

# **USGS Focus Group Manual**

**Increasing Effectiveness of Regional Earth Science Education  
with Help from a Focus Group**



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## **PREFACE**

### **SITUATION**

The United States Geological Survey has been involved in developing and promoting youth education about water for the last decade or more. Water is one of four divisions in USGS. The others are Geological, Mapping, and Biological Resources. Each Division produces its own educational materials including numerous maps, fact sheets and information guides that teachers and leaders can use for background material or that the students, themselves, can use to answer questions or to satisfy their curiosity.

In the past decade, USGS has worked to expand contact with teachers and youth groups by working with other organizations and using popular formats. Two new resources are provided through the Internet and by the USGS Water Resources Education Initiative (WREI).

USGS Internet resources include:

- fact sheets and scientific reports on scientific information
- information search strategies
- field data
- “The Learning Web” which walks teachers or youth through USGS Internet resources that can be used along with sample education activities.

WREI products or programs include:

- A water poster series. Includes educational activities on wetlands, water use, wastewater treatment, navigation, ground water, water quality, oceans, watersheds, and hazardous waste
- Water Resources Professional’s Outreach Notebooks
- Children’s Water Festivals
- Groundwater Guardian
- Curriculum materials

The National Science Teachers Association (NSTA) works in cooperation with USGS to deliver selected water education posters to teachers and has developed a teacher’s guide series to accompany the posters.

### **NEEDS**

As the primary Federal organization for collecting and analyzing natural science data, the USGS continues to consider avenues of making their information available to educators and to the public. State USGS offices and related educators or natural resource professionals can help gather information about how the USGS materials are used, how to improve them and future needs.

Results from a focus group can provide an opportunity for “taking stock.” To help you gather data about local or regional educator preferences, the focus group strategy described in this manual was developed and pilot tested by the University of Wisconsin - Environmental Resources Center during the summer of 1999.

This focus group manual is provided to help interested parties, from diverse regions of the country, evaluate uses of USGS materials and determine future needs. Based on USGS recommendations, the focus group addresses **three main questions** about selected USGS written materials. (Specific materials and web sites are listed in the manual.)

- 1) Accessibility - What is the educator’s primary or preferred method of accessing new educational materials?
- 2) Format - Given a choice of a variety of educational materials, which format do educators find most applicable to their classroom/teaching situation?
- 3) Content - What earth science topics would educators like to see as a focus for future USGS efforts?

Additional questions address details about the web pages:

- 1) What format (appearance and organization) of web pages do educators prefer?
- 2) What kind of content should education web pages include (information for students, information for teachers, actual data from local earth science programs, what topics of earth science are of interest to the educators, should the web page include activities and background information, etc.)?

## SUGGESTED FOCUS GROUP TIME LINE

### 3 months ahead

- Form advisory committee
- Determine goal and materials to be evaluated
- Design draft questions
- Find meeting site
- Identify key participant groups
- Send out initial recruitment letter

### 2 months ahead

- Refine focus group questions
- Recruit participants - follow up with key contacts
- Plan procedures for the focus group session

### 1 month ahead

- Respond to inquiries and select participants
- Assemble and mail packets of review materials to participants
- Visit site and become familiar with computer set-up

### 1 week ahead

- Call all participants and confirm their participation
- Prepare all materials for the session

### Day of focus group

- Purchase refreshments
- Arrive at site two hours early
- Set-up rooms
- Post directional signs to meeting room
- Conduct focus group
- Discuss preliminary impressions of focus group event

### 1 week to 1 month after

- Transcribe notes to word processing format (to include flip chart notes, observer notes, evaluation results, preliminary impressions notes)
- Analyze results using worksheets provided in manual
- Summarize conclusions

### 2 months after

- Finalize formal report
- Develop an action plan for addressing identified needs

## USING A FOCUS GROUP TO INCREASE EFFECTIVENESS OF REGIONAL EARTH SCIENCE EDUCATION

This manual includes step-by-step instructions for putting together and evaluating results of your own focus group session. A focus group script and evaluation worksheet are included in the Appendices.

### GETTING STARTED

What is a focus group?

A focus group is a research technique based on a facilitated discussion among a representative group.

To start your focus group you will need to identify a small group of people who want to help. This small group, the **implementation team**, determines a preliminary project goal and completes the following six tasks:

1. Form an advisory committee.
2. Determine a goal.
3. Select a set of materials/web sites for educators to review.
4. Create key questions to accomplish your goal.
5. Plan the focus group session
  - Recruit participants
  - Select dates and sites
  - Design questions
  - Plan the interview session
6. Interpret and report results

This manual provides you with the resources you need to complete these tasks. Resources may be used exactly as they appear in this manual or modified to better address local needs. (See Appendices)

### Task 1

### Form an Advisory Committee

The initial step in planning a focus group session(s) is selecting an advisory committee. Advisory committee members may include:

1. Local educators (formal and non-formal)\*
2. Local natural resource professionals

The advisory committee can be an informal group that may decide to meet face-to-face or may just discuss topics via phone or e-mail. Ways the advisory committee can assist the implementation team include:

1. Review goal and materials to be reviewed
2. Identify and recruit participants (see Task 5)
3. Select dates and sites (see Task 5)

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\*Formal educators are teachers at local K-12 schools, public or private. Non formal educators teach youth at zoos, nature centers, youth clubs, after-school groups, etc.

## Task 2

### Determine a goal

The resources in this manual are designed to help you accomplish the following general goal:

*To identify future earth science education resource needs of formal and non-formal educators.*

To begin your project, you will need a goal statement that identifies what you hope to accomplish with your specific project.

