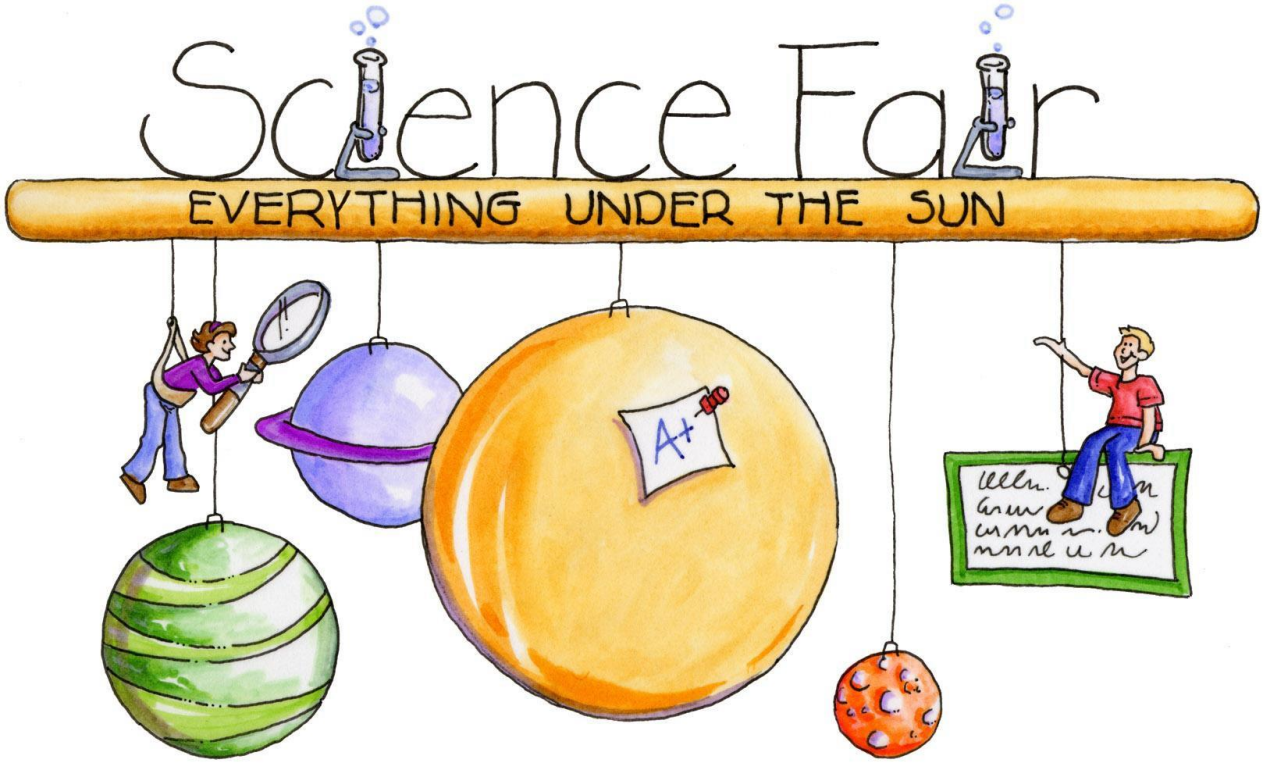

St. Clare of Assisi Catholic School

K-5th grade Student Packet

Dear Parents,

On March 20th, St. Clare of Assisi Catholic School will hold the elementary grade level Science Fair. Our goal for this and future science fairs is to prepare, enable, and promote the winners to the next level of competition at the Science and Engineering Fair of Houston (SEFH). Subsequently, we will use their criteria for entry and judging and it is included in this packet.

K-3rd grade participation is optional, 4-5th grade participation is required. The school will provide display boards and journals for all participants.

Students will complete the project outside the classroom. Please read over the enclosed packet carefully and complete the Science Fair Entry Form. In order to receive approval for the topic of your choice, please turn in this form as soon as possible.

