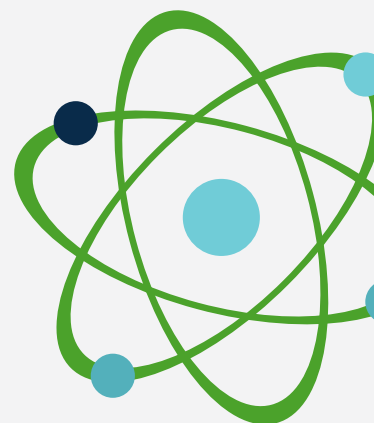
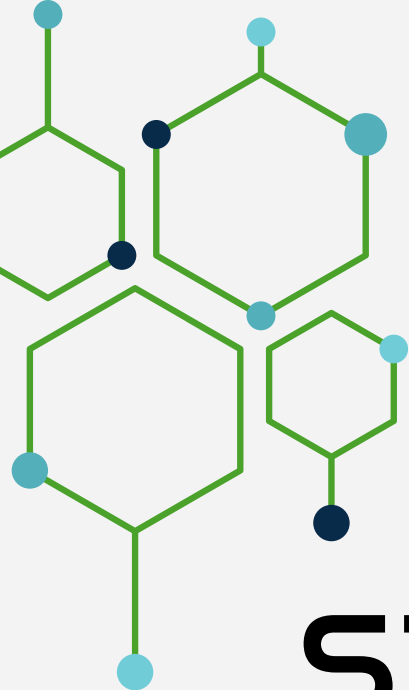
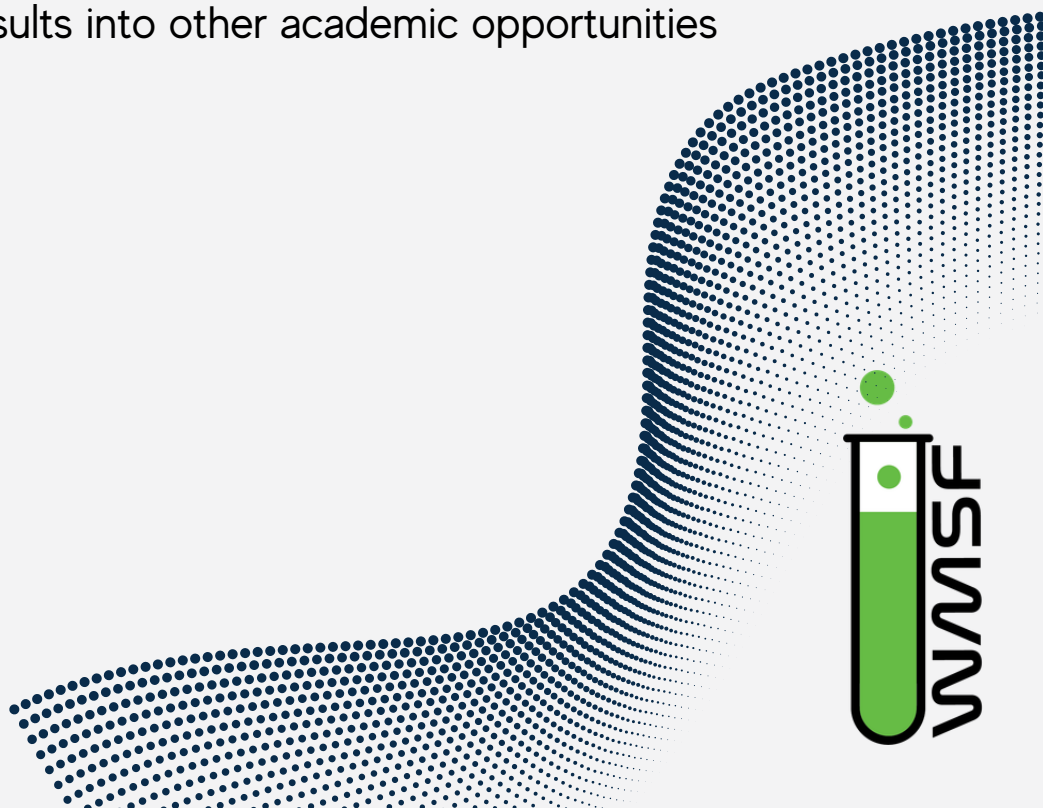




STEM Project Quick Guide for Grades 7-12

A step-by-step reference guide on how to:

- complete a STEM project from start to finish
- fit it into your school year
- compete at Western Manitoba Science Fair
- leverage your results into other academic opportunities



Welcome to Your STEM Journey

Have you ever wondered how things work, or thought of a way to solve a problem in your community, at school, or even in your own life? That's what STEM projects are all about. Exploring your curiosity, asking questions, testing ideas, and sharing what you discover.

Each spring, students from across Western Manitoba gather to share their projects at the Western Manitoba Science Fair (WMSF). This regional fair is more than just a competition; it's a chance to meet other curious thinkers, practice your creativity, and build real-world skills.

