

Family ASTRO How-To Manual

A Reference Guide
for Leaders of Astronomy Events



from Project ASTRO™
at the Astronomical Society of the Pacific
www.astrosociety.org



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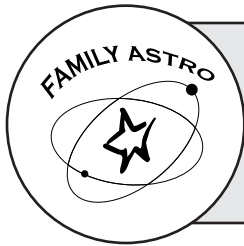


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INTRODUCTION

TO FAMILY ASTRO AND THIS GUIDE

Welcome to the Family ASTRO How-To Manual. In this publication, designed for educators and astronomers who want to work directly with families and/or other groups in their communities, we want to share with you what we have learned in the process of developing and testing our series of astronomy kits and events.

About Family ASTRO

Family ASTRO is part of a larger program called Project ASTRO™, which has, since 1993, linked hundreds of volunteer amateur and professional astronomers with 4th through 9th grade teachers around the country. As Project ASTRO astronomers and their educator partners “adopted” a classroom or community group for a year, they found tremendous interest in what they were doing among the families of the students. “Star parties”, back to school nights, special community programs in astronomy drew many families (some of whom had rarely participated in such communal events).

Between 2000 and 2004, we received pilot funding from the Informal Science Education Division of the National Science Foundation to develop a Family ASTRO strategy and to produce materials bringing astronomy to families in the same communities where Project ASTRO already operates. The goal was to get families off the couch, away from watching Hollywood stars, and to become curious about the real stars.

Starting in 2005, we expanded the program to include a much wider range of astronomy event leaders. Many are still trained in workshops offered through our Family ASTRO sites around the country (see our website at <http://www.astrosociety.org/education/family/sites/sites.html> for their locations), but other educators work only with our Leader Kits and detailed guides (and some of the training materials on our website) to learn how to lead astronomy events. Our event leaders now include scientists and amateur astronomers with an interest in education, teachers and afterschool program staff, museum and planetarium educators, youth and community group leaders, and everyone who enjoys doing basic science with children and families.

Our strategy to involve participants is to invite them to evening and weekend events where they will have fun doing astronomy activities. These activities are packaged in a series of Leader Kits with fun titles like “Night Sky Adventure,” “Race to the Planets,” and “Moon Mission.” Each kit contains activities, games and demonstrations that use simple materials and are within the capacities of a wide range of children and families. Some of the kit materials are available in both English and Spanish.



Throughout the process of development, we paid careful attention to what families and other participants actually want and like (instead of pretending to know what is best for them.) With the help of the Institute for Learning Innovation, we conducted focus groups and trial family events with diverse families all over the San Francisco Bay Area and around the country. This guide summarizes some of our findings, and we hope it will make planning your own events a bit easier.



Two sisters hang a poster in the room showing a constellation oriented the way it would be in the sky outside

Family ASTRO Events

The essence of the Family ASTRO approach is a sequence of two 1-3 hour astronomy events, in a comfortable room with tables, where participants can work together on hands-on activities and develop an interest in a particular topic in astronomy (that they can then continue to explore at home). Family ASTRO events differ based on the interests of the leaders, the room and materials that are available, and the needs of the participants involved. However, we can nevertheless say a few general things about structuring events to maximize your chances of success. We have found that it is best to mix different kinds of activities during an astronomy event. There are three main types of activities described in each Leader Kit's leader guide:

Stations: These are stand-alone activities that can be explored by event participants without much instruction from event leaders. The concepts introduced at stations are reinforced later on in other activities at your event. We recommend setting up stations around the room and structuring time for exploration as everyone arrives, or during a break from the group activities.

Facilitated (Group): These are activities which you will actively lead during your events. They require more time, explanation, and directions than the stations.

Take-Home: These activities, which participants take home after your event to do on their own, are more fun and game-like. Families have many options for how they spend their discretionary time and we have tried to make these an appealing choice.

We have also found that planning two or more Family ASTRO events for the same group is of tremendous benefit. Participants enjoy coming back for a second Family ASTRO event (a few days or weeks later), where they ask further questions, get help with problems that came up at home, and try new activities. Often participants who were not sure what to expect at their first Family ASTRO session will more actively engage in a second event.

Help Us to Do It Better

We invite all readers of this guide who do Family ASTRO events to let us know how they went, and to give us feedback in general. Send your anecdotes and ideas to: astro@astrosociety.org.

