



It's All In The Family

Hosting Family Science Celebrations
At Your School And In Your Community

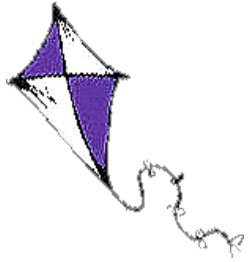
National Science Teachers Association
New Orleans, Louisiana
March 20, 2009

Presenters

David Heil, President, David Heil & Associates, Inc.
Founding President, Foundation for Family Science

Joseph Maglaty PhD, Director, Education Outreach
Merck Institute for Science Education
Past President, Foundation for Family Science

www.familyscience.org



What are the Specific Goals of FAMILY SCIENCE?

To make science more accessible to families by offering:

- a non-threatening, hands-on approach to learning scientific processes, concepts and themes.
- cooperative learning activities which develop problem-solving, questioning and communication skills.
- strategies for encouraging all students to pursue scientific study.
- opportunities for families to participate in group science activities.



What are the Specific Goals of FAMILY SCIENCE?

To get parents more involved in their children's science education by encouraging:

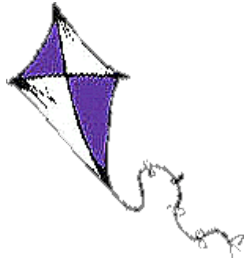
- participation in informal learning activities which supplement children's formal school science experiences.
- parental interest and involvement with school science curriculum.
- families to do science activities at home using inexpensive and readily available materials.
- adults and children to be partners in learning.



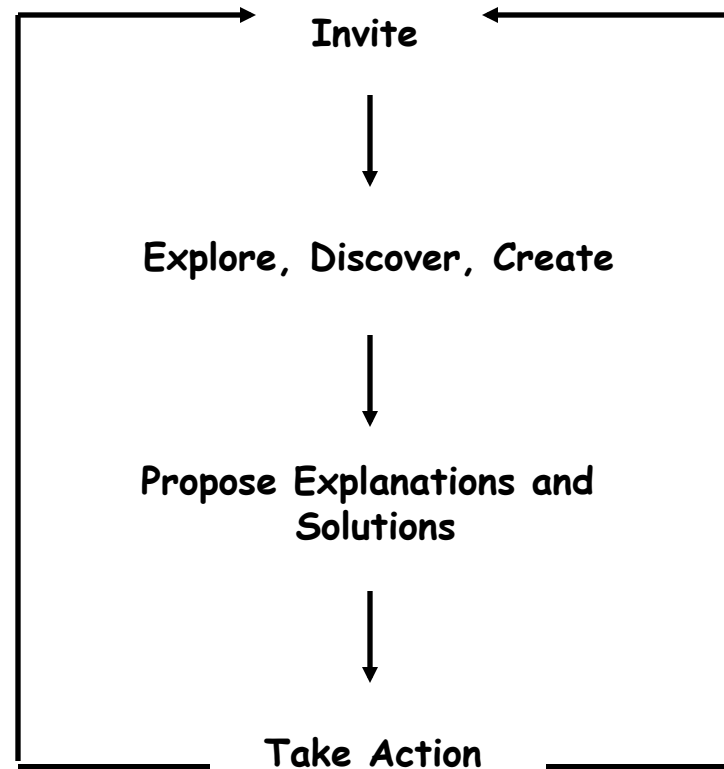
What are the Specific Goals of FAMILY SCIENCE?

To demonstrate the relationship between science education and future career choices by providing:

- activities that highlight the relevancy of science to daily life.
- a forum for guest presenters to share information with families about various jobs and how they relate to science.
- a historical perspective on science discoveries that highlight various contributions of people from different cultures.



INVITATIONAL LEARNING MODEL



Adapted From: *Science and Technology for the Middle Years: Frameworks for Curriculum and Instruction*,
National Center for Improving Science Education, 1990.