Bonus! The top 4 WMSF projects in grades 7-12 are invited to represent our region at the Canada-Wide Science Fair (CWSF). It's an incredible opportunity to travel, make friends, and showcase your ideas on a national stage. At CWSF, students compete for over \$1 million in scholarships and awards. Even if you don't move on to CWSF, entering WMSF is a win: you'll gain confidence, make connections, and get valuable feedback from judges to make your future projects even stronger.

Think Big! Your STEM project research can be used for more than just competing at WMSF:

- It is great for university admission essays and scholarship applications.
- If you are an AP or IB student it could potentially be used toward your coursework.
- Student Initiated Project credits may be available at your school for completing STEM projects as an extra. **It is important to ask your school about this before you start any work on your project.**
- Use it to apply for science research experiences such as the SHAD Canada summer program.

We recommend discussing these things with a teacher or school counsellor to make the most of your STEM project work.

The Big Picture: Your STEM Project in 6 Steps

- **Choose a Topic** - Pick something that interests you in science, technology, engineering, or math.
- **Ask a Question/Define a Problem** - What do you want to test, discover, or design? Should you work with a scientific mentor?
- **Plan & Research** - Learn what's already known, make a plan, and check safety/policy guidelines.
- **Experiment/Build/Test** - Collect data, run experiments, try out prototypes. Keep a logbook from the beginning!
- **Analyze & Conclude** - What do your results show? What did you learn? What would you do differently? How can your results be applied to real life?
- **Share Your Project** - Design your backboard, complete your project report, and present your work at the fair.

Resources

This document is a companion to the WMSF Guide. All project resources, including the WMSF Guide and WMSF Entry form, can be found at www.wmsf.com/resources. For additional help please [contact us](#).

Your STEM Project Timeline

The following timeline is suggested for Student Initiated Projects self-entering WMSF (no science fair at your school). If your school has a science fair you must compete in that fair for your chance to enter WMSF, and your timeline may differ slightly based on your teacher's guidance.

September/October - Get Inspired

- Explore what interests you (science, technology, engineering, math).
- Brainstorm problems you would like to solve or questions you would like to answer.
- Chat with teachers, friends, or family for ideas.
- Decide if you will be working with a mentor. [Info about mentorship](#).
- Pick your project topic by the end of October.

How to pick a Project

A strong project doesn't just answer a random question. It shows curiosity, critical thinking, and creativity. Here are a few ways to find a high-impact idea:

- Look for a real-world problem.
- Connect with your school work.
- Innovate or improve something.
- Think big-picture STEM.
- Make it measurable.
- Choose something you are passionate about.

Think about potential applications of your work in real-world situations or how it might connect to various fields, or existing or emerging technologies. What judges value: originality, relevance, understanding, passion.

Feeling stuck or need some help with your idea? [Try out Spark](#), a STEM project idea generator! Other project idea resources available [HERE](#).

Your project will fall under one of two categories:

Discovery - these projects ask a question and involve research and/or experiments to find an answer.

Innovation - these projects create, design, or build something new to solve a problem.

November/December - Plan & Research

- Read articles, watch videos, or look up past projects.
- Keep a logbook from the beginning. Judges want to know your process and will ask to see your logbook. Check out these [logbook tips](#).
- Write down your main question or problem.
- Create a simple plan for your experiment or build.
- Read through the entire [WMSF Guide](#).
- If your project involves humans (ex. surveys) or animals, determine which forms/approvals you need BEFORE your begin. Use our wizard [HERE](#) to figure this out.
- Make your Hypothesis and keep the scientific method in mind as you proceed with your project.

January/February - Experiment, Build, Test

- Run your experiment, collect data, or build your prototype. Do multiple trials if you can.
- If you are doing an experiment, don't forget your independent, dependent, and controlled variables.
- Be sure to update your logbook (daily notes, sketches, charts, photos).
- Start analyzing your results as you go; don't wait until the end.

March – Put it all Together

- Finish collecting and analyzing your results.
- Complete and submit your [WMSF entry form](#) and any applicable ethics forms by the deadline.
- Submit your project report online by the deadline. Instructions are in the WMSF Guide.
- Start designing your backboard display. Here are some [design tips](#) and a [free template](#) you can use. You can change the colors to suit your project.
- Practice presenting your project in clear, simple terms, in 5 minutes or less. Have a family member or friend ask questions.

April – Showtime!

- Finalize your backboard.
- Finalize your presentation. Keep it conversational rather than reciting a script. Be ready for common questions (why, challenges, surprises, improvements).
- Double-check that your display follows WMSF size & safety rules.
- Fair Day: Present your project at the Western Manitoba Science Fair!
- Celebrate your hard work no matter what; you've accomplished something amazing!

Tips for Success

- Show your passion: pick a topic that excites you, the judges will notice. Be sure to consider the potential applications of your work in relation to the real world.
- Manage your time: start early, break into small tasks, set mini-deadlines.
- Run multiple trials of your experiment if you can. More data is always better. Don't forget your variables.
- Keep a logbook: document daily notes, mistakes, sketches, and charts.
- Avoid common mistakes: don't copy existing work; follow academic integrity rules and citing rules.
- Practice your presentation: Be clear, confident, and keep it to 5 minutes or less.
- Don't bring pieces of your experiment or project to the fair. Instead, take pictures to show the judges. Less 'stuff' at your project display is preferred.
- Don't forget to have fun! Science fair is all about the experience and not about winning. Medals or awards are a bonus, but your satisfaction with your work is most important.

