

SESSION TWO SURVEYS

Outcomes

- To recognize attributes of a good survey
- To write well-formulated survey questions
- To critique and fix poorly worded survey questions
- To recognize bias in surveys
- To develop a survey

Overview

In the second session of Thinking About Data, participants will evaluate the informal survey that was done in session 1, critique 2 surveys, and then develop their own survey. The **Chart It!** is used throughout the session to record the growing awareness of the attributes of a good survey. Participants explore the bias in questions and sampling populations.

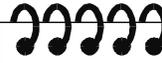
Time

- 10 minutes** Participants share the results of their homework assignment. They record vocabulary from the standards that was difficult for their children.
- 20 minutes** Referring back to the survey question from Session One, participants discuss whether we could conclude from that survey that the favorite food of the group is also the favorite food of people throughout the United States.
- 25 minutes** In this activity, participants examine a survey about calculator usage. They decide in groups how to rewrite the poorly written questions, and then share their ideas with the whole class.
- 15 minutes** Next, participants examine a survey about sports. There is bias in the set up of the survey. They discuss how this bias affected the outcome.
- 50 minutes** In the final activity, participants choose a topic for a group survey, share and refine questions, and develop a survey instrument to administer to adults at home.

Materials

Facilitator	Transparencies (English & Spanish)
	<i>BLM 6: Sports Survey</i>
Participant	Handouts (English & Spanish)
<ul style="list-style-type: none"> • Transparencies, blank, enough for each group of 4 • Transparency pens, one set for each group of 4 • Chart paper, for each group • Chart markers, for each group • Paper, for each participant 	<p>One per participant for class <i>BLM 5: Survey on Use of Calculators</i> <i>BLM 6: Sports Survey</i></p> <p>One per participant for home <i>BLM 7: Bringing Mathematics Home 2</i></p>

Activities

Preparation of Classroom	Notes
<p>1. Set up the Chart It!</p> <p>2. Place the name cards from last class near the front of the room where participants can easily find them.</p> <p>3. Review the transparencies about favorite food prepared in the last class and choose the food that received the most votes as the basis for the favorite food activity in this session.</p> <p>4. Optional: Post the All About Us charts around the room. They will not be directly referred to in this session.</p>	
Discussion of Homework (10 minutes)	
<p>1. Have participants discuss the following questions based on the homework:</p> <ul style="list-style-type: none"> • <i>What does your child already know about data analysis?</i> • <i>What vocabulary was challenging to them?</i> <p>2. Record the vocabulary on Chart It!</p>	<p>Refer to these vocabulary words as they are discussed in the class.</p>
Favorite food of the US? (20 minutes)	
<p>1. Tell participants that today they will be exploring the elements of a good survey. Remind them that during the last session they did an informal survey and found that Tacos (or whatever food your class decided upon last session) was the favorite food of the group. Ask: <i>Could we conclude that Tacos was the favorite food for the U.S.? Why or why not?</i></p> <p>2. Ask: <i>What would have made this a better survey?</i> Record responses on Chart It! Title this page "Surveys". During the session, you will be adding ideas to this page.</p> <p>3. If the idea has not come up, bring up that surveys can be biased. This bias can be created by the questions asked, the manner in which questions are worded, and by the choice of people surveyed. For instance, let's say I wanted ask this question:</p> <ul style="list-style-type: none"> • What is your favorite cereal? • I did my survey at the local Circle K. Why is this survey biased? 	<p>Some of the ideas that might come out of this discussion are:</p> <ul style="list-style-type: none"> • The survey was just the class, so it was a very small sample of the population. • Does the class accurately represent the cultural diversity of the U.S.? • Are genders and age groups represented proportionately in the class? • Was the question worded well, or did it limit responses? • Was the procedure for collecting data accurate? <div style="display: flex; justify-content: space-around; align-items: flex-end;"> <div style="border: 1px solid black; padding: 5px; width: 150px; text-align: center;">  <p style="color: green; font-weight: bold;">Surveys (add better survey ideas during the session)</p> <p style="color: blue; font-size: small;">Chart It!</p> </div> <div style="border: 1px solid black; padding: 5px; width: 150px; text-align: center;">  <p style="color: green; font-weight: bold;">Bias: Interference with impartial judgement.</p> <p style="color: blue; font-size: small;">Chart It!</p> </div> </div>

