Science Fair at River Gate Elementary School

Science and Engineering Fair

STEM WEEK Activities January 11-15, 2016

River Gate Elementary is proud to announce our Sixth Annual Science and Engineering Fair! All third grade students are expected to participate.

**TASK:** Students will decide on a science topic of interest and create a question they want to answer about their topic. They will design an experiment to answer the question, gather data, and write a conclusion to answer the question. **They will create a tri-fold board to display their projects.** The science project tri-fold board will be labeled with the following headings and include the following information:

**1. Title** – Your title can be the question/problem you are testing, or you may choose a clever title in non-question form.

**2. “Research”** – Do some research to help select your topic. Be sure to keep record of the web sites, articles, and books you read. Write a paragraph describing what you learned from your research and how that led you to your question.

**4.** “**Question”** –All good science fair projects attempt to answer a scientific question. Be sure to include your question on the board either in a headed section or as the title of the project.

**5.** **“Hypothesis”** – After reading and thinking about possible answers to the question, write an educated guess in response to the question. Support the guess by stating the reasons you believe your hypothesis is correct.

**6. “Materials”** – List the materials used.

**7. “Procedure”** – Describe the procedure used to perform the experiment. You may use photos and diagrams to clarify and explain your methods/procedures. Materials and procedures sections can be combined.

**8. “Data”** – Data refers to the information gathered during the experiment. Data may be quantitative (numerical) and/or qualitative (written observations and photos). The best projects include both kinds of data. Data may be displayed in tables, charts, graphs, logs, photo, etc. Encourage your child to conduct multiple trials of the same experiment and to analyze the data by finding the average of the quantitative data collected in the trials.

**9. “Results/Conclusion”** – Compare the question with the data and results. What is the answer to the question? Explain why you think so. Then explain ways in which the project might be improved or introduce a new question that came up as a result of the project.

**Engineering/Design Projects**

At River Gate, we encourage our Junior Engineers to design, create, and build. We also know that engineering projects are super fun! However, just building something for the science fair is not enough. Engineering projects must include a creative solution to a real-world problem, and the solution must be tested to see how well the design works.

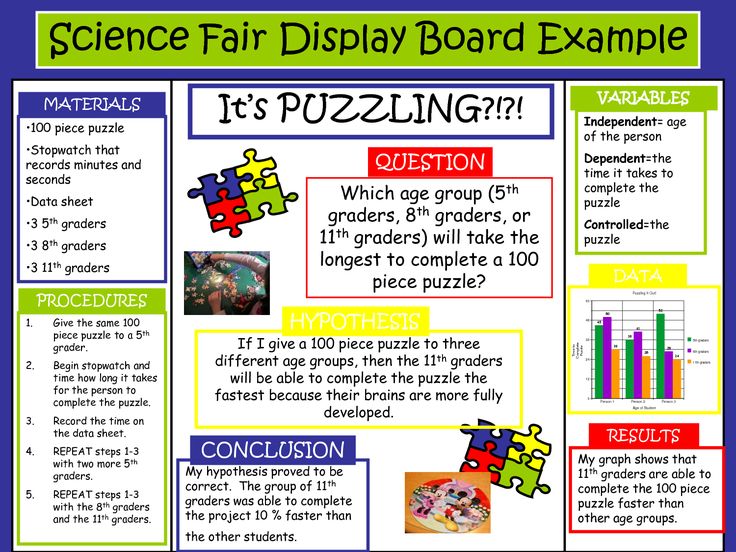
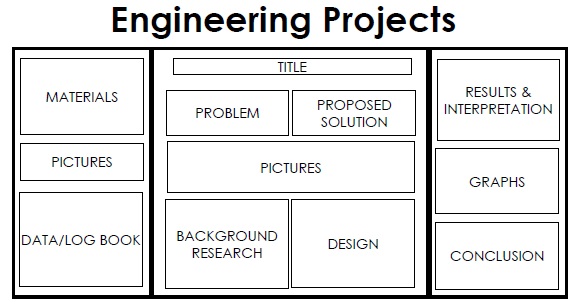
To see if an engineering/design project appeals to your child, visit the following sites:

[**http://tinyurl.com/engineeringsfprojectsteps**](http://tinyurl.com/engineeringsfprojectsteps)

[**http://tinyurl.com/engineeringsfprojectideas**](http://tinyurl.com/engineeringsfprojectideas)

[**http://tinyurl.com/sciencefairvengineeringproject**](http://tinyurl.com/sciencefairvengineeringproject)

**Visual Presentation**

Steps 1 – 12 will be shown on standard -sized trifold boards. Headings may differ for engineering projects. See the examples, below:

**Web Sites to Help With the Science Fair:**

<http://tinyurl.com/TopicWizard> (This includes a science fair ideas wizard that allows students to complete an interest survey. The site then creates a large list of ideas tailored to the student’s interests.)

<http://www.sciencebuddies.org/science-fair-projects/project_display_board.shtml>

<http://users.rcn.com/tedrowan/primer.html>

River Gate’s Science Fair Wiki Page: <http://rivergate5thgrade.cmswiki.wikispaces.net/Science+Fair>

Data Collection Chart You Can Modify: <http://tinyurl.com/datacharttemplate>

Science Fair Presentation Outline: <http://tinyurl.com/RGpresentationtemplate>

For help with citing research sources: <http://tinyurl.com/RGbibliographymaker>

**2015 Charlotte-Mecklenburg Science Fair**

The top 8 projects selected by a panel of outside judges will have the opportunity to compete in the Regional Science and Engineering Fair held at UNCC in February, 2016. Parents, Science Committee members and other staff members will help students meet the requirements of participation in the regional competition.

River Gate Elementary School Science Fair

Grade 3 & 4 Contract

Work Schedule Timeline

**October 22nd** – Science Fair information goes home.

**November 3rd** – Science Fair topics due.

**November 10th** – Report hypothesis and materials/procedure to teacher

**December 17th** – Report data/results and conclusions to teacher.

**Monday, January 11th** – **All project boards are due.** Students will present their projects to their classmates.

**Tuesday, January 12th**  – Third Grade Judging, 2:45-3:30

**Tuesday, January 12th  & Wednesday, January 13th**  – Projects judged during specials.

**Thursday, January 14th** – **Final Judging of Grade Level Winners** – A panel of outside judges from the community will select the 8 students who will compete at the UNCC Regional Science Fair. These 8 students will be selected out of the highest-scoring students on each grade level.

**Friday, January 15th -** A gallery crawl will be held in the morning to allow students to view each other’s projects across grade levels, and an assembly and reception will be held in the afternoon to announce and celebrate the classroom and UNCC winners.

Rules all participants must follow:

1. The project must not hurt people, animals, or their possessions.
2. Dangerous chemicals are not allowed.
3. **No projects allowed involving growing bacteria, mold or other micro-organisms.**
4. No type of flame is allowed at school (projects that involve use of heat or flame at home will be allowed with permission of the science committee).
5. Live animals cannot come to school.
6. Adult supervision is required if a task is considered unsafe, such as the use of a knife.

Name of Student: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Title of Project in Question Format: \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

Brief Explanation of Project:

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I have read, understand and will adhere to the expectations, safety rules, and due dates of the science fair project.

\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_

(Student) (Parent/Guardian)

River Gate Science Fair Judging Rubric

The Judges’ Rating Scale is from 4 to 1:

4 - Above average 3 – Average 2 – Below average 1 – Not included in project

Below is a guideline to explain each judging category:

Information and Knowledge Gain: Is the information collected valid and appropriate for the grade level?

Has student acquired knowledge doing this project?