And thanks for becoming part of Family ASTRO,

Andrew Fraknoi
Director: Project ASTRO



FREQUENTLY ASKED QUESTIONS ABOUT FAMILY ASTRO EVENTS

WHO HOSTS FAMILY ASTRO EVENTS?

Many different kinds of educators can host Family ASTRO events. Often, educators and astronomers act as co-hosts, each bringing his or her own expertise to the partnership. Museum educators, community group leaders, school teachers, amateur astronomy club members, professional astronomers, and afterschool providers are all potential Family ASTRO hosts. Educators who feel that their background in astronomy is not strong can sometimes invite a local amateur astronomer to join them the first few times they lead an event. Visit the “Night Sky Network” website to find an astronomy club near you: <http://nightsky.jpl.nasa.gov/>.

WHO PARTICIPATES IN FAMILY ASTRO EVENTS?

Event leaders determine the size of the group and the kinds of participants who attend their event. Usually, Family ASTRO events are for between 10-40 people, or between 5-12 families. Since most of the activities are designed for kids ages 8 and up, it can sometimes be disturbing to have kids that are much younger attend and demand attention. Leaders can advise parents in the event announcement that there is an age limit on participants (and that they will need to find babysitting for their younger kids). Or, leaders can arrange childcare for young children at the event site. See the “Sample Invitation” on page 17.

ARE AUNTS AND UNCLES CONSIDERED FAMILY?

Yes. In Family ASTRO we take care to define “family” as broadly as possible. The activities are designed for children to do with adult caregivers. Those caregivers can be grandparents, guardians, aunts, uncles, mentors, or other adults.

WHERE ARE FAMILY ASTRO EVENTS USUALLY HELD?

A local school or community center that can open at night or on the weekend is a typical place for a Family ASTRO event. If someone from a museum or planetarium is involved, they usually have facilities that are excellent for astronomy events. Sometimes, a local



A Family ASTRO participant practices finding constellations



service organization or athletic facility may have a room available. But in general, we recommend against using private homes for such an event (unless people know each other well) because of liability and clean-up issues.

HOW MUCH ASTRONOMY DO I NEED TO KNOW TO LEAD AN EVENT?

In the Leader Kits we provide for event leaders, we give some background information on the topic of the kit, detailed instructions for each activity, and recommendations for further reading and helpful web sites. Thus, many educators without significant astronomy background find that they can lead Family ASTRO events just by reading over our materials carefully. Still, if your background in astronomy is not especially strong, you may want to find a volunteer astronomer to help you lead your first few events. Consult the “Night Sky Network” web site for amateur astronomers at: <http://nightsky.jpl.nasa.gov/>

HOW CAN I GET LEADER KITS AND TAKE-HOME ACTIVITIES?

Family ASTRO materials are sold through the Astronomical Society of the Pacific’s AstroShop. Order online at: www.astrosociety.org/astroshop.html.

I HAVE MORE QUESTIONS

If you have questions on Family ASTRO not addressed here, contact us at: astro@astrosociety.org.



"Race to the Planets" game

TIPS FOR ADVANCE LOGISTICS FOR FAMILY ASTRO EVENTS

DATES

- Set dates 2 months in advance.
- If possible, plan multiple events in advance, so that participants will know when to return.
- Investigate potential conflicts, such as kids' sports events, before finalizing dates.
- Consider whether weekdays or weekends are more convenient for your audience.
- Keep in mind holidays celebrated by many cultures.
- Consult a Moon phase calendar if you plan to observe the night sky. A good one on the web is at the U.S. Naval Observatory: <http://aa.usno.navy.mil/data/docs/MoonPhase.html>. For viewing stars, a new Moon or crescent Moon is preferred. For viewing the Moon, a crescent to first quarter Moon would be ideal, so that part of the Moon is visible, but there are still enough shadows to highlight surface features.

TIME

- Choose a time that fits the activities you are planning:
 - 6:30 – 8:30 PM on weekday nights or Saturday afternoons are popular choices.
- If you plan to observe the sky, take into account when it gets completely dark and when planets, specific stars, constellations, or other objects you want to view will be visible in a convenient part of the sky from your location.