Ideas for science projects are available on the internet. The projects should reflect the work of the students. It should also be grade level appropriate. Parental help is necessary at times, but keep in mind that this is the child's project and learning experience. The judges will interview the students about their project during the judging process.

Projects will be set up in the school hallway on Monday, March 19th. Judging will take place on Tuesday, March 20th, with viewing and awards on Wednesday, March 21st. All projects must go home on Wednesday afternoon of the 21st.

Thank you in advance for your cooperation. I am looking forward to a successful Science Fair for all students.

Sincerely,

Steve Caro, Amanda Conti

steve.caro@stclarehouston.org ;

amanda.conti@stclarehouston.org

4-5 Science Fair Coordinators

Name_____Date submitted to the teacher _____

Grade and Teacher _____

SCIENCE FAIR ENTRY FORM

Project Category:_____(See Entering the Right Category handout)

Project Title: _____

Question or Problem: The question I plan to answer with my experiment is:

_____

_____

Purpose: (rewrite your question to complete the following sentence) The purpose of my experiment is to:

_____

_____

Variables: My independent variables or one thing I plan to change is:

_____

_____

My dependent variables or the change I will measure is:

_____

_____

_____

My controlled variables or one thing I will keep the same is:

_____

_____

_____

Brief description of what I plan to do:

_____

_____

_____

Approved by:_____Date: _____

Not Approved due to: _____Duplicate Project

_____More information needed

_____Uses materials not allowed

_____Not age appropriate

_____Not an experiment

_____Other

For those projects not approved, you must turn in this original form filled out below with your Revised form.

First revised form submitted- date_____project topic _____

Second revised form submitted- date_____project topic _____

Name_____Date submitted to the teacher _____

Grade and Teacher _____

SCIENCE FAIR REVISED ENTRY FORM

Project Category:_____(See Entering the Right Category handout)

Project Title: _____

Question or Problem: The question I plan to answer with my experiment is:

_____

_____

Purpose: (rewrite your question to complete the following sentence) The purpose of my experiment is to:

_____

_____

Variables: My independent variables or one thing I plan to change is:

_____

_____

My dependent variables or the change I will measure is:

_____

_____

_____

My controlled variables or one thing I will keep the same are:

_____

Brief description of what I plan to do:

Approved by: _____ **Date:** _____

Not Approved due to: _____ Duplicate Project

_____ More information needed

_____ Uses materials not allowed

_____ Not age appropriate

_____ Not an experiment

_____ Other

Revision# 1 2 3

SCIENCE FAIR RULES AND REQUIRED SECTIONS

A Science Fair project is an attempt to solve a problem by using the scientific method. Each project must be related to an area of science. **A free standing display board (not more than 30 inches deep, 48 inches wide, and 78 inches from the table top) with the results of the experiment will be required as well as a two to three page background research paper with a minimum of a three source bibliography, and a logbook. Written reports should be a minimum of 250 words types (Times New Roman 12) and double spaced. A handwritten rough draft must be attached to the back of the typed version.**

Information must be obtained from at least three different sources. Sources must include a book, encyclopedia, and an internet source. If an internet encyclopedia is used, an additional source is required. For the Works Cited or bibliography, only one general encyclopedia such as World Book, World Book Online, or Grolier multimedia and only one science encyclopedia such as Eyewitness Encyclopedia of Science will count toward the three source minimum. The bibliography must be in the correct MLA format. Try to use current information. You may use the Internet to find information. Please make sure that the web sites are educational and not just someone's opinion.

ALL PROJECTS WILL NEED APPROBAL BEFORE BEGINNING ANY EXPERIMENTATION.

Each project will be classified into one of the following categories:

Engineering/Physical Sciences

Chemistry
Computer Science
Earth/Space Sciences
Energy & Transportation
Engineering
Mathematics
Physics

Life Sciences

Behavioral/Social Sciences
Biochemistry/Microbiology
Environmental Science
Medicine/Health
Botany
Zoology

- No Consumer marketing projects will be allowed. The following are also PROHIBITED: dangerous chemicals, illegal substances, open flames, explosives, animal experiments, cruelty, live cultures, or bacteria. Experiments should not involve clearly preventable danger to you or your research subject.

