In Abacus, **assessment is integrated into teaching and learning** so that it can be constantly used to diagnose future learning needs. Rather than hive it off as a strand to be done in isolation, we’ve made sure **assessment is built into the heart** of the Abacus teaching and learning cycle.

**Assessment in Abacus**

Abacus provides schools with a **robust set of tools** to enable teachers to make judgements on children’s attainment against **Age Related Expectations** and progression in maths. Click ‘Next’ to take a closer look...
Assessment in Abacus

In Abacus, **assessment is integrated into teaching and learning** so that it can be constantly used to diagnose future learning needs. Rather than hive it off as a strand to be done in isolation, we’ve made sure **assessment is built into the heart** of the Abacus teaching and learning cycle.
The progression map sits at the heart of Abacus and identifies the key skills children need at specific points in the year so that you can determine if they are on track for Age Related Expectations. It also helps you to visually see progression between points in time. It’s based on the national curriculum, and has been written by our team of expert authors and teaching practitioners. It’s broken down into skill areas, to help you quickly know what you need to assess.

<table>
<thead>
<tr>
<th>NPV: Number and Place Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>AS: Addition and Subtraction – both mental and written</td>
</tr>
<tr>
<td>MD: Multiplication and Division – both mental and written</td>
</tr>
<tr>
<td>FDRP: Fractions, Decimals, Ratio and Percentages</td>
</tr>
<tr>
<td>MEA: Measures</td>
</tr>
<tr>
<td>GEO: Geometry</td>
</tr>
<tr>
<td>MEA: Statistics</td>
</tr>
<tr>
<td>GEO: Algebra – Year 6 only</td>
</tr>
</tbody>
</table>

Take a closer look
<table>
<thead>
<tr>
<th>Skill area</th>
<th>Number and Place Value (NPV)</th>
<th>Addition and Subtraction (AS)</th>
<th>Multiplication and Division (MD)</th>
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<th>Measures (MEA)</th>
<th>Geometry (GEO)</th>
<th>Statistics (STA)</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recognise the place value of each digit in a 4-digit number (1000s, 100s, 10s, and 1s); order and compare numbers with up to 4 digits.</td>
<td>Know bonds to the next 100. Example: 54 + 46 = 60</td>
<td>Use the distributive law to multiply 2-digit numbers by a 1-digit number using formal written layout or mental methods. Example: 4 x 65</td>
<td>Find unit fractions of amounts. Example: 1/4 of 24</td>
<td>Read, write and convert time between analogue and digital 12-hour clocks. Example: 6:05 = five minutes past six</td>
<td></td>
<td></td>
<td>Use mathematical reasoning to answer a question by collecting, displaying and interpreting data in a frequency table and bar chart, choosing an appropriate scale.</td>
</tr>
<tr>
<td>Begin to place 4-digit numbers on number lines and round these to the nearest 10, 100 or 1000. Example: 4782 rounds to 4780, 4800, 5000</td>
<td>Use table facts and commutativity to perform multiplications involving multiples of 10. Example: 40 x 6</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Use counting up to subtract numbers with up to 3 digits crossing one multiple of 100. Example: 134 − 88</td>
<td>Use the distributive law to multiply 2-digit and 3-digit numbers by a 1-digit number using formal written layout (grid). Example: 3 x 24</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Choose a method to subtract that is appropriate to the numbers in the calculation. Example: 456 − 199</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>
Within the teaching we include key assessment questions so that when the whole class teaching is taking place, you have access to a bank of targeted questions designed to reveal children’s understanding.

We also list things that you might need to watch out for.
Main teaching

Starter

**ST 2.1.2** Count in 10s from 10 to 100

Place Spider on 10 on the I–100 square on Number square tool 2.1.2a. Spider moves up and down the grid. Count in 10s from 10 to 100 as you move Spider down the grid, then back to 10 again. Give a stick of 10 cubes each to ten children and ask them to stand at the front. Count in 10s along the line, with sitting children flashing 10 fingers as they do so. The ten children sit down. Call out five names of children holding cubes, they stand up. How many cubes? Count in 10s to answer. Repeat for different multiples of 10.

