

**Norwalk Public Schools  
2011 System-Wide Science Fair**



**INFORMATION PACKET**

**February 7, 8 & 9  
Roton Middle School Gymnasium**

201 Highland Avenue, Norwalk, CT 06853

Phone: 203 899-2934

<http://www.norwalk.k12.ct.us/roton/pages/home.htm>

**Open To The Public:**

**Mon – February 7<sup>th</sup> – SET-UP 2:00 PM – 7:00 PM**

**Tues – February 8<sup>th</sup> – 1:00 PM – 7:00 PM**

1:00-5:00 PM Judging of Projects

12:00-1:00 PM Open to the Public

5:00-7:00 PM Open to the Public

**Wed – February 9<sup>th</sup> – 12:00 PM – 7:00 PM**

**Winners are expected to come for interviews on Wednesday, February 9<sup>th</sup>**

**Candidates for Special Awards will be contacted for interviews**

1:30 to 6:00 PM Interviews

**PROJECT PICK UP  
WED – FEBRUARY 9<sup>TH</sup> by 7:00 PM**

***Awards Assembly Date to be announced***

## PROJECT GUIDELINES

1. Projects to be entered in the fair are to be selected by a group of teachers at each school.
2. Projects will be labeled with a grade level, content category and treatment.

**Grade Levels:** Elementary K – 2  
Elementary 3 – 5  
Middle School  
High School

**Content Categories:** Biology  
Earth Science  
Chemistry  
Physics  
Invention

**Treatment Categories:** Illustrative  
Experimental

**Illustrative Category** is a report type project. It illustrates a scientific concept.

Examples: Volcanoes, sharks, flowers, Newton's Laws etc.

**Experimental Category** is a project where some type of experiment was conducted.

Examples: Which Paper Towel Picks Cleans up the Best?

Will Plants Grow Better with Fertilizer?

\*Projects may be completed by an individual, team of **ONLY TWO** students, or a class.  
(K or 1<sup>st</sup> grade only).

\*Size is restricted to 75 cm wide, 100 cm deep and 300 cm high measured from the floor.  
(Tables are 80 cm high.)

\*Projects must be self-standing.

**Students are required to follow the scientific method including a bibliography and research paper.**

## GENERAL INFORMATION

Dear Participants:

1. Set up for the fair is Monday, February 7<sup>th</sup> from 2:00 PM to 7:00 PM ONLY.
2. Projects, whose applications are not completely filled out, will not be considered for judging.  
**MAKE SURE THAT TELEPHONE NUMBERS ARE LISTED.**
3. Please make sure that your names and all required information on the applications.
4. Plants may be displayed.
5. **NO LIVE ANIMALS OF ANY KIND WILL BE DISPLAYED.**
6. **NO MOLDS, SPORES, ETC., WILL BE EXHIBITED.**
7. The size is limited to 75 cm front to back, 100 cm side to side and 3 meters high.
8. NO flammable chemicals or dangerous materials may be exhibited.
9. A maximum of 12 volts may be displayed with open knife switches doorbells, etc.
10. Projects must be removed from the middle school gymnasium by 7:00 PM, Wednesday, February 9<sup>th</sup>. NO EXCEPTIONS
11. We will contact potential candidates for special awards on the evening of Tuesday, February 8<sup>th</sup>.
12. Winners are expected to come for interviews on Wednesday, February 9<sup>th</sup>.
13. The category of **Physics** includes, Physics, Engineering and Mathematics.
14. The category of **Biology** includes, Behavioral Sciences, Social Science, Botany, Medicine & Health, Microbiology and Zoology.
15. The category of **Chemistry** includes, Chemistry and Biochemistry.
16. The category of **Earth Science** includes, Astronomy, Geology, Earth Studies, Oceanography and Meteorology.
17. Computer projects may fall into any of the four categories and depends on the specific science/ subject with which the student is dealing.
18. There is a new rubric for the judging of the Inventions.
19. **Projects not meeting any criteria will not be judged.**

If you have any further questions, please feel free to contact Thomas Seuch, Brien McMahon High School (203) 852-9488 Ext. 12040 [seucht@norwalkps.org](mailto:seucht@norwalkps.org) or the Science Department at (203) 854-4113.

