



How to Host a Science Fair

Getting Started

So, you want to start up a school wide science fair. Maybe you want to narrow down the amount of students who are competing in your regional science fair, or maybe the regional science fair is just not something that your school tends to participate in. Either way, you want to hold a science fair for your own school. The steps in this guide should help you begin this journey. However, before you get too far, you will want to get the science fair approved by the principal. You will also want to secure a location, such as the school gymnasium or cafeteria, and a date on which the science fair will be held. Once that is complete, don't forget to pitch the idea to the science department at your school. Regardless of their involvement with helping to prepare for the science fair, they are the best people to introduce the science fair to the students. After all, what better place to find students who are interested in science than a science classroom?

Grade Categories

When setting up a school level science fair, it is important to think of the categories in which students will be judged. It would be unfair to judge a Grade 1 student to the standards of a Grade 8 student. As such, the students need to be divided into categories based on age/grade level. If there is a regional science fair in your area, you should check the age divisions for that science fair and use the same categories for your own school wide science fair if the end goal is for students to continue on to the regional. In the higher grade levels, Grade 7 to Grade 12, the students may have the opportunity to advance all the way to the Canada Wide Science Fair. In this case, you may consider looking to use the same age categories as are used at the national level. That being said, below are some suggested age division categories based on both a combination of regional examples and the Canada Wide Science Fair model. Students can work either alone or in pairs to complete their science fair projects.

Grade Categories:

Kindergarten

Grade 1 - Grade 2

Grade 3 - Grade 4

Grade 5 - Grade 6

Grade 7 - Grade 8

Grade 9 - Grade 10

Grade 11 - Grade 12

Remember that these are only suggested grade categories, and that you have the freedom to divide the students based on what would work best for your own school dynamic.

Introducing the Science Fair

Some regions announce their science fair dates a year in advance, giving students plenty of time to think of an idea for their science fair project and complete it. However, this is not necessary for your school science fair. In fact, unless it is going to be an annual thing, it would give the attending students an unfair advantage over the new students entering the school if they knew the date so far in advanced. So, rather than setting things in motion for the next 10 years before you even begin, speak to the science teachers at your school and decide when a good time is to introduce the science fair. If it is not to be graded, as not all are, then any teachers who may be concerned about the extra responsibility should be more on board with the idea. All that would be required of them is to mention it to the class and provide the general information. This should be done anywhere from the beginning of the year/semester up to one month before the science fair. The students will need at least one month to work on their projects if they are going to be done well. However, because this science fair will be at the school level, there is the possibility of turning it into an assignment. Be prepared for lots of entries, as this would mean that every student would have to enter, but it is a possibility if all of the science teachers agree to it.

When introducing the science fair to the students, whether it be a month or more prior to the date, it is important to inform them of that types of projects they are able to enter into the science fair. There are three kinds of experiments that can qualify:

An Experiment: An experiment is when a student comes up with a hypotheses, and then continues to design and conduct an experiment in order to test that hypothesis.

A Study: A study is when a student asks a very specific question which they intend to answer. This answer is the result of the collection and analyses of data that the student gathers.

An Innovation/Invention: an innovation or invention is where a student once again asks a specific question which they intend to answer. However, this differs from a study in that the student develops and evaluates a device, model, technique, or approach in technology, engineering or computers in order to answer their question.

Without understand each of these different project types, the student will be unable to be successful in understanding what is expected of them, and therefore is unlikely to succeed in their project. However, knowing the difference between the types of projects they are able to complete will help to direct them towards success.

Safety

When it comes to safety, the rules may vary based on grade level. The general rules should include no open flames, no dangerous chemicals, and no living organisms. Projects that require any of these can still be approved if it is age appropriate for the student, but photo documentation should be presented at the science fair instead of the actual materials and equipment. For younger grades, you may want to include rules such as not using knives without the help of a parent or teacher. You can talk to the teachers and learn what classroom rules are in place to find out if there are any other age appropriate rules such as these that they would recommend for their specific group of students.

Agenda

You can't have everybody (parents, teachers, parents, other invited guests) showing up on the big day just to witness complete chaos. You need to have an agenda already organized so that everybody knows what is going to happen and when it needs to happen. The following agenda is only a suggestion, and may need to be modified depending on your school's daily schedule.

8:30am - 9:30am	Students arrive and set up their projects.
9:30am - 12:30pm	Judging will take place. Parents and other visitors can walk around at this time and view any projects while they are not being judged.
12:30pm - 1:30pm	This is when students will get to take a break for lunch. You may want to have some science related activities available to keep the students busy, especially if they are younger. This is also the time when the judges will get together and decide which awards go to what projects.