Main Teaching

- Show I–100 square on Number square tool 2.1.2b with numbers 23, 45, 67, 96, 40 and 71 hidden. Point to one hidden number. Children write the missing number on their whiteboards and, on a count of 5, they show you.
- Reveal the number and say it together.
- Show 0–100 beaded line on Read string tool 2.1.2. Count in 10s along it. Give each pair of children a 1–100 bead string and ask them to show you 31 beads. You did not have time to count in ones, so how did you do that so quickly? Model how to count in 10s to 30, then add one more.
- Call out other 2-digit numbers, e.g. 42, 57, 69, 25. Children take it in turns to show them, agreeing that they are showing the correct number before holding it up.
- Write 51 on the board and ask children to tell you where it goes on the beaded line, but without pointing! They must explain in words. Repeat with 34, 25 and 43.
- Katrina the caterpillar likes to arrange things in lines. Help her to find numbers on this line. Ask children up to the board to drag and place tags after given numbers on the beaded line, including numbers just after and just before multiples of 10. Are children using the ‘landmarks’ of 10s to help them locate numbers? NB. It is important to place labels after each bead rather than labelling the bead.

Key questions

- How do you know which number is hidden?
- Which tens number is 48 near? Describe where 48 will go on the bead string.
- Do you need to count in ones to show 49? How can you show this number really quickly?

Watch out for

- Children who do not know what number comes before or after a given number.
- Children who are not using the landmarks of 10 to show and locate numbers.
The Guided activities in every lesson not only enable you to diagnose potential problems but also form the basis of on-going short-term assessment. Assessment questions help you to gauge pupil understanding and progress and give immediate feedback.

If children need further support, we highlight prerequisite skills and link to a bank of resources that you can dip into.
Guided activity

Core

**Gui 2.3.1 Double digits**

Explain to children that they will be doubling numbers and adding the digits of the answer. Shuffle the number cards 2-15 made from Resource Sheet 2 and spread them out, face down. Each child takes a card and writes its double on their whiteboard. Support any children who need help partitioning, e.g., double 13 is double 10 (20) and double 3 (6), which makes 26. When each child has an answer, go around the group. If their answer is a single-digit number, they do nothing! If it is a 2-digit number, they add the digits, e.g., 26, so 2 + 6 = 8. If the answer is odd, they are given a counter. Replace the cards face down, move them around a bit and play again. If they take the same card as before, they either put it back or swap with another child. Each child should double at least six numbers. The child with the most counters wins.

**Assessment Focus**

- Do children know doubles of numbers to 15?
- Can children recognise which numbers are odd and which are even?
- Can children spot patterns?

**IP 2.3.1c Double bubbles**

Children complete the double bubble images made from Resource Sheet 294, writing two numbers between 20 and 25 in the empty wands and then doubling them.

Support

**Y2 WBI p14 Doubling**

Extend

**IP 2.3.1b Number chains**

Children make number chains. They start with a number between 1 and 15, they halve the number if it is even, and add 1 if it is odd, until they get to 1.

They start with the 9 chain: 9 → 10 → 5 → 6 → 3 → 4 → 2 → 1. What is the longest chain they can make?
Skills progression

3 prerequisite objectives for:

- **NPV.01 Y1, Y2, Y3**
  Understand place value in 2-digit numbers by creating 2-digit numbers, placing them on a number line and solving place value additions and subtractions

- **NPV.02 Y1**
  Understand place value in teen numbers

- **NPV.03 Y1, Y2**
  Count on and back in ones to 100

- **MMD.17 Y1, Y2**
  Count in 10s to 100

(Resources)
You can keep regular notes of your observations and assessments in the Pupil Profile area. The notes are dated and can inform parent evening discussions and act as prompts for future teaching on similar topics.