For example, the goal for pilot testing this focus group manual was:

*The University of Wisconsin - Environmental Resources Center will assist the United States Geological Survey (USGS) and the National Science Teachers Association (NSTA) to review USGS education efforts to better enable USGS and NSTA plan for future education initiatives.*

With a little alteration this goal would be appropriate for related, USGS youth earth science education focus group initiatives

## Task 3

### Select a set of materials/web sites for educators to review

The USGS offers a variety of educational materials available in several formats including:

1. A large web site with many educational pages. Pages that are especially designed for educators include:  
<http://www.usgs.gov/education>  
<http://www.usgs.gov/nationalatlas/>  
<http://www.water.usgs.gov/droplet>
2. Fact sheets.
3. 25 Posters - including a series of 9 water education posters (some are currently out-of-print).
4. Teaching Packets with activities. There are currently 7 packets available.
5. Booklets addressing a wide variety of earth science topics.
6. Paper models - there are currently 19 three-dimensional, cut-and paste paper models and computer animals illustrating geologic processes and other geologic phenomena.
7. CD-ROM's - there are currently 3 educational CD-ROM's available.

The pilot project evaluated the following USGS and National Science Teachers Association (NSTA) educational materials:

1. USGS Water Poster Series, middle school level
  - *Wetlands: Water, Wildlife, Plants & People*
  - *Water: The Resource That Gets Used & Used & Used for Everything!*
  - *How Do We Treat Our Wastewater?*
2. *Water Matters: Water Resources Teacher's Guide, Volume 1*. National Science Teachers Association guide to the USGS Water Posters listed above.
3. USGS Teaching Packet - *What Do Maps Show?* - middle school level
4. USGS Fact sheets
  - *USGS Tracks Acid Rain*
  - *USGS Programs in Wisconsin*
  - *Mercury Contamination of Aquatic Ecosystems*
  - *Floods and Flood Plains*
5. USGS web sites
  - *Real Time Data* - [water.usgs.gov/realtime.html](http://water.usgs.gov/realtime.html)
  - *USGS Learning Web* - [www.usgs.gov/education/](http://www.usgs.gov/education/)
  - *Water Science for Schools* - [ga.water.usgs.gov/edu/](http://ga.water.usgs.gov/edu/)

## Task 4

### Create key questions to accomplish your goal

Key questions suggested by the general goal are:

1. You are about to look for new educational materials for an earth science program. How do you go about finding these materials?
2. Which of these materials (listed in Task 3) would you use when putting together an earth science program, how would you use them and why did you chose them?
3. How could you use the USGS web site as an educational tool?
4. Now that we have looked at the printed materials and the web site, think about your earth science needs for the next 5 years.
  - a. What earth science subjects would you like addressed?
  - b. What formats would you prefer?
  - c. How would you like to access these materials?

A discussion of a process you can use to create these questions can be found on page 12. (Design Questions, Write Script)



## Task 5

### Plan the Focus Group Session

The implementation team, with advice from the advisory committee as needed, should complete the following steps:

1. Identify and Recruit Participants
2. Select Dates and Sites
3. Design Questions
4. Plan the Interview Session

Each of these steps is described in detail below:

#### Identification and Recruitment of Participants

**Goal: You will need to recruit 8-10 educators for each focus group session. Sample forms are in Appendices A and B.**

#### Identifying participants

##### *Formal Educators*

1. Obtain a list of local schools - public, private, and home school groups.
2. Determine whom to contact at each school.

##### *Non formal Educators*

1. Use the phone book to identify University Extension offices, local nature centers, museums, youth groups, neighborhood organizations, botanical gardens, zoos, after-school care.

2. Phone local, federal, and state agency offices and ask whether they have professionals who work with youth or youth educators
3. Contact local Boy and Girl Scout councils and 4-H groups.

The USGS wants to know how both formal (teachers) and non-formal (educators in a non-school teaching scenario, i.e., naturalists, state and federal agency educators) respond to the USGS educational materials. Upper elementary (grades 4-5) and middle school (grades 6-8) educators are the specific target of the USGS materials being evaluated.

To identify **formal educators** in this target group, obtain a list of local schools. Contacting your local school district is the best place to start. Your local school district may also have a web site with the names of principals and teachers with their contact information easily downloadable. Also check your community for other types of schools, such as Montessori and private/religious schools.

Finding the schools is the easy part of identifying teachers. From there you need to determine who you will contact at each school to get help identifying participants. Generally, the principal at an elementary school is a good initial contact. For middle schools, contacting the science department coordinators works well. A major drawback of contacting only one person at each school is that this person may not circulate your request to the appropriate teachers. To remedy this problem you may decide to contact several teachers individually. The principal or science coordinator can suggest names for further contact.

**Non formal educators** take effort to find. The telephone book is a good starting point. Look for University Extension and Conservation District offices, local nature centers, botanical gardens, and zoos. You should also call your local federal and state agency offices and ask whether they have any educators on staff. Don't forget to contact your local Boy and Girl Scout Councils and 4-H groups. Often they have a person who specializes in environmental issues/curricula for these groups and would be a valuable addition to your participant list.

When contacting these organizations, ask whether they know of a local network of non-formal education sites. For example, the Dane County, Wisconsin area has a network called Nature Net. It is a network of 16 nature sites in southern Wisconsin which provide environmental learning opportunities for school children. Nature Net has a web site <[www.naturenet.com](http://www.naturenet.com)> which lists cooperating local organizations and natural sites. This site contains links to each of the organizations and from there you can find the addresses, names and phone numbers of the contacts at each organization.

Monetary or other incentives help attract participants. We suggest that you offer a \$50 honorarium and the packet of USGS education materials they are evaluating.

### **Recruiting focus group participants**

1. Send recruitment letter to key contact persons identified at each school or site at least 2-3 months before the scheduled focus group sessions.

2. Make follow-up phone calls to assure that recipients pay attention to the opportunity and get the invitation to potential participants.

A letter recruiting participants should be sent to key contact persons identified at each school or site at least 2-3 months before the scheduled interview date. The recruitment letter should identify the purpose of the interview, note the incentives provided, include the date, time and place of the interview session, and sample discussion topics. A reply sheet asks potential participants to explain why they would like to be included. Interested persons are asked to mail, fax or e-mail their reply by a set deadline. An additional project background sheet might also be included. (See **Appendix A** for sample letter).

The letter can be sent by mail or to educator e-mail listserves. Listserve members should be given the options of replying by e-mail, fax or phone.

