STEAM Fair (Science Fair) – 2017

Dear Parents, Students, and Young Scientists, Technologists, Engineers, Artists, Mathematicians,

Are you ready to unlock the mysteries of the universe? The STEAM (Science Technology, Engineering Art & Mathematics) fair is the chance to explore, ask and answer questions you have about plants, animals, space, oceans, and the world around you.

The STEAM fair is open to all students and will be held on **Wednesday, April 19.** The time will be from 5:30-7:00 pm, with students at their projects from 6:00-6:30 pm. The projects should be set up again the following morning so classes may tour the STEAM fair in the morning (April 20).

Students are asked to choose a question that interests them and to do a research paper and/or an experiment about that question. This is a good opportunity for parents to encourage interest in science and work with their children on a project at home. We ask respectfully that projects be student driven with assistance from parents. The project can be done in French or English. We would also like to encourage students to consider joining with a partner.

Some helpful information to consider for planning and carrying out the project is attached. Paper will be provided for a backdrop. Please ensure that the project stands alone. There is no wall space for display. See page 2 for a suggested display picture.

To reserve a display space in the gym, please fill the section and return it to school by **Friday, April 7**. There will be additional room should late entries be submitted.

For more information, please contact the organizers:

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STEAM Fair – 2017

Name(s): _____

Project Title: _____

Grade: _____

Teacher: _____

Electrical outlet required: YES/NO

Steps to Prepare a STEAM Fair Project

(Drawn from a page written by Yvonne Karsten - Parent and Science Fair Coordinator at Kennedy Elementary School 1994-19967891)

1. **Select a question** – Remember a STEAM Fair Project is a project you do to find an answer to a question, not just showing what you know about something.
2. **Gather background information** – Gather information about your topic from books, magazines, the Internet, people and companies. Keep notes about where you got your info.
3. **Scientific/Inquiry method**
   - **State the purpose of your inquiry** - What are you trying to find out?
   - **Select a variable** (something you will change/vary) to help you find your answer.
   - **State your hypothesis** - your guess about what the answer will be.
   - **Process** - Decide on and describe how you will change the thing you selected.
     Decide on and describe how you will measure your results.
4. **Run controlled experiment and record data** - Do the experiment as described above. Keep notes in one place. Write down everything you can think of, you might need it later.
5. **Graphs and charts** -What happened? Answer that question. Then put the results in graphs, charts and pictures.
6. **Construct an exhibit or display** -- It has to be neat, but it does NOT have to be typed. Make it fun, but be sure people can understand what you did. Show that you used the Scientific Method.
7. **Come to the STEAM fair** and have fun! See you there!

The suggested display is adapted from *Janice VanCleave's Guide to the Best Science FairProject*

Advice to Parents (Adapted from Idea to Exhibit, Youth Science Foundation)

- Areas in which to be involved
    - Safety – Be sure that poisons, dangerous chemicals and open fires are avoided. Learn and practice electrical safety if electricity is used in the project.
    - Suggesting project ideas
    - Transportation to libraries, businesses, museums, nature centers, universities or any source of project information
    - Technical work such as construction and photography
    - Help with project expenses
    - Be an interested listener
    - Work with the child to develop projects within their skill level

Suggested Websites

- Science Fair Central http://school.discoveryeducation.com/sciencefaircentral/Getting-Started.html
- Science Fair Foundation http://www.sciencefairs.ca/Resources/Students.aspx
- Youth Science Foundation http://sf.youthscience.ca/

Project Ideas

- **METEOROLOGY**
    - Day Length - record length of days and nights over a period of time; what effects do the changes have on things like household plants, pets, etc.
    - Air Movement - Is air in your house the same temperature at floor level and near the ceiling? How could you spread heat more evenly through the house?
    - Dew - Does it form on clear or cloudy nights? What other Frost factors increase the amount of dew? Can you measure how much dew is formed in a square meter?
    - Temp. - How does the temperature change during the day? What time is usually the warmest? Can you construct your own thermometer to keep your own records?
    - Rain - How does a rain gauge work? Measure the rainfall over a period of time and compare it with the daily weather reports. - Principles of cloud seeding and other weather modification
- **BIOLOGY**
    - Insects -personal observations on life cycle, feeding habitats, population, flies, bees, butterflies
    - Nutrition - plants and fertilizer
    - Studies - how pet mice respond to different types of food (pellets, crushed, solid) - how do plants get nitrogen
    - Plants - why do plants grow towards light? - The effects of gravity on seed germination - how water moves through the plant - how plants reproduce and factors that affect the process - why do plants move?
    - Soil - the importance of earthworms to soil and plants - the effect of soil components and organic matter on growth of plants
    - Field Studies - plant and animal life in the school grounds, creek or stream, grassy field, tree, home garden, balanced aquarium, during winter. - diets of various animals
- **PHYSICS**

- How metals compare in conducting heat
- How metals compare in density and buoyancy
- Efficiency of different types of steam engines
- How does the amount of oxygen affect the rate of burning?
- Does Temperature affect Solubility?
- Are some substances more soluble than others
- How do Airplanes fly? What is the best wing shape?
- How do waves carry energy
- How do magnets work? How are they made?
- Compare densities of different gases
- How light is affected passing through water e.g. viewing objects under water, formation of rainbows
- What limits the speed of a boat, or a transport truck?

Other Project Ideas (www.education.com/science-fair)

- How can we save energy at school? How would you know if your idea was working?
- What brand of paint protects metal best against rust?
- What percent of food is water?
- What is the difference in ozone in Detroit, Ft. Wayne, and Los Angeles?
- Will the amount of light affect how fast a Venus Fly-Trap closes its jaws around an insect?
- Does artificial colored light make plants grow better than natural sunlight?
- Does the length of a propeller affect the speed at which a plane travels?
- What brand of matchbox car rolls more freely?
- How does music affect the growth of plants?
- What kind of butter can make better cookies?
- How much sleep does the average sixth grade girl need?

School Project Worksheet

What question do I want to answer?

How will I answer my question?

What materials do I need?

When do I need to start? Finish?

What help do I need from my parents?

What did I find out?

What will I say to others?

Other considerations?