- The name of the class, student, or school MUST NOT appear on the project boards or report. Any photographs used may not show the faces of the student or any immediate family member. The project MUST be the work of the student entering the fair.

ENTERING THE RIGHT CATEGORY

Every year, some students end up entering their projects in the wrong category. **Since SEFH judges are required to judge the content of each project based on the category in which it is entered,** these students are seriously penalized. Thus, we urge you to pay particular attention to the category that you indicate on the entry form. Once SEFH receives the completed entry form, you will be required to remain in the category that you entered. Listed below are the categories for individual project competition and a few examples of the types of projects which might be appropriate for each category.

Animal Sciences: Animal genetics, ornithology, ichthyology, herpetology, entomology, animal ecology, anatomy, paleontology, cellular physiology, animal biorhythms, animal husbandry, cytology, histology, animal physiology, neurophysiology, invertebrate biology, etc.

Behavioral/Social Sciences: Psychology, sociology, anthropology, archeology, etiology, ethnology, linguistics, animal behavior (learned or instinctive), learning, perception, urban problems, gerontology, reading problems, public opinion surveys, and education testing, etc.

Biochemistry/Microbiology: Molecular biology, molecular genetics, enzymes, photosynthesis, blood chemistry, protein chemistry, food chemistry, hormones, bacteriology, virology, protozoology, fungal and bacterial genetics, yeast, etc.

Chemistry: Physical chemistry, organic chemistry (other than biochemistry), inorganic chemistry, materials, plastics, metallurgy, soil chemistry, etc.

Computer Science: New developments in software or hardware, information systems, computer systems organization, computer methodologies, and data (including structures, encryption, coding and information theory), etc.

Earth/Space Sciences: Geology, geophysics, physical oceanography, meteorology, atmospheric physics, seismology, petroleum, geography, speleology, mineralogy, topography, optical astronomy, radio astronomy, astrophysics, etc.

Energy & Transportation: Aerospace, aeronautical engineering and aerodynamics, alternative fuels, fossil fuel energy, green energy science & technology, vehicle development, renewable energies, etc.
Engineering: Civil, mechanical, aeronautical, chemical, electrical, photographic, sound, automotive, marine, heating and refrigerating, transportation, environmental engineering, etc. Power transmission and generation, electronics, communications, architecture, bioengineering, lasers, etc.

Environmental Science: Pollution (air, water, land), pollution sources and their control, waste disposal, impact studies, environmental alteration (heat, light, irrigation, erosion, etc.), ecology.

Mathematics: Calculus, geometry, abstract algebra, number theory, statistics, complex analysis, probability, topology, logic, operations research, and other topics in pure and applied mathematics.
Medicine/Health: Medicine, dentistry, pharmacology, veterinary medicine, pathology, ophthalmology, nutrition, sanitation, pediatrics, dermatology, allergies, speech and hearing, optometry, etc.

Plant Science: Agriculture, agronomy, horticulture, forestry, plant biorhythms, palynology, plant anatomy, plant taxonomy, plant pathology, plant genetics, hydroponics, algology, mycology, etc.

Physics & Astronomy: Optics, acoustics, particle, nuclear, atomic, plasma, superconductivity, fluid and gas dynamics, thermodynamics, semiconductors, magnetism, quantum mechanics, biophysics, astronomy, lasers, etc.

THE PROJECT NOTEBOOK

A properly maintained laboratory notebook is one of a researcher's most valuable tools. It contains the permanent written record of the scientist's or engineer's mental and physical activities from both experiment and observation, to the ultimate understanding of the question or solution they are going to obtain from their research project. The act of writing in the notebook forces the researcher to stop and think about what he/she is about to do and what is actually done. Because of this, the proper writing of **a project laboratory notebook is an essential part of doing "good" science.** The following are not requirements, only suggestions.

