Refresh for Relevance

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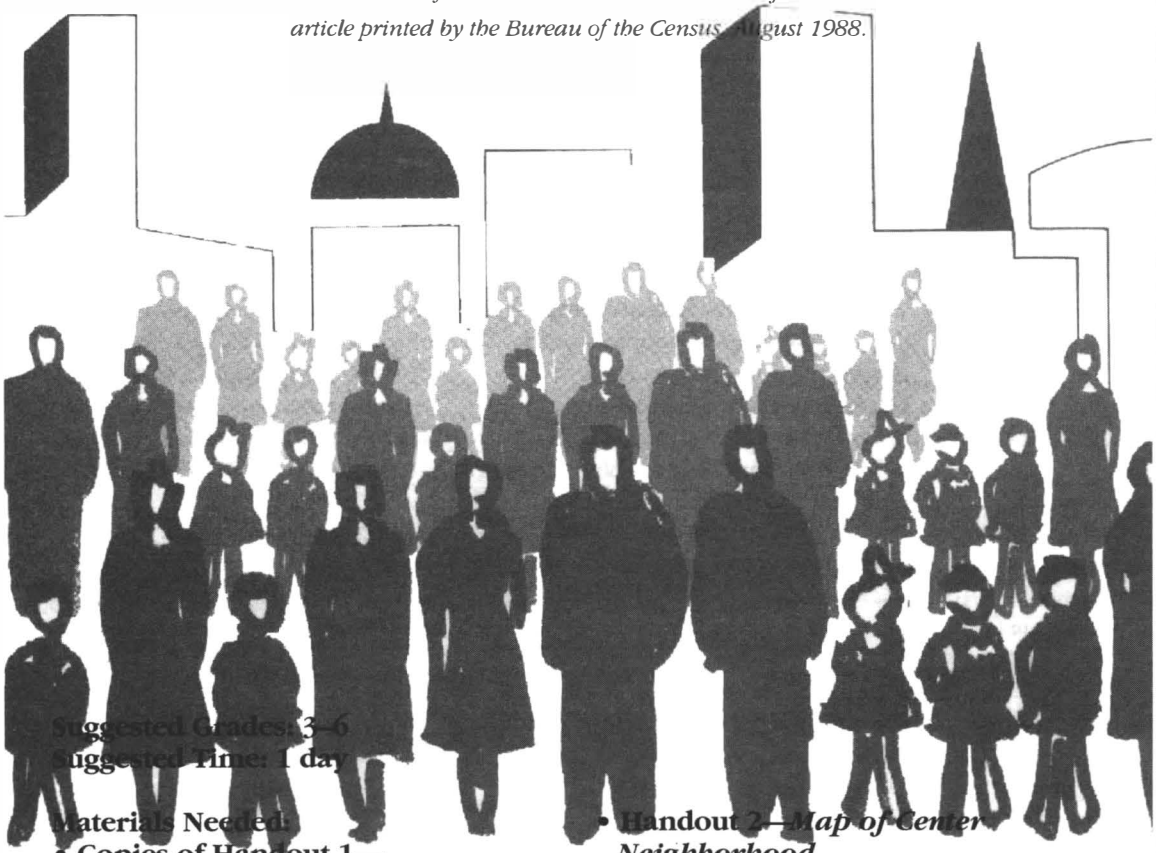
Winter 1989

Making Sense of the Census

Our national census took place in 1990, and this activity helps demonstrate why accuracy "counts."

The material for this issue's Pull-Out Section is from an article printed by the Bureau of the Census, August 1988.



Suggested Grades: 3–6
Suggested Time: 1 day

Materials Needed:
- **Copies of Handout 1—*Counting Center Neighborhood***
- **Handout 2—*Map of Center Neighborhood***
- **Red pencils**

This activity should begin with a vocabulary lesson: **census** means a **count**, **decennial** means every ten years, **population** means people and **housing unit** means where people live. **Population** and **housing units** are the things the census counts. An **undercount** happens when people don't or can't answer the census; they aren't counted. What can that do to decisions being made based on those numbers?

Making children aware of *why* we count ourselves every ten years—to see how many schools we'll need, to see where people are moving, to make decisions based on those changes—can make the counting/mathematics part more interesting to them. Here's another example of seeing mathematics in the important role of helping decide the future.

