

Science Fair

How to Get Started Learner Resource



So you want to enter your school's science fair? Or perhaps the whole class is required to complete individual science fair projects? Creating your own science fair project can be a lot of fun and rewarding! By the end of it, you might even find the inner scientist in you. Here is how you can get started.

Choose a Project Idea

Science fairs will tend to cover but are not always limited to these science topics: Life Science, Earth Science, or Physical Science. No matter what type of science project you choose to present, make sure that it is interesting to learn about and that it's a fun experience for both the people viewing it and yourself!

Life Science is about everything related to living organisms, from plants and animals to humans and human health. This type of project is likely popular due to the number of learners who are interested in life and health, or who have the desire to help find a cure for a disease that has affected them or one of their family members. Projects usually range from the more basic questions about plants and sunlight to the more complex problems in our society. Some learners may even try to find the secrets to improved memory or a cure for a disease such as cancer.

Earth and Environmental Science is about exactly what it claims to study, earth and our environment. Learners may be drawn towards this type of project because they feel the need to do something about the amount of pollution and global warming that our

planet is suffering from. Projects could range from an invention to improve energy efficiency, a way to reduce greenhouse gas emissions, or a new way to reduce waste. Learners could also focus on the way Earth is affected by things such as acid rain, weather in general, or even how Earth interacts with other planets in our solar system.

Physical Science tends to be both more advanced and more general at the same time. Rather than focusing on finding a cure for a disease, such as with a life science project, the aim of a physical science project may be to simply figure out the temperature that a specific substance can freeze or boil. This is also the type of project that educators may be more likely to assign to a class.

Engineering Science/Physics focuses on the areas of applied physics, which includes a wide variety of topics. It includes, but is not limited to, optics, nanotechnology, mechanical and electrical engineering, and energy. This type of project combines both problem-solving skills and engineering skills in order to create something to solve a specific problem. Projects are usually more focused. Learners may want to explore new ways to save or collect energy, or even new ways to alter, build on to, and reuse old technology to eliminate waste.

Behavioural and Social Sciences is the investigation and analysis of the behaviour of both humans and animals using either controlled or naturalistic

observations. The data that is collected is used to study the decision processes and communication strategies within and between the test subjects in a social system. Learners who have a strong interest in psychology, and how humans interact should consider a science fair project based on this topic.

Math and Computer Sciences is, as it implies, the study of computers and their applications. While computers can be used for graphics and game designs, learners may be interested in exploring their uses further, exploring projects that involve interactions between humans and computers, or finding a way to make computers useful and accessible to everybody.

For more project ideas, please visit the Science Buddies website found here:

<https://www.sciencebuddies.org/science-fair-projects/science-projects>

Choose a Project Type

Now that you are more familiar with the different categories of science fair topics, it's time to decide how you want to go about designing your science fair project. There are two main ways you can create your science fair project, investigation and invention. By keeping in mind which type of project you are designing, it will be easier to follow through with your goals and make researching and organizing data go more smoothly.

Investigation

An investigation project is where the learner formulates a question and solves it through research and experiments. Learners who are curious about how or why something occurs in the world may want to investigate something specific. In an investigation project, learners will be likely to consider these questions: "What happened?", "What changed?" and, "What stayed the same?". Several tests will be designed to help analyze these questions and prove or challenge the learner's hypothesis.

Another way to investigate a question or topic is to collect and analyze data through natural and

controlled methods of observation. By closely studying the situation or patterns revolving around the object of interest, learners can reveal proof or evidence that may contribute to their discovery. Learners can either observe the connections between cause and effect or undergo theoretical research of scientific data.

Invention/Innovation

Learners who are creative and prefer a hands-on type of project may find the invention method more exciting to approach. Inventions require a learner to think beyond what they know and design an innovative solution to a specific problem. Perhaps you already have something in mind that you've always thought may make your life easier. This is the time to do so! Ask yourself these questions: "What is the problem?", "Why is this a problem?" and "How can I fix it?". Brainstorm some solutions, and then start developing your invention. After the invention is built, test it and evaluate how useful your invention is. Some ideas may include improving existing or developing new devices, models, techniques or approaches in technology, engineering, or computers.

Next Steps

Once you hold a school-level science fair, some of you will likely go on to compete at the regional, and hopefully national levels. You should find out when your regional fair takes place to allow for enough time between your fair and the regional fair. This can give you time to make improvements to your projects. Most regional science fairs tend to be in April, although this is not always the case. To clarify when the regional fair takes place in your region, please visit: <https://youthscience.ca/science-fairs/regional-fairs/>. The best projects from the regional science fairs get to compete in the national Canada Wide Science Fair in May! Check below to learn more about potential prize money and sponsors!

Sponsors & Awards

Many organizations sponsor the Canada Wide Science Fair (CWSF) found here, <https://youthscience.ca/science-fairs/cwsf/> and they give out specific awards to the science fair projects they feel represent the award to the fullest. These awards can vary based upon individual organizations values, and the specific criteria to their awards. For example, there are awards that deal with renewable energy, while others focus on an excellence in astronomy. So, regardless of your project category there usually is an award that can be associated to it! More specifically, Intact Financial Corporation sponsors the “Intact Climate Change Resilience Award”, which recognizes learners who present a real-world solution that helps Canadians predict, prevent, manage or minimize the impacts of severe weather. These prize amounts can vary, but Intact’s award sponsors \$1,000, \$750, \$500 for senior, intermediate, and junior learners respectfully!

GreenLearning Challenges

Similar to these awards that are sponsored at the science fairs, GreenLearning has their own Challenges where your entire class could win upwards of \$1,000 from the help of our sponsors! Once your class has used our free resources then your educator can decide if they want the class to submit a Challenge! Each of our six challenges are unique, and allow for innovation and creativity to prosper all while relating to climate change, energy, and green economy! Please visit the link provide to find out more about the rules and regulations of each challenge: <https://greenlearning.ca/challenges>.