LOCATION

- Schools, community centers, observatories and museums are possible sites.
 - If hosting a workshop at a school, check with the principal or administrator for approval.
- Provide maps to unfamiliar sites.
- Make sure you have access to all areas you may need (e.g. bathrooms, kitchen).
- Check on janitorial service (is there a fee?).
- If you plan to observe, check on street lights, sprinklers and other environmental issues that may make outdoor observing a challenge.



FOOD

- Food can make any event more fun.
- Providing food is a great way to help busy families participate.
- Try to solicit donations from local restaurants and stores.
- Check school or club budgets for available funds.
- Ask parent volunteers or event participants to bring food or drinks.



A Family ASTRO participant enjoys a slice of pizza while exploring the Planet Bottles station

YOUNG CHILDREN AND CHILDCARE

- Determine the age limit for participating children.
- Recruit older students, a parent, or staff member to assist with childcare.
- Use a separate room or other safe area for young children with supervision and entertainment items available.

ACTIVITIES

- Do each activity yourself at least once before you lead a group (if possible, have volunteer helpers do them as well).
- Select age-appropriate activities for your audience.
- Keep in mind what celestial objects are best viewed at a given time of year.
- Make adjustments or have a translator, if necessary, for limited English-speakers.
- If you plan to observe outside, make a foul weather plan.
 - Be sure to remind parents that there are indoor activities available to help avoid cancellations – this can be included in a reminder notice for the event.



Families explore activity stations as they arrive at an event

PLANNING CHECKLIST

WHEN TO DO IT	WHAT TO DO
2 months before first event	<ul style="list-style-type: none"> <input type="checkbox"/> Decide on times and location <input type="checkbox"/> Make arrangements with principal, school administrator, custodian, or other persons involved <input type="checkbox"/> Choose activities you will do and start gathering materials (especially any you may need to order) <input type="checkbox"/> Seek donations or funding, if necessary
5 weeks before	<ul style="list-style-type: none"> <input type="checkbox"/> Begin recruiting participants (more than 5 weeks before people may forget, and less than 2 weeks leaves too little time for people to plan) <input type="checkbox"/> Decide how many volunteers you need to help you and start recruiting
2 weeks before event	<ul style="list-style-type: none"> <input type="checkbox"/> Finalize activity selection <input type="checkbox"/> Gather materials <input type="checkbox"/> Arrange childcare if needed <input type="checkbox"/> Make arrangements for snacks <input type="checkbox"/> Assign duties to volunteers
1 week before event	<ul style="list-style-type: none"> <input type="checkbox"/> Photocopy handouts <input type="checkbox"/> Double-check room availability and janitors <input type="checkbox"/> Send reminder notices to participants, volunteers, and whomever is providing the room
1- 2 days before event	<ul style="list-style-type: none"> <input type="checkbox"/> Check the weather report <input type="checkbox"/> Double-check materials and food
1 day – 2 hours before event	<ul style="list-style-type: none"> <input type="checkbox"/> Triple-check room arrangement <input type="checkbox"/> Post a sign on the door <input type="checkbox"/> Set up activity stations <input type="checkbox"/> Have sign-in sheet and name tags available <input type="checkbox"/> Arrange furniture for the workshop <input type="checkbox"/> Make sure snacks and beverages are available





TIPS FOR RECRUITING PARTICIPANTS

Your recruitment strategies will vary greatly depending on the location in which you do your Family ASTRO event and your target audience. Schools may have a built-in constituency and teachers might send invitations home with their students. Museums may have established programs and outreach mechanisms, while an event in a community center or a service club may require considerable publicity. We have collected some ideas below that you may want to use in developing your recruitment and publicity strategy.



Family members model the distances in the solar system using toilet paper

AUDIENCE

- Define your audience (e.g. “Scout Troop #25 and their family members ages 7 and up”).
- Determine a minimum and maximum number of participants.
- Identify and personally invite individuals or groups whom you would like to have participate, but have been traditionally harder to reach.

PUBLICITY IDEAS

- Enlist volunteers from different target groups and social networks to help you publicize the event.
- Ask previous participants to invite others.
- Hang a flyer or poster up in a few prominent places.
- Mail, E-mail or hand out invitations to the event.
- Make individual phone calls to parents of kids who express interest.
- Create a phone tree with volunteers.
- Place a notice in a newsletter.
- Distribute a sign-up form at another similar event.
- Demonstrate a teaser activity at a PTA meeting or other local gathering.
- Provide incentives (food, childcare, raffle, take-home activities).
- Get kids excited about the event and ask them to invite parents.



