

**Collins**

'ONE OF THE BEST WHOLE-SCHOOL PROGRAMMES AVAILABLE FOR HELPING CHILDREN DEVELOP MATHEMATICAL MASTERY AND FLUENCY.'  
Teach Primary

ARE YOU THINKING ABOUT MASTERY?

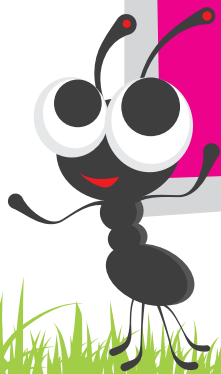
FIND OUT HOW  
BUSY ANT MATHS CAN  
SUPPORT A MASTERY  
APPROACH IN YOUR SCHOOL

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# Busy Ant Maths

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# HOW BUSY ANT MATHS CAN SUPPORT A MASTERY APPROACH IN YOUR SCHOOL

In October 2014 the [National Centre for Excellence in the Teaching of Mathematics \(NCEM\)](#) published 'Mastery approaches to mathematics and the new national curriculum'.

In this document they helpfully outlined 5 principles and features that characterise a mastery approach.

Find out how these characteristics are embedded throughout the entire [Busy Ant Maths](#) scheme!

## NCEM's 'principles and features that characterise a mastery approach'

Teachers reinforce an expectation that all pupils are capable of achieving high standards in mathematics.

The large majority of pupils progress through the curriculum content at the same pace. Differentiation is achieved by emphasising deep knowledge and through individual support and intervention.

## Busy Ant Maths

A philosophy of equal opportunity means that [Busy Ant Maths](#) has been designed and written with the assumption that pupils are taught the same mathematics domain (topic), and the same National Curriculum Attainment Target (objective).

See page 4 for the [Activity](#) and [Pupil Books](#).

Although there is no differentiation in content taught, the questioning and scaffolding individual pupils receive does differ.

'Lower attainers' focus on developing deep understanding and secure fluency with facts and procedures, while 'higher attainers' are challenged through more demanding problems.

See page 9 for the [Progress Guides](#) and [Stretch & Challenge](#).

'ENGAGING... ACCESSIBLE...POWERFUL'  
Teach Primary



## NCETM's 'principles and features that characterise a mastery approach'

Teaching is underpinned by methodical curriculum design and supported by carefully crafted lessons and resources to foster deep conceptual and procedural knowledge.

Practice and consolidation play a central role. Carefully designed variation within this builds fluency and understanding of underlying mathematical concepts in tandem.

Teachers use precise questioning in class to test conceptual and procedural knowledge, and assess pupils regularly to identify those requiring intervention so that all pupils keep up



Visit [www.collins.co.uk/BusyAntMastery](http://www.collins.co.uk/BusyAntMastery) for more information.



## Busy Ant Maths

An emphasis is given in Key Stage 1 and Lower Key Stage 2 to the knowledge and skills pupils need to achieve the level of mastery and fluency in number that is expected in the Programme of Study.

Using the online Planning Tool via Collins Connect, the Medium-term plans can be easily adapted to meet the specific needs of individual classrooms.

See page 5 for the [Teacher's Guides](#) and page 6 for [Collins Connect](#).

Practice and consolidation in every lesson consists of both written exercises and practical hands-on activities, and includes individual, paired and group tasks. As well as four specific detailed lesson plans, each week [Busy Ant Maths](#) provides a bank of four 'Learning activities' that teachers can offer pupils to further practise and consolidate their understanding.

See page 5 for the [Teacher's Guides](#).

Progress Check Questions assist teachers in checking pupils' understanding of the lesson objective(s). The Assessment Guides and Test Packs give you the support to assess pupils' mastery of specific targets and the programme of study for each year group.

See page 8 for the [Assessment Guides](#) and [Test Packs](#).



# ALL PUPILS CAN ACHIEVE HIGH STANDARDS IN MATHEMATICS

"Busy Ant Maths has helped my class to think more for themselves when they are working on problem solving. They are more successful in completing their main activity and their extension work."

