location in the report.
- **Conclusions**. Summarize how your results support or contradict your original hypothesis. If appropriate, state the relationship between the independent and dependent variable. You can go into more detail here than would allow on the display board.
- **Acknowledgements.** This is your opportunity to thank anyone who helped you with your science fair project
- **Bibliography**. ALL the books, magazines, and websites you read to do your research

What Makes for a Good Science Fair Project Display Board?

- **Title.** Make it clear and concise.
- **Abstract.** Short summary of experiment and results. Do this part last.
- **Question.** What Question do you want your experiment to solve?
- **Background research.** Why is this question important and what has been done before.
- **Variables and hypothesis.** The **independent variable** is the one that is changed by the scientist and the **dependant variable** is what the scientist measures. The hypothesis is an educated guess as to how the two variables are related.
- **Materials list.**
- **Experimental procedure.**
- **Data analysis and discussion including data chart(s) & graph(s).**
- **Conclusions.** Did your data support your hypothesis?
- **Acknowledgements.**
- **Bibliography.**

Are the sections on your display board organized like a newspaper so that they are easy to follow?

Is the text font large enough to be read easily (at least 16 points)?

Does the title catch people's attention, and is the title font large enough to be read from across the room?

Did you use pictures and diagrams to effectively convey information about your science fair project?

Have you constructed your display board as neatly as possible?

Did you proofread your display board?

Project Display Rules:

- Parents are encouraged to be involved in the selection of their student's project and to aid in the understanding of the scientific concepts. This does not mean that parents should do the research or assemble the project.
- The following are **not** allowed in the Science Fair: experiments that subject animals to discomfort, pain, death, or insufficient diet; syringes; potentially dangerous chemicals (toxic, flammable, caustic, or explosive); ionizing radiation (radioactive materials); and high voltage equipment. Direct current (DC battery), rather than alternating current (from an outlet), is recommended for models.
- **Elementary projects involving the culturing of microorganisms are NOT ALLOWED**, with the exception of the following:
    - Experiments using Baker's/Brewer's yeast (bread yeast)
    - Experiments using lactobacillus or probiotic cultures (yogurt, buttermilk, or commercially available probiotic supplements)
- Microorganisms include, but are not limited to: bacteria, fungi (including molds), yeasts, viruses, viroids, prions, and parasites.
- These rules do not apply to projects involving composting or decomposition of foods as long as no samples are cultured and as long as all projects in these categories are terminated at the first visible signs of microbial growth.
- NO live or preserved animals may be brought to the Science Fair. No gas or running water will be available.
- Displays are restricted to a space of 122 cm (48 in) wide, 61 cm (24 in) deep (front to back) and 198 cm (78 inches) high from the tabletop or 274 cm (108 inches) high from the floor.

Judging Guidelines:

- **Creative Ability**- Originality of thought
- **Scientific Thought**- Use of the Scientific Method
- **Skill**- Careful workmanship and good organization
- **Thoroughness**- Complete explanation of scientific principle
- **Clarity and Presentation**- The manner in which the project is displayed is neat, organized, and clearly displays all parts of the process; it is not necessary for your project to be typed

The judges will base their scoring on what they believe the student actually accomplished.

The judges are volunteers from the community and are taking time off from their work. Most or all are involved professionally in science and understand the underlying principles and work involved in each project. They must review a large number of projects in a short period of time. Please appreciate the time that they donate and respect their final decisions.