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | 2 | 3 | 4 |
| *Does not* present existing knowledge on the subject. Has learned little or *no* additional knowledge. | Presents *some* exiting knowledge on the subject and has learned *some* additional knowledge. | *Thoroughly presents* existing knowledge on the subject and has gained *adequate* additional knowledge. | *Thoroughly presents* existing knowledge, *explains* reason for carrying out the experiment. Has gained *extensive* knowledge of this subject and can accurately answer *some* questions that extend beyond the details of the project.  Section Total  \_\_\_\_\_\_ |

Scientific approach: Was a scientific approach used with controlled variables?

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | 2 | 3 | 4  Section Total  \_\_\_\_\_\_ |
| Explains methods and materials. | Idea is *testable*. Student explains methods, and materials. | Idea is *testable.* Student *clearly* explains methods, materials, and equipment used. C*ontroll*ed and *independent* variables are *loosely* identified. | Idea is *testable*. Student used *adequate* *sample size*, and *clearly* and *thoroughly* explains methods, materials, and equipment used. C*ontrolled* and *independent* variables are *clearly* identified. |

Collection of Data: Were measurements accurately taken?

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | 2 | 3 | 4  Section Total  \_\_\_\_\_\_ |
| Data is *severely lacking* and/or presented *loosely*. | *Some* data was collected. Student *attempts* to *summarize* data without interpreting it. | *Adequate* data was collected and *summarized* without interpretation. *Figures* and *graphs* are labeled and have titles. | *Extensive* data was collected and *thoroughly* summarized without interpretation. Evidence of *data analysis* is present. Data can be *qualitative* or *quantitative*. *Figures*, *graphs, diagrams* and *photos* are *properly* labeled and have *specific* titles. |

Conclusions: Were conclusions stated and logical?

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | 2 | 3 | 4  Section Total  \_\_\_\_\_\_ |
| Results are stated with *no* interpretation. | Results are stated and *somewhat* interpreted. | Results stated and *thoroughly* interpreted. | *Hypothesis* is reintroduced, a statement of *support* or *rejection* is present. |

(*Over)*

Oral presentation: Was well planned and interesting?

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | 2 | 3 | 4  Section Total  \_\_\_\_\_\_ |
| Project processes and conclusions are *not* communicated, or are *confusing* and *unlcear*. | Project processes and conclusions are *somewhat* communicated. | Project processes and conclusions are *adequately* communicated. | Project processes and conclusions are *adequately* and *clearly* communicated in an *interesting* way. |

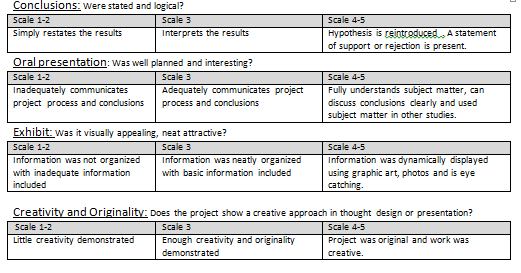
Exhibit: Is it visually appealing, neat and attractive?

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | 2 | 3 | 4  Section Total  \_\_\_\_\_\_ |
| Information is *unorganized* and *inadequate*. | Information is either *unorganized* or *inadequate*. | *Basic* information is *organized* on the display. | *Extensive* information is *neatly organized* and *visually appealing.* |

Creativity and Originality: Does the project show a creative approach in thought design or presentation?

|  |  |  |  |
| --- | --- | --- | --- |
| 1 | 2 | 3 | 4  Section Total  \_\_\_\_\_\_ |
| *No* creativity or originality is demonstrated. | *Some* creativity and/or originality are demonstrated. | *Adequate* creativity and originality are demonstrated. | *High levels* of creativity and originality are demonstrated.  Audience is *unlikely* to have seen a similar project in the past. |

Total Score \_\_\_\_\_\_\_\_\_\_\_\_/28



**Judging Criteria**

Students’ projects will be graded based on this criteria.