**Science Fair Projects**

Every student in the RTA Science Program is expected to complete a project to share in our Celebration of Learning or Science Fair. In an effort to encourage students to contribute to original research, we would like all projects to be experimental or innovation.

1. Experimental projects: These projects involve testing a hypothesis under controlled conditions using the scientific method. As the researcher, you control several variables, manipulate one variable in a controlled way, and then measure, record and analyze the responding variable, to reach your conclusion.
2. Innovation projects: These projects focus on the development and evaluation of innovative devices, models or techniques in technology, engineering or computers. As the researcher, you should demonstrate an understanding of the properties of the materials/methods used, the reasons for choosing them, and the effectiveness of your design. You should test your innovation and modify it if you discover shortcomings during testing.

Visit the website for the Calgary Youth Science Fair: [www.cysf.org](http://www.cysf.org). This website has a lot of information that will help you choose a project, stay organized and follow the rules.

All of your work MUST BE RECORDED IN A LOG BOOK ( a notebook, binder or digital) This includes dates, research ideas, plans and results.

Some class time will be provided for this project, but there is an expectation of significant at-home work for those who want their project considered for the Calgary Youth Science Fair. (See Planning Calendar )

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| Some students will be selected from our RTA Science Fair on Feb. 2, 2018 to represent our school at the Calgary Youth Science Fair on April 11, 13 and 14, 2018 at the University of Calgary’s Olympic Oval. |

***TIMELINE***

|  |  |  |  |
| --- | --- | --- | --- |
| Brainstorm | * Start a log book!
* Review various resources (books, magazines and websites) to get ideas for your science fair project. Write your initial ideas in your log book. Choose a topic that interests you!
 | Due:Oct. 30 | Completed |
| Write a proposal | * Your proposal must be approved by your science teacher then signed by a parent or guardian!
* Includes: Topic(s), Title\*, Question, Hypothesis, Research Plan and Sources of Information.

 \*Title may be chosen later | Due:Nov. 3 |  |
| Complete Background Research | * Typed as a written report (guidelines shared in class and on D2L)
 | Due Nov. 23 |  |
| Make a plan | * Write Procedure/Plan for your experiment/ innnovation
 | Due:Nov. 27 |  |
| Get started! | * Start when your teacher has approved your procedure/plan.
* Perform your experiments/create your innovation.
* Perform multiple trials/make revisions to your design.
* Make a conclusion.
 |  |  |
| Prepare a tri-fold | * Create an appealing and informative display for your project.
 | Week ofJanuary 15 |  |
| Practice your presentation | * Practice presenting your data.
* Practice answering questions.
 | Week ofJanuary 22 |  |
| Present your work | * Present your project at the school science fair.
 | First week of February |  |

***Important Science Fair Information*:**

1. You may work alone or with a partner. (partners must be approved by teacher and both parents)
2. Each group will be responsible for making a project log book where all information is recorded as well as a project display (Trifold for Science Fair).
3. Much of the science fair work will be done at home with certain in-class work periods throughout the timeline. It is your responsibility to stay on track to ensure your project is complete by the due date.
4. You should use various sources (internet, books, magazines, etc.) for background research and information. Make sure to record all resources used and ensure that all information is IN YOUR OWN WORDS.
5. When performing your experiment, complete AT LEAST three trials to ensure your results are accurate. Be sure to discuss any sources of error or problems that occurred which may have affected your results.
6. Take pictures (if possible) when you are completing your experiment. They will be useful when creating your experiment tri-fold.
7. We will discuss how to set-up the display board and how to present your project during the work periods.

**How to provide the reference for a web page**

Write the following:

* State what the reference is for (a picture, information, etc.)
* The author’s name (if you know it).
* The title of the article (if there is one).
* The web address
* The date you went to the site.

Example:

Research information:

Dowdy, B. The endangered cougar. [www.cougar.edu/justanexample](http://www.cougar.vut.edu/dailynews) May 12, 2014

Pictures:

1. The Canadian Cougar. [www.cougarinfo.gov/notarealsite](http://www.bearinfo.gov/notarealsite) September 30, 2014
2. [www.cougarpics.org/anotherexample](http://www.bearinfo.gov/notarealsite) September 25, 2014

**Science Fair Proposal**

Student name(s): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Experiment or Innovation: (Check the CYSF website)

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Topic(s): \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

**Project Title** (be creative) – (Can be added later)

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**Project Question** (What problem are you going to solve?):

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**Hypothesis** based on your project question (If...then...because...):

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**Variables** (for experimental project only):

Manipulated variable:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Responding variable:\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

 Three (or more) controlled variables: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Required materials:** \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

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**Safety/ Ethics considerations**: \*reviewed in class

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Background Information:

* Attached to this proposal (or written in your log book).
* Two paragraphs in your own words.
* References attached to this proposal.
* May include books, magazines and/or websites.

Things to consider:

|  |  |
| --- | --- |
| Can you find at least three sources of information on the subject? | Yes/No |
| Is your experiment safe to perform (for yourself and others)? | Yes/No |
| Will you be able to get all the materials/equipment you need ? | Yes/No  |
| Do you have enough time to do your experiment more than once? | Yes/No |
| Did you contact an expert in the field? | Yes/No |

I have discussed the project idea and the checklist with my parent/guardian and I am willing to commit to following through on this project.

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Student Signature Date

I have discussed the project idea and the checklist with my child and I believe s/he can follow through with this project. I will support them, as needed, in the completion of this project. I understand that while parents can support their child in completing the project, the student is expected to do the work themselves and learn from their mistakes as part of the scientific process.

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Parent Signature Date