

Collins

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

BUSY ANT MATHS
SUPPORTS THE 2019
OFSTED FRAMEWORK

COLLINS.CO.UK/BUSYANTMATHS

Busy Ant Maths

CONFIDENCE FROM THE START



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).

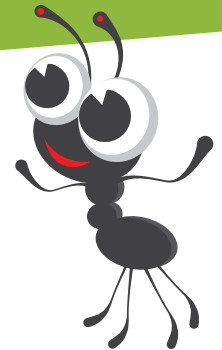
See page 4 for the [Activity](#) and [Pupil Books](#).

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 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



Unit 8, Week 1, Lesson 2

Multiplication HTO x 0 using partitioning and the grid method

Use the grid method to calculate HTO x 0

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 ← 386 → 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 x 8 → 600 x 8 = 4800
X 600 20 5
8 4800 160 40 = 5000

453 675 486 759
637 598 477 368

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

45

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.

Year 3, 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

- recall all the multiplication and division facts for the 2, 3, 4, 5, 8 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, estimate, quotient, tens, 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: 12/14 – Multiplication and division.

The word "ones" has been used throughout this lesson when referring to the last significant digit. However, children also need to be familiar with the word "units".

Collins Connect Year 3, Unit 12, Week 2

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.
4 8 12 16 20 24 28 32 36 40
40 80 120 160 200 240 280 320 360 400
- Ask: How many fours are there in 8? (2) How many fours are there in 80? (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: Can you share your explanation 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?
- Say: So the answer will be approximately 20.

Unit 12: Number – Multiplication and division

Demonstrate on the board how to use the expanded written method of division to calculate $92 \div 4$.

$$\begin{array}{r} 23 \\ 4 \overline{) 92} \\ \underline{80} \\ 12 \\ \underline{12} \\ 0 \end{array} \quad \begin{array}{l} 20 \times 4 \\ 3 \times 4 \end{array}$$

Say and record the working: Is it possible to make 10 groups of four? (yes, $4 \times 10 = 40$) Is it possible to make 20 groups of 4? (yes) Is it possible to make 30 groups of 4? (no) Say: We (23) As: How many times can 4 be divided into 12? (3) Say: We subtract 12 from 12. As: How many are left? (0)

Say: We can check our answer by using the inverse of division, multiplication. Ask: What is 23 multiplied by 4? (92)

Compare the answer with the estimate.

Repeat with other numbers using multiples of 2, 3, 4, 5 and 8 where it is possible to make 10, 20 or 30 times the divisor. e.g. $60 \div 5$; $45 \div 3$; $56 \div 4$; $96 \div 8$; $78 \div 3$; $54 \div 2$

For various questions ask the children: What is the approximate answer? How did you work it out?

Ask children to explain to their partner how they would work out the answer to given division calculations.

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

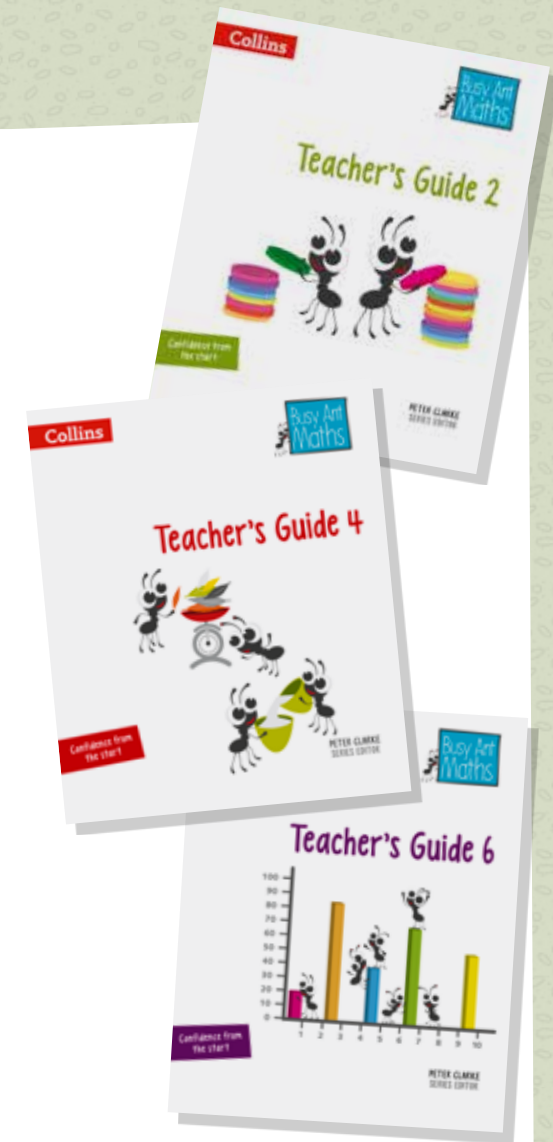
Plenary

Resources
New whiteboard, pen and eraser (per table)

- 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); $88 \div 4$ (22). 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 children to also relate multiplication and division through finding the answer to missing number problems in multiplication number sentences, e.g. $5 \times \square = 35$.