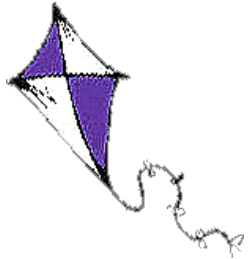
Family Science Supports National Science Education Standards & No Child Left Behind

- Science Literacy
- Unifying Concepts & Processes
- Science as Inquiry
- Physical Science
- Life Science
- Technology & Design
- Career Awareness
- Science in Personal and Social Perspectives
- History and Nature of Science
- Supplemental Resources for Schools, Communities
- Parent Engagement and Choice



Science Learning for Everyone

- Raise expectations
- Encourage questions
- Emphasize future education
- Use stuff
- Encourage creativity
- Investigate
- Eliminate negativity
- Discuss accomplishments of "non-traditional" scientists
- Challenge Stereotypes
- Connect with role models
- Visit science places



FAMILY SCIENCE

Editors

David Heil
Gayle Amorose
Anne Gurnee
Amy Harrison

Lead Developer

Peggy Noone

Other Contributors

Rhett Lewis
Tim Erikson
Ann Clark

Illustrator

Charlotte Lewis

Contents

Chapter 1: At Home with Science

Chapter 2: Openers

Chapter 3: Science at Work

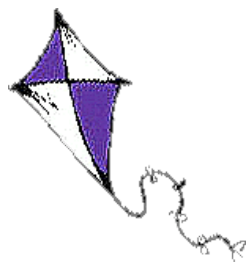
Chapter 4: Using the Language of Science

Chapter 5: Observing Your World

Chapter 6: The Physical World

Chapter 7: Design and Technology

Chapter 8: Organizing a Family Science Event



Sample Family Science Activity

Age:

8-13

Participants:

Group, Family, Pair

Supplies

- paper, a variety of types
- paper clips
- clear plastic cups
- small flashlight
- small portable mirror
- plastic soda straw
- sheet of aluminum foil
- tape
- balloons
- spoons
- rubber bands
- pencil
- string
- ruler
- resealable sandwich bags

Evidence, Please

Why

To test ideas and offer explanations for findings.

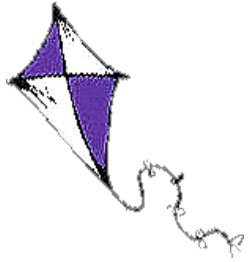
What

Scientists ask questions about the world around them and search for evidence to confirm their ideas. Evidence can support some things, but it may require ongoing investigation before a conclusion is reached. The challenge of this activity is to find evidence that demonstrates a science idea or concept for others using household items.

How

- Divide into teams. Collect one large set of supplies for the whole group. You may want to add other household materials to your supply list.
- Each team selects one of the topics on the *Evidence, Please List* to investigate using their collection of household materials (see page 90). For a challenge, one team can choose a topic for another team to investigate and demonstrate.
- Decide how much time you will have to investigate the selected topic, and prepare a demonstration of your evidence.
 - Use the *Evidence, Please List* for ideas on what evidence to demonstrate. Practice your demonstration to be sure it shows the evidence you want.
- Each team presents their evidence on the selected topic.
- During the presentations, record other science ideas you discovered on the *Evidence, Please List*.
- Add answered and unanswered questions to a Question Quilt (see page 86 for a full description of this activity).

