Welcome!

Bishop Heber High School

AS Physics — Mr A.C. Norman

September 6, 2012

Expectations

An hour of out-of-class time on academic work for each lesson of material covered in class.
Physics is best learned (and revised) by doing problems, making your own notes about the material, reading around the topics, and thinking about the physics carefully.
You will need a ring binder!
Print off the notes the night before from the course E:HEBER site, fill them in during the lesson, making any additional annotations in the margins, and write up your own version in neat in your files.
Be prepared to think, take part and answer questions in lesson time.
Take charge of your own learning.

Office Hours are week 1 Tuesdays 3.45–5.0 p.m. in room 19.

Workload 1

How much work have you found yourself doing outside of the lessons per week for physics?	
less than 2 hours	0
2–4 hour	4
4–6 hours	7
6–8 hours	0
more than 8 hours	1

How does this workload compare to other sixth form lessons?	
much less	0
less	0
about the same	10
more	2
very much more	0

In-class activities

Which in-class methods of teaching and learning did you find worked well for your understanding?	
Mini-whiteboards	6
Homework feedback	8
Multiple choice votes	5
Tests	4
Teacher talking	7
Question & Answer	4
Practicals	3
Card sorts (radioactivity, quarks, Feynman)	7
Demonstrations	5
Slide Presentations	4
Filling in handouts	2
Doing problems in class	6
Showing others at the board	1

Out-of-class activities

Which of the following have you spent time doing outside of class to learn independently?

	Tried it	Helpful?	Not helpful?
Homeworks	11	10	0
Other questions from E:HEBER	1	0	1
Writing up practicals	4	1	3
Writing up class notes in neat	4	3	0
Reading class notes ahead of lesson	5	1	2
Trying to fill gaps in class notes	7	3	3
Provided textbook explanations	4	3	1
Provided textbook questions	5	1	2
Other textbooks	1	1	1
Revision guide	7	4	1
The course website	3	2	0
Other websites	6	2	1

Registration form

I have told you what I want from you, now I want to get to know a bit about you, and what you want from AS Physics.

Lesson Objectives

1. To learn how to use dimensions.
2. To revise standard scientific form for numbers.
3. To have a go at estimating.

Units

Always specify the units for all physical quantities (especially in the lines before the final answer as it allows you to make sure the units are consistent and work out to the answer's unit). The value of a physical quantity is equal to the product of a *numerical value* and a *unit*:

$$\text{physical quantity} = \text{numerical value} \times \text{unit}.$$

e.g. the physical quantity called the wavelength λ of one of the yellow sodium lines has the value

$$\lambda = 5.896 \times 10^{-7}\,\text{m},$$

where m is the symbol for the unit of length called the metre. This may equally well be written in the form

$$\lambda/\text{m} = 5.896 \times 10^{-7}.$$

Sanity Check!

What is wrong with these values:

- distance travelled by car
  $= 9.46 \times 10^{15}\,\mathrm{m}$
- speed of bicycle
  $= 18.06\,\mathrm{m\,s^{=}1}$
- wavelength of γ ray
  $= 3.2 \times 10^{-7}\,\mathrm{m}$
- temperature of solid CO_2
  $= -416\,^{\circ}\mathrm{C}$
- width of human hair
  $= 7.21 \times 10^{-11}\,\mathrm{m}$
- temperature of water
  $= 523\,\mathrm{K}$
- wavelength of UV
  $= 1.2 \times 10^{-4}\,\mathrm{m}$
- density of oxygen
  $= 2.48 \times 10^{3}\,\mathrm{kg\,m^{3}}$
- energy of space shuttle launch
  $= 1.22 \times 10^{34}\,\mathrm{J}$
- charge on electron
  $= 1.84 \times 10^{-18}\,\mathrm{C}$