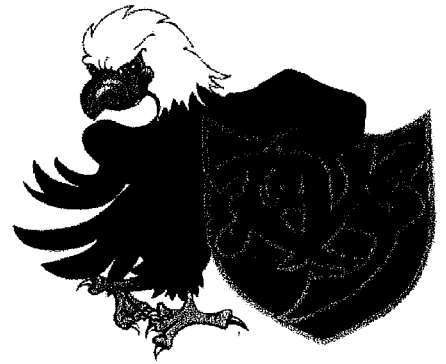

Science Fair 2018

River Valley School - a safe and happy place to learn



Science Fair Information Package

Dear Students and Parents,

Possible Project Ideas for the Science Fair: Ms Hindbo has lists of topic suggestions and there are many great ideas in books from our RVS library and the Sundre Public Library as well as on www.sciencebuddies.org. Make sure that your project is something that you are interested in and want to find out more about. Your project title should be in the form of a question related to the hypothesis or something short and catchy. If you do a report, don't just say "Polar Bears". Instead, you should be investigating a question, i.e. "What Do Polar Bears Eat?".

Safety Regulations: Please make sure your project display follows the safety regulations:

- No live animals on display.
- Any dangerous or hazardous substances must be simulated. For example, water for clear coloured acids.
- No flames or exposed electrical parts on display.

To assess the hazards of your exhibit ask yourself the following question, "Could any viewer, small child included, eat, drink, touch or spill something that may cause harm?" If you answer yes, please modify your display. See Ms Hindbo for clarification of the rules.

Logbook Information: Information about logbooks is included. Ms Hindbo has additional information if needed. All students **MUST** have a logbook. It does not need to be anything fancy; a notebook from the dollar store is fine. Students in Grades 5 to 8 **MUST** have a project summary as well as a Logbook.

Judging Forms: A copy of the forms that judges will use when discussing your project with you is included.

Entry Form: The green entry form is separate from this package. It is available from the office or from Ms Hindbo. It must be filled out and returned, on time. If you hand in an entry form and then decide not to participate, please let Ms Hindbo know right away.

Thanks for getting involved. Good luck!

Ms Hindbo

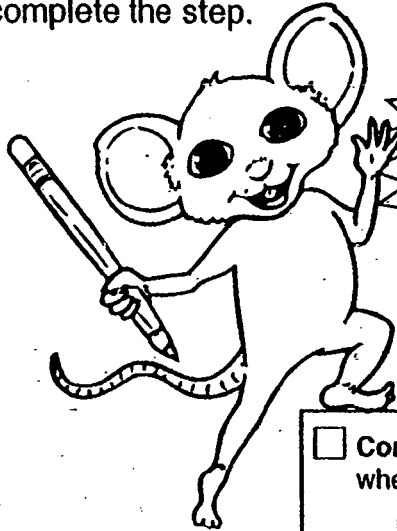
Name _____

Science Fair
Checklist

Step by Step

Start at the bottom.

Check the box after you complete the step.



Science Fair!
Date: _____

Display: Make a display to share your work.
Due: _____

Conclusion: Answer your question. Tell whether your hypothesis was correct.
Due: _____

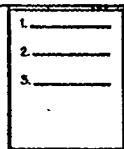
Results: To tell what happened, write a report or make a chart or graph.
Due: _____



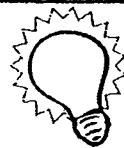
Experiment: Do the experiment. Repeat it at least 3 times.
Due: _____



Procedure: List the steps for your experiment.
Due: _____



Hypothesis: Predict your results.
Due: _____

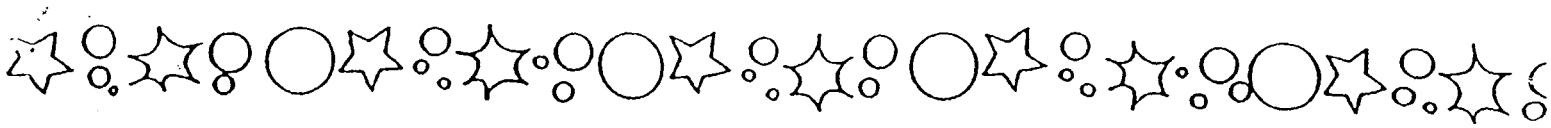


Research: Gather information about your topic, from at least 3 sources.
Due: _____



Question: Decide what you want to find out.
Due: _____





Steps in a Science Project

What Goes In Your LOGBOOK

Start a logbook.

