

**Progress in Maths 6–14 Digital**  
Guidance and Information for Teachers

## Digital Tests from GL Assessment

---

**For fully comprehensive information about using digital tests from GL Assessment, please download the testwise user manuals from the help section of the website  
[www.testingforschools.com](http://www.testingforschools.com)**

NB Testwise is an online assessment system that delivers tests to over 500,000 pupils a year.

*Progress in Maths 6-14 (PIM 6-14)* is part of a selection of standardised tests available in both paper and digital editions from GL Assessment. The development of digital editions of major series such as the *Cognitive Abilities Test* and *Group Reading Test*, as well as *PIM 6-14*, is a response to the need for schools to test large numbers of pupils at regular intervals and to make that process as efficient as possible by automating the scoring, analysis and reporting. At the same time, by developing digital editions of established tests, teachers and pupils can be assured of the robustness of these tests.

*PIM 6-14 Digital* is often used as an end of year test and if it is used year on year can offer important evidence of pupil progress and value-added. As such it is an important test and one on which decisions about, for example, setting or remediation may be made in conjunction with teacher assessment and an evaluation of pupil performance throughout the year.

*PIM 6-16 Digital* must be administered in a formal test environment with pupils made aware that they are taking a test and that the usual expectations of behaviour and constraints of a test session will be in place. Pupils' experience of working at a computer may lead to the impression that taking a test using a PC is not as important as the more familiar test session in the school hall or rearranged classroom. They may expect to spend time in the computer suite on less formal activities, engaging in learning that is presented in a highly visual or even game-like way. While GL Assessment digital tests do engage pupils and, in the case of *PIM 6-14 Digital*, have the benefit of full colour illustrations, they are tests and must be approached in the same way as the more familiar paper test process.

## Introduction to Progress in Maths 6-14 Digital

---

The digital versions of *Progress in Maths* comprise the tests for 6 to 14 year olds. The development of these versions of GL Assessment's major maths assessment series was undertaken by the National Foundation for Educational Research to provide teachers and pupils with an alternative format to the paper tests with the added benefits of immediate scoring and reporting.

Much of the content of these digital tests is the same as their paper equivalents. However, to take advantage of the digital technology and to eliminate any items that did not perform well in digital format, some content has been changed. Trialling of digital items was carried out once the final selection of content for the paper tests had been made. This enabled new items to be developed as some items were discarded.

An equating study was carried out during spring and summer 2005 to ensure that the digital tests, with amended content, were equivalent to the paper tests.

## Use of Progress in Maths Tests

---

*Progress in Maths* is particularly suitable for use during the second half of the academic year. It can also be used as a start-of-year test, in which case it is recommended that pupils be given the test intended for the year below, as set out on opposite page:

Published by GL Assessment  
The Chiswick Centre, 414 Chiswick  
High Road, London W4 5TF, UK

GL Assessment is a division of  
Granada Learning Limited

First published 2008  
© GL Assessment 2008.  
All rights reserved.

Year group	Autumn term	Spring/summer term
Year 1 in England & Wales Year 2 in Northern Ireland Primary 2 in Scotland	Paper version of Progress in Maths 5	Progress in Maths 6
Year 2 in England & Wales Year 3 in Northern Ireland Primary 3 in Scotland	Progress in Maths 6	Progress in Maths 7
Year 3 in England & Wales Year 4 in Northern Ireland Primary 4 in Scotland	Progress in Maths 7	Progress in Maths 8
Year 4 in England & Wales Year 5 in Northern Ireland Primary 5 in Scotland	Progress in Maths 8	Progress in Maths 9
Year 5 in England & Wales Year 6 in Northern Ireland Primary 6 in Scotland	Progress in Maths 9	Progress in Maths 10
Year 6 in England & Wales Year 7 in Northern Ireland Primary 7 in Scotland	Progress in Maths 10	Progress in Maths 11
Year 7 in England & Wales Year 8 in Northern Ireland Secondary 1 in Scotland	Progress in Maths 11	Progress in Maths 12
Year 8 in England & Wales Year 9 in Northern Ireland Secondary 2 in Scotland	Progress in Maths 12	Progress in Maths 13