Thank You.

Thomas Seuch  
District Science Fair Coordinator

### **ELIGIBILITY AND REGISTRATION**

1. The Science Fair is open to all students in the Norwalk Public Schools in Grades K – 12.
2. There are four major divisions; in the elementary school K – 2, elementary school 3 – 5, middle school division, consisting of students in grades 6, 7, and 8, and the high school division consisting of students in grades 9 through 12. The divisions do not compete with each other. Competition occurs **within** each division.
3. Individual and two-person projects are acceptable. Class projects will **only** be accepted from Kindergarten and first grade classes.
4. Students' expenditures for materials/equipment should be minimal and are the responsibility of the student.

### **Registration**

1. Completed registration forms must be received and approved by the student's science teacher. Application forms with missing information will not be considered for entry into the fair. These applications will be returned to the student or teacher.
2. Students and teachers are required to double-check the science project's categories. If the project is placed in the wrong category, the student may forfeit his/her chances for an award. For assistance, please see the **Science Fair Handbook** on the district website under science programs. **Projects once categorized will not be reclassified or moved.**
3. Each project is to be labeled with two categories. The first category includes a destination of either **experimental, illustrative,** or an **invention.** A project is experimental if the student is seeking to find an answer to a problem and has conducted an experiment for this purpose.

For example: if the student wishes to determine whether weekly doses of Vitamin B complex will stimulate the growth of geranium plants and sets up experimental category. However, if the student conducts only library research and prepares charts and a report on what biologists have found relative to the effects of B complex in plant growth, the project falls into the illustrative category. If the student creates a new product, that is an invention.

The other category label for all projects designates the **specific area of science** with which the project deals. These include **biology, chemistry, physics and earth science.** Therefore, on the registration form each student is required to designate two categories. The student experimenting with Vitamin complex relative to plant growth will label his/her project "Experimental Biology"; the student displaying data obtained from the library research in this area will label his/her project "Illustrative Biology". The student creating a product will label his/her project invention.

## **RULES AND REGULATIONS**

Projects must represent original work by the student. If parental assistance is provided, the kind and extent of this assistance must be described in the students' report.

Project size must be confined to a table or floor space not exceeding 75 cm front to back, 100 cm side to side and 3 meters high. No wall space will be provided. **OVERSIZED PROJECTS WILL BE DISQUALIFIED.**

### **Safety precautions must be observed:**

**NO** flammable chemicals or dangerous materials such as acids, bases, drugs, bacterial cultures, temperatures over 100 degrees Celsius may be used in the exhibit. Any such materials required in the actual process may be simulated with non-hazardous materials.

All writing switches and metal parts that carry 100-volt current or current of higher voltage, as in radios and electronic apparatus, must be located out of reach of observers. Open knife switches, doorbell pushbuttons and bare wire may be used only in circuits of 12 volts or less, otherwise standard enclosed switches are required.

All controlled substances must be used in accordance with existing local, state and federal laws.

Display of laser systems must be in compliance with safety standards.

Radioactive materials may not be displayed.

Animal experimentation projects, other than observation of wild animals in their natural habitat, must be conducted under the direct supervision of the science teacher to ensure proper humane care.

Any project involving experiments with live vertebrate animals requires the completion of a research certificate, which is available from the science teacher.

### **NO live animals or preserved animals, vertebrate or invertebrate may be exhibited.**

Projects involving the use of animals may display drawing, photographs or charts to illustrate the condition, developments and results of the investigation.

Photographs of surgical techniques, dissection, autopsies and/or other laboratory techniques depicting vertebrate animals in other than normal conditions may not be displayed on the students' exhibit, but may be contained in an accompanying notebook. Only the following animal parts may be exhibited: hair, teeth, nails, histological sections and liquid tissues if properly prepared.

