

Duncan Creek Elementary
3rd Annual
Science Fair
Student and Parent
Information Packet



Presented By: The Science Department at Duncan Creek
Elementary

Dear Students and Parents:

Duncan Creek is pleased to announce that our annual Science Fair will take place during the week of May 6-10, 2013 . This year marks the 3rd consecutive year that Duncan Creek has held a fair to promote original, hands-on scientific inquiry by students. All fifth and fourth grade students **will be required to participate** in the fair. Each child's presentation of his/her entry will count as a grade in the area of science. All third grade students will have the option of entering a project in the fair. Below is a schedule outlining due dates and important information regarding your child's project. Ample time has been scheduled and work has been spread out, so students can complete the work at a comfortable pace.

The project must be experimental in nature as opposed to research oriented. In other words, students must do a test, survey, or experiment to determine the answer to their question instead of just looking it up in a book. The results should be measurable so that they can be recorded in a chart and/or a graph. Students should have a genuine interest in the topic since they will be working on these projects independently for multiple weeks.

Attached is a list of acceptable Science Fair Project Ideas. Please take a moment to review these with your child in order to generate topic ideas. Students may choose one of these or, if they have a different idea, they may bring it to their science teacher for approval. It is very difficult to work alone without the exchange of ideas, so we encourage you to brainstorm with your child on different ideas and possible topics your child may want to pursue. Science Fair proposals (the outline of their experiment) are due on **Friday, March 22, 2013.**

Each student taking part in this year's fair will be submitting the following:

- Science Fair Project Proposal(outline of your experiment) Due on **Friday, March 22, 2013**
- Log Book (record of the data collected and thoughts while doing your experiment)
- Backboard Display (including display materials for the Science Fair)
- Oral presentation to their class.
- Final written report that includes summary of data and conclusions.
- The final four are due on **Monday, May 6, 2013** (when presentations begin).

Project guidelines state, "all work must be done by the students"; however, assistance may be provided by teachers, parents, etc. We are looking forward to working with you to make this a valuable learning experience for your child. We appreciate your support on this important project. As acknowledgement and part of your child's homework, please sign, date, and return the bottom portion of this letter by **Monday, March 4, 2013.**

Sincerely,

The Duncan Creek Science Committee

-----Please cut here-----

I have reviewed the Science Fair information and calendar with my child, _____

(printed name of child) and we understand the requirements for a successful Science Fair Project.

(Student Signature/Date)

(Parent Signature/Date)

Name: _____

Grade: _____

Science Fair Project Proposal- Due Friday, March 22, 2013

<u>Your Testable Question</u> (Problem)	
<u>Your Hypothesis</u> (If.....Then Statement)	
<u>Independent Variable</u> (What you are purposely changing?)	<u>Dependent Variable</u> (The change that you measure.)
<u>Controlled Variables</u> (What stays the same during the experiment?)	
<u>Procedures/Steps</u> - Explain how you are going to test your questions. How are you going to obtain(get) quantitative(measurable) data. What tools/instruments will you use to make measurements?. Summarize your procedures in a <i>numbered</i> list. Attach another piece of paper if necessary.	

Science Fair Project Proposal (cont.)

Materials List (What do you need to do your experiment?) Please list with details.

How many trials (minimum 3-5) will you need to perform your experiment?

List the number of test subjects (minimum of 5) that you will need to perform your experiment. (Give names and ages).

Display Boards

All students will be required to present their project on a tri-fold display board (dimensions 36 X 48 inches). Duncan Creek will have display boards available for purchase. The cost is \$4.00. **If you would like to purchase a board, please include the money with this form.**

_____ Yes, I would like to purchase a display board from the school.

_____ No, I will provide my own board with the correct dimensions.

TEACHER ONLY

Approval:

Project Approved

Please revise and resubmit.
No credit yet

Please choose another idea and write
another proposal
No credit yet

Teacher Circled Comments:

Other Comments:

Amazing project Idea! I can't wait to see how it turns out.

Your project has great potential. See me to make it great.

Your project has more than one independent variable.

Your project is collecting qualitative data (not quantitative).

Your project is very complicated or broad, please see me.

Your project violates one or more science fair rules.

GUIDELINES FOR SCIENCE FAIR WRITTEN REPORT

Cover: Make an attractive cover page with the title of your project, your name, and your grade level. (Use a report cover or folder with brads with notebook paper in it.)

PAGE 1

Title Page: Name, title, grade level, and date

PAGE 2

Investigative question: State the problem in the form of a question. This identifies the problem you are trying to solve.

Below your investigative question, please identify the following elements using complete sentences. Your paragraph should be 5-7 sentences.

- **Hypothesis:** Your prediction on what will happen in the experiment should be based on prior knowledge and observation and not just a guess. Must be in the form of an If.....then statement.
- **Independent Variable:** What is the **one** condition you will change in your experiment?
- **Dependent Variable:** What will you measure to see if you have solved the problem (answered the question)? It needs to be able to be measured.
- **Controlled Variable:** What are the three to four variables that you plan to keep the **same** during your experiment.

Materials List: This list does not need to be written in paragraph form. Include everything that you used for your experiment.

PAGE 3

Procedure List: This list does not need to be written in paragraph form. Number each step that you took to complete your experiment. Write out directions where an explanation is necessary.

Results Summary/Conclusion: Describe the results of your experiment. Your paragraph should be 5-7 sentences long. Be sure to include whether or not you proved or disproved your hypothesis. **Don't forget to turn in your logbook, too.**

GUIDELINES FOR SCIENCE FAIR LOG BOOK

LOG BOOK INSTRUCTIONS

What is a Log Book? It is a record of your experiment (like a journal) that is kept in a report cover or folder with brads and notebook paper. Everything written in the logbook stays.