Guidelines:

1. The front cover of the notebook should contain a title that describes the research, and the time period covered for the data recorded in the book.

2. The first two pages of the book should be reserved for a table of contents. All remaining pages should be numbered on the top outside corner of the page. The table of content entries should be added as the project progresses.

3. All written entries in the notebook should be done in black ink. If others cannot easily read the researcher's handwriting, then entries should be printed.

4. The right-hand pages should be used for making formal entries. The left-hand pages should be used for calculations, doodling, scratch paper, etc. All right-hand pages should be dated when information is recorded on them. Mathematical type formulas used in the project should be recorded on the right hand pages with a definition of each term in the formula along with at least one sample calculation. Again, the proper physical units should always be recorded next to the respective numerical values

5. No pages should be removed from the notebook. If information on a particular page becomes invalid for whatever reason, a single diagonal line should be drawn through the information and a brief sentence or two added explaining why the material is no longer valid. If an error is made in recording something, it should not be erased or obliterated in any way. Instead, draw one line through the incorrect entry and write the correct entry as near to it as possible. Never write a number or word over another number or word.

6. Photographs, computer printouts, recorded printouts, etc. should be properly labeled and taped or glued onto one of the right-hand pages. All numbers should be recorded in the notebook using the correct number of digits and labeled with the proper units. Students are strongly encouraged to use the International System of Units (SI). Always enter data directly in the notebook, in ink, at the time it is obtained (unless the data is being recorded automatically by an instrument).

7. If a detailed experimental procedure is being followed that is available in a readily available reference source (such as a textbook), the procedure should only be summarized in the notebook and the reference listed for the exact procedure. Any changes from the referenced procedure should be recorded and explained in the notebook.

8. The purpose of each experiment in the project should be clearly stated in the journal as it is performed, along with the corresponding procedures, data, assumptions, conclusions, etc.

In summary, a project notebook is not supposed to be an attractive document; it is a working document. Yes, it may even have a few chemical stains on it and a torn page or two. However, the entries should be legible, complete, reasonably neat, and logically presented.

WRITING YOUR REPORT

After you have finished your experiment, you will want to combine your information into a report. If you are unsure how long your report should be, your teacher can tell you an approximate length. Your report should contain the following parts:

Introduction

State your hypothesis and explain why you wanted to do this particular project. Talk about the research you did and how it led you to this hypothesis...the answer to the question you had on this topic.

Experiments and Data

This is a listing of each experiment you performed for this project. Under each experiment state your purpose in doing it, what information you were trying to find out. What materials, devices, you used to conduct the experiment. Then give a step by step procedure of exactly how you conducted the experiment. Remember, someone else should be able to repeat this experiment following your description of the procedure.

Photos or drawings of any devices or apparatus you made will help others to see exactly what you did. Include graphs and tables of the data you collected for each experiment. Be sure to label everything clearly so others can easily see the information you obtained and what it means.

Conclusion

Summarize what you found from doing the experiments. What does the data mean? State your hypothesis and conclude whether it was correct or incorrect. What problems if any did you have doing the experiment or experiments? Can you think of changes you would make if you did this project again?

Acknowledgments

Give credit to the people, businesses, schools, etc. that may have helped you in this project. If you used or borrowed devices, equipment, or such, then mention the people that made this possible.

Bibliography

List any books or articles where you obtained information while researching this topic. Also if you talked to any experts while doing your research you should list their names as well in your science fair project report.

***Writing your report is not difficult if you allow enough time to do it. Jot down information as you work on your experiment. Keeping good notes will prevent forgetting important details. Proofread your report. Use correct grammar, spelling, capitalization, and punctuation. **Written reports should be a minimum of 250 words types (Times New Roman 12) and double spaced. A handwritten rough draft must be attached to the back of the typed version.**

STEPS TO PREPARE A SCIENCE FAIR PROJECT

1. Select a Topic

Choose something you are interested in and something you want to learn more about. Talk to teachers, parents, or librarians for ideas. A hobby might lead to a good topic.

