How do you sustain a Family Science program? Working with like-minded people, collaborating to meet mutual needs, and maintaining newly formed relationships are key to a program’s sustainability. This section presents strategies for supporting those wanting to develop inquiry-based science learning experiences for parents, families, and community groups. These strategies are offered not as a checklist, but rather as ideas to consider in crafting Family Science programs in other settings.

Strategies for Planning, Implementing, and Evaluating Family Science Events

Earlier in this guide, it was recommended that you form a Family Science Planning Group with members from the Triangle of Support (see p. 14) who are committed to science education and student achievement, involved in inquiry science, aware of science reform efforts, and committed to increasing family involvement.

Steps for sustaining a Family Science program within your organization fall into four main categories:
- Planning Family Science events
- Implementing Family Science events
- Evaluating Family Science events
- Follow-up projects.

"All the staff went to the professional development offered through the NSF Local Systemic grant, and since then the staff has been more interested and involved in science.”
—Elementary School Principal

"Thank you for your enthusiastic contribution to our Science Night. ‘Experience Science’ gave our students, parents, and school staff a very special opportunity to engage in so many different aspects of science. We are very grateful for all that you shared. Thank you from each of us at our school!!!"  
—Teacher
Steps in Planning Family Science Events

1. Develop a Common Mission

A project's mission, vision, and goal statements provide the organizing language that helps you decide what to do and how and when to do it. Here are a few tactics to support your overall strategy.

- Work with people, groups, or organizations whose goals align with yours.
- Determine specific audience for events.
- Make learning outcomes for events intentional and targeted.
- Bring all stakeholders to planning discussions.
- Provide the Family Science program framework but be flexible and responsive to all participants' needs.
- Gather a diverse group of people who can provide multiple perspectives.
- Build working relationships through open communication.

2. Recruit a Leader

Forming a Family Science Planning Group lessens the likelihood of leaving leadership to chance. One strategy learned through our own Family Science events was to recruit a point person, a lead teacher, or committed volunteer to call meetings, plan agendas, assign tasks for events, and orchestrate event/program timelines. The leader will then delegate to others such tasks as:

- Advertising the event.
- Communicating with other organizations that can contribute through donations or volunteering time.
- Recruiting and training volunteers for facilitating activities.
- Selecting activities that highlight inquiry-based learning.
- Planning and organizing the event layout.
- Organizing set-up and take-down crews.
- Collecting data from event evaluations and reporting to the group.

3. Advertise the Events

Advertise early and frequently. Place monthly articles in school newsletters. This will help spread information and get families further involved in science beyond the school classroom. A September article can give background information on the program. Other months could reflect theme topics. For example, February is Dental Health month and the activity could be about teeth.

Consider translating flyers into the native languages of families in your school and organization. Flyers can be posted at local community gathering places such as community centers, churches, and local coffee houses.

4. Document the Events

Document your school's Family Science events and planning decisions. These records will help build the structure for an ongoing Family Science program and provide continuity for new volunteers. If you use the Event Planning and Documentation Tool (see Forms section) the guide will gradually become individualized for your school and provide a rich history of Family Science events and outcomes.

We encourage taking photographs at events since photos are wonderful communication tools. Try to capture a variety of activities and people. Exhibit the photos with name tags after an event to share with the community. Include them in your school newsletter, send them to your volunteers and contributors, or use them at next year's Informational Event. Place a few photos in your Celebrating Science binder as a tool to explain events to future event planners. Remember to use a photo waiver form for permission to use photographs in public relations materials.
Steps in Implementing Family Science Events

5. Choose an Event

As suggested in the Family Science Program Model (see p.16), three types of events are particularly effective in developing a Family Science program. An overview of these events is below.

