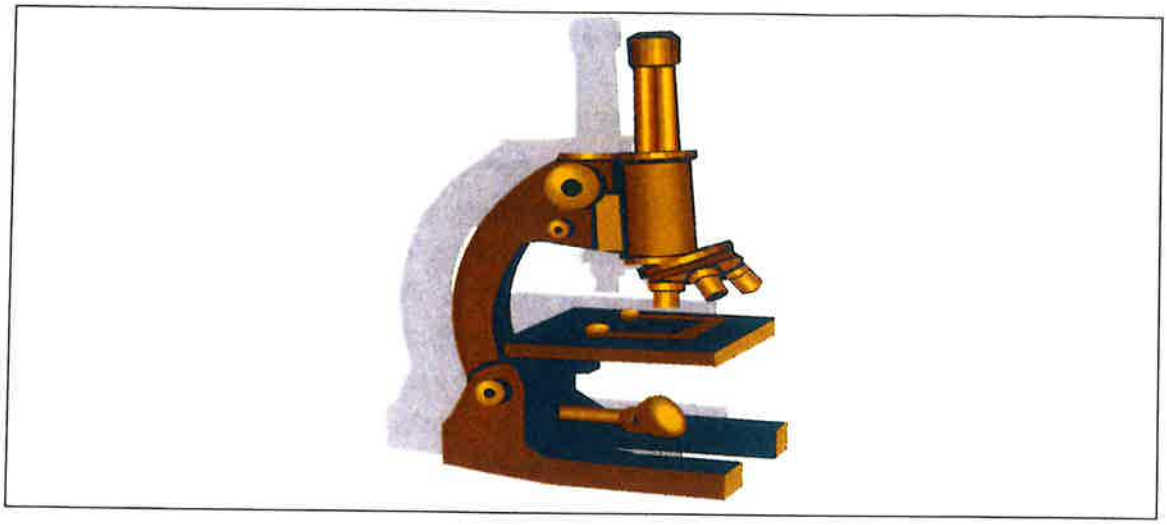

SCIENCE FAIR 2022

Dear Parents and Students: STUDENT _____

It's amazing that the school year has come to an end so quickly. Already plans are being made for next year. Our school will be holding its annual Science Fair on Wednesday, November 9, 2022 to Thursday, November 10, 2022 in the Parish Hall. I am very excited about this Science Fair. It will be open to students in grade 4 (class project) and grade 5 (group/ individual projects) as well as the usual grades 6, 7, and 8 (individual projects). How exciting it was to view hundreds of projects over the last couple of years. It was great to see the tough competition our children faced and the progress they made.They all did well. Each year we put Epiphany Cathedral School on the map!

Enclosed in this packet of information, you will find a category sheet for the categories available to you. During the summer, I encourage all students to begin the process of selecting a science fair topic. Look over the list and decide which area you may want to explore. In any event you would want to agree on a time line to prevent a last minute project. Some science fair projects may take 6 to 10 months. It is strongly suggested that you allow at least 12 weeks conducting an experiment and preparing the presentation. In this way you would be able to collect results and base your conclusion on the data collected.

SCIENCE FAIR 2022 GUIDE

The Scientific Method is a logical, systematic, organized method for solving problems. This method is used in research of all kinds: scientific, economic, political (polls and surveys), consumer, etc. In daily life we are constantly making decisions. As part of the decision making process we accumulate information (data), analyze it, and draw conclusions.

In today's technological society we are constantly faced with an incredible amount of information. To be successful we must be able to review the information and make decisions on our analysis of the information (buying various products like skis, career selections, community action, voting, etc.).

The purpose of the Science Fair Project is to serve as an exercise in Problem Solving (use of the scientific method) and writing a research paper. Students in grades 4 - 8 will participate. Students in Grade 4 may do a team project but students in Grades 5 - 8 must do an individual project. When completing the project one should consider the "Keep It Simple Students" philosophy. Select a simple project that does not contain a great deal of variables. Select a project that will allow you to collect a large amount of data in order for you to do a complete analysis. For example, a student once decided to see how much traffic really crossed over a particular bridge. The student faithfully set out 3 times a day, always at the same time, and did this for a three month period. He kept accurate results in the log journal and was able to make conclusions based on the findings. The student was also able to discuss the findings based on observations as well. Another student decided to compare window cleaning products in various temperatures. The student selected 12 different products and cleaned windows all containing the same amount of dirt and all at the same temperatures. Selecting at least 12 products helped to draw a conclusion as to which product was actually the best. The student also kept detail records in her log journal.

Another aspect of the project is to document your findings using photography. Many students, who do experiments with plants, take pictures to show changes in their experimentation. Many of these pictures may be used to enhance your display board and make it more appealing to the eye.

his/her research paper. Data tables are also a good idea. Every entry should include the date and a new day should have a new page as well. Log journals are collected on these dates with parent signatures: Sept. 2, Sept. 16, Sept. 30, Oct.14, and Oct 28.

RESEARCH PLAN DUE AUGUST 19, 2022

Students will chose a topic from 4 different areas. They are "Life Science", "Earth Science", "Physical Science" and "Engineering". A category sheet is included in this packet which will help you select a topic. Once students have decided on a topic (no project involving mold of any kind or experimentation with animals is allowed), they are to complete a "Research Plan." This is a one page typed report which must be handed in first (for approval) and should include the following:

A) Question being addressed (objective)
B) Hypothesis
C) Description in detail as to the methods or procedures used to complete the experiment.
D) Describe the procedures you will use to analyze the data that answer the research question or hypothesis review.
E) List a few sources that you have used to help you with your project.
F) Include the category you have selected.

