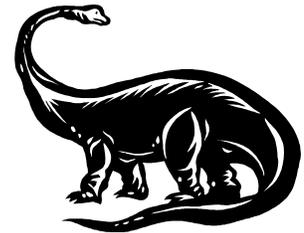
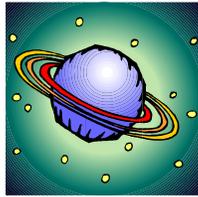


**WHY IN THE WORLD?!**

**Elementary School Division**

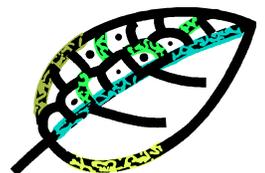
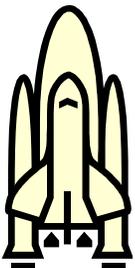
**Directions For Preparing A Science Fair Project**



**CORNING-PAINTED POST AREA  
SCHOOL DISTRICT**



**28th ANNUAL SCIENCE FAIR  
March 11th, 2017  
Corning Painted Post High School**



Corning-Painted Post Area School District  
165 Charles Street  
Painted Post, New York 14870  
607/936-3704



January 3, 2017

Dear Elementary Parent:

The Corning-Painted Post Area School District's Science Fair is scheduled for Saturday, March 11, 2017, at **Corning Painted Post High School**.

The purpose of the Science Fair is to encourage students to develop greater interest and awareness of science and technology and to develop skills in critical thinking, research, problem solving, and the use of scientific methods. The skills a child develops while doing a science fair project speak directly to the New York State Learning Standards and are the same basic skills that he or she will use daily throughout his or her life.

Every child in the Science Fair needs a mentor. It is expected that most parents will be mentors for their children, but the mentor can be another relative or a family friend. The job of the mentor is to:

- help your child choose a project
- offer to take your child to get information during the background research phase of the project
- help your child acquire the materials needed for the project
- listen as your child talks through his/her ideas
- have your child take necessary safety precautions
- help your child fill out the time-line and project entry form
- assist with transporting the display to the West High School Gym
- Mentors do not do the project for your child
- make competition the focus of the project

Please review the materials in the attached packet of information. The packet includes

- suggestions on preparing a science project
- safety rules
- a time-line
- display rules
- the criteria that will be used for evaluation
- an evaluation form

If you are interested in the Science Fair and have further questions or need help problem solving, please feel free to contact your child's teacher, principal or me, Jeffrey Marchionda, at 936-4156.

Sincerely,

Jeffrey Marchionda, Director  
Science Fair

# ELEMENTARY STUDENT SCIENCE FAIR TIME LINE

1. Jan 3 - Feb 3 Homeroom teachers send packets home with REGISTERED students
2. Jan. Pick a topic and do some reading about it.
3. Feb. Plan your project.
4. Feb. List the materials you will need. Be sure to check at home for things you already have.
5. Feb. Set up your project and do it. If you are doing an investigation, use the Science Investigation Worksheet in this packet
6. Feb 12 Confirmation letters mailed directly to homes of registered students
7. Feb. Start preparing your display board.
8. Feb. Start preparing to talk about your project with your mentor. Remember you will have to talk about your project with the evaluators on March 11th.
9. March 11 **SCIENCE FAIR. Take your project to the Corning Painted Post High School between the hours of 9:30 and 10:30 a.m. for set up. Between 10:30 – 11:30 a.m. is time for your family and friends to view the projects. The evaluation process will start at 11:30 a.m. and go to approx. 2:30 p.m. At 2:30 p.m. students must dismantle their projects and take them home or transport them to your home school for display. See your building principal for more information.**

## HOW TO PREPARE A SCIENCE PROJECT

### Choosing a Subject

- A. Deciding what to do may be the most difficult part. Start by listing subjects you are interested in (baking, sewing, skateboards, swimming, for example).
- B. From each general subject area, list questions that you think might be interesting to answer. Examples might be: "How important is sugar as an ingredient in cookies?" (investigation); "How yeast works" (demonstration); "How a sewing machine works" (demonstration); "Which thread is strongest?" (investigation); "Do wider skateboards ride better?" (investigation); "How much faster can I swim with fins on?" (investigation). Try to make your question as specific as possible.
- C. Finally, choose one that you think you can answer. Before choosing it, do some thinking and consider these three questions:
  1. Will it be interesting and safe?
  2. Can I get the necessary equipment or materials to do it?
  3. Will I have enough time to complete it?