Louise Cain, Year 3 Teacher,  
Richmond Avenue Primary School

## ACTIVITY AND PUPIL BOOKS



Three levels of differentiated challenge ensure rapid progression

Unit 8, Week 1, Lesson 2

### Multiplication HTO x O using partitioning and the grid method

Use the grid method to calculate  $HTO \times O$

**Challenge 1** Write the multiples of 100 that each of these numbers is between. Circle the multiple of 100 it is closest to.

**Example**  
 $300 \leftarrow 386 \rightarrow 400$

a 476    b 753    c 138    d 832    e 216  
 f 911    g 694    h 374    i 585    j 647

**Challenge 2** Choose a flower pot and a flower and multiply the numbers together. Estimate your answer first, then use the grid method to work out the answer. Make six calculations. Choose different numbers each time.

**Example**  
 $625 \times 8 \rightarrow 600 \times 8 = 4800$   
 $\begin{array}{r} \times 600 \ 20 \ 5 \\ 8 \ 4800 \ 160 \ 40 \\ \hline 5000 \end{array}$

453 675 486 759  
 637 598 477 368

7 5 6 8  
 4 9 3 2

**Challenge 3** One of these calculations is different to the others. Can you find out why?

468 x 4    624 x 3    234 x 8    732 x 2

Pupils of all abilities work on the same mathematics domain

Examples, models and images clearly illustrate mathematical concepts

# TEACHING UNDERPINNED BY CAREFULLY CRAFTED LESSONS

## TEACHER'S GUIDES

Progressive, step-by-step programmes designed to ensure key concepts are reviewed and practised regularly.

All teaching is whole-class, keeping all children together

The overcoming barriers section will help you to ascertain where any misunderstandings may have occurred, and suggest ways to deal with any confusions the pupils have.

Keep track of your pupils' understanding throughout the lesson with helpful progress check questions.

**Year 5, Unit 12, Week 2, Lesson 2**

### Division $10 \div 0$ : Using the expanded written method

**National curriculum attainment target**

- Write and calculate mathematical statements for division using the multiplication tables that they know, using mental and progressing to formal written methods.

**Lesson objectives**

- Use the expanded written method to calculate  $10 \div 0$
- Estimate and check the answer to a calculation

**Previous related lesson**  
Unit 12, Week 2, Lesson 1

**Prerequisites for learning**  
Pupils need to:

- recall all the multiplication and division facts for the 2, 3, 4, 5, and 10 multiplication tables
- understand the effect of multiplying and dividing a number by 10
- subtract using the formal written method of column subtraction

**Vocabulary**  
multiple, key fact, divide, division, divisor, divisible by, remainder, partition, nine, ones (units)

**Future related lessons**  
Unit 12, Week 2, Lesson 3; Unit 12, Week 2, Lesson 4

**Success criteria**  
Pupils can:

- make a reasonable estimate for the answer to a calculation
- partition two-digit numbers into tens and ones
- divide a multiple of 10 by a one-digit number
- use the expanded written method to calculate division of  $10 \div 0$

**Getting Started**

- Choose an activity from Number – Multiplication and division.
- Choose an activity from Fluency in Number Facts:  $15 \times 4$  – Multiplication and division.

**Teach**

- Begin by counting in multiples of 4. Write the multiples of 4 on the board.  
Continue by counting in multiples of 40. Write these under the multiples of 4 on the board.  
40 80 120 160 200 240 280 320 360 400
- Ask: How many fours are there in 87 (2) How many fours are there in 807 (20) Continue with other examples.
- Write on the whiteboard:  $92 \div 4 =$ . Ask: How many fours are there in 92?
- Say: Explain to your partner how you would work out the answer to this calculation.
- Ask: pairs to share their explanations with the class.
- Say: Today we are going to learn a written method of recording the answer to division calculations. This method is called the expanded written method and is useful when we are dividing using larger numbers.
- Say: We can work out what the approximate answer would be by seeing how many groups of ten times four can be made.
- Say: Can 10 groups of 4 be made from 92? (yes) Can 20 groups of 4 be made from 92? (yes) Can 30 groups of 4 be made from 92? (no) Ask: Is 92 closer to 80 or 120? (80)
- Say: So the answer will be approximately 20.

