

Science Fair Project Logbook

Name(s):

School: Christina Gordon PS

Grade: Six

Project Title:



FAIR RULES

MUST BE READ BY PARTICIPANTS, PARENTS, AND TEACHERS PRIOR TO REGISTRATION

ELEGIBILITY

- 1. Students from grades four through twelve are eligible to participate.
- 2. Only students in grades seven through twelve are eligible to proceed to the Canada-Wide Science Fair.
- A project may be worked on and submitted by a maximum of two students. For project entries submitted by students of different grades, the age division of the most senior student will be used for judging purposes.
- 4. A participant may not present more than one exhibit each year, nor display an identical project from a previous or concurrent regional science fair. Students can exhibit projects that expand upon research they have presented at previous regional fairs, but they will be judged only on the new material.
- Students that participate in a school fair are eligible to register a project in the WBRSF only if they are chosen to represent their school. Students must first participate in a school fair if they are able to do so. If a student is unable to participate in an organized school fair they may register to enter the WBRSF directly.

GENERAL RULES

- Students must attend the full two days of the Fair and must remain at their project at all times during judging and public viewing unless otherwise instructed. Exhibits must be left on display until the end of the Fair.
- The project is the responsibility of the student and the Wood Buffalo Regional Science Fair cannot be held responsible for loss, damage, or theft, however caused. The exhibit should be constructed such that valuable components can be removed for safekeeping when the exhibit is unsupervised.
- 3. Only participants, judges, and WBRSF volunteers are permitted to attend the Fair on judging day.
- 4. Projects involving research with animals or human subjects must be approved by the WBRSF Safety and Ethics Committee BEFORE such research is undertaken. Informed Consent Forms must be signed by all human subjects and these forms must be kept in a logbook accompanying the project. Projects on display which do not conform to the WBRSF safety and ethics guidelines will be immediately disqualified.
- Electricity will only be supplied to an exhibitor if it is essential for the operation of their project. Participants requiring electricity must provide their own extension cord. Only one outlet will be supplied per project.
- 6. Continuous running water and/or natural gas will not be supplied to projects.
- 7. Flammable, toxic, or otherwise hazardous materials are not permitted at the fair (see Safety Regulations).
- Exhibits, including all accessories, must be confined to a table or floor space and may not exceed 0.8 metres, front to back; 1.2 metres side to side; and 3.5 metres maximum height from the floor.
- Exhibit backboards must be constructed of non-flammable materials (the CWSF allows only the following: wood and dimensional lumber at least 6 millimetres thick, metal, "Sintra", "InteFoam", "Intecel", "Flame Out", plexiglass/acrylic, and other UL-94 approved synthetic materials).
- 10. The decision of the WBRSF Judging Committee is final and may not be contested.

CODE OF CONDUCT

- 1. Participants will, at all times, respect all public and private property and the rights of other participants.
- 2. When requested, participants will wear an identification badge and/or WBRSF T-shirt.
- 3. Participants must dress appropriately (in accordance with their school's dress code).
- 4. Project areas must be kept tidy and any spills or messes must be cleaned up immediately.
- 5. Students must respect their peers by remaining as quiet as possible during the judging period.
- 6. Participants that do not behave in an appropriate manner or in any way violate the Code of Conduct will be disqualified and ejected from the event. The violator forfeits his or her right to attend and participate in Science Fair events. Proper notification of the violation and action taken will be sent to the school along with copies to the Board(s) of Education. Copies will also be sent to the student's parents or guardians.
- Participants will be asked to write a short thank-you letter to one of the WBRSF sponsors.

MEDIA CONSENT

Participants and their parents must consent to the unrestricted use of biographical information (name, age, grade, and school only), photographs, and visual or audio recordings of the participant by the Wood Buffalo Youth Science Foundation, and affiliates and sponsors of the Wood Buffalo Regional Science Fair. These materials, as well as a description of the participant's project, may be distributed to local media (television, radio, or print) or displayed in newsletters and websites. Personal and contact information will not be released.