### Demonstrating a Scientific Principle

- A. If you plan to do a demonstration, you will be explaining how something works (like an electric motor) or why something happens the way it does (what causes rainbows).

When you do a demonstration, be sure that you understand it thoroughly and can explain it to others. If possible, put together a working model (for example, a telegraph, a bell, or an electric motor).

### The Investigation

If you choose to do an investigation, use the guidelines listed below.

- A. Research:  
First, find out as much as you can about your topic. Look up information in science books and magazines or interview a scientist or specialist in the area you are studying.
- B. State your hypothesis:  
This is sometimes called an "educated guess." What do you think you will discover once your investigation is finished? Your hypothesis does not have to be correct, rather, you will be doing the investigation to test it and see if it was right. A sample hypothesis might be, "I expect people to prefer cookies with sugar over those without sugar."
- C. Begin your investigation:
  1. Make measurements and record your data in metric units whenever possible.
  2. Use a control when applicable.

#### For Example:

In the case above we will taste test three different cookies. One will be baked with sugar; one will be baked without sugar; the third will be a store-bought cookie of similar variety (oatmeal, for example). This store-bought cookie is called a "control" and is used for comparison. People will taste all three

and compare the baked cookies to the store-bought.

By having a control, you are able to set a standard for comparison (Note: for some investigations, it is not possible to have a control).

3. Manage your variables properly. Everything must stay the same except the one **thing** you are testing.

For Example:

In our investigation, we must use the same amounts of ingredients in both cookies **except sugar**. If you change both the flour amount and the sugar amount, how would you know what makes the cookies taste awful, the flour or the sugar? This is also true for the amount of time and temperature at which you bake them - they must be baked at in the same fashion (or, better yet, baked together).

4. Have a sufficiently large sample size and perform your investigation more than once. If you do the same investigation ten times, will the results be similar?

For Example:

In our investigation, we will test about 20 people of all ages, both male and female. Tell them that the store-bought cookie is the "control" and that they are to compare the two "investigation" cookies to it. Do they like Investigation #1 (with sugar) as much as the control? Do they like Investigation #2 (without sugar) as much as the control? Do they prefer #1 over #2? Don't let your subjects know which cookies have sugar and which do not. It may affect their decision!

5. Collect and present your results. Tables, graphs and charts are helpful in evaluating data. You may have to do some averages, etc., to best evaluate your results.
6. From your results, form your conclusion. Was your original hypothesis correct? Can you do additional investigations to verify your results?

For Example:

- a. You might guess from your data that cookies without sugar would also be disliked.
- b. It is also possible that you may have negative results. For example, you may discover that the amount of sugar doesn't affect preference. These results are to be reported and are perfectly acceptable!
- c. Remember that your results and you conclusion are a product of your investigation. Someone else may do the same investigation and get different results. You reduce this possibility by doing your investigation more than once.