HARD TO REACH GROUPS

Leaders sometimes express frustration that the same participants always attend community events. Since Family ASTRO is a program aimed at everyone, you may want to make a special effort to encourage the participation of a diverse audience. Here are some tips we have gathered from past leaders:

- Identify the groups who have been hard for you to reach and consider what could make the event easier for them to attend:
 - Is it kids who do poorly in science?
You can demonstrate some activities to the kids in advance to show that knowing a lot about science is not required.
 - Is it families who live in a certain neighborhood?
Offer an event in that area.
 - Is it people who speak another language?
Arrange for a translator.
 - Is it families who have younger children?
Try to arrange childcare at the event.
- If you identify a group that has been traditionally hard to reach, enlist the help of at least one volunteer from that group. Perhaps this person can suggest good ways to publicize your event(s) or can make personal invitations.



Father and daughter practice using a starfinder



Night Sky Adventure

Family Astronomy Event

Join us for an evening of science fun for the whole family!

Date: Wednesday, December 5, 2001
Time: 6:30PM – 8:30PM

Location: Central Middle School, Activity Center (first room to the right of the library)
Who: 6th grade students and family members or guardians (each group of adults must be accompanied by at least one child)

Event Activities:
Do you ever look up in the sky at night and wonder about the stars? At this family event, you will build a handy Starfinder that you can take home; learn how to find patterns in the night sky; and create your own constellations. The first portion of this workshop will take place in the Activity Center. Weather permitting, we will go outside for a Celestial Treasure Hunt.

Snacks and childcare will be provided.
No background in astronomy required.

- Checklist of things to bring to the event:**
- Warm clothes (coat or heavy sweater, hat, gloves, scarf)
 - Flashlight (optional- we will have some available)
 - Binoculars (optional – If you have a pair you may want to bring them for fun)
 - Some drinks to share with the group

Directions to the event: *[Directions here]*
Additional Information: Children age 7 and up are welcome to participate. Childcare will be available for children under 7 years old.
For more information call Ms. Avila at (415) 555-1000 x123.



YES! SIGN US UP FOR FAMILY ASTRO

No. of Adults: _____ No. of Children: _____
Name(s): _____ Name(s) & Age(s): _____
Phone: _____
Best time to reach our family is: _____



TIPS FOR GETTING VOLUNTEERS AND SUPPLIES

Hosting a Family ASTRO event is highly rewarding, but it can be a challenge in some ways. You will need to locate a room for hosting the event, and will probably need to borrow, find, or purchase supplies and food, and spend some time publicizing the event. With a group of volunteer helpers, these tasks are easier to accomplish. Here are some tips to help you locate volunteers, find funding to cover costs, and/or obtain donations of the materials you need.

VOLUNTEERS

Try asking colleagues, older kids, and interested parents to volunteer in advance. For additional volunteers try asking:

- Parent-Teacher Associations
- High School or University Volunteer Centers
- Senior Citizens Centers
- Local Astronomy Clubs

You can find information about astronomy clubs around the country at:

- Sky & Telescope Astronomy Directory: <http://skyandtelescope.com/resources/organizations>
- The Astronomical League Clubs: <http://www.astroleague.org/al/general/society.html>
- Night Sky Network: <http://nightsky.jpl.nasa.gov/>



Discover what dark adaptation means at a “Seeing in the Dark” station

DONATIONS

For donations of food try:

- Local restaurants and supermarkets
- Parents associations
- Asking participants or volunteers to bring a dish to share

FUNDING

First, identify the costs for which you need to raise funds. These may include purchasing Family ASTRO Take-Home activities (available on the web at <http://www.astrosociety.org/astroshop.html>), materials you will need to do the activities (such as markers, playdough, etc.), costs of food and snacks, transportation for participants, janitorial services, etc. Then check to see if your organization has funds to cover your events. If not, you may want to ask for donations from groups such as:

- Parent-Teacher Association Funds
- School District Funds (e.g. Title 1 Funds)
- Local service groups (e.g. Rotary, Kiwanis)
- Local businesses, or foundations
- Churches, Synagogues, or other places of worship
- Asking participants to donate a materials fee (if they can afford it)