SAFETY REGULATIONS

MUST BE READ BY PARTICIPANTS, PARENTS, AND TEACHERS PRIOR TO REGISTRATION

ALL PROJECTS WILL BE INSPECTED PRIOR TO, AND DURING, THE FAIR. ANY PROJECT THAT VIOLATES ANY OF THE FOLLOWING REGULATIONS WILL BE IMMEDIATELY DISQUALIFIED.

GENERAL SAFETY

- 1. The exhibit itself must be sturdy, self-supported and not easily tipped over.
- All sharp edges or corners on mirrors, enclosures, glass and metal plates etc must be removed or covered.Projects should be constructed in such a way that there are no protruding sharp wires, screws, nails, etc.
- 3. Dangerous moving parts (belts, pulleys, gears, etc.) must be covered by a safety guard.
- 4. Aisles must not be obstructed and must be kept clear of hoses, extension cords, ropes, personal belongings, etc.
- 5. Moving exhibits should be restricted to the display space unless permission is granted for demonstrations.
- 6. Compressed gas cylinders (including aerosol cans, empty or full) must not be displayed.

FIRE SAFETY

- 1. Highly flammable materials must not be exhibited (i.e. gasoline, matches, butane lighters, sulphur, etc.).
- 2. Flames of any sort (covered or exposed) are not allowed in the exhibit area at any time!
- 3. Combustible material must not be used near a heat source. Hot plates/heating elements must not be operated.

CHEMICAL SAFETY

- 1. Toxic, flammable, or corrosive chemicals shall not be exhibited. Strong dyes and stains should not be exhibited.
- 2. Potentially dangerous chemicals must not be displayed (this includes prescription and non-prescription drugs)
- 3. For the purposes of demonstration or display, safe look-a-like substitutes should be used (i.e. salt, water etc.).

ELECTRICAL SAFETY

- I. Use the lowest voltage possible.
- 2. Switches and cell or battery fed circuits must be safe in design and operation.
- 3. Use only CSA approved appliances and undamaged extension cords with grounded 3-prong plugs.
- 3. AC (120 volt, 60 cycle), from a GFCI-protected outlet will be the only power source supplied by the WBRSF.
- 4. Exposed live wires and circuit boards must be enclosed so as not to endanger the public and the enclosure must not present a fire hazard. All metal parts which are not intended to conduct current must be grounded.
- 5. Where practical, a light should be installed to indicate on/off.
- Lasers may be displayed, but shall not be operated or connected to a power source.

BIOLOGICAL SAFETY

- 1. Live animals, animal parts or tissues (except prepared slides) and microbiological cultures must not be displayed.
- Any project that involves the observation of, or experimentation on, animals (or animal tissue samples or cells), humans, animal viruses, potential pathogens, recombinant DNA or human DNA must be properly supervised and approved by the WBRSF Safety and Ethics Committee BEFORE the project commences.
- 3. The use of biological agents, human tissues, blood, urine, feces, mucus, semen, hair, teeth etc. is forbidden, except in the case of Senior students working under the supervision of a qualified person. Projects must be approved by the WBRSF Ethics Committee BEFORE the project commences.
- "Informed Consent" forms must be signed by all human volunteers participating in surveys, studies, and
 experiments. Completed forms should be stored in the project's log book and must be available upon request.

RADIATION SAFETY

- 1. Radioactive materials and radiation producing equipment must not be displayed.
- Experiments involving work with radioactive materials or radiation producing equipment must be performed in accordance with all provincial and federal guidelines and under the supervision of a qualified person.