Pull-Out Section

Teacher Material

1. In this class, the students will understand the concepts of complete count and undercount and the effect these have on decision making. The students will use or prepare a neighborhood map (**Handout 2**), depicting the location of housing units and other structures, and use data about the people who live in those houses, **Handout 1**.

2. Use the prepared map of Center Neighborhood, Handout 2. Duplicate and distribute copies. Describe the map to the students. Tell them that each small square is a house. Point out Center Block.

3. Direct them to write a different letter in each house, starting with A and ending with T. (You decide the order.)

4. Present the following story:

The Mayor of Centerville wants to build a new park. She wants to build it in Center Block which is vacant. The park will be for the people who live in Center Neighborhood. The Mayor decided that if the new census totals showed that one-half or more of the people in Center Neighborhood were young people and older persons she would build the park. The park would have a swimming pool, playground, picnic tables, meeting hall, and other fun things. Using a table of census totals about the age of the people counted in Center Neighborhood, the Mayor wants you to decide whether or not to build the park.

5. Tell the students they will be totaling counts of young people, grown-ups, and older people living in Houses A–T. (**NOTE**: "Grown-ups" seems to be the best word to describe persons in the middle.) Three age categories—Persons 19 or Younger, Persons 20–59, and Persons 60 and Older—are listed in the headings of Handout 1. Copy and distribute Handout 1.

6. Familiarize the students with the table. Emphasize that to answer the Mayor's question the information must be totaled. A decision cannot be made just by looking at the information about the people in individual houses.

7. Direct the students to calculate the total number of people in each house by adding across each row. Have them place each answer in the column titled TOTAL PEOPLE IN EACH HOUSE. (**NOTE**: There are no people in HOUSE O. It is vacant.) Next, have them determine the total population in the neighborhood by adding down the TOTAL PEOPLE IN EACH HOUSE column. Have them place this answer (55) in the box above the words TOTAL PEOPLE IN CENTER NEIGHBORHOOD. Finally, have them total the columns marked YOUNG PEOPLE, GROWN-UP PEOPLE, and OLDER PEOPLE. Have them place their answers in the blanks of the row titled TOTAL PEOPLE BY AGE. These answers are 20, 25, and 10, respectively. Ask them to add these three numbers. Have them compare the sum to TOTAL PEOPLE IN CENTER NEIGHBORHOOD, or 55. The numbers should be the same. They have now verified their arithmetic.

8. Depending upon the grade of the students, ask them which of their totals will solve the Mayor's problem (see Item **5**). Ask them how they will arrive at an answer. The students only need to use column totals for YOUNG PEOPLE (20), OLDER PEOPLE (10), and TOTAL PEOPLE IN CENTER NEIGHBORHOOD (55). The question they must answer is, "Are YOUNG PEOPLE plus OLDER PEOPLE greater than or equal to one-half the TOTAL PEOPLE IN CENTER NEIGHBORHOOd, or is 20 plus 10 greater than or equal to 55/2?" The answer is YES. The park can be built. On the students' maps have them draw a park or write the word YES in center Block.

9. Tell the students they are going to repeat the process as if there was an undercount, i.e., not everyone answered the census. Distribute red pencils. Direct the students to remove Houses A, D, E, I, and M from the census. Using new copies of Handout 1 or the ones they have, ask the students to draw a red line through the information for each of these houses and place a red X in the far right column. On their maps have them X out the appropriate squares.

10. Tell them to imagine that in the census of Center Neighborhood some people did not fill out their census forms. The people in Houses A and E did not think they had to answer. The people in House M refused, so the numbers have changed. But by how much? Does it change the solution to the problem? Does it change the Mayor's decision?

