

# MasteringPhysics

## Uskudar American Academy, Istanbul

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### LEARNING OUTCOME

After introducing MasteringPhysics to one grade level at this Turkish high school, they now use it in other grade levels and have introduced MyLab/Mastering for other disciplines. Less time is spent marking and more time is spent using the **diagnostic tools to identify student weaknesses**.

#### Course

Physics 1, Physics 2 and Physics 3

#### Textbook in use

*College Physics: A Strategic Approach*, 2012  
Knight, Jones and Field

#### Type of data collected

Student feedback

#### During this period

2010–11

### Course design

We are teaching algebra-based physics to high school students in grades 10, 11 and 12. The students are native Turkish speakers but study science and mathematics in English. Grade 10 Physics is a required introductory course of 5 periods per week and is taken by 144 students. Grades 11 and 12 are more advanced courses taken by about two thirds of those students who have chosen to focus on science, and consist of 4 periods per week. Each period is 40 minutes.

### Assessment

Compulsory assignments each week for 20 weeks (ten weeks from each 15-week semester).

### Implementation

Using MasteringPhysics, we wanted to:

- increase homework participation
- make the setting of homework much quicker
- take a lot of 'mechanical marking' away from the teacher
- more easily set homework involving different styles of questions, considering both timing and difficulty level.

We initially applied MasteringPhysics at one grade level. Based on the positive experience, MasteringPhysics has now spread to other grade levels

and similar systems have been adopted in the maths, chemistry and biology departments.

Online homework has entered the culture of our school. Our homework policy allocates 2 homework slots each week to physics, a total of 80 minutes. Since our students are not native speakers we set about 50 minutes' worth of questions for the allocated 80 minutes of homework time. We also set extra credit questions beyond this. With the extra credit questions the students could score a potential 140%. This allowed for a student to miss a homework assignment but complete extra credit at a later date and keep an average of 100%. This grade counted as part of their semester oral (participation) grade, where scores of over 100% were counted as being 100% total.

The assignments were left available until the end of the year, but due dates were set weekly. Each week we published the top 20 cumulative totals, and this was really popular with the stronger students who would check the league table each week to see if they had gone up or down.

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## Course results

### ANECDOTAL EVIDENCE

More students did more homework. One student, who had done little homework the previous year, told me that it was easier to remember homework using MasteringPhysics because the first thing he always did when he went home was turn on the computer.

## Conclusions

MasteringPhysics is an easy and efficient solution for setting quality homework. Similar systems are now being used in mathematics and in other science departments.

The randomised numbers in problems meant that students could share methods but not answers. Once the results were recorded, the diagnostic tools identified the specific questions that needed further discussion in class.

Students liked that they got instant feedback on their answer, instead of needing to find the teacher on Monday morning. Parents learned the times at which their child was logged on, as well as how long they spent on the questions, and this provided the teacher an opportunity to give constructive feedback in parent-teacher meetings.

Extra credit questions have been popular with the more able students, and the eBook was useful to students who were travelling.

## In brief

- More students have done more homework. Homework can be set well in advance and appear at the same time every week with the same deadline, and this has encouraged the habit of homework
- Less time has been spent marking and more time has been spent using the diagnostic tools to identify weaknesses.
- Very few students were opposed to using computers, and those that were would print the problems and then type in the answers later.

**Less time has been spent marking and more time has been spent using the diagnostic tools to identify weaknesses.**