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



MEET THE SPECIFIC NEEDS OF YOUR CLASSROOM

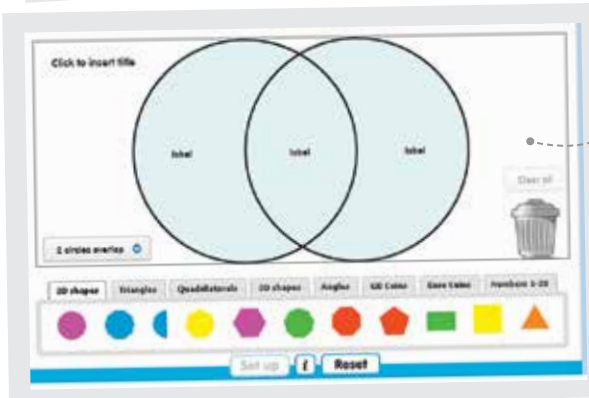
Collins Connect

Collins Connect is an innovative online learning platform that you can use as a front-of-class teaching tool.



Everything you need to teach a week of maths in each unit.

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.

Supports assessment with an easy-to-use online Record-Keeping Tool. Simply drag-and-drop pupils using the traffic-light system.



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

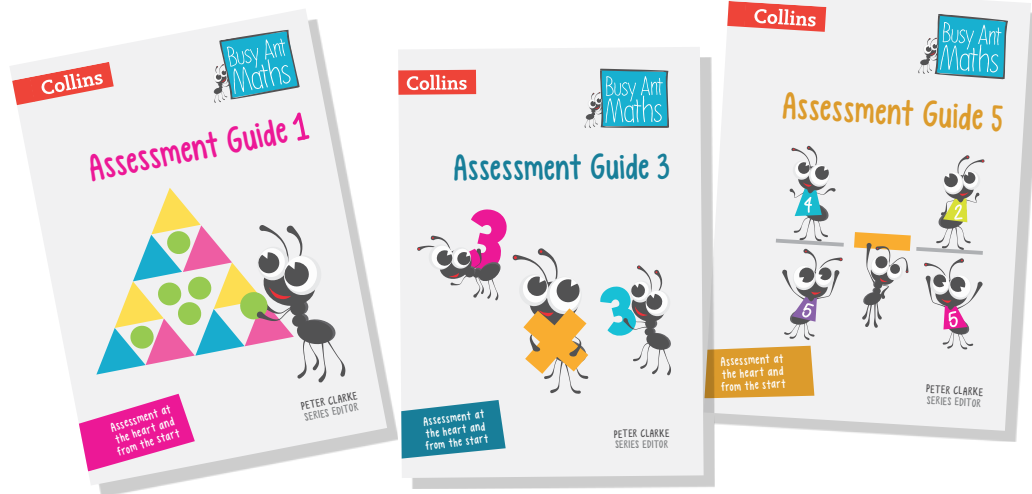


REGULARLY ASSESS CONCEPTUAL AND PROCEDURAL KNOWLEDGE

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):

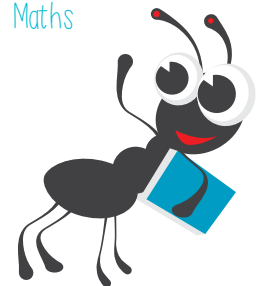
- Provide guidance about what to do for those pupils who are achieving above or below expectations
- Inform future planning and teaching of individual pupils and the class as a whole



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.

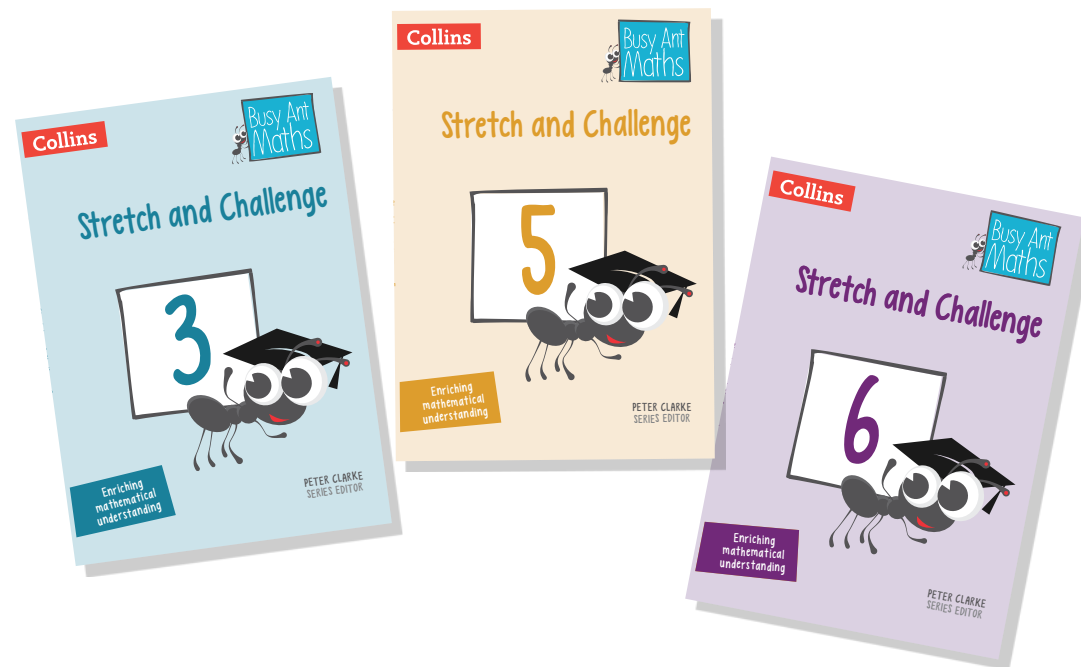
You can use the tests alongside the [Busy Ant Maths Assessment Guides](#), or by themselves.