Make an entry in your logbook every time you work on your project. Date each entry. Cross out, don't erase. Number the pages, and keep all pages in the book.

Select a topic.

Pick something you're interested in. Record a list of possible topics in your logbook.

Research the topic.

Find as much information as you can about the topic. Keep your research notes, webs and diagrams in your logbook. Start a bibliography.

Develop a question/purpose.

Narrow your focus. What specific question will your project answer?

Research.

Continue the research on your specific topic. Keep notes, webs and diagrams in your logbook.

Identify variables.

List all of the things that could affect the answer to your question. Some of these could be light, heat, noise, time of day, time of year, amount of sleep, type of food, materials, mass, etc.

Decide which variable you will test.

Which variable will you change?
Which variable will you measure?
Which variables will you control?
Which variables will you ignore?

Develop a hypothesis/
"If... then..."

Design a test for your hypothesis (Procedure).

Describe how you will change your chosen variable.
Describe how you will control the other variables.
Explain which variables you have chosen to ignore.
Describe how you will measure the results.

Do the test/
Record the Observations.

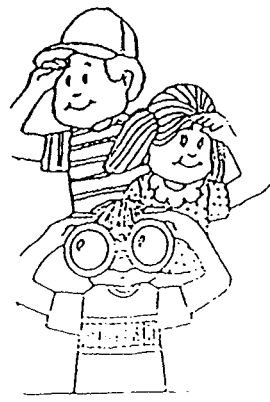
Use charts, lists, graphs and notes to record your observations in your logbook.

Look back: refine the test/
Procedure.

Look back at your results. Do they make sense?
Have you controlled all the important variables?
How could your test procedure be improved?
Describe your revised test procedure (in your logbook).

Do the test/
Record the Observations.

Record your test as many times as possible.
Record your observations in your logbook.
Revise the test, if necessary.