Abacus contains a weekly “driving test” that assesses the skills children have practised during the week. These help you to diagnose any shortfall in the building blocks that children need for mental and written calculation. You can decide whether your class has demonstrated skills well enough to get a “driving test” certificate at the end of the week.
Pupil Profile

Sophie Ayerbe

Class: Class 1
Cohort: 2012
Current Allocations: 0
Completed: 0

Notes

- 2015-2016 (1)
  - Selina Lim
  - Needs support with understanding place value
- 2014-2015 (0)
- 2013-2014 (0)

Pupil record

Sophie has worked well this term.
You can view pupil scores from allocated maths practice games to help inform your assessment and overall profile of a child. In each game, children are auto-assessed on the skills practised and a score is generated.

Graded practice activities can be used with the whole class. They contain carefully graded questions or calculations related to a specific lesson; you can either direct pupils to the sets of questions suited to their ability level, or give all pupils a chance to attempt all the questions.

Every textbook and workbook page has an opportunity and prompt for self-assessment based on the outcomes of the linked lesson.
<table>
<thead>
<tr>
<th>Pupil name</th>
<th>Last viewed</th>
<th>Skill</th>
<th>Date</th>
<th>Bronze</th>
<th>Silver</th>
<th>Gold</th>
</tr>
</thead>
<tbody>
<tr>
<td>James Brown</td>
<td>Starfish Strike 2.1a (JPG 2.1a)</td>
<td>Support: Subtract units from a number to 49 to leave a multiple of 10, e.g. 36 - 6 = 30. This is suggested for use in Year 2 Week 11, and focuses on teaching from Lesson 52.</td>
<td>03/12/2013</td>
<td>30%</td>
<td></td>
<td></td>
</tr>
<tr>
<td>Arif Baker</td>
<td>Sand Search 3.8a (JPG 3.8a)</td>
<td>Support: Slowly find multiples of 3 and 4. This is suggested for use in Year 3 Week 8, and focuses on the starter activities within Lessons 38 and 39.</td>
<td>27/11/2013</td>
<td>100%</td>
<td>100%</td>
<td>100%</td>
</tr>
<tr>
<td>Tess Derby</td>
<td>Clam Collector 5.9b (JPG 5.9)</td>
<td>Core: Collect, in order, a set of 1- or 2-place decimal numbers between 1 and 20. This is suggested for use in Year 5 Week 4, and focuses on teaching from Lesson 43.</td>
<td>27/11/2013</td>
<td>80%</td>
<td>60%</td>
<td>60%</td>
</tr>
<tr>
<td>Peter Jones</td>
<td>Bingo! 1.16b (JPG 1.16b)</td>
<td>Core: Identify shapes with 1/2, 1/4 and 3/4 shaded. This is suggested for use in Year 1 Week 16, and focuses on teaching from Lesson 79.</td>
<td>13/12/2013</td>
<td>83%</td>
<td>89%</td>
<td>100%</td>
</tr>
<tr>
<td>Thomas Lloyd</td>
<td>Bingo! 4.13c (JPG 4.13c)</td>
<td>Extend: Find fractions equivalent to 1/2, 1/3, 1/4 or 1/5. This is suggested for use in Year 4 Week 13, and focuses on teaching from Lesson 64.</td>
<td>20/11/2013</td>
<td>100%</td>
<td>90%</td>
<td>100%</td>
</tr>
</tbody>
</table>
Graded Practice Activity

Bonds to 10 and 100

Hint: Use your bonds to 10 to work out bonds to 100.

1. $5 + \square = 10$
2. $\square + 3 = 10$
3. $2 + \square = 10$
4. $\square + 6 = 10$
5. $10 - 9 = \square$
6. $10 - 7 = \square$
7. $\square + 10 = 10$
8. $10 - 4 = \square$
9. $50 + \square = 100$
10. $30 + 70 = \square$
11. $80 + \square = 100$
12. $\square + 40 = 100$
13. $90 + \square = 100$
14. $\square + 60 = 100$
15. $0 + \square = 100$
16. $40 + 40 + 20 = \square$
17. Write some calculations where three numbers add together to make 10.
Half-termly assessment tests to help you report where children are against Age Related Expectations. From Years 2-6, these consist of Arithmetic and Problem solving and reasoning tests, built to reflect the new end of key stage testing arrangements and to build familiarity for you and your class.