**Individualised Learning**  
Refer to Activity 1, 2, 3 and 4 from the Learning activities on pages 456–457

**Pupil Book 3C – Page 45: Division using the expanded written method**

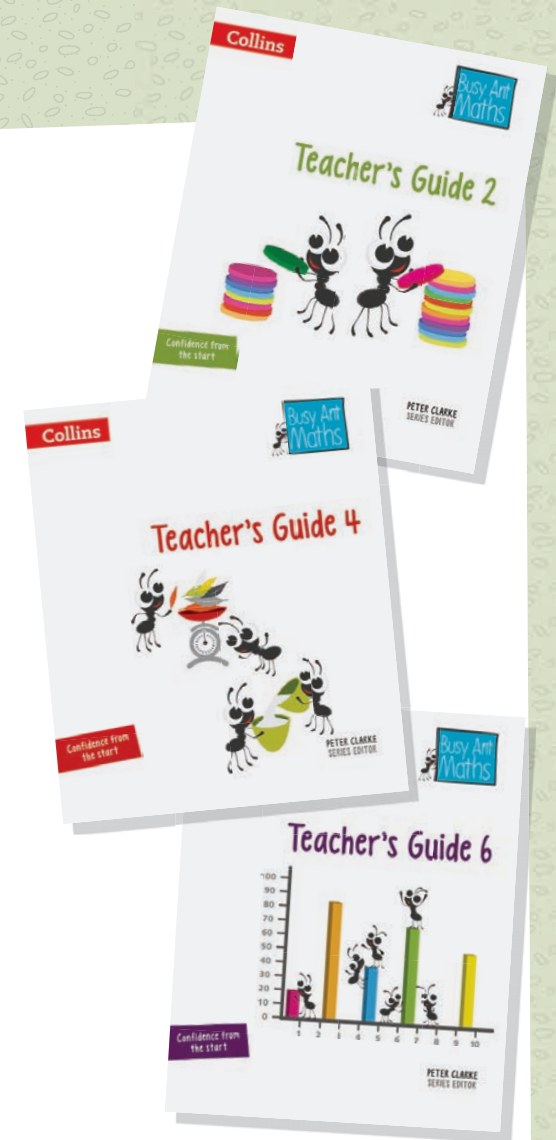
**Plenary**

**Resources**  
mini whiteboard, pen and eraser (per child)

- Reinforce the expanded written method of division taught in the lesson. Write various  $10 \div 0$  calculations on the board and ask children to write the approximate answer on their mini whiteboards, e.g.  $72 \div 3$  (24);  $34 \div 2$  (17);  $4 \div 4$  (1). Display when indicated.
- Ask: How did you work out the approximate answer?
- Choose one of the calculations for children to find the answer.
- Say: Explain to your partner how you would work out the answer to this question using the expanded method of division on your mini whiteboard.
- Ask: Can you explain your method of working out the answer to the class?
- Repeat with other examples.

**Overcoming Barriers**

- Children who do not have instant recall of the multiplication facts will find division difficult. Encourage them to also relate multiplication and division through finding the answer to missing number problems in multiplication number sentences, e.g.  $5 \times \square = 35$ .