1:30pm - 2:30pm Now it is award ceremony time. The students will finally be awarded for all of the hard work that they have done. Depending on if you have any sponsors, the prizes will be given out at the same time as the awards.

2:30pm It's been a long, busy day. Now it is time to thank any of the volunteers who may have come out to help with the event, and get the students to take down their projects and head home, hopefully already excited about and planning for a possible science fair again next year.

Judging Criteria

The judging criteria is very important, as it is how the projects that the students have worked so hard on will be judged. It determines who has the best assignment, and who will win the prize. You will want to make your criteria very clear, not only so students and parents know what to expect, but also so every judge is looking for the same things. Your judges may be teachers at your school, parents who volunteered, or perhaps a friend of somebody you know who happens to be an actual scientist or a university professor! Either way, it is important that every project is graded fairly, and having clear judging criteria is the only way to make sure that happens. The below criteria is based on the grade categories listed above. You should modify them if you modified the categories, or to better suit the students at your school.

Kindergarten, Grade 1 - Grade 2:

At these grades, students will simply have to ask a specific question and find the answer to that question. They will also create a display board and, if they wish, do a demonstration. They should be judged on: appropriateness of topic, data collection and interpretation, and the clarity of their presentation.

Grade 3 - Grade 4, Grade 5 - Grade 6:

By now, students should be able to understand the basics of the scientific method. Students should be able to do research and experiment for their project. A logbook is important for this group, as they need to get used to the idea of recording everything that takes place. While they should not be required to write a report, it is important that they include the problem, the experimental methods that they used, a presentation of the data, their results, a summary, acknowledgments of any help given (parents buying supplies), and a bibliography somewhere in their assignment.

They should be judged on: appropriateness of topic/question, proper use of the logbook, the amount of effort that the student appears to have put into the data collection and interpretation, and the clarity and organization of their presentation.

Grade 7 - Grade 8, Grade 9 - Grade 10, Grade 11 - Grade 12:

At this point, students should not only have an understand of the scientific knowledge, but they are now eligible to compete in the Canada Wide Science Fair. That means that it is your job to make sure they are properly prepared when they get there. A part of this is using the same or similar judging criteria as the Canada Wide Science Fair itself. I will provide a summary of what to judge these grades on below, but it is important to note that you can access the Canada Wide Science Fair judging criteria at <http://cwsf.youthscience.ca/judging-criteria>, and a rubric for students to refer to at <http://cwsf.youthscience.ca/excellence-awards-judging-rubric>. The more the students know about what to expect on the big day, the better off they are.

At this level, the students should be judged based on 3 categories, Scientific Thought and Understanding, Originality and Creativity, and Communication. There are very specific requirements for each category, and the categories are weighted differently.

The first category, scientific thought and understanding, is weighted at 50%, making it the most important category. Some of the things to look for when judging this category are: the clarity of the hypothesis or project design, the effectiveness of either the experimental procedure or the innovative design or study (depending on project type), the clarity of the results, the clarity of the discussion, a consideration for extending the project further, knowledge of the scientific principles involved, and how the learning that took place.

The second category, originality and creativity, is weighted at 33%, making it the second most important category. For this category, judges should be looking for: an original problem or approach, a creative experiment design, innovation, good use of materials and equipment, creative thinking in the application and interpretation of data, and a project beyond what a student of the grade level would learn in the classroom.

The last category, but certainly not the least, is communication, and it is weighted at 17%. This category is divided into 4 subcategories: the visual display, the oral presentation, the project report, and the project log. Judges should be look for a visual display that: tells the story if the project in a logical way, making use of headings, bullet points, graphs, texts, and visibility from a distance. For the oral presentation, judges should be looking for: logic and enthusiasm, a good introduction, and the ability to answer questions clearly. In the project report, judges should be looking for: following the rules (5 pages double spaced and 2 pages for references), the clarity of

the report, and proper grammar and spelling. Finally, for the project log, judges should look for: proper documentation of the project.

Once all of the judges have the criteria for their sections, every student should be graded fairly.

Next Steps

Once you hold a school level science fair, the top students 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 for students to make improvements to their 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 our link, "Taking the Next Steps" (provide link) and find the website for your regional science fair. The best projects from the regional science fairs get to compete in the national Canada Wide Science Fair in May. Don't forget to register your students!

Sources:

Northwest Science & Innovation Society

<http://www.nsis.ca/getting-started>

<http://www.nsis.ca/judging-criteria>

Canada Wide Science Fair

<http://cwsf.youthscience.ca/judging-criteria>

<http://cwsf.youthscience.ca/excellence-awards-judging-rubric>