FIREARMS, HAZARDOUS EQUIPMENT AND VOLATILE MATERIAL SAFETY

- Participants are permitted to conduct research involving hazardous equipment, hazardous materials, and
 firearms only if they adhere to federal and provincial regulations and guidelines. Firearms (including air rifles and
 replicas) and other weapons (crossbows, slingshots, etc.) must not be exhibited or brought to the fair.
- The use of hazardous equipment, explosives, firearms and dangerous goods requires proper supervision by a qualified professionally trained person and must be approved by the WBRSF Safety and Ethics Committee BEFORE the project commences. The supervisor will be asked to present their credentials.
- Hazardous equipment or materials (explosive, flammable, toxic or volatile) must not be exhibited.

Brainstorming	Possible Top	oics
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What? Why? How?

Question

The question I am trying to answer is: (be specific)

Background Research

Collect information about your topic from books, magazines, TV programs, the Internet (with supervision), people and companies. Keep a record about where you gathered your information for your bibliography.

,	
I will research information from these books, magazine or the Internet:	
I will talk to these people:	
I will visit these places:	
My Research:	
Source:	
What I learned:	
	İ
Source:	
What I learned:	

Source:	
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Source:	
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Course	
Source:	
What I learned:	

Hypothesis

Try to answer your question based on what you know about your topic. This is what I think will happen (If..., then...):

Variables:

Manipulated	Responding	Controlled



Have you read over the safety and ethics forms from the Wood Buffalo Regional Science Fair to make sure your project is SAFE?

Are you interviewing human subjects?
Will you be using organisms?
Were you planning on having test subjects?

Procedure:

List the steps needed to do your experiment. Be very descriptive.

This is how I will conduct my experiment:

1.	
2.	
3.	
4.	
5.	
6.	
7.	
8.	
9.	
10	

Materials

List everything that you will need to do your experiment. Be very precise about everything, especially what you are measuring, such as time, distance and amount of ingredients used.

These are the materials I need to use in my experiment:

Data Collection

What numbers will be collected?
How will I keep track of the data?
What will the chart/table look like?
What do I need to organize before I get started?
How many times am I conducting each trial? (Minimum of 5)

SAMPLE

Manipulate d Variable	Trial 1	Trial 2	Trial 3	Trial 4	Trial 5	Average

Date	Activity	Outcome/Observation
	,	,

Data Analysis

Record what happened in your experiment. Be very descriptive. Use charts, graphs, tables and/or pictures to explain what happened.

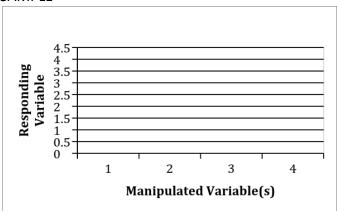
This is what happened during my testing:

These are the problems that I encountered during my testing:

These are the changes in my original plan that I had to make:

These are my final results:

SAMPLE



Conclusion Remember your experiment is still successful even if you did not prove your hypothesis!
My research did or did not support my hypothesis (Why or why not?)
These are the conclusions I obtained from my experiment.
These are the conclusions I obtained from my experiment:
My research is important to society because:
This is what I would change is I did my experiment again:

This is what I recommend for future or different experiments:

ACTIVITY LOG PAGES

Date	Time	Location
Today I worked on:		
Something I noticed or wondered about today:		
I am pleased with:		
My work ethic today:		
Where I need to go from here:		
Message to my science teacher:		
		1
Date	Time	Location
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Today I worked on:		
Something I noticed or wondered about today:		
I am pleased with:		
My work ethic today:		
Where I need to go from here:		
Message to my science teacher:		
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Date	Time	Location
Today I worked on:		
Something I noticed or		
wondered about today:		
I am pleased with:		
My work ethic today:		
Where I need to go from		
here:		
Message to my science		
teacher:		

Date	Time	Location
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Today I worked on:		
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Where I need to go from here:		
Message to my science		
teacher:		

Date	Time	Location
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Something I noticed or		
wondered about today:		
I am pleased with:		
My work ethic today:		
Where I need to go from here:		
Message to my science teacher:		
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wondered about today:		
I am pleased with:		
My work ethic today:		
Where I need to go from		
here:		
Message to my science		

teacher:

ELEMENTARY JUDGING FORM PAGE ONE

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Student Name(s): _				
Project Title:				_

School:	8-86			

Rank 1 (low)	Rank 2 (fair)	Rank 3 (good)	Rank 4 (excellent)
Score Range 1 to 4	Score Range 5 to 9	Score Range 10 to 14	Score Range 15 to 20
Student can answer questions only when prompted.	Student has a basic understanding of the project but gives minimal explanation.	Student shows a good understanding of the project but has difficulty applying this knowledge.	Student can discuss the topic in depth and can apply this knowledge when questioned by the judge.

Rank 1 (low)	Rank 2 (fair)	Rank 3 (good)	Rank 4 (excellent)
Score Range 1 to 4	Score Range 5 to 9	Score Range 10 to 14	Score Range 15 to 20
Project presents material without analysis of any sort or an existing innovation is described but has not been modified or tested.	Study: Data is organized but is not subjected to analysis. Experiment: A problem is recognized and a hypothesis is presented. Innovation: An existing innovation or process is modified with little testing or elaboration.	Study: Data is compiled and subjected to basic statistical analysis (i.e. means or median values are calculated). Experiment: Includes proper controls. Conclusion addresses original hypothesis. Innovation: More than one attempt has been made to improve an existing or novel invention	Study: Data has been subjected to simple statistical analysis including the use of graphs and figures. Experiment: Includes proper controls and has been repeated several times. Student can explain the need for controls an presents logical conclusions. Innovation: A novel device is presented and has been systematically tested and modified during development.

Rank 1 (low)	Rank 2 (fair)	Rank 3 (good)	Rank 4 (excellent)
Score Range 1 to 4	Score Range 5 to 9	Score Range 10 to 14	Score Range 15 to 20
Display has limited information or is poorly organized.	Display has proper headings and is organized in a logical manner.	Display has proper headings and is neat and attractive with limited use of tables, charts or pictures.	Data is presented in a clear and logical manner using tables, charts, or pictures. Tables and figures have proper titles. Display is near and well organized.

ELEMENTARY JUDGING FORM PAGE TWO

Rank 1 (low)	Rank 2 (fair)	Rank 3 (good)	Rank 4 (excellent)
Score Range 1 to 4	Score Range 5 to 9	Score Range 10 to 14	Score Range 15 to 20
Student answers questions only when prompted.	Student talks openly about the project but only discusses what is displayed.	Student shares information openly and discusses the implications of their project.	Student is excited about the project and has ideas on how the project could be elaborated or improved

Rank I (low)	Rank 2 (fair)	Rank 3 (good)	Rank 4 (excellent)
Score Range I to 4	Score Range 5 to 9	Score Range 10 to 14	Score Range 15 to 20
Little imagination shown. Project design is simple with minimal student input.	Some creativity shown in the presentation of the project, however project is not an original idea.	Imaginative project, good use of available resources. Student has done some original research.	A highly original project or a novel approach.

Scoring	
PART A: Knowledge Demonstrated	<i>1</i> 20
PART B: Data Collection and Scientific Method	/20
PART C: Organization and Presentation	/20
PART D: Enthusiasm	/20
PART E: Creativity and Originality	/20
Total score awarded to this exhibit	/100

Judge's Comments: Strengths:		*
Weaknesses:		
Judge's Name (Please Print!)	Judge's Signature	

Use this form to assist you in ranking the exhibits assigned to you. This mark will not be used in subsequent rounds of judging. This form will not be viewed by the student. Return this form to your Category Coordinator.