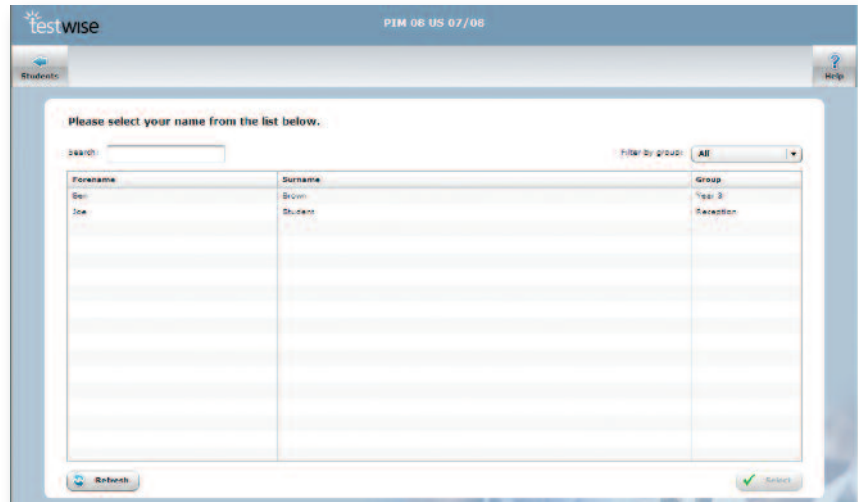
## Administration

Once the school has been selected successfully and pupils have been added to the register by the administrator, pupils can then click the **Student** icon. They will then enter the register ID. (Please note that each pupil will need their own personal computer.)

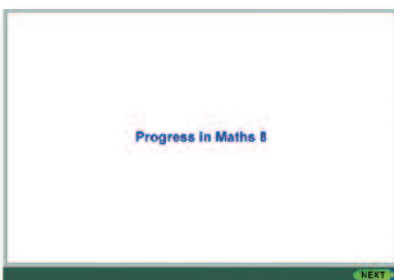
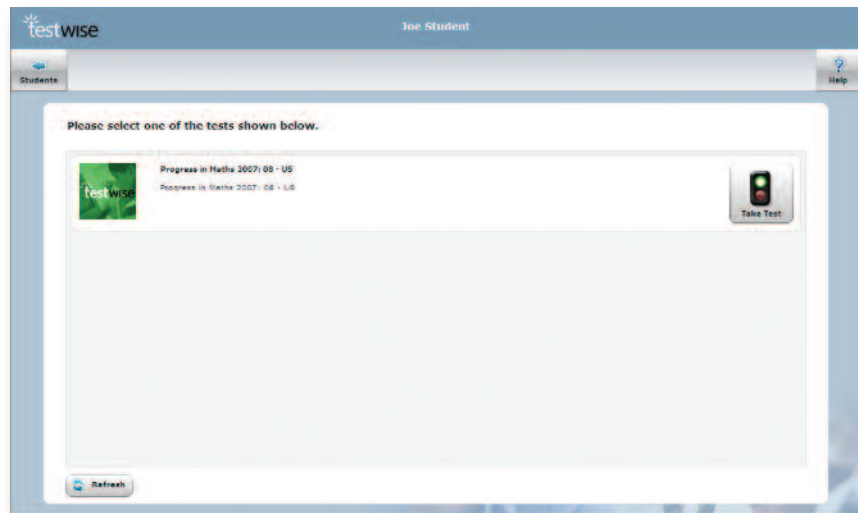


If the children are very young, the teacher or administrator may prefer to log on for each student.

Pupils will then see the following screen and they should select their name.



The following screen will appear and pupils should click on Take Test next to the test they are due to take.



For *Progress in Maths 6, 7 and 8*, there is a holding screen that prevents the practice section (with audio) starting before the session begins. This is simply a screen like the one displayed on the left.

Unlike the paper tests, *PIM 6-14 Digital* tests include a **practice section**. The mathematical content of this has been kept very simple: the items are there to enable pupils to become familiar with ways of answering different questions. These include clicking in an answer box and typing with the keyboard, selecting an answer from a series of options, 'dragging and dropping', moving a slider, and clicking on arrows to manipulate what is on screen.

The practice section has been constructed to enable pupils to go through these items at their own pace. However, this would not prevent an administrator taking pupils through the practice section as a group. It needs to be borne in mind that for *Progress in Maths 6, 7 and 8*, pupils will be listening to instructions throughout the test via headphones. For *Progress in Maths 9 to 14*, pupils read the instructions on screen and it is recommended that they work through the practice section independently: this should take no longer than 10 minutes.

At the end of the practice section, pupils are asked to put up their hands before proceeding. If pupils go through the practice section independently this will

enable them to continue in their own time or it will present an opportunity for the teacher to wait until all pupils have reached this point before proceeding with the test items.