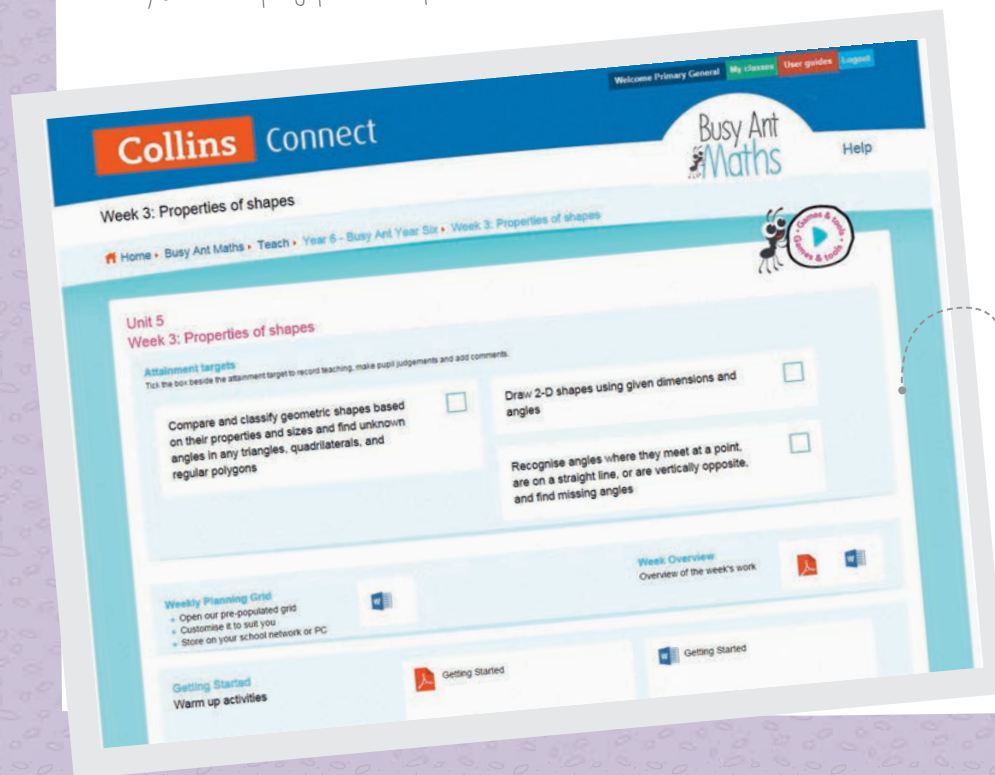
# MEET THE SPECIFIC NEEDS OF YOUR CLASSROOM

## Collins Connect

Collins Connect is an innovative online learning platform that supports both teachers and pupils by providing a wealth of content and digital resources.

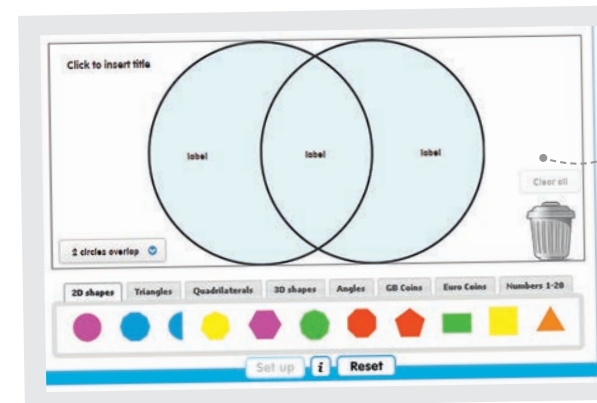
Ideal as a front-of-class teaching and learning tool.

Collins Connect also facilitates independent learning and supports you in keeping parents up-to-date with current teaching.



SIGN UP FOR A FREE 14 DAY TRIAL OF COLLINS CONNECT TODAY VISIT [CONNECT.COLLINS.CO.UK](http://CONNECT.COLLINS.CO.UK) FOR MORE INFORMATION