When reply forms are received, make a follow-up phone call to confirm the applicant's interest and pertinent contact information. After the participant has confirmed participation, send materials to be reviewed and a follow-up letter. (See **Appendix B** for sample follow-up letter and attachments)

Include the following:

- date of the interview session
- time and place of the interview session
- map and written instructions to the site

- general focus questions, to encourage thought about the educational materials
- web site addresses for the participants to access and become familiar with before the session
- printed education materials
- contact information

In the event that you do not receive enough replies from the initial mailing, you may need to call or e-mail schools and educational sites. This is especially true if you are holding your interview session near the end of the school year or during the summer. Calling or e-mailing your initial contact person and asking them if they recall seeing the letter may help recruit some participants.

### **Selection of Participants**

A successful focus group should have 8-10 participants who have been purposely selected to represent their peer group. As you review potential participants, try to avoid overly dominant personalities. They may unduly influence the group. Also, try to select participants from a variety of schools or educational sites, instead of a group from each site. This will alleviate peer pressure and let people speak more freely without pressure from their co-workers.

## **Select Dates And Sites**

**Goal:** Select a convenient and accessible site for focus group participants.

To conduct the focus group you will need a site that has both meeting room space and a computer classroom.

Sites you may want to consider are:

- colleges/universities
- high schools
- technical schools
- public sites with both meeting room space and computer classroom space

When selecting a site consider:

- cost
- space availability
- computer availability
- time of day
- time of year

**Cost** - Cost considerations will vary depending on your budget. Sites to consider include local schools, universities or public meeting buildings. Non-profit organizations may also have computer facilities available at a nominal cost. Some facilities may discount their room charges if they are made aware of the purpose of your focus group.

**Space availability** - It is important to remember that computer labs are generally not set up to facilitate discussion. You will need a second room which can be set up with tables and chairs arranged to assure eye contact among all participants (“u” or square shape).

**Computer availability** - Make sure that the computer lab has enough computers to provide one per participant. Also, make sure you know how to access the Internet on the computers. Sites may have a variety of passwords and steps you need to take to get to the Internet. You will probably need the assistance of the site computer coordinator to obtain the needed information and assure that your use will not conflict with other building uses.

**Time of year** - Although using a school and its computer labs can be free, there is a good chance there will be a lot of disturbances, especially during the school year. For example, teacher lounges are good meeting rooms but the disturbance rate can be high.

Because you will be asking for the participation of teachers, the time of year for the focus group should be carefully considered. Teachers are much harder to reach during the summer. They are also especially busy at the beginning and end of the school year. Non formal educators may also be extremely busy during the summer with camps and other outdoor events. The winter months tend to be slower for them.

**Time of day** - To encourage participation and better responses, daytime sessions are recommended. Beginning the sessions at either 10 a.m. or 2 p.m. works well. Ten a.m. gives people ample time to arrive. Planning the session at 2 p.m. gives participants time to eat lunch and will let people return home on time.

## Design Questions Write Script

Work with the advisory committee to review the project goal and materials to be discussed. Once these decisions have been refined, the advisory committee can intelligently critique potential questions. We have provided model focus group questions for you to use below.

A focus group is most effective when limited to 1.5 or 2 hours. Questions should be limited to 3 or 4 main questions with supporting questions to help keep the conversation moving. Remember that the group will be most effective if everyone can participate and the tone is casual.

When designing the questions one should follow these rules:\*\*

- Questions should be arranged in a logical sequence.
- Questions should be open-ended so that they further discussion.
- Questions should “provide the mental framework for helping participants understand the situation being addressed.”
- Use probe questions (*ticklers*) that help clarify the major question to encourage group participation. Probe questions help the interviewer get more information from the participants or clarify participant responses.

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\*\* The steering committee used Butler, Dephels and Howell, 1995 as the main reference for formulating the questions.

**Avoid** these pitfalls in question design:\*\*\*

- Double-barreled questions:  
*How would you feel if the Mayor increased taxes and created more parks?*
- Negative words:  
*Do you not think car exhaust contributes to global warming?*
- Judgmental/leading language:  
*Why is it important to protect the environment?*
- Loaded questions:  
*The rest of your community thinks...., what do you think?*

Focus group questions provided below address accessibility, format and content of USGS education materials. *Wording of some questions was modified to be appropriate for each type of educator. Changes are underlined.*

1. (Formal Educators) This question may be a hypothetical situation for you: You are about to look for new educational materials for your earth science unit next year. How do you go about finding these materials?

(Non Formal Educators) This question may be a hypothetical situation for you: You are about to look for new educational materials for an earth science program. How do you go about finding these materials?

2. (Formal Educators) Which of these materials would you use when putting together an earth science unit, how would you use them and why did you choose them?

(Non Formal Educators) Which of these materials would you use when putting together an earth science program, how would you use them and why did you choose them?

3. (Formal and Non Formal Educators) How could you use these web sites as educational tools?
4. Now that we have looked at the printed materials and the web sites, think about your earth science education needs for the next 5 years. What earth science subjects would you like addressed? What formats would you prefer? How would you like to access these materials?

### **The Interview Script**

To conduct the interview you need a prepared script. (See **Appendix C**) Slight changes can be made to the script to make it more appropriate for either formal or non formal educators.

The purpose of the script is to assure that the focus group session is conducted precisely as planned. It provides the interviewer with all the words and information needed to conduct the session. A separate time keeping sheet should also be provided to keep the interview on a time schedule. (See **Appendix D**)

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\*\*\*From: Trainor and Kronthal, Office of Water, U.S. EPA.

## The Interview Session

### Room Set-up and Event Resources

#### *Room set-up checklist*

Computer laboratory resource needs:

- adequate number of computers
- flip chart with pens
- tape recorder with extra cassettes and batteries
- web site address reference sheet

Classroom resource needs:

- tables
- chairs
- flip chart and pens
- extra chairs/desks for other note takers
- tape recorder with extra cassettes and batteries
- evaluation forms
- payment forms
- refreshment items
- table for refreshments
- prepared name tags with participants name and affiliations
- extra copies of materials being evaluated

To conduct these interviews, two room set-ups are needed: a computer laboratory and an additional room with tables and chairs. The computer laboratory should have one computer available for each participant's use. You will need a second room (classroom) for the discussion session. This room should have adequate space to set-up tables in either a "u" or square shape with chairs around the perimeter. This set-up will facilitate eye contact among the participants and the interviewer.

