

Dear Parent

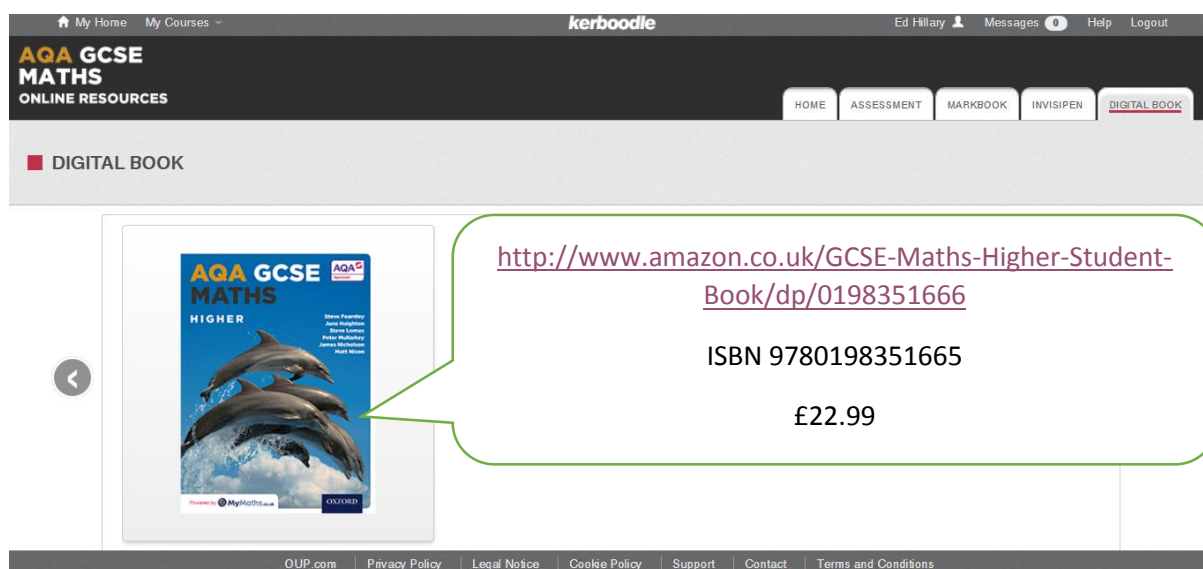
The aim of this document is to give an insight into the online resources available to aid students through the new Mathematics GCSE (9-1) syllabus. Students sitting their Mathematics GCSE from 2017 will have studied all the material covered by the AQA GCSE Mathematics (Higher) syllabus.

<http://www.aqa.org.uk/subjects/mathematics/gcse/mathematics-8300>

BGS will continue to help students through the 2-year course with a high standard of teaching delivered by committed and professional staff. However, the new syllabus and the changes that have been made will require students to be ever more independent and resilient learners and to this end we have invested in a high quality digital resource that we hope will support students.

To understand what this resource has to offer it is of course best to login and look at it, but the following pages give some indication of what is available.

The digital book is accessed through the student's Kerboodle account. Several subjects utilise the Kerboodle platform and students may have access to several courses through it. Just like the paper copy of the textbook the digital version contains examples, questions and answers. It is an interactive text which has links to video examples (InvisiPen) that explain and illustrate the skills needed in each chapter. It also has direct links to the relevant areas of MyMaths. It is a 'one stop shop' for students who need further practice or explanation.



The screenshot shows the Kerboodle interface for AQA GCSE Maths Higher. The top navigation bar includes 'HOME', 'ASSESSMENT', 'MARKBOOK', 'INVISIPEN', and 'DIGITAL BOOK'. Below this, the 'DIGITAL BOOK' section is highlighted. A callout box points to the book cover, providing the following information:

- <http://www.amazon.co.uk/GCSE-Maths-Higher-Student-Book/dp/0198351666>
- ISBN 9780198351665
- £22.99

Every chapter is divided into several sections, with each section further split into *Fluency* i.e. practice of the core skills needed and *Reasoning & Problem Solving* which is more akin to the examination questions students will face in their external examinations.

