

Instructional Lesson Plan

Content Area(s)/Course/Grade:
Mathematics Math 7

Unit:
Use Sampling to Draw Inferences About Populations

Lesson Topic:
Samples and Populations

Approx. Date/s:
March

Diversity Integration Topic:
Civil Rights

NJSL Standard/s:
7.SP.A Use random sampling to draw inferences about a population.

Textbook, Materials, Resources:

-pens/pencils

-paper

-classroom board

-three large pieces of paper, each with one of the following statements written in large letters: "Approve/Good Idea," "Disapprove/Bad Idea" and "Don't Know"

-small slips of red paper (one slip for each student in the class)

-small slips of blue paper (one slip for each student in the class)

-copies of "Public Opinion Is Wary but Supportive on Rights Curbs" (one per student)

Lesson Objective:

1. Respond to two polls - one silent and the other public - addressing the same questions; examine how these different polling methods might lead to different responses.
2. Examine the results of a New York Times/CBS News poll measuring public opinion on how the American government is handling the campaign against terrorism and its impact on civil liberties by reading and discussing the article "Public Opinion Is Wary but Supportive on Rights Curbs."
3. Explore in groups how polls are created by choosing poll topics, developing sample questions and selecting appropriate sampling methods.
4. Synthesize their learning by creating poll methodology statements, conducting polls and evaluating the results.

Instructional Delivery

Culturally Responsive Teaching strategy:

Making Learning contextual: Connecting to real world situations

Procedures:

1. **WARM-UP/DO NOW:** In this initial classroom activity, students will respond to two polls - one silent and one public. The silent poll will involve students writing on pieces of paper and passing them forward. For the public poll, students will move to three sides of the room, standing near posters with statements that reflect their view on an issue. Before students arrive, hang these three "statement" posters on three walls of the room ("Approve/Good Idea," "Disapprove/Bad Idea" and "Don't Know".) For the silent poll, place one red and one blue slip of colored paper on each desk.
2. Upon entering class, students respond to the following, written on the board prior to class: "On your desk are two slips of paper, to be used as your ballots in a silent poll. On the red slip of paper, answer this question: Do you approve or disapprove of the way the American government is handling the campaign against terrorism? (Respond Approve, Disapprove or Don't Know.) On the blue slip of paper, answer this question: Do you think it is a good idea or a bad idea to allow the government to monitor the telephone calls and e-mails of 'ordinary' Americans? (Respond Good Idea, Bad Idea or Don't Know.)" Collect the papers in two piles, one for each question, and clearly tally the results for each on the board.
3. Next, explain to students that they will be participating in a public poll. Point out the posters hanging on the three walls of the room. Read the first question on the board aloud, and ask students to move to the side of the room that best reflects their views. Tally the results on the board, and allow the students to return to their seats. Then read the second question aloud, and ask students again to move to the side that best reflects their views. Again tally the results, and allow the students to return to their seats.
4. Discuss the following: Are the results for each poll identical? Was one poll easier to respond to than another? Why or why not? Did you feel pressure to respond in a different way when the poll was public as compared to when the response was anonymous? Was it easier or harder to come to an opinion when the responses were anonymous? Why or why not?
2. As a class, read and discuss the article "Public Opinion Is Wary but Supportive on Rights Curbs," focusing on the following questions:
 1. According to the poll, how supportive are Americans in general of the administration's handling of the war on terrorism?
 2. What are two specific instances of how the American public disagrees with recent administration policies?
 3. What are two specific examples of how Americans support the administration's "hard line on many key issues"? Why does the article characterize these positions as "hard line"?
 4. What examples does the article give as evidence for "two standards of justice in the public's mind"?

5. According to the poll results, what is President Bush's approval rating? How do Americans as a whole view the President's handling of the economy?
 6. How many Americans in October thought another terrorist attack in the United States was likely? Has this number increased or decreased in this latest poll?
 7. How many people responded to this poll?
 8. Where was the poll conducted, and how were the responses gathered?
 9. What evidence does the article give that the wording of a question affects the response? What specific change of words do you think accounts for this change of opinion?
3. Divide the class into small groups, and explain that each group will be acting as a team of reporters to create a poll -- and devise a methodology for conducting the poll -- to measure public opinion about an important current topic. First, ask each group to decide on an issue and to write a brief rationale that explains why a poll would be appropriate for reporting on this issue. Students should consider the following (written on the board or distributed as a hand-out):
1. --Is the issue controversial?
 2. --What is the range of responses that you expect people to have on this issue?
 3. --Why would it be important to have a quantifiable (or measurable) gauge of opinions on this issue?
 4. --Why would it not be satisfactory to address this issue through only qualitative examination (for example, using facts, descriptions or quotations gathered from interviews with a few individuals)? After ten minutes, ask students to share their topics and responses to these questions.
5. Next, students should consider the wording of their poll questions. Each group should create three sample questions for their poll. Students should consider how wording affects responses and evaluate whether their questions are worded in a balanced and unbiased manner. If not, in what ways might the wording of the questions influence people's responses? How could students rewrite them to get more honest answers? Ask each group to choose one of their sample questions and write two versions -- one biased and one as neutral as possible. After five to ten minutes, have each group read their two wordings of this question aloud and explain to the class how each phrasing would affect the responses.
6. Next, explain to students that polltakers rely on at least four ways to choose a sample (or the group of poll participants):
1. --Random Sampling: Each person in the population has an equal chance of being selected. For example, a group might choose a random sample of 50 students from your school by writing the names of each student in the school on a card, mix up all the cards and randomly choose 50 cards.
 2. --Systematic Sampling: Respondents are chosen from a list using a fixed interval. For example, the names of the student body can be arranged in alphabetical order, and groups would choose every tenth person.
 3. --Stratified Sampling: The population is sorted into relevant subgroups, and people are randomly selected from each. For example, the population being polled might be sorted into gender or ethnic groups, then individuals randomly selected from each group.

4. --Cluster Sampling: In this sample method, groups, rather than individuals, are randomly selected. For example, the polltaker might randomly select classes in a school and interview all people in those classes. Based on these descriptions, ask each group to choose a method of sampling that best suits their issue. Why would one method be more important than another for measuring opinions on their specific issue? After five minutes, each group should defend why one particular method would be more appropriate than the others.

Assessment/Evaluation

Formative/Summative:

Students will be evaluated based on participation in class polls and class discussions; participation in group development of a poll topic rationale, sample questions, and a sampling rationale; thoughtful individual completion of a poll methodology statement; and individual poll conducting and evaluations.

Closure:

WRAP-UP/HOMEWORK: Each student in the group prepares a poll methodology statement for a poll covering any issue they choose. Each methodology statement should include a topic rationale, at least five poll questions, and a rationale for the sampling method selected. Students should then conduct their polls individually, evaluate the results and report back to the class, either in oral or written form.

Teacher's Name submitting plan: Math Department

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