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 independent thinking and develop children's problem-solving skills.
- Accompanying teacher's notes for each issue provide guidance, support and next steps.

IDEAL PRACTISE FOR THE SATS REASONING PAPERS

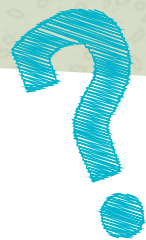
PROBLEM SOLVING AND REASONING PUPIL BOOKS

- Develop mathematical problem solving and thinking skills
- Reason and communicate mathematically
- Use and apply mathematics to solve real-world problems



Prompts support pupils in working through challenges.

Extension or variation challenges to further develop reasoning skills.



Who gets what?

Using and applying mathematics in real-world contexts

Challenge

This pie chart shows who gets the money when you buy an item of clothing produced in developing countries.

Investigate how much each group in the pie chart gets of the money you pay for an item of clothing.

If the average wage in developing countries is about £5 per week, how many items of your clothing would a factory worker have to make to earn this amount?

You will need:

- prices for different items of clothing

factory workers 1%

materials and factory profit 13%

transport 11%

brand name 25%

shop 50%

Think about ...

If necessary, round the prices for your items of clothing to the nearest pound.

Choose at least three or four items of clothing, including shoes.

What if?

A worker in a developing country who makes a pair of jeans that are sold for £37 in a shop in the UK is paid about 37p.

If you were paid this amount to make a pair of jeans, how many pairs would you have to make to pay for:

- a burger and chips?
- a ticket to the cinema?
- a computer game?
















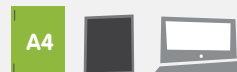



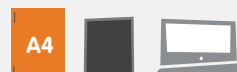


Think about other things you spend money on and how many pairs of jeans you would have to make in order to be able to pay for them.

When you've finished, turn to page 80.

Build pupils' understanding after every challenge with a set of discussion questions.

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

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			
PROBLEM SOLVING AND REASONING			



COLLINS CONNECT
ONLINE PLATFORM



RING BINDER



A4 A4 PHOTOCOPIABLE



TABLET



A4 TEST PACK



PB PUPIL BOOK



AB ACTIVITY BOOK



A4 STRETCH & CHALLENGE

Year 3



PB PB PB



PB

Year 4



PB PB PB



PB

Year 5



PB PB PB



PB

Year 6



PB PB PB



PB



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Contact your local Busy Ant Maths Consultant

UK schools: collins.co.uk/findyourrep • 01484 668 148

International schools: collins.international@harpercollins.co.uk • +44 141 306 3484

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Email: education@harpercollins.co.uk, quoting BAM2001

YOUR DETAILS:

Name:

Position:

School Name and address:

Postcode:

Town:

Country:

Telephone:

Email:

Title	ISBN	Price	Qty
Stretch and Challenge Connect Pack, Year 1 - Year 6	9780008196905	£450.00 (+VAT)	
Foundation			
Foundation Teacher's Guide	9780008124625	£120.00	
Foundation Activity Book	9780008124649	£3.25	
Foundation Homework Guide	9780008124632	£55.00	
1 year subscription to Collins Connect - Foundation	9780008124656	£200.00 (+VAT)	
3 year subscription to Collins Connect - Foundation	9780008125219	£500.00 (+VAT)	
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Year 1 Teacher's Guide	9780007568178	£120.00	
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Year 1 Activity Book 1B	9780007568208	£3.25	
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3 Year subscription to Collins Connect - Year 2	9780007574841	£500.00 (+VAT)	
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Year 2 Activity Book 2B	9780007568239	£3.25	
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Year 5 Pupil Book 5B	9780007568345	£8.50	
Year 5 Pupil Book 5C	9780007568352	£8.50	
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Year 6 Pupil Book 6B	9780007568376	£8.50	
Year 6 Pupil Book 6C	9780007568383	£8.50	
Year 6 Progress Guide	9780007568390	£55.00	
Year 6 Homework Guide	9780007568406	£55.00	
Year 6 Assessment Guide	9780007568307	£90.00	
Year 6 Test Pack	9780008167417	£70.00	
Year 6 Stretch and Challenge	9780008167356	£85.00	
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