OBJECTIVES:

Youth will understand how to tally and graph survey results and to generate findings from their survey data.

MATERIALS AND PREPARATION:

• Butcher paper, tape, and markers.

• Paper, pens, and clipboards.

• Tape or chalk for the warm up.

• Completed surveys.

• Survey tally sheets – see the *Survey Tally Sheet Example* (Master Copy 3.20a).

• Sample survey questions written on the board or butcher paper.

• Copy the *Survey Math and Graphing* (Master Copy 3.20b) before the session: one copy for each participant.

• Optional: graph paper.

I. OPENING: ATTENDANCE, SNACKS, ANNOUNCEMENTS, AGENDA OVERVIEW (10 MINUTES)

Opening Circle Statement (Around the World): It would be interesting to know the exact number of…(e.g., grains of sand, blades of grass, people who wear glasses, ants) in the world.

II. WARM UP: QUESTION WHEEL (5 MINUTES)

Create a circle on the floor with tape or chalk, and divide into quadrants labeled with the numbers 1 through 4. Make sure there is enough room for everyone to stand on the wheel. Ask a series of questions, each with four possible responses. Instruct youth to stand on the number that best reflects their answer. You can use questions from their surveys or related to a particular issue or set of issues they are interested in. You can also ask questions that help to evaluate how youth are feeling about the

Facilitation Tip:

You can also have a smaller group of staff and youth tally the surveys before the session. That way, you can go straight to creating percentages and graphs with the final numbers.

Analyze Survey Results

program or their accomplishments. After youth have chosen where to stand, ask the group what they see in terms of distribution: Where are most people standing? Least? Why do they think this pattern exists?

Example question:
Housing is affordable in this community.

Stand on #1 if you strongly disagree, #2 if you disagree, #3 if you agree, #4 if you strongly agree.

III. TALLYING SURVEY RESULTS *TIME DEPENDS ON NUMBER OF SURVEYS (~15 MINUTES)

Have youth take out the completed surveys they have collected and divide the surveys so that each person has the same amount. Hand out a tally sheet to each youth (see the *Survey Tally Sheet Example* for ideas) and have each student tally their stack of surveys.

ORGANIZE AND ANALYZE DATA

IV. UNDERSTANDING PERCENTAGES AND CREATING GRAPHS (50 MINUTES)

Step 1: Pass out the *Survey Math and Graphing* handout. Review what a fraction is (a part of a whole), how you turn a fraction to a decimal through the use of division, and how to change a decimal to a percent by moving the decimal two place values to the right.

Remind the students that in surveys the "whole" is the total number of people surveyed and the "part" is the number of people who answered the survey a certain way.

Brainstorm and record youth's answers:

- Why is it important to understand the majority opinion?
- Why should you pay attention to the minority opinion as well?

Step 2: Divide youth into pairs. Assign each pair one or more survey questions and the tallied results from that question(s). Have each pair find the percent totals for their assigned questions.

Step 3: While youth are reporting their percent totals, have someone doublecheck the percentages with a calculator. On a large piece of butcher paper record the main findings under each numbered question.

Step 4: Introduce graphs as used to visually represent percentages and numbers. Have youth return to their assigned pairs and questions to create at least one graph for that question(s). Have them make the graph large enough so it can be posted on the wall (or held up) and easily seen by others. Share out the graphs for each question's findings.

Step 5: As a group, discuss the graphs and identify findings that are the most striking. Have youth look for findings that go together. Are there findings that would be interesting to see next to each other in a graph? (See example below.)

V. CLOSING (10 MINUTES)

Closing Circle Statement (Around the World): Which survey findings are the most interesting to you? Which findings or graphs do you think are the most important or interesting to our target audiences?
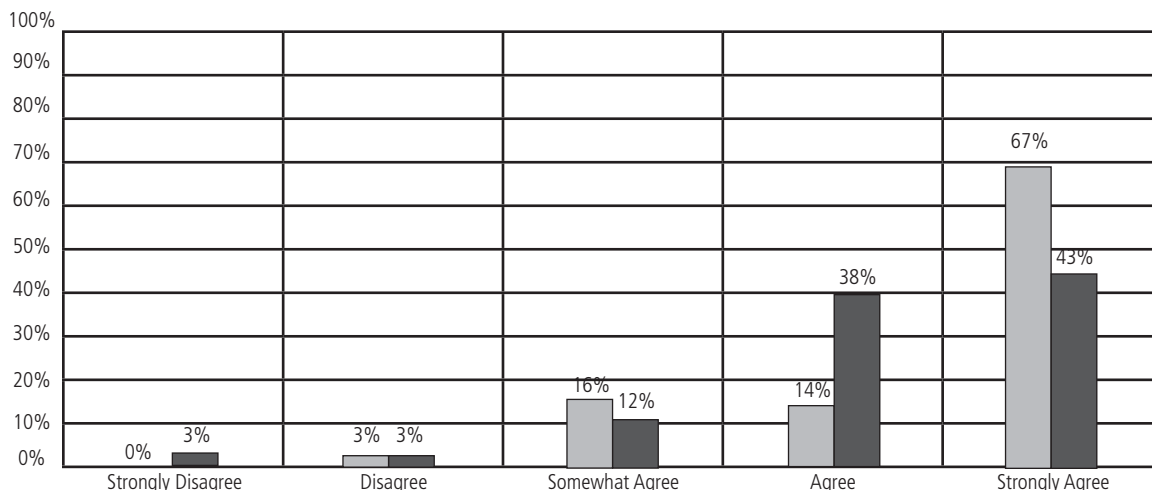
Figure 1: Peer Connections

Question 1: In our school's Summer Program, do students learn to work with different kinds of people?
☐ I learned to work with someone who has a different opinion than mine.