Assessment guides and marking guidance that give you everything you need to administer and mark the assessment tests.

End-of-year tests to prepare children for end of key stage tests and help you assess how children are doing against end of year objectives before they move into the next year.

Abacus contains new Progress and Assess tools, which together with the rest of the assessment tools in Abacus, give you everything you need to support your ongoing judgements about how children are faring against the new curriculum.

Take a closer look
## Marking guidance

### Year 4 Autumn 1 Arithmetic

<table>
<thead>
<tr>
<th>Qu.</th>
<th>National curriculum objectives</th>
<th>Outcome</th>
<th>Answers</th>
<th>Marks</th>
<th>Possible errors</th>
<th>Advice</th>
</tr>
</thead>
</table>
| 1* | Y4.NMD.1 Recall multiplication and division facts for multiplication tables up to 12 x 12 | Recall multiplication and division facts for multiplication tables, for 2, 5, 10, 3, 4, 8, 6 and 9 times tables. | a) 18  
 b) 48  
 c) 72  
 d) 36 | 1 | Mistakes due to weak recall of times-tables facts. | Suggest checking answers by counting up, or by using easy to remember facts, e.g. 8 x 5 = 40 can be used to find 8 x 6. |
| 2* | Y4.NMD.1 Recall multiplication and division facts for multiplication tables up to 12 x 12 | Recall multiplication and division facts for multiplication tables, for 2, 5, 10, 3, 4, 8, 6 and 9 times tables. | a) 64  
 b) 81  
 c) 27  
 d) 72 | 1 | Mistakes due to weak recall of times-tables facts. | Go through patterns in 9 times-tables, e.g. the 10a and 1a digits always add up to 9. |
| 3* | Y4.NMD.1 Recall multiplication and division facts for multiplication tables up to 12 x 12 | Recall multiplication and division facts for multiplication tables, for 2, 5, 10, 3, 4, 8, 6 and 9 times tables. | a) 7  
 b) 7  
 c) 12  
 d) 10 | 1 | Children not relating times-tables knowledge to division. | Write out ‘families’ of related facts, e.g. If 9 x 7 = 63, then 7 x 9 = 63, 63 ÷ 9 = 7 and 63 ÷ 7 = 9. |
| 4 | Y4.NMD.5 Solve problems involving multiplying and adding, including using the distributive law to multiply two digit numbers by one digit, integer scaling problems and harder correspondence problems such as n objects are connected to m objects | Use the distributive law to multiply 2-digit numbers by a 1-digit number using formal written layout or mental methods. | 102 | 1 | 21, 92, 102 are possible incorrect answers due to errors with the method rather than problems with times-tables knowledge. | Check children are partitioning correctly by using place-value cards. Practise multiplying multiples of 10 by single digits. |

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A new tracking and reporting tool, which is linked to the assessment tests and gives you at-a-glance data that helps you build up a picture of a child’s attainment against Age Related Expectations and their progress over time.

It also helps you generate attainment and progress reports for children, classes and groups. This helps you to identify children who need further support or extension.
Tracking and reporting tool

![Image of ActiveLearn interface showing pupil attainment data]

- **Leah Allen**: Yr 2P3
- **Alex Brown**: Yr 2P3
- **Abbie Butler**: Yr 2P3
- **Daisy Clark**: Yr 2P3
- **Scott Ellis**: Yr 2P3

The interface displays pupil attainment data across different terms, with categories for pupils on track for ATE, working towards ATE, below ATE, and no data. The data is presented in a color-coded grid, with percentages indicating the pupil's performance in each term.