To practice using a starfinder, mother and daughter hang a constellation poster on the wall to match its position in the sky

TIPS FOR THE DAY OF THE EVENT

SETTING UP

- Make a schedule for the event and share it with all your helpers.
- If you plan to observe outside, check the weather and plan accordingly (and have a rainy day alternative).
- Double-check materials early, to allow time to locate missing items.
- Prepare name tags and sign in sheets near entrance to the room.
- Post signs leading from the parking lot or from the various entrances to the building.
- Post a sign on the door of the room where the activities will be held.
- Set up tables and chairs in a way that is conducive to learning together (e.g., 1-2 families at each table).
- Set up the station activities and make sure all the materials needed are out.
- When participants arrive, ask people to sit together (and to welcome others to their table).
- Expect early arrivals and be ready for them.



Family ASTRO Leaders record ideas at a training workshop

WELCOME

- Create a welcoming atmosphere by greeting groups when they arrive (and letting them know what is going to happen, where the bathrooms are, where food is, etc.).
- After welcoming participants, invite them to explore the activity stations.
- Thank parents for encouraging learning by coming to the event.
- Encourage parents/guardians to take an active role with their kids by informing them that the activities are designed for both adults and kids to enjoy.
- Be mindful that participants may have limited or no experience with astronomy and emphasize that no background is required.
- Once most participants have had a chance to explore stations, allow for a group debrief in which participants share their experiences and ask questions in a group setting.

GROUP ACTIVITY

- Wait until most participants have arrived to start the facilitated (group) activities.
- Ask groups to sit together and work as a team. For example, you may choose to partner two small families together when appropriate, or ask a large family group to work as two separate teams.
- Get your assistants/volunteers (or a few participants) to help distribute handouts and materials, so you can maintain the focus in the front with instructions and explanations.
- Limit your initial instructions so that participants can begin to explore activities as soon as possible.
- Circulate around the room and offer assistance. Ask gentle, leading questions if you see people having trouble (e.g.: “So, what’s a way to roll out that playdough so you can measure ten equal parts easily?”).
- Keep the focus on exploring, learning, and having fun with science rather than on getting the right answers.
- Leave time at the close of each activity for participants to share experiences with other groups.
- Be flexible, and try to have an alternative activity or approach in mind. Be prepared with something for participants who finish early, such as an extension of the activity or a related question to discuss.



NIGHTTIME OBSERVING

You may wish to organize a night sky observing session as part of your event, or as a separate follow-up event. If so, here are some tips to help you pull it off successfully:

- Contact your local astronomy club to find volunteers who can bring telescopes (see page 19).
- Ask volunteers or participants to bring binoculars to share.
- Have a foul weather plan (game night or indoor activities) or an alternate date in mind.
- Consider the phase of the moon, and time of sunset when you plan your event. (Crescent to first quarter moons are great to look at if you are learning about the moon, new to crescent moons are better for seeing stars.)
- Good calendars of sky events are available through many astronomy publications. The two leading astronomy magazines (*Sky & Telescope* and *Astronomy*) and their web sites (<http://skyandtelescope.com> and <http://www.astronomy.com>) have resources to help select a good evening for stargazing, or if you are a member of the Astronomical Society of the Pacific, you can find a monthly sky calendar in your copy of *Mercury* magazine.

TAKE-HOME ACTIVITIES

- Distribute Take-Home Activities just before ending the event, to help participants stay focused on the task at hand.
- Even a small amount of instruction or demonstration of the Take-Home Activity will make a big difference in whether participants actually do them after your event.
- Follow up at your next event and ask how the Take-Home Activity went, and allow participants to share what they discovered or made.



The “Race to the Planets” Game in action

ALLOW FOR FEEDBACK

- Allow time for participants to share feedback about activities verbally and on paper.
- Many participants appreciate the opportunity to share what they liked and disliked and offer suggestions for the next event.
- Tips for getting feedback are included in a separate section at the end of this manual (see page 29).

ENDING THE EVENT

- Make sure to leave time to say goodbye and (if appropriate) thank children for bringing their parents.
- Announce any upcoming events, and if possible, give a puzzle or exciting “hook” to encourage continued participation. For example: “How much do you think you would weigh on Jupiter or Pluto? Next time we will find out.”
- Encourage participants to help with clean up before leaving. It sets a good example and can make an enormous difference in how much you have to do afterwards.
- If the facilities permit, encourage families that want to socialize or continue exploring to do so.
- Be sure to thank the volunteers and those at the facility (janitors, etc.) who may have helped.