In the classroom, tables for refreshments and for extra copies of the materials being evaluated should also be available. A flip chart should be placed at the front of the room in a position easily viewed by all participants. To help record the comments of the participants more accurately, focus group note-takers should sit on opposite sides of the room at their own table (not part of the participant table).

Remember to tell participants about restroom locations.

### Conducting the interview

On the day of the interview, your implementation team should arrive at the site one to two hours before the participants. The following is a list of things to do before the participants arrive:

- Place signs directing participants to the meeting room on all entrance doors and in any other appropriate locations. Place a large sign on the meeting room door identifying your group.
- Set up tables in classroom.
- Turn on computers and set them to the first web site to be evaluated.
- Place web site reference sheets at each computer.
- Place participant name tags on a table for pick up.
- Prepare refreshments (including coffee).
- Set up flip charts.
- Post sheets stating the purpose of the session and the agenda for the day.

- ❑ Set up tape recorders and note-taker resources.
- ❑ Place extra materials on a table.

When participants arrive, team members can greet them, give them their name tags, answer any questions, offer refreshments and make “small talk” to help ease any tension.

Begin the interview session on time, as stated in the participant letters.

A maximum time limit of 2 hours is recommended for most focus group sessions. The agenda for the session should be posted for all participants to see. To help the interviewer keep on schedule, one of the recorders should be designated as a time keeper who will notify the interviewer of the time lengths.

The accompanying sample script (see **Appendix C**) was prepared using formats recommended by Butler, Dephels and Howell, 1995, as a model.

This model format includes:

- Greetings/welcome
- Get acquainted
- Introduce session
  - purpose (put on big sheet of paper for all participants to see)
  - context: overview, background, participants’ selection, their roles, and roles of team
  - review activities for the next 2 hours, ground rules (time duration, method of discussion, recording, turn-taking, breaks, confidentiality)
- Questions (No. 1 followed by others including probes)

- Summary (Re-stating of main ideas gathered to assure accuracy)
- Conclusions, expressions of appreciation, plans for data analysis and presentation, distribution of evaluations and other forms.

At the end of the interview session, ask participants to complete an information form (See **Appendix E**) This information can be used to find out how much preparation the participants did before the interview and to give them an opportunity to comment on the interview process. In addition, personal information will help assure that participants receive their stipend.

### **Recording the interview session**

You will need 3 people to record participant comments. One recorder should summarize comments on a flip chart, while the other two record participant comments on notepaper. You may also want to tape record the session. Recorders should note all comments, including repeated comments. Recorders may want to note the participants name with each statement. To help with evaluation of focus group responses, recorders may also want to include notes on the body language of individuals or the group.

## Task 6

### INTERPRETING AND REPORTING FOCUS GROUP RESULTS<sup>1</sup>

Immediately following each interview session, the implementation team should meet and summarize their thoughts about the session. Team members should note their impressions of the focus group members and interactions, any comments that seemed especially striking and any other aspect of the session that could be helpful for interpreting results.

Within a few days after the interview, recorders should translate their notes to a legible format (computer) and make note of important themes or ideas they see emerging. The team may want to have the tape recordings transcribed also, if it is felt there is a need.

The implementation team should then organize the data. The team can use the form included in **Appendix F** or develop their own. Recurring themes are grouped into topics appropriate for each question. If an answer is given by more than one participant, the number of participants making this statement is given in parentheses. Any discrepancies should be resolved by listening to the tape recordings.

During the analysis stage, team members should make note of any problems or gaps in the data. Future sessions should be modified to alleviate the noted problems or gaps.

#### Interpretation of data

According to Butler, et al, interpretation of findings can be divided into four different levels of discussion:

1. Findings--Participants' information.
2. Interpretations--What team thinks findings mean.
3. Client/audience usefulness--Value of findings to users, judgments made about the value of the findings.
4. Recommendations--What should be done and by whom in order to achieve study goals, and to respond to users' needs and concerns.

It is important during levels 2-4 that the team work as a group, rather than letting one individual interpret all of the findings. Each team member will have their biases and differing memories of the interview session, and working as a group will result in a better and more accurate final report.

#### The Final Report

1. Consider who the audience will be.
2. Decide what presentation style you will use.

#### Audience

Before you generate a report of your focus group findings, determine the audience for your report. If you are reporting your results to decision makers or advisory committees, an executive summary of major findings and recommendations would be appropriate.

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<sup>1</sup>The following steps are based on Butler, Dephels and Howell, 1995



But, if you are presenting your results to the general public, a short leaflet or brochure or posters with pictures, charts and few words would be more appropriate. For this particular focus group, you will probably create a written report.

Depending on the audience, parts of the report may include<sup>2</sup>:

- Cover page - include title, names of people receiving the report, names of the researchers, date of submission
- Summary of findings
- Table of contents
- Methods
- Results or findings
- Recommendations
- Client uses
- Participants
- Appendices

### **Presentation Style**

Krueger, 1994 describes three styles of written reports:

1. Raw data - all comments in from the focus group are included and arranged into clusters or categories selected by the researcher.
2. Descriptive summary - begins with a summary paragraph and follows with illustrative quotes.
3. Interpretive report - expands on the descriptive report by including a section on what the data mean.

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<sup>2</sup>From: Butler, Dephels and Howell, 1995 and Krueger, 1994

## REFERENCES

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**APPENDIX A**  
**Sample invitation, sample project description and**  
**invitation reply form**

**SAMPLE INVITATION**

Dear Educator:

We need your expertise! We would appreciate your advice about future needs for water education and earth science resources provided by the United States Geological Survey (USGS) and the National Science Teachers Association (NSTA). The involvement of your upper elementary and/or middle school teachers would include participation in a small focus group, as well as some preparation for the focus group meeting. Participants will receive a \$50 honorarium and a packet of USGS education materials. We have scheduled the focus group for [time], [day], [date] at [place]. Please consider participating.