The medium-term plans can be adapted using the online Planning Tool

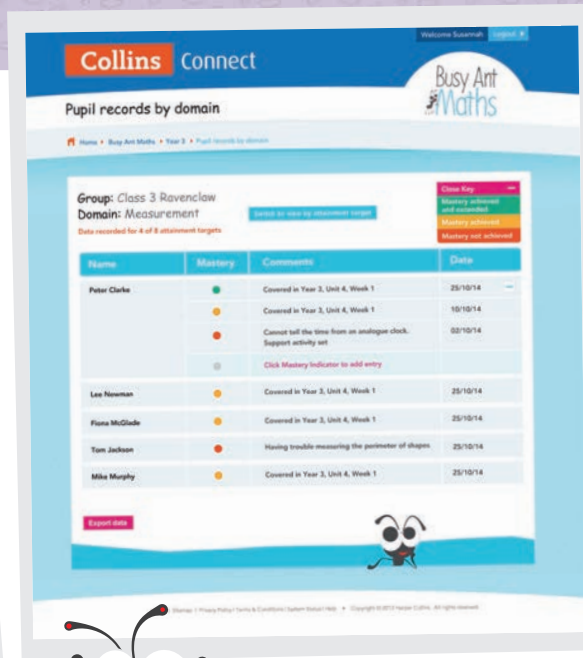
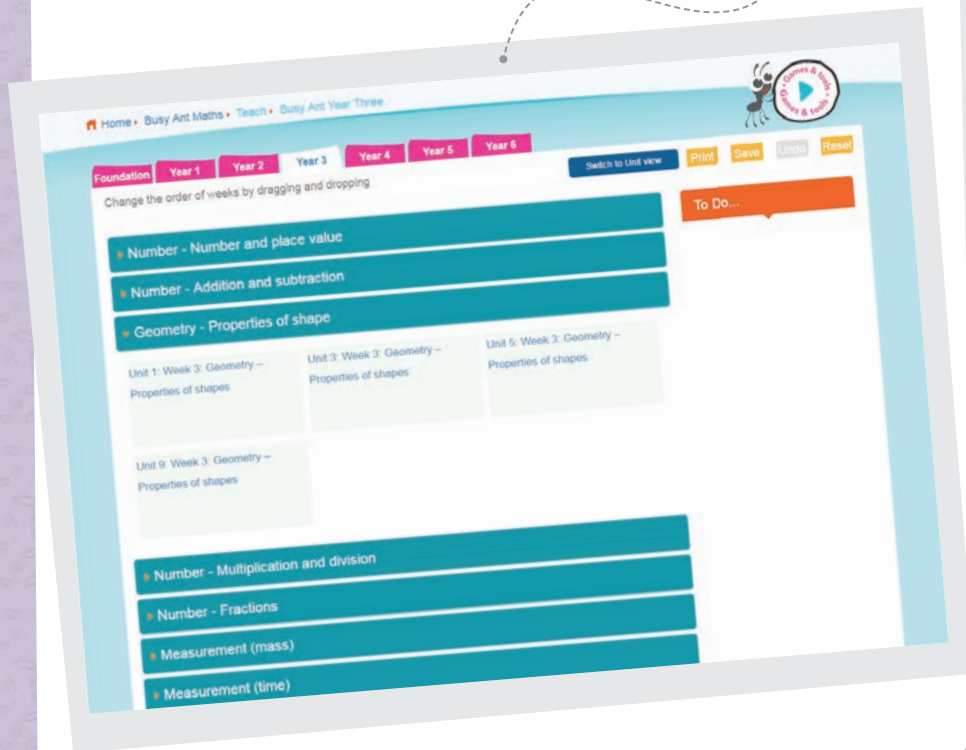


Flexible tools and teaching slides allow you to use the representations that are most appropriate for your pupils.

Everything you need to teach a week of maths is located together on one page

MIXED-AGE CLASS PLANNING IS NOW AVAILABLE ON COLLINS CONNECT, GO TO [COLLINS.CO.UK/BUSYANTMATHS](http://COLLINS.CO.UK/BUSYANTMATHS) TO FIND OUT MORE.

The Domain view allows you to plan, teach and assess children's mastery of attainment targets by domain.