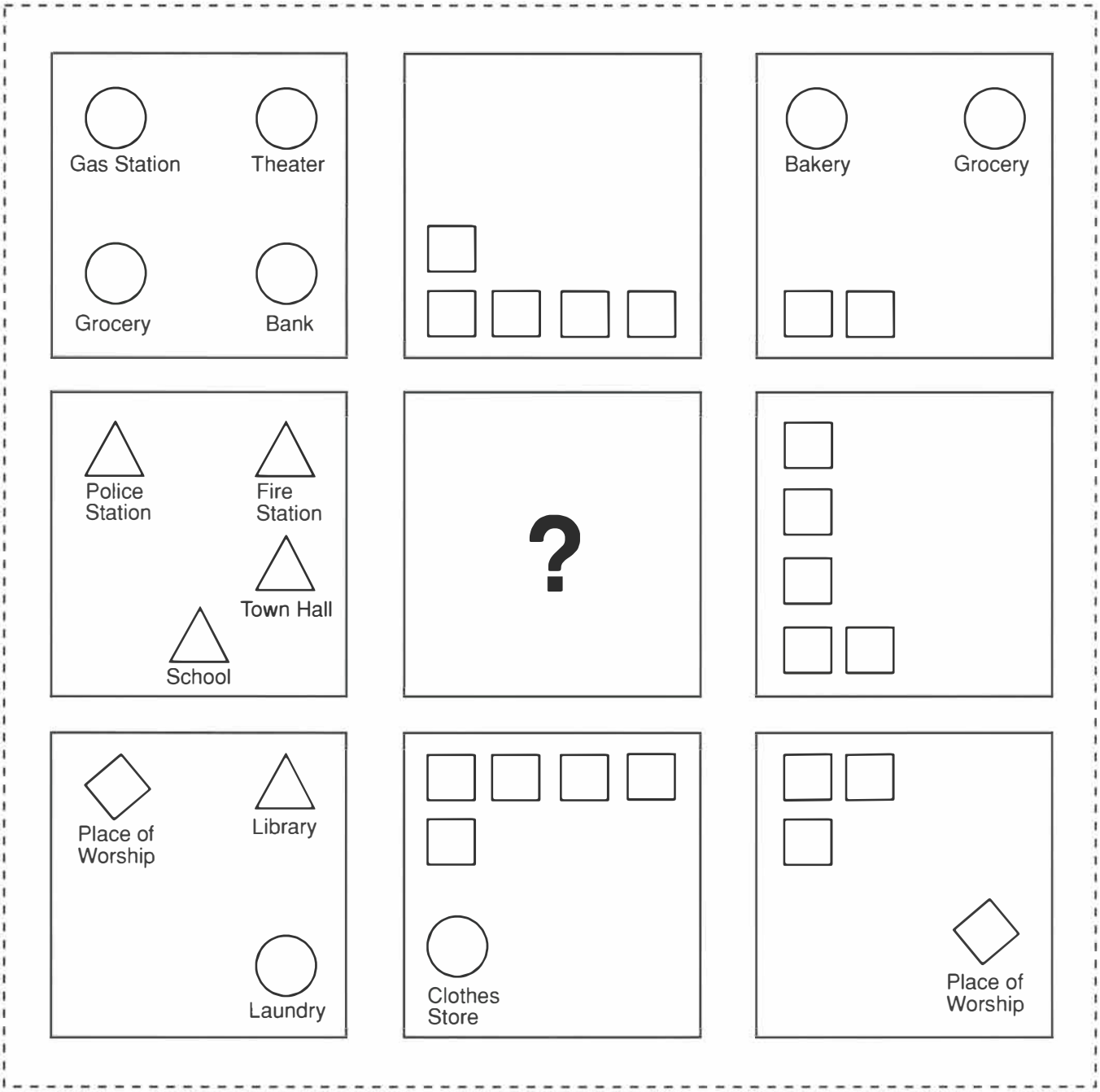
Student Activity

Activity 2–Handout 1:
Counting Center Neighborhood

	Number of: Young People (Persons Age 19 or Younger)	Grown–Up People (Persons Age 20–59)	Older People (Persons Age 60 and Older)	Total People in Each House
House A	0	0	3	
House B	0	1	0	
House C	3	1	1	
House D	3	2	0	
House E	0	1	0	
House F	0	2	0	
House G	3	2	0	
House H	1	1	0	
House I	2	1	0	
House J	0	1	1	
House K	2	3	0	
House L	0	2	1	
House M	1	0	2	
House N	3	2	0	
House O	0	0	0	
House P	0	1	0	
House Q	1	1	0	
House R	1	1	1	
House S	0	2	0	
House T	+ 0	+ 1	+ 1	+
Total People by Age				**Total People in the Center Neighborhood**

Activity 2–Handout 2:

Map of Center Neighborhood



Legend

- Boundary of Center Neighborhood
- ? Center Block
- Houses
- Public Buildings
- Businesses
- Places of Worship