A REPLY SHEET is attached. Please mail, fax, or email your reply by [date]. There are only 10 openings, so we will need a firm commitment for your participation. [Name] will call in the future to confirm your interest and ability to participate.

The [date] meeting will provide an opportunity for a focused discussion among 10 educators about four or five general questions. A focus group is a research technique based on a facilitated discussion among a representative group. Discussion will address needs such as: topics for water education, format for the information (web sites, fact sheets, posters, educational packets, etc.), specific recommendations for Web page content and uses (activities, real time data, historical data, suggestions for data use, etc.), and teacher support materials. Our focus group session will serve to advise USGS about future needs.

We look forward to your thoughts and ideas. If you have any questions about this project, please call one of the organizers below.

Sincerely,

[List names and contact information of organizers]

## **SAMPLE PROJECT DESCRIPTION**

### **USGS Water Education Resource Review - Background**

As the Nation's largest water, earth, and biological science and mapping agency, USGS continues to consider avenues of making their information available to educators and to the general public. The National Science Teachers Association (NSTA) has demonstrated its commitment to a partnership that promotes youth understanding of our water resources and ecology. This project provides an opportunity for "taking stock." USGS and NSTA would like to improve their understanding of water poster distribution and assess how educators might want to use their resources in the next five years.

USGS water education and earth science resources are provided through state USGS offices, by mail, via the Internet and through the USGS Water Resources Education Initiative (WREI). USGS Internet resources include collections of fact sheets and scientific reports on scientific information, information search strategies, field data, and "The Learning Web" which walks teachers or youth through USGS Internet resources that can be used along with sample education activities. WREI products or programs include: the water poster series, Water Resources Professional's Outreach Notebooks, support of Children's Water Festivals and the Groundwater Guardian program, teaching packets, and work in cooperation with a number of other organizations to publicize and distribute water education information. The nine water education posters include educational activities on wetlands, water use, wastewater treatment, navigation, ground water, water quality, oceans, watersheds, and hazardous waste.

The National Science Teachers Association (NSTA) works in cooperation with USGS to deliver selected water education posters to teachers and has developed a teacher's guide series to accompany the posters.

**SAMPLE PARTICIPANT REPLY FORM**

**USGS Water Education Resource Review - Focus Group  
PARTICIPANT REPLY**

If you are available to participate in the educator focus group meeting at [time (**arrival** time should be noted - 15 minutes before start time)], [day], [date] at [place], then **PUT THIS DATE ON YOUR CALENDAR** and please complete the information below.

RETURN TO:

[Return name]

[address]

[phone]

[fax]

[email]

NAME \_\_\_\_\_

SCHOOL \_\_\_\_\_

HOME ADDRESS \_\_\_\_\_

\_\_\_\_\_

WORK PHONE \_\_\_\_\_

HOME PHONE \_\_\_\_\_

EMAIL \_\_\_\_\_

**CHECK ALL THAT APPLY**

- G I have access to the Internet
- G I am definitely able to attend. The date is on my calendar.
- G I am interested in attending, but not sure if I will be available. Please call to discuss.

Please include a short paragraph about why you would like to be included.

**APPLICATION DEADLINE:[date]**

To assemble a focus group that represents the diversity of schools in [project area], we will be selecting applicants from the responses we receive. All selected applicants will be notified by [date] and materials sent to them immediately.

**APPENDIX B**  
**Sample confirmation letter and web site**  
**instructions**

**SAMPLE CONFIRMATION LETTER**

[date]

Dear [name]:

Thank you for agreeing to participate in the U.S. Geological Survey (USGS) Education Resource Review on [date]. The session will take place at [place] from [time]. We will be meeting in the [place] and moving to a computer lab later. You should enter the building [where]. Please arrive at [time] to allow time to find the room and get settled. The focus group session will begin promptly at [time].

To prepare you for this session, we have included the printed USGS and NSTA materials we will be discussing. Please bring these materials with you on [date]. The materials consist of a teacher's packet, a set of fact sheets and a teacher's guide with six posters (three for middle school and three for grade school). Before the [date] session, we would like you to take up to two hours to acquaint yourself with these materials and consider the following questions:

1. Which, if any, of these materials would you use when putting together your earth science unit/program?
2. What would make these materials more useful?

Additionally, we will be evaluating three USGS web pages: *Real-Time Water Data*, *USGS Learning Web* and *Water Science for Schools*. To access these pages, follow these directions:

Go to the site <http://water.usgs.gov/>

You should see a page with the heading *Water Resources of the United States*.

Please review the following sites:

1. *Real-Time* site listed under the *Water Data* heading.

2. Under the heading *Publications and Products* select *Education*. You should see a page with the headings *Water Resources* and *Education Resources*.

a) Select *USGS Learning Web* and review this site.

b) Select *Water Science for Schools* and review this site.

Once you have accessed these sites, consider these questions:

1. How easy was it for you to navigate these sites?

2. How could you use these web sites as educational tools?

If you have any questions about any of these materials or web sites, please contact us. Again, thank you for agreeing to participate in this discussion. We look forward to meeting you!

Sincerely,

[program coordinators and their contact information]

## SAMPLE WEB SITE INSTRUCTIONS

1. Go to the site <<http://water.usgs.gov/>>

You should see a page with the heading *Water Resources of the United States*.

2. Review the *Real-Time* site listed under the *Water Data* heading.

3. Go back to the *Water Resources of the United States* page. Under the heading *Publications and Products* select *Education*. You should see a page with the headings *Water Resources* and *Education Resources*.

Select *USGS Learning Web* and review this site.