HUMAN SUBJECT AND ANIMAL USE GUIDELINES

MUST BE READ BY PARTICIPANTS, PARENTS, AND TEACHERS PRIOR TO REGISTRATION

Please note that experiments and studies performed on organisms which lack nervous tissue (plants, fungi, bacteria, protists and sponges) and microscopic invertebrates do NOT require approval from the WBRSF Safety and Ethics Committee unless these organisms are potentially pathogenic or contain recombinant DNA. Participants which undertake projects which involve the use of recombinant DNA, the use of potentially pathogenic organisms, or experimentation on macroscopic animals must complete an "Application to Perform Research with DNA, Biological Agents, or Animals" and receive approval to proceed BEFORE beginning their project. Participants that perform experiments or studies using human subjects must complete an "Application to Perform Research with Human Subjects" and receive approval to proceed BEFORE beginning their project.

All projects involving live animals or humans must have scientific merit, educational value, and avoid gratuitous harm. Every effort must be taken to limit or avoid injury or distress to animals. Students should refer to the ethical guidelines developed by the Canadian Council on Animal Care (http://www.ccac.ca) and Youth Science Canada (www.ysf.ca). Research done by pre-university students is subject to the Health of Animals Act (Bill C_66); the Criminal Code of Canada, Section 446, Cruelty to Animals; and the Alberta Animal Protection Act. Work with human cells, tissues, or fluids, pathogenic organisms, animal viruses, or experiments in which vertebrate animals are physically or emotionally/psychologically distressed or injured may only be performed at a college, university, hospital or recognized research institution under the direct supervision of a qualified person.

INVERTEBRATES

Approval is NOT required from the WBRSF Safety and Ethics Committee for the following types of projects:

- Experiments and studies performed on microscopic invertebrates.
- Observational studies which take place in a natural setting (or simulated natural setting) in which the animal is not threatened or disturbed. Animals kept in enclosures must be well cared for and not exposed to conditions which might cause distress, injury, or death.

Approval IS required from the WBRSF Safety and Ethics Committee for the following types of projects:

- Experiments performed on <u>macroscopic</u> invertebrates involving the manipulation of the environment or the provision of a positive reward system (training an animal to navigate a maze for instance). The animal is not exposed to conditions which might cause distress, injury, or death.
- Experiments performed on macroscopic invertebrates in which the animal may be harmed. Every precaution
 must be taken to limit distress, injury, or death. Experiments of this sort may only be conducted by Junior
 and Senior level students under the guidance of an appropriate adult supervisor.

Note: Due to their well-developed vertebrate-like central nervous system, cephalopods (squid, octopus or cuttlefish) shall be treated following the regulations in place for vertebrate animals.

NON - HUMAN VERTEBRATES

Approval is NOT required from the WBRSF Safety and Ethics Committee for observational studies of nonendangered species in natural settings where the animal is not threatened or disturbed in any way (for instance, the observation of birds at a bird feeder) or the observation of normal behaviours in household pets.

ALL OTHER PROJECTS MUST BE APPROVED BY THE WBRSF SAFETY AND ETHICS COMMITTEE

Only Senior students will be permitted to perform research that causes injury or distress to vertebrates. This research must be done under the close supervision of a qualified researcher.

HUMANS

ALL PROJECTS WHICH INCLUDE THE USE OF HUMAN SUBJECTS (EXPERIMENTS, STUDIES AND SURVEYS) MUST BE APPROVED BY THE WBRSF SAFETY AND ETHICS COMMITTEE

Subjects must understand that their participation is voluntary, they must agree to any specific disclosure of personal information that may be required, and they must be made fully aware of, and consent to, any risks that may be involved. The identity of the subjects should only be known to the researcher(s) and must not be identified on the data presented in the project. The researcher(s) must ensure that the participating subjects and the researcher(s) are subjected to minimal risks to their physical and/or psychological well being.



APPLICATION TO PERFORM RESEARCH WITH HUMAN SUBJECTS

This form must be completed for all projects that involve the use of human subjects in any manner whatsoever; this includes observational studies, surveys and experimentation. This form must be sent in before any research begins. Participants will be contacted if there are problems with their project.

Attach copies of any questionnaires, interview schedules, tests, stimulus materials, or other items required for a complete review of your application.

