**ENDEAVOUR’S 2018 SCIENCE FAIR**

# We are very pleased to announce Endeavour’s Science Fair will be held on Friday, March 9. We would encourage all our students to participate in the Fair. This is a perfect opportunity for students to work with a creative, hands-on approach to scientific principles. A Science Fair at the elementary level helps foster an appreciation of scientific processes to be remembered for life.

Here are the key dates:

* Jan 8th- 28th: Registration and display board order on the PTSA website
* Week of February 12th: board pick up
* March 8th 5PM-7PM: Set up, bring the projects to display
* March 9th during school time: Project presentations by the students
* March 9th 6PM-8PM: Science fair night

This event depends on volunteers, please check the PTSA website for opportunities to help make the science fair a success.

For more detailed information, go to the PTSA website, [www.EndeavourPTSA.Org](http://www.EndeavourPTSA.Org).

The Science Fair Board

EndScienceFair@Outlook.Com

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**GUIDELINES**

**January 8th – 28th** at [www.EndeavourPTSA.org](http://www.EndeavourPTSA.org) you can:

* **Register**
* **Purchase a display board (optional)**

Students may enter an **individual or a group project;** they may choose to work alone, with their classmates, friends or their siblings.

**Merlin and Grade 5 students** are required to work on an individual science project which must include the Scientific Method. They will be guided and graded by their respective teachers.

**Electricity** will be available but no gas or water outlets.

**Science Fair involves self-directed learning**. We would like all students to participate in this fun and **non-competitive** event. It is encouraged that the students come up with their own ideas and projects. Parents may assist their children with obtaining the supplies, assist in organizing materials and assuring safety.

**It is important that the student feel ownership of the work.**

**Safety first!**  **Students ought to have adult approval and supervision at home.**

For any experiment related question, please email EndScienceFair@Outlook.Com.

**TO OUR STUDENTS – PLEASE READ**

-All experiments should be supervised by an adult.

-Never eat or drink during an experiment and try to keep your work area tidy for safety’s sake.

-Wear protective goggles when doing any experiment that could lead to eye injury.

-Do not touch, taste, or inhale chemicals or chemical solutions.

-Any project that involves drugs, firearms, or explosives are NOT permitted.

-Animals are not allowed to be used in experiments. Do not perform an experiment that will harm a person.

-Always wash your hands after doing the experiment, especially if you have been handling chemicals.

-Dispose waste properly.

-Use safety on the Internet! NEVER write to anyone without an adult knowing about it. Be sure to let an adult know about what websites you will be visiting, or have them help you search.

-If there are dangerous aspects of your experiment, like using a sharp tool or experimenting with electricity, please have an adult help or have them do the dangerous parts.

**These** **may not be displayed**: **Living organisms, sharp items such as glass, syringes, needles- dry ice or other sublimating solids – fire/flames or highly flammable display materials- preserved animals -human or animal parts or body fluids- laboratory/household/dangerous and toxic chemicals- Poisons, drugs, hazardous substances or devices - hazardous bacterial/viral cultures**.

**PROJECT OPTIONS**

* **Labeled specimen and original scientific drawings**

A plant, insect, or crystal…/ Cross-section of an object
An accurate drawing/or a sketch, big, colorful and detailed. Parts are labeled, and the project includes a paragraph describing the drawing.

* **Self-made 3-dimensional scientific model or collection**

E.g., Model of an atom, types of rocks, species of Dinosaurs.
Include a title and a paragraph explaining the project.

* **Demonstrations of a scientific principle (*safe to be performed at school)***

E.g., Ballast tanks/Archimedes principle in a submarine, a windmill motor. Display includes a paragraph explaining the scientific principle. A demonstration can be performed o the day of the fair.

* **Observational report**

E.g., recording/mapping of specific plants, trees and animals in the neighborhood, observing the types and numbers of birds attracted to different types of bird feeder.
Record results using a graph or a table and then write about the results.