4. Go back to the *Education Resources* page and select *Water Science for Schools*. Review this site.

### Addresses:

*Real-Time* <http://water.usgs.gov/realtime.html>

*USGS Learning Web* <http://www.usgs.gov/education/>

*Water Science for Schools* <http://ga.water.usgs.gov/edu/>



## APPENDIX C

### SAMPLE SCRIPT

#### Earth Science Education Resources - Focus Group Script

Time Allotment	What to say:	What to do:
<p><b>15 minutes</b></p>	<p>Welcome to the [your name] focus group. Thanks for volunteering to help us plan for future water education needs.</p> <p>Introductions</p> <p><b>PURPOSE</b>                      The purpose of this session is to better enable the United States Geological Survey (USGS) and the National Science Teachers Association (NSTA) to plan for future youth water and earth science education initiatives and to serve as a model for gathering similar input from leading upper elementary and middle school educators and non formal educators in other parts of the country.</p> <p><i>Mission of the USGS</i> - The USGS serves the Nation by providing reliable scientific information to:</p> <ul style="list-style-type: none"> <li>• describe and understand the Earth</li> <li>• minimize loss of life and property from natural disasters</li> <li>• manage water, biological, energy, and</li> </ul>	<p><b>GREETINGS/WELCOME</b>  <i>Welcome and thank everyone for volunteering for this focus group. Tell them where the bathrooms are.</i></p> <p><b>INTRODUCTIONS</b>  <i>Introduce implementation team. Give names and affiliations</i></p> <p><i>Ask participants to introduce themselves with their name, school and grade(s) they teach or organization they are employed by.</i></p> <p><b>PROVIDE CONTEXT:</b>  <i>Overview, Background, Participants' Selection, Their Roles, and Roles of the Implementation Team</i></p>

Time Allotment	What to say:	What to do:
----------------	--------------	-------------

- mineral resources
- enhance and protect our quality of life

The USGS has been involved in developing and promoting youth education about water for the last decade or more. In this decade, USGS has worked to expand contact with teachers and youth groups by working with other organizations and using popular formats. Two new resources are provided through the Internet and by the USGS Water Resources Education Initiative. The National Science Teachers Association (NSTA) works in cooperation with USGS to deliver selected water education posters to teachers and has developed a teacher's guide series to accompany the posters.

As the Nation's largest water, earth and biological science, and mapping agency, USGS continues to consider avenues of making their information available to educators and the general public. USGS would like to assess how upper elementary and middle school educators and non-formal environmental educators might want to use their resources in the next five years. USGS is hoping to gather data about educator preferences.

We will compile results from this (and other) session(s) into a report which summarizes results and makes key recommendations to USGS.

If you would like a copy of the report, at the end of this session today, we will have a form for you to fill out.

*Participant selection* - How did we select participants? Letters soliciting participants were sent to non formal environmental educators in the [place] area. We also made phone calls and sent e-mails to specific educators.

Time Allotment	What to say:	What to do:
----------------	--------------	-------------

*Participants role today* - Our discussion today focuses on use of these materials by formal/non formal educators working with upper elementary and middle school age children. Please direct your comments to the point of view of a teacher or leader for these grades.

- 1) Please speak from your own experience and knowledge.
- 2) You are not expected to act like experts.
- 3) Feel free to give your opinions. There are no wrong answers.
- 4) At times we may go around the table asking for input.
- 5) One person will speak at a time. If you are waiting for your turn to speak or want to note some thoughts, please use the paper and pen provided to take notes.

I will be the interviewer/facilitator. I will be asking the questions.

[Name] will assist with the discussion by summarizing key points on the flip chart. Please refer to her/his notes, and comment if s/he has not captured your main point.

This focus group will last about 2 hours. We'll begin in this room. We will later move to the computer lab.

[Names] will be taking notes and keeping track of time. As back-up, the conversation will be tape recorded. No names will be used in the final report. Does anyone have any objections?

Time Allotment	What to say:	What to do:
----------------	--------------	-------------

We will begin the session by asking a general question (*10 minutes*). After your responses, we will give you about 10 minutes to take another look at the printed materials we mailed to you.

After your review we will ask discuss these materials for about 30 minutes.

Then its off to the computer lab.

We'll take 15 minutes to review the web sites. After this review we'll discuss the sites for about 15 minutes

Finally its back to the classroom for one last question (*15 minutes*) and some paperwork (*5 minutes*) that we need you to fill out so you can receive your stipend.

None of these questions are hard. The questions will be addressing content, format and accessibility.

**10  
minutes**

**QUESTION 1**

This question may be a hypothetical situation for you: You are about to look for new educational materials for an earth science program/unit. How do you go about finding these materials? Let's take a minute to think before responding. Feel free to jot down any thoughts you might have.

*Ticklers:*

1. Do you look at web sites, talk with other educators, look at catalogs/magazines, use old materials?
2. From whom or where do you get educational materials? (Optional, if time permits)

*The first question should be a "warm up" question to get the participants comfortable with the process and other participants. No need to capture detailed thoughts. Keep response time to 10 minutes.*

**Reminder:** *Ticklers are optional. They are provided to help prompt group discussion or to make the purpose of the question clearer.*

<b>Time Allotment</b>	<b>What to say:</b>	<b>What to do:</b>
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*If there is time available, you may find it valuable to have participants rank their top three choices with 3 being the most common method used and 1 being the least, then tally up the results. (Highest points=most common)*

<b>Time Allotment</b>	<b>What to say:</b>	<b>What to do:</b>
<b>5 - 10 minutes</b>	<p><b>MATERIALS REVIEW</b></p> <p>Let's take some time to review the printed materials. You should each have a copy of [list materials you have selected to review]. If you do not have a set, use the materials on the table.</p> <p>While reviewing the materials, look at the <u>topics</u>, the <u>presentation</u> and the <u>ease of use</u>. Think broadly for now and then we will get into the specific questions. Take notes as needed.</p>	<p><i>Participants silently review materials. Participants note thoughts about key qualities with paper and pencils you provide.</i></p> <p><i>Note three qualities to review on a flip chart:</i></p> <p><i>TOPICS</i></p> <p><i>PRESENTATION</i></p> <p><i>EASE OF USE</i></p> <p><i>Make sure each participant has a set of materials.</i></p>

Time Allotment	What to say:	What to do:
<p><b>30 minutes TOTAL</b></p>	<p><b>QUESTION 2</b>            Which of these materials would you use when putting together an earth science unit/program, how would you use them and why did you chose them?</p> <p>Take a minute to think before we start.</p>	<p><i>Make sure participants understand that each of these materials will be considered separately, i.e., the posters are one topic, the packets another.</i></p> <p><i>Put on flip chart:</i></p> <ul style="list-style-type: none"> <li>• <i>Which material did you choose?</i></li> <li>• <i>Why did you choose it?</i></li> <li>• <i>How would you use it?.</i></li> </ul>

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	Let's start with the posters:	<i>Hold up posters</i>
--	-------------------------------	------------------------

*8 minutes*

**POSTERS:**

Would you use the **posters** when putting together an earth science program? How would you use them? Why did you choose them?