Question 2: In our school's Summer Program, do students learn skills for making connections and being a friend?
☐ I learned ways to meet people, make friends, and be a friend.

Survey Tally Sheet Example

QUESTION	YES	NO	NO ANSWER	TOTAL
1. I have been homeless.				
2. I know someone who is homeless.				
3. I worry about becoming homeless.				

QUESTION	1 STRONGLY DISAGREE	2 DISAGREE	3 AGREE	4 STRONGLY AGREE	NO ANSWER	TOTAL
4. My family worries about how to pay rent.						
5. It is hard to find an affordable place to live in my community.						
6. I see homeless people where I live.						
7. Homelessness is a problem in this community.						
8. There are a lot of supports and services for homeless people in my community.						

9. Rank the following solutions to homelessness   (1 is the best solution, 5 is the worst solution):

SOLUTION	1	2	3	4	5	NO ANSWER	TOTAL
LOWER RENTS							
NEW PUBLIC HOUSING							
MORE HOMELESS SHELTERS							
GUARANTEED JOBS PROGRAMS							
BETTER SOCIAL SERVICES AGENCIES							
OTHER:							

10. What do you think causes homelessness in your community?

Survey Math and Graphing Example

In order to understand survey results, turn tallied answers into percentages and then put the percentages in a visual graph to show your findings.

Example:

24 students were surveyed on homelessness in West Oakland. Below are the total tallied answers to survey question #3.

QUESTION #3	1 STRONGLY DISAGREE	2 DISAGREE	3 AGREE	4 STRONGLY AGREE	NO ANSWER	TOTAL
It is hard to find an affordable place to live in my community.	5	2	8	9	0	24

Percentages:

• In surveys the "whole" is the total number of people surveyed and the "part" is the number of people who answered the survey questions a certain way. So if 3 people answered "Yes" and a total of 5 people were surveyed, then the fraction would be 3/5.

• You turn a fraction to a decimal using division. For example, 3 divided by 5 = .60.

• You change a decimal to a percent by moving the decimal two place-values to the right. .60 = 60%

USING THE EXAMPLE ABOVE:

Of 24 students surveyed:

   • 5 students chose 1 (Strongly Disagree) = 5/24 = .20 = 20%
   • 2 students chose 2 (Disagree) = 2/24 = .08 = 8%
   • 8 students chose 3 (Agree) = 8/24 = .33 = 33%
   • 9 students chose 4 (Strongly Agree) = 9/24 = .37 = 37%

**Note: Sometimes the numbers don't add up to 100% because of rounding.**

Majorities:

• You want to pay special attention to the answers that the most – or fewest – people chose.

• In this example, "4" or "Strongly Agree" was the most popular response, with 37%.

• You could also say that "Agree" was the majority with 70% (33% +37%) and
  "Disagree" was the minority with 28% (20% + 8%).

Survey Math and Graphing

BAR GRAPHS:

• The X axis (horizontal) represents the different types of answers people could give.

• The Y axis (vertical) represents the number of people who chose that type of answer.

IT IS HARD TO FIND AN AFFORDABLE PLACE TO LIVE IN WEST OAKLAND.

(total surveyed) = 24
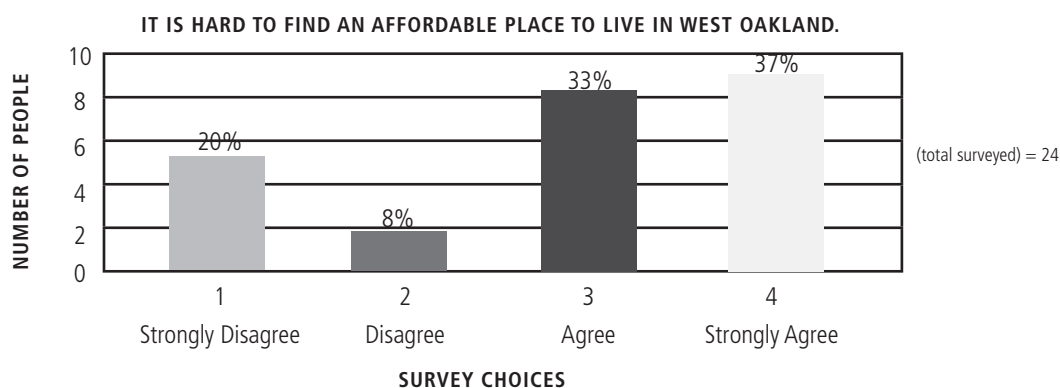
PIE GRAPHS:

• In a pie graph, each "slice" of the pie represents the number of people who selected a particular survey response.

• There are 360 degrees in a circle, therefore, you can multiply percents to find the number of degrees in each section of the circle graph and then use a compass to draw it.

IT IS HARD TO FIND AN AFFORDABLE PLACE TO LIVE IN WEST OAKLAND.
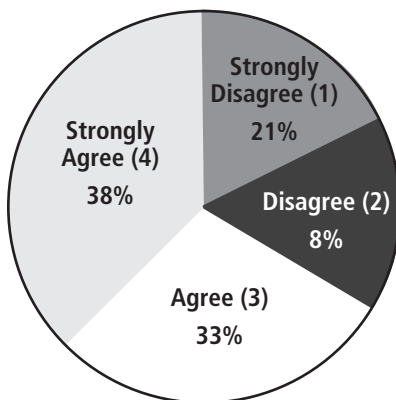
Check out this Web site to make graphs on line: http://nces.ed.gov/NCESKIDS/Graphing/