

# Turnover among High School Physics Teachers

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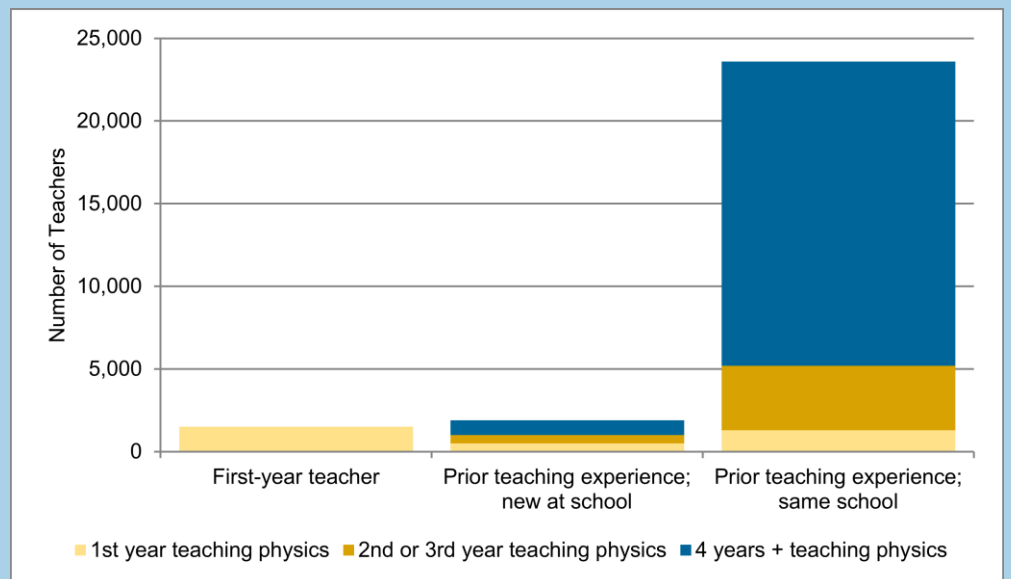
## “New” High School Physics Teachers

“New” high school physics teachers are not necessarily new to teaching. A teacher teaching physics for the first time might be in his first year of teaching, or she may already have teaching experience and be teaching physics for the first time. In most contexts, “teacher turnover” encompasses teachers entering and leaving teaching and is not course specific. However, when we talk about turnover among high school physics teachers, we are including teachers with prior teaching experience who are teaching physics for the first time.

As Figure 1 shows, over 70% of the 27,000 teachers teaching physics have been teaching physics for at least four years. Over half of the teachers who are teaching physics for the first time have previous high school teaching experience in other classes.

Figure 1

High School Teaching & Physics Teaching Experience  
2008-09 US High School Physics Teachers



<http://www.aip.org/statistics>

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**THE 2008-09  
NATIONWIDE SURVEY  
OF HIGH SCHOOL  
PHYSICS TEACHERS**

During the 2008-09 academic year we contacted a representative national sample of about 3,600 public and private high schools across the United States to inquire about physics availability and offerings. These reports describe our findings.

In both Figures 1 (on front page) and 2 (below) we show data for first-year teachers, teachers with prior teaching experience who have just moved to a new school, and those with prior teaching experience who have been teaching at their current school for more than one year.

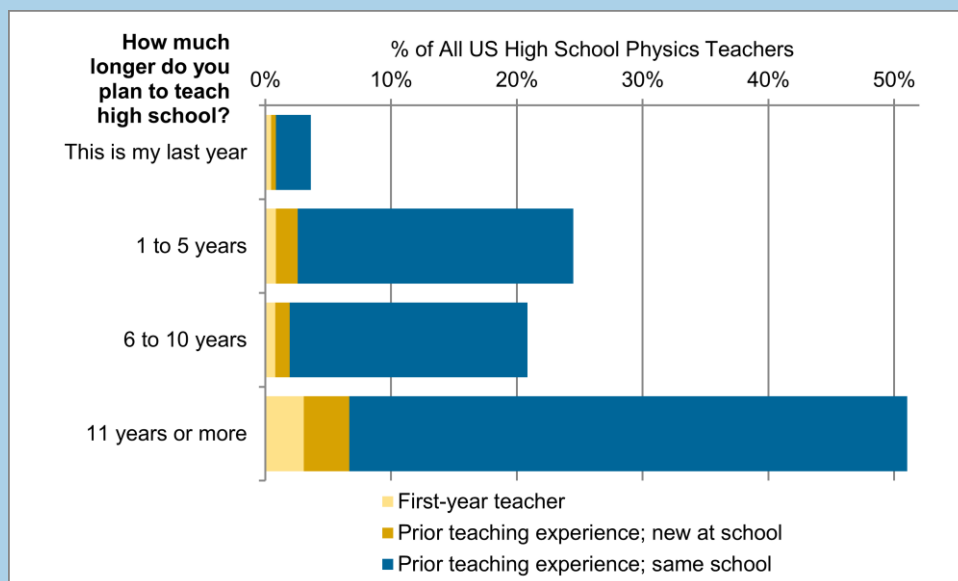
Figure 2 reveals that about 5% of the teachers teaching physics are in their first year of teaching high school, and about 4% say that they are in their final year of teaching high school. Thus, about 1,350 first-year high school teachers are teaching at least one physics course, and about 1,000 of those teaching physics planned not to teach high school beyond the current school year. There were about 27,000 teachers teaching at least one physics course during the 2008-09 school year.

While about 9% of those in their first year of teaching report that they plan to quit teaching, less than 3.5% of experienced teachers plan to quit teaching at the end of the current school year. The higher attrition rate among first-year teachers is common across all high school teachers—and other careers—as people enter new fields and then leave quickly for various reasons.

We find no statistically significant difference between the retirement plans of experienced teachers who are in their first year of teaching at their current school (about 7% of high school physics teachers) and those with previous teaching at their current school (about 88% of high school physics teachers).

## Figure 2

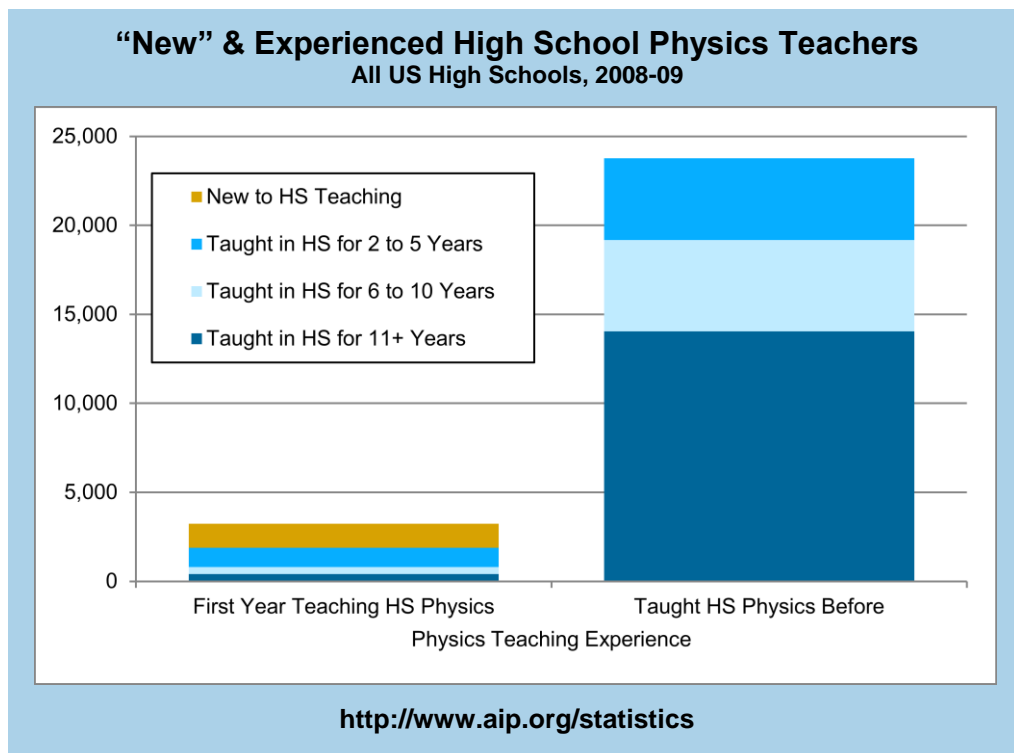
### Years of Teaching Experience & Future Teaching Plans 2008-09 US High School Physics Teachers



*About 1,000 of those teaching physics during the 2008-09 school year (~4%) planned to quit teaching at the end of the year.*

<http://www.aip.org/statistics>

Figure 3




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*Over half of the “new” physics teachers—those teaching physics for the first time—have prior teaching experience at the high school level.*

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## Sources of High School Physics Teachers

Almost 90% of high school physics teachers in 2008-09 had prior experience teaching the subject. Among those who had never taught high school physics, about 60% had taught other high school subjects before assuming responsibility for the physics class. So, as we noted on page 1, “new” high school physics teachers are not necessarily in their first year of teaching. Figure 3 depicts the sources of “new” high school physics teachers for the 2008-09 school year.

Over half of all teachers teaching physics have taught at the high school level for eleven years or longer, and most of these teachers have prior experience teaching physics. Of the teachers who are teaching physics for the first time, 30% have taught at the high school level for two to five years, 13% have six to ten years of high school teaching experience, and 13% have more than ten years of experience teaching at the high school level.

Table 1 examines physics teaching experience and the movement of teachers between schools. Almost 90% of the teachers have prior experience teaching high school physics, and about three-fourths have at least four years of experience in teaching physics. Teachers in their fourth year (and beyond) teaching a subject have had time to learn how to better work with the students and present the material.

This table highlights the fact that 95% of the teachers teaching physics have prior experience teaching at the high school level. Furthermore, 88% have prior physics teaching experience.

**Table 1**

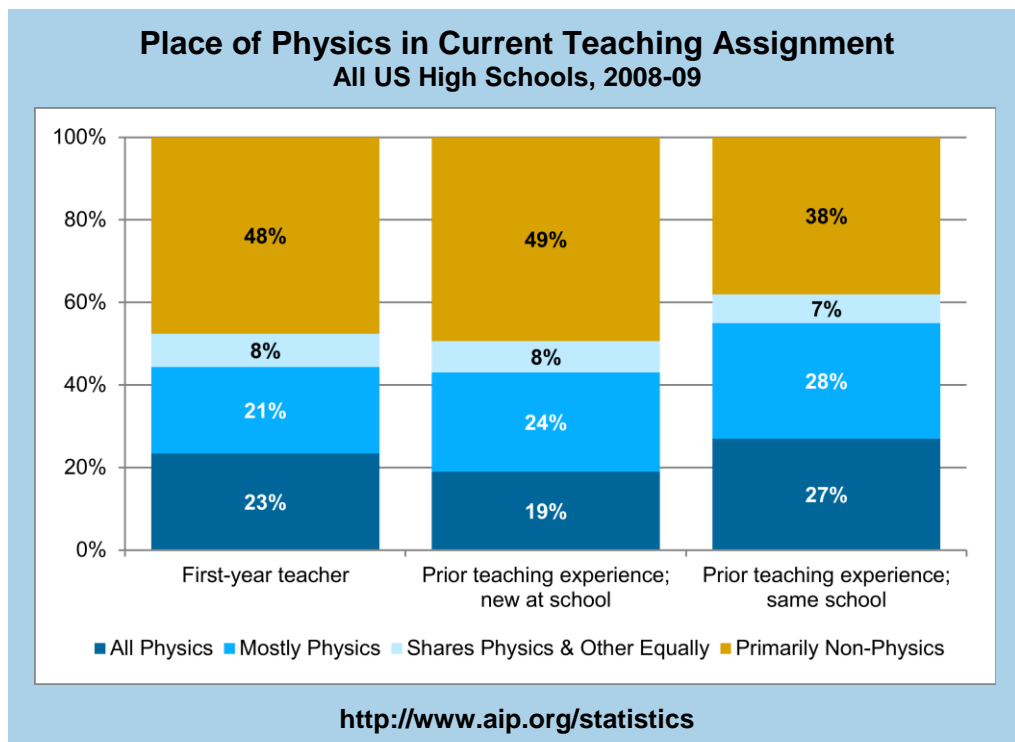
**US High School Physics Teachers' Experience & Movement**  
All US High Schools, 2008-09

HS Physics Teaching Experience	Prior HS Teaching Experience		No Prior HS Teaching Experience (%)	Total
	Continuing at Same School (%)	Just Joined a New School (%)		
4 years or more	69	3	-	72
2 or 3 years	14	2	-	16
First year	5	2	5	12
<b>Total</b>	<b>88</b>	<b>7</b>	<b>5</b>	<b>100%</b>

<http://www.aip.org/statistics>

*Almost 90% of high school physics teachers have prior experience teaching high school physics.*

Figure 4




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*Teachers in their first year at a school are more likely to teach fewer physics classes than teachers who have been at their current school for at least one year — regardless of teaching experience or physics background.*

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As seen in Figure 4, teachers who are in their first year at a school—whether they have prior high school teaching experience in other subjects or not—are more likely to teach fewer physics classes than teachers who have been at their current school at least one year.

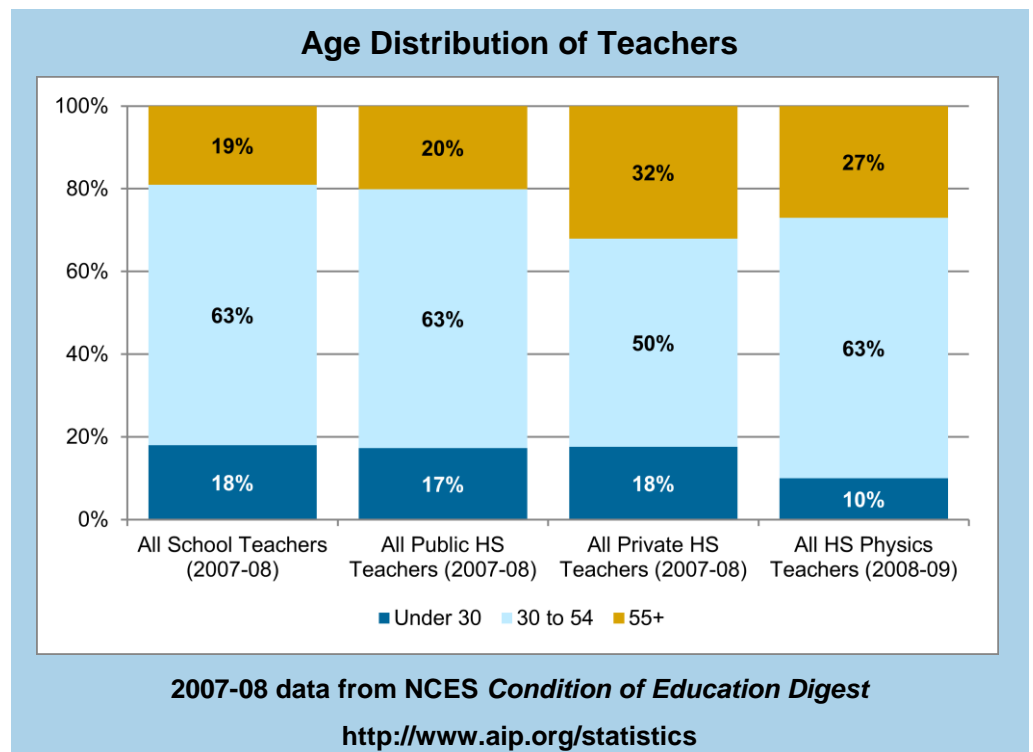
This is true whether or not the teacher has prior teaching experience and whether or not the teacher has a major or minor in physics or physics education. In the next **focus on** in this series, we will explore teacher backgrounds and loads more closely.

## The Aging of the Teaching Corps

In 1987 the median age of high school physics teachers was forty-one; it rose to forty-six in 2001 and has held steady since. Figure 5 shows the age distribution for all teachers in US schools, all high school teachers in both public and private schools, and all high school physics teachers. (The physics teacher data come from our survey; the other data come from the *Condition of Education Digest*, and the most recent data is for the 2007-08 school year. Even though these are not for the same year, it is unlikely that the age distribution would change dramatically during this time.)

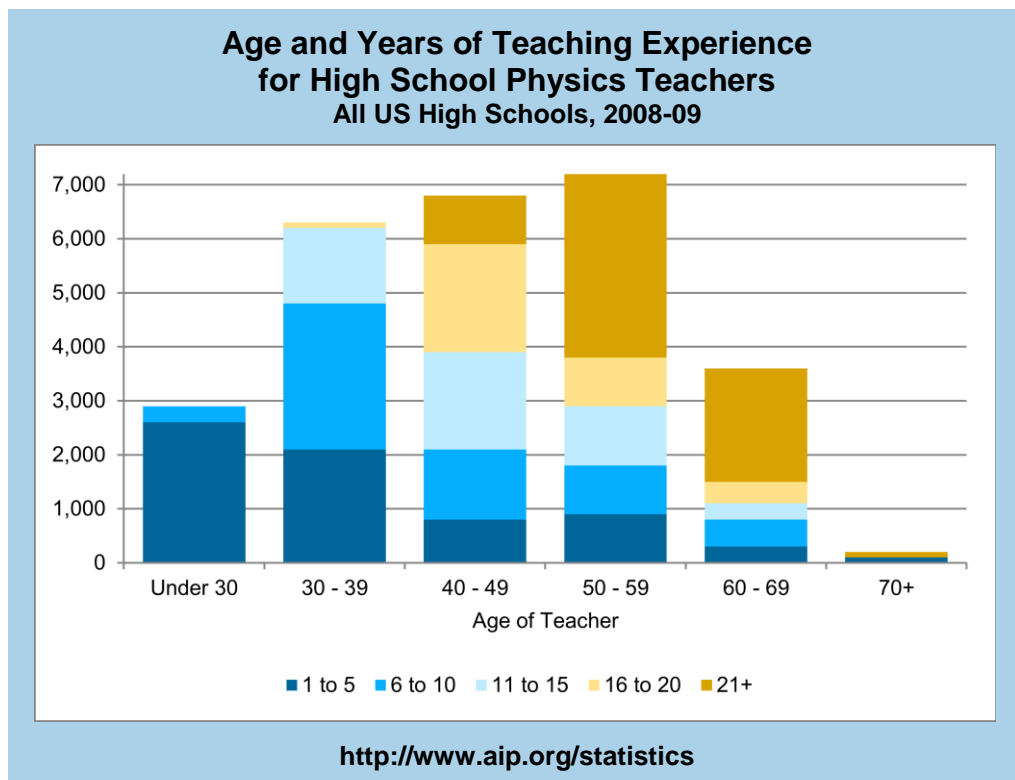
It does seem that physics teachers are older, as a whole, than other public high school teachers. Only private high schools have a higher percentage of teachers who are age fifty-five or older. However, as seen in Figure 2 (page 2), about three-fourths of those teaching high school physics plan to teach for at least six more years. Thus it seems that at least for high school physics teachers, age and retirement plans are not necessarily correlated in ways one might expect.

**Figure 5**



*Retirement plans and years of teaching experience are not necessarily directly related to a teacher's age.*

Figure 6




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*About 12% of the teachers age 50 or older are in their first five years of teaching. These are likely second-career teachers.*

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Not only are age and retirement plans not necessarily linked to each other, but age and teaching experience are not necessarily related in expected ways. In Figure 6 we see that almost 12% of the teachers who are fifty years old or older have five years or fewer of teaching experience. These are likely second-career teachers. The typical age range for second-career teachers is thirty-three to fifty-nine. However, the younger teachers are more difficult to isolate because the average duration of the previous career is one and one-half to three years.<sup>‡</sup>

<sup>‡</sup>“The Real World and the Classroom: Second-Career Teachers,” Dianne Chambers, *The Clearing House*, 75:4 (Mar-Apr 2002), 212–217.

## Survey Methodology

In the fall of 2008 we contacted a representative sample of over 3,600 high schools in the United States, both public and private, to determine whether or not physics was taught there. We received responses from over 99% of the schools. For the schools which indicated they were offering physics, we obtained contact information for the teachers. In the spring of 2009 we contacted each of the teachers who were thought to be teaching physics. We received responses from over 2,500 teachers (a 62% response rate). Our findings are based on their responses.

For a copy of the principal survey or the teacher survey, please contact Susan White at [swhite@aip.org](mailto:swhite@aip.org).

We were able to conduct this research only with the gracious help of the more than 6,000 people who provided responses, including an administrator at each school and each of the teachers who responded. We are deeply grateful for their assistance and their time.

This marks the seventh time we have conducted a survey examining physics in US high schools. Our eighth study will begin in the fall of 2012 when we send questionnaires to principals. Thank you very much for your help with this study.