



National Science Teaching Association Position Statement

Teacher Pay

Introduction

Teachers are vital to the success and well-being of young people and to the economic and technological competitiveness of the country. However, the past five years have seen a surge in economic, health, and political challenges, leading to a decline in job satisfaction among teachers and a dwindling interest in teaching among college students (Kraft et al. 2024). The field of K–12 science education is particularly at risk, as potential and current science teachers have readily available lucrative alternative career opportunities.

The recruitment and retention of competent science teachers for our nation’s schools is a complex issue. Factors such as salary, benefits, school leadership, facilities, peer support, student demographics, and professional development opportunities all play a role in a teacher’s decision to enter and stay in the profession (e.g., Ingersoll and May 2012; Nguyen et al. 2020). Teacher labor markets are local, and as a result, the challenges of recruitment and retention may vary across regions (Nguyen 2020). While each of these factors warrants attention, this statement will focus specifically on the issue of science teacher salaries.

Most teachers are not paid a salary that reflects their skills, efforts, and contributions to helping students realize their potential. For example, it is estimated that in 2021–22, average salaries for entering teachers fell by more than \$4,500 (10%) since 2008–09 after adjusting for inflation (NEA 2023). All teachers deserve to be fairly compensated. However, the issues confronting science teachers—especially teachers in high-need schools—go beyond the challenges confronting the typical teacher.

Importance of Science Education

Science literacy is fundamental for individuals to navigate the increasingly complex and interconnected world in which we live, enabling them to contribute positively to society and make informed choices for themselves and future generations. A firm grasp of science is fundamental to fields ranging from medicine and environmental conservation and sustainability to chemical engineering and space exploration. The economic and technological competitiveness of the United States depends on a workforce well educated in science. Employment in STEM occupations has grown by 79% in the past three decades and is projected to grow an additional 11% from 2020 to 2030 (O’Rourke 2021).

The United States is experiencing a shortage of STEM workers in various sectors, including healthcare, information technology, and engineering (Sayed 2023). It’s estimated that the United States will have a shortage of up to 3.5 million STEM-based employees by 2025 (Sayed 2023). As a result, many employers are concerned about educating the next generation of engineers, scientists, and workers and providing

all students with a contemporary understanding of science. Recruiting and retaining high-quality science teachers in all schools is essential to fulfilling these goals.

Impacts of Teacher Quality

High-quality teachers are influential in students' academic and social development. Rigorous research documents that teachers meaningfully influence students' test, non-test, and later life outcomes (Aaronson et al. 2007; Chetty et al. 2014; Jackson 2018; Kraft 2019; Loeb and Page 2000) and that teachers differ in their ability to do so (Aaronson et al. 2007; Rivkin et al. 2005; Rockoff 2004). For example, it is estimated that the difference in effectiveness between a top- versus a bottom-quartile teacher four years in a row could eliminate the disadvantage associated with poverty (Rivkin et al. 2005). As is true more broadly, high-quality science teachers importantly influence science outcomes (Johnson et al. 2007).

Shortages of High-Quality Science Teachers

Unfortunately, science is a subject for which it has been very challenging to recruit and retain teachers. In 2020–21, more than 30% of public schools reported that hiring teachers in the sciences was very difficult or they were unable to fill a position (NCES 2023). Many schools, especially those with high concentrations of poor students, report high rates of STEM and special education teacher vacancies (Marder 2021; McVey and Trinidad 2019; Nguyen et al. 2022). And while the pandemic exacerbated the challenges of recruiting teachers in certain subjects, these are long-standing issues dating back at least to the A Nation at Risk report (NCEE 1983). Several factors may contribute to these challenges.

Undergraduate science majors have a variety of well-compensated career alternatives available to them (Wes, 2013). Individuals are motivated by a variety of factors in considering whether to teach, what to teach, and where to teach. Research has consistently shown that compensation is an important consideration and that many teachers' choices are influenced by compensation (Clotfelter et al. 2008; Hendricks 2014; Murnane and Olsen 1989). In general, teachers earn less than comparable college graduates entering other fields, and this gap has grown over time (Allegretto 2023; Hansen 2019). Graduates trained in science who enter teaching have been particularly disadvantaged, as they have more financially attractive alternative career opportunities (Murnane and Olsen 1990; Rumberger 1987). In 2023, the mean annual wage of physical and life scientists averaged more than \$100,000, while that of middle school teachers averaged \$71,460 (BLS 2024). This difference is likely to increase as STEM occupations are projected to grow more than three times as fast as all occupations (BLS 2023).

Addressing Equity

Decades of research have documented the challenges that school districts confront in hiring and retaining science, math, and special education teachers in all schools, but especially in schools with high concentrations of low socioeconomic status students (Clotfelter et al. 2007; Goldhaber et al, 2015; Greenberg and McCall 1974; Kershaw and McKean 1962; Lankford et al. 2002). These schools are unable to effectively compete for science teachers, resulting in more teacher vacancies, a greater incidence of out-of-field teaching, and generally lower-quality teaching. These discrepancies in teaching quality occur within and between school districts. Within school districts, all teachers at comparable levels of experience and education receive the same salary, regardless of the challenges of recruiting and retaining teachers to those schools. As a result, students in schools with high concentrations of poor students have inequitable access to

high-quality teachers. This inequity is most evident for teachers in shortage fields, such as science.

Higher salaries result in improved teacher retention. Research examining the effects of targeted salary increases in shortage subjects (Feng and Sass 2018) or in high-poverty schools (Clotfelter et al. 2008) finds that increased compensation results in higher teacher retention. Differentiating salaries within districts so that teachers receive higher salaries consistent with the challenges of staffing some positions and schools would be a first step toward addressing inequities (Hansen 2023).

Declarations

- There are too few high-quality K–12 science teachers. This shortage results from many factors, but uncompetitive salaries play an important role. Shortages of high-quality science teachers reduce student learning, limiting future opportunities for students and diminishing their civic and economic contributions to society.
- Salaries for science teachers should be significantly higher than current levels in nearly all districts. These salaries must enable schools to effectively compete with the career alternatives available to people with science backgrounds.
- Science teachers working in schools with high concentrations of economically disadvantaged students should receive significantly higher salaries. These increased salaries should reflect the unique challenges of recruiting and retaining high-quality teachers in our high-poverty schools. We recommend that salary differentials be flexible enough to attract top-notch educators in all schools, recognizing that the needs and circumstances will inevitably vary based on location.
- State and local policy makers should mandate these salary differentials and ensure that districts have access to the public funds needed to finance salary increases as an investment in the overall science workforce.

— Adopted by the NSTA Board of Directors, December 2024

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