Sisters build their own starfinders at a Night Sky Adventure event

RACE TO THE PLANETS FAMILY EVENT

SAMPLE AGENDAS

Family ASTRO Leader Kits and Guides are designed to contain enough materials and activities for two full family events. Because families may attend the first session with enthusiasm, but not a lot of knowledge, it is important to schedule a second follow up session. This gives families a chance to digest some of what they have learned in the first session, continue their learning at home, and then have the opportunity to come back with questions. Answering questions and encouraging new interest are key components of Family ASTRO's positive impact on family learning.

SESSION 1: 90 MINUTES

TIME NEEDED	NAME OF ACTIVITY	COMMENTS
25 minutes as families arrive	Worlds in Comparison*	Welcome families as they arrive and have them fill out the sign in sheet and their nametags, and if snacks are provided, this is a good time to point them out or serve them. Then encourage each family to pick a table and get started rolling and cutting playdough.
15 minutes	Debrief Station	Call the group together and make sure everyone has signed in and made a nametag. Compare the scale models of the solar system that each family has created and ask for surprises and discoveries made.
20 minutes	Toilet Paper Solar System	Families get a feel for distances between the planets.
15 minutes (<i>optional activity that will increase Session time</i>)	Scaling New Worlds	An optional activity that allows families to compare other planetary systems to our own solar system.
20 minutes	A Flag for Your Planet	Families design a flag for the planet of their choice and share their ideas with the group.
5 minutes	Surfing the Solar System	A web-based activity for more fun and exploration at home. Describe the activity and distribute family handouts.
5 minutes	Evaluation	Families will appreciate this opportunity to give input and their comments may help you plan your next event.

What's Next:

■ As families leave, make sure they know about the date and time for your second Race to the Planets session and that you'll want to know how they did playing the "Surfing the Solar System" game. Remind them that the second session will include a take-home game which uses the Planet Guide cards the families got to know in the "A Flag for Your Planet" activity.

*The Worlds in Comparison station activity is rather involved and materials intensive. If you have the resources, you should set up one station for each family and assign a volunteer to help you.

Note: Another Family ASTRO Leaders' Guide, titled *Stars-Planets-Life*, has additional activities you could use to add to or substitute activities in this agenda. For more information, email: astro@astrosociety.org or go to:

<http://www.astrosociety.org/education/family/resources/spl.html>



RACE TO THE PLANETS FAMILY EVENT

SAMPLE AGENDAS CONTINUED

SESSION 2: 90 MINUTES

TIME NEEDED	NAME OF ACTIVITY	COMMENTS
20 minutes	Planet Bottles*	As families arrive, welcome them and point out the sign in sheet, nametags, and any available snacks. Then have them go to their “Planet Bottle” stations. Ask families to work in teams to figure out which planet they would be on with each bottle.
10 minutes	Debrief	Call the group together and make sure everyone has signed in and made a nametag. Give answers to the bottle activity and ask if there were any surprises. Have a discussion about the size of each planet and why some may be much larger in volume (i.e. Saturn, Uranus and Neptune), but have similar gravity to Earth.
10 minutes	Your Weight on Other Worlds	Distribute calculators (or ask families to get theirs ready) and worksheets to each family and ask some questions to get them thinking, such as: “If Junior were on Jupiter and Dad on Mercury, who would weigh more?”
10 minutes	Introduction to <i>Race to the Planets</i> Game	Before you hand out the games, revisit the “A Flag for Your Planet” activity, reminding families about the Planet Guide cards and how different types of information for each world can be found on them. Open your own game and explain the basic instructions.
35 minutes	Playing the <i>Race to the Planets</i> Game	Help your families get started playing the game and circulate and answer any questions that may come up.
5 minutes	Evaluation	Pass out and collect evaluation sheets to help you plan your next event.

What’s Next:

- As families leave, thank them for participating and let them know if more events are planned. Give them the event title and a teaser to pique their interest in what they might learn and take home.
- If there are any planets visible in the night sky, a nice follow up to this family event is a planet observing session. If possible, ask local volunteers with telescopes to assist with this.