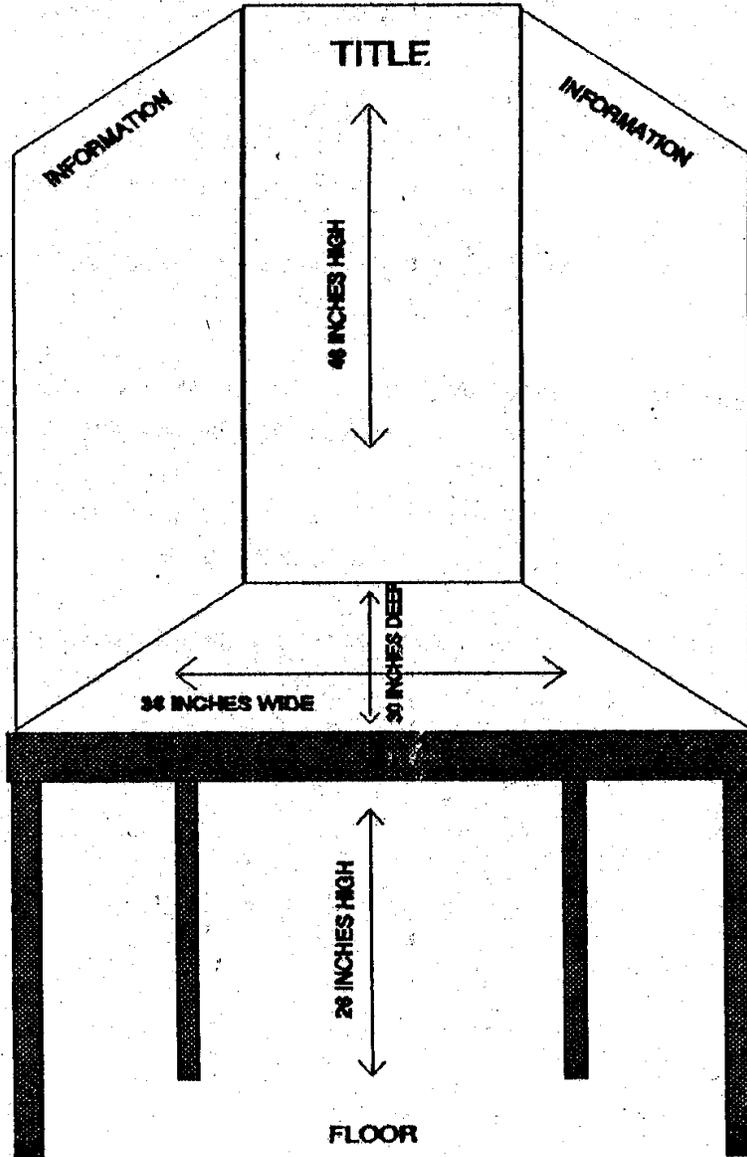


#### **IV. Making Your Display**

- A. Follow the display guidelines given in this packet. Make your display look interesting and present all information clearly. Plan ahead to be sure that all lettering and segments will fit.
- B. Expensive or fragile items should not be displayed. Instead, use simulations, models or photographs. Items which are displayed in front of the backboard should be adequately secured (for example, batteries, wire, switch, motor secured to a piece of plywood).
- C. Design your backboard for easy transport. Carefully pack all fragile materials before transporting them to and from the fair.
- D. Have a photo taken of you and your project for your scrapbook. Years later you'll be glad you did!
- E. When you design your display, keep in mind that at C-PP High School you will have the use of one-half of a six-foot table on which to present your display. The tabletop is approximately 26 inches off the floor. The dimensions of your display area will be 36 inches wide by 30 inches deep. The height of your display should not exceed more than 48 inches above the table top. If you wish, the area between the floor and the tabletop may be used, but in no case can part of your display extend out in front of the table to the aisles where people will be walking. The aisles between the tables are very narrow.
- F. You may make your display out of a variety of materials - they need not be expensive. Some suggestions are cardboard (try asking Wegmans or another store) for boxes from paper products or cereal), foam core board (usually available at Staples), or poster board (you will need to reinforce this so it will be stiff enough to stand on its own). It is possible to purchase standard presentation boards if you wish at area office supply stores. You are free to use your imagination in deciding how to present your Science Fair project. Remember that it's the science behind the project that matters!

**See model of exhibit on the next page**

**Measurements for Presentation Display**



**SCIENCE INVESTIGATION WORKSHEET**

Name: \_\_\_\_\_ Grade: \_\_\_\_\_

Project Title: \_\_\_\_\_

Hypothesis (What I think will happen: \_\_\_\_\_

Equipment and materials I will use: \_\_\_\_\_

Procedure (What I plan to do): \_\_\_\_\_

Results (What happened. Attach measurements, tables or graphs to this sheet):

Conclusion (What I found out by doing this investigation) \_\_\_\_\_

## SAFETY RULES

1. ALL PROJECTS MUST BE APPROVED BY A MENTOR BEFORE BEGINNING.
2. All investigations using vertebrate animals or humans as subjects should cause no harm or undue stress to the subject. These projects must have approval from Mr. Marchionda (936-4156) before beginning the investigation.
3. No live vertebrate animals should be exhibited at the fair (models, stuffed animals or photographs should be used instead). Exceptions may be granted with special permission.
4. No human body parts should be displayed. Exceptions are teeth, hair and nails.
5. Students should avoid doing investigations involving bacteria cultures.
6. No controlled substances should be exhibited.
7. No dangerous or combustible chemicals should be displayed at the fair. Rockets or engines must not contain fuel. All chemicals displayed should have the contents clearly marked on the container.
8. No open flames will be permitted (exceptions may be granted during the evaluation process).
9. Student investigators should wear safety goggles (eye protection) and follow standard safety practices when working with fire, hot liquids or caustic chemicals. Parent approval and supervision is required for these projects.
10. All projects using household electricity must conform to standard wiring practices and safety.
11. Expensive or fragile items should not be displayed. Valuable items essential to the project should be simulated or photographed.
12. Items to be displayed in front of backboard should be adequately secured (i.e. batteries, wire, switch and motor - secure to a piece of plywood and place in front of backboard).
14. Carefully pack all materials when transporting to and from the fair.