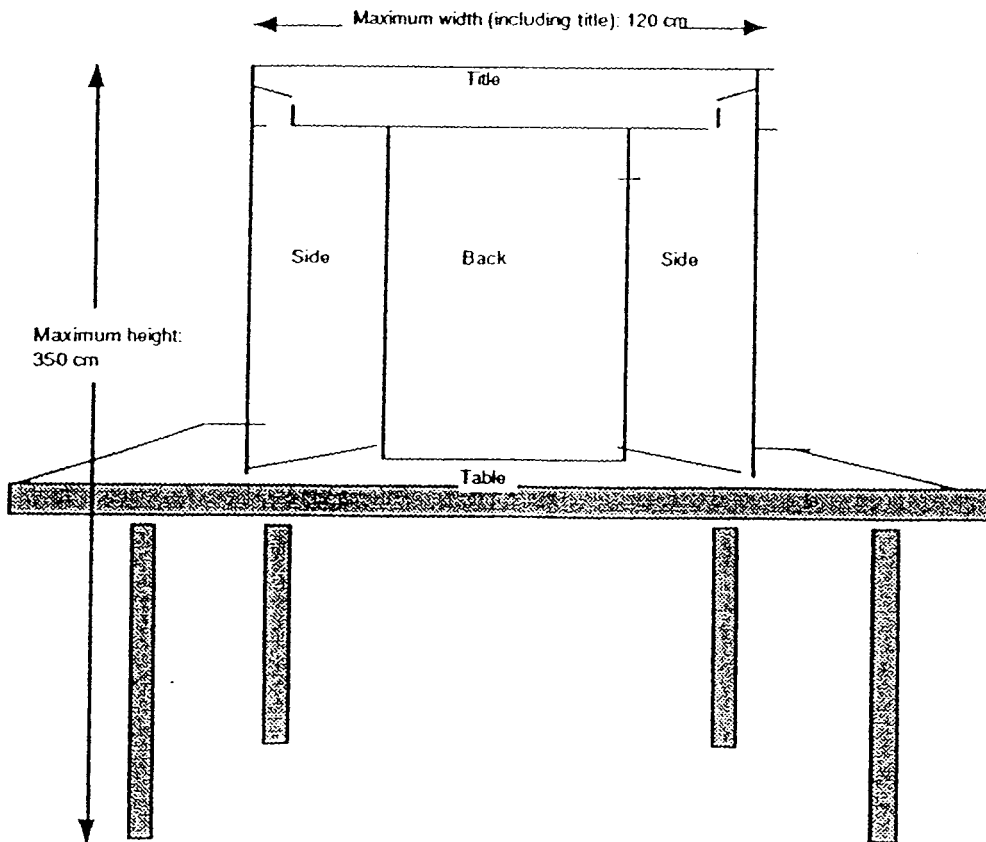
Science Fair

River Valley School - a safe and happy place to learn

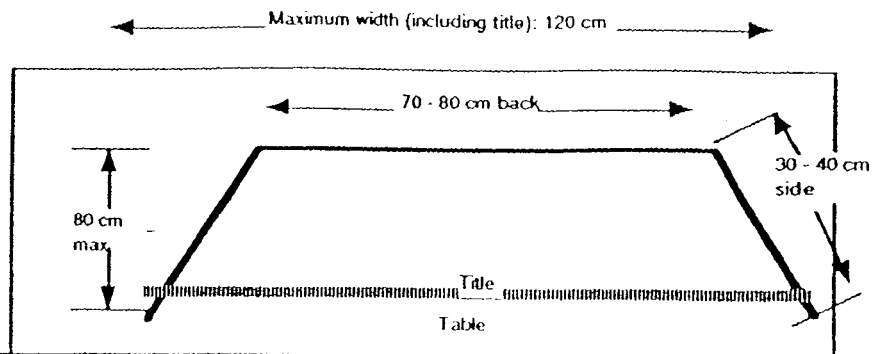


Suggested plan for backdrop

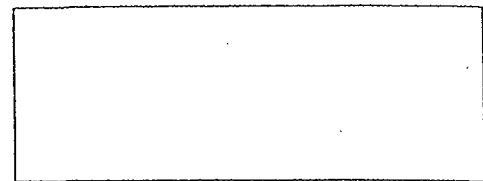
Front view:



Top view:



RVS Science Fair Judging Form K-4



Label

Oral Presentation – The students:

16-20 Excellent	11-15 Very Good	6-10 Developing	0-5 Beginning
<ul style="list-style-type: none"> Introduce themselves and clearly explain their project Demonstrate clear understanding of the topic Answer all questions clearly and correctly Use scientific vocabulary Speak clearly and make eye contact at all times 	<ul style="list-style-type: none"> Demonstrate very good understanding of the topic Answer most questions clearly and correctly Speak clearly with some eye contact Use some scientific vocabulary 	<ul style="list-style-type: none"> Demonstrate general understanding of the project or topic Answer some of the questions about the project Use everyday language to explain things 	<ul style="list-style-type: none"> Share information about their project Attempt to answer questions but have trouble remembering Attempt to communicate but are just too nervous or excited

20

Exhibit – The exhibit:

9-10 Excellent	6-8 Very Good	3-5 Developing	0-2 Beginning
<ul style="list-style-type: none"> Is well organized and neat Uses text, pictures/diagrams, charts/tables & materials Summarizes procedure Highlights major results Clearly states conclusion 	<ul style="list-style-type: none"> Is well organized or neat Uses some visual aids or materials Summarizes procedure States conclusion and/or results 	<ul style="list-style-type: none"> Indicates what the project is about Identifies some information about procedure or conclusion Is missing some key components 	<ul style="list-style-type: none"> Is still in the process of being created Uses text to share information Is difficult to read or understand

10

Log Book – The log book:

9-10 Excellent	6-8 Very Good	3-5 Developing	0-2 Beginning
<ul style="list-style-type: none"> Contains dates, sources, and the steps that were followed during the science project. Does not have to be neatly done. 	<ul style="list-style-type: none"> Contains some dates, sources and some steps that were followed during the project. 	<ul style="list-style-type: none"> Contains a little information about the sources and the data. 	<ul style="list-style-type: none"> Is at the very beginning stages of recording information.

10

Creativity – The students:

9-10 Excellent	6-8 Very Good	3-5 Developing	0-2 Beginning
<ul style="list-style-type: none"> Came up with the project topic or idea on their own through their own learning or curiosity 	<ul style="list-style-type: none"> Obtained the idea from the internet, a book, or some other resource 	<ul style="list-style-type: none"> Received a recommendation from a parent or teacher 	<ul style="list-style-type: none"> Are unable to remember where they got the idea for the project

10

Scientific Process – The project:

9-10 Excellent	6-8 Very Good	3-5 Developing	0-2 Beginning
<ul style="list-style-type: none"> Uses these 7 components: question, hypothesis, materials, procedures, observations, conclusions, and next steps 	<ul style="list-style-type: none"> Uses at least 5 of: question, hypothesis, materials, procedures, observations, conclusions, and next steps 	<ul style="list-style-type: none"> Gave the children the opportunity to learn something new about a topic 	<ul style="list-style-type: none"> Gave the children the opportunity to play with something they love