Once approved, this plan will be stapled into the log journal. Students in Grade 4 who opt for a team project must be sure that each member of the team has a part in the project. Each member of the team would be required to keep his/her own log journal.

THE ABSTRACT (Required for all students Grades 4 - 8)

After finishing the research and experimentation, you will need to write an abstract. The abstract needs to be a maximum of 250 words. It should include the following:

TITLE (ALL CAPITAL LETTERS)
Student Name
First paragraph includes the purpose and the hypothesis.
Second paragraph is the procedure.
Third paragraph is the conclusion.

Bibliography: The bibliography should be at least 3 sources. The Abstract must be placed in the bottom left corner of the display board. It is also typed.

IMPORTANT DUE DATES

Summer, 2022 All students will begin to research and select the project which they want to do for the Science Fair. This is a great time to actually try the experiment and see if you can obtain the results you had hoped to achieve. Remember to document.

August 19, 2022 Every student will submit a "Research Plan" for approval. Signed contracts by students and parents will be due. See above section on how to write a research plan.

August 26, 2022 Students will be informed as to approval of projects. Once approval is given, students will begin. Log journals must be recorded. Parents will check each week. Log journals will be checked in class starting September 2, 2022 and will be passed in and graded every other Friday.

September 2, 2022 Volunteer Sheets due for those wishing to help with the Science Fair.

November 9 - 10, 2022 Epiphany Cathedral School Science Fair will take place in the Parish Hall. Judging will occur on the 9th of November for students. The Fair will not be open to the public at this time. Parents may view projects on November 10, 2022

Project Category

Life ☐ **Behavioral and Social Sciences** – Human and animal behavior, social and community relationships
Psychology, Sociology, Anthropology, Archaeology, Learning Perception, Linguistics, Urban Problems, Reading Problems, Ethnology, Educational Testing, Ethnology, Public opinion surveys, etc.

Life ☐ **Biochemistry** – Chemistry of life processes
Cell Biology, Molecular Biology, Genetics, Metabolism, Enzymes, Photosynthesis, Blood, Chemistry, Protein Chemistry, Food Chemistry, Hormones, Etc.

Life ☐ **Botany** – Study of plant life
Agriculture, Agronomy, Horticulture, Forestry, Plant Taxonomy, Plant genetics, Plant Physiology, Hydroponics, Algae, etc.

Phys. ☐ **Chemistry** – The study of the nature and composition of matter and the laws governing it
Physical Chemistry, Materials, Plastics, Fuels, Analytical Chemistry, Pesticides, Metallurgy, Soil Chemistry, Inorganic Chemistry, Organic Chemistry (Other Than Biochemistry), Etc.

Phys. ☐ **Computer Science** – Study & development of computer hardware, software, networking, communications, graphics, etc.

Earth ☐ **Earth Science** – Study of the earth and the universe
Geology, Mineralogy, Physiography, Oceanography, Meteorology, Climatology, Speleology, Seismology, Geography, Etc.

Engin. ☐ **Engineering** – the application of scientific principles to manufacturing and practical uses
Civil, Mechanical, Aeronautical, Chemical, Electrical, Photographic, Sound, Automotive, Marine, Transportation, Environmental, Bio-medical, Heating and Refrigeration, Etc.

Life ☐ **Environmental Sciences** – Study of pollution sources and their control
Air Pollution, Water Pollution, Land Pollution, Ecology, Etc

Phys. ☐ **Mathematics** – Development & application of formal logical systems or various numerical and algebraic computations
Calculus, Geometry, Abstract Algebra, Number Theory, Complex analysis, Probability, Etc.

Life ☐ **Medicine and Health Sciences** – Study of diseases and health of humans and animals
Dentistry, Pharmacology, Pathology, Ophthalmology, Nutrition, Sanitation, Pediatrics, Dermatology, Allergies, Speech & hearing, Etc.

Life ☐ **Microbiology** – Biology of microorganisms
Bacteriology, Virology, Protozoology, Fungi, Bacterial Genetics, Yeast, Etc.

Phys. ☐ **Physics** – Theories, principles, and laws governing energy and its effect on matter
Solid State, Optics, Acoustics, Particle Physics, Fluid/Gas Dynamics, Plasma, Superconductivity, Atomic Theory, Thermodynamics, Quantum Mechanics, Nuclear Physics, Magnetism, Semiconductors, Biophysics, Etc.

Earth ☐ **Space Science**
Astronomy, Planetary Science, Etc.

Life ☐ **Zoology** – Study of animals
Animal Genetics, Ornithology, Ichthyology, Herpetology, Animal ecology, Entomology, Cytology, Paleontology, Histology, Cellular physiology, Animal Husbandry, Invertebrate, Neurophysiology, Circadian Rhythms, Invertebrate studies, Etc.

Life – Life Science Phys. → Physical Science

SCIENCE FAIR PROJECT CONTRACT

Student's Name _____
Science Class _____
Teacher _____
Date of Science Fair November 9-10, 2022

STUDENT STATEMENT

I _____ will complete the required project following the guidelines set-up to the best of my ability. I will continue to keep a Log Journal and will follow all required due dates. I am aware of the fact that the Science Fair Project will represent 20% of my grade.

PARENT/GUARDIAN STATEMENT

I _____ am aware of the course requirement (to complete a science fair project) and will encourage my son/daughter to complete the project to the best of their ability. I will remind them of due dates for log journals and will read over the entries made. I will include my signature below the last entry. I am aware of the fact that the science fair will represent 20% of my son's/daughter's grade.

PLEASE RETURN
BY
FRIDAY, AUGUST 19, 2022