High School Math Lesson: Analyzing Gender-Based Wage Inequities

Lesson Objective

Students will apply their understanding of algebra and statistics to analyze and interpret data on gender-based wage inequities, fostering critical thinking about social justice issues through mathematical inquiry.

Launch Phase

* **Introduction to the Scenario**: Begin the lesson by presenting data on the gender wage gap, highlighting that in 2021, women earned 84 cents for every dollar earned by men when comparing median annual earnings of full-time, year-round workers. Emphasize disparities among different racial and ethnic groups.
* **Engagement Question**: Ask students, "How can we use mathematics to understand and analyze the gender wage gap?"
* **Real-World Connection**: Explain that mathematics is a powerful tool for understanding social issues, including economic disparities. Today's lesson will explore how algebra and statistics can help us analyze the gender wage gap, providing insights into this complex issue.

Explore Phase

* **Group Activity**: Divide the class into small groups. Provide each group with a dataset containing wage information by gender, race, and occupation. Datasets can be simplified and adapted from real-world statistics to ensure accessibility for high school students[1](https://www.dol.gov/sites/dolgov/files/WB/equalpay/WB_issuebrief-undstg-wage-gap-v1.pdf)[3](https://www.pewresearch.org/short-reads/2023/03/01/gender-pay-gap-facts/)[4](https://www.dol.gov/sites/dolgov/files/WB/media/Evaluation-Gender-Wage-Gap-Executive-Summary.pdf).
* **Problem Solving**: Instruct students to calculate the average wage for men and women in various occupations, then determine the percentage difference to quantify the wage gap. Encourage them to use algebraic expressions and statistical methods to analyze the data.
* **Facilitation**: Circulate among the groups, guiding them to use appropriate mathematical techniques. Encourage students to consider factors that might contribute to the wage gap, such as occupation, education level, and hours worked.

Summarize Phase

* **Group Presentations**: Have each group present their findings to the class, including the calculated wage gaps and any patterns or trends they observed. Encourage them to use graphs or charts to illustrate their results.
* **Class Discussion**: Lead a discussion on the implications of their findings. Questions to consider include: What factors contribute to the wage gap? How does the wage gap vary by occupation and race? What are potential solutions to address the wage gap?
* **Reflection**: Ask students to write a brief reflection on how the lesson changed their understanding of the gender wage gap and the role of mathematics in analyzing social issues.

Assessment

* **Exit Ticket**: As an assessment, students will individually answer a question that requires them to apply the mathematical concepts learned in the lesson to a new dataset or scenario related to wage inequities.

|  |
| --- |
| **BACKGROUND AND EXTENDED INFORMATION** |

The gender wage gap significantly impacts women's financial security throughout their lives, leading to disparities in income, savings, retirement funds, and overall economic stability. This gap is a multifaceted issue influenced by various factors, including discrimination, occupational segregation, and caregiving responsibilities. The consequences of the gender wage gap on women's financial security are profound and far-reaching:

1. Lower Lifetime Earnings: Women, on average, earn less than men over their careers. This disparity begins early and widens over time, significantly affecting women's lifetime earnings. For instance, a woman working full-time, year-round stands to lose $417,400 over a 40-year career due to the wage gap. For Latina, Native American, and Black women, the lifetime losses can exceed $1 million.
2. Reduced Retirement Savings: The gender wage gap directly affects women's ability to save for retirement. Women have about 30% to 65% less saved in their retirement accounts than men. This discrepancy is partly due to lower lifetime earnings and partly because women are more likely to take career breaks for caregiving, reducing their contributions to retirement plans.
3. Higher Poverty Rates: The wage gap contributes to higher poverty rates among women, especially older women and single mothers. Women are more likely than men to live in poverty, with older women facing unique challenges such as widowhood and disability, which further exacerbate their economic insecurity. Closing the gender wage gap could significantly lower poverty rates among women in every U.S. state.
4. Increased Economic Vulnerability: Women's lower earnings and savings make them more vulnerable to financial shocks, such as unexpected healthcare costs or job loss. This vulnerability is compounded by the fact that women, on average, live longer than men, requiring their retirement savings to stretch further.
5. Dependency and Lack of Autonomy: The wage gap can force women into a position of financial dependency, limiting their ability to leave abusive relationships or make autonomous life choices. Economic insecurity can restrict women's freedom and empowerment, affecting their overall well-being.
6. Impact on the Economy: The gender wage gap not only affects individual women but also has broader economic implications. Closing the gap would not only increase women's earnings but could also boost the economy by billions of dollars, as women's increased spending power benefits families, communities, and the economy at large.

Addressing the gender wage gap requires a comprehensive approach, including policy reforms, support for caregiving responsibilities, promotion of equal pay for equal work, and efforts to challenge occupational segregation. By closing the wage gap, society can make significant strides toward ensuring economic security and equality for women.