Key Stage 3 Maths | Introduction

Welcome to Oxford Home Schooling's *Key Stage 3 Maths* course.

In this Introduction you can read about what you can expect from the course and it will help you to plan your studies effectively.

Structure of the Course

The course is divided into three one-year sections, corresponding to the school years, 7, 8 and 9. Some students may take three years to complete the course, others may take two years or proceed even more quickly. By the end of the course, students should be in a good position to tackle a GCSE or IGCSE programme (Key Stage 4) in earnest.

The course covers the National Curriculum for Years 7 to 9, otherwise known as Key Stage 3.

Each one-year programme is divided into six modules, each ending with a tutor-marked assignment.

Oxford Home Schooling
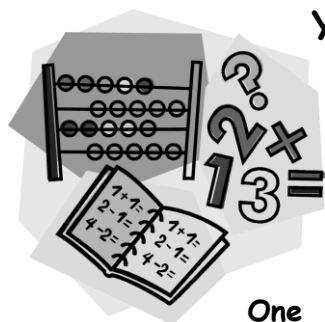
Year Seven Course

There are fifteen lessons in the Year 7 course and six tutor-marked assignments.

Module   One

Lesson 1:   The Number System

Lesson 2:   Addition and Subtraction of Whole Numbers

TUTOR MARKED ASSIGNMENT A

Module Two

Lesson 3:   Transformations

Lesson 4:   Multiplication and Division

TUTOR MARKED ASSIGNMENT B

Module Three

Lesson 5:   Multiples and Factors

Lesson 6:   Angles, Quadrilaterals and Polygons

Lesson 7:   Perimeter Area and Volume

TUTOR MARKED ASSIGNMENT C

Module Four

Lesson 8:   Working with Fractions

Lesson 9:   Sums with Fractions

Lesson 10:   Mixed Numbers

TUTOR MARKED ASSIGNMENT D

Module Five

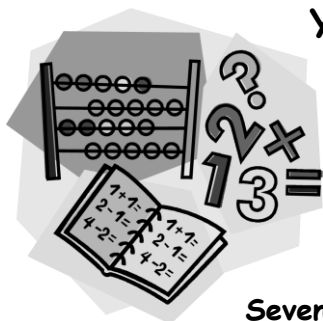Lesson 11:   What is Algebra?

Lesson 12:   Algebra Basics

Lesson 13:   Collecting Terms

TUTOR MARKED ASSIGNMENT E

Module Six

Lesson 14:   The Decimal System

Lesson 15:   Decimals in Practice

TUTOR MARKED ASSIGNMENT F

Year Eight Course

There are seventeen lessons in the Year 8 course and six tutor-marked assignments.

Module   Seven

Lesson 16:   Metric and Imperial Units

Lesson 17:   Calculating Distance

Lesson 18:   More Complex Shapes

TUTOR MARKED ASSIGNMENT A

Module Eight

Lesson 19:   Angles and Straight Lines

Lesson 20:   Symmetry

Lesson 21:   Nets

TUTOR MARKED ASSIGNMENT B

Module Nine

Lesson 22:   Other Metric and Imperial Units

Lesson 23:   Ratio and Proportion

TUTOR MARKED ASSIGNMENT C

Module Ten

Lesson 24:   Percentages

Lesson 25:   Multiplication and Division in Algebra

TUTOR MARKED ASSIGNMENT D

Module Eleven

Lesson 26:   Brackets

Lesson 27:   Factorising

Lesson 28:   Triangles
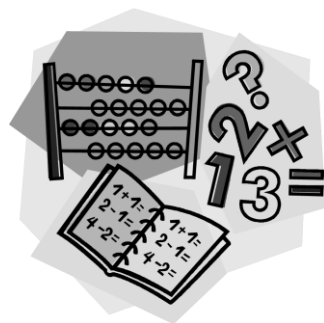
Lesson 29:   More on Triangles

TUTOR MARKED ASSIGNMENT E

Module Twelve

Lesson 30:   Formulae

Lesson 31:   Equations (1)

Lesson 32:   Equations (2)

TUTOR MARKED ASSIGNMENT F

Year Nine Course

There are sixteen lessons in the Year 9 course and six tutor-marked assignments.

Module Thirteen

Lesson 33:   Finding and Presenting Information

Lesson 34:   Getting to Grips with Graphwork (1)

Lesson 35:   Getting to Grips with Graphwork (2)

Lesson 36:   Loci

TUTOR MARKED ASSIGNMENT A

Module Fourteen

Lesson 37:   Indices

Lesson 38:   Standard Form

Lesson 39:   Powers, Roots and Reciprocals

Lesson 40:   Fractions in Algebra

TUTOR MARKED ASSIGNMENT B

Module Fifteen

Lesson 41:   More on Brackets

Lesson 42:   Type 3 Brackets

Lesson 43:   Trigonometry

TUTOR MARKED ASSIGNMENT C

Module Sixteen

Lesson 44:   Bearings

Lesson 45:   Averages

TUTOR MARKED ASSIGNMENT D

Module Seventeen

Lesson 46:   Probability

Lesson 47:   Cumulative Frequency

TUTOR MARKED ASSIGNMENT E

Module Eighteen

Lesson 48:   Revision and Overview Project

TUTOR MARKED ASSIGNMENT F

Working with other Textbooks

Although there are plenty of exercises in this course, it is always a good idea for Maths students to work with other books as well. Different skills will be explained in different ways and sometimes these will make more sense to some students. Other books will contain fresh exercises laid out in different ways – there is no substitute for practice!

For all that, the choice of books in the shops in not very good at present, especially if you want anything more than a "revision guide". If you want something extra, we recommend the following texts, published by Collins:

KS3 Maths Year 7 Workbook (Collins: ISBN: 978-0007562664)
KS3 Maths Year 8 Workbook (Collins: ISBN: 978-0007562675)
KS3 Maths Year 9 Workbook (Collins: ISBN: 978-0007562688)
These are not expensive and they are well laid-out.

Your tutor may be able to recommend additional supporting materials. It is also a good idea to get to know what is available on the internet – it is often possible to find some good, free resources there.

The Structure within Lessons

Front Page

The front page of every lesson shows:

- The **title** of the lesson

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

- **Why am I studying this?** This gives a brief explanation of the relevance of the topic and how it 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 and your tutor will be able to help you with any areas of lessons that you find particularly difficult.

Activities

Every lesson also has a range of questions to make the topics easier to understand. They look like this:

Activity	These activities have answers at the end of each lesson.

Self-Assessment Activities

At the end of some of the lessons, except those that have a TMA, you will find a self-assessment activity. These are designed not only to test what you have learned in the lessons, but also to help you to discuss the different topics with your parent or guardian.

Tutor-marked Assignments

Every module is tested with a Tutor-marked Assignment (or TMA), which will give you and your parent or guardian a very good idea of how well you are progressing.

Progress in Mathematics

Everyone can improve their Maths skills, but not everyone does so at the same speed. You may be aged 11-12 and therefore in Year 7, but that does not mean that a course labelled "Year 7" will match your needs exactly. You will probably already have mastered some of the skills in the Year 7 course, possibly even all of them. If so, the Year 7 course will seem disappointingly easy!

Others may find that they are not ready to master the "Year 7" skills until they are aged 13 or 14. Everyone learns at a different speed. You might have the ability to master the whole three year course in a much smaller timespan – who knows? By dividing the course up into specific "years", you get an idea of what you might be doing in school if you were following the National Curriculum but even in school different classes proceed at different speeds. The benefit of home education or distance learning is that you can proceed at *exactly* the speed which suits you best. The important thing is to master each skill before you move on to the next, not fit in with someone else's timetable.

If things go well, you don't *have* to wait till Year 10 to start the GCSE course. Your tutor should be able to advise you on what is the best plan to suit your particular abilities and learning speed.

Planning your Study

Learn from your mistakes. Whenever you get a question wrong, do not be satisfied until you have worked out *why* you got it wrong and you are confident that you would get it right next time. Only go on to the *next* stage of the course when you are absolutely sure you have mastered everything so far.

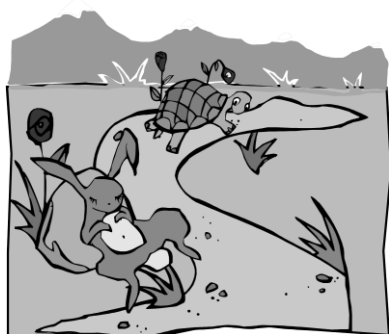To understand each new point you have to have understood the one before.

Learning mathematics is very much like climbing a ladder.

Each new step depends on all the previous ones, and there is no way that you are going to understand a new concept in mathematics if you do not completely understand, or have skipped over, any of the information which came before it.

You can't climb a ladder if some of the rungs are missing!

So you should work slowly and carefully through the lessons in the proper order, skipping over nothing, and making sure that you understand everything you have read perfectly, before going on to the next lesson. If you flick through the lessons quickly and skip anything you think is 'easy' or have done before, or if you jump randomly from one lesson to another, you will not get the most from the course.

But if you tackle everything, carefully and in the proper order, you will find that you'll get much more out of the course and that you will enjoy the new skills you are learning.

Remember the story of the tortoise and the hare!!

It is very important to make sure that you attempt ALL the exercises in the course.

The most successful athlete is the one who practises and exercises most. Exactly the same is true of the mathematician.

All the lessons in this course are built around the "Activities" which they contain, and the Activities are by far the most important part of the course.

You won't fully understand the ideas in this course unless you try to answer these Activities.

Remember that the important thing is not so much to get the answers *right,* but to understand your mistakes when you have got them wrong.

REMEMBER - we learn *most* from our mistakes!

So attempt every question in *every* Activity and complete *every* Tutor-marked Assignment and send it to your tutor for marking and feedback.

Working Habits

Here are a few tips to help you make the most of your study.

1. Always show all your working. If you can do a problem in your head, you should still write down how you did it. In the examination, you get marks for showing that you understand the method as well as for using it accurately. If you make an arithmetical error, you will still get marks for using the correct method. (If you get the answer wrong and don't show your method, you won't get any marks.)

2. Set your work out neatly, one step at a time. This really helps you to organise your thinking, which is essential, especially in longer activities.

3. Do lots of examples of each technique. Different questions give you a chance to practise the different variations of a problem, and this helps to make you more skilled and flexible in your work.

4.   Make a list of mathematical words and their meaning as you come across them in each lesson. This helps you to remember the technical vocabulary and is extremely useful when you come to do your revision. It is also very rewarding to see just how many concepts you have mastered!

And finally, don't just memorise the skills and techniques like a parrot – without first *understanding* what is going on; you will forget what you have memorised in five minutes.

Instead make an effort to understand *why* we do things the way we do. If you understand a technique, you will memorise it automatically, and you won't easily forget it.

We hope you enjoy the course.