*Progress in Maths* is not a strictly timed series of tests but when using the paper version a recommended time is given. Ultimately, teachers are left to judge when pupils have had adequate time to complete the test. With the digital tests from *Progress in Maths 9* onwards, a clock appears onscreen that counts down from the recommended time for each level. These timings are:

Progress in Maths 9	55 minutes	
	<b>Calculator Section</b>	<b>Non-calculator Section</b>
Progress in Maths 10	20 minutes	35 minutes
Progress in Maths 11	20 minutes	40 minutes
Progress in Maths 12	20 minutes	40 minutes
Progress in Maths 13	20 minutes	40 minutes
Progress in Maths 14	20 minutes	40 minutes

When the time assigned to the calculator section has elapsed, the test automatically moves on to the non-calculator section (pupils cannot override this). Likewise, when the time assigned to the non-calculator section has elapsed, the test will time-out and pupils will not have the opportunity to review their answers and will be invited to click the 'end test' button. At this point, their results are stored and they exit the programme.

For younger pupils, it was felt inappropriate to have an onscreen clock – particularly one that counts backwards. Pupils are told that they will have 35 minutes (*Progress in Maths 6* and *7*) or 45 minutes (*Progress in Maths 8*) to complete the test. The test will time-out after 40 and 50 minutes respectively and again pupils will not be able to review their answers and will be invited to click the 'end test' button.

For *Progress in Maths 6, 7* and *8* all instructions and questions are given through the audio and it is vital that sound levels are checked and good quality headphones supplied for each student. This replicates as closely as possible the teacher-read administration for the paper tests.

It should be noted that unlike the paper tests, each test in *Progress in Maths Digital* **must be completed in a single test session**. Whereas with the paper tests for the younger pupils, it is possible to take a break and for pupils taking levels 10-14 (where the test is in two sections), testing can be done over two sessions, the digital equivalent has been constructed as a single, seamless test.

Pupils may use paper and pencil for rough working out.

## Special Assessment Needs

---

Pupils with special assessment needs can be given additional time by scheduling the **untimed** version of each test. As described above, time limits have been imposed on the digital versions of *Progress in Maths* and it is recommended that these versions are used for the majority of pupils. However, where a student is routinely allowed additional time to complete assessments and/or tests, the untimed version of *Progress in Maths* may be used.

As with the paper version of *Progress in Maths*, assistance may be given with the meaning of individual words and questions can be translated for pupils for whom English is an additional language. However, no assistance should be

given with any mathematical content of the tests, for example explaining mathematical terms like “greatest number”, “half”, “triangle”, etc.

**Any standardised scores resulting from such non-standard administration of the test should be considered with caution.** However, a standard administration will not give a meaningful result if the student has special assessment needs that prevent them from accessing the test effectively along with their peer group.

## The Test Environment

---

Each pupil will need a computer, headphones and mouse and all equipment needs to be in good working order. Pupils should be told that they are going to take a maths test and explained the purpose of the test: ‘to find out what you can do or where you may need help’ or ‘to let your teacher next year know what you can do’. Pupils should be told that they must work in silence but that if they have a query they should raise their hand and wait for the teacher to approach them. Answer any questions at this stage and explain that you cannot help with any of the test questions but that they should try to do their best and at the end go back and check their work.

While pupils are taking the test the teacher should walk round the computer suite to check that they are progressing appropriately, that they are not having difficulty with the methods of answering questions and, importantly with digital tests, that they have not rushed through any part of the test without attempting to answer some questions. Pupils may use paper and pencil for rough working out.

## Unexpected incidents during a test session

---

As with the paper test, should anything unexpected occur during the test session, the incident should be recorded and appended to the group report for this specific group of pupils. This will allow the incident to be taken into account when scores are being considered.

If there is a failure in your computer system while pupils are taking the test it will not be possible to re-enter the test at the point at which the failure occurred. In this instance, pupils will need to re-take the complete test. If pupils complete the test and results are stored (i.e. they have clicked the ‘end test’ button) and then the system fails, it will be possible to retrieve results and therefore reports from the GL Assessment back-up server.

Should this happen, please contact the GL Assessment Customer Support Team on 0845 602 1937 and you will be connected to a Testwise adviser.

## Testwise Progress in Maths Report

---

A sample Progress in Maths group report may be viewed at:  
<http://www.gl-assessment.co.uk/pim> under the Supporting Material section.  
The report is in three sections:

### Section A

This section summarises each student’s attainment on the test, giving their age at the time of test, their raw score, standardised score, stanine, percentile rank and group rank (based on standardised score).