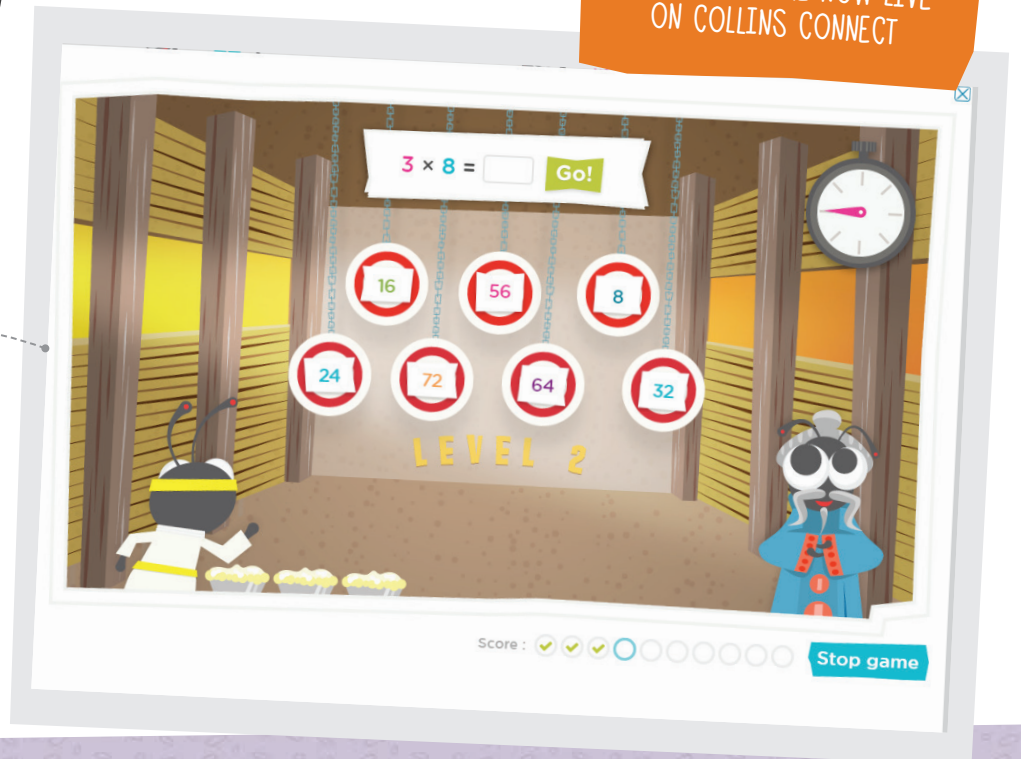
Supports assessment with an easy-to-use online Record-Keeping Tool. Simply drag-and-drop pupils into the relevant mastery level:

**green** = mastery achieved and exceeded

**amber** = mastery achieved

**red** = mastery not yet achieved

**NEW!**  
TEST PACKS ARE NOW LIVE  
ON COLLINS CONNECT



CHALLENGE YOUR PUPILS' MULTIPLICATION SKILLS WITH THE TIMES TABLES TEST SIMULATOR ON COLLINS CONNECT

Maths games can be played at different levels, timed or untimed, to develop mathematical fluency

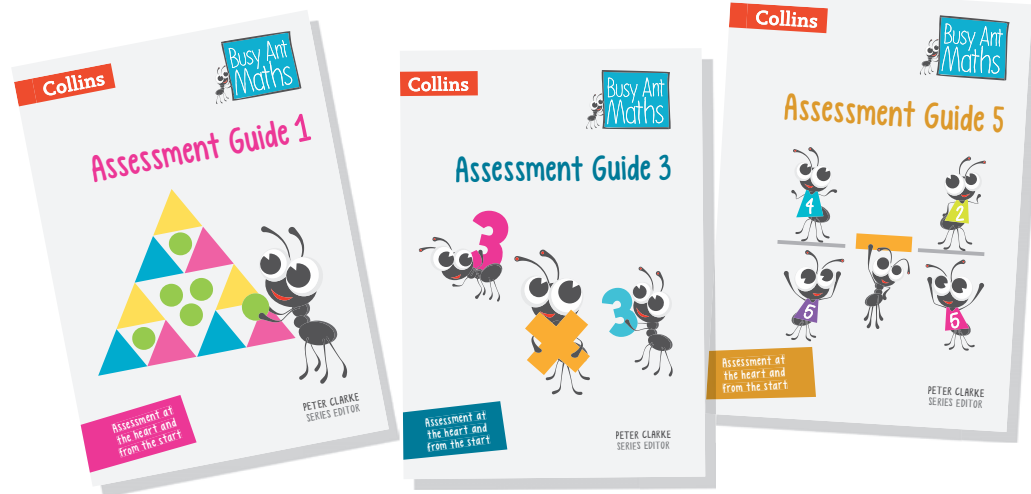


# REGULARLY ASSESS CONCEPTUAL AND PROCEDURAL KNOWLEDGE

## ASSESSMENT GUIDES

These provide diagnostic, formative and summative assessment to assess individual pupils' level of mastery and identify their strengths and weaknesses in a specific National Curriculum Attainment Target (NC AT):