What Judges Are Looking For

- Scientific Thought & Understanding - clear question/problem, well-planned, results analyzed, science understood, AI properly fact checked and cited, sources properly cited.
- Originality & Creativity - new idea, creative approach.
- Communication - backboard, project report, oral presentation, logbook.
- Mentorship - student did their own work and understands it fully.

Judges will ask questions to see how far your knowledge on your project goes. Be ready to have a conversation about your project and discuss your work.

Awards

In addition to gold, silver, and bronze medals, here is a list of the special awards up for grabs at the Western Manitoba Science Fair. These may change from year to year as different awards come on board. On the next page you can check out the Canada Wide Science Fair awards and opportunities from 2025.

Farm to School - Manitoba Association of Home Economists Awards

Awarded to the best projects related to food and nutrition. Grades 1-4, 5-6, 7-8. \$50 each.

Energy & You Awards (Manitoba Hydro)

Best project related to energy for Grades 1-4, 5-8, 9-12. \$50 each.

Brandon Fire & Emergency Services Award

Awarded to the best project related to fire prevention. \$50.

Medical Laboratory Technology Awards

Awards are presented to the projects demonstrating an interest in the field of medical laboratory science. Grades 5-6, 7-8, 9-10 and 11-12. \$50 each.

Brandon Emergency Support Team - Emergency Preparedness Award

Award is given to the best projects showing an idea or concept relating to emergency preparedness or disaster prevention. This relates to large scale events impacting a significant geographical area and/or large numbers of people in an area. All hazards that can affect people and property may be considered. Three \$100 awards, grades 1-4, 5-8, and 9-12.

Science of Health Care Award

Awarded to the best project which demonstrates the role of science innovation in health care and pharmacy. One \$50 award for grades 1-6 and one \$50 award for grades 7-12.

Brandon Chamber of Commerce Award

An award given to the best project demonstrating entrepreneurial concept. \$100.

Climate Change Action Award

Awards will be presented to the best projects demonstrating "environmental awareness" based on the big moves from the City's climate change action plan; alternative transportation, renewable energy, waste diversion, and conserve and protect nature. Four \$50 awards.

Prairie Electric Award

Awarded to the best project on solar energy, or an electrical related project. \$100 cash award.

Russ Edwards School of Ag & Environment Environmental Care Award

Two awards for projects supporting environmental care and the sustainability of the land, water, and air on which we all depend. Two \$100 awards.

Assiniboine College Innovation Award

Given to the two best projects involving communications engineering technology. The projects must be innovative and of significant scientific or technological value, according to the age of entrant. Two \$100 awards.

Don Sumner Memorial Award

Awarded to a student who has demonstrated exemplary mathematical skills in their scientific research by recording and analyzing data in a quantitative method. Cash award of \$100. Grades 5-8.

Brodie Davis Alumni Award

Awarded to the project best demonstrating an understanding of the water cycle, it's integral role in the health of watersheds and how best to improve and maintain it. \$300 cash award, Grades 7-12.

Land and Water Conservation Award

Awarded to the best projects relating to the development or application of practices aiming to protect water quality and/or land conservation in agricultural watersheds. Two \$200 awards, grades 5-8 and grades 9-12.

Healthy Lake Award

Awarded to the project that best demonstrates the enhancement or acceleration of a natural process or processes to aid in environmental repair/recovery or augmentation of a watershed. Two \$100 awards, Grades 1-6 and 7-12.

Andrews Foot Clinic Award

Project that best relates to human physical mobility. Two \$75 awards, grades 1-6 and 7-12.

Charlee McLaughlin Bender Alumni Award

To be awarded to a deserving student or students from grade 7-12 whose project best relates to developing a new innovation, sustainability method, management practice and/or an environmental protection project within the agricultural and rural development field. \$100 cash award.

Engineers Geoscientists Manitoba Award

This award is presented by the Engineers Geoscientists Manitoba to the best project in grades 7-12, related to the fields of either engineering or geoscience. The winner will receive a cash award of \$100.

Flatland Drugs Award

Awarded to the two best projects in the field of entomology (the study of insects). Two cash awards of \$50 each.

Behavioral Science Award

Awarded to the best project(s) in the area of Human Behavioral Science; including but not limited to the effects of social, cultural, and psychological factors on human behavior, physical and mental health, preferences, beliefs, etc. \$50 each for levels 1-4, 5-8, and 9-12.

Brandon University Award

This award is given to the best overall individual project in grades 10 - 12. Cash award of \$200, plus a tuition credit for one term of Undergraduate level courses at Brandon University (excluding student fees).

Best of Fair - Trip to Canada Wide Science Fair

Exceptional project in grade 7-12 receives an all-expenses paid entry to the Canada Wide Science Fair. Runners up will be selected as well, and will receive all expenses paid trip to CWSF in Edmonton, AB, May 23 - 30, 2026.