*The Planet Bottles station activity is rather involved and materials intensive. If you have the resources, you should set up one station for each family and assign a volunteer to help you.

Note: Another Family ASTRO Leaders’ Guide, titled *Stars-Planets-Life*, has additional activities you could use to add to or substitute activities in this agenda (or use for a **third** session). For more information, email astro@astrosociety.org or go to: <http://www.astrosociety.org/education/family/resources/spl.html>



MOON MISSION FAMILY EVENT

SAMPLE AGENDAS

Each Family ASTRO Leader Kit is designed for two full family events. Because families may attend the first session with enthusiasm, but not a lot of knowledge, it is important to schedule a second follow up session. This gives families a chance to digest some of what they have learned in the first session, continue their learning at home, and then have the opportunity to come back with questions. Answering questions and encouraging new interest are key components of Family ASTRO's positive impact on family learning.

SESSION 1 • TIME NEEDED: 90 MINUTES

TIME NEEDED	ACTIVITY	NOTES
15 minutes	Toad in the Moon, Our Changing Moon, part 1	Welcome families individually as they arrive. Encourage them to complete the station activities at their table. If snacks are provided, point them out and allow families to snack while working. Both station activities should be done by all families.
10 minutes	Welcome and Debrief Toad Station	Call the group together and make sure everyone has signed in and has a name badge. Explain agenda and have each family share a Moon story from the Toad activity.
20 minutes	Our Changing Moon, part 2	Families get to check their own work from the Changing Moon station using two new pieces of information: demo with Styrofoam ball and map of the Full Moon.
20 minutes	Sizing up the Moon	Families construct a scale model of the Earth/Moon system using playdough.
15 minutes	Moon Jump	Families measure how high each member can jump on Earth and then calculate how high each could jump on the Moon.
10 minutes	Evaluation	Families appreciate this opportunity to give input and their comments may help you plan your next activity.

What's Next:

- Remind families about the date and time of the second session and that a fun new game will be played.



MOON MISSION FAMILY EVENT

SAMPLE AGENDAS CONTINUED

SESSION 2 • TIME NEEDED: 90 MINUTES

TIME NEEDED	ACTIVITY	NOTES
15 minutes	Crash Landing	Welcome families individually as they arrive. Encourage them to get started on the activity at their table. If snacks are provided, point them out and allow families to snack while working.
15 minutes	Welcome and Debrief	Call the group together and make sure everyone has signed in and has a name badge. Explain agenda. The Crash Landing activity can lead to pretty extensive discussion if people come up with creative alternative uses for the items recovered. Be sure to leave time for discussion here.
10 minutes	Game Introduction	Take a few minutes to introduce the unique features of the Moon Mission game. Tie in to some of the environmental discoveries made during the Crash Landing discussion and to how Moon phases look from Earth and can serve as a timer for the game.
40 minutes	Game Play	Take a moment to interrupt game play to find out what questions have come up.
10 minutes	Evaluation	Families appreciate this opportunity and their comments may help you plan your next activity.

What's Next:

- Invite families to participate in another Family ASTRO event; give the topic with a teaser for what they will learn.
- Follow up with a star party: Invite volunteers with telescopes to set up for family observing with an opportunity to explore the lunar features.



GETTING FEEDBACK FROM YOUR EVENT PARTICIPANTS

And at the end of each event, it's always good to do a wrap-up. At this time, you should also try to have your participants provide you with feedback, which is important for future event planning.

For Family ASTRO, we developed a sample feedback form for participating **family groups**. For other groups, feel free to create your own similar form.

On the following pages, you will find a photocopy master of the Family Feedback Form titled *ASTRO Families: Tell Us About You!*

WHY SHOULD I GATHER FEEDBACK?

- For my own information, to help me improve my future astronomy events.
- To document activities for current and possible future funders.

HERE ARE SOME TIPS FOR INCORPORATING THE FEEDBACK FORM INTO YOUR EVENTS:

- Let families (or other groups) know that you sincerely want to know more about them and their experience with Family ASTRO so you can better plan to serve their interests and needs at future events.
- Respect parents' and children's privacy. If there are concerns, assure participants that all the information requested is voluntary and will remain confidential.
- Incorporate 'paperwork' into your event with minimal fuss. Don't apologize for it, but make it a natural part of the program.
 - **Distribute one *Family Feedback Form* to each participating family group at the end of the family event.** Make sure to allow adequate time, about 5 minutes, for families to complete the form. Have plenty of pencils and/or pens available for them.
- Provide "incentives" for participants to share feedback, such as asking them to complete the feedback form before receiving the Take-Home materials.

