



GCSE

Physics

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Introduction

Welcome to your GCSE Physics course. This introduction will serve as a guide to what you can expect from the course, and it will show you how to plan your study of this course effectively. Take the time to read this Introduction thoroughly before you start the lessons.

The course is designed to prepare students for the **AQA GCSE Physics specification (syllabus)**.

The AQA subject code is **4451 GCSE Physics**.

Please note that this course has five examined components:

- Examination paper Physics 1
- Examination paper Physics 2
- Examination paper Physics 3
- An item of practical coursework
- An examination paper based on the practical work

The practical work should be possible to do without access to a laboratory, but if you do have the opportunity to perform supervised laboratory work in the course of your studies, this will add to them greatly.



The Course

The course is different from GCSE Physics courses of the past in that it attempts to look at the way Physics affects your everyday life and how you can evaluate the scientific material that you come across in newspapers, magazines and on television. The course is ideal preparation for those who wish to go on to study Physics at AS and A2 Level.

If you have some background in Physics then you will find that some of the lessons touch upon things that you have encountered before, but the course is designed to be fully understandable by those who have little or no previous background in science.

Arrangement of Lessons

The lessons are planned so that material for the four examination papers is covered by the four modules of the course:

Physics 1
Physics 2
Physics 3
Science Skills

You should note that the fourth module is common to examinations for GCSE Biology and GCSE Chemistry. If you are doing more than one of these courses with Oxford Open Learning then you will find that this material is common to all three courses. TMA J, however, based on this material is different, so you will need to send separate TMAs to each of your tutors for science subjects.

You should do the three main Physics modules in order but the Science Skills module can be completed whenever you like; this must be before you start on your practical assessment (see below).

Textbook

The textbook that is referred to throughout this course is

AQA GCSE Physics
Jim Breithaupt – Nelson Thornes - ISBN 0-7487-9647-9

You will need a copy of *AQA GCSE Physics* throughout the course; you can buy a copy through the Oxford Open

Learning website. It is referred to in almost every lesson and provides excellent coverage of the material. By using the textbook and the course you will have very full coverage of all the material.

You should not need other books during the course but you may like to look in other science books from time to time. If you feel that you would like to use a revision guide before the examination you should ask your tutor which one they recommend.

Lesson Contents and Textbook References

Physics Module 1		
<i>Lesson</i>	<i>Title</i>	<i>Book Reference</i>
1	Moving Heat	P1.1
2	Efficient Energy/ TMA A	P1.2
3	Electrical Devices	P1.3
4	Generating electricity/ TMA B	P1.4
5	Using Waves	P.1.5
6	The Uses and dangers of Radioactivity/ TMA C	C.1.6
7	Changes in the Earth	C1.7

Physics Module 2		
<i>Lesson</i>	<i>Title</i>	<i>Book Reference</i>
8	Movement 1	P2.1
9	Movement 2 / TMA D	P2.2 P2.3
10	Static Electricity	P2.4
11	Electric Circuits/ TMA E	P2.5

12	Electrical Appliances	P2.6
13	Atoms and Radioactivity	P2.7
14	Nuclear Power/ TMA F	P2.7

Physics Module 3

<i>Lesson</i>	<i>Title</i>	<i>Book Reference</i>
15	The Turning Effect	P3.1
16	Movement in Circles	P3.1
17	Mirrors and Lenses/ TMA G	P3.2
18	Sound and Ultrasound	P3.2
19	Electromagnetic Fields	P3.4
20	The History of Stars/ TMA H	P3.5

Science Skills

<i>Lesson</i>	<i>Title</i>	<i>Book Reference</i>
21	What is Science All About?	H1
22	Can we Believe Scientists? / TMA I	H8 and H9
23	Investigating and Observing	H3 and H4
24	Gathering Data	H H6 and H7
25	Coursework / TMA J	-

Internet Resources

In most lessons of the course, internet sites are given which have been carefully selected to illustrate points in the course and to provide additional activities. These are an important tool in your understanding of your Physics course and you should make every effort to view them and use the activities that they contain. If you do not have an internet connection at home, consider building in regular trips to a library or internet café as part of your study schedule.

The Structure within each Lesson: how to study

Front Page

The front page of each lesson shows:


- The title.
- **Aim(s)** for the lesson. These set out the position that you should reach after working through the lesson; keep these in mind while reading the lesson material.
- **Context**. This gives a very brief summary and shows how the lesson fits in with the rest of the course.
- **Reading**. The individual references for each lesson.

Lesson Notes

There then follow the notes; these are an outline of the subject material to be studied in the lesson. Read the notes carefully several times until you feel that you have understood the broad outline of the theory involved, and then tackle the reading references. The textbook may deal with the subjects in greater detail, and, as with the notes, you will probably need to read the passages several times.

Activities

Most activities in the course are placed in the notes at the relevant point. Activities are indicated as follows:

Activity 7	Investigate how a nucleus is held together, particularly how the binding energy of the nucleus relates to Einstein's equation, $E = mc^2$.
	

The pencil symbol indicates that you should make your own notes in the space provided.

Self-Assessment Tests

When you feel that you have mastered the topics and completed the activities, tackle the practice tests, which are at the end of every lesson that does not contain a tutor-marked assessment.

Tutor-marked Assignments

After every three or four lessons there is a tutor-marked assignment. These are in GCSE examination style and should be carried out under timed conditions to give you examination practice. These tests will thoroughly check your understanding of the previous few topics. You should send your answers to these tests to your tutor, who will return your marked script, together with a set of suggested answers.

Revision

Do **not** leave all your revision until the end of the course. You will need to revise thoroughly for your examination, but frequent revision throughout the course is **essential**. Plan your revision sensibly and re-read as you feel necessary if your knowledge is beginning to fade.

Coursework

You will need to discuss the coursework with your tutor once you have made a start on the course. AQA will specify the topic that you will be working on. Do not start the coursework before discussing it with your tutor.

You should not need too much in the way of specialist equipment for your coursework – it requires mainly items that you can find in the kitchen. Specific details for equipment used will be found in the coursework notes.

Checking the Syllabus

As you know, this course has been written to cover the contents of the **AQA syllabus 4451**, which is available to download (you will need an Adobe Acrobat® reader on your computer) at www.aqa.org.uk.

You should read the syllabus throughout the course, so either keep a copy on your computer or print it out. If you do not have access to the internet, the syllabus is available from:

AQA Logistics Centre (Manchester)
Unit 2, Wheel Forge Way,
Ashburton Park, Trafford Park,
Manchester
M17 1EH

Past Papers

AQA now makes all (but the very last set) of past papers available online for free download at www.aqa.org.uk.

Discuss with your tutor how to approach these.

Your Tutor

You have a lot of resources to help you in your studies; your course file, textbook, internet resources and your tutor. You should make good use of your tutor to help you with any difficulties that you may have during the course.

And finally... very good luck with your studies.

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