

25 Years of AAPT's PhysicsBowl

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The PhysicsBowl is a contest for high school students that was first introduced in 1985. In this article, we discuss both some of the history of the contest as well as the 25th contest occurring this year.

History

The model of the current PhysicsBowl is based on contests first offered by the Ontario section of AAPT starting in 1980 and the Southeastern Pennsylvania section beginning in 1982.¹ Jim Nelson created the very first contest (called “The Metrologic Exam”) with the financial support of Metrologic.² In 1990, the contest was renamed “The PhysicsBowl.”

Since its inception, the number of students and schools competing in the contest and the nature and amount of the prizes has changed. In 1989, there were nearly 2000 students that competed from 80 schools. The prizes in the early years consisted of the donation of a classroom laser to the highest-scoring school in each participating section of AAPT. There were no formal prizes given for highest-scoring students. At its zenith of participation, there were more than 550 schools and 22,000 students competing. In 2009 there were 225 schools from Taiwan, China, Canada, and the United States with almost 4500 students competing. School prizes consisted of gift certificates from Frey Scientific, Vernier Software & Technology, and AAPT. Student prizes consisted of the book *Chasing the Rainbow* by Robert Greenler, a TI-30 XS MultiView calculator from Texas Instruments, and T-shirts to the top five students in the top scoring school in each region for each of the two divisions.

In its current form, the contest:

- consists of **40** multiple-choice questions covering all areas of introductory physics.
- is timed. (45 minutes)
- has an equation sheet provided to students.
- is scored by counting only the correct answers on the exam. There is no penalty for incorrect answers.
- allows for the use of a hand-held calculator that must be cleared of all data and program.
- is divided into two divisions based on the number of years of physics studied. Division 1 is for students taking their first year of physics and these students answer questions 1-40 of the contest. Division 2 is for either students taking their second (or more) year of physics or students wishing a challenge. These students answer questions 11-50 of the contest.
- is broken into roughly geographic regions. Table I shows the regions for the 2010 contest. Specialized and magnet schools of science, mathematics, and technology compete

in their own region regardless of geographic location.

- is typically to be administered during the first two weeks of April.

Once scores from the exams are computed, results are published and awards presented by the end of the first week in May. Prizes are awarded to each of the top two scoring schools in each region and division. The school score in a division is computed by adding the top five scores of students competing in that division. Schools can compete in both divisions each year. In addition, there are prizes for the top two scoring students in each region and division.

The 2010 contest will take place in early April, with registration forms due to the National AAPT office by mid-March. The contest can be taken in one of three formats:

- **Printed exam (this is the last year of this format!)**
 - The full exam, equation sheet, and a Scantron sheet for student answers are mailed to the instructor in packets of five.
 - The cost per packet (five exams) is \$30.
- **PDF file**
 - The instructor will be emailed a password to download the PDF, which can then be copied for students.
 - Packets with five Scantron sheets for student answers will be mailed to the instructor.
 - The cost per packet (five exams) is \$15.
- **WebAssign**
 - Students can be registered to take the exam completely online with WebAssign.
 - The cost is \$2/student.
 - Schools do not have to currently use WebAssign in order to compete with this method.
 - Old PhysicsBowls are available through WebAssign for students to practice taking the contest in an online environment.

For more information about the contest, one can visit the AAPT website (www.aapt.org/Contests/physicsbowl.cfm) or go to www.delta.edu/michaelfaleski/PhysicsBowl/. The latter website contains more information about the history of the contest, previous contests and lists of winners, and FAQs. As there are gaps in our information, if there are any instructors with some of the missing information, please send that information by email to michaelfaleski@delta.edu.

The PhysicsBowl has been generating student interest in physics for a quarter century and we are looking to increase

Table I. Regions for PhysicsBowl 2010.

Region	Participating school
01	Specialized and Magnet Schools of Science, Mathematics, and Technology
02	Connecticut, Maine, Massachusetts, New Hampshire, Rhode Island, Vermont
03	New York, Maritime Provinces, Ontario, Quebec
04	New Jersey, Pennsylvania
05	Delaware, District of Columbia, Maryland, North Carolina, Virginia
06	Florida, Georgia, South Carolina, Puerto Rico, Virgin Islands
07	Kentucky, Ohio, West Virginia
08	Indiana, Michigan
09	Illinois, Iowa
10	Minnesota, North Dakota, South Dakota, Wisconsin
11	Alabama, Arkansas, Louisiana, Mississippi, Tennessee
12	Colorado, Kansas, Missouri, Nebraska, Oklahoma, Wyoming
13	Arizona, New Mexico, Texas, Utah
14	California, Hawaii, Nevada, American Samoa, Guam
15	Alaska, Idaho, Montana, Oregon, Washington, Alberta, British Columbia, Manitoba, Saskatchewan, and Others

participation in this contest so that it will be around for another quarter century. The questions on the tests serve as a good review for AP, honors, IB, and courses of all levels and they are a great way to get students excited about physics! As Mike Bush, a physics teacher from Libertyville High School in Illinois, stated, “The PhysicsBowl fits nicely into our review of the AP exam. The test gives students a chance to practice many concepts learned throughout the year. The students also enjoy the challenge of competing against schools from around the nation and the world.”³

If you are interested in helping to write/edit questions for future contests or want to get involved in other ways, please email michaelfaleski@delta.edu or come to the PhysicsBowl Advisory Board meeting during the national AAPT meetings.

We look forward to your school’s participation in the upcoming contests!

Acknowledgments

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W. Edward Gettys (1988–1991)

Mary Mogge (1992–1998)

Courtney Willis (1998–2003)

Richard Olenick (2004–2007)

References

1. Doug Fox and Jim Nelson, “Physics contests for high school students,” *Phys. Teach.* **61**, 161–163 (March 1983).
2. Private communication from Jim Nelson.
3. Private communication from Mike Bush.