ASTRO Families: Tell Us About You!

Thanks for attending this
FAMILY ASTRO event!

To help us make these events
even better, we'd like to learn
a little about your family group
and how you liked the program.
Thanks so much for your help!

1) Family group: # of adults participating _____ # of children participating _____

2) Is this your family's first Family ASTRO event?

Yes No: How many have you participated in before? _____ I am not sure

3) How often does your family do the following type of activities together?

Recreational (movies, sports, picnics, etc.)	<input type="checkbox"/> Never	<input type="checkbox"/> Yearly	<input type="checkbox"/> Monthly	<input type="checkbox"/> Weekly
Travel (day trips, camping, vacations, etc.)	<input type="checkbox"/> Never	<input type="checkbox"/> Yearly	<input type="checkbox"/> Monthly	<input type="checkbox"/> Weekly
Cultural (museums, concerts, festivals, etc.)	<input type="checkbox"/> Never	<input type="checkbox"/> Yearly	<input type="checkbox"/> Monthly	<input type="checkbox"/> Weekly
Educational (school fairs, lectures, programs, etc.)	<input type="checkbox"/> Never	<input type="checkbox"/> Yearly	<input type="checkbox"/> Monthly	<input type="checkbox"/> Weekly
Educational: specifically science-related	<input type="checkbox"/> Never	<input type="checkbox"/> Yearly	<input type="checkbox"/> Monthly	<input type="checkbox"/> Weekly

4) What was the *main reason* your family decided to attend this Family ASTRO event?

- My entire family is interested in Astronomy I was invited
 My child is interested in Astronomy It sounded like fun
 It's a family activity Other (Please describe):

5) How often has your family done the following astronomy-related things in the past?

Looked for Astronomy info (Books, Internet, TV, etc.)	<input type="checkbox"/> Never	<input type="checkbox"/> Once	<input type="checkbox"/> A few times	<input type="checkbox"/> A lot
Talked about Astronomy	<input type="checkbox"/> Never	<input type="checkbox"/> Once	<input type="checkbox"/> A few times	<input type="checkbox"/> A lot
Observed the moon, stars, planets, or an eclipse	<input type="checkbox"/> Never	<input type="checkbox"/> Once	<input type="checkbox"/> A few times	<input type="checkbox"/> A lot
Visited a planetarium or observatory	<input type="checkbox"/> Never	<input type="checkbox"/> Once	<input type="checkbox"/> A few times	<input type="checkbox"/> A lot
Purchased a telescope or other astronomical products	<input type="checkbox"/> Never	<input type="checkbox"/> Once	<input type="checkbox"/> A few times	<input type="checkbox"/> A lot
Other (Please specify):	<input type="checkbox"/> Never	<input type="checkbox"/> Once	<input type="checkbox"/> A few times	<input type="checkbox"/> A lot

6) What language does your family speak at home? _____

7) How would you describe your family's race/ethnicity? _____

8) Does your child's school have a free or reduced lunch program? Yes No Not sure
 If 'Yes,' does your child/children qualify? Yes No Not sure



What did you think?

ADULTS!

How would you rate this event? (Please circle) (Poor) 1 • 2 • 3 • 4 • 5 • 6 (Excellent)

What did you like best about this event and why?

What could change to make it better?

How would you rate your family's interest in attending another Family ASTRO event?
(Not interested) 1 • 2 • 3 • 4 • 5 • 6 (Very Interested)

KIDS!

How would you rate this event? (Please circle) (Poor) 1 • 2 • 3 • 4 • 5 • 6 (Excellent)

What did you like best about this event and why?

What could change to make it better?

How may we contact you in the future?

Name(s): _____

Address _____

Email: _____ Telephone: () _____

Thank you for sharing your thoughts!

THANK YOU

We thank you in advance for your assistance in improving informal astronomy learning experiences. We encourage you to contact your local Family ASTRO coordinator, or our national office, with any questions.

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