

**KS3
Science:
Year 8**

Introduction

Welcome to the second year of your Oxford Home Schooling Key Stage Three Science course! This Introduction will tell you what you can expect from the course, and it will remind you how to plan your science studies effectively.

The three years of the course take you through all the material of Key Stage Three (KS3) of the National Curriculum for Science (England and Wales). You can find an outline of this at:

<http://curriculum.qcda.gov.uk/key-stages-3-and-4/subjects/key-stage-3/science/index.aspx>

Past papers for this course (SAT tests) can be purchased from:

www.sats-past-papers.co.uk/index.php?manufacturers_id=19

The course also covers the material for the UK 13+ Common Entrance (CE) Examination. The syllabus for this can be downloaded from:

<http://www.iseb.co.uk/syllabus.htm>

and past papers can be purchased from the publisher Galore Park at:

<http://www.galorepark.co.uk/common-entrance-exam-papers.html>



Oxford Home Schooling

The Oxford Home Schooling KS3 Science course has been divided into three separate years, corresponding to years 7, 8 and 9 in English secondary schools, and this folder contains the Year 8 course. It has been set out in six modules, each of which contains a lesson each on Biology, Chemistry and Physics. Each module concludes with a written Tutor-marked Assessment (TMA) to be sent to your Tutor for marking. Some lessons ask students to review topics studied in Year 7 and include references to lessons in the Year 7 course, Alternatively, Year 8 students could also refer to KS3 Science textbooks or other resources to review Year 7 topics, if preferred.

After studying this course you will have developed a good understanding of how Science works, and of many of the key ideas in Biology, Physics and Chemistry. You will be very well placed to move on to any of the GCSE or IGCSE Science courses offered by the UK examination boards. You will also, we hope, have enjoyed the course so much that you will be looking forward enthusiastically to further scientific studies!

Arrangement of Lessons

| | |
|-----------------|---|
| Module 1 | Food, Equations and Electricity |
| Lesson 1 | Biology: Food and Digestion |
| Lesson 2 | Chemistry: Symbols, Formulae and Equations |
| Lesson 3 | Physics: Electrical Circuits 1 |
| | TMA A |
| Module 2 | Respiration, Burning and Electricity |
| Lesson 4 | Biology: Respiration |
| Lesson 5 | Chemistry: Burning, Air and Gases |
| Lesson 6 | Physics: Electrical Circuits 2 |
| | TMA B |
| Module 3 | Breathing, Rocks and Heat |
| Lesson 7 | Biology: Breathing |
| Lesson 8 | Chemistry: Sedimentary Rocks |

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|-----------------|---|
| Lesson 9 | Physics: Heat and Temperature TMA C |
| Module 4 | Adaptations, Rocks and Heat |
| Lesson 10 | Biology: Keys and Adaptations |
| Lesson 11 | Chemistry: Igneous and Metamorphic Rocks |
| Lesson 12 | Physics: Convection and Radiation TMA D |
| Module 5 | Ecology and Gravity |
| Lesson 13 | Biology: Chains, Webs and Pyramids |
| Lesson 14 | Biology: Studying Ecosystems |
| Lesson 15 | Physics: Gravity, Weight and Orbits TMA E |
| Module 6 | Student Investigation |
| Lesson 16 | Investigation: Design |
| Lesson 17 | Investigation: Carrying Out |
| Lesson 18 | Investigation: Interpretation TMA F |
| | Appendix A Appendix B |

The Structure within Lessons: How to Study

Front Page

The front page of every lesson shows:

the **title**

aim(s) for the lesson. These tell you what you should have learned after having worked through the lesson.

the **context**. This gives a brief summary of how this particular lesson relates to the rest of the course.

Lessons

You should read all sections of the lesson carefully until you have a thorough understanding of the topics. Your parent or guardian will have their own guide, and they or your tutor will be able to help you with any areas of lessons that you find particularly difficult.

Student Investigation

Module Six comprises a Student Investigation that develops work begun in Year 7. If you have not completed our KS3 Year 7 Science course and do not have access to the student investigation lessons from that course, then you can download these from our website at:

<http://www.ool.co.uk/ks3-science-year-7-scientific-investigations/>

(Click on the word 'download' to access the investigation lessons.)

Twig Resources

Alongside the course materials, you have the opportunity to watch a number of films on the internet, all produced by a company called Twig. Welcome to Twig World!

These films cover almost every aspect of science at secondary level. They are full of information and memorable pictures.

To view the films, you will need an e-mail account, internet access and a password, supplied to you on enrolment. As you work through the lessons, you will come across Twig-links quite regularly, looking like this:



Log on to Twig and look at the film titled: **Nylon**

www.ool.co.uk/1377mz

Nylon is one of the strongest polymers created by man. What makes it so durable?

To reach the film, you would either type the URL into your web-browser (here www.ool.co.uk/1377mz) or search the Twig site (www.twig-world.co.uk) for 'Nylon'. Having watched it, you return to the lesson.

The films have been made to help you understand ideas by seeing them in the real world. Please bear in mind:

1. Some of the films, in part, will be too “advanced” for your needs, include ideas you have not yet covered, so don't worry if some bits seem a bit too hard.
2. If you find that a film is not helpful or interesting, stop watching it! It is possible to study the course successfully without watching *any* of the films.
3. Alongside each film, the Twig site offers various additional resources. You can download the words spoken in the film or tackle a quiz based on the film. These are optional extras if you have time.

Further notes on the use of the Twig films is given in the Parents' Guide.

Self-Assessment Activities

At the end of every lesson, except those that have a TMA, you will find self-assessment activities. These are designed to test what you have learned in the lessons, and also to help you to discuss the different topics with your parent or guardian.

Suggested answers for these activities are given in the Parents' Guide to each module.

Tutor-Marked Assignments

Every module is tested with a TMA, which will give you and your parent or guardian a very good idea of how well you are progressing. **You should answer all TMAs on paper**, not on the pages of the folder itself, as you will need to send them to your tutor. This gives you the opportunity to develop neat, well structured answers, as well as show what you have learned. It also means you do not lose your copy of the questions!

Practical Activities

As a home student you will probably not have access to a fully equipped laboratory, but practical work is very important in Science, and is required by the National Curriculum. It is also fun!

Many practical activities are set in this course which can safely be done at home. They usually use equipment you are likely to have in the house already, but sometimes you will need to get hold of other things. At the start of each module you should look through the practical activities with a parent or guardian so that you can see exactly what equipment you will need.

In addition, there are several books on the market which describe lots of Science experiments to try out. You might think about getting one and doing the experiments that interest you. One good example is:

H J Press, *Science Experiments (A Little Giant Book)* (Sterling Publishing, 1998; ISBN: 139781402749902)

Safety

Whenever doing practical work, safety is crucial. Before starting *any* practical, you should carry out a **risk assessment**. This means thinking about possible dangers in the work, and taking steps to reduce them if necessary. *Always discuss your risk assessment with your parent or guardian before starting work.*

Major risks are noted with each practical activity in the file, but your work should be supervised by an adult where necessary. Neither Oxford Home Schooling nor the author of this course accepts any responsibility for accidents that take place while performing these activities, or accidents or damage caused by the storage of apparatus and equipment. If there are younger children at home, please note that they should not be involved in the practical work.

Guide for Parents

The Parents' Guide for this course is in two parts.

The first, which follows this Introduction, contains extra information on the use of the internet, safety issues, and other general matters.

Then each module also has its own Parents' Guide, with information about each lesson of the module and answers to the Self-Assessment Questions. These answers should also provide a starting point for discussion; so that you can let your parent or guardian know how easy or difficult you found the course material. Your parent or guardian should detach these sections before you begin the course, so that they can use it to monitor your progress on a regular basis.

Your Tutor

Your tutor is available not only to mark the appropriate TMAs, but also to offer help and advice when needed.

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

Philip West
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