

December 15, 2008

Dear Parents and Family of Key School students,

It is time to gear up for the eighth Annual Key School Science Fair! **Save the date of March 6. The week of March 2-6 will be Science Week at Key with special activities throughout the week and a family science night on March 6.** Continuing our efforts to learn more about protecting our earth and its resources this year's theme is "All about energy!"

We want students to explore topics and conduct experiments of areas of interest to them. It is certainly not a requirement to follow the school's theme but I hope many students explore topics of energy including alternative energy sources such as wind, water, and solar, conserving energy, electricity, light, and heat energy. Other related topics include plant and animal energy transfer and requirements, human body/nutrition, force and motion. This overall theme covers the science strands of physical, earth and life sciences. Students can work in teams (no more than two persons in a team) or as individuals. Siblings can also work together but will be judged based on the highest grade participant.

Primary students (grades Pre-K through 1st) use a process called Guess, Test and Tell. 2nd graders have the option of using the Guess, Test or Tell or the more formal scientific method if ready. Intermediate grades (3-5) should use the Scientific method to conduct their experiments. While there are a few variations of this method, the general outline for the Scientific Method involves asking a question, followed by forming a hypothesis, testing the hypothesis, using materials and a procedure, finding the results and making a conclusion. Of course, all students need to research and learn about their topic to help answer the all important question "Why did this happen?"

In addition to investigative projects, students may also choose to do a mini-museum or demonstration project. Attached are some suggestions (compiled by former teacher Ms. Sills) that are helpful when establishing a collection. Please note for those students who wish to be considered for the city-wide fair it must be an investigative project.

As in the past, students conduct and complete their science fair projects at home and bring them to school on **March 4**. Stay tuned for more information about student workshops and a special parent workshop "How to help but not do your child's science fair project."

This year we will be participating in the All-city science fair for grades 3-5, May 2 and 3. Our science fair judges will recommend projects for city-wide during the judging. Last year we had fifteen students represent Key.

Attached is a suggested timeline and a list of possible questions to explore. This is by no means an exhaustive list but rather a starting place to generate ideas. **The project interest form is due no later than January 15.** Once that form is

returned, your child will be sent a complete science folder including scientific worksheet, additional helpful tips and tools that he or she will follow as a guide to the process.

We encourage all students to participate in the science fair but **it is a class requirement for grades 3-5**. There are so many educational benefits with participation in this fair but most of all it's a rewarding, challenging and fun experience! It's a wonderful opportunity to educate the entire Key school community!

I will be available throughout the months leading up to the science fair to guide and assist families as needed through this process. Please do not hesitate to contact me with your questions or concerns ajohnsonkey@yahoo.com.

On behalf of the science fair committee, we look forward to another great science fair.

Warmly,

Amy Johnson
Science Resource Teacher

Important Reminders

1. Return project interest form no later than January 15 – it's time to get started!!!!
2. When project form is returned/approved – complete science folder based on grade will be sent home with forms, checklists, timelines, and specifications for the date. 3rd -5th graders will be responsible for meeting their deadlines as part of their science requirements!
3. Science projects due on March 4 – Science Fair on March 6.
4. Project boards will be once again for sale at Key – more information will be provided in the complete science folder.
5. **DONT DELAY – START TODAY!**

My Science Fair Project

Please fill out and return to Ms. Johnson no later than January 15, 2009

Name: _____

Grade: _____ Teacher: _____

Topic: _____

I want to do the following type of project:

_____ Individual investigation

_____ Demonstration

_____ Mini-museum collection

My question I want to answer: _____

_____ I am working on my own

_____ I am working with the following student

Parent/Guardian Signature: _____

Date: _____

To be filled out by Ms. Johnson

_____ Project approved

_____ Packet sent home

_____ Date

Project Ideas

The Internet is a great resource to generate ideas for science projects. If using a project that you find in a book or Internet, please consider changing a variable or redesigning it to make something original for you. Never just copy the project from the internet without testing it out for yourself – this is YOUR PROJECT! The Palisades Library has some great resources too!!!

Experiment Ideas

How do temperature changes affect a fish?
Does a temperature change in water affect a fish's rate of breathing?
The effect of sunlight on plants
Removing salt from water
What effect does size of particles have on how fast a solute dissolves?
Where is the best place to position solar heating units?
Can the wind be used to make electricity in the area where we live?
Is a solar collector a feasible way to heat water?
Are there solid particles in the air we breathe?
The effect of dilution on reducing water pollution.
What materials are biogradable?
What materials decompose the fastest?
What effect does the color of an item have on the amount of solar energy it absorbs?
How does acid rain affect plant germination?
Which soils absorb the most water?
How does acid rain affect plant growth?
How do detergents affect plant growth?
What type of building materials are affected by acid rain?
How can you purify water?
How does ultraviolet light affect plant germination?
How does air pollution affect plant growth?
How does temperature affect the lifecycle of a mealworm?
How does acidic soil affect plant growth?
Do earthworms in the soil help plants grow better?
What is the acidity level in rainwater from different areas?
Are some soaps less harmful to plants than others?
Which materials absorb run-off better?
Does a bath take less water than a shower?
Can plants grow without soil?
What materials dissolve in water?
Does temperature affect the growth of plants?
Does pollution affect the water temperature?
Can you separate salt from water by freezing?
Does it matter in which direction seeds are planted?
What type of surface holds the most heat?
Can the sun's energy be used to clean water?

What kinds of materials provide the best insulation?
What keep things colder – plastic wrap or aluminum foil?
What are the affects of chlorine on plant growth?
Does the color of a material affect its absorption of heat?
What type of soil filters water best?
Do plants filter pollution?
Does the size of the light bulb affect its energy use?
How can we measure soil erosion?
How clean is the air?
How are aquatic organisms affected by fertilizers?
How does acid rain affect an aquatic environment?
What's in our school-yard soil?
Do different diets affect earthworms?
How much oxygen can dissolve in water?
How do plants affect erosion?
What are the affects of road salt on trees and plants?
How does phosphates affect biodegradability?
Do compost piles improve soil?
Do rechargeable batteries last as long as regular batteries?
Do certain plants help erosion better than others?
Do greenroofs reduce pollution?

Demonstrations

How is paper made? How can we recycle paper?
Build an earthworm farm and show how helps soil
Where does the water come from?
How do glaciers change the land?
Demonstrate the greenhouse effect
Different examples of water pollution
Uses of solar energy
How litter affects birds
Global warming and the melting of the ice cap
The freshwater food chain
Testing water quality
Testing soil for pollutants
How does a water treatment plant work
How much water can you save at home with better habits?
How much water does your household use to flush the toilet?
What damage do oil spills cause?
How can you clean up an oil spill?
Alternative energy sources
Greenroofs or raingarde

Mini-Museums (Ms. Sills, former Key Science Teacher, put together this very helpful guide to creating collections that go beyond grouping objects. If you're excited about putting together a collection – please use these guidelines!)

Putting together a wonderful mini-museum requires grouping objects, linking objects thematically, asking questions, adding headlines, and creating a well-designed environment for your collection. Requirements:

1. Put together the objects of your collections (seed pods, leaves, rocks, shells, etc) Your collection should contain at least 20 real items.
2. Decide on a theme for collection. Theme should connect the objects in your Collection in an insightful way. (Rocks in D.C., Plant Diversity of Rock Creek Park, Invasive plants in D.C., etc.)
3. The collection should be accompanied by an overall description of the theme written and presented in an engaging manner.
4. Additionally, maps, photographs, time-lines, and simple games enhance the collection,

Remember, these are just some suggestions – what do you want to explore?