



## Understanding Population Dynamics

### Concepts:

Each individual's decisions about childbearing contribute to population trends. Personal family-size decisions are influenced by the values of the larger society, and one's personal family-size decisions, in turn, have an impact on the larger society.

### Objectives:

Students will be able to:

- ◆ Calculate family-size trends in their own families and the "society" composed of class members and their families.
- ◆ Identify at least two cultural values that may influence an individual's family-size decisions.
- ◆ Discuss impacts their own family-size decisions may have on the larger society.

### Subjects:

Math, Family & Consumer Sciences, Social Studies, Science, Geography, Health, History

### Skills:

Calculating averages and probability, rounding numbers, gathering data, graphing, critical thinking, identifying trends

### Method:

Students complete a math activity on family-size trends and a simulation on family-size decision-making.

# Family Perspective

## Introduction:

These two activities encourage students to consider the relationship between individual family-size decisions and population trends in the larger society. It is very important to be nonjudgmental as these matters are discussed in class and to encourage students to be tolerant of other family lifestyles. The point is not to focus the class's attention on individual students' families or on any particular family size as optimal, but to trace family-size trends generally and examine how individual decisions collectively influence larger population trends. Emphasize that the class is gathering data to determine the average. Some families will always be bigger and some smaller than the average, and this is to be expected.

## Materials:

### Part 1:

- Student Worksheets (one per student)
- Calculators (optional)
- 3 pieces of different colored paper per student (small squares)

### Part 2:

- Coin
- Chalkboard and chalk or paper and pencil
- Calculator (optional)
- Butcher paper
- Marker
- Sticky dots
- Ruler, yardstick or other straight edge

## Part 1: Surveying Family-size Trends

### Procedure:

1. Have students complete items 1-4 on the Student Worksheet. Students may substitute a guardian or other adult relative for mother or father in answering these questions if they prefer; some students may not have knowledge of a parent.
2. Distribute one piece of each of three colored papers to each student. Have students put their answers to item #1c on one color paper and pass the papers to a student who has been designated to tally the answers. Have them do the same for their answers to item #2 and item #3.
3. Each tallier will then determine the class average for each generation.
4. Graph these results on the chalkboard or on a bulletin board display.
5. Ask students to describe any family-size trends they observe in the larger "society" formed by themselves and their relatives. Now have them respond to item #5 on their worksheets.

## Part 2: It's a Toss-up

### Procedure:

Many students want to have a boy and a girl when they have children, but what happens if they don't get a boy and a girl right away? This exercise simulates the kinds of situations people face in planning their families. Have the students use the data from "Generation 3" on their worksheet for this activity.

1. Take out a coin and announce that heads means a girl and tails means a boy. Ask one student to flip the coin to determine the sex of his/her first child. After seeing whether the child is a boy or a girl, the student must decide whether to flip again (have another child) or stop. Continue this process until the student's "family" is complete. Then record the total number of children the student "had" on a frequency table or bar graph as described below, and invite the next student to flip the coin.
2. A fun and effective way of recording the frequency of students' completed "family sizes" is to have them build a bar graph using sticky dots and butcher paper. On the paper, draw a horizontal line to serve as the bottom of the graph and a vertical line to serve as the left side of the graph. On the horizontal axis, labeled "Number of Children," mark off numbers from 0 to about 8 at regular intervals, leaving extra room at the right in case higher numbers are given. Label the vertical axis "Number of Responses." As students finish their turns, have them each place a sticky dot over the number of children they "had" so that they build vertical columns of dots.
3. When everyone has had a turn, ask students to calculate the average number of children the class "had." Compare this figure with the average number of children students originally said they wanted to have, assuming they could provide for them (item #3 on the Student Worksheet). Chances are the average number of "actual" children will be higher than the original average number of "desired" children.

### Discussion Questions:

1. Did most students "have" the number of boys and girls they originally said they wanted? Why?
2. What factors, besides income, determine how many children people have?

*Possible answers might include cultural and religious traditions and values, family traditions, career choices, lifestyle and use of family planning.*

3. Why might a boy child or a girl child be preferred? How might this preference vary from one culture to another?

*Parents may feel that they could better "relate" to a boy or a girl based on their own experiences. There are also stereotypes that might determine preference, such as that "girls are better behaved than boys." In many developing countries, parents depend on sons to help support them in their old age, while girls are often married off to live with their husbands' families.*



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4. What difference does it make to a society's population whether there is a tradition of large families or a tradition of small families?

*In a society where most people have many children, the population grows quickly and the society must provide more goods and services for more people.*

5. How do your personal family-size decisions affect other people in the society? How do they affect the natural environment?

*One person's decisions may not seem very significant in a large society. However, each person's decisions multiplied by everyone in the society add up to a lot. This is the same principle as voting in a national election. Think about what would happen if everyone makes the same choices as you do.*

Part 2 was adapted with permission from Carolynn S. Howell, Palm Bay High School, Melbourne, FL.

### Follow-up Activity:

From *It's a Toss Up*, students can see that desire for children of different genders sometimes determines family-size decisions. Another key determinant is family economics. For instance, during the Great Depression of the 1930s, American families were relatively small because couples could not afford to feed and take care of many children. During the years after World War II, the country experienced economic prosperity, contributing to the prolonged U.S. baby boom (1946-1964) where couples had more children. Discuss with students the different costs associated with having children (including education, health care, food, housing, clothing, transportation, recreation, etc.) and why it is important for prospective parents to be sure they can provide for their children. You may wish to have students research how much it can cost to support an average family of four in the United States. They can accumulate their data by saving weekly grocery receipts and checking the newspaper for average home prices and rentals in the area, car prices and so on.



Name: \_\_\_\_\_ Date: \_\_\_\_\_

**FAMILY PERSPECTIVE**  
**Surveying Family-Size Trends**  
**Student Worksheet**

**1. Generation One**

You may substitute a guardian or other adult relative for mother or father as you answer these questions if you wish.

- a) My mother's parents had \_\_\_ children, including my mother.
- b) My father's parents had \_\_\_ children, including my father.
- c) The average number of children in my two parents' families (Generation 1) is \_\_\_\_.  
(Don't worry if the number includes a fraction or decimal place.)

**2. Generation Two**

My parents have \_\_\_ children, including me.

**3. Generation Three**

I would like to have \_\_\_ boys and \_\_\_ girls when I grow up, assuming I can provide for them.

- 4. Is there a family-size trend in your family? (Is the number of children getting larger, getting smaller, holding steady?) Describe what you see.
- 5. How does the family-size trend in your family compare with the trend in the larger "society" composed of your classmates' families?

*Extra Credit Project: Gather this kind of data for 20 different people. Prepare a presentation about family-size trends in this sample population, either on poster board or as a report.*

