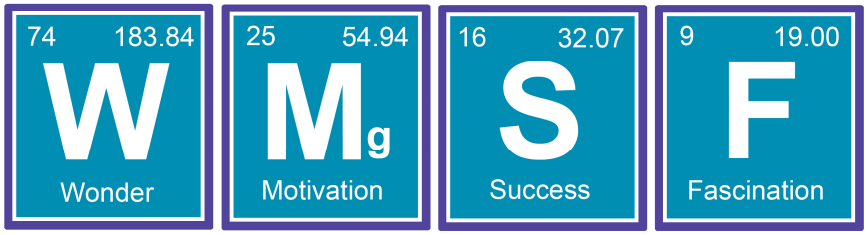

2021

Western Manitoba Science Fair

Project Guide

A Special Thank You To Our:

Strategic Partners

BRANDON SCHOOL DIVISION

bacf Brandon Area Community Foundation *rooted in community*

BRANDON UNIVERSITY

WMSF 2021 Entry information

WMSF 2021 will be an official competitive virtual fair, structured very similar to our regular in person fair. We will have judging via telephone/video chat, medals and awards, and our finalists from grades 7-12 will move on to the virtual Canada Wide Science Fair. And of course there will be public viewing of projects online as well. All of this will be made possible through an online system provided to us by Youth Science Canada (YSC). This online system will provide students with a platform to develop and work on their project virtually. Participation will be free! Schools do not have to hold any sort of school level competition this year to determine who registers for WMSF; we are going to accept any student that wishes to participate in WMSF. Students may register on their own if they are doing a project outside of school. All of the links and info you need to register for the YSC portal, create and work on your online project, and register for WMSF can be found on our website at https://www.wmsf.com/virtual-wmsf-2021.

About the WMSF

The Western Manitoba Science Fair is the Regional Science Fair for Southwestern Manitoba and has been in operation since 1969. It provides an opportunity for students to showcase their scientific talent for their parents, teachers, and the community. Applicants come from grades 1 through 12.

WMSF Objectives and Aims

- To develop a respect for and an understanding of humanity's quest for knowledge. To encourage natural curiosity. To provide a basis for creativity.
- To develop in students an understanding of the necessity for organization, planning and experimentation in research. To encourage independent thinking. To develop mechanical skills.
- To expose students to and acquaint them with the use of scientific methods through practical application.
- To provide an opportunity for self-expression. To emphasize the necessity of having and developing the ability to communicate ideas.
- To aid in channeling students into worthwhile science endeavors. To provide stimulation for scientific hobby pursuits. To meet the needs of talented students.
- To offer an opportunity for students to consult and work with specialists in science fields in the community and elsewhere. To provide constructive suggestions for teachers and pupils of science.
- To serve as a showcase for scientific talent. To report to parents and the community about one phase of the academic performance of students and thereby stimulate a greater interest in science by all.
- To encourage teachers of Western Manitoba to view science fairs, projects and displays as an integral part of their science program.

Academic Integrity

One of the most important traditions in the scientific community is the tradition of academic integrity. Scientists build on others' achievements and they must be able to trust the integrity of the published literature they build on. Students want to work in communities where competition is fair, integrity is respected and cheating is not tolerated. At all science fairs, including the Western Manitoba Science Fair, students are required to present work that is the result of their own efforts. All assistance received from others must be acknowledged, and all written material that draws on the work of others must be accompanied by appropriate references.
Specific examples of violations include:

- Plagiarism – presenting the work of others as your own without acknowledging the source. This includes work done by a family member or a mentor.
- Fabricating or falsifying data
- Forging signatures
- Fabricating or falsifying registration information
- Entering a project that is either derived from a previous project or is a continuation or revision of a previous project by the student (or by another) without documentation of the previous work.

Participation of Humans in Research Projects

Human Research refers to any project that involves the generation of data about persons. Examples of such projects may include:

- Some surveys
- Some food and drink projects
- Some caffeinated beverage projects
- Some absorption through the skin projects
- Some exercise projects

If your project involves collecting data about persons, you must adhere to the Participations of Humans in Research Policy available at www.wmsf.com/humanparticipation, including completing any applicable consent forms and approval requests. If you have any questions about this please contact us at 204-727-4700 or info@wmsf.com.