10

Judge's Overall Impression – The student(s):

9-10 Excellent	6-8 Very Good	3-5 Developing	0-2 Beginning
<ul style="list-style-type: none"> Did an amazing job! Exceeded the judge's expectations given their age 	<ul style="list-style-type: none"> Did a very good job! Met the judge's expectations given their age 	<ul style="list-style-type: none"> Were enthusiastic about their project! Had some great ideas 	<ul style="list-style-type: none"> Are just learning about science and how to share what they learn!

10

Total Score ⇨

70

RIVER VALLEY SCHOOL SCIENCE FAIR

JUDGING CRITERIA FOR GRADES 5 TO 8

copied from the Central Alberta Regional Science Fair

Science fair judges are asked to evaluate each student's understanding, planning, execution, and presentation for projects entered in the Science Fair. By listening to the student, asking questions, and examining the exhibit, logbook and project summary, judges attempt to determine how well the student understands his/her topic, the degree of "scientific thought" that went into the project and the skill and thoroughness of the student in carrying out the project and in presenting his/her results.

1. **Experiment** – an investigation undertaken to test a specific hypothesis using experiments. The investigator attempts to control variables significant to the results.
2. **Study** – a collection and analysis of data to reveal evidence and evaluation of a fact or a situation of scientific interest. It could include a study of cause and effect, relationships involving ecological, social, political, or economic considerations.
3. **Innovation** – a project involving the development and evaluation of innovative devices, models, or techniques or approaches in fields such as technology, engineering, or computers (hardware or software).

The current judging form is divided into six sections, plus a separate page for written comments to the student(s). The first four sections deal with specific parts of the project. Points within these sections are awarded on a five point scale, with 3 being the "Average" and 5 "Exemplary".

1. **Oral presentation**

By conducting an interview, judges attempt to evaluate how well the student understands his/her project. Students are expected to clearly and concisely introduce and explain what the project was designed to find out, how it was carried out, and what results and conclusions were obtained. The student should be able to give informed answers to judge's questions and to demonstrate how the project fits into the wider topics of science. Judges are asked to note the appropriate use of scientific vocabulary.

2. **Exhibit**

The exhibit is the student's primary means of presenting his/her findings to members of the public. As such, it should effectively communicate the purpose of the project, how the project was carried out, what the student found, and what conclusions or benefits resulted from the project. Design, organization, artistic merit, neatness, and adherence to the conventions of language are considered for their contribution to effective communication.

3. **Log book**

A project log book should provide a complete record of work done on the project – choosing of the topic, initial planning, background research, data collection, and the final formation of conclusion and planning the exhibit. Everything in the project – an appointment list of people interviewed, research notes, and data collected from an experiment should be recorded in the log. Good log books show evidence of being used

– the pages are dog-eared and contain cross-outs, smudges and notes in the margins and data entries. Good log books do not exist as “good copies”, they are “first draft” documents.

4. Project summary

The project summary is a clear, concise presentation of the project, a “polished” document. It tells what the student attempted to find out. It describes how the project was carried out, and reports the major results and conclusions. The summary may be supplemented by photographs, illustrations, charts or graphs.

5. Scientific thought

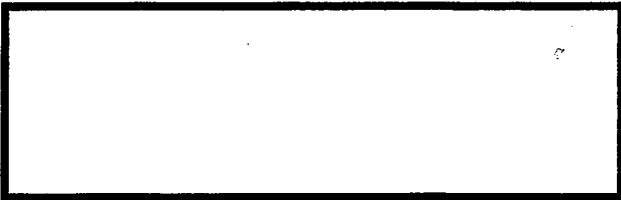
This major portion of the project is evaluated somewhat differently from the sections above. All parts of the project – the oral interview, the exhibit, the log book, and summary – enter into the evaluation of scientific thought. Each level within each of the six aspects of “scientific thought” is characterized by a brief statement intended to indicate criteria for work that can be expected for that level of scientific thought. A low score in the categories within this section is not necessarily an indication of poor work; rather it is a recognition of the maturity level of the student’s thinking. Younger students usually score lower in this section. Characteristics and their descriptors (listed on the accompanying judging forms) differ for experimental, study and innovation projects.