*Ticklers:*

1. What do you think about the poster activities as educational tools? (Do they stimulate student interest? Or are they an informational source? Would you use them for enrichment?)

2. What would make the posters more useful? (optional)

Time Allotment	What to say:	What to do:
8 minutes	<p><b>NSTA BOOK:</b></p> <p>Would you use the <b>NSTA guide</b>? How would you use it? Why did you choose it?</p> <p><i>Ticklers:</i></p> <ol style="list-style-type: none"> <li>1. How well does the NSTA guide assist you in designing lessons that can be used with the poster series?</li> <li>2. Overall, how would you use the teacher guide as an educational tool? (Do activities stimulate student interest? Are they an informational source? Would you use them for enrichment?)</li> <li>3. Looking at the table of contents, what section would you go to first?</li> </ol>	<p><i>Show the NSTA book</i></p>
8 minutes	<p><b>TEACHER PACKET:</b></p> <p>Would you use the <b>teacher packet</b>? How would you use it? Why did you choose it?</p> <p><i>Ticklers:</i></p> <ol style="list-style-type: none"> <li>1. How would you use packet ingredients to put together a program?</li> <li>2. What's missing? (optional)</li> <li>3. What needs improvement? (optional)</li> </ol>	<p><i>Show a teacher packet</i></p>
8 minutes	<p><b>FACT SHEETS:</b></p> <p>Would you use the <b>fact sheets</b>? How would you use them? Why did you choose them?</p> <p><i>Tickler:</i></p> <p>How would you use these fact sheets as you develop your earth science unit?</p>	<p><i>Show the fact sheets.</i></p>



<b>Time Allotment</b>	<b>What to say:</b>	<b>What to do:</b>
<b>20 minutes</b>	<p><b>INTRODUCE COMPUTER LAB</b></p> <p>Now we will move to the computer lab. There will be one computer per person. The web site is bookmarked on each computer. You will have 15 minutes to surf around the pages. Each computer has a handout with the addresses for the pages we are discussing today. Ask for help if you need it. Feel free to discuss options with others. While surfing, look at the topics, the presentation, and the ease of use. Think broadly.</p>	<p><i>Move to the computer lab.</i></p> <p><i>Help participants review the web sites. Encourage participants to help each other, and share questions and observations.</i></p> <p><i>List on flip chart as reminder:</i>  <b>TOPICS</b>  <b>PRESENTATION</b>  <b>EASE OF USE</b></p>
<b>15 minutes</b>	<p><b>QUESTION 3</b></p> <p>How could you use these web sites as educational tools?</p> <p><i>Ticklers:</i></p> <ol style="list-style-type: none"> <li>1. How could you or other educators use the activities, lesson plans and resources?</li> <li>2. In what ways could you use the real-time data?</li> <li>3. Was the format user-friendly? (What improvements are needed?)</li> </ol>	<p><i>If needed, direct participants to each of the three or four sites under consideration as you talk about them.</i></p>
<b>5 minutes</b>	<p>Now let's move back to the classroom for the final question.</p>	<p><i>Move back to the classroom</i></p>

<b>Time Allotment</b>	<b>What to say:</b>	<b>What to do:</b>
<b>15 minutes</b>	<p><b>QUESTION 4</b>            Now that we have looked at the printed materials and the web site, think about your earth science needs for the next 5 years. What earth science subjects would you like addressed?</p> <p>What formats would you prefer? (Packet, booklet, poster, web sites, etc.)</p> <p>From whom or where would you like to acquire these materials? (Mail ordered, web site, person)</p>	<p><i>List subjects on flip chart</i></p> <p><i>List formats on flip chart</i></p>
<b>5 minutes</b>	<p><b>CONCLUSION</b>            Before you leave today, we would like you to take a few minutes to complete an information and survey form. The survey answers will help us better understand the results of this session and improve future focus group sessions. Please make sure you fill in the personal information completely, so that you receive your stipend.</p> <p>Following this session, we will summarize your comments into a report and make key recommendations to the USGS. In the report, you will not be quoted by name and your name will not appear in any printed materials.</p> <p>If you are interested in receiving a report, please mark the appropriate box on the survey form.</p> <p>Thank you for taking time out of your day to participate in this focus group.</p>	<p><i>Pass out questionnaire/info form</i></p>

## APPENDIX D

### SAMPLE AGENDA

USGS Focus Group

[date]

[time]

[place]

[rooms]

9:00 - 9:45 a.m. Prep

9:45 - 10:00 Early arrivals, refreshments

<b>TIME</b>	<b>ALLOTMENT</b>	<b>ACTIVITY</b>
10:00 - 10:15	15 minutes	Orientation and refreshments
10:15 - 10:25	10 min.	Introduction
10:30 - 10:40	10 min.	Question #1
10:40 - 10:50	10 min.	Review materials (quiet)
10:50 - 11:20	30 min.	Question #2
11:20 - 11:25	5 min.	Move to computer lab
11:25 - 11:40	15 min.	Review web sites
11:40 - 11:55	15 min.	Question #3
11:55 - 12:00	5 min.	Move to classroom
12:00 - 12:15	15 min.	Question #4
12:15 - 12:20	5 min.	Conclusions, expressions of appreciation, questionnaire
12:20 - 12:30	10 min.	Clean-up and clear-out

**APPENDIX E**

**SAMPLE PARTICIPANT  
INFORMATION FORM**

**USGS/NSTA Earth Science Education Focus Group Session  
Summary Questions and Personal Data**

PLEASE ANSWER THE FOLLOWING QUESTIONS

1. Approximately how much time did you spend reviewing the USGS and NSTA materials before this session?

a) printed

b) web site

2. Do you feel two hours was an appropriate time allotment for this focus group discussion?

3. Prior to this session, have you ever participated in a focus group?

Please list any additional comments about the materials and your focus group experience.