* **Research projects**

E.g., How does storm water runoff to prevent flooding in your city? Pollution in your state/any state and what steps are being taken to clean up? Environment Conservation in the neighborhood.
If the question requires using the library, internet, interviewing, etc., prepare a complete and well-organized report, including a bibliography. Create a display to show the findings.

* **Engineering projects**

Think and design a solution (which may or may not work) to a problem.

Once you have a plan of thought/ idea, work through the engineering design process to complete the design:

* Ask: what are the constraints of this project? How have other people solved a problem like this? How will I know when my design successfully solves the problem?
* Imagine: all the possible solutions to the problem. Make sketches.
* Plan: Choose the one design most likely work. Gather the materials.
* Create: Build it!
* Test: Test the design. Has it solved the problem? Does the technology do what was expected?
* Improve: What may be done to make the model better or actually make it work?

**SCIENTIFIC METHOD**

Examples of scientific investigations:

What is the effect of \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ on \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_?

*What is the effect of color on food taste?*

Which/What \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_ (verb) \_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_\_?

*What plants grow well on sandy soil?*

**1- Start with a question**. This might be based on an observation you’ve made or a topic that interests you. The question needs to be about something you can measure.

**2- Start a science journal/notebook** for hand-written observations and to record your data

**3-** **Research the topic.** Once the topic is chosen, research the materials/information available on the subject.

**4- Build a hypothesis.** It states what is expected to happen, based on the facts/knowledge you have collected. After the experiment is completed, it may turn out that the ‘guess ‘was wrong. That’s alright!

**5-Design a method** or a procedure to investigate and find the answer to your problem. This must be a detailed list of step-by-step directions. So, anyone who reads themmust be able to replicate your experiment.

Determine the variables:

* Controlled Variables: What will be kept *constant* during the experiment.

E.g., when testing the effect that water has on plant growth, the plants being tested ought to be in the same conditions- soil, type of plant, type of location, amount of light, etc. These are the controlled variables.

* Independent Variable: What will be changing in the experiment? There should only be one item as the independent variable.

The only variable that would change from plant to plant would be the amount of water it receives. The independent variable is the factor that is being tested.

* Dependent or Responding Variables: What will be measured or observed. The results of the test would be the dependent or responding variables.

Measurements or methods of observation:

* Quantitative Data: Numbers or quantities that are measured, using measurements, timers, a scale, standard unit rulers, meter tapes…
Include specific measurements in size and quantity with units.
* Qualitative Data: Descriptive words to state properties such as appearance, texture, taste, smell and sounds. Drawings and photographs are also qualitative data.

**6**-**Perform the experiment**.

**7**-**Collect data.** If possible, repeat the experiment.

**8-Analyze the data and present the results.** Use tables, graphs and other organizers to make the results easy to read, and recognize patterns that might be occurring in the results.

**9-Draw a conclusion.**

* Is your hypothesis correct or incorrect?
* Use the data to explain
* State what was learned from the experiment
* Explain what may be done differently next time.

**10- Present your results on a display board**

Examples of a Scientific Investigation:

<http://school.discoveryeducation.com/sciencefaircentral/Science-Fair-Projects/Samples-Investigation.html>

**HELPFUL HINTS FOR A DISPLAY**

* A good title should simply and accurately state the research.
* Words must be large enough to read from 3 feet away.
* Include Hypothesis, Procedure, Materials, Results and Conclusion.
* Pay special attention to labeling graphs, charts, diagrams and tables.
* If possible, add photographs or pictures to provide a visual account of the important parts/phases of the experiment.
* Be sure to include Name and Grade/Teacher.
* A free-standing part of the experiment could be placed in front of the display board. (Optional)

*Please avoid molds, bacterial-viral cultures, preserved specimen, live animals, dangerous and prohibited chemicals, explosives, corrosives, or dangerous objects, such as matches or demonstration volcanoes.*