6. General

In this last section, the project and techniques are judged for the appropriateness to the age level of the student, and on the overall impression that the project and its presentation have left with the judge.



RVS Science Fair: Grade 5 - 8
Judging Form



1. Scientific Method (CHOOSE ONLY ONE CATEGORY – A, B, or C)

A. **Experimental Project** –an investigation undertaken to test a scientific hypothesis using experimentation, usually featuring the identification and control of variables

Hypothesis

- 1. Background research was integrated into the formation of the hypothesis.....0 1 2 3 4 5
- 2. The hypothesis related to the problem was clearly stated and provided direction for the project.....0 1 2 3 4 5

Method

- 3. Experimental design was clearly described and appropriate for solving the problem.....0 1 2 3 4
- 4. Manipulated and responding variables were identified and understood.....0 1 2 3 4
- 5. Variables that could be controlled and not controlled were recognized.....0 1 2 3 4
- 6. Repetitions of tests and /or appropriate sample size were used to achieve reliable results.....0 1 2 3 4
- 7. The progress of the project was recorded in a log book.....0 1 2 3 4

Analysis/Conclusions

- 8. Appropriate methods were used to present and analyze the data.....0 1 2 3 4 5
- 9. A connection was established between the hypothesis/objective and results.....0 1 2 3 4 5
- 10. The conclusions were supported by the data presented.....0 1 2 3 4 5

Total /45 _____

B. **Innovation Project** – the development and evaluation of innovative devices, models, or techniques in technology, engineering or computers

Problem

- 1. Existing knowledge and background research were integrated into the formation of the problem.....0 1 2 3 4 5
- 2. A problem was clearly identified and provided direction for the project.....0 1 2 3 4 5

Method

- 3. Suitability and limitations of the chosen materials/methods were understood.....0 1 2 3 4 5
- 4. The project design was efficient, effective and addressed the problem.....0 1 2 3 4 5
- 5. The project design was appropriately tested.....0 1 2 3 4 5
- 6. The progress of the project was recorded in a log book.....0 1 2 3 4 5

Analysis/Conclusions

- 7. A connection was established between the problem and results.....0 1 2 3 4 5
- 8. Testing was carried out to modify the project design and make adjustments as the project proceeded... 0 1 2 3 4 5
- 9. The student understood how well the problem was solved.....0 1 2 3 4 5

Total /45 _____

Scientific Method Cont'd (Choose only ONE category A, B or C)

C. Study Project – the collective and analysis of data to reveal evidence of a fact or situation of scientific interest, possibly including the study of cause and effect relationships or theoretical investigations of scientific data.

Problem

1. Background research was integrated into the formation of the problem.....0 1 2 3 4 5
2. The problem was clearly stated and provided direction and appropriate scope for the project.....0 1 2 3 4 5

Method

3. The information acquired showed depth and variety..... 0 1 2 3 4 5
4. The data gathered were reliable and appropriate (multiple independent sources were used)..... 0 1 2 3 4 5
5. The research data were comprehensive and well-organized.....0 1 2 3 4 5
6. The progress of the project was recorded in a log book..... 0 1 2 3 4 5

Analysis/Conclusions

7. Data were critically analyzed.....0 1 2 3 4 5
8. Conclusions were supported by the gathered data.....0 1 2 3 4 5
9. New ideas were formulated.....0 1 2 3 4 5

Total / 45 _____

2. Communication

1. Oral presentation clear, logical, concise and enthusiastic, using scientific vocabulary.....0 1 2 3 4 5
2. Answers to questions were clear and signified depth of understanding.....0 1 2 3 4 5
3. Research materials were properly documented with appropriate credits and citations given.....0 1 2 3 4 5
4. Visual display was effective, logical and self explanatory layout.....0 1 2 3 4 5
5. A concise, clear, organized written report accurately describing the project is presented.....0 1 2 3 4 5

Total / 25 _____

3. Creativity and Insight

1. The project difficulty is appropriate for the grade level of the student.....0 1 2 3 4 5
2. Approached the problem with originality.....0 1 2 3 4 5
3. Indicated what improvements can be made to the project.....0 1 2 3 4 5
4. Identified practical applications, further research or experimentation for the project.....0 1 2 3 4 5
5. Has shown resourceful use of equipment and/or materials.....0 1 2 3 4 5
6. The student demonstrated knowledge of the project.....0 1 2 3 4 5

Total / 30

4. Total Score

Add the scores from Sections 1 through 4 and record the final mark here.

Total /100 _____