**Plants are acceptable for display.**

**No molds, spores and algae may be displayed.**

**\*Students must supply all tools and equipment for setting up.** This includes electrical cords at least 2 meters long and equipped with a standard ground plug.

**IF ANY RULES AND REGULATIONS ARE NOT MET PROJECTS WILL BE DISQUALIFIED FROM JUDGING.**

## **JUDGING**

Students are not to be present for judging on February 8, 2011. Projects should be designated and presented so that they can speak for themselves. The project should stand alone. The report should contain all pertinent procedures, data, analysis of data and conclusions, including a bibliography.

Students who are candidates for “Best of Fair” and Special Awards will be phoned at home on Tuesday, February 8<sup>th</sup> and will be requested to be present for an interview with the judges on Wednesday, February 9<sup>th</sup>.

**Special Note:** Students called for an interview are required to dress appropriately for this procedure. (Shirt, tie, jacket for young men – dress, skirt, etc., for young women.)

**AWARDS:** - Award categories for the fair are the following:

One “Best of Fair” Award for the high school division and one “Best of Fair” for the middle school division. Only experimental projects are eligible for the “Best of Fair Awards. **Therefore, we urge students to do experimental projects.**

First, Second and Third Place Awards in the experimental category of biology, chemistry, physics and earth science for each division; elementary K – 2 (Primary), 3 – 5 (Intermediate), middle school and high school.

First, Second and Third Place Awards in the illustrative category of biology, chemistry, physics and earth science for all divisions.

Honorable mention in all categories for all divisions.

The specific awards will depend on the contributions from local business, industries, foundations, etc. In the past these have included cash awards, plaques, computers, and microscopes.

**SPECIAL AWARDS:** Additional Awards such as the *Most Creative Experimental Project*, *Best Experimental Energy Project*, *Best Application of Mathematical Principles*, *Best Experimental Project in Health/Medicine*, may be announced in the near future. These awards are based on the contributions of sponsoring organizations.

**SPECIAL NOTE:** Students are encouraged to undertake projects of an experimental nature rather than illustrate proven laws/principles of science. **Teachers may take instructional time to assist/advise/encourage/review projects in progress.**

## **JUDGING CRITERIA (With the exception of the INVENTION Category)**

<b>1. Scientific Thought</b>	The project should show evidence of application of scientific thought. It may present a verification of laws, explain a cause and effect relationship or demonstrate by models, charts, diagrams or other methods a better understanding of scientific facts.	<b>30 points</b>
	Consideration will be given to amount of preparation and effort, which is represented in the project.	
<b>2. Creative Ability</b>	The project should show originality of approach. Ingenuity in use of available materials is sought.	<b>30 points</b>
<b>3. Thoroughness</b>	The project should display completeness and include literature research conducted, procedures followed, the display of the relevant information, the analysis and the conclusions reached.	<b>10 points</b>
<b>4. Skill</b>	The project should show the scientific skills exercised by the students. Displays or collections should show skill in handling, preparations, mounting or other treatment.	<b>10 points</b>
<b>5. Clarity</b>	The project should be presented in a way that is clearly understandable to the viewer. Labels and descriptions should be presented neatly and briefly. Problem, approach, data obtained and conclusions drawn should be presented clearly.	<b>10 points</b>
<b>6. Dramatic Value</b>	The project presentation should be dynamic. It should serve to attract and interest the observer.	<b>10 points</b>
	<b>Total:</b>	<b>100 points</b>

### **Judging criteria for INVENTIONS will include the following:**

10 pts for each criteria.