## **OBJECTIVES FOR ELEMENTARY STUDENTS PARTICIPATING IN THE SCIENCE FAIR**

### **1. The student will increase his or her understanding of scientific procedures.**

For Investigations:

- A. The student will select a research problem and state a hypothesis.
- B. The student will use controls as necessary.
- C. The student will be able to clearly recognize and define the variables.
- D. The student will make measurements using the metric system when possible.
- E. The student will repeat the investigation to establish the validity and/or use a sufficient sample size.
- F. The student will express the data through the effective use of tables, graphs, illustrations, etc.
- G. The student will analyze and interpret the data to draw conclusions, which can be justified by the investigational process.

For Collections:

- A. The student will use observing skills (seeing, feeling, etc.).
- B. The student will demonstrate communication skills (oral, written or pictorial).
- C. The student will make comparisons regarding samples in the collection (sensory, size, weight, capacity, quantity, color, shape, etc.).
- D. The student will make measurements using the metric system.
- E. The student will use organization skills in grouping or classifying.
- F. The student will be able to explain why a given sample is a valid part of the collection.

For Models and Demonstrations of Scientific Principles:

- A. The student will use observing skills (seeing, feeling, etc.)
- B. The student will demonstrate communication skills (oral, written or pictorial).
- C. The student will make measurements using the metric system.
- D. The student's model or demonstration will be able to adequately and correctly explain/illustrate the scientific principle.

### **2. The student will show creative ability and originality through one or more of the following:**

For Investigations:

- A. the question asked.
- B. the approach to solving the problem.
- C. the analysis of the data.
- D. the interpretation of the data.
- E. the use of equipment.
- F. the construction or design of new equipment.

For Collections:

- A. what was collected.
- B. the way the collection is organized.
- C. the variety or completeness of samples included.
- D. the method of collection.

For Models or Demonstrations of Scientific Principles:

- A. the uniqueness of demonstration topic.
- B. the method of presentation.

**Students may receive advice and encouragement regarding their projects and displays, but actual work should be done independently.**

- 3. The student will develop an exhibit that tells about the project clearly, thoroughly and concisely.**
  - A. The display should be neat and attractive.
  - B. The construction of the display should demonstrate care and skill. Labels should be large and descriptions neatly presented. Correct spelling should be used.
  - C. The steps of the project (scientific method, if investigation) should be illustrated. The important phases of the project should be presented in an orderly manner, using graphs, charts, etc. when appropriate.
- 4. During an interview with the evaluator the student will be able to demonstrate knowledge of his/her project. The interview will also serve as a learning experience for the student.**
  - A. The student will be able to clearly discuss his/her project; to explain its purpose, procedure and conclusions in a clear and concise manner.
  - B. The student will be able to offer logical solutions to "what if" questions related to his/her project.
  - C. The student will be able to explain what he/she would do differently if the project were to be repeated.



CORNING-PAINTED POST AREA SCHOOL DISTRICT SCIENCE FAIR  
Evaluation Form For Elementary Students

	<u>Poor</u>	<u>Below Average</u>	<u>Average</u>	<u>Above Average</u>	<u>Eval. Excel. Rating</u>
<b>1. <u>SCIENTIFIC PROCEDURE</u></b>					<b><u>/45</u></b>
<b><u>For Investigations</u></b>					
A. The hypothesis is clearly stated.	1	2	3	4	6
B. Controls were used as necessary. (If not necessary, then give full credit.)	1	2	3	4	6
C. The variables are clearly defined.	1	2	3	4	6
D. The measurements were made using the metric system when possible.	0	2	3	4	6
E. Validity has been established through repeating the investigation and/or using sufficient sample size.	1	2	3	4	6
F. The data is expressed through tables, graphs, illustrations, etc.	1	3	4	5	7
G. The conclusions can be justified by the investigation process.	2	3	4	6	8
<b><u>For Collections:</u></b>					
A. Observing skills (seeing, feeling, etc.) were used.	1	2	4	6	8
B. Communication skills (oral, written or pictorial were demonstrated.	1	2	3	5	7
C. Comparisons were made regarding the samples in the collection (sensory, size, weight, capacity, color, shape, etc.).	1	2	4	6	8
D. Measurements were made using the metric system.	1	2	3	5	7
E. Organization skills were used in grouping or classifying.	1	2	3	5	7
F. The student can explain why a given sample is a valid part of the collection.	1	2	4	6	8