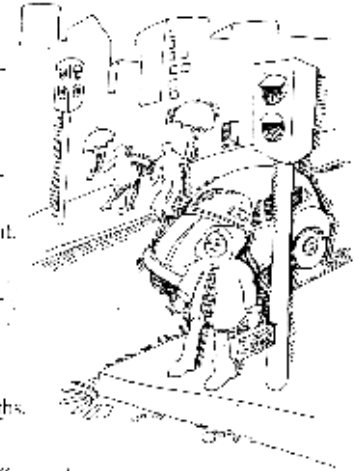




Teams Select From This List

Evidence, Please List

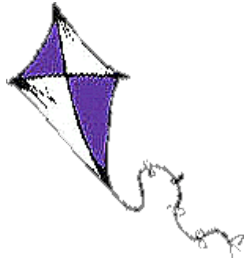
Topic	Properties to demonstrate as evidence
Air	Air has weight and takes up space. Air can move objects. Air pressure is reduced by moving air.
Friction	Friction produces heat. Friction causes objects to resist movement. Friction can produce static electricity. Wheels reduce friction.
Water	Water can be absorbed. Some substances dissolve in water. Stirring shortens the dissolving time. Water pressure is not the same at all depths.
Shadows	A shadow is cast when light is blocked. One object can cast shadows of many different shapes. The distance between the object and the light source affects the size of the shadow.
Sound	Vibrating objects produce sound. Objects can be identified using sound. Sound can move through solid objects.
Human Beings	The senses help people identify objects, substances and events. Thumbs give humans a manual dexterity advantage. People adjust their center of gravity to remain balanced.
Reflection	Reflection is one way light changes direction. A reflection of a reflection can be viewed. Images reflected in a flat mirror are reversed. The location of an image in a mirror depends on the distance of the object from the mirror.
Light	Light travels in a straight line. Light can be reflected.
Structures	A hollow structure can be light and strong. The stronger the structure the more weight it can support. The shape of a structure affects the rigidity and strength of the structure.





Organizing A Family Science Event

- What is a Family Science Event?
- Who can host a Family Science Event?
- Where do Family Science Events take place?
 - Who attends a Family Science Event?
 - Why do a Family Science Event?



Looking for a new and different way to
spend time with your family?

Then check out...

FAMILY SCIENCE!

- * Work as a family and build your science skills.
- * Try hands-on activities that make learning fun.
- * Free admission. Treats!
- * All ages welcome.



Date:
Time:
Place:

FAMILY SCIENCE is sponsored by:

Sample Promotion for Local Event



Join us for FAMILY SCIENCE!



What? FAMILY SCIENCE is an exciting program for children and adults who want to have fun and explore science by doing hands-on activities. Family members test, tinker, and learn about science in daily life, school, and work. FAMILY SCIENCE demonstrates that science is everywhere and for everybody's family!

When?

Where?

To register your family for FAMILY SCIENCE, fill in the form below and return to:



Yes! Sign us up for FAMILY SCIENCE!

No. of Adults: _____ No. of Children: _____

Name(s): _____ Name(s) & Age(s): _____

The best way/time to reach our family is: _____

Signature: _____

Sample Letter Home



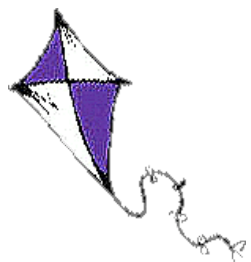
Family Science Event Planning Worksheet

Event Date: _____ Time: _____ Location: _____

Event Leaders/Contact Info: _____ Phone: _____ Email: _____

Event Leaders/Contact Info: _____ Phone: _____ Email: _____

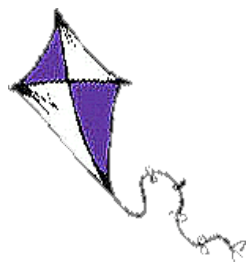
Program Element	Things To Be Done	Who	Where	When
Promotion				
Set-Up				
Openers				
Registration				
Welcome/Introductions				
Activity Sessions				
Wrap-up/Prizes				
Clean-up				
Thank yous				



Family Science Event

Sample Schedule: 7:00 - 8:30 p.m.

5:30 - 6:30	Event Set-Up
6:30 - 7:00	Registration/ Early Openers/ Refreshments
7:00 - 7:15	Continue Openers
7:15 - 7:30	Welcome, Introductions
7:30 - 8:20	Activity Sessions (2-3 max.)
8:20 - 8:30	Wrap-Up, Prizes
8:30 - 9:15	Event Clean-Up



Sample Certificate of Participation



This certifies that the following family members

Name Here

participated in FAMILY SCIENCE

at **Lyle Elementary**

on **November 20, 2008**



COMING SOON – SPRING 2011

Family Engineering

For Parents & Elementary-Aged Children

Supported by the



National Science Foundation
WHERE DISCOVERIES BEGIN

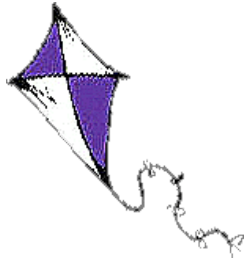
Michigan Tech
Michigan Technological University



Foundation For
Family Science



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For a complete copy of these slides please visit the
Family Science Website

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