Teachers may set questions for homework from the **digital textbook** or from the **digital homework book**. They may also set the online skills test as either an **assessment** or simply for students to assess their own strengths and weaknesses in a particular topic. These online assessments are marked instantly, and give the student feedback on errors they may have made. The progress made through each chapter will be formally assessed by a teacher-marked test and constructive feedback will be given where appropriate.

To be successful on this course it is essential that the student develops a determined approach to problem solving. Of course this resource does not replace their notes or what they have been taught in class, but if they are unable to solve a problem instantly we very much hope they will use this resource with its wealth of examples and instructional videos to help them. However, if after using them they still find they are in need of help, their first port of call is of course their teacher or lunchtime support which is available every day in room M1.

The textbook structure...

The screenshot shows the digital interface of the AQA GCSE Maths Higher Book. The main content area is titled '1.3 Multiplying and dividing' and includes 'Worked examples' with mathematical problems and solutions. A 'Question bank' section is visible on the right. Callouts point to various features: 'Worked examples' points to the worked example section; 'Question bank' points to the list of practice questions; 'Links to InvisiPen video clips relevant to the work covered on the page' points to a video icon; and 'Links to MyMaths interactive sessions relevant to the work covered on the page' points to a MyMaths icon.

Question banks are in two sections (e.g. 13.S and 1.3A). The first practises the fluency and skills required by the topic. The second develops problem solving and mathematical reasoning.

This screenshot shows 'Exercise 1.3S' under the 'Fluency' section. It contains two columns of problems. Column 1: 1. Calculate these multiplications: a  $+5 \times -5$ , b  $+4 \times -8$ , c  $-8 \times +9$ , d  $-4 \times +5$ , e  $-3 \times -10$ , f  $-7 \times -7$ , g  $+8 \times +2$ , h  $+5 \times -4$ , i  $-2 \times +9$ , j  $-13 \times -2$ , k  $-7 \times +6$ , l  $+12 \times -4$ . 2. Calculate these divisions: a  $-18 \div +9$ , b  $-20 \div +4$ , c  $-30 \div -6$ , d  $-12 \div -3$ , e  $-66 \div +3$ , f  $+47 \div -47$ . Column 2: 3. For questions 7 to 9, use a written method. 7. Calculate these multiplications: a  $4.7 \times 5.3$ , b  $1.53 \times 2.8$ , c  $21.6 \times 4.9$ , d  $33.65 \times 3.89$ , e  $21.58 \times 1.99$ , f  $42.77 \times 8.64$ , g  $0.666 \times 33.3$ , h  $0.456 \times 0.0789$ . 8. Calculate these divisions: a  $34.83 \div 9$ , b  $5.425 \div 7$ , c  $7.328 \div 8$ , d  $451.8 \div 60$ , e  $54.39 \div 3$ , f  $58.65 \div 17$ , g  $66.4 \div 16$ , h  $185.76 \div 24$ .

This screenshot shows 'Exercise 1.3A' under the 'Reasoning and problem solving' section. It contains two word problems. Problem 1: Rugby league teams have 13 in the starting line-up and four substitutes. Eight teams are in a tournament. a How many players are there altogether? b Each team has six forwards, and one substitute forward. How many forwards are in the tournament? Problem 2: Nancy receives £6 pocket money per week. a How much does she receive in February? b How much in a year? Assume 1 year = 52 weeks. c She multiplies the February amount by 12, but gets the wrong answer for a year. Problem 6: Mick is tiling his floor with a mixed tile pattern. A table lists tile packs: Packs of 12 (Small square £12.95, Large £20.95, Rectangle £18.95) and Packs of 6 (Medium £11.65, Rectangle £18.95). Below the table, it says: 'The tile company says that for 100 square feet he will need 24 small squares, 25 medium squares, 25 large squares and 26 rectangles. His room is 14 feet wide by 25 feet long.'

At the end of each chapter is very useful Summary section of the key points for that topic. Also useful is the glossary of terms that the student should learn. On the adjacent page to the Summary is always a Review section designed to practise the skills associated with that Chapter. This is always a useful question bank for any student brushing up before an assessment.