Project Approved?	☐ Yes	Yes, but with alterations	□ No
Describe required changes ((if any):		
Participant Contacted?	Yes □ No	Date Contacted:	
Committee Member	- Name	Committee Member - Signature	Date Signed
2		2	: t
PARTICIPANT INFORM	ATION	Participant 2:	
Home Telephone:		Home Telephone:	
Email:		Email:	
PROJECT SUPERVISOR	(Teacher, Instructor or	Researcher)	
Name:	1.11	School or Organization:	
Telephone:		Email:	
PROJECT INFORMATIO			_
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Grade: Category (See WBRSF Infor	mation Package):	Page Range of Subjects.	

continued on next page

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ASCI ABATION			
	above is correct and to the	best of my knowledge the above project o	omplies with the
hereby certify that the information given sidelines for the use of human subjects in	science fair projects as stip	best of my knowledge the above project o sulsted by the Wood Buffalo Regional Scien	ce Fair.
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INFORMED CONSENT FORM

You are invited to take part in a research study. Before you decide to be a part of this study, you need to understand the risks and benefits. This consent form provides information about the research. If you agree to participate in this research, you will be asked to sign this consent form before taking part. This process is known as informed Consent.

ARTICIPANT INFORMATION	
Participant I:	Participant 2:
Home Telephone:	Home Telephone:
Email:	Email:
PROJECT SUPERVISOR	
Name:	School or Organization:
Telephone:	Email:
PROJECT INFORMATION	
Project Title:	
Project: Description:	
	ed with all information about individual participants removed. No personal All information on paper that could be used to identify individuals will be
Your participation is voluntary, and you hav	e the right to withdraw at any time for any reason. If you wish to do so, k to the Science Fair Coordinator/Adult Supervisor.
The Benefits of this Research Outweigh the	Risks:
Your participation in this research will not o	cause any risks to your physical and/or psychological well-being.
Ethics Review:	
This project has been reviewed by the Safet received permission to proceed.	y and Ethics Committee of the Wood Buffalo Regional Science Fair and has
Feedback:	
The results of this research will be made av	allable to you at the public presentation of the Science Fair Project.
By signing below, you are agreeing to partic	ipate in this study.
Name (please print):	**************************************
Signature:	Date:
If the participant is under the age of 18,	permission of a parent or guardian is also required:
I give permission for the person named abo	we to participate in this study.
Name (please print):	Phone:
Signature:	Date:



APPLICATION TO PERFORM RESEARCH WITH DNA, BIOLOGICAL AGENTS OR ANIMALS

This form must be completed for all projects that involve research with recombinant DNA, animal viruses, potential pathogens, animal or human tissues or bodily fluids, and experimentation with live animals (please see "Human Subject and Animal Use Guidelines" for exceptions). This form must be approved before any research begins. Participants will be contacted if there are problems with their project.

Project Approved?	□ Yes	Yes, but with alterations	□ No
Describe required changes	s (if any):		
Participant Contacted? (i Yes □ No	Date Contacted:	
Committee Memb	er - Name	Committee Member - Signature	Date Signed
l			
2			
PARTICIPANT INFOR	MATION		
Participant 1:	AND THE VIEW	Participant 2:	
Home Telephone:		Hame Telephone:	
Email:		Email:	
PROJECT SUPERVISOR	(Teacher, Instructor or Reser	archer)	
Name:		School or Organization:	
Telephone:		Email:	
ROJECT INFORMATI	ON	50101-414-601	
Where will the experimen	its/study take place?		
Grade:	Category (See WBRSF	Information Package):	
Organism(s) Used:			
Project Title:			
Check all of the following	ng that apply:		
☐ Potentially pathog	genic organisms will be use	ed 🗀 Animal viruses will be use	d
DNA will be colle	ected from humans	☐ Organisms containing rec	ombinant DNA will be used
☐ Biological toxins	will be used	☐ Human or animal tissue o	r body fluids will be used

continued on next page

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