TO RECEIVE YOU HONORARIUM AND COPY OF THE FINAL REPORT, PLEASE COMPLETE THE FOLLOWING INFORMATION

Would you like a copy of the final report? \_\_\_\_\_ Yes \_\_\_\_\_ No

Full legal Name:

Social Security Number: \_\_\_ \_\_\_ - \_\_\_ - \_\_\_

Mail check to (address):

Daytime phone number:

Email address:

Group affiliation:

Age of children you work with:

Are you a U.S. citizen and resident? \_\_\_\_\_ Yes \_\_\_\_\_ No

Thank you!

APPENDIX F

**FOCUS GROUP ANALYSIS WORKSHEET**

Use the following worksheets to help you sort notes from the focus group session.

**Question** **Page**

Question 1

- This question may be a hypothetical situation for you: You are about to look for new educational materials for an earth science program. How do you go about finding these materials? . . . . . F-2
- 1.1 How do you find new educational materials for an earth science program? . . . . . F-2
  - 1.2 From whom or where do you get educational materials? . . . . . F-5

Question 2

- Which of these materials would you use when putting together an earth science program, how would you use them and why did you choose them? . . . . . F-7
- 2.1 *How and why* would you use the *posters* when putting together an earth science program? . . . . . F-7
  - 2.2 *How and why* would you use the *NSTA booklet* when putting together an earth science program? . . . . . F-8
  - 2.3 *How and why* would you use the *teacher packet* when putting together an earth science program? . . . . . F-9
  - 2.4 *How and why* would you use the *fact sheets* when putting together an earth science program? . . . . . F-10
  - 2.5 Recommended Improvements . . . . . F-11

Question 3

- Web Site Evaluation . . . . . F-14
- 3.1 How could you use these web sites as educational tools? . . . . . F-14
  - 3.2 How would you improve the USGS web site? . . . . . F-16

Question 4

- Now that we have looked at the printed materials and the web site, think about your earth science needs for the next five years. . . . . F-17
- 4.1 What earth science subjects would you like addressed? . . . . . F-17
  - 4.2 What formats would you prefer? . . . . . F-17

**Question 1**

**This question may be a hypothetical situation for you: You are about to look for new educational materials for an earth science program. How do you go about finding these materials?**

*Note: Focus group answers are separated into two categories during analysis:*

- 1. How do you find materials?*
- 2. From whom or where do you get the materials?*

**1.1 How do you find new educational materials for an earth science program?**

---

**1.1a Take individual initiative to help decide what to do/what to use.**  
*(list all responses that fit this category)*

---

**1.1b Get direction from others to find additional resources**  
*(list all responses that fit this category)*



---

**1.1c Network with peers**  
*(list all responses that fit this category)*

**1.1d Respond to organization advertising information/workshops for educators**  
*(list all responses that fit this category)*

---

---

**1.1e Review available curricula and web sites**  
*(list all responses that fit this category)*

---

**1.1f Other**

**1.2 From whom or where do you get educational materials? (Optional, if time permits)**

---

**Participants are asked to identify sources. After a round of brainstorming, participants are asked to prioritize their top three choices giving them a score of either 1, 2 or 3 points (three points for their top choice and one for the lower choice). Total points given to each source should be noted in parentheses.**

<b>PRINTED</b>	<b>ELECTRONIC</b>
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--	--

<b>PERSON</b>	<b>AGENCIES/ORGANIZATIONS</b>
<b>OUTDOORS</b>	<b>OTHER</b>

--	--

**Question 2**

**Which of these materials would you use when putting together an earth science program, how would you use them and why did you choose them?**

**2.1a How would you use the *posters* when putting together an earth science program? (*list responses*)**

---

**2.1b Why would you choose to use the *posters*? (*list responses*)**

---

**2.2a How would you use the NSTA booklet when putting together an earth science program? (list responses)**

---

**2.2b Why would you choose to use the NSTA booklet? (list responses)**

---

**2.3a** *How would you use the teacher packet when putting together an earth science program? (list responses)*

---

**2.3b** *Why would you choose to use the teacher packet? (list responses)*

---

**2.4a** *How would you use the fact sheets when putting together an earth science program? (list responses)*

---

**2.4b** *Why would you choose to use the fact sheets? (list responses)*

---



## **2.5 Recommended Improvements**

**Note:** Although not specifically asked for, recommended improvements are typically provided without prompting.

---

**2.5a Posters** (*list participants comments of improvements needed*)

---

**2.5b Teacher Packet** (*list participants comments of improvements needed*)

---

**2.5c NSTA booklet** (*list participants comments of improvements needed*)

---

**2.5d Fact sheets** (*list participants comments of improvements needed*)

---

**2.5e Conclusions** (*summarize results from above*)

**Question 3**  
**Web Site Evaluation.**

**3.1 How could you use these web sites as educational tools?**

---

**3.1a General comments**

---

**3.1b Comments about activities**

---

**3.1c** Comments about the *Real Time* site

---

**3.1d** Comments about the *Learning Web* site

---

**3.1e** Comments about the *Water Science for Schools*

### **3.2 How would you improve the USGS web site?**

---

**General comments**

---

**Conclusions** (*summarize results from above*)

**Question 4**

**Now that we have looked at the printed materials and the web site, think about your earth science needs for the next five years.**

**4.1 What earth science subjects would you like addressed?**

*(list subjects)*

---

**4.2 What formats would you prefer?**

*(list formats)*

---

**4.3 From whom or where would you like to acquire these materials?**  
*(List access styles)*

---