Activities

Calculator Survey (25 minutes)	Notes
<p>1. Hand out Survey on Use of Calculators. Tell participants that the following survey is not well written. Tell participants that they are to rewrite each of the questions with their group. Allow about 20 minutes.</p> <p>2. Have groups share their ideas about rewriting the survey with the class. Have the shortest person be the person who shares for their group. As a whole group, decide on changes that would improve the survey.</p> <p>3. Summarize: Ask the participants if there is anything that they would like to add to the Chart It! list for surveys.</p>	<p>Suggestions for changes in Survey:</p> <ul style="list-style-type: none"> • Question 1: might be more useful broken into categories (age 0-10, 11-20, etc.) • Question 2: seems a bit loaded question to ask parents • Question 3: assumes they all use a calculator • Question 4: asks 2 questions in one so is hard to answer and will be hard to summarize results • Question 5: biased question; leads to certain response • Question 6: also biased, and a double negative • Question 7: clearly biased and offensive • Question 8: should give choices, otherwise hard to categorize.
Sports Survey (15 minutes)	
<p>1. Hand out Sports Survey.</p> <p>2. Give about 5 - 8 minutes for the small group to discuss the survey and its results.</p> <p>3. Have groups report their ideas to the whole group. Have the tallest person in the group do the reporting.</p> <p>4. Summarize: Ask participants if there is anything to add to the Chart It! for surveys.</p>	<p>This is an adaptation of a performance assessment item used in San José in 5th grade in the core area of statistics. Sampling problems: only boys were surveyed; the survey was done at a basketball tournament; only 5th graders were surveyed.</p>
Brainstorming a Survey (50 minutes)	
<p>1. Tell the participants that they are now ready to develop their own survey. First they need to choose a topic.</p> <p>2. Brainstorm areas of interest for the survey, then have the participants vote to choose one area of interest. Formulate it into a question.</p> <p>3. In small groups, have participants develop survey questions related to the topic they want to survey. Have them write these on a sheet of chart paper, then post around the room and have a walk around so everyone can read all suggestions.</p>	<p>Keep the topic simple. Formulate no more than 4 questions. It has been best to avoid politics.</p> <p>Some questions that have come from other groups are:</p> <ul style="list-style-type: none"> • What is your favorite TV show? (This was done in age and gender categories) • What is the heritage of our neighborhood? • Is there a relationship between exercise and colds? • What is the typical amount of time that students spend on homework?

Activities

Brainstorming a Survey (continued)	
<p>4. With the parents, choose a way to decide which questions will be asked. Then refine the wording, keeping in mind attributes of good surveys. Decide whether the survey will be written or oral. If it will be oral, will it be face-to-face or by telephone?</p> <p>5. Write the final survey questions on a transparency.</p>	<p>In a walk around, participants travel from poster to poster within their groups, reading each group's report.</p> <p>One way to choose the questions is to have each group pick their favorite 2 questions (that were not their own) and place an x beside them.</p>
Take Home Activities (5 minutes)	
<p>1. Distribute Bringing Mathematics Home 2 for participants to take home.</p> <p>2. Have participants write the survey topic and questions in the space provided. Review the instructions with them.</p> <p>3. Let participants know that they should be ready to share the results of their survey at the next session.</p>	
Preparation for the Next Session (5 minutes)	
<p>1. Collect name cards for use in the next sessions.</p> <p>2. Fold or roll the All About Us charts and bring them to the next class.</p> <p>3. Save the Chart It! and bring them to the next class. If desired, you may have the log typed and distributed to participants at the next class.</p> <p>4. Save the transparency with the survey questions on it so that you can record the results of the survey during the next session. If you need to, re-organize it so that it will be easily read.</p>	