<table>
<thead>
<tr>
<th>Event Description</th>
<th>Venues</th>
<th>Facilitator(s) of Event/Activities</th>
<th>Expected Outcomes</th>
</tr>
</thead>
<tbody>
<tr>
<td>Informational Events</td>
<td>School-based:</td>
<td>Principal, Family Science Planning Group, Teachers, District science specialist, Out-of-school time provider</td>
<td>Inform families and community about school and district science reform efforts, Inform families and community about benefits of learning science through inquiry (i.e., increased overall student achievement)</td>
</tr>
<tr>
<td></td>
<td>PTA meeting, Open house booth, Curriculum night, Newsletter articles</td>
<td>Community-based: Science clubs (at schools or out-of-school program), Community centers</td>
<td>Inform families and community about upcoming Family Science events.</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>期待结果</td>
</tr>
<tr>
<td>Showcase Events:</td>
<td>School-based:</td>
<td>Students, Teachers</td>
<td>Share students' classroom work based on inquiry science, Demonstrate inquiry process and classroom learning</td>
</tr>
<tr>
<td>• Science Celebrations</td>
<td>Science fair, Science club</td>
<td></td>
<td>期待结果</td>
</tr>
<tr>
<td></td>
<td>Community-based:</td>
<td></td>
<td>期待结果</td>
</tr>
<tr>
<td></td>
<td>Community centers, Out-of-school program, Science club</td>
<td></td>
<td>期待结果</td>
</tr>
<tr>
<td>• Science Conferences</td>
<td>School-based:</td>
<td>Teachers, Students, Scientists, Out-of-school time provider</td>
<td>Model inquiry-based teaching and learning</td>
</tr>
<tr>
<td></td>
<td>School classrooms, Science club</td>
<td></td>
<td>期待结果</td>
</tr>
<tr>
<td></td>
<td>Community-based:</td>
<td></td>
<td>期待结果</td>
</tr>
<tr>
<td></td>
<td>Community centers, Out-of-school program, Science club</td>
<td></td>
<td>期待结果</td>
</tr>
<tr>
<td>Exploratory Events</td>
<td>School-based:</td>
<td>Volunteers trained in inquiry-based teaching and learning (i.e., parents, teachers, scientists, and out-of-school time providers)</td>
<td>Experience first-hand inquiry-based science activities, Encourage families to extend inquiry learning at home.</td>
</tr>
<tr>
<td></td>
<td>Math and science night</td>
<td></td>
<td>期待结果</td>
</tr>
<tr>
<td></td>
<td>Community-based:</td>
<td></td>
<td>期待结果</td>
</tr>
<tr>
<td></td>
<td>Out-of-school program</td>
<td></td>
<td>期待结果</td>
</tr>
</tbody>
</table>

6. Recruit and Train Facilitators

Facilitators must model high-quality inquiry teaching. They should be comfortable in using inquiry strategies and letting the learner “find out” the answer. Since Family Science events do not enjoy the continuity of instruction found in the classroom, facilitators must be skillful at launching participants—especially adults who may have limited or negative science experiences—into a question that can be answered within a short time frame and with the materials present.

Choose a facilitator who can highlight key scientific concepts through modeling of the inquiry-based process and can encourage participants to explore scientific principles with materials on hand. One way to facilitate the inquiry-based experience for large groups is to create a set of guiding questions in advance. In the Creating Inquiry-based Activities section of this guide, several strategies for facilitating activities using an inquiry approach are described.

7. Select Activities

Select open-ended science activities that highlight inquiry-based learning strategies (see FERA Learning Cycle Model, p. 29.) Some other useful strategies for involving diverse audiences are to:

- Keep event start-up and focus activities short, with a minimum of explanations and instructions, before the hands-on experience.
- Use one-page, pictorial diagrams (even cartoons) outlining activities whenever possible.
- Use translators to engage non-English speaking families in the activities.
- Use “challenge” activities to keep participants involved and trying new ideas.

8. Gather Supplies

Once you have accumulated materials for an event, you may wish to sort them by activity and store them in plastic tubs. Make sure you indicate where these supplies are stored in the Event Planning and Documentation Tool. (See Forms section.) Consider soliciting donations from local businesses to stock supplies (e.g., straws from restaurants, wood stirring sticks from coffee shops, washers from hardware stores).