Project Report/Abstract

Students in the grades 7 - 12 MUST also prepare a minimum one-page typed project report/ abstract. This abstract will be given to judges before they see the project. It is a very important part of the judging process. IMPORTANT - the project report/abstract must include:

- The project name and name(s) of students
- A statement of the basic problem or question
- A brief summary of observations and/or data
- A summation or generalization of the conclusions drawn as a result of the investigation.
- Good grammar and no spelling errors
- SI (metric units), if applicable
- Bibliography and references

A project abstract is mandatory for grades 7-12. It is also encouraged for grades 6 and under, but not mandatory.

Continued, over

Judging

Judging will be based on standards and official forms set by the Western Manitoba Science Fair Committee to ensure all projects are assessed critically and fairly. All projects are judged based on the four criteria detailed on the Judging Forms included at the end of this guide. These criteria are Scientific Thought and Understanding, Originality and Creativity, Communication, and Mentorship. To get a full understanding of what the judges will be looking for, students, teachers, parents and mentors should read the Judging Booklet on our website www.wmsf.com/judging.

Regular awards (gold, silver, and bronze medals) are assigned by the judges to the best eligible projects on the basis of ranking projects relative to others in the same level at the Western Manitoba Science Fair.

Special Awards, or Self-Nominated Awards are only open to projects within specific scientific focus areas. Entrants must have selected the awards that their project may be eligible for on the self-nominated awards list and submitted it with their Official Entry Form. These awards are for outstanding projects that meet specific criteria within a particular aspect of science and often reflect the special interests and criteria of the sponsoring foundations, companies and professional associations.

Mentorship Guidelines

Science fair projects from time to time will be mentored, or receive outside assistance. Mentors may be scientists, teachers, parents or, sometimes, other students. It is important to understand that mentorship is not at all discouraged; it can be a useful way for students to conduct research and gain knowledge pertaining to their project. Mentorship will not be considered an 'unfair advantage' as long as the following guidelines are strictly followed:

- Always keep in mind that the project is the student's and not the mentor's. It is the student's role, and not the mentor's, to conceive the project's specific topic.
- All data taking and analysis of the data must be the student's own, unless the student does not present it as his or her own and credits the actual data taker properly. When mentors take over these responsibilities, they deprive students of valuable learning experiences.
- If a project has been mentored, it should be declared in the references and or bibliography in the accompanying project report/abstract
- The student must be knowledgeable in the subject/project, and can answer all questions about information they've presented in the project.

Project Judging Summary Form

Western Manitoba Science Fair

Youth Science Canada
Sciences jeunesse Canada

Part A: Scientific Thought			Judging Notes
	Level (1-4)	Rating (0-9)	
Part B: Originality & Creativity			
	Level (1-4)	Rating (0-9)	
Part C: Communication			
	Level (1-4)	Rating (0-9)	
Part D: Mentorship			
	Level (1-4)		

Feedback for the Finalist(s) - It is **VERY** important to leave adequate and constructive feedback for **EVERY** project. A copy of the Project Summary Form will be sent to each student.
Strengths
Recommendations

Judge's Name (Please Print)	Judge's Signature

Feedback for the Finalist(s) - It is **VERY** important to leave adequate and constructive feedback for **EVERY** project. A copy of the Feedback will be sent to each student.