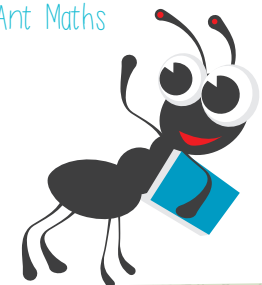
- Provide guidance about what to do for those pupils who are achieving above or below expectations
- Inform future planning and teaching of individual pupils and the class as a whole



## TEST PACKS

These photocopiable packs, contain a practice test that will support you in making a decision as to whether or not an individual child has achieved mastery of the programme of study for each year group.

You can use the tests alongside the [Busy Ant Maths Assessment Guides](#), or by themselves.





# INDIVIDUAL SUPPORT AND INTERVENTION

## PROGRESS GUIDES

These provide support and extension activities, to raise pupil attainment and ensure rapid progression for children who need extra practice to gain mastery of lesson objectives.













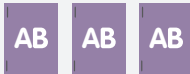


































## STRETCH AND CHALLENGE

Challenge your more able pupils with resources for each year designed to broaden and deepen their mathematical understanding.

- Self-contained activity booklets (issues) promote interdependent thinking and develop children's problem-solving skills.
- Accompanying teacher's notes for each issue provide guidance, support and next steps.

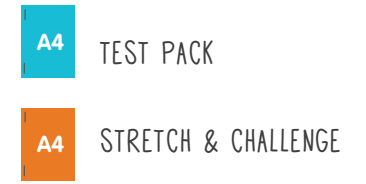
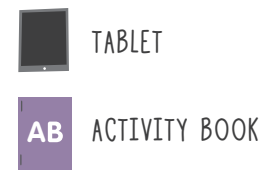
# HOW IS BUSY ANT MATHS STRUCTURED?

Busy Ant Maths is also available in Euro editions, to find out more go to [collins.co.uk/BusyAntMaths](http://collins.co.uk/BusyAntMaths)

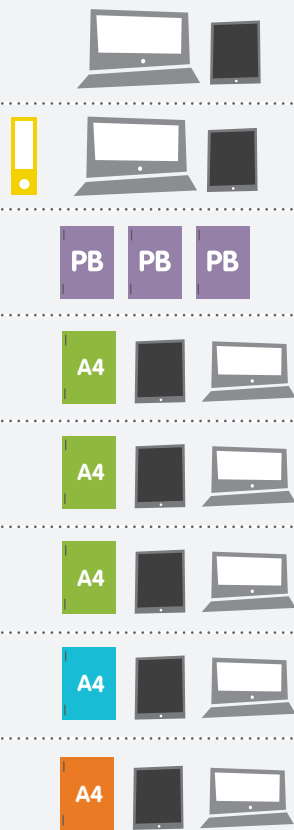
COMPONENT / YEAR LEVEL	Foundation	Year 1	Year 2
COLLINS CONNECT ONLINE PLATFORM			
TEACHER'S GUIDE	 	 	 
PUPIL BOOKS & ACTIVITY BOOKS			
ASSESSMENT GUIDE		  	  
PROGRESS GUIDE		  	  
HOMEWORK GUIDE	  	  	  
TEST PACK		  	  
STRETCH & CHALLENGE		  	  