What should be in your Log book? When you begin your experiment you need to record the following in your logbook:

1. The **Problem** (in the form of a question).
 2. **Hypothesis**
 3. **Independent Variable**
 4. **Control Variable**
 5. **Dependent Variable**
 6. List of the **Materials** that you actually use. (This may change slightly from your original proposal).
 7. List and number the **steps/procedures** that you are following for your experiment. Include sketches and diagrams of the setup of your experiment. You may wish to take photographs during each step.
 8. **Data** – You need to record everything that happens in your experiment neatly. Use a ruler to make neat data charts. Be sure to write observations neatly that can be read by others. Please date all entries when they occur. Include photos and drawing if it helps show what has occurred.
- If you run into problems, record the problem and how you plan to solve the problem in your logbook. Research possible solutions. If it doesn't solve the problem, come up with a new plan and try that.
 - Include question and ideas for further experiments or questions for your teacher

GUIDELINES FOR SCIENCE FAIR DISPLAY BOARD

What makes for a good Science Fair Project Display Board?

Does your display board include?

- Title
- Question – Statement of Problem
- Hypothesis and Variables
- Materials List
- Experimental Procedures
- Data analysis and discussion including data chart(s) and graph(s)
- Conclusions (including ideas for future research)

Consider the Following:

1. Are the sections on your display board organized like a newspaper so that they are easy follow?
2. Is the text font large enough to be read easily (at least 16 points)?
3. Does the title catch people's attention, and is the title font large enough to be read from across the room?
4. Did you use pictures and diagrams to effectively convey information about your science fair project?
5. Have you constructed your display board as neatly as possible?
6. Did you proofread your display board?

Oral Presentation Rubric

Category	4 Points	3 Points	2 Points	1 Point
Eye Contact	Maintains eye contact all of the time. Does not read.	Maintains eye contact most of the time. Occasionally reads from the report or backboard.	Reads from the backboard or report most of the time.	Reads from the report or backboard with no eye contact.
Voice	Voice is clear. All words are pronounced correctly. Everyone can hear the presentation.	Voice is clear. Most words are pronounced correctly. Everyone can hear most of the time.	Mumbles, pronounces words incorrectly. Students have difficulty hearing.	Mumbles or voice is too low to be heard.
Poise	Stands still and maintains focus throughout the entire presentation.	Stands still and maintains focus throughout most of the presentation.	Fidgets, giggles, seems unfocused during some the presentation.	Fidgets, giggles and is unfocused during the presentation.
Content	Completely covers required content. Adds extra interesting information.	Completely covers the required content.	Does not cover all of the content. Must occasionally be prompted to keep presentation moving.	Most of the content is missing from the presentation. Must be continually prompted to keep presentation moving.
Preparedness	Student has completely prepared and has obviously rehearsed.	Student seems prepared but needed a few more rehearsals.	Student is somewhat prepared but it is clear the rehearsal is lacking.	Student has not prepared their presentation. There are no signs of rehearsal.

Suggested Science Fair Project Ideas

The following is a list of experimental problems that can be used for science fair projects. They have been categorized for your convenience. Students can choose a project from this list or can choose an experiment of their choice after teacher approval.

Reminder: All experiments, surveys or tests should be experimental in nature that is by using the scientific method (please refer to page 2 of this packet). The scientific method requires that you do repeated trials and/or use a large number of test subjects.

Projects Using Plants

1. Do oil spills affect the growth of aquatic plants?
2. Does acid rain affect plant growth? (vinegar and water for acid rain)
3. Does water temperature affect the growth of plants?
4. Does the amount of light on plants affect their growth?
5. Does potting soil really help plants grow?
6. Are organic fertilizers more effective than inorganic fertilizers?
7. Do radish plants grow quicker hydroponically than in soil?
8. Does the color of light affect plant growth?
9. Do different types of music affect plant growth?
10. Is plant growth affected by magnetism?
11. What type of soil is best for growing vegetables?

Manufacturing/Technology

1. Which materials will sound waves travel through the best?
2. Will wrapping more coils around a nail make a stronger electromagnet?
3. What material is the best insulator for keeping things warm or cold?
4. Do sound barriers reduce noise? If so, which material reduces the most noise?
5. Do wheels made out of steel work better than wood or plastics wheels?
6. Which blade design works most efficiently on windmills?

Energy

1. Can a solar hot dog cooker cook a hot dog as effectively as on the stove or grill?
2. Does a homemade anemometer measure wind speed accurately?
3. What color absorbs the sun's heat the best? (ice cube melt time)

4. What material (sand, salt, water, or dirt) stores solar energy the best?
5. Do batteries last longer when it is used on/off or with continuous use?
6. Will flashlight batteries that are twice as large last twice as large?
7. How do different materials react to static electricity?
8. What type of material conserves heat the best?
9. How does wind speed affect how quickly an object cools? (weathering the windchill!)

Sports

1. Does temperature affect the rebound rating of a dropped ball?
2. How does heart rate change with exercise?
3. Batted ball debate: What's better wood or aluminum?
4. Does the brand of running shoe affect a person's running speed?
5. Does the brand of a ball (golf, tennis, baseball, etc.) really affect performance?
6. Does the size of a basketball affect the accuracy of the throw?

Miscellaneous

1. Does age make a difference in reaction time?
2. Does the age of a person affect what they see in optical illusions?
3. Does the color of text affect memory?
4. Which substance will melt driveway and walkway ice the best?
5. Can people taste the difference between regular and low-fat foods? (testing three or more foods for accuracy)
6. Does anti-bacterial soap kill more bacteria than regular soap?
7. When does your mouth have the most bacteria, in the morning before brushing or at the end of the day before brushing?
8. Does the density of a liquid affect absorbancy?