#### **Overall Impression -**

**Creativity...** Does the invention show imaginative problem solving?

**Originality...** Does the invention provide a novel solution?

**Complexity...** Does the invention show significant depth and attention to detail?

**Innovation...** Is this a pioneering invention or an incremental improvement?

#### **Presentation -**

**Statement of problem...** How well was the problem stated?

**Statement of solution...** How well does the solution address the problem statement?

**Schematic Diagram...** How effective was the diagram in illustrating the idea?

#### **Invention Relevance -**

**Impact...** How significant is the problem being solved?

**Practicality...** Could this invention be made into a working device?

**Contribution...** Does the invention solve a problem of importance to others?

## **Norwalk Public Schools Science Fair Rules & Research**

## Involving Vertebrate Animals, Human, Subject or Recombinant Data

### HUMANE CONSIDERATIONS:

The proper care and use of animals is a prime concern. We have a responsibility to grant the animals used every humane consideration for their comfort and well being. The use of invertebrates is encouraged for most research requiring animals, though certain forms of investigation can be done only with vertebrates. Since higher forms are complex, more experience training is required so proper supervision is mandatory in their use.

All animals must be lawfully acquired: their care and use must be in compliance with local, state and federal laws. If these laws are not followed, animals will not be cared for properly and the accuracy of your data will be questionable. Work with the animals **MUST INCLUDE CONCERN FOR THE HUMANE AND THE PROPER USE OF ANIMALS**; good research is based on adequate knowledge of the characteristics, care and handling of the species being used.

### RESEARCH PLAN AND CERTIFICATIONS:

All research involving human subjects, recombinant DNA, or live vertebrate animal, other than observation of wild animals in their natural habitat, including vertebrate embryos and fetuses and embryos of domesticated fowl within three days of hatching, must conform to a research plan and appropriate certification as follows:

Research Plan: The student's name and school should be on the top of each page.

Page 1: Title page including Certifications (see attached).

Page 2: Problem and Hypothesis:  
Present the ideas behind the research. Why is it to be done?  
Explain what the research will show and what is to be learned.

Page 3: Methods or procedures:  
Present in detail. It must be clear that the student knows exactly what to do prior to starting work.

Page 4: Bibliography:  
List each reference with author, title of book or paper, publisher, date of publication and pages used. Reference on animal care should be included as appropriate.

Certification: Certifications of The Research Plan Title Page must be completed.

Completed Research Plan with signed Certifications must be submitted to the Norwalk Science Supervisor for approval of compliance with International Science and Engineering procedures prior to undertaking the research program. The Research Plan and signed Certification must be prepared with the science teacher who will forward them to the Science Supervisor for final approval.

### REQUIRED ONLY FOR STUDENTS IN RESEARCH WITH LIVE ANIMALS

Title Page  
Type of Legal Print

Student's Name: \_\_\_\_\_

School: \_\_\_\_\_

Title of Research: \_\_\_\_\_

Starting Date of Research: \_\_\_\_\_

Name and Address of Place Where Research Will Be Done:  
\_\_\_\_\_  
\_\_\_\_\_  
\_\_\_\_\_

Signature of Student: \_\_\_\_\_

**CERTIFICATIONS**

Teacher/Designated Adult Supervisor: \_\_\_\_\_

I certify that I have been trained in the techniques to be used by this student prior to the start of the research and will provide advice and direct supervision during the research.

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Position: \_\_\_\_\_

Date: \_\_\_\_\_

Institution: \_\_\_\_\_

Phone: \_\_\_\_\_

Address: \_\_\_\_\_

Phone: \_\_\_\_\_

\_\_\_\_\_

**Qualified Scientist/Science Instructor** - I certify that I have reviewed and approved the Research Plan prior to the start of the research, that if the student is not trained in the necessary procedure, I will ensure his/her training, that I will provide advice and supervision during the research and that I am a qualified scientist with a working knowledge of the techniques to be used by the student in this research plan. For research involving live vertebrate animal including vertebrate embryos and embryos of domesticated fowl within three days of hatching, I further certify that I am knowledgeable of the proper care and handling of laboratory animals, meet prevailing animal care supervisory requirements and should euthanasia be required, certify that I or a designate adult supervisor will be present to perform or direct the procedure as recommended.

Signature: \_\_\_\_\_

Date: \_\_\_\_\_

Earned Degrees: \_\_\_\_\_

Institution: \_\_\_\_\_