Western Manitoba Science Fair

Project Judging Rubric Form

Youth Science Canada
Sciences jeunesse Canada

PART A: SCIENTIFIC THOUGHT - First choose which ONE of the following three categories the project falls under, then work down that column to determine the level:

Experiment	Innovation	Study
Undertake an investigation to test a scientific hypothesis by the experimental method. At least one independent variable is manipulated; other variables are controlled.	Develop and evaluate new devices, models, theorems, physical theories, techniques, or methods in technology, engineering, computing, natural science, or social science.	Analysis of, and possibly collections of, data using accepted methodologies from the natural, social, biological, or health sciences. Includes studies involving human subjects, biology field studies, data mining, observation and pattern recognition in physical and/or socio-behavioural data.
LEVEL 1	**LEVEL 1**	**LEVEL 1**
Replicate a known experiment to confirm previous findings	Build a model or device to duplicate existing technology or to demonstrate a well-known physical theory or social/behavioural intervention.	Existing published material is presented, unaccompanied by any analysis.
LEVEL 2	**LEVEL 2**	**LEVEL 2**
Extend a known experiment with modest improvements to the procedures, data gathering and possible applications.	Improve or demonstrate new applications for existing technological systems, social or behavioural interventions, existing physical theories or equipment, and justify them.	Existing published material is presented, accompanied by some modest analysis **and/or** a rudimentary study is undertaken that yields limited data that cannot support an analysis leading to meaningful results.
LEVEL 3	**LEVEL 3**	**LEVEL 3**
Devise and carry out an original experiment. Identify the significant variables and attempt to control them. Analyze the results using appropriate arithmetic, graphical or statistical methods.	Design and build innovative technology; or provide adaptations to existing technology or to social or behavioural interventions; extend or create new physical theory. Human benefit, advancement of knowledge, and/or economic applications should be evident.	The study is based on systematic observations and a literature search. **Quantitative studies** should include appropriate analysis of some significant variables) using arithmetic, statistical, or graphical methods. **Qualitative and/or mixed methods studies** should include a detailed description of the procedures and/or techniques applied to gather and/or analyze the data (e.g. interviewing, observational fieldwork, constant comparative method, content analysis).
LEVEL 4	**LEVEL 4**	**LEVEL 4**
Devise and carry out original experimental research in which most significant variables are identified and controlled. The data analysis is thorough and complete.	Integrate several technologies, inventions, social/ behavioural interventions or design and construct an innovative application that will have human and/ or commercial benefit.	The study correlates information from a variety of peer-reviewed publications and from systematic observations, and reveals significant new information, or original solutions to problems. Same criteria for analysis of significant variables and/or description of procedures/techniques as for Level 3.

PART B: ORIGINALITY & CREATIVITY

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
The project design is simple with little evidence of student imagination. It can be found in books or magazines.	The project design is simple with some evidence of student imagination. It uses common resources or equipment. The topic is a current or common one.	This imaginative project makes creative use of the available resources. It is well thought out, and some aspects are above average.	This highly original project demonstrates a novel approach. It shows resourcefulness and creativity in the design, use of equipment, construction and/or the analysis.

PART C: COMMUNICATION

The level is based on four elements: visual display, oral presentation, project report with background research, and logbook.

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
Most or all of the four elements are simple, unsubstantial or incomplete. There is little evidence of attention to effective communication. In a pair project, one member may have dominated the presentation.	Some of the four elements are simple, unsubstantial or incomplete, but there is evidence of student attention to communication. In a pair project, one member may have made a stronger contribution to the presentation.	All four elements are complete and demonstrate attention to detail and substance. The communication components are each well thought out and executed. In a pair project, both members made an equitable contribution to the presentation.	All four elements are complete and exceed reasonable expectations of a student at this age/grade. The visual display is logical and self-explanatory, and the exhibit is attractive and well-presented. The project report and logbook are informative, clearly written, and the bibliography extends beyond web– based articles. The oral presentation is clear, logical, and enthusiastic. In a group project, both members contributed equitably and effectively to the presentation.

PART D: MENTORSHIP

LEVEL 1	LEVEL 2	LEVEL 3	LEVEL 4
The project is mentored. The student has limited knowledge of the material presented in the project.	The project is mentored. The student has moderate knowledge of the material, but gaps in knowledge of the project exist.	The project is mentored. The student knows most of the material however minimal gaps in knowledge of the project exist.	The project is not mentored, or The project is mentored however the student is very knowledgeable in the subject, and can answer all questions about information presented in the project.