9. Plan the Layout

Planners and facilitators will need to consider the total number of participants expected for the event and an optimal group size for each activity. Things to consider include:

- Can the written directions be read from all places where participants might be situated?
- Where will paper towels, extra materials, tape, etc., be stowed for easy access?
- Will participants be standing or sitting?
- Are materials to remain at the event or can some be taken home for further exploration?
- Are there any special needs for electricity or water at this activity station?

Materials can be shared equally among participants when each station is limited to no more than four or five people. If there is only one facilitator, limit the number of stations to ten.
Steps in Evaluating Family Science Events

10. Conduct Program Evaluation

The successful growth of any program depends on the time committed to evaluate and re-evaluate the target audience’s needs. This table outlines the types of evaluations that are helpful in growing a comprehensive Family Science program. See the Forms section (p. 37) for examples of each suggested evaluation.

<table>
<thead>
<tr>
<th>PROGRAM EVALUATION</th>
<th>INITIAL EVALUATION</th>
<th>DURING EVENT EVALUATION</th>
<th>FINAL EVALUATION</th>
</tr>
</thead>
<tbody>
<tr>
<td>Identify purpose of evaluation</td>
<td>Clarify program goals, processes, and outcomes</td>
<td>Assess specific event outcomes</td>
<td>Assess Family Science program goals</td>
</tr>
<tr>
<td>Identify audience</td>
<td>Partners and other Triangle of Support members</td>
<td>Participants, event and activity facilitators, volunteers, and Family Science Planning Group</td>
<td>Family Science Planning Group</td>
</tr>
<tr>
<td>Identify venues for data collection</td>
<td>Meetings</td>
<td>During Family Science events</td>
<td>Meetings</td>
</tr>
<tr>
<td>Determine data collection methods</td>
<td>Informal interviews Written survey</td>
<td>Surveys and informal interviews</td>
<td>Collection of surveys</td>
</tr>
<tr>
<td>Logistics</td>
<td>[Assess program needs] Each year before planning Family Science events, assess the program’s needs. Use questionnaire in Forms section</td>
<td>[Debrief after Family Science events] With questionnaires in hand, the Family Science Planning Group should take some time to discuss what went well and what could be improved for the next event. Use questionnaire in Forms section</td>
<td>[Define next steps for Family Science program] After all events have taken place, the Family Science Planning Group will have a better picture of the phase of community participation and the current stage of science reform efforts and be ready to consider new ways of growing the Family Science program. Use questionnaire in Forms section</td>
</tr>
</tbody>
</table>
Follow-up Projects

To further expand the learning from a Family Science event, consider these follow-up activities.

Create Check-out Kits

When budget and time permit, a worthwhile project is to create check-out kits for families. Teachers and out-of-school programs could have access to these materials as well. The kits can contain materials and directions necessary to do an inquiry-based activity. All activities should include simple materials appropriate and safe for home use. Funds to supply kits could be raised by a Parent Teacher Association or submitting a grant application to local foundations or businesses. A kit collection requires space, refurbishment, and check-out and check-in methods. A dedicated volunteer is needed to perform these tasks. Housing each kit in a plastic tub is convenient. They can be bar-coded like library books. For ease of transport, it is best if the kit can fit in a child’s backpack. Kit collections could be housed at the school library, out-of-school program space, or the local community learning centers.

Develop Take-home Activity Packets

At Family Science events, encourage families to continue inquiry-based science at home by providing take-home activity sheets and perhaps the materials to do the activity. These supplies could be laid out at a table, assembly-line style, or prepackaged in a baggie.

Offer Science Classes for Families

Throughout the year, offer inquiry-based science classes for families who are interested in learning about specific science concepts in more depth. These could be offered to a limited number of individuals, perhaps four to six families, held over multiple sessions (e.g., each Monday evening in November.) A team of instructors, including a content expert (e.g., scientist, university professor) and a facilitator trained in inquiry-based teaching (e.g., science teacher, parent) could deliver the workshops as a team.