CORNING-PAINTED POST AREA SCHOOL DISTRICT SCIENCE FAIR  
Evaluation Form For Elementary Students

	<u>Poor</u>	<u>Below Average</u>	<u>Average</u>	<u>Above Average</u>	<u>Excel.</u>	<u>Eval. Rating</u>
<b><u>For Models or Demonstrations:</u></b>						
A. Observing skills (seeing, feeling, etc.) were used.	2	4	6	8	10	
B. Communication skills (oral, written or pictorial) were demonstrated.	2	4	6	8	10	
C. Measurements were made using the metric system when possible.	2	4	6	8	10	
D. The model or demonstration adequately and correctly explains/illustrates the scientific principle.	2	5	8	11	15	

**2. CREATIVITY AND ORIGINALITY (Shown in one or more of the following)**

/15

**For Investigations:**

A. The hypothesis	0	0	1	2	3	
B. The approach to solving the problem	0	0	1	2	3	
C. The analysis of the data	0	0	1	1	2	
D. The interpretation of the data	0	0	1	1	2	
E. The use of equipment	0	0	1	1	2	
F. The construction or design of new equipment	0	0	1	2	3	

**For Collections:**

A. What was collected	0	0	2	3	4	
B. The way the collection was organized	0	0	1	2	3	
C. The variety or completeness of samples included	0	0	2	3	4	
D. The method of collection	0	0	2	3	4	

**For Models or Demonstrations:**

A. The uniqueness of model or demonstration	0	0	4	6	8	
B. The method of presentation	0	0	5	6	7	

CORNING-PAINTED POST AREA SCHOOL DISTRICT SCIENCE FAIR  
Evaluation Form For Elementary Students

	Poor	Below Average	Average	Above Average	Excellent	Eval. Rating
<b>3. <u>DISPLAY</u></b>						<u><b>/20</b></u>

**For Investigations, Collections, Models & Demonstrations**

A. The display is aesthetically appealing.	3	4	5	6	7	
B. The display was constructed with care and skill. Labels are large and descriptions are neat. Correct spelling is used.	3	4	5	6	7	
C. The steps of the scientific method are illustrated. The steps of the project are presented in an orderly manner.	1	2	4	5	6	

<b>4. <u>INTERVIEW</u></b>	<u><b>/20</b></u>
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**For Investigations, Collections, Models & Demonstrations:**

A. The student is able to explain his/her project, purpose, procedure and conclusions) in a clear and concise manner.	2	4	6	8	10	
B. The student is able to offer logical solutions to "what if" questions related to his/her project.	1	2	3	4	5	
C. The student is able to explain what he/she would do differently, if the project were to be repeated.	1	2	3	4	5	

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<b>STUDENT'S TOTAL SCORE</b>	<u><b>/100</b></u>
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CORNING-PAINTED POST AREA SCHOOL DISTRICT SCIENCE FAIR  
"WHAT IN THE WORLD?"  
March 11th, 2017

OFFICIAL ENTRY FORM  
ELEMENTARY SCHOOL DIVISION (GRADES K THROUGH 5)

**YOU MUST FILL OUT AND RETURN THIS FORM TO BE REGISTERED FOR THE FAIR.**

**PLEASE RETURN THIS FORM TO YOUR TEACHER BY February 3, 2017**  
**IF YOU HAVE A PARTNER BOTH YOU AND YOUR PARTNER MUST EACH FILL OUT A FORM.**

Name: \_\_\_\_\_ Home Phone: \_\_\_\_\_

Street: \_\_\_\_\_ City/Town: \_\_\_\_\_ Zip: \_\_\_\_\_

School: \_\_\_\_\_ Grade: \_\_\_\_\_ Teacher: \_\_\_\_\_

Project Title (Please Print NEATLY):  
\_\_\_\_\_

If you have a partner, PARTNER'S NAME: \_\_\_\_\_

If you have a partner, your partner **MUST** fill out one of these forms also.

Please check ONE: I plan to do a

\_\_\_\_\_ Model or Demonstration of a Scientific Principle

\_\_\_\_\_ Collection

\_\_\_\_\_ Experiment

If you have any special requirements (electrical outlet, etc.) for your project display, please check here. Electricity is only available for a limited number of displays. Please ask for electricity only if it is absolutely essential to your display. You will be responsible for bringing your own extension cords, adaptors, etc. to the Corning Painted Post Middle School.

\_\_\_\_\_ I will need an electrical outlet

Other special needs: