

Role of a Physics Teacher

Excerpts from:

The Role, Education, Qualifications and Professional Development of Secondary School Physics Teachers

https://www.aapt.org/Resources/upload/Secondary-School-Physics-Teacher-Role_booklet.pdf

2. Role of a Physics Teacher

A good physics teacher is someone who realizes that among the most valued and significant roles of a science teacher is to help a student understand a body of information and the processes of scientific investigation. This teacher derives great pleasure when students truly comprehend a concept or principle and appreciates the role scientific inquiry had in its development.

Teacher Self-Preparation

Behind the scene work determines the level of student understanding. Quality teaching depends on what is done by the teacher before stepping into the classroom. Preparation is key:

- Set the goals in terms of conceptual and process outcomes
- Decide what students will do in the classroom to achieve these goals
- Decide how to assess whether the goals are achieved, including the roles of both formative and summative assessments
- Maintain a positive outlook and be flexible
- Prepare subject material: sequencing and correlating to standards
- Prepare lab apparatus and equipment

Teacher-Student Interaction

The primary role of a teacher is to establish a learning environment where all students are able to learn and are motivated to learn, an environment that is both challenging and supportive:

- Establish a learning community consisting of the teacher and the students
- Recognize and celebrate diversity in students
- Design or select varied instructional strategies to accommodate different learning styles

- Establish and implement a consistent classroom management plan
- Listen to student ideas and be prepared to address them
- Guide students to view the place of physics in the wider scientific world
- Encourage and support students in discovering concepts independently when possible
- Maintain appropriate methods of communication with parents to keep them informed of student progress and attitude and address any issues that may arise
- Make sure that student activities are challenging yet doable, and that students can track their progress
- Make sure that students can establish connections between classroom activities and everyday experiences
- Review safety procedures with students
- Assess student progress both formatively and summatively

Community Building in the Classroom

It is important for students to feel comfortable in the classroom. A good teacher should make connections with the students:

- Be authentic and genuine
- Learn the names of all students early and speak to each student every day
- Recognize and acknowledge students' interim successes that lead to final understanding of concepts and principles
- Be available to provide extra help and be willing to respond to questions
- Involve and include all students in classroom activities
- Be fair and consistent in the treatment of each student
- Be accurate and specific in evaluating student progress

Scientific Literacy Development

Science does not happen only inside the classroom. Science teachers are charged with producing informed consumers of science who will be able to make decisions whenever science intersects public policy. Thus the teacher should be an informed and critical observer of science, concerned with developing scientific literacy:

- Take advantage of community resources
- Connect with scientists outside of the classroom through speakers and field trips
- Provide students with opportunities to learn, for choice, and for success
- Provide meaningful applications, and manageable tasks for students to perform
- Bring scientific news into the classroom
- Discuss implications of new technology
- Address real-world problems that may be interdisciplinary
- Provide activities and opportunities for students to experience physics outside the classroom

Additional Responsibilities

In addition to classroom responsibilities, teachers are expected to fulfill other obligations:

- Participate in division, department, and school-wide meetings
- Support school related activities and functions
- Contact other teachers through professional meetings and organizations
- Pursue professional development

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