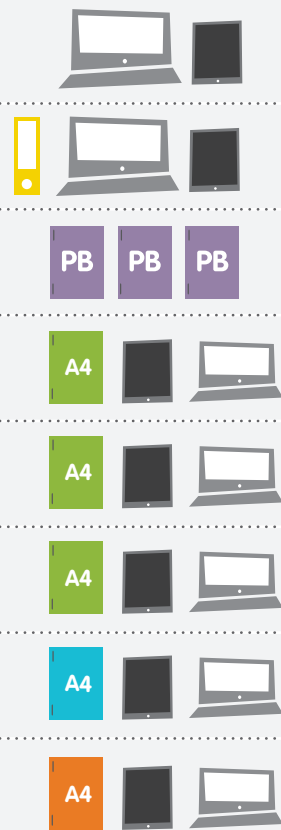
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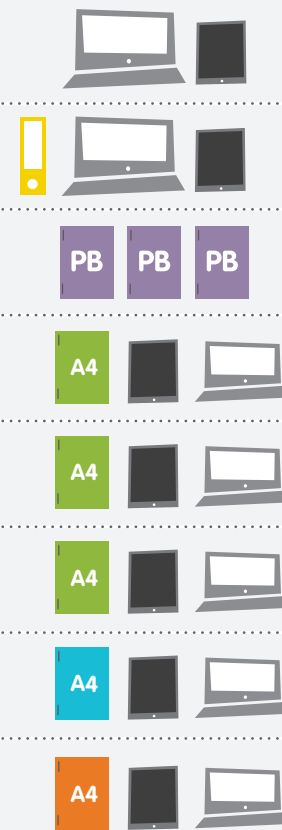
Year 3



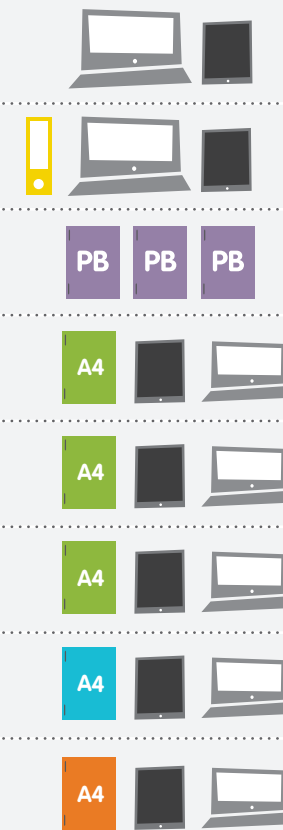
Year 4



Year 5



Year 6



# Collins

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(Small school = 100 pupils or fewer)

Title	ISBN	Price	Discounted Price	Qty
Stretch and Challenge Connect Pack, Year 1 - Year 6	9780008196905	£450.00 + VAT	£337.50 + VAT	
<b>Foundation</b>				
Foundation Teacher's Guide	9780008124625	£115.00	£86.25	
Foundation Activity Book	9780008124649	£3.25	£2.44	
Foundation Homework Guide	9780008124632	£50.00	£37.50	
1 year subscription to Collins Connect - Foundation	9780008124656	£200.00 (+VAT)	£150.00 (+VAT)	
3 year subscription to Collins Connect - Foundation	9780008125219	£500.00 (+VAT)	£375.00 (+VAT)	
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Year 1 Activity Book 1A	9780007568192	£3.25	£2.44	
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Year 2 Activity Book 2B	9780007568239	£3.25	£2.44	
Year 2 Activity Book 2C	9780007568246	£3.25	£2.44	
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Year 2 Homework Guide	9780007568284	£50.00	£37.50	
Year 2 Assessment Guide	9780007568161	£80.00	£60.00	
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Year 4 Pupil Book 4B	9780007562411	£7.30	£5.48	
Year 4 Pupil Book 4C	9780007562428	£7.30	£5.48	
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Year 4 Homework Guide	9780007562466	£50.00	£37.50	
Year 4 Assessment Guide	9780007562343	£80.00	£60.00	
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Year 4 Stretch and Challenge	9780008167332	£80.00	£60.00	

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Year 5 Pupil Book 5B	9780007568345	£8.30	£6.23	
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Year 6 Test Pack	9780008167417	£65.00	£48.75	
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