The standardised score is particularly useful as it shows the student’s attainment in relation to a nationally representative sample of pupils of the same age. The national average standardised score is 100, and two thirds of pupils will score between 85 and 115. The student’s standard score is also

shown as a vertical line with a horizontal line showing the 90% confidence band. It is recognised that any test score represents a performance on a particular day, and the score should therefore be placed within such a confidence band. If the test were taken again, nine times out of ten one would expect the score to fall within this range.

The stanine score shows the standard nine score the student achieves in comparison with the national sample, with 9 being the highest score and 1 being the lowest.

The national percentile shows the percentage of pupils in the national sample whose scores were lower than the student.

Final columns of this section give the student's maths level (for England, Wales and Northern Ireland only) and raw score as a percentage by curriculum category to provide you with some diagnostic information on areas of strength or weakness in their performance.

### **Section B**

The first table in this section shows the mean score for the class/group by gender against the national average. This allows the group's attainment to be evaluated as below, at, or above the national average. The information displayed on this table is illustrated by the graph beneath the table, which as well as displaying the group and national means, shows the 90% confidence bands. Descriptive comments are also given to explain whether the average and the range of scores for the class/group are significantly different from the national average.

A second table shows the distribution of pupils across nine score bands (stanines) compared to the national distribution. This data is presented in a graph to show the distribution for the class/group separately for boys, girls, all pupils and the national sample.

There can be many reasons why the attainment of pupils might be significantly higher or lower than the national average. Factors might relate to the pupils' motivation, to levels of support at home, to the quality of their previous experience of education, etc. Whatever the reasons, the first step to improving pupils' attainment is to know accurately where they are now. This report helps by giving an overview of the current performance of the group as a whole against national standards.

The final table in Section B shows results analysed by Process Area.

All the test questions in the *Progress in Maths* series can be grouped into one or more of four curriculum content areas:

- Number
- Algebra
- Shape, Space and Measures
- Data Handling

The test questions can also be grouped into one of four areas of mathematical processes:

- Knowing Facts and Procedures
- Solving Routine Problems
- Using Concepts
- Reasoning

The bar chart shows the percentage success rates for each of the process areas for the class/group against the national average. In some cases, the profile for the class may be above the national average, or indeed below the national average, in all process areas. In other cases the results may reveal strengths in one particular process area, but a relative weakness in another.

The results presented are based on raw test scores that have not been adjusted for age. If the average age of the group is more than 3 months older/younger than the national standardisation sample, then their mean raw scores may be slightly higher/lower respectively than the national average because of this. The purpose of this part of the report is to focus on the relative strengths and weaknesses in different areas and on different questions, rather than a simple comparison to the national norms.

### **Section C**

There is a wealth of information available from a detailed analysis of pupils' performance on each of the questions. This data can also be compared with the difficulty of the questions as established during the national standardisation.

#### ***Question by Question Graph***

This graph gives a quick overview of the success rates for each question for the class/group (bars) compared to the national average (thick dark line). The questions are sorted from left to right according to their difficulty, as indicated by the percentage of pupils answering the question correctly at the time of the national standardisation. For example, the question on the extreme left of the graph is the easiest question in the test (usually answered correctly by over 90% of the national sample), and the question on the extreme right is the most difficult question in the test.

#### ***Question by Question Listing***

This data is also presented in the form of a table that includes a brief description of each question alongside the question number. The questions are listed in the order they are presented in the Question by Question Graph, that is, from left to right across the graph.

#### ***Question Listing by School-National Difference***

This table presents the Question by Question Listing in a slightly different order. The difference between the group/class and the national success rate is calculated and shown in the 'group national difference' column. The table is sorted so that the questions where the class is most ahead of the national average are listed at the top, and the questions where the class is most behind the national average at the bottom.

Some of the questions that can be answered using the Question by Question reports are:

- Which questions did the class find most difficult, and which relatively easy?
- Are there any common elements in the questions the class found most easy/difficult? For example, do they all relate to a particular aspect of the curriculum e.g., division, probability, etc?
- Are there any questions where no student in the class answered correctly? What implications might this have for teaching? Have these areas of the curriculum been covered? Do such areas need to be reviewed?

### **Individual Scores**

An individual's scores can be viewed by selecting 'CSV report' in Testwise. This will produce an Excel spreadsheet with one or more pupils' individual item responses, raw score and standardised score, item by item, with process and curriculum content information as well.

Further reports will be developed to allow diagnostic analysis based on commonly occurring errors. These will become available during 2008/9.