2. Research the Topic

Gather information about your topic from books, magazines, the Internet, people, etc. Keep notes about where you got your information, as you will need to include them as references.

3. Follow a Scientific Method

A. Determine the Purpose of your experiment - What are you trying to find out?
B. Come up with your hypothesis - your guess about what the answer will be.
C. Decide how you will conduct your experiment – this is the design.
D. Decide on the materials you will need to carry out your experiment.
E. Decide how you will measure what happens.

4. Run the Experiment and Record the Data

Do the experiment. Keep notes of what you did, how you did it, and what happened. Write down everything you can think of, you might need it later.

5. Evaluate what Happened

Did the experiment go as planned? Think about why things went the way they did (or didn't). You can organize your results in a graph or chart, if that works for your experiment.

6. Develop an Exhibit or Display

Create a display, demonstration, and/or poster to show off your work. It has to be neat, but it does NOT have to be typed. Be creative! Suggested information includes:

A. **Purpose** (What)
B. **Hypothesis** (What you thought would happen)
C. **Design** (Your plan for the experiment)
D. **Materials** (What you used for the experiment)
E. **Procedures** (What you did)
F. **Results** (What happened)
G. **Conclusion** (Was your hypothesis correct? If not, why do you think it wasn't? What did you learn from the experiment?)
H. **References** (Where did your information come from?)
I. **Vocabulary** (What new words did you learn?)

7. Practice Talking about Your Project

Practice explaining your project to someone (parent, friend, grandparent, etc.) People who come to the Science and Learning Fair will be interested to hear about what you did and what you learned.

8. Come to the Fair and have fun! See you there!

RECORDING OBSERVATIONS AND DATA

Use a separate notebook for recording all measurements and observations. Your notebook will be a black and white composition journal (provided by the school). It is to be used as a diary. You must record all ideas, observations, data, diagrams, and procedures on a daily basis. All entries should be dated and printed neatly.

Consider the following as you make your daily entries:

- Make sure to include accurate metric measurements in your data. Give masses in grams, volumes in milliliter, and linear measurements in centimeters.
- It is better to have too much data than not enough, so keep many notes.
- When making an observation, write down the date and time.
- Keep track of materials used, their quantities and cost.
- Consider taking pictures to be used in your research paper or as part of your display. Pictures of yourself or any other person are not permitted in your display.

GRAPHS AND CHARTS

Your daily log of observations will be the best means for sharing the data and information collected during the experiment. Charts and graphs will provide a fine way to share data in an easy to read and understand fashion. There are different kinds of charts and graphs. A few examples are bar graphs and line graphs. A great website to use to create your charts and graphs for you in a neat manner is http://nces.ed.gov/nceskids/createagraph/default.aspx

PLAGIARISM

- Plagiarism is copying something someone else wrote and then using it in your own paper without saying where you copied it from.
- Plagiarism is theft. It is stealing the thoughts and words of another person.
- Plagiarism is against the law of the United States and it is against the rules of St. Clare of Assisi School.
- Copyright Law protects an author from plagiarism. Every book, every magazine article, and every Internet site is protected by Copyright. (For example, see the copyright notice at the bottom of this page.)

Some Tips to Avoid Plagiarism

- When you take notes, put the author's idea into your own words.
- One way is to choose no more than 10 words to describe each of the author's ideas.
- Then make a note about where you found the information. Be sure to say which page or Internet site had which bit of information.
- Do not use complete sentences when taking notes.
- Put down only the words you need to understand the author's idea.
- If the author's words are very special, put them in quotation marks and be sure to say the author's name.
- Then, when you write your paper, your complete sentences will be in your own words.
- Wherever you can, include your own thoughts about the subject.
- If you must use a chart or a picture, be sure to say where it came from.
- Always list all the places you went for information in your Bibliography.

WORKS CITED

These are the preferred rules for listing any books, articles, or Internet sites you have used to gather information for your project.

- **The basic entry: A simple book**

Author's name. Title of the Book. City of publication: Publishing company, copyright date. Page numbers, if any.

Murray, Julie. Pythons. Edina: ABDO Publishing Company, 2003. 13-14.

- **An encyclopedia or dictionary article**

"Article name." Title of the Book. Edition of the book, or copyright date.

"Python." The World Book Encyclopedia. 1988 edition.

"Python." The American Heritage Student Dictionary. 1998.

- **A magazine article**

Author's name. "Article name." Title of the Magazine day month year: page numbers.

Gordon, David George. "13 Reasons You Should Love Bats." National Geographic Kids October 2003: 8-11.

- **An Internet source (you don't always need all these parts; use all you can find)**

Author's name (if given). "Name of the article or page." Title of the Site. Editor or sponsor of the site. Date of the page. URL (the page address).

"Python." Animal Bytes. Zoological Society of San Diego. 2005. <http://www.sdzoo.com/animalbytes/t-python.html>.

Name_____Grade _____

Elementary Science Fair Due Dates

(*This only applies to 4th and 5th grade.)*

******Reminder: All parts are graded in 4th &5th grade.******

1. Science Fair Packets Distributed **November 17th**
2. Research project idea **December 1st, 4th-5th must turn in a form by this date!! NO late entries will be accepted.** Project idea form due (form in the packet, and may be turned in early)
3. Title due (five words or less) in journal **December 8th**
4. Research recorded in journal due **December 15th**

*Please do not copy information word for word unless you plan to use it as a quote.

* Be sure to document where you are getting the information on each page.

* Do not crowd your notes and information; there is plenty of paper in your journal. Skip lines and use multiple pages.

* Check guidelines for bibliography in your packet.

Guidelines for Journals

*Black ink only

*Write on right hand side of pages (left hand side may be used for calculations, brief notes to self, or doodles)

*Pages numbered in upper right hand corner

*Pages dated

*No name on cover or in journal (place name on a post-it note on outside cover of journal

*Table of Contents on first few pages

*Document mistakes (write a brief description of cross outs or mistakes)

*No liquid paper. Draw one line through mistakes even if it is an entire page

*Pages should not be removed from journals. They are not expected to look perfect.

*Use Metric System for all measurements/ data collections

******See handout in packet for additional journal guidelines. ******

5. Hypothesis due (in journal) **January 5th**
6. Experiment design due January **16th**

*A written description or a drawing and written description of your project.

- This should reflect the actions/set up necessary for you to go about doing an experiment testing your hypothesis.

* Use the steps of Scientific Method.

* Be sure to state the control, independent variable, and dependent variable.

7. Results/Analysis of experiment due (in journal) due **January 31st**

*****A written explanation of what was found.

*List the main points learned.

*Charts, tables, or graphs showing the results obtained.

*Was your hypothesis correct?

* Did your experiment prove or disprove your hypothesis? Explain in paragraph form.

8. Conclusion due **February 12th**

*Answer your problem/purpose statement.

*What does it mean?

*What is the value of your project?

*What further study do you recommend given the results or your experiment?

*What would be the next question to ask?

*If you repeated your experiment, what would you change?

9. Rough draft of research paper due **February 26th**

*May be typed or hand written.

*See attached sheet for guidelines.

10. Board layout due **March 2nd**

*Center: Title, Purpose or Problem, Hypothesis, and Acknowledgements

*Left side: Materials, Procedure-listed as steps, pictures/drawings

*Right side: Results- charts, tables, what happened, and conclusion

11. Complete board and final draft of research paper brought to school for a final check due **March 9th**

*Rough draft of research paper should be attached

12. Science Fair set up **March 19th** and Judging **March 20th**

13. Awards, Viewing and Take home of projects **March 21st**

14. Top 3 projects will be judged at **Corpus Christi Catholic School** on **Thursday, March 22nd.** Please make sure you are at Corpus Christi **NO LATER** than **8:00am**.