### Summary

**Checkout**  
You should now be able to...

✓ Order positive and negative integers and decimals.	7, 8
✓ Round numbers to a given number of decimal places or significant figures.	9
✓ Use mental and written methods to add, subtract, multiply and divide with positive and negative integers and decimals.	4 - 7
✓ Use BIDMAS to complete calculations in the correct order.	8, 9

**Test it Questions**

### Review

- Copy the numbers and write 3 or 4 between them to show which is larger.
  - 24.5 | 154.5
  - 0.5 | -0.9
  - 0.5 | 0.05
  - 1.456 | 1.45
- Are the following statements true or false? In cases where the statement is false write a true statement relating the two expressions.
  - $0.85 \times 10 > 85 \div 1000$
  - $0.85 \times 10 \times 85 = 1000$
  - $1 \times \frac{7}{8} > \frac{1}{2}$
  - $3^2 = 3 \times 2$
  - $9 \div 2 \times 9 = 9$
- Round:
  - 45 892 to 1 decimal place
  - 0.0752 to 2 decimal places
  - 0.0654 to 3 significant figures
  - 1521 to 1 significant figure
  - 79025 to 3 significant figures
  - 3.229 to 3 significant figures
- Work out the value of these expressions.
  - $83 \times 100$
  - $2.5 \times 10$
  - $0.31 \times 1000$
  - $0.02 \times 100$
  - $764 \div 10$
  - $5490 \div 1000$
  - $8.5 \div 100$
  - $0.08 \div 10$
- Calculate these using written or mental methods.
  - $607 + 3215$
  - $27.3 + 154.7$
  - $300.8 + 6.59$
  - $0.34 + 52.713$
  - $8124 - 398$
  - $104.1 - 59.5$
  - $1589.4 - 673$
  - $18.31 - 6.4$
- Calculate these using written or mental methods.
  - $18 \times 30$
  - $3.0 \times 18$
  - $3.26 \div 6$
  - $6.0 \div 1.3$
  - $8.31 \times 6.2$
  - $1.083 \times 2.45$
  - $15.2 \div 8$
  - $406 \div 1.4$
- Work out these calculations involving negative numbers.
  - $17 - 28$
  - $-189 + 52$
  - $9.3 - 3.3$
  - $-0.61 + 0.19$
  - $4 \times -5$
  - $-1.1 \times -5$
  - $9 \div 0$
  - $-8.5 - 1.5$
- Evaluate using a calculator.
  - $19 \div 2$
  - $105 \div 5$

**What next?**

Score	Feedback
0-4	You have little knowledge of this topic to start developing. To improve look at MyKhanza 101, 102, 103, 104, 105, 106, 107, 108, 109, 110, 111.
5-8	You are gaining a secure knowledge of this topic. To improve your fluency look at Level Notes 115a - c.
9	You have mastered these skills. Well done you are ready to progress! To develop your problem solving skills look at Level Notes 119a - f.

Glossary of what should have been learned in the chapter

Skills review test

Finally, the online assessment gives instant feedback..

The screenshot shows the Kerboodle website interface. At the top, there are navigation links for 'My Home', 'My Courses', and user information for 'Ed Hillary'. The main header includes 'QA GCSE MATHS ONLINE RESOURCES' and navigation buttons for 'HOME', 'ASSESSMENT', 'MARKBOOK', 'INVISIPEN', and 'DIGITAL BOOK'. The 'ASSESSMENT' section is active, displaying a search bar and a list of assignments. One assignment, 'Higher Chapter 1 Online Skills Test', is highlighted with a green bar, indicating it is due tomorrow.

The screenshot shows the 'Higher Chapter 1 Online Skills Test' interface. The question asks to complete the answers to sums involving negative numbers. The user has entered:
 

- $-5 + 7 = 2$  (Correct)
- $13 - -5 = -18$  (Incorrect)
- $-12 + -9 = -21$  (Correct)

 A feedback box indicates a score of 2/3 and provides the following message: "Not quite. Remember that subtracting a negative number counts as addition." A 'Next' button is visible at the bottom of the feedback